ADVANCED ECOLOGY

enhancing natural resource value

(DRAFT)

Wattensaw Bayou Mitigation Bank Prospectus

Lonoke County, Arkansas

Presented to the USACE Memphis District in February 2021

Contents

Prospectus

1.0 Introduction

1.1. Mitigation Bank Development

Mitigation Management, LLC. (MML or Sponsor), on behalf of AE Land and Timber, LLC. (Landowner) is proposing to develop a mitigation bank to be known as the Wattensaw Bayou Mitigation Bank (Bank). The 186-acre parcel will be placed under a restrictive easement and utilized for mitigation banking by means of re-establishment, restoration, enhancement, and preservation providing functional uplift for ecological functions within the proposed area. The establishment of the bank will make wetland mitigation credits available to offset impacts WOTUS within the Lower White-Bayou Des Arc HUC (HUC08020301) and the surrounding areas within the State of Arkansas and the Memphis District of the USACE.

The Bank will be established in accordance with the requirements specified in the USACOE guidance document *Compensatory Mitigation for Losses of Aquatic Resources (CMLAR) §332.8(d)(6)* and in collaboration with the Memphis District of the United States Army Corps of Engineers (USACE) to include the following members of the Interagency Review Team (IRT):

Agency	Representative	Email Address
USACE	Robert McDermott	Robert.D.Mcdermott@usace.army.mil
EPA	Wanda Boyd	Boyd.Wanda@epa.gov
ADEQ	Lazendra Hairston	hairstonl@adeq.state.ar.us
AGFC	Jennifer Sheehan	jennifer.sheehan@agfc.ar.gov
AR Natural Heritage	Cindy Osborne	cindy@arkansasheritage.org
AGFC	Justin Stroman	Justin.Stroman@agfc.ar.gov
ANRC	Ken Brazil	Ken.brazil@arkansas.gov

1.2. Bank Location

The proposed Bank is located approximately twenty-three (23) miles northeast of Little Rock, in Lonoke County, Arkansas (Appendix A, Figure 1). The proposed Bank falls within the Lower White-Bayou Des Arc 8-digit HUC, the Locust Creek-Wattensaw Bayou 12-digit HUC and coincides primarily with the Mississippi Alluvial Plain Omernick Level III ecoregion (Appendix A, Figure 2). The latitude/longitude coordinates for the Project Site are: 34. 891820° N; -91.912500° W (UTM NAD83 Zone 15N).

This prospectus is being provided to the USACE to provide a summary of pertinent bank information including objectives, site selection, baseline assessment, and long-term site management.

1.3 Purpose, Goals and Objectives of the Mitigation Bank

The purpose of the proposed Bank is to provide a source of off-site compensatory mitigation for impacts to wetlands and other waters of the U.S. associated with projects undertaken by both the public and private sectors within the appropriate regions of Arkansas. The “re-establishment”, “restoration”, “enhancement” and “preservation” of wetlands and riparian zones within the proposed Bank will allow these resources to once again perform valuable functions and services within the Mississippi Alluvial Plain and adjacent Wetland Planning Regions as defined by the Arkansas Wetland Strategy (AWS 1996). These activities will contribute positively to the overall health of the region and associated water sheds by reducing the amount of sediment and organic nutrients passed downstream by providing critical habitat components necessary to aquatic wetland flora and fauna.

The goal of the proposed bank is to generate, for sale, wetland credits required by compensatory mitigation regulations administered under the Department of the Army, where permitted actions occur in agreement with Section 404 of the Clean Water Act (Federal Water Pollution Control Act) and/or Section 10 of the Rivers and Harbors Act (Rivers and Harbors Appropriation Act of 1899). This goal specifically pertains to providing compensation for losses of aquatic resource functions and services within the geographic extent of the Banks designated service area or as approved by the USACOE district office. The successful establishment of this Bank project will provide USACE permit applicants with 1) immediate access to compensating mitigation credits, where available, for adverse impacts to aquatic ecosystems and 2) statistically more successful, higher quality, cost-effective methods for the protection of waters of the U.S. (WOTUS), as well as, other aquatic resources that otherwise may be impeded by less favorable, less productive forms of compensatory mitigation.

Specific bank objectives are to “re-establish” prior-converted agricultural fields, “restore” palustrine forested wetland habitat, “enhance” forested wetland habitat adjacent to Wattensaw Bayou, and “preserve” forested wetlands previously established within the project parcel (Table 1 & Appendix A, Figure 8).

1.4. Proposed Service Area

The service area of a mitigation bank is the geographical area (e.g., watersheds or hydrologic unit codes (HUCs), counties, ecoregions, etc.) within which mitigation bank credits may be utilized, if approved by USACOE, for compensatory mitigation for adverse impacts to aquatic ecosystem.

The proposed service area consists of the 8-digit HUC in which the Bank is located (primary), neighboring 8-digit HUCs and portions of neighboring 8 digit HUCs within the contiguous ecoregion of the primary HUC (secondary); wholly encompassed within the larger Lower Mississippi-St Francis 6-digit (080203) HUC river basin, the USACE Memphis District, the state of Arkansas, and excluding Crowley's Ridge (Appendix A, Figures 2 & 3).

- Primary Service Area – Portions of the Lower White Bayou Des Arc 8-digit HUC (08020301)
- Secondary Service Area – Portions of the Cache (08020302), Big (08020303), Lower White (08020304), Bayou Meto (8020402), Languille (8020205), Upper White village (11010013) and Upper Black (11010007) 8-digit HUCs.

Although portions of the proposed secondary service area HUC's are not directly abutting the primary service area HUC, they are included due to hydrologic and biotic similarities to the other service area HUC's. Specifically, those proposed secondary service area HUCs fall within the Mississippi Alluvial Plain ecoregion and have hydrologic connectivity with the White and Mississippi river.

1.5. General Need

The Mississippi Alluvial Plain ecoregion has largely been converted from wetland habitat to agriculture, resulting in an influx of pesticides, herbicides, fertilizers, and live-stock waste to waterways. According to the National Water Summary on Wetland Resources, "Arkansas has lost more wetland acres than any other inland State; most of the loss has been due to conversion of farmland". In addition, the population in Lonoke County alone has been steadily increasing, with a 30% increase in population occurring from 2000 to 2010 (Figure 1). Such growth puts pressure on natural resource and land availability.

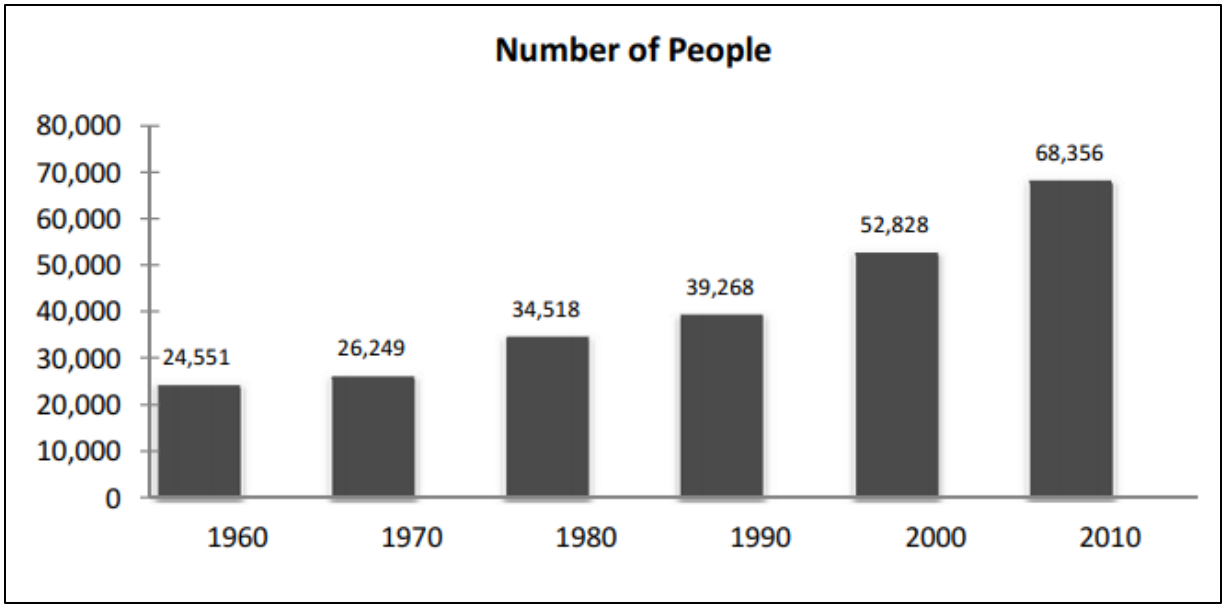


Figure 1. Population Growth Trends for Lonoke County (Lonoke County Profile 2013).

Despite the growing need and increasing threats to wetlands, there are currently no mitigation banks to offset impacts within the Arkansas portion of the Memphis District. The CMLAR is clear that mitigation banks generally represent more sustainable and ecologically beneficial forms of compensatory mitigation than the other allowable options (depending on case-specific circumstances). As such, the establishment of the proposed Bank in this service area will provide much needed mitigation to permittees within the proposed bank service area.

1.6. Site Selection

Using a watershed approach, the Bank was selected from numerous potential candidate sites. This approach included consideration of the following factors; availability for acquisition, current habitat type and condition, potential uplift opportunities, consolidation with intact forested riverine/riparian systems, likelihood for successful attainment of ecological performance standards, hydraulic and watershed connectivity, proximity to other conserved or comparably managed lands, and site location in relation to potential impacts.

The long history of commodity crop production and human influence on this site makes the Bank ideal for mitigation. The Bank is located immediately adjacent to hydrologic sources, Wattensaw Bayou and Locust Creek, giving it direct connection to at least one large natural waterway and periodic flood events associated with both streams.

The Bank is unique in its potential for reestablishment of forested communities typical of the Mississippi Alluvial Valley (MAV). The subtle elevations within the Bank offer the potential to target woody species diversity along the hydrologic gradient from semi-permanent flooding/ponding in the topographic lows, to seasonal flooding of the topographic highs. Intact forested wetland communities within and near the Bank provide near-site reference conditions (e.g. dominant or commonly encountered species) that can be utilized in the restoration design of this Bank. These stands also provide a source for seed dispersal by epizoochoric or hydrochoric mechanisms into the Bank, increasing the likelihood for incorporation of natural volunteer species. This potentially promotes early stratification and diversity within the developing canopies of the Bank which is an important consideration for habitat utilization by many wetland dependent wildlife species. Furthermore, the Bank footprint forms a contiguous riparian corridor along Wattensaw Bayou that is connected to the intact forested community.

It is worth noting that the Bank is proximal to several state and federally managed conservation properties (Appendix A, Figure 4a). The Bank is upstream of the Mike Freeze Wattensaw Wildlife Management Area (WMA). This WMA was determined to be a potential "hot spot" search area for Ivory Billed Woodpeckers (*Campephilus principalis*; IBWO) based upon clusters of potential visual and aural reports of IBWO (Cornell Lab of Ornithology 2007, accessed 4/27/15). In addition, the Bank is adjacent to the Wattensaw Bayou permittee responsible mitigation (PRM) site which is an 81-acre tract restored and managed by AEL (Appendix A, Figure 4b). Therefore, the Bank will contribute to locally important watershed needs by restoring and conserving additional riparian wetland habitats proximal to other high priority conservation sites.

Furthermore, Wattensaw Bayou is a 303 (d) listed tributary of the White River under the Clean Water Act. Section 303(d) requires states to prepare a list of impaired waters on which Total Maximum Daily Loads (TMDL) or other corrective actions must be implemented. Wattensaw Bayou is currently listed due to insufficient levels of dissolved oxygen. The establishment of the proposed Bank will directly improve the water quality of Wattensaw Bayou, and its watershed, by restoring wetland functions and eliminating the threat of agricultural development within its riparian zone.

Therefore, AEL believes the proposed Bank is an ecologically appropriate site for offsetting WOTUS impacts occurring within the proposed service area.

2.0 Baseline Conditions

In September of 2017 and June of 2018 Advanced Ecology, Ltd. (AEL) conducted field activities necessary to collect baseline conditions and perform a wetland delineation on the Bank (Appendix C).

2.1 Area and Site History

Lonoke County was formally established in 1873, although the area is thought to have been inhabited for up to 10,000 years prior. The landscape of Lonoke county consists of gently rolling hills and valleys in the north, and prairie and alluvial plains, largely used for farming, in the central and southern regions. A portion of the Bank acreage (93 acres), as well as the neighboring PRM site acreage, was converted from forested wetlands to agriculture prior to 1975, as determined through review of the historic aerial imagery (Appendix B). A 1949 aerial image provides evidence that most of the Bank was forested, with portions having already been cleared for farming at that time; as such, conversions are believed to have occurred sometime between 1949 and the 1960's (Appendix B). Agricultural operations have included extensive water regime management typical of farms in the region, including, but not limited to, flooding, disking, leveling, shredding, and herbicide applications.

2.2 Current Conditions

Currently, The National Wetlands Inventory has mapped freshwater emergent and freshwater forested/shrub wetlands on approximately 25 acres of the 186-acre Bank (Appendix A, Figure 5). However, past agricultural activities (disking, tilling, rice farming act.) have altered normal hydrology and hydroperiods within the Bank. Remnant rice levees now serve to unnaturally pond direct precipitation and floodwaters from Wattensaw Bayou. As previously indicated, native woody vegetation was removed from large portions of the Bank during land conversion activities prior to 1975 (Appendix B). Disking, shredding, and other vegetation management activities associated with crop production and agriculture uses have prevented reestablishment of native forested communities within those areas of the Bank.

2.3 Soils

Hydric soils comprise most of the Bank area. The presence of such soils is indicative of hydrological conditions occurring on the site and is ideal for supporting hydrophytic vegetation. The following detailed soil units can be found within the bounds of the Bank (USDA 1981, NRCS Web Soil Survey; Appendix A, Figure 6).

Tichnor silt loam, frequent flooding:

Tichnor silt loam, frequent flooding, is mapped over approximately 60% of the Bank. It is a component of floodplain systems and exhibits low natural drainage. According to the Soil Survey of Lonoke and Prairie Counties, Arkansas, this soil type is well suited to woodlands consisting primarily of cherry bark oak *(Quercus pagoda)*, sweetgum *(Liquidambar styraciflua)*, water oak *(Q. nigra)* and green ash *(Fraxinus pennsylvanica*; USDA 1981). Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is frequently flooded, though not ponded, and occurs on slopes of 0-1%. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, and December. Organic matter content in the surface horizon is about 2 percent (USDA 1981, NRCS Web Soil Survey).

Calhoun silt loam:

Calhoun silt loam is mapped over about 24% of the Bank. This soil occurs on slopes of 0-1% and experiences low natural drainage. Trees that commonly grow in this soil are cherry bark oak, water oak, sweetgum, and loblolly pine (*Pinus taeda*). Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very high. This soil does not typically exhibit shrink-swell properties. A seasonal zone of water saturation is at 9 inches during January, February, March, April, and December. Organic matter content in the surface horizon is about 2 percent (USDA 1981, NRCS Web Soil Survey).

Stuttgart silt loam:

Stuttgart silt loam is mapped over approximately 12% of the Bank. Stuttgart silt loam occurs at1 to 3% slopes within the tread portion of the Prairie terraces. The terraces are thought to be made up of sediments from the Arkansas River system with a silty mantle from the Mississippi River system that may be mixed with loess in some places. This series consists of very deep, moderately well to somewhat poorly drained, slowly permeable soils that developed mainly in native vegetation of tall grasses with hardwood and scattered areas of shortleaf pine (*P. echinata*; USDA 1981, NRCS Web Soil Survey).

Kobel silty clay loam:

Kobel silty clay loam is mapped across approximately 3% of the Bank. This is a very deep, poorly drained soil on broad flats and depressions that were back-swamps of major streams and their tributaries. This soil formed in clayey alluvium and has high natural fertility. Cherry-bark oak, green ash, sweetgum, water oak and sycamore (*Platanus occidentalis*) grow well in this soil (USDA 1981). Permeability is very slow and

available water capacity is high. This soil type occurs on slopes of 0-1%. This soil has high to very high shrink-swell potential (USDA 1981, NRCS Web Soil Survey).

Immanuel silt loam:

The Immanuel series is found on a very small area (~ 2%) in the southeastern portion of the Project Site. These soils consist of very deep, moderately well drained soils that formed in silty alluvium. This soil occurs on slopes of 1-3% (NRCS Web Soil Survey).

Oaklimeter silt loam:

Oaklimeter silt loam, occasionally flooded is mapped over a minute section (<1%) in the southwest corner of the Bank. This is deep, moderately well-drained soil which occurs on floodplains of streams in the Loess Hills. Slopes range from 0-2%. This soil is well-suited to woodlands; cherry-bark oak, sweetgum, green ash, loblolly pine and willow oak (*Q. phellos*) grow well in areas mapped with this soil (USDA 1981, NRCS Web Soil Survey).

Calloway silt loam:

This soil was mapped across about 2% of the Bank within the northeast corner. This deep, somewhat poorly drained, soil is moderate in natural fertility and is frequently found in flats and terraces. This soil is well-suited to woodlands; cherry-bark oak, loblolly pine, sweetgum and water oak do particularly well in this soil type (USDA 1981).

2.4 Hydrology

The primary sources of wetland hydrology for the Bank are Locust Creek, Wattensaw Bayou, and over-land flow from direct precipitation events. However, beaver activity and remaining effects of agricultural practices on the site have altered natural hydrology. Positive wetland hydrologic indicators were observed throughout much of the Bank with water-stained leaves, drift deposits and oxidized rhizospheres along living roots being particularly common. Surface water and soil saturation were also observed. Sources of hydrology for each vegetative community are discussed further below.

2.5 Vegetative Communities

Vegetative communities were determined through baseline assessments and are discussed in more detail in the following sections and summarized in Table 1.

Palustrine Emergent Wetland Habitat (PEM)- (+/- 110 acres):

Community Type 1 (+/- 42acres of Re-establishment):

This herbaceous community is located on the property within the Calhoun silt loam soil type. This community was primarily used for growing rice and remnant rice levees remain along the margins (Appendix B, Appendix A, Figure 9). The remaining topography of the community is relatively flat. The remnant rice levees prevent natural hydrological cycles and hydrologic connection with Wattensaw Bayou. Currently, the main functioning source of hydrology in this community is from direct precipitation events. Saturation of this community can be seen in aerial imagery (Appendix B). Dominant vegetation in the herbaceous stratum includes common lespodeza *(Kummerowia striata)*, knotroot bristlegrass *(Setaria parviflora)*, and bushy bluestem *(Andropogon glomeratus)*. Plant species in this area are predominantly facultative (FAC) to facultative wetland (FACW). The area appears to have been disturbed by agricultural activities (disking/cropping) more recently than other communities (Appendix A, Figure 7).

Community Type 2 (+/- 34 acres of Re-establishment):

This herbaceous community exist at lower elevations than Community Type 1 and is adjacent to portions of Wattensaw Bayou in the south and Locust Creek in the north. Hydrology in this community is impacted by two culverts which allow for drainage from a neighboring field into the Bank (Appendix A, Figure 9). Additionally, remnant rice levees prevent natural hydrologic connection with Community Type 1 and beaver activity occasionally causing impoundment of water. Despite ponding water for portions of the year, this community does dry out in late spring and summer. Vegetation is predominantly obligate (OBL) hydrophytes including smartweed *(Persicaria hydropiperoides, P. pennsylvanica)* in the understory with buttonbush *(Cephalanthus occidentalis)* and black willow *(Salix nigra)* scattered throughout the mid-story (Appendix A, Figure 7).

Community Type 3 (+/- 17 acres of Re-establishment):

This herbaceous community occurred adjacent to Wattensaw Bayou in the southeastern portion of the tract. This community was historically used for crop and hay production and is currently dominated by redtop panic grass *(Coleataenia rigidula)* fox sedge *(Carex vulpinoidea)* and sumpweed *(Iva annua)* in the understory with persimmon *(Diospyros virginiana)* and buttonbush scattered throughout. Primary sources of hydrology in this community appear to be direct precipitation and from Wattensaw Bayou out-banking events. However, previous agricultural practices and elevation changes associated with previous fence lines have altered natural hydrologic flow across this community (Appendix B, Appendix A, Figure 9).

Broad-Leaved Deciduous Palustrine Forested Wetland Habitat (PFO1) -(+/- 71 acres):

Community Type 4 (+/- 9 acres of Enhancement):

This forested community occurred within the eastern portion of the Bank, adjacent to Wattensaw Bayou and frequently ponded palustrine emergent wetland communities. Main hydrology sources in this community are Wattensaw Bayou out-banking events and influx from drainage culverts (Appendix A, Figure 9). Persimmon and willow oak were dominant in the over story. The sapling/shrub layer was dominated by buttonbush, black willow, persimmon, winged elm (*Ulmus alata*) and water elm *(Planera aquatica)*. Dominant herbaceous species included common rush *(Juncus effusus)* and ravenfoot sedge *(Carex crus-corvi;* Appendix A, Figure 7).

Community Type 5 (+/- 33 acres of Preservation):

This forested community occurred in the northeastern corner of the Bank, south of Locust Creek and adjacent to Community Types 1 and 2. Locust Creek and direct precipitation events are the primary hydrological drivers of the site. Micro-topographical diversity across the community can be seen in Lidar imagery (Appendix A, Figure 9). Willow oak and loblolly pine dominated the tree stratum while cedar elm dominated the sapling and shrub layer. The herbaceous/woody vine stratum consisted of Cherokee sedge (*Carex cherokeensis*) with greenbrier (*Smilax smallii*) scattered throughout (Appendix A, Figure 7).

Community Type 6 (+/- 40 acres of Preservation):

Community Type 6 is a forested community located in the northwestern portion of the Bank and contains the confluence of Wattensaw Bayou and Locust Creek. Wattensaw Bayou and Locust Creek are the main contributors to the hydrology of this community. Dominant tree species included water oak, red maple (*Acer rubrum*), persimmon and overcup oak (*Quercus lyrata*) with buttonbush scattered throughout the shrub stratum. Smartweed, spring lily (*Hymenocallis liriosome*) and Greenbriar (*Smilax glauca*) dominated the herbaceous layer (Appendix A, Figure 7).

Community Type 7 (+/- 5 acres of Restoration):

Community Type 7 is found to the south of the entrance road and west of Community Type 4. This community was previously farmed for rice and soy and remnant rice levees remain along the margins (Appendix A, Figure 9). A culvert draining water from a neighboring field and direct precipitation appear to be the main sources of hydrology. Sweetgum, green ash and winged elm dominated the tree and sapling/shrub stratum while ravenfoot sedge, northern sea oats (*Chasmanthium latifolium*), and Virginia creeper (*Parthenocissus* quinquefolia) dominated the herbaceous/woody vine layer (Appendix A, Figure 7).

3.0 Conceptual Mitigation Approach

Historically, aerial imagery proves the Bank supported an extensive bottomland hardwood forest within the floodplain of Wattensaw Bayou and Locust Creek and upland forests and riparian zones outside the primary flood plain. Woody vegetation within these areas has been substantially reduced due to impacts associated with agricultural activities.

Riparian and wetland areas perform important ecological functions, such as the transportation of nutrients, detritus and runoff. Serving as a key energy source for rivers and streams, riparian and wetland areas also provide wildlife habitat, reduce water temperature, and stabilize stream banks by reducing water velocity and minimizing erosion. Aquatic functional uplift and compensation associated with impacts to aquatic resources can be optimized by recovery and protection of high-quality forested wetlands and riparian zones. Therefore, "re-establishment," "restoration," "enhancement," and "preservation" strategies were chosen for the recovery of this site to produce a contiguous, mature conservation area supporting healthy, high functioning wetlands (Appendix A, Figure 8). The strategies proposed to accomplish these goals are discussed in more detail in the following sections and summarized in Table 1.

Table 1. Summary of the anticipated mitigation strategies and associated acreages occurring within the proposed Wattensaw Bayou Mitigation Bank (Appendix A, Figure 8).

Proposed Mitigation Strategies	Community Type	Acreage
Re-establishment	Community Types 1,2 & 3	93 acres
Rehabilitation/Restoration	Community Type 7	5 acres
Enhancement	Community Type 4	9 acres
Preservation	Community Types 5 & 6	73 acres

3.1 Mitigation Strategies

Re-establishment (+/- 93 acres)

Community Type 1, Community Type 2, and Community Type 3 are prior-converted agriculture fields ideally suited for "re-establishment" of forested wetland habitat (Appendix A, Figure 8). As previously

stated, these areas were converted from forested wetlands to agriculture fields sometime between 1949 and the 1960's, as evidenced in historic aerial imagery (Appendix B). Small levees (< 1ft.) combined with elevational changes between Community Type 1 and 2 prevent normal hydrology and restrict flood plain connection with Wattensaw Bayou in the south and Locust Creek in the north. Beaver activity on Wattensaw Bayou intermittently causes water to be impounded in portions of Community Type 2.

Community Type 3 was utilized mainly for hay production and displays un-natural hydrology. The elimination of regular disking and farming practices combined with increasing floodplain microtopography, will facilitate more natural hydrology within the community. Microtopography will be restored by removing remaining rice levees and utilizing micro-tillage site preparation, thereby restoring natural flood and drainage cycles. Implementing beaver trapping will prevent water impoundment in the future and increase the short-term survivability of planted seedlings.

Agricultural operations in all three communities have also prevented the regeneration of woody species. Reforestation of these areas with locally adapted native bottomland hardwood species, with care to match species wetness tolerances with appropriate geomorphic position, will allow for the development of diverse stands of native hardwoods invaluable to numerous wetland dependent wildlife species. To accomplish this, planting operations of the appropriate species will be conducted throughout the Bank. Management considerations integral for optimizing afforestation efforts on this site include knowledge of ranges for plant wetness tolerances (matching species with the appropriate landscape position), spatial arrangement, and diversity of plantings. For example, topographic lows with longer periods of flooding or ponding (e.g. portions of Community Type 2), will incorporate a larger proportion of OBL species, while higher elevations will incorporate a larger proportion of FACW and FAC species (Table 2). This approach will allow planting efforts to complement community specific vegetative competition, and buffer potential effects of unobservable microcosmic ecosystem conditions.

Re-establishment of these prior-converted communities will result in an increase in aquatic resources, aquatic area, and function, providing habitat connectivity between the Bank and the existing high-quality forested wetland communities in the neighboring PRM site (Appendix A, Figure 8).

Table 2. Proposed Species planting list by Community Designation for the Wattensaw Bayou Mitigation Bank.

Species	Common name	Wetland Indicator Status	CT 1	CT 2	CT 3	CT4	CT7
Quercus nigra	water oak	FAC	✓			✓	✓
Carya cordiformis	bitter-nut hickory	FAC	✓				✓
Acer rubrum	red maple	FAC	✓		✓	✓	✓
Ulmus americana	American elm	FAC	✓		✓		✓
Ulmus rubra	slippery elm	FAC					
Liquidambar styraciflua	sweetgum	FAC	✓		✓		✓
Diospyros virginiana	common persimmon	FAC					
Populus deltoides	eastern cottonwood	FAC	✓		✓		✓
Pinus taeda	loblolly pine	FAC	✓				✓
Quercus pagoda	cherry-bark oak	FACW	✓				✓
Platanus occidentalis	American sycamore	FACW	✓		✓		✓
Quercus nutallii	nuttall oak	FACW		✓	✓	✓	
Quercus phellos	willow oak	FACW	✓	✓	✓		✓
Quercus michauxii	swamp chestnut oak	FACW	✓	✓	✓	✓	✓
Fraxinus pennsylvanica	green ash	FACW	✓	✓	✓	✓	✓
Taxodium distichum	Bald cypress	OBL	✓	✓	✓	✓	✓
Nyssa aquatica	water tupelo	OBL		✓	✓		
Planera aquatica	planertree	OBL		✓	✓		
Carya aquatica	water hickory	OBL		✓	✓	✓	
Quercus lyrata	overcup oak	OBL		✓	✓	✓	
Salix nigra	black willow	OBL		✓	✓		

Rehabilitation (+/- 5 acres)

Community Type 7 provides an excellent opportunity for the restoration of forested wetland habitat through "rehabilitation" (Appendix A, Figure 8). This Community was previously farmed primarily for rice however it is now in the early successional stages of forest regeneration. Hydrology in this community has been manipulated by rice levees which disrupt natural connectivity to Wattensaw Bayou's floodplain (Appendix A, Figure 9). Preliminary rehabilitation plans include vegetation relief and inter-planting to increase species diversity and breaching the rice levees through micro-tillage, reconnecting hydrology

across the floodplain. Vegetation relief actions will enhance the stand characteristics of the young forest by simulating stem exclusion and understory initiation phase of forest development.

Vegetation relief actions will be accomplished via single stem or group selection of undesirable trees. The initial vegetation relief within this community will target non-mast producing species (e.g. green ash, sweetgum etc.). This action will result in the creation of coarse woody debris, reduce competition, and increase diameter growth (basal area) of non-selected trees. This will be accomplished using low-impact standard forest improvement techniques such as: mulching, pruning, cutting, felling, and/or herbicide application using non-soil active herbicides.

Following vegetation release actions, interplanting will be implemented. Interplanting will take into consideration species wetness tolerance and light availability when selecting locations (Table 2). These management actions will be complemented by enhancement of the neighboring existing forested wetland habitat (Community Type 4) (Appendix A, Figure 8).

Enhancement (+/- 9 acres)

"Enhancement" is often undertaken for a specific purpose such as improving water quality, flood water retention or wildlife habitat. Community Type 4 is well-suited for "enhancement" of the current palustrine forested wetland conditions (Appendix A, Figure 8). Currently, persimmon, buttonbush, black willow and willow oak are the dominant species in the tree and sapling/shrub stratum. The specific enhancement objective for this Community is to improve wildlife habitat through vegetation relief and interplanting management actions. Single-stem selection of dominant non-mast producing species (black willow) in this community will result in the creation of coarse woody debris and open the canopy to allow light to readily reach the ground. This removal of dominant, non-mast producing tree species will mimic natural gap disturbances and promote the growth and establishment of newly planted desirable tree species suited for the conditions of the site. This will be accomplished using low-impact standard forest improvement techniques (e.g. cutting/felling and/or herbicide application using non-soil active herbicides). Subsequent interplanting of desirable tree species will increase species diversity (Appendix A, Figure 8).

Potential species for planting are described in Table 2 and include Green Ash, Red Maple and several oaks all of which would introduce high value use species for wildlife.

Preservation (+/- 62 acres)

The 2008 CMLAR states that Preservation areas meet the following requirements.

1. The resources to be preserved provide important physical, chemical, or biological functions for the watershed.
2. The resources to be preserved significantly contribute to the ecological sustainability of the watershed.
3. The preserved resource is under direct threat of destruction or adverse modification.
4. The preserved resource will be permanently protected through an appropriate real estate or other legal instrument.
5. Preservation is determined by the district engineer to be appropriate and practicable.

Community Types 5 and 6 meet these requirements for "preservation". Nutrient cycling, flood storage, and quality wildlife habitat found within these communities provide critical physical, chemical, and biological functions to the watershed. Protection of these communities should contribute significantly to the ecological sustainability of the watershed by directly improving the water quality of Wattensaw Bayou, which is a 303 (d) listed stream, through filtering of pollutants and reducing riparian erosion and sedimentation.

Ensuring preservation of these Communities in perpetuity through a conservation easement will assist in maintaining a level of function in the watershed that is at risk of destruction or adverse modification, likely from agricultural development. It is estimated that Arkansas originally had 9.8 million acres of wetlands, representing almost 30% of the total surface area of the state. By the mid 1980's the number of wetlands had dropped to 2.8 million acres (72% loss) representing only 8% of the surface area (Dahl 1990). As demand for farmland increases, conversion of forested wetlands to agriculture is likely to increase as well. Thus, protection of this high-quality system through preservation is an ecologically prudent action.

3.2 Reference Site

Adjacent to the proposed Bank is the Wattensaw Bayou PRM site managed by AEL (Appendix A, Figure 4b). This site is an ideal reference site as it is analogous to the proposed bank in its historic land use trends, soils, hydrology, and vegetative communities. Community Type 5 and 6 can also serve as a reference for forested wetland conditions and vegetative assemblages within the Bank. These stands will provide a native seed source for natural volunteer species regeneration which will promote early stratification and

diversity within the developing canopies of the Bank. Natural elevational diversity in Communities 5 and 6 can be seen in Lidar imagery, and can be used as a reference for the proposed microtopographic work in other communities (Appendix A, Figure 9). Furthermore, the proximity of the mitigation areas to these reference sites will result in a large contiguous area of wetlands which will provide improved functionality and wildlife habitat.

4.0 Establishment and Operation

The guidelines for developing and establishing a mitigation bank outlined in the CMLAR will be followed. This process will result in the development of a DMBI that details the specific terms and conditions by which the Bank will be operated by the Sponsor and utilized by clients of the Department of the Army. As outlined by CMLAR, the DMBI will be developed after consultation with agencies representing the IRT and the interested public after the Prospectus has been reviewed. Bank-specific details incorporating local district policies regarding mitigation bank development, in place at the time of submission of this Prospectus, will be incorporated in a DMBI, when appropriate.

4.1 Site Protection Instrument

The Sponsor will ensure that the site is protected from incompatible land uses and activities that would adversely affect the intended extent, condition, and function of the Bank with an appropriate site protection instrument.

4.2 Financial Assurances

The Sponsor will establish both short-term and long-term financial assurance mechanisms (FAMs) in accordance with local district policies, to be detailed within the DMBI.

5.0 Ownership Arrangements and Long-Term Management Strategies

All real property to be included within the Bank is contracted by the Sponsor and will be pledged for use in the Bank consistent with an approved Mitigation Banking Instrument (MBI). The conservation values of the site will be protected using an appropriate site protection instrument. Any site-specific long-term management activities will be identified and funded via long-term financial assurances (to be approved by the USACE) payable to a beneficiary and/or a long-term steward (if different from the Sponsor). Provisions for transfer of long-term management responsibilities from the sponsor to another entity will be outlined within the DMBI.

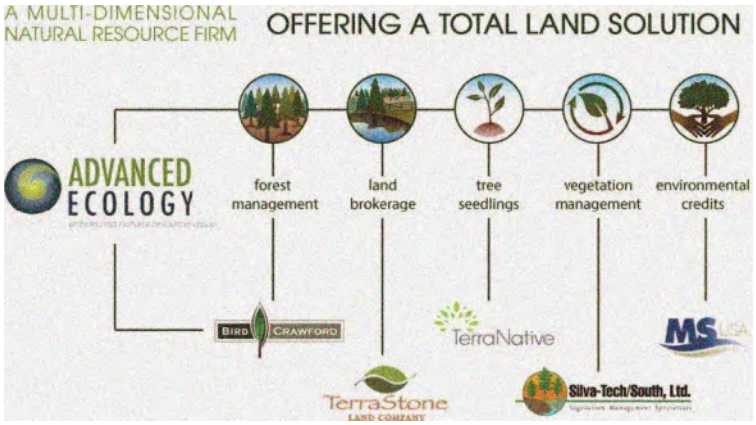
6.0 Site Constraints

AEL has not yet identified any constraints that would limit the restoration potential of the Bank. The successful implementation of the neighboring Wattensaw Bayou PRM site is evidence that any constraints in the area are not significant enough to limit Bank development.

7.0 Sponsor Qualifications

AEL is a unique family of companies with a diverse pool of talented ecologists and business professionals. The firm has been in the natural resource management business since 1979 and has established and managed more than 20 successful mitigation banks and approximately 35 permittee-responsible mitigation projects involving wetland, stream, and endangered species in multiple states, multiple USACE districts, and across a wide range of habitat types. Mitigation Management, LLC, is the mitigation asset holding entity created by Advanced Ecology, Ltd.

Our Story



The history of AEL began with the creation of Bird Forestry Services (BFS) in 1979, which developed as a traditional forestry consulting business. In 1994, AEL was created in the form of an affiliated business to focus solely on environmental and wildlife consulting. In 2006, the two businesses reorganized so that BFS became a wholly owned subsidiary of AEL. At that same time, the owners of AEL also decided to forego traditional environmental consulting and focus instead on creating a portfolio of company owned and operated mitigation and conservation projects. As of 2021, that number of projects has increased to more than 24 successful mitigation banks and more than 35 permittee-responsible mitigation projects. Since that time the forestry component of the business has grown to currently manage more than 150,000 acres and has extensive experience in restoring and managing forest systems, particularly hardwood communities. Most recently, AEL further expanded its forest management expertise by consolidating with another forestry consulting firm formerly known as Crawford Forestry Group, Inc. The forest management are of AEL operates as Bird Forestry. Essential elements of the AEL Story also include the development of other integral business units or specialized companies. Siva-Tech South is a branch of AEL that specializing in vegetation management, site restoration, tree planting, and invasive species control. In addition to supporting AEL projects, Silva-Tech has conducted over 70,000 acres of endangered species habitat management on private and public lands. In 2007, AEL also developed Mitigation Solutions USA (MSUSA), which has become a national leader in the marketing and selling environmental credits. In 2011, AEL partnered with Mark Erb to form TerraNative, an expert in nursery management, the collection

native hardwood seed and the propagation of seedlings, used to improve the outcomes of environmental restoration projects. The partnership has resulted in the creation of a hardwood nursery in Huntsville, Texas with a priority of conducting project-site specific seed collections and producing custom grown seedlings for each AEL project. To produce the highest quality project sites, AEL has also created TerraStone Land Company. The company's primary goal is to locate and secure the necessary real-estate in each of AEL's ecological target markets. Collectively these firms all work together in a capacity and process unique to the ecosystem marketplace.

Literature Cited

CMLAR. Thursday, April 10, 2008. Compensatory Mitigation for Losses of Aquatic Resources; Final Rule; Federal Register: April 10, 2008 (Volume 73, Number 70). U.S. Government Printing Office, Washington, D.C.

Griffith, G.E., S.A. Bryce, J.M. Omernik, J.A. Comstock, A.C. Rogers, B. Harrison. 2004. Reston, Virginia, U.S. Geological Survey (Map Scale 1: 2,500,000).

Rohrbaugh, R., M. Lammertink, and K. Rosenberg. 2007. Final Report 2006-07 Ivory-billed Woodpecker Surveys and Equipment Loan Program. Cornell Lab of Ornithology. Ithaca, NY.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Accessed 2 October 2017. [Available online at: http://websoilsurvey.nrcs.usda.gov/]

U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-20. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

USDA. 1981. Soil Survey of Lonoke and Prairie Counties, Arkansas. United States Department of Agriculture, Natural Resources Conservation Service.

APPENDIX A

Project Figures

Figure 1
Location Map of the Proposed Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas

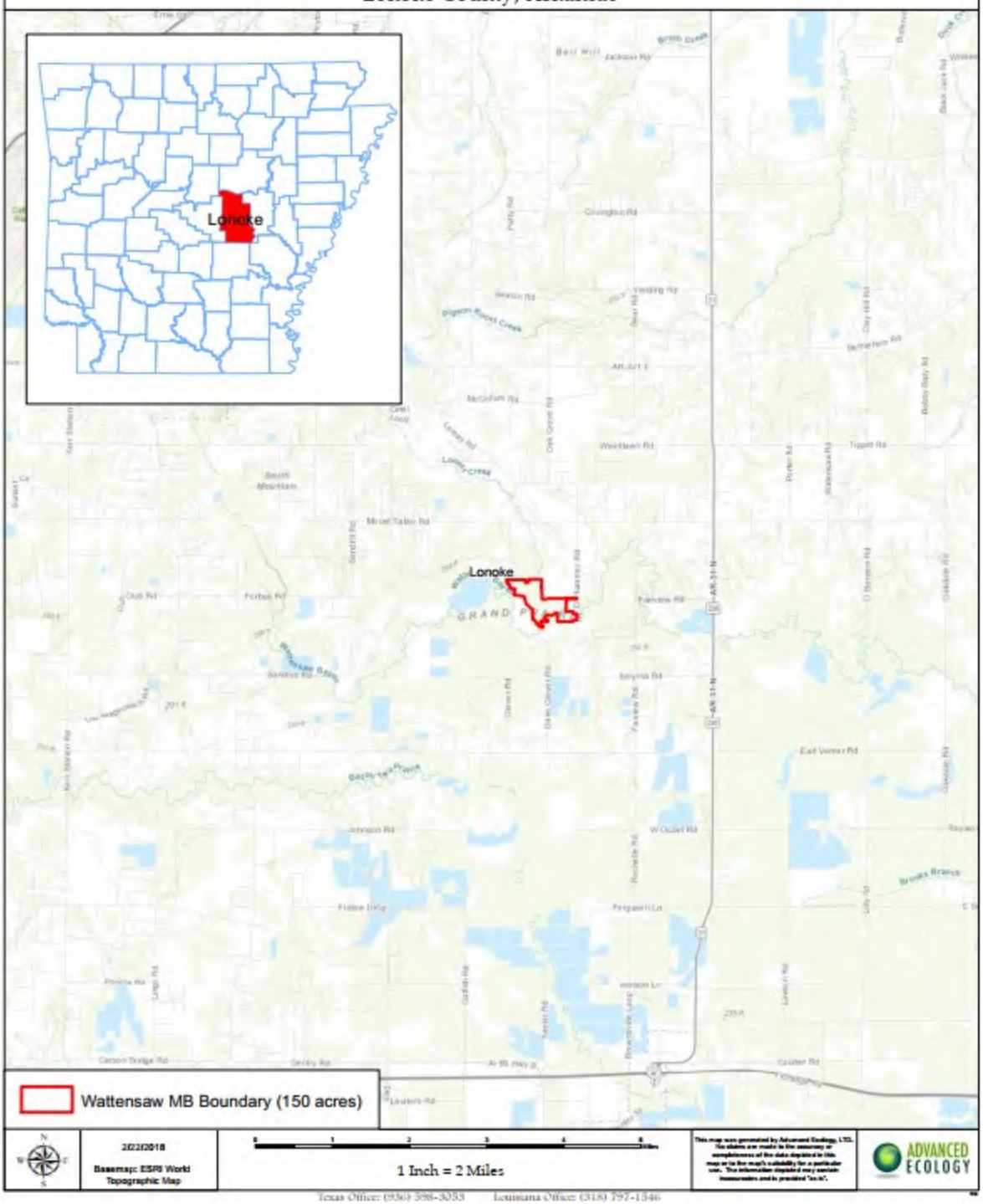


Figure 2
HUC & Ecoregion Map
Lonoke County, Arkansas

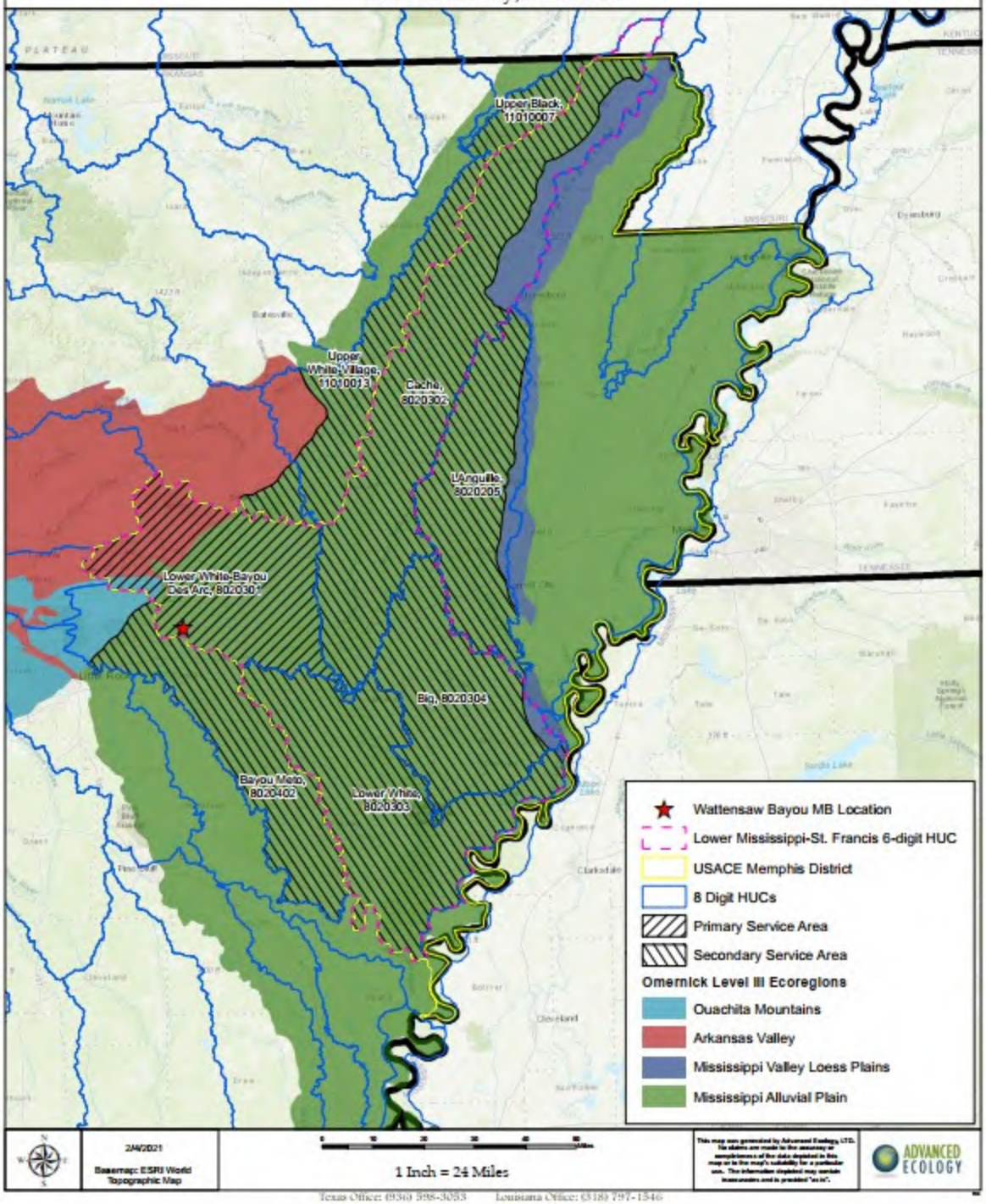
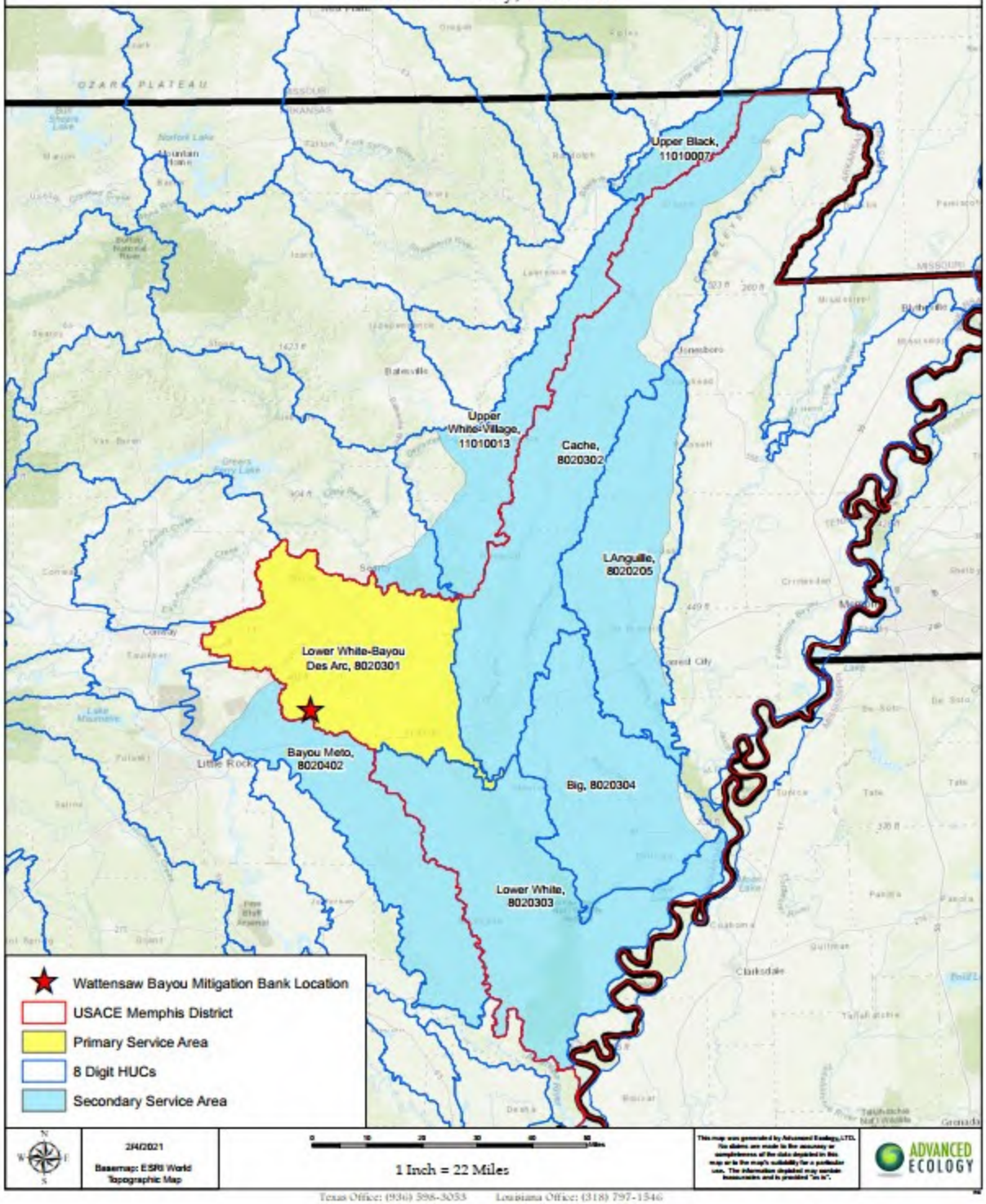


Figure 3
Proposed Service Areas for Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

Figure 4A
Proximity of Wattensaw Bayou Mitigation Bank to Protected Areas
Lonoke County, Arkansas

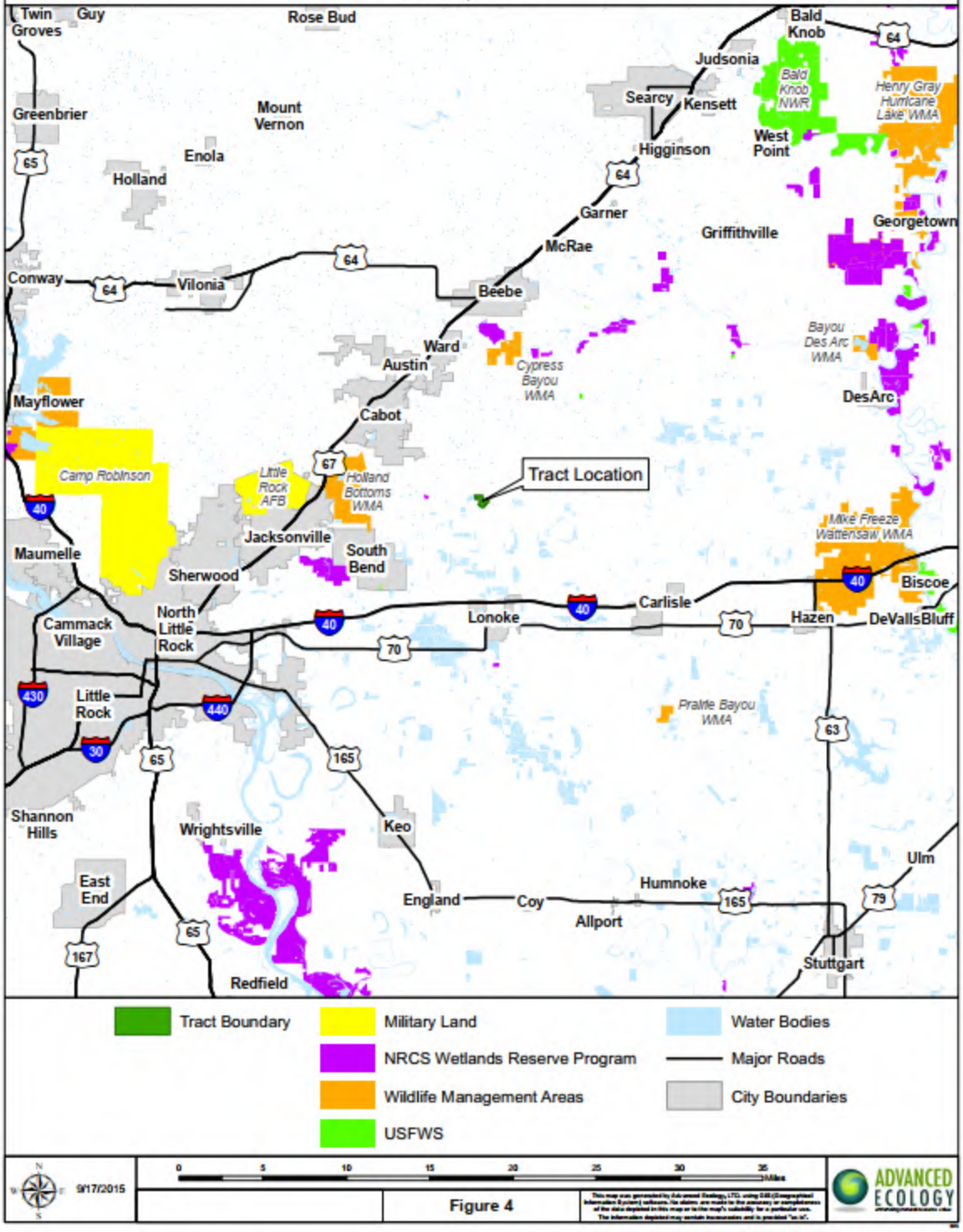


Figure 4b
Map of the Wattensaw PRM Site and the Proposed Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas

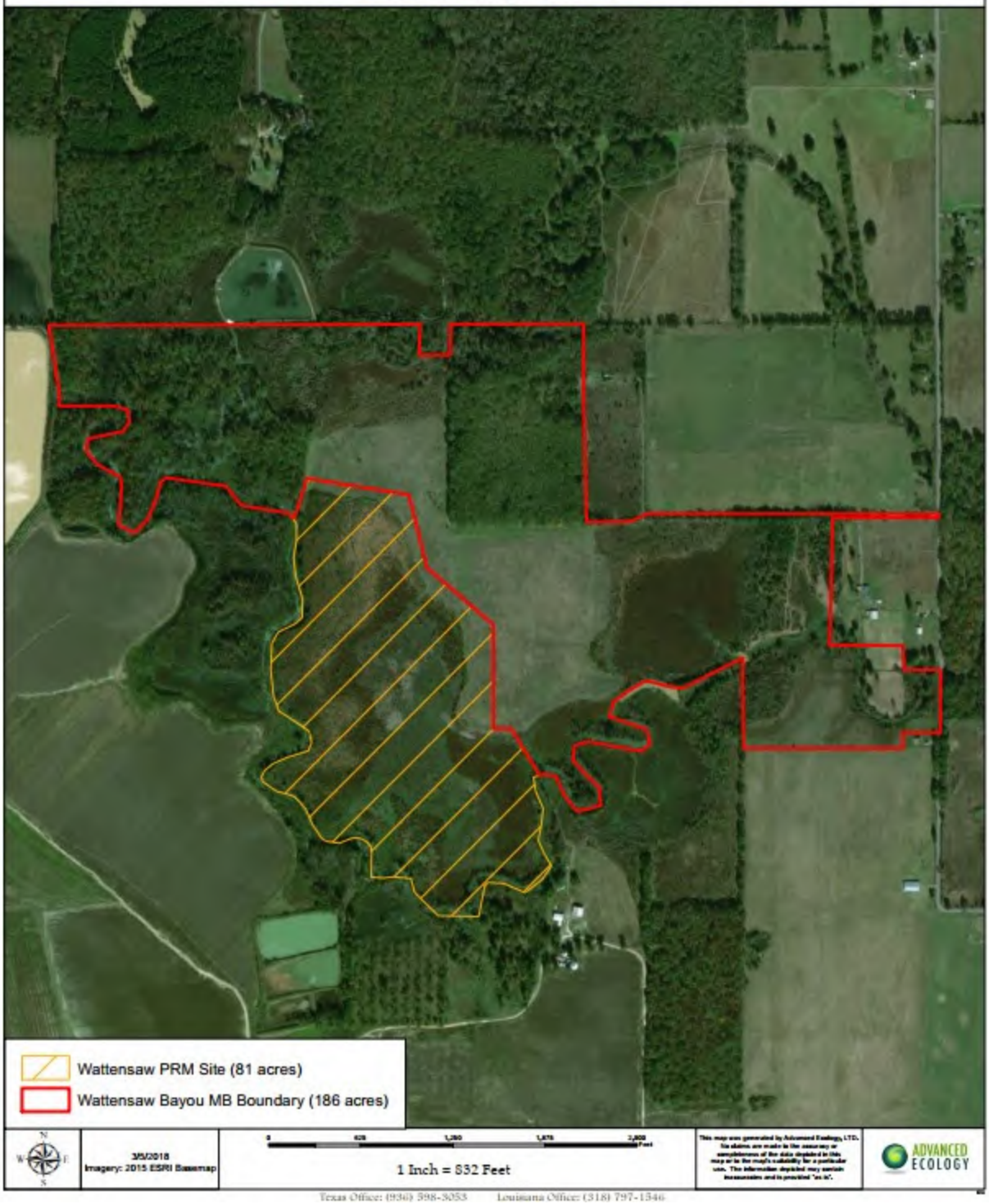


Figure 5
NWI Map of the Proposed Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas

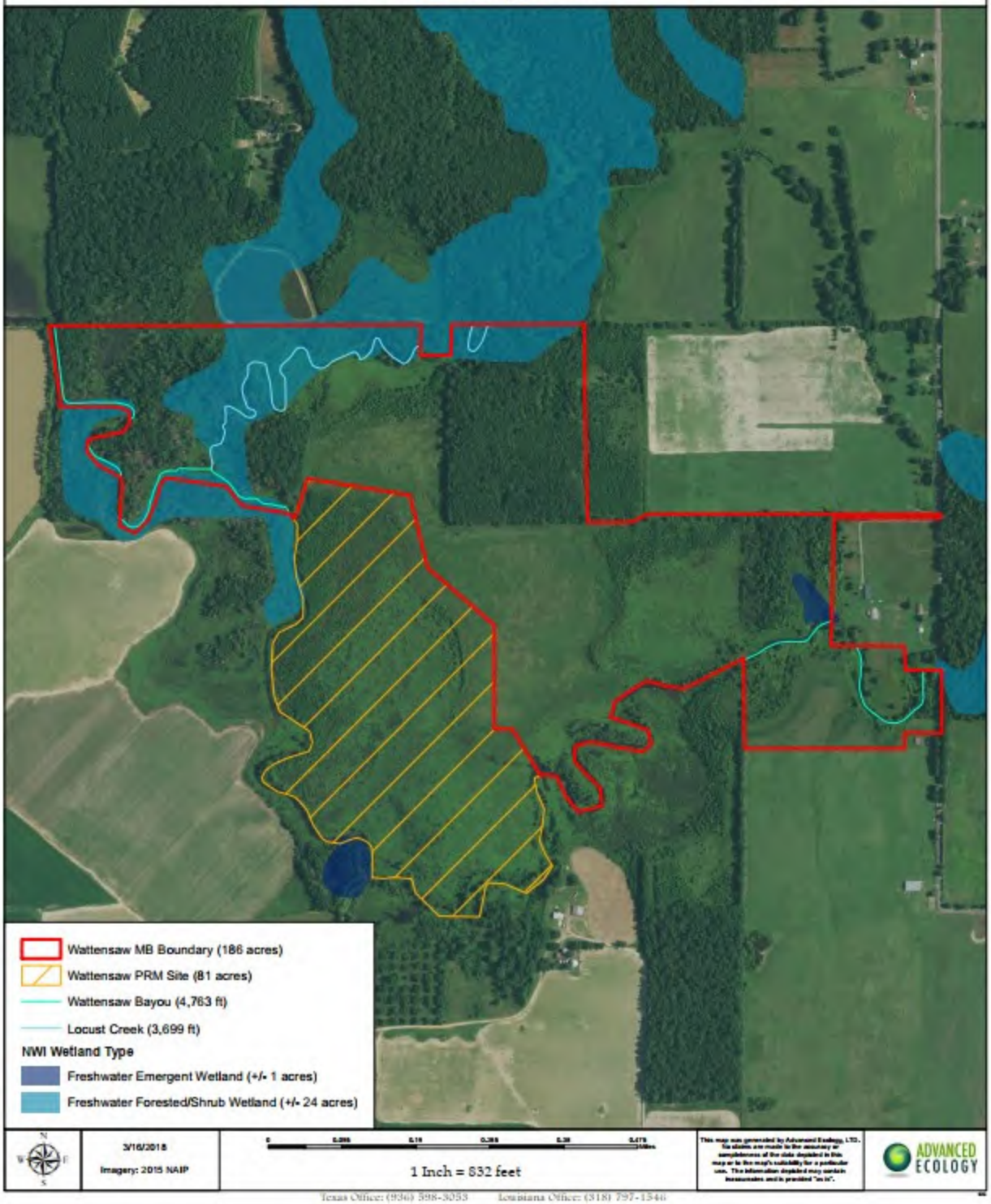
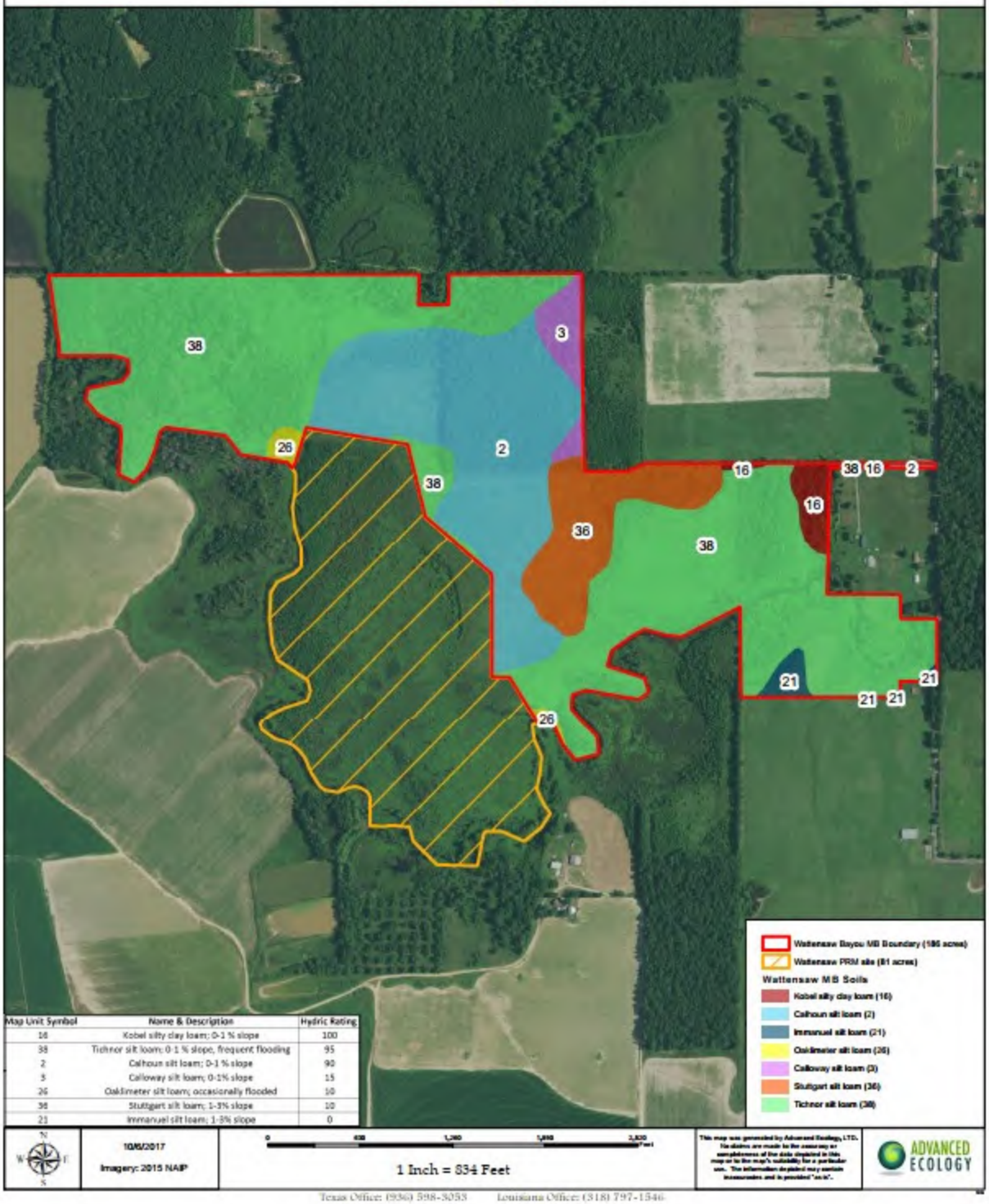


Figure 6
NRCS Soils Map of the Proposed Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



Map Unit Symbol	Name & Description	Hydric Rating
16	Kobel silty clay loam; 0-1 % slope	100
38	Tichnor silt loam; 0-1 % slope, frequent flooding	95
2	Calhoun silt loam; 0-1 % slope	90
3	Calloway silt loam; 0-1% slope	15
26	Oaklimeter silt loam; occasionally flooded	10
36	Stuttgart silt loam; 1-3% slope	10
21	Immanuel silt loam; 1-3% slope	0

N W E S

10/6/2017

Imagery: 2015 NAIP

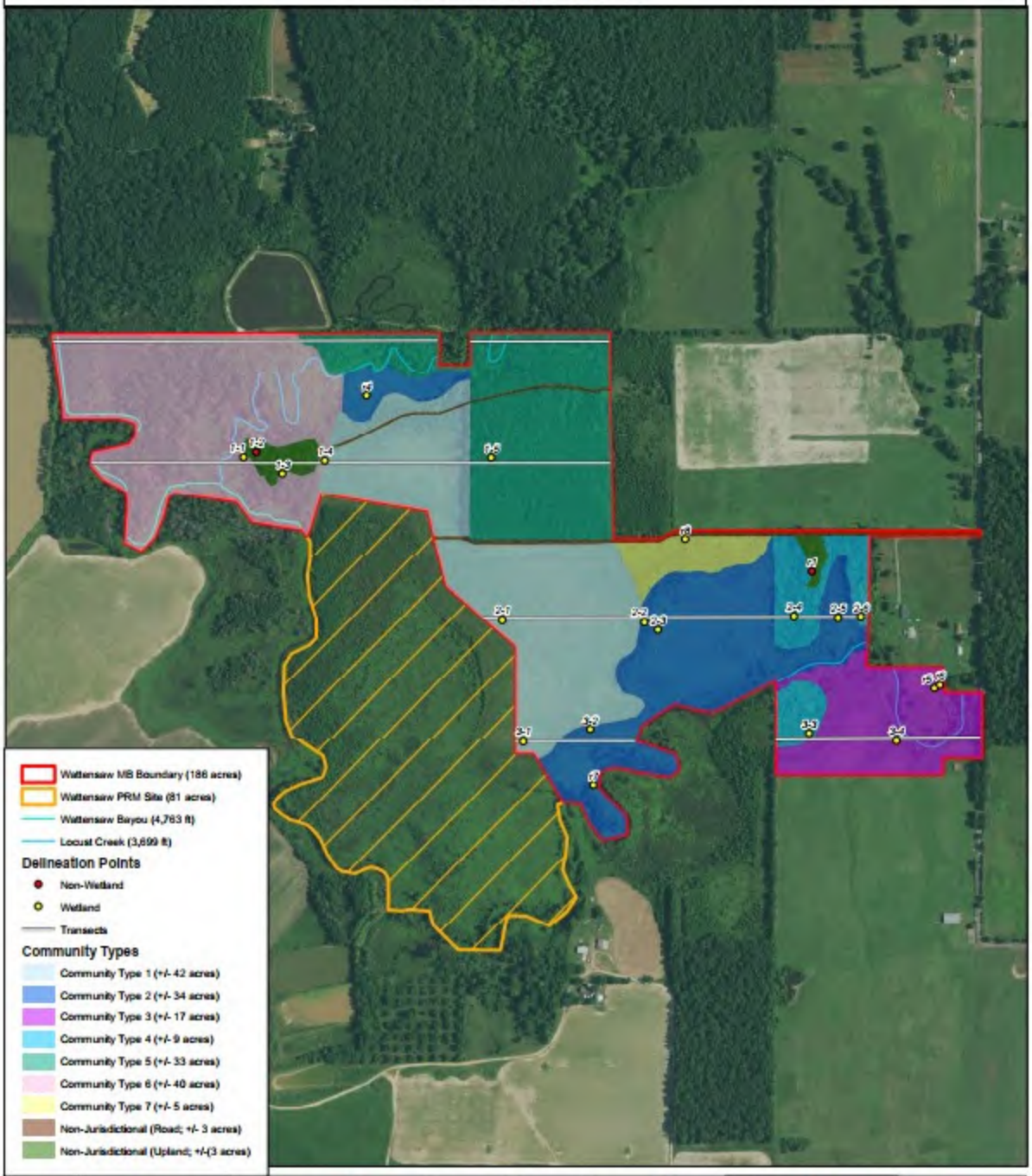
0 630 1,260 1,890 2,520 Feet

1 Inch = 834 Feet

This map was generated by Advanced Ecology, LTD. No claims are made to the accuracy or completeness of the data depicted in this map or to the map's suitability for a particular use. The information depicted may contain inaccuracies and is provided "as is".

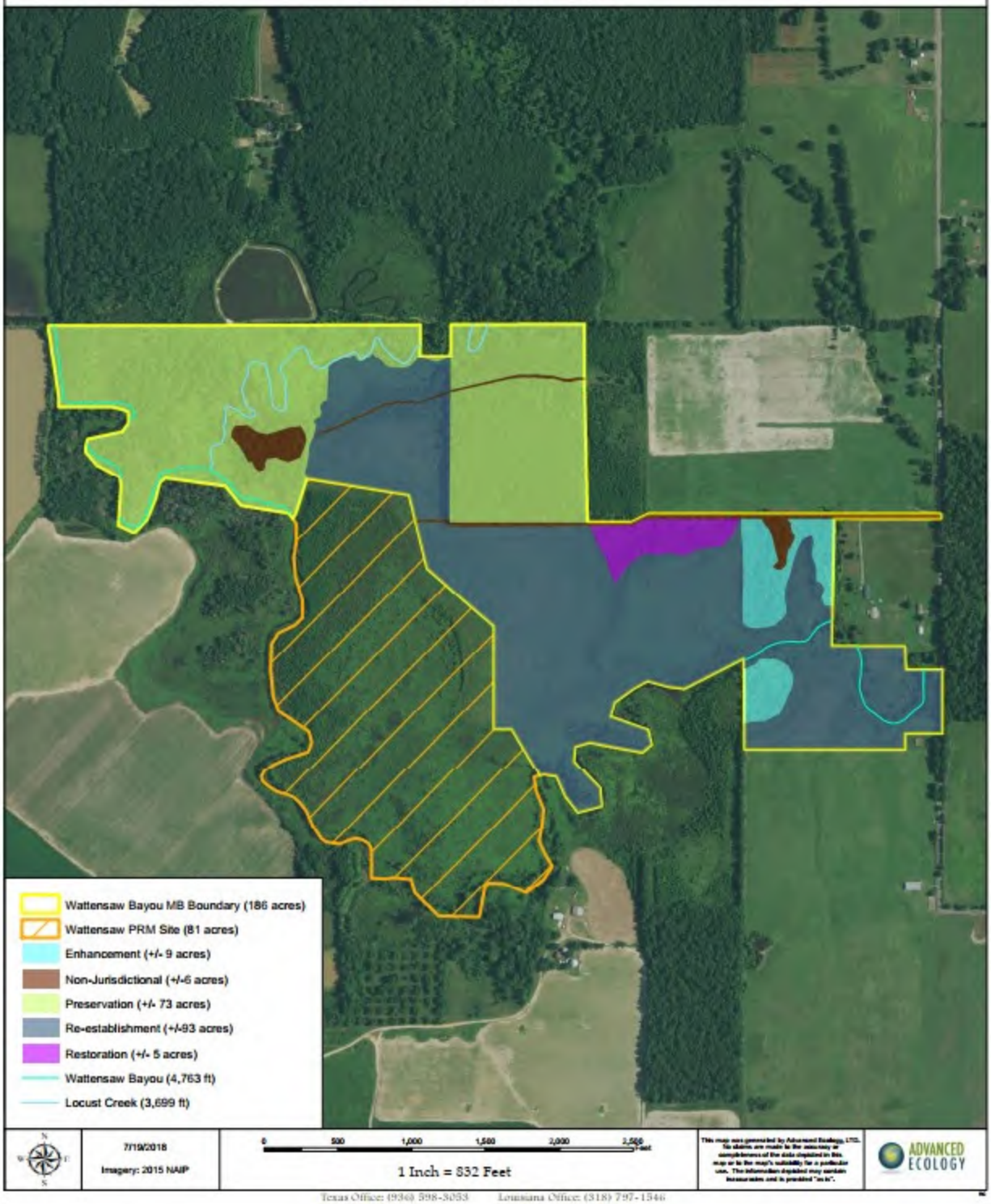
ADVANCED ECOLOGY

Figure 7
Wetland Delineation Map of the Proposed Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



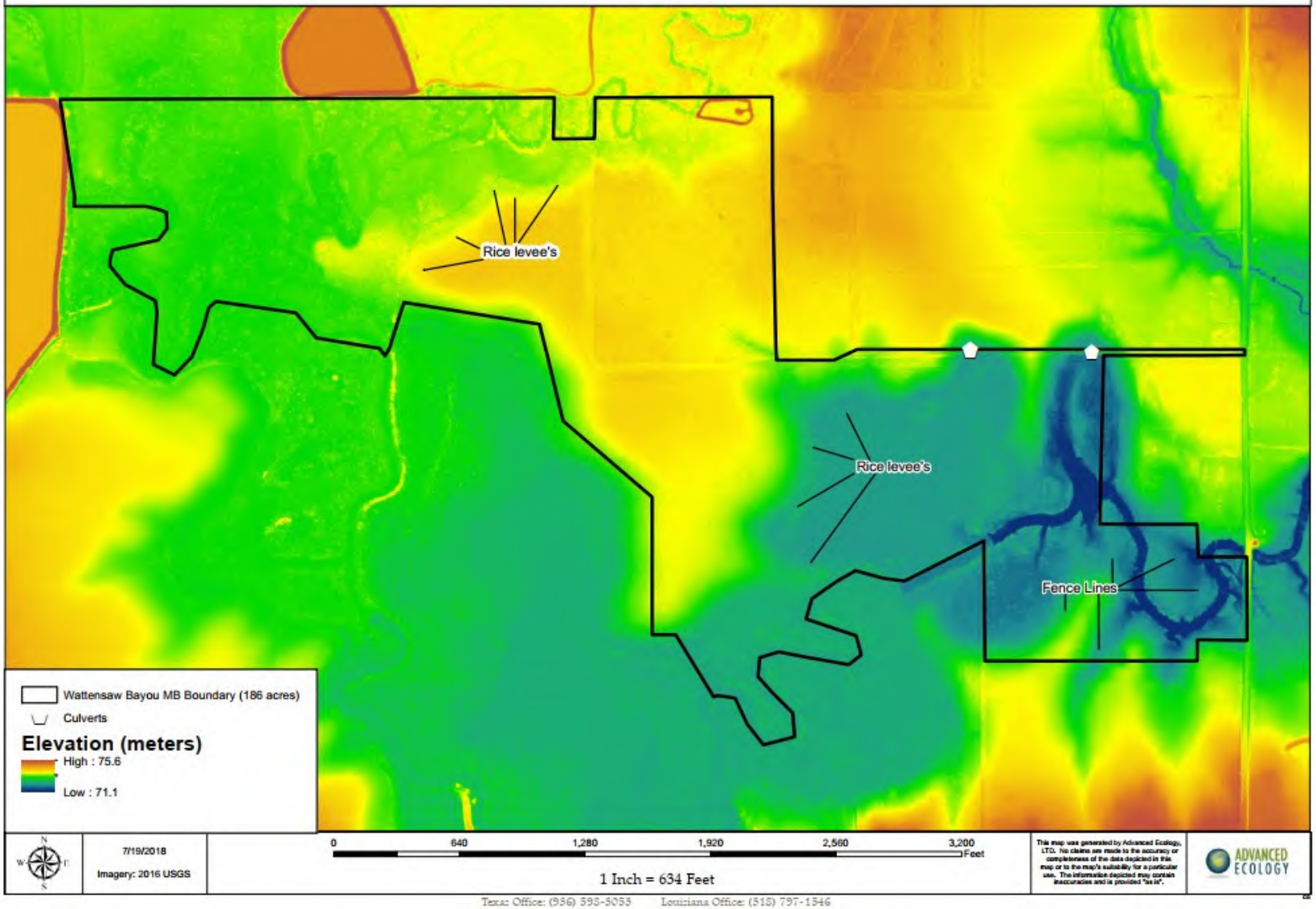
Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

Figure 8
Wattensaw Bayou Mitigation Work Plan
Lonoke County, Arkansas



Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

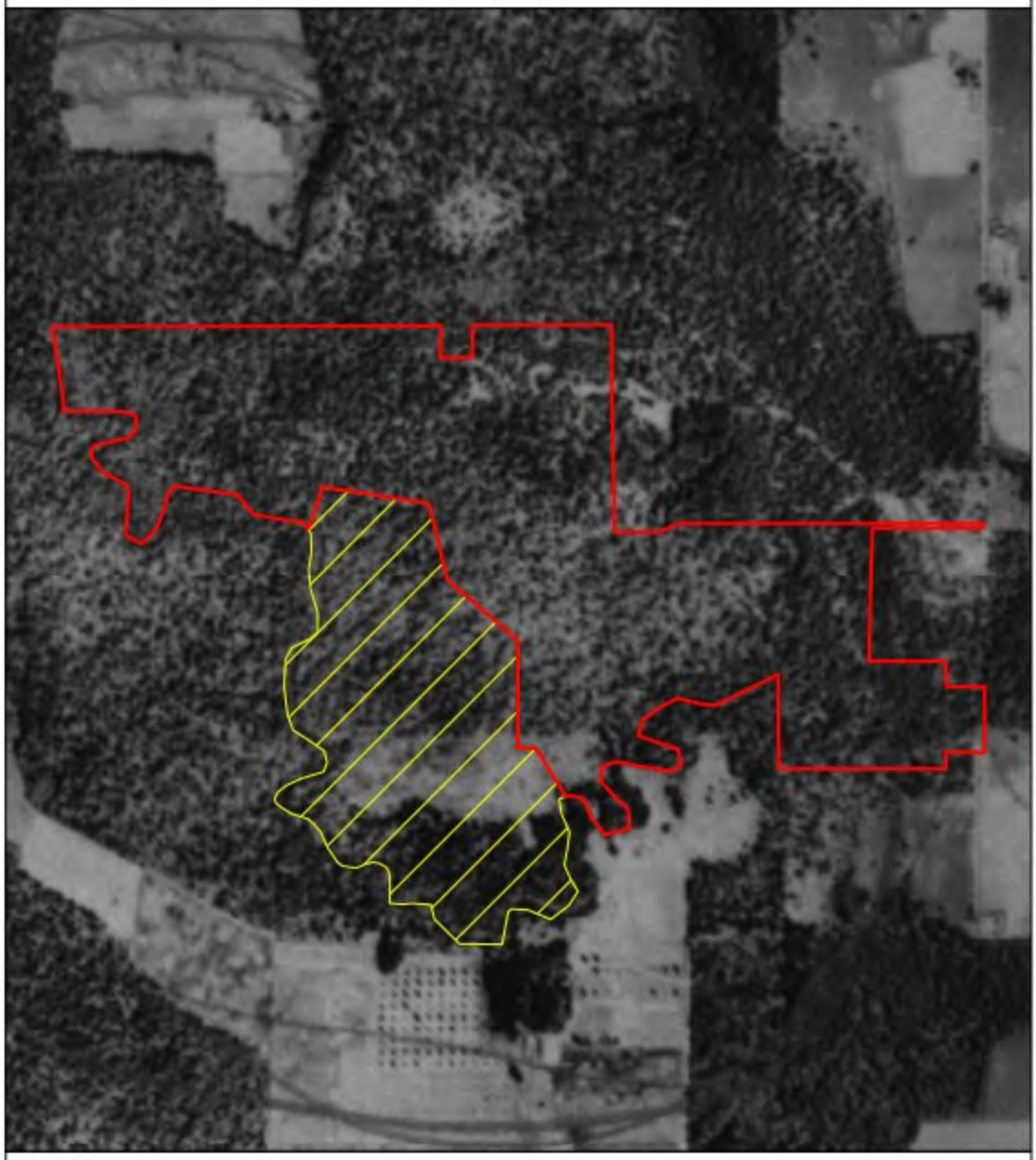
Figure 9
Wattensaw Bayou Eleveation & Structures Map
Lonoke County, Arkansas



Texas Office: (936) 598-5055 Louisiana Office: (318) 797-1546

APPENDIX B
Historical Imagery

1949 Aerial Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



Wattensaw Bayou MB Boundary

Wattensaw PRM Site

N
W E
S

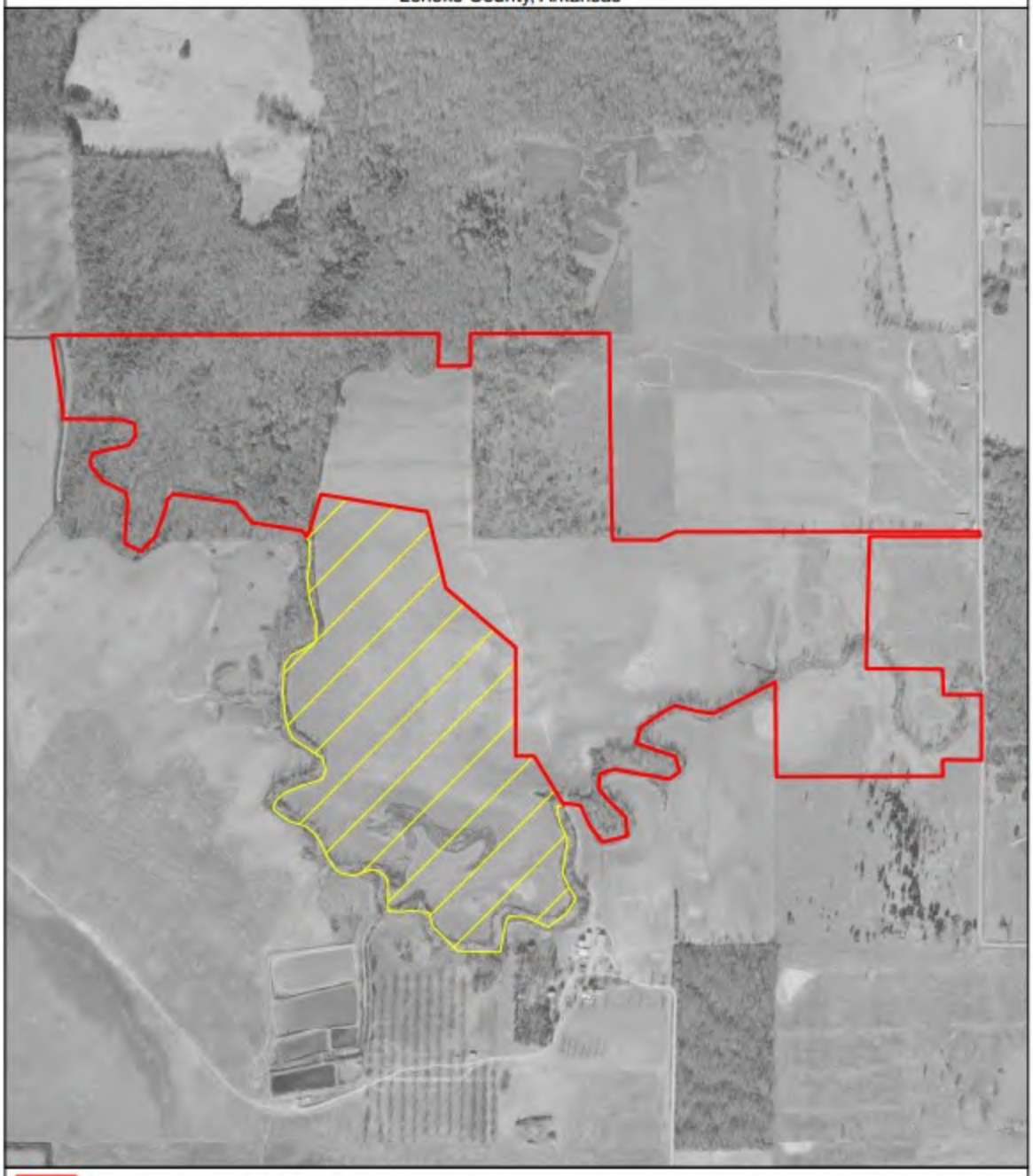
3/5/2018

0 640 1,280 1,920 2,560 3,200 3,840 Feet

Imagery: 1949 P2 Energy

ADVANCED ECOLOGY

1975 Aerial Wattensaw Bayou Mitigation Area
Lonoke County, Arkansas



Wattensaw Bayou MB Boundary

Wattensaw PRM Site

N W E S

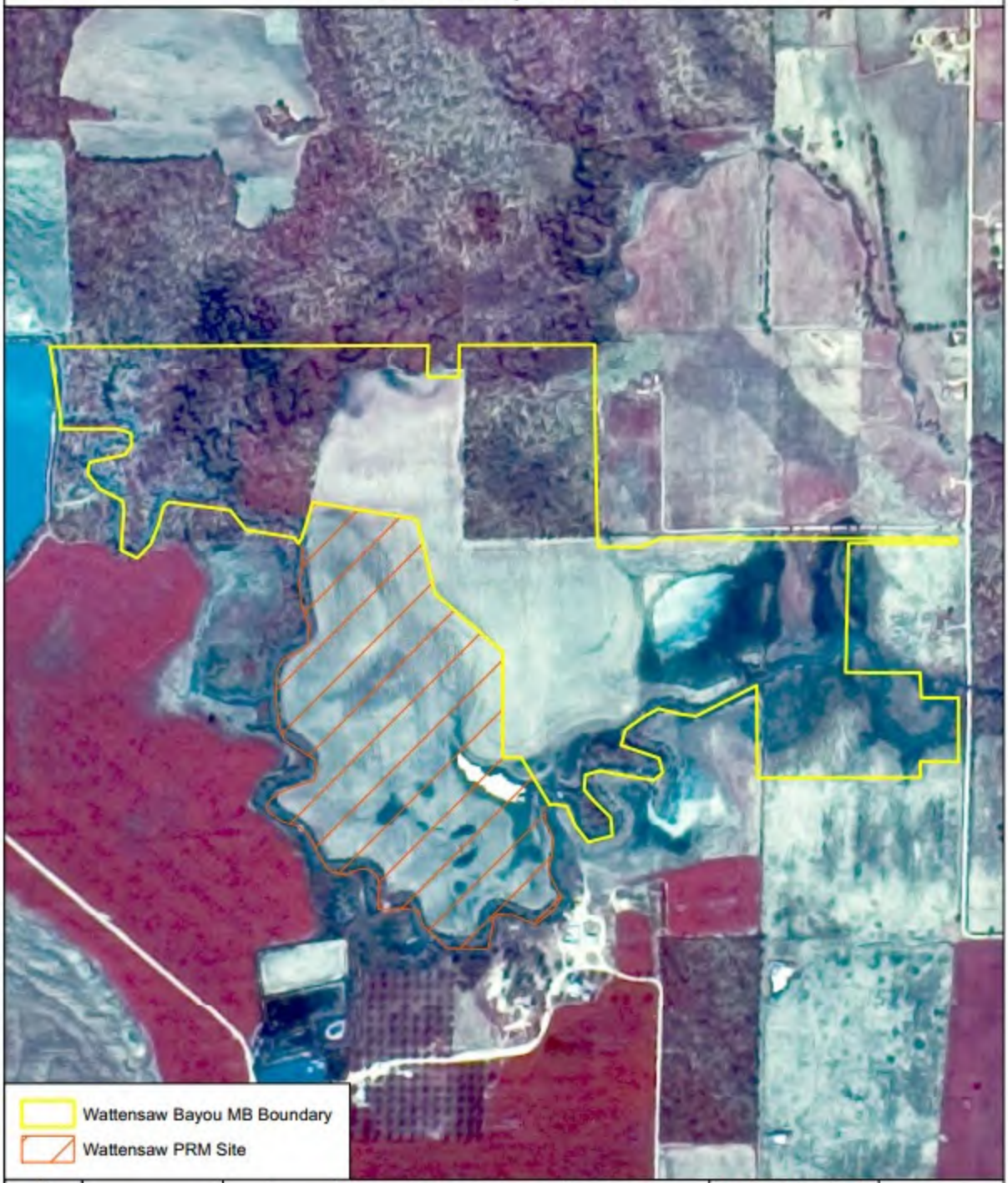
3/5/2018

0 640 1,280 1,920 2,560 3,200 3,840 Feet

Imagery: 1975 USGS

ADVANCED ECOLOGY

1990 Aerial Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



2001 Aerial Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas

3/5/2018

Imagery: 2001 USGS

0 500 1,000 1,500 2,000 2,500 Feet

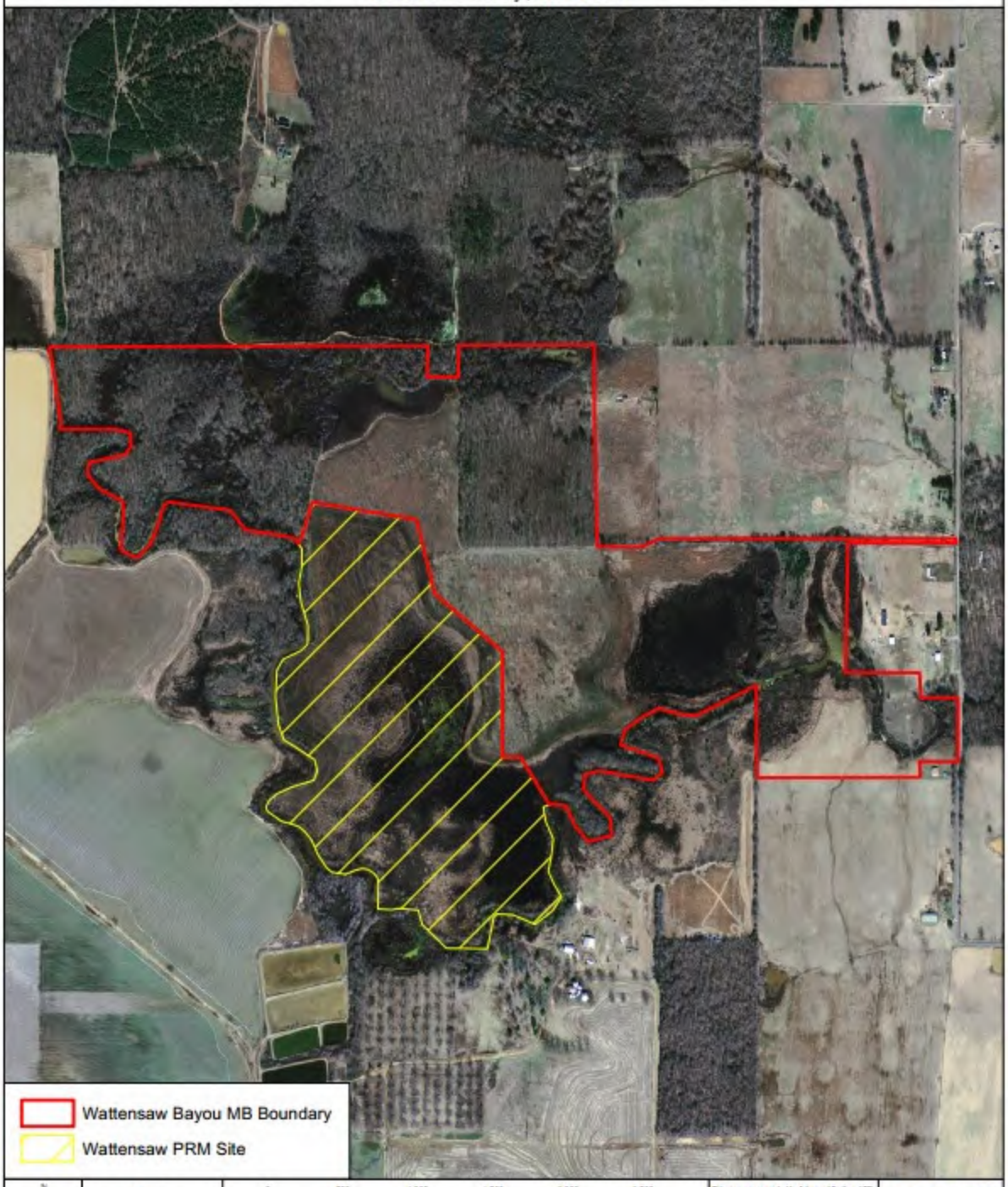
1 Inch = 832 Feet

This map was generated by Advanced Ecology, LTD. No claims are made to the accuracy or completeness of the data depicted in this map or to the map's suitability for a particular use. The information depicted may contain inaccuracies and is provided "as is".

ADVANCED ECOLOGY

Texas Office: (936) 598-3033 Louisiana Office: (318) 797-1346

2006 Aerial Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



3/5/2018

Imagery: 2006 Ortho

0 500 1,000 1,500 2,000 2,500 Feet

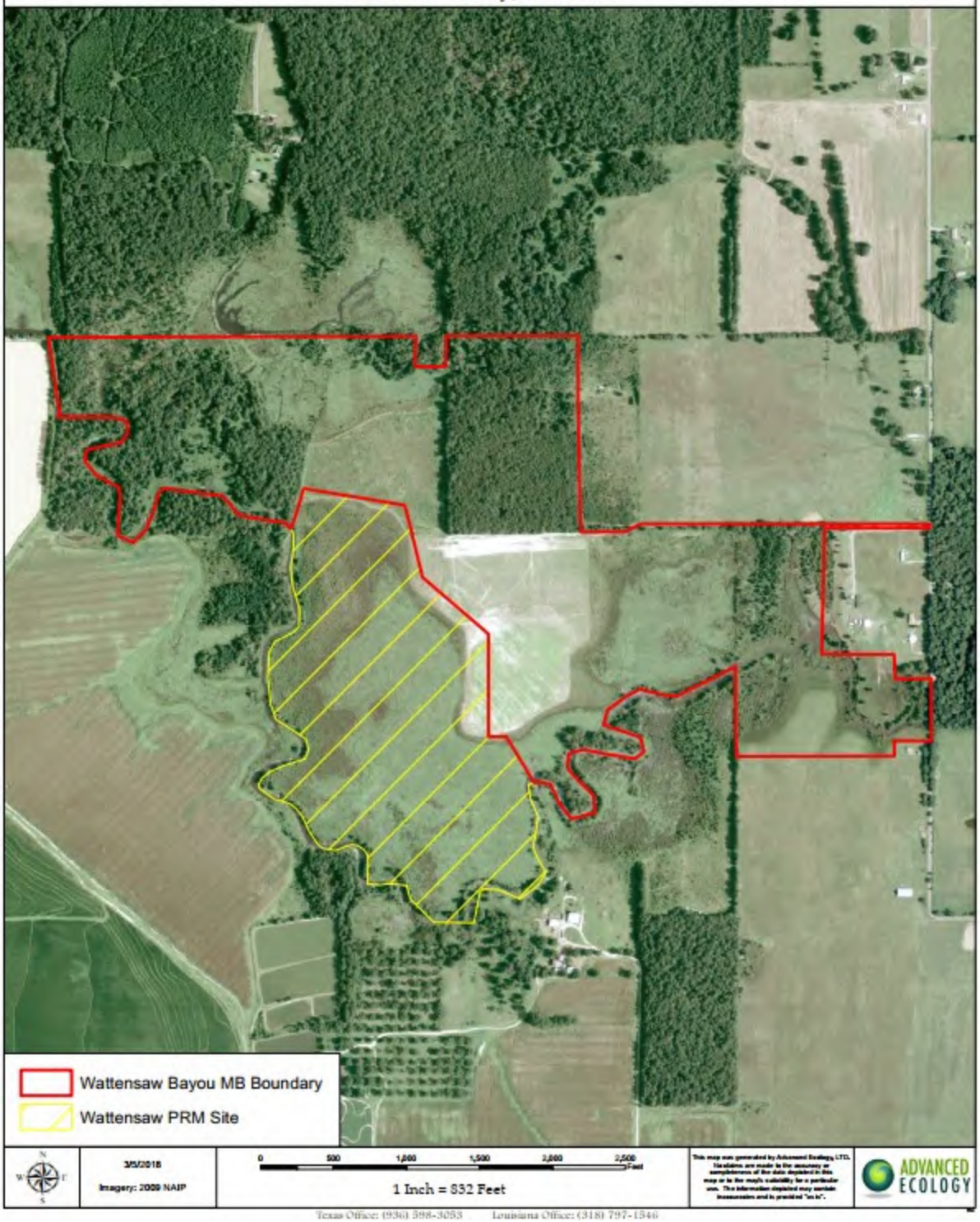
1 Inch = 832 Feet

This map was generated by Advanced Ecology, LTD. No claims are made to the accuracy or completeness of the data depicted in this map or to the map's suitability for a particular use. The information depicted may contain inaccuracies and is provided "as is".

ADVANCED ECOLOGY

Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

2009 Aerial Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



3/5/2018

Imagery: 2009 NAIP

0 500 1,000 1,500 2,000 2,500 Feet

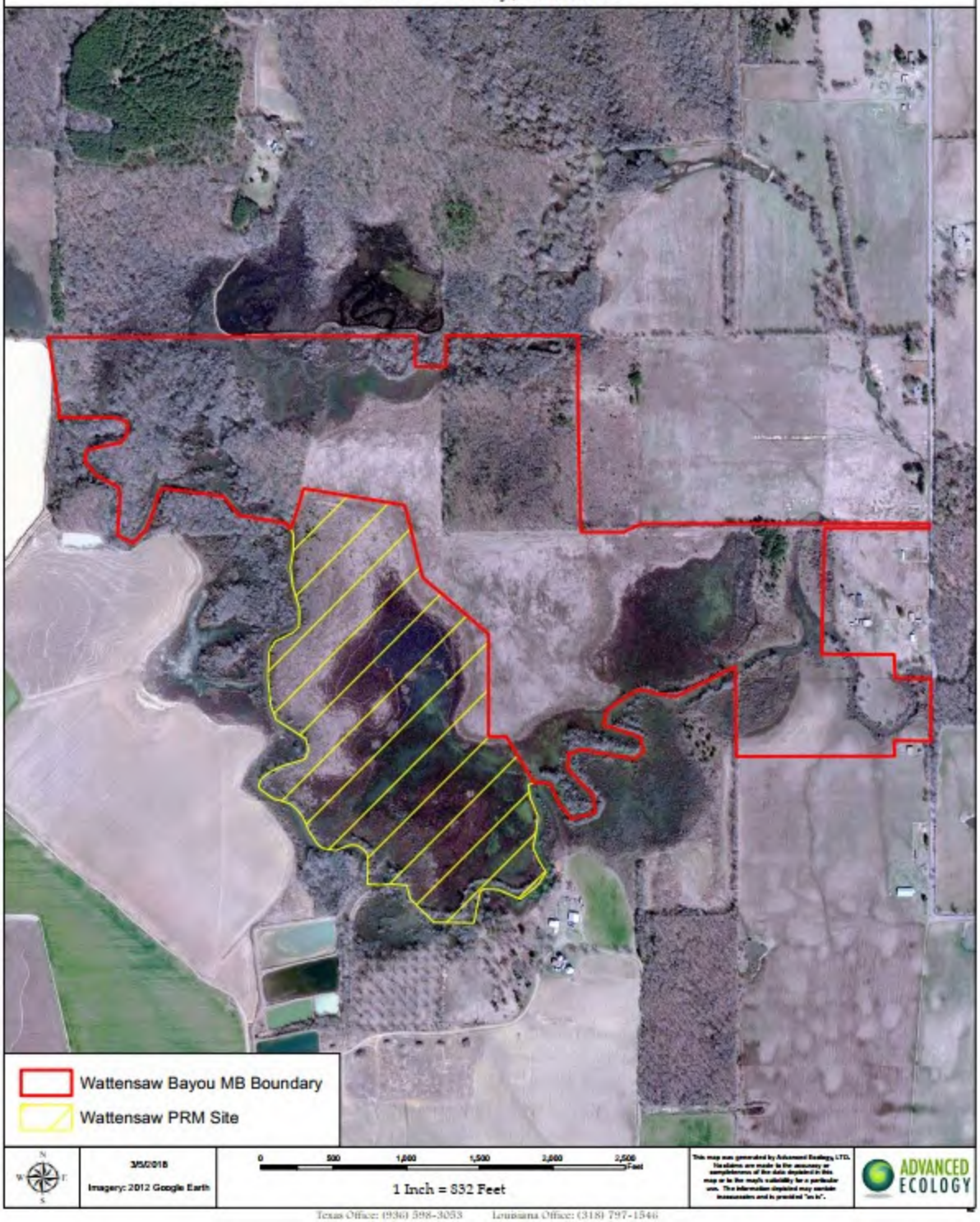
1 Inch = 832 Feet

This map was generated by Advanced Ecology, LTD. No claims are made to the accuracy or completeness of the data depicted in this map or to the map's suitability for a particular use. The information depicted may contain inaccuracies and is provided "as is".

ADVANCED ECOLOGY

Texas Office: (936) 398-3053 Louisiana Office: (318) 797-1546

2012 Aerial Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



3/5/2018
Imagery: 2012 Google Earth

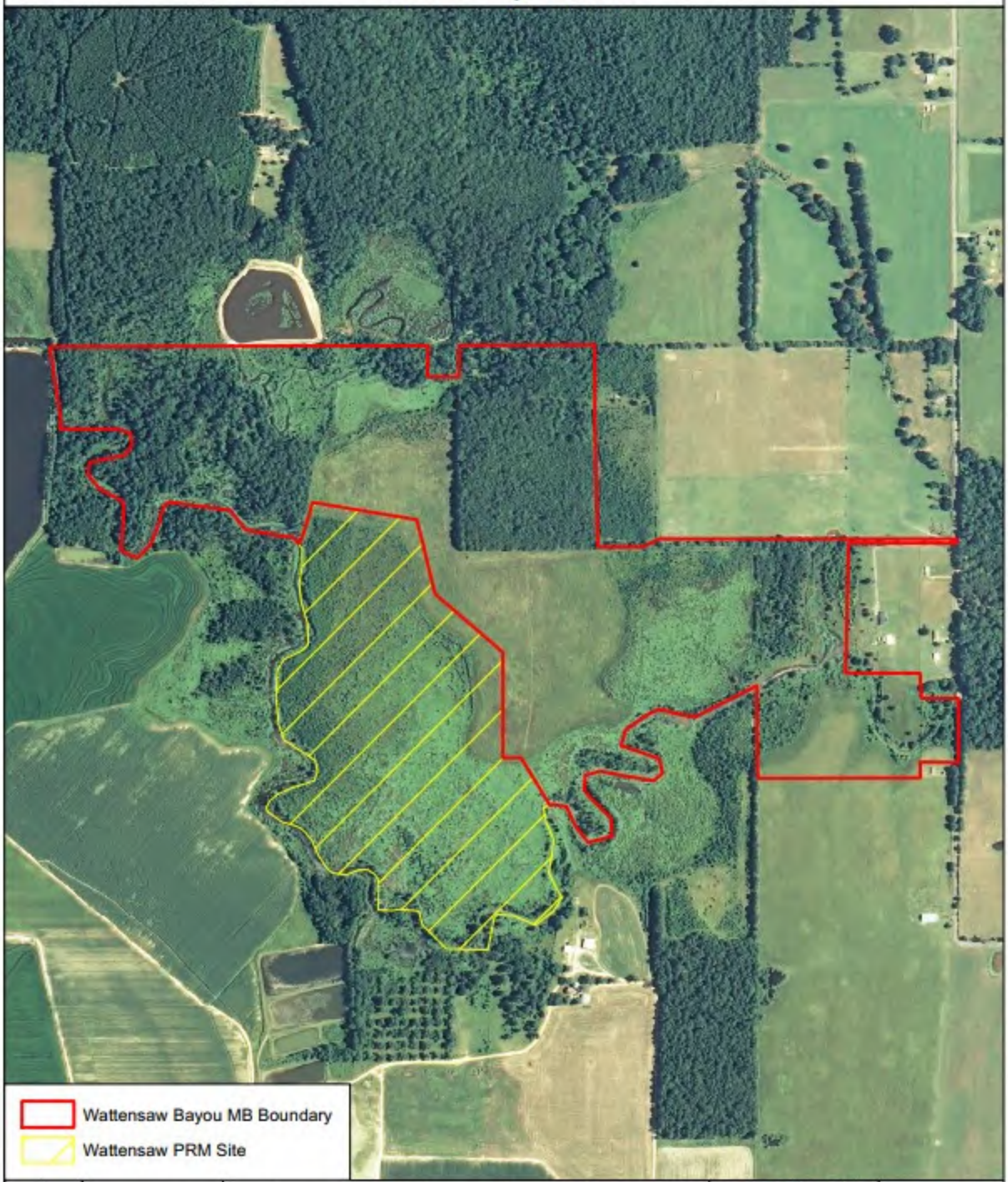
0 500 1,000 1,500 2,000 2,500 Feet
1 Inch = 832 Feet

This map was generated by Advanced Ecology, LTD. No claims are made to the accuracy or completeness of the data depicted in this map or to the map's suitability for a particular use. The information depicted may contain inaccuracies and is provided "as is".

ADVANCED ECOLOGY

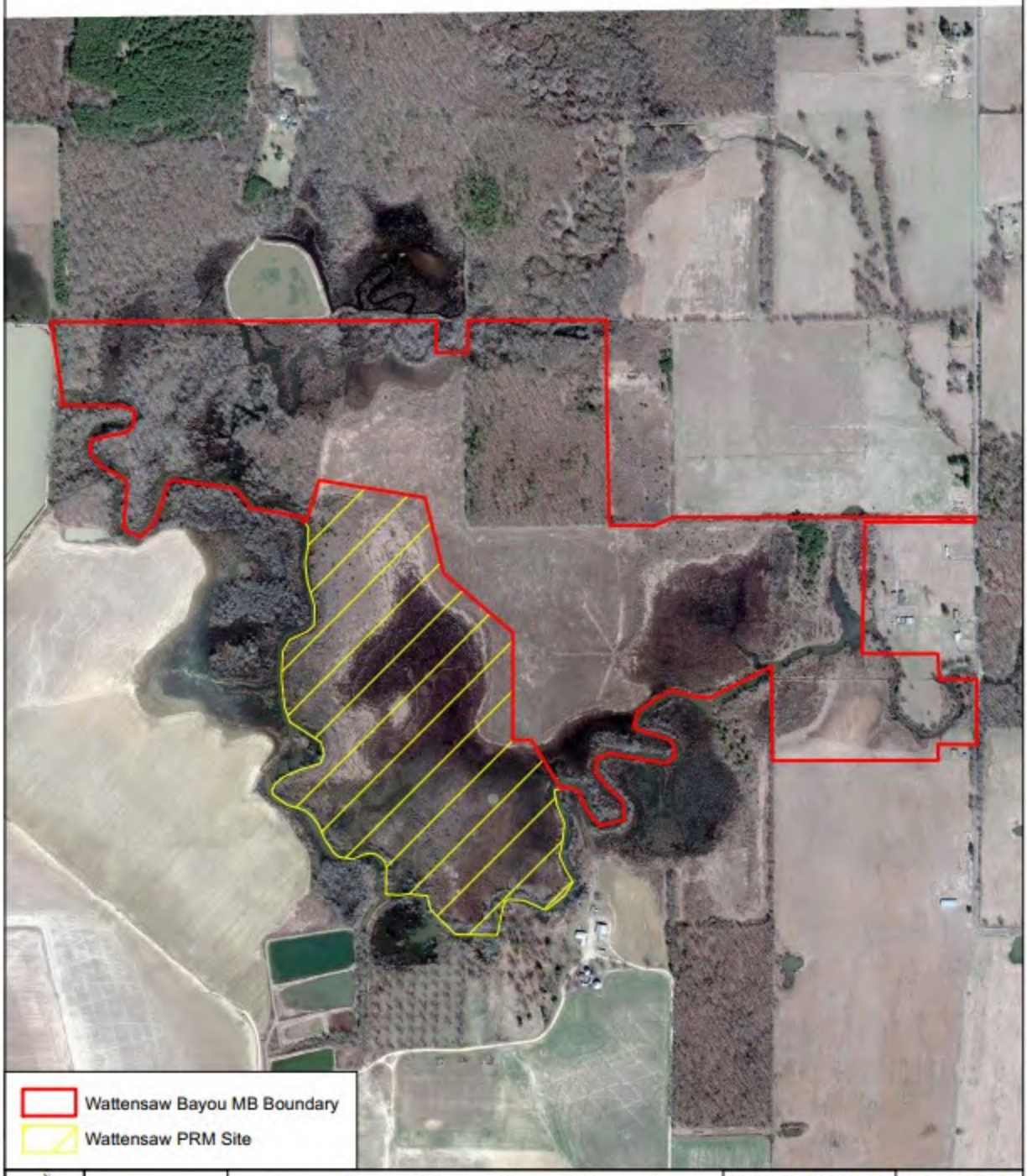
Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

2013 Aerial Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



Texas Office: (936) 598-5053 Louisiana Office: (318) 797-1546

2014 Aerial Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



Texas Office: (936) 588-3033 Louisiana Office: (318) 797-1346

APPENDIX C

Wetland Delineation Report

Wetland Delineation Report

Wattensaw Bayou Mitigation Bank

Lonoke County, Arkansas

September 2017

ADVANCED ECOLOGY

enhancing natural resource value

Table of Contents

Delineation of Waters of the U.S., Including Wetlands

Part I: Introduction

Advanced Ecology LTD (AEL) investigated the land characteristics on an approximately 186-acre property (Project Site) owned by AE Land and Timber, LLC. (Landowner), located in Lonoke County, Arkansas approximately twenty-three (23) miles northeast of Little Rock, AR (Appendix A, Figure 1). The latitude/longitude coordinates for the Project Site are: 34° 89' 18.20" N; -91° 91' 25.00" W (UTM NAD 83 Zone 15N). This investigation was conducted as part of a feasibility study for Mitigation Management, LTD. (MML/Client). AEL staff members identified and delineated potential jurisdictional waters of the U.S. (including wetlands) on the Project Site as identified in Appendix A, Figure 2.

For the purposes of this report, the definition of "Waters of the U.S." is consistent with that provided in 33 CFR §328.3(a). According to the Corps of Engineers Wetlands Delineation Manual (Manual) (Environmental Laboratory 1987), wetlands are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

The U.S. Army Corps of Engineers (USACE) has final authority over establishing all wetland/non-wetland boundaries and classification and jurisdictional status of non-wetland waters; thus, this report is being generated to aid in this jurisdictional determination.

Part II: Methods

2.1 Resource Review

AEL reviewed available information sources to ascertain local wetland community characteristics for the Project Site. A primary objective of the resource review was to identify and generally map expected wetland communities and specific habitat subtypes prior to the site visit. Information sources include:

- **Natural Resources Conservation Service (NRCS) Soil Survey**
  NRCS Web Soil Survey data was reviewed for purpose of locating and evaluating designated hydric soil types within the Project Site (Appendix A, Figure 3). The U.S. Department of Agriculture (USDA)-*NRCS Soil Survey Division Soil Series Name Search Query Facility* website was used to determine a range in characteristics for mapped soil types within the delineated Project Site.

- **U.S. Geological Survey (USGS) Topographic Map**
  One 7.5-minute series USGS Topographic Quadrangle Map (Lonoke, Arkansas) was evaluated prior to the site visit (Appendix A, Figure 4).

- **Aerial Photography**
  Aerial photography of the Project Site was reviewed for purposes of evaluating plant communities, identifying potential wetland habitats, and developing an initial understanding of hydrologic, vegetative, and overall land use changes. Current and historical aerial photographs were obtained from the USDA, USGS, and other sources (Appendix A, Figure 5; Appendix D).

- **National Food Securities Act Manual WETS Analysis**
  A National Food Securities Act Manual (NFSAM) WETS analysis was conducted to make the determination of hydrologic and climatic conditions for the site at the time of the delineation (Appendix C). The Cabot station (34.98 N, -92.00 W) was used for this analysis. Rainfall data was derived from the NOAA Lonoke Climate Data website (NOAA 2017).

- **National Wetlands Inventory Data (NWI)**
  NWI data was examined prior to the site visit (Appendix A, Figure 6).

- **Other Resources**
  AEL previously conducted a wetland delineation for the adjacent Wattensaw permittee responsible mitigation (PRM) area. This material was reviewed prior to conducting field work for the Project Site, given the obvious ecological similarities and geographic proximity of the two projects.

2.2 Site Investigation and Data Collection

Following the resource review, the Project Site was inspected by AEL biologists or AEL representatives to document environmental conditions of interest. The site visit was conducted on September 11-13, 2017. As per standard procedures, pedestrian surveys utilizing transects were conducted throughout the Project Site for delineation purposes. Ground conditions in other specific areas of interest identified via remote sensing were also documented. The wetland delineation involved documentation of the dominant plant species, soil properties, and hydrological characteristics of the potential wetland habitats within the Project Site. This data was used to categorize the habitat by the Cowardin wetland classification system (Cowardin et al. 1979).

Criteria used in the identification of potential wetlands were those prescribed the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region Version 2.0* (Regional Supplement) (USACE 2010). Methods for characterizing vegetation, recording soil data, and determining hydrology were done in accordance with these USACE manuals. Wetland delineation data points were collected along transects in accordance to the USACE guidelines for delineations greater than five acres in size; the corresponding data sheets are provided in Appendix B. The locations of all wetland communities were mapped using *ArcGIS 10.5* (Appendix A, Figure 2).

Preliminary determination of hydric soil conditions for the Project Site was based on the hydric soils list provided by the NRCS *Web Soil Survey*. Final determination of the presence of hydric or non-hydric soils was through in-field sampling of soil profiles. Soil value and chroma needed for the determination of the presence of hydric or non-hydric soils were determined using *Munsell Soil Color Charts* (2000 Revised Edition) as recommended in the USACE wetland delineation manual.

Visual samples of dominant plant species and estimates of their respective total percent composition within each vegetative stratum were taken within each community type. Confirmation of plant identification was made using several sources of information, including the *USDA Plants Database*.

Part III: Results and Discussion

3.1 Hydrology

The primary sources of wetland hydrology for the Project Site are Locust Creek, Wattensaw Bayou, and over-land flow from direct precipitation events. Positive wetland hydrology indicators were observed throughout much of the Project Site with water-stained leaves, drift deposits and oxidized rhizospheres along living roots being particularly common. Surface water and soil saturation were also observed.

Based on the WETS analysis, August displayed normal hydrologic conditions, while June and July displayed wetter-than-normal hydrologic conditions. Overall, the site was determined to exhibit slightly wetter than normal conditions during the three-month period prior to the delineation field work.

3.2 Soils

A detailed soils map sheet breaks this Project Site into specific soil groups. The following detailed soil units can be found within the bounds of the Project Site (USDA 1981, NRCS Web Soil Survey) (Appendix A, Figure 3).

Tichnor silt loam, frequent flooding

Tichnor silt loam, frequent flooding, is mapped over approximately 60% of the Project Site. It is a component of floodplain systems, exhibiting poor natural drainage. According to the Soil Survey of Lonoke and Prairie Counties, Arkansas, this soil type is well suited to woodlands consisting primarily of cherrybark oak *(Quercus pagoda)*, sweetgum *(Liquidambar styraciflua)*, water oak *(Quercus nigra)* and green ash *(Fraxinus pennsylvanica)* (USDA 1981). Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is frequently flooded, though not ponded, and occurs on slopes of 0-1%. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, December. Organic matter content in the surface horizon is about 2 percent (USDA 1981, NRCS Web Soil Survey).

Kobel silty clay loam

Kobel silty clay loam is mapped across approximately 3% of the Project Site. This is a very deep, poorly drained soil on broad flats and depressions that were back swamps of major streams and their tributaries. This soil formed in clayey alluvium and has high natural fertility. Cherrybark oak, green ash, sweetgum, water oak, and sycamore *(Platanus occidentalis)* grow well in this soil (USDA 1981). Permeability is very slow and available water capacity is high. This soil type occurs on slopes of 0-1%. This soil has high to very high shrink-swell potential (USDA 1981, NRCS Web Soil Survey).

Calhoun silt loam

Calhoun silt loam is mapped over about 24% of the Project Site. This soil occurs on slopes of 0-1% and experiences poor natural drainage. Trees that commonly grow in this soil are cherrybark oak, water oak, sweetgum, and loblolly pine. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very high. This soil does not typically exhibit shrink-swell properties. A seasonal zone of water saturation is at 9 inches during January, February, March, April, December. Organic matter content in the surface horizon is about 2 percent (USDA 1981, NRCS Web Soil Survey).

Stuttgart silt loam

Stuttgart silt loam is mapped over approximately 12% of the Project Site. Stuttgart silt loam,1 to 3 percent slopes are on the tread portion of the Prairie terraces. The terraces are thought to be made up of sediments from the Arkansas River system with a silty mantle from the Mississippi River system that may be mixed with loess in some places. This series consists of very deep, moderately well to somewhat poorly drained, slowly permeable soils that developed mainly in native vegetation of tall grasses with hardwood and scattered areas of shortleaf pine (USDA 1981, NRCS Web Soil Survey).

Immanuel silt loam

The Immanuel series is found on a very small area (~ 2%) in the southeastern portion of the Project Site. These soils consist of very deep, moderately well drained soils that formed in silty alluvium. This soil occurs on slopes of 1-3% (NRCS Web Soil Survey).

Oaklimeter silt loam

Oaklimeter silt loam, occasionally flooded is mapped over a minute section (<1%) in the southwest corner of the Project Site. This is deep, moderately well-drained soil which occurs on floodplains of streams in the Loess Hills. Slopes range from 0-2%. This soil is well-suited to woodlands; cherrybark oak, sweetgum, green ash, loblolly pine *(Pinus taeda),* and willow oak *(Quercus phellos)* grow well in areas mapped with this soil (USDA 1981, NRCS Web Soil Survey).

Calloway silt loam

This soil was mapped in the northeast corner of the Bank. This deep, somewhat poorly drained, soil is moderate in natural fertility and is frequently found in flats and terraces. This soil is well-suited to woodlands; cherrybark oak, loblolly pine, sweetgum and water oak do particularly well in this soil type (USDA 1981).

3.3 Non-Jurisdictional Habitat (+/- 3 acres)

Non-jurisdictional habitat comprises a minor component of the delineated Project Site. This habitat occurs at one area of higher elevation at or near the slope-transition between forested upland and wetlands. Dominant species in the tree stratum included loblolly pine and sweetgum. The sapling/scrub stratum was dominated by eastern redbud *(Cercis canadensis)*, mockernut hickory *(Carya tomentosa)*, winged elm *(Ulmus alata)*, and black cherry *(Prunus serotina)*. Eastern red cedar *(Juniperus virginiana)*, green ash, and winged elm were dominant in the shrub stratum. Dominants in the herbaceous stratum included white oak *(Quercus alba)*, green ash, Cherokee sedge *(Carex cherokeensis)*, and sea oats *(Chasmanthium latifolia)*. Lastly, Virginia creeper *(Parthenocissus quinquefolia)*, and poison ivy *(Toxicodendron radicans)* were dominant in the woody vine stratum.

The elevation gradient between the wetland and the upland habitat in this area is gradual; nevertheless, the imagery above (taken on September 13, 2017) juxtaposed with the Google Earth derived figure and images from the September 11-13th site visit (Appendix B), validate the delineated boundary from field work conducted September 11-13th, 2017.

Soil type mapped for the upland area, located just south of the access road, is Tichnor silt loam, frequently flooded. This upland (data point R-1) failed to exhibit hydrophytic vegetation, hydric soil, and wetland hydrology indicators (Appendix B).

3.4 Prior-Converted Non-Jurisdictional Habitat (+/- 93 acres)

The neighboring PRM site AEL previously delineated was considered prior-converted agricultural fields by the NRCS (Appendix A, Figure 7). Similarly, the Project Site acreage is predominately comprised of prior-converted agricultural fields adjacent to Wattensaw Bayou (Appendix A, Figure 2). Conversion of forested wetlands occurred throughout the Project Site prior to 1975, as determined through review of the historic

aerial imagery (Appendix D). The 1949 aerial image provides evidence that most of the MA was forested, with portions having already been cleared for farming at that time; as such, conversions are believed to have occurred sometime between 1949 and the 1960's. Because most of the potential jurisdictional forested wetlands within the Project Site were converted prior to December 23, 1985, the site has been considered "prior converted" (pers. comm. NRCS staff, Lonoke County); however, a formal determination by the NRCS was never completed, presumably due to the long-standing use of the Project Site for crop production (both before and after December 23, 1985) and general lack of need (Appendix E). Currently, agricultural activities have altered natural hydrologic connection between the tributary and the site. The Project Site has an extensive history of water regime management, typical of agricultural farms in the region. Based on the prior-converted status, the majority of the Project Site is considered non-jurisdictional, and therefore possesses a wetland baseline commensurate with that designation.

Palustrine Emergent Wetland Habitat (PEM)- (+/- 93 acres)

Community Type 1:

This herbaceous community is centrally located on the property, predominantly within the Calhoun silt loam soil type. Dominant vegetation in the herbaceous stratum included common lespodeza *(Kummerowia striata)*, knotroot bristlegrass *(Setaria parviflora)*, and bushy bluestem *(Andropogon glomeratus)*. Plant species in this area were predominantly facultative (FAC) to facultative wetland (FACW), but this area appears to have been disturbed by agricultural activities (disking/cropping) more recently than other communities (Appendix A, Figure 2).

Community Type 2:

This herbaceous community is found at lower elevations than Community Type 1 and is adjacent to portions of Wattensaw Bayou in the south and Locust Creek in the north. Vegetation was predominantly obligate (OBL) hydrophytes including smartweed *(Persicaria hydropiperoides, P. pennsylvanica)* in the understory with buttonbush *(Cephalanthus occidentalis)* and black willow *(Salix nigra)* scattered throughout the mid-story (Appendix A, Figure 2).

Community Type 3:

This herbaceous community occurred within the slightly higher elevations than Community Type 2 and is adjacent to Wattensaw Bayou in the southeastern portion of the tract. This community was historically used for hay production and is currently dominated by redtop panic grass (Coleataenia rigidula) and sumpweed (Iva annua) in the understory with persimmon (Diospyros virginiana) scattered throughout (Appendix A, Figure 2).

3.5 Potentially Jurisdictional Habitat (+/- 87 acres)

Broad-Leaved Deciduous Palustrine Forested Wetland Habitat (PFO1) -(+/- 87 acres)

Community Type 4:

This forested community occurred within the eastern portion of the Project Site, adjacent to Wattensaw Bayou and frequently ponded palustrine emergent wetland communities. Black willow, willow oak, sweetgum and persimmon were dominant in the over story. The sapling/shrub layer was dominated by buttonbush, black willow, persimmon, winged elm and water elm *(Planera aquatica)*. Dominant herbaceous species included common rush *(Juncus effusus)* and ravenfoot sedge *(Carex crus-corvi).* Soil mapped in this area was entirely Tichnor silt loam, frequent flooding (Appendix A, Figure 2).

Community Type 5:

This forested community occurred in the northeastern corner of the Project Site, south of Locust Creek and adjacent to frequently ponded palustrine emergent communities. Willow oak and loblolly pine dominated the tree stratum while cedar elm dominated the sapling and shrub layer. The herbaceous/woody vine stratum consisted of Cherokee sedge with greenbrier (*Smilax smallii*) scattered throughout (Appendix A, Figure 2).

Community Type 6:

Community Type 6 is a forested community located in the northwestern portion of the Bank and contains the confluence of Wattensaw Bayou and Locust Creek. Dominant tree species included red maple, persimmon and overcup oak with buttonbush scattered throughout the shrub stratum and smartweed dominating the herbaceous layer (Appendix A, Figure 2).

Community Type 7:

Community Type 7 is found to the south of the entrance road and west of Community Type 4. Sweetgum, green ash and winged elm dominated the tree and sapling/shrub stratum while ravenfoot sedge, northern sea oats *(Chasmanthium latifolium)*, and Virginia creeper *(Parthenocissus quinquefolia)* dominated the herbaceous/woody vine layer (Appendix A, Figure 2).

Riverine/Streams- (+/- 8,462 linear feet)

Wattensaw Bayou is a perennial stream that flows along the southern border of the Project Site, meandering through portions of the eastern PEM community types. Locust Creek is a perennial stream which flows southwest across northern portions of the Project Site before intersecting with Wattensaw Bayou downstream.

3.6 Jurisdictional Determination

Based on current waters of the U.S., including wetlands, regulations and USACE guidelines, six potentially jurisdictional features— including four wetland communities totaling 87 acres and 2 perennial streams totaling 8,462 linear feet— of waters of the U.S., are located within the Project Site.

The USACE and the EPA are the final authority over a jurisdictional status and ecological functions and services of all waters of the U.S., including wetlands delineated on the Project Site per Section 404 of the Clean Water Act. The findings discussed in this report are the professional judgment of Advanced Ecology LTD and have not been verified by the regulatory government agencies.

Part IV: Conclusion

Areas that demonstrate characteristics of hydrophytic vegetation, hydric soils, and wetland hydrology qualify as potentially jurisdictional wetlands and may be regulated under Section 404 of the Clean Water Act. However, most of the areas demonstrating these characteristics found on the project site are the result of agricultural practices (e.g. hydrologic manipulation) and are therefore man-induced and not considered jurisdictional. Overall, areas determined to be potentially jurisdictional were measured as occurring on 87 acres within the Project Site. This report, accompanying maps and supporting documentation (Table 1 & Appendices) are being provided to aid in this jurisdictional determination

Table 1. Summary of the habitat delineation performed within the Project Site.

Community Type	Acreage within Project Site
Community Type 1 (PEM)	+/- 42 acres
Community Type 2 (PEM)	+/- 34 acres
Community Type 3 (PEM)	+/- 17 acres
Community Type 4 (PFO1)	+/- 9 acres
Community Type 5 (PFO1)	+/- 33 acres
Community Type 6 (PFO1)	+/- 40 acres
Community Type 7 (PFO1)	+/- 5 acres
Forested Upland	+/- 3 acres
Road	+/- 3 acres
Potentially Jurisdictional Total:	87 acres
Prior-Converted Non-Jurisdictional Total:	93 acres
Non-Jurisdictional (Including Roads) Total:	6 acres
TOTAL:	**186 acres**

This investigation was based on generally accepted practices of professionals undertaking similar studies at similar times and in the same general geographical area. AEL observed the same degree of care and skill generally exercised by professionals under similar circumstances and conditions. The observations, findings, and opinions of AEL must not be considered as scientific certainties, but solely as opinions based upon our professional judgment concerning the significance of the data gathered throughout the course of the project. No other warranty is expressed or implied by copy of this report.

This report was prepared solely for use in the preliminary or approved wetland determination of portions of the subject property. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, nor shall it be used by any other party in whole or in part, without the prior written consent of the Client.

Part V: Literature Cited

33 CFR 328.3 Definition of Waters of the United States. Title 33, Volume 3, Chapter II, Part 328.3. U.S. Government Printing Office, Washington, D.C.

Cowardin et al. 1979. Classification of Wetlands and Deepwater Habitats of the United States as modified for National Wetland Inventory Mapping Convention.

Munsell Soil Color Charts. 2000 Revised Edition. Munsell Color. New Windsor, United States: Gretagmacbeth.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Accessed 2 October 2017. [Available online at: *http://websoilsurvey.nrcs.usda.gov/*]

U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-20. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

USDA 1981. Soil Survey of Lonoke and Prairie Counties, Arkansas. United States Department of Agriculture, Natural Resources Conservation Service.

Appendix A

Project Figures

Figure 1
Location Map of the Proposed Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas

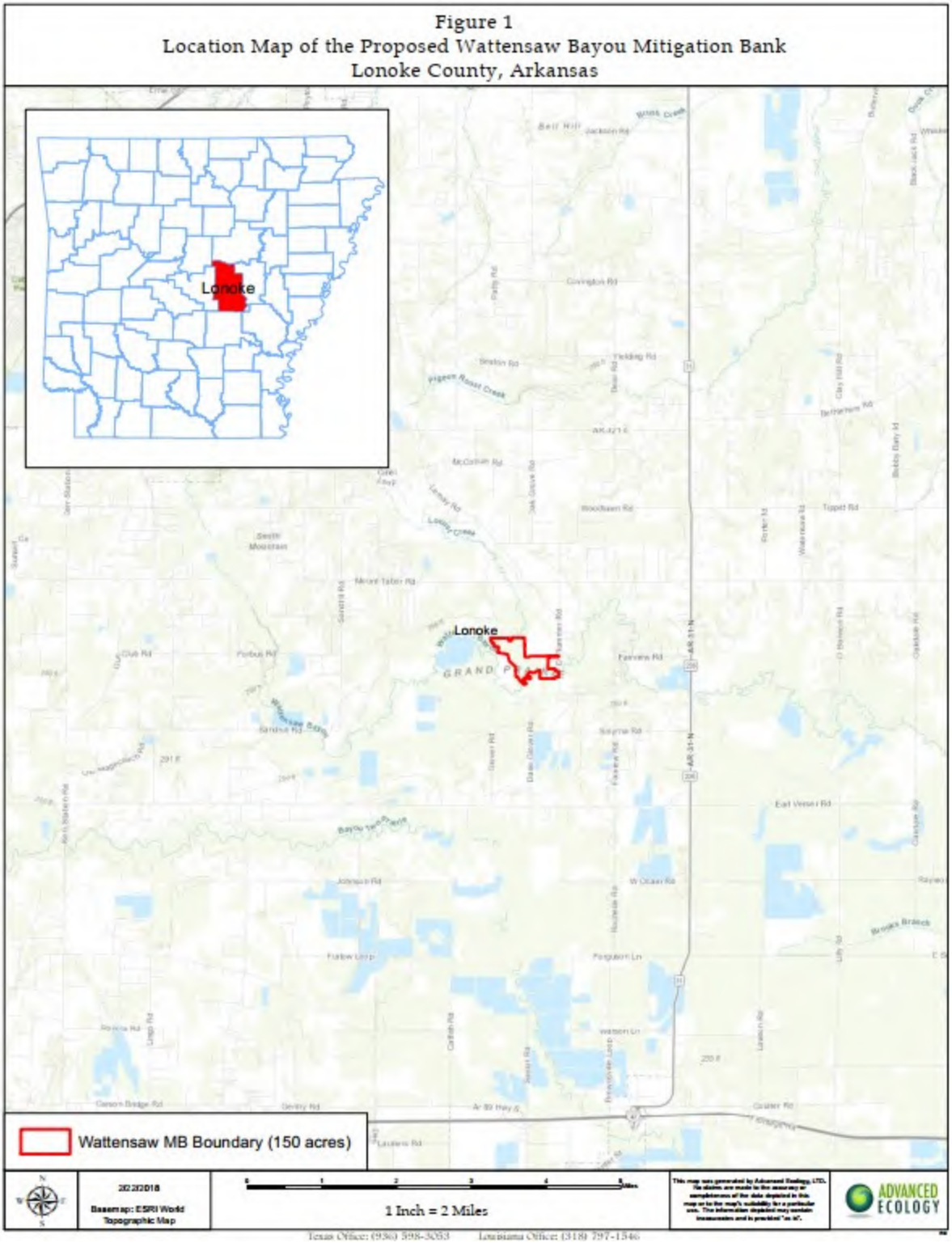
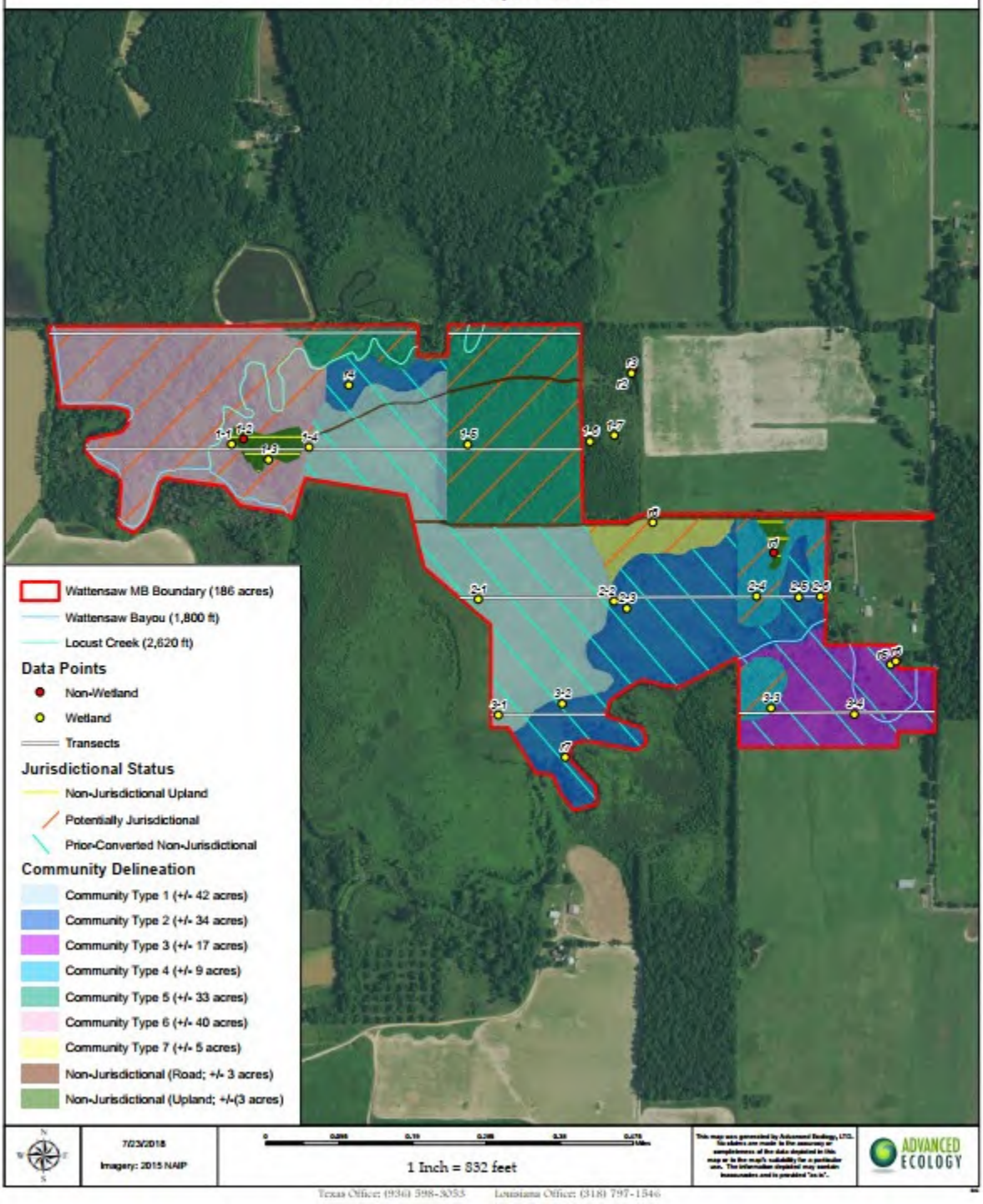
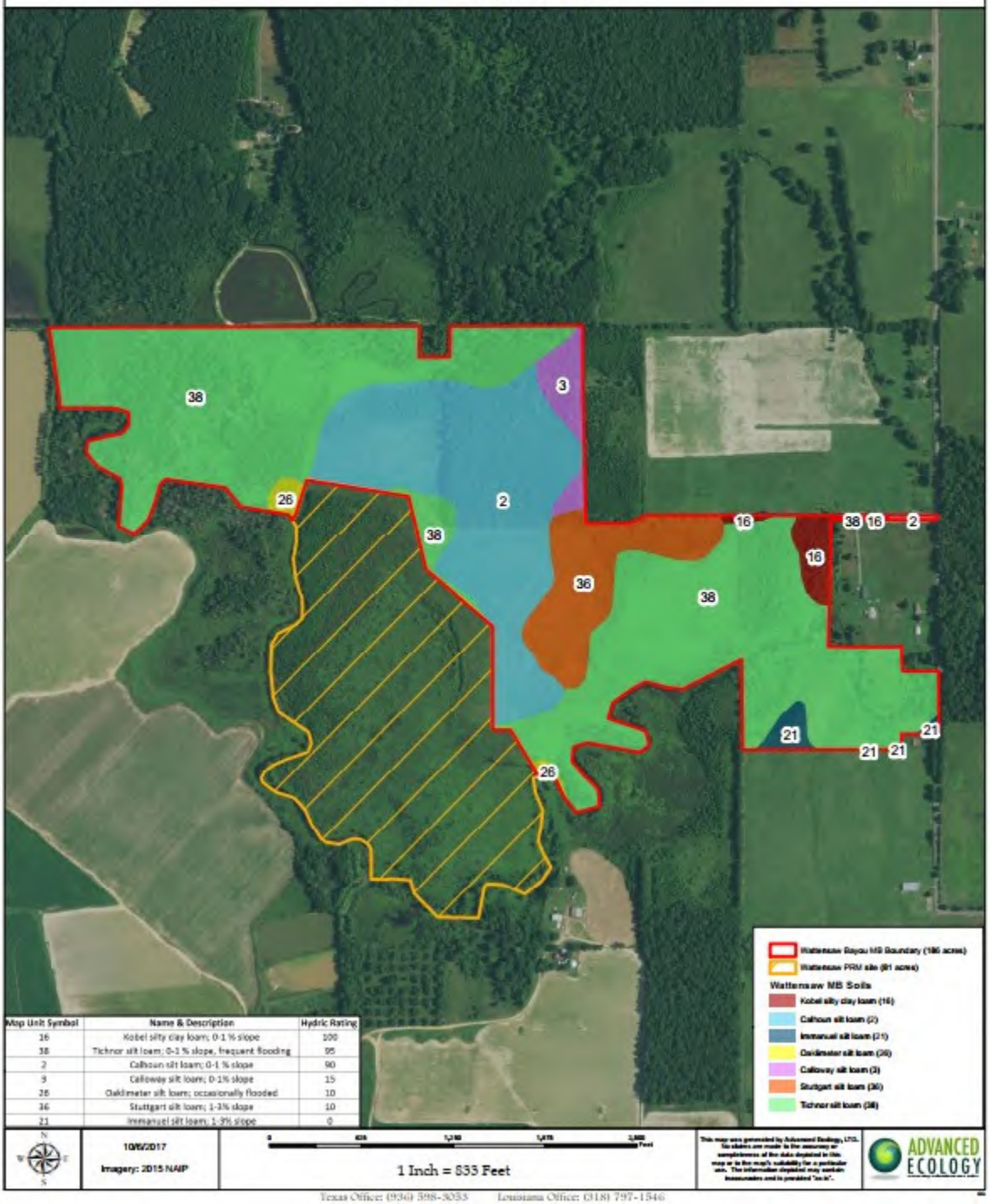


Figure 2
Wetland Delineation Map of the Proposed Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1346

Figure 3
NRCS Soils Map of the Proposed Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas

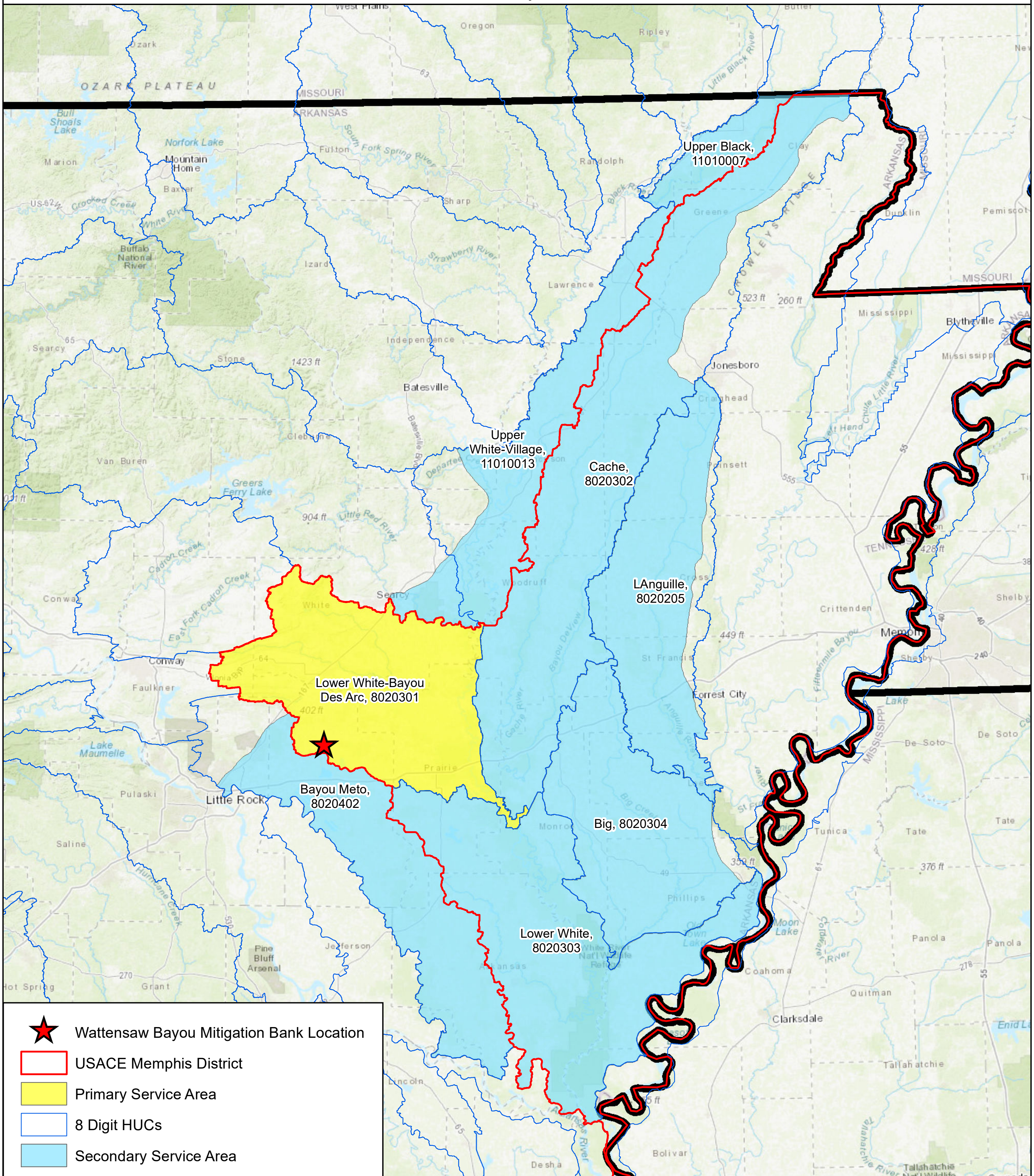


Map Unit Symbol	Name & Description	Hydric Rating
16	Kobel silty clay loam; 0-1 % slope	100
38	Tichnor silt loam; 0-1 % slope, frequent flooding	95
2	Calhoun silt loam; 0-1 % slope	90
3	Calloway silt loam; 0-1% slope	15
26	Oaklimeter silt loam; occasionally flooded	10
36	Stuttgart silt loam; 1-3% slope	10
21	Immanuel silt loam; 1-3% slope	0

10/6/2017
Imagery: 2015 NAIP
1 Inch = 833 Feet
ADVANCED ECOLOGY

Texas Office: (936) 398-3033 Louisiana Office: (318) 797-1546

Figure 3
Proposed Service Areas for Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



2/4/2021

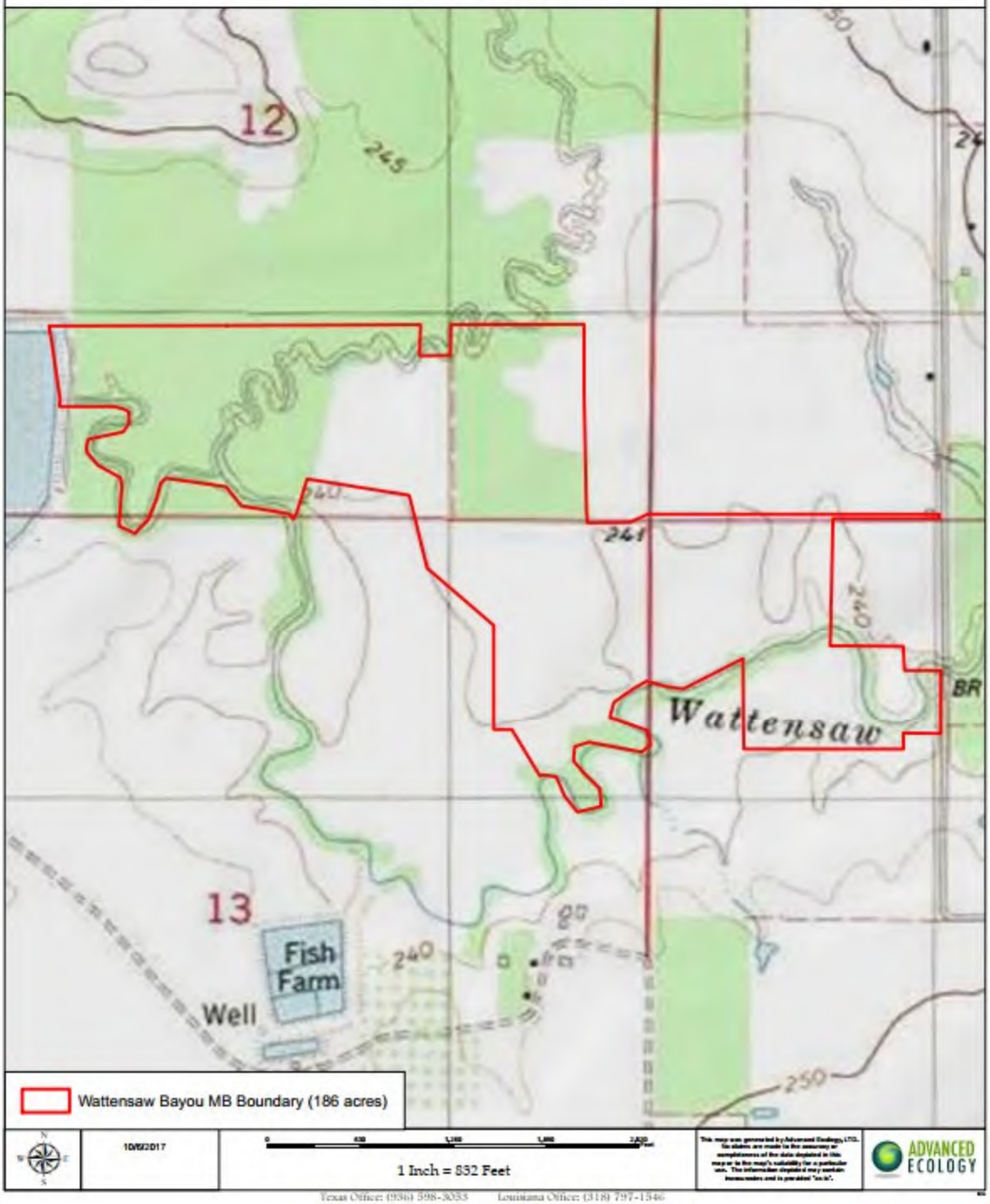
Basemap: ESRI World Topographic Map

1 Inch = 22 Miles

This map was generated by Advanced Ecology, LTD. No claims are made to the accuracy or completeness of the data depicted in this map or to the map's suitability for a particular use. The information depicted may contain inaccuracies and is provided "as is".

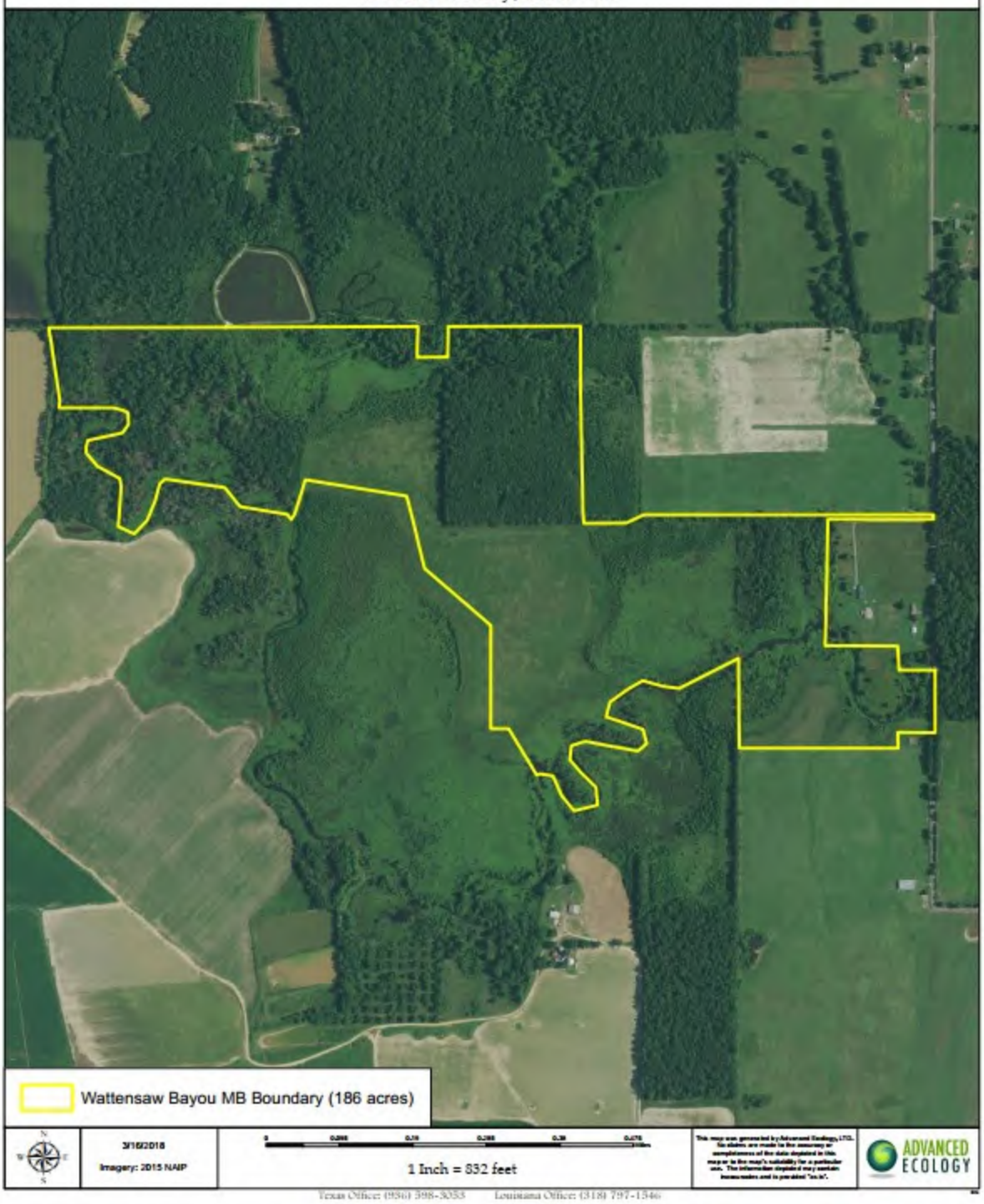
ADVANCED ECOLOGY

Figure 4
Topographic Map of the Proposed Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



Texas Office: (936) 598-3033 Louisiana Office: (318) 797-1346

Figure 5
2015 Aerial Imagery of the Proposed Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



Texas Office: (936) 398-3053 Louisiana Office: (318) 797-1346

Figure 6
NWI Map of the Proposed Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas

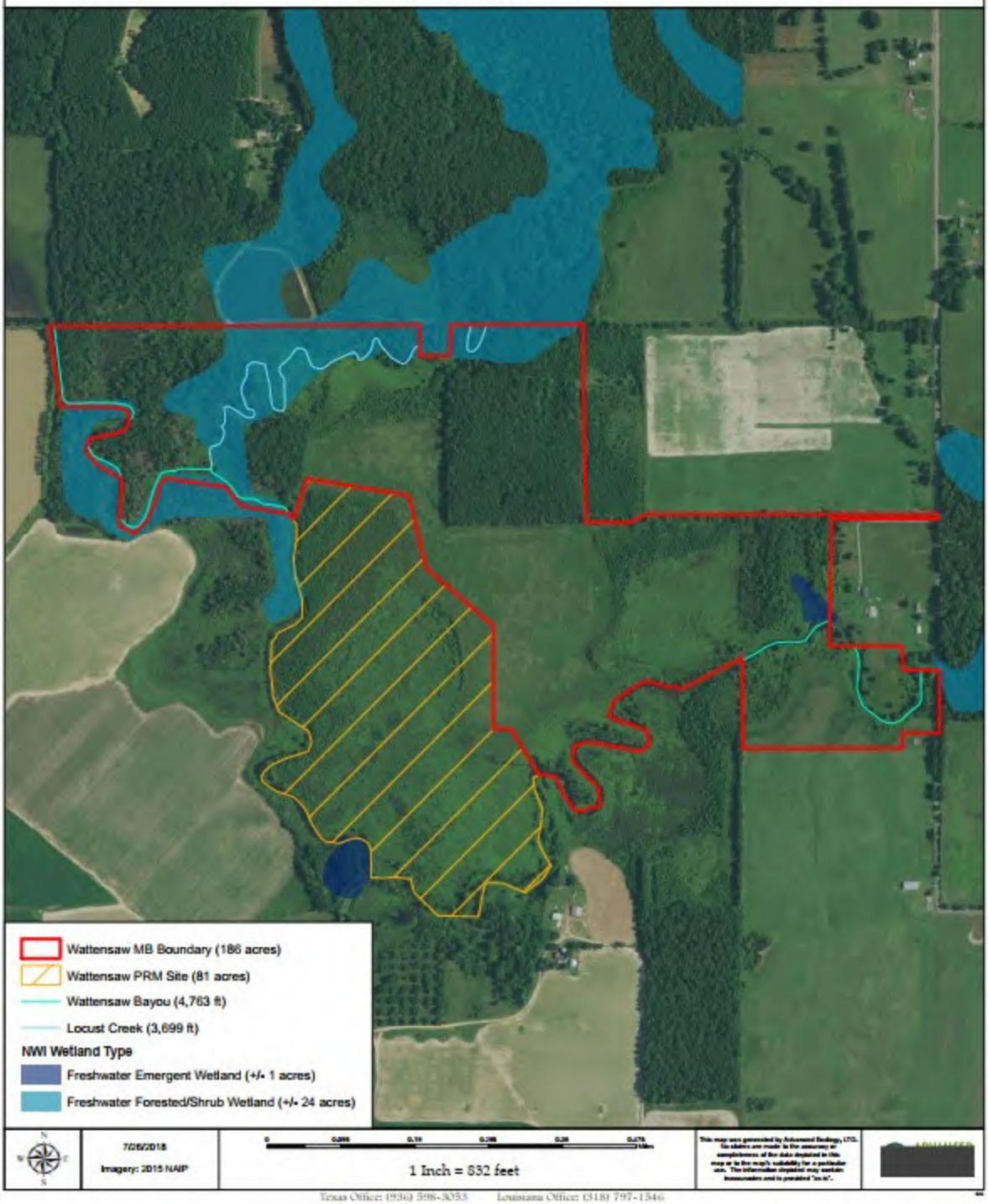
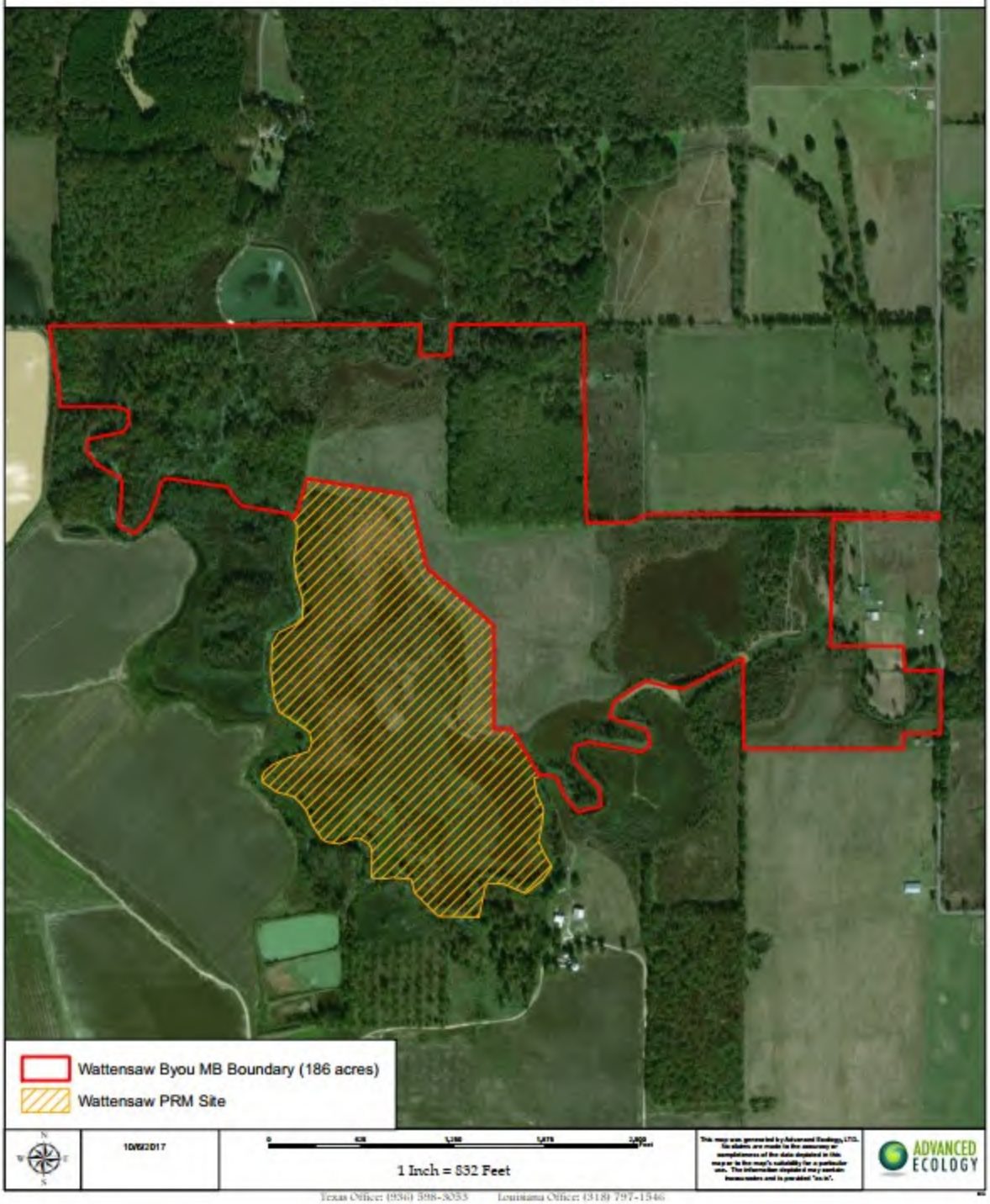


Figure 7
Map of the Wattensaw PRM Site and the Proposed Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



Appendix B

Data Sheets and Site Photos

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 12-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** **1-1**

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** **S** 12 **T** 3N **R** 9W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 **%** / 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.895 N **Long.:** -91.9215 W **Datum:** Nad 83

Soil Map Unit Name: Tichnor Silt Loam **NWI classification:** Fresh. Forested

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ◉ **No** ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☑ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☑ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☑ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ◉ No ○	Depth (inches):	18
Water Table Present?	Yes ◉ No ○	Depth (inches):	18
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches):	0

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: 1-1

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1. **Acer rubrum**	10	☑	33.3%	FAC
2. **Diospyros virginiana**	10	☑	33.3%	FACU
3. **Quercus lyrata**	10	☑	33.3%	OBL
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 15 20% of Total Cover: 6	30	= **Total Cover**		
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1. **Diospyros virginiana**	1	☐	100.0%	FAC
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0.5 20% of Total Cover: 0.2	1	= **Total Cover**		
Shrub Stratum (Plot size: 30)				
1. **Cephalanthus occidentalis**	5	☑	100.0%	OBL
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 2.5 20% of Total Cover: 1	5	= **Total Cover**		
Herb Stratum (Plot size: 30)				
1. **Persicaria hydropiperoides**	95	☑	100.0%	OBL
2.		☐	0.0%	
3.		☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 47.5 20% of Total Cover: 19	95	= **Total Cover**		
Woody Vine Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 0 20% of Total Cover: 0	0	= **Total Cover**		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	110	x 1 =	110	
FACW species	0	x 2 =	0	
FAC species	11	x 3 =	33	
FACU species	10	x 4 =	40	
UPL species	0	x 5 =	0	
Column Totals:	131 (A)		183	(B)

Prevalence Index = B/A = 1.397

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: 1-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-18	10YR	6/1	95	7.5YR	5/6	5	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: 1-1

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 12-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** **1-2**

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** **S** 12 **T** 3N **R** 9W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** flat **Slope:** 1.0 **% /** 0.6 **°**

Subregion (LRR or MLRA): LRR O **Lat.:** 34.8951 N **Long.:** -91.9212 W **Datum:** Nad 83

Soil Map Unit Name: Tichnor Silt Loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?** **Yes** ○ **No** ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: 1-2

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1. Carya tomentosa	40	✔	36.4%	UPL
2. Quercus nigra	30	✔	27.3%	FAC
3. Quercus alba	20		18.2%	FACU
4. Quercus pagoda	10		9.1%	FACW
5. Ulmus crassifolia	10		9.1%	FAC
6.	0		0.0%	
7.	0		0.0%	
8.	0		0.0%	
50% of Total Cover: 55	20% of Total Cover: 22	110	= Total Cover	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1. Carya tomentosa	25	✔	100.0%	UPL
2.	0		0.0%	
3.	0		0.0%	
4.	0		0.0%	
5.	0		0.0%	
6.	0		0.0%	
7.	0		0.0%	
8.	0		0.0%	
50% of Total Cover: 12.5	20% of Total Cover: 5	25	= Total Cover	
Shrub Stratum (Plot size: 30)				
1. Fraxinus pennsylvanica	2		50.0%	FACW
2. Ulmus crassifolia	2		50.0%	FAC
3.	0		0.0%	
4.	0		0.0%	
5.	0		0.0%	
6.	0		0.0%	
50% of Total Cover: 2	20% of Total Cover: 0.8	4	= Total Cover	
Herb Stratum (Plot size: 30)				
1. Carex cherokeensis	2		100.0%	FACW
2.			0.0%	
3.	0		0.0%	
4.	0		0.0%	
5.	0		0.0%	
6.	0		0.0%	
7.	0		0.0%	
8.	0		0.0%	
9.	0		0.0%	
10.	0		0.0%	
11.	0		0.0%	
12.	0		0.0%	
50% of Total Cover: 1	20% of Total Cover: 0.4	2	= Total Cover	
Woody Vine Stratum (Plot size: 30)				
1. Vitis rotundifolia	1		25.0%	FAC
2. Smilax smallii	1		25.0%	FACU
3. Toxicodendron radicans	1		25.0%	FAC
4. Parthenocissus quinquefolia	1		25.0%	FACU
5.	0		0.0%	
50% of Total Cover: 2	20% of Total Cover: 0.8	4	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	14	x 2 =	28
FAC species	44	x 3 =	132
FACU species	22	x 4 =	88
UPL species	65	x 5 =	325
Column Totals:	145 (A)		573 (B)

Prevalence Index = B/A = 3.952

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: (If observed, list morphological adaptations below).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: 1-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)	%	Type [1]	Loc²	Texture	Remarks
0-18	10YR	5/3	100					Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ○ **No** ◉

Remarks:

Sampling Point Labeled on Map: 1-2

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 12-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** **1-3**

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** **S** 12 **T** 3N **R** 9W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 **%** / 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.8947 N **Long.:** -91.9206 W **Datum:** Nad 83

Soil Map Unit Name: Tichnor Silt Loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○	**Is the Sampled Area**
Hydric Soil Present? Yes ◉ No ○	**within a Wetland?** **Yes** ◉ **No** ○
Wetland Hydrology Present? Yes ◉ No ○	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: 1-3

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1. Quercus pagoda	30	☑	28.6%	FACW
2. Ulmus crassifolia	25	☑	23.8%	FAC
3. Carya tomentosa	20	☐	19.0%	UPL
4. Ulmus americana	15	☐	14.3%	FAC
5. Quercus nigra	15	☐	14.3%	FAC
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 52.5	20% of Total Cover: 21	105	**= Total Cover**	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1. Carya tomentosa	25	☑	50.0%	UPL
2. Ulmus crassifolia	15	☑	30.0%	FAC
3. Ulmus americana	10	☑	20.0%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 25	20% of Total Cover: 10	50	**= Total Cover**	
Shrub Stratum (Plot size: 30)				
1. Ulmus americana	15	☑	60.0%	FAC
2. Carya tomentosa	5	☑	20.0%	UPL
3. Liquidambar styraciflua	5	☑	20.0%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 12.5	20% of Total Cover: 5	25	**= Total Cover**	
Herb Stratum (Plot size: 30)				
1. Carex cherokeensis	1	☐	100.0%	FACW
2.		☐	0.0%	
3.		☐	0.0%	
4.		☐	0.0%	
5.		☐	0.0%	
6.		☐	0.0%	
7.		☐	0.0%	
8.		☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 0.5	20% of Total Cover: 0.2	1	**= Total Cover**	
Woody Vine Stratum (Plot size: 30)				
1. Vitis rotundifolia	2	☑	40.0%	FAC
2. Smilax smallii	2	☑	40.0%	FACU
3. Toxicodendron radicans	1	☑	20.0%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 2.5	20% of Total Cover: 1	5	**= Total Cover**	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 72.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	31	x 2 =	62
FAC species	103	x 3 =	309
FACU species	2	x 4 =	8
UPL species	50	x 5 =	250
Column Totals:	186 (A)		629 (B)

Prevalence Index = B/A = 3.382

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: 1-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-6	10YR	5/1	70	10YR	6/6	30	C	M	Silt Loam	
6-18	10YR	5/1	60	10YR	6/6	40	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: 1-3

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 12-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** **1-4**

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** **S** 12 **T** 3N **R** 9W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 **%** / 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.8949 N **Long.:** -91.9197 W **Datum:** Nad 83

Soil Map Unit Name: Tichnor Silt Loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☑ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ◉ **No** ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
This tract has been farmed regularly since at least before 1960's. Thus, regular tillage, field planing, and levees have altered site conditions from that of historic condition prior to conversion.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: 1-4

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1.		☐	0.0%	
2.		☐	0.0%	
3.		☐	0.0%	
4.		☐	0.0%	
5.		☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1.		☐	0.0%	
2.		☐	0.0%	
3.		☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Shrub Stratum (Plot size: 30)				
1.		☐	0.0%	
2.		☐	0.0%	
3.		☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Herb Stratum (Plot size: 30)				
1. **Kummerowia striata**	30	☑	25.0%	FACU
2. **Solidago gigantea**	20	☑	16.7%	FACW
3. **Desmodium tortuosum**	20	☑	16.7%	FAC
4. **Cynodon dactylon**	15	☐	12.5%	FACU
5. **Bidens bipinnata**	10	☐	8.3%	FAC
6. **Verbena bonariensis**	10	☐	8.3%	FAC
7. **Setaria parviflora**	10	☐	8.3%	FACW
8. **Agalinis fasciculata**	5	☐	4.2%	FAC
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 60	20% of Total Cover: 24	120	**= Total Cover**	
Woody Vine Stratum (Plot size: 30)				
1.		☐	0.0%	
2.		☐	0.0%	
3.		☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	45	x 3 =	135
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	120 (A)		375 (B)

Prevalence Index = B/A = 3.125

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: 1-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-8	10YR	6/2	80	10YR	4/6	20	C	M	Silt Loam	
8-18	10YR	5/2	85	7.5YR	5/8	15	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: 1-4

DATA FORM
ATYPICAL SITUATIONS

Project Name: Wattensaw Bayou Mitigation Bank

Location: Lonoke, AR Date: September 11-13, 2017

A. VEGETATION:

1. **Type of alteration:** The site has been in agricultural production since the 1960's. Some clearing had occurred prior to 1949, remaining areas were cleared between 1949 and the 1970's. The vegetation has been significantly disturbed on site due to past agricultural management techniques (e.g. tilling, disking, mowing, herbicide, leveling). The site is currently fallow.

2. **Effect on the Vegetation:** Regular tilling, disking, mowing, herbicide, and leveling have prevented natural succession.

3. **Previous Vegetation:** Prior to 2011, wheat, soybeans, sweet potatoes, rice, corn, and other commodity crops. Prior to 1960's, the majority of the site was forested. Historic aerials (1949) and geomorphic position indicate that bottomland hardwood forested wetlands were present at that time.

4. **Hydrophytic Vegetation?** Yes

B. SOILS:

1. **Type of alteration:** The site has been in agricultural production for the past 50 years. The soil has been routinely disturbed on site due to tilling, disking, etc. leveling, and leveeing as part of an agricultural management regime. Micro and macro topographic features have been largely eliminated due to leveling.

2. **Effect on the Soil:** Microtopography has been mostly eliminated with exception to remnant rice levees on margins.

3. **Previous Soils:** Prior to clearing, the soils likely exhibited wetland characteristics and a hydroperiod more similar to that as the intact forested community abutting the Bank.

4. **Hydrophytic Soils?** Yes

C. HYDROLOGY:

1. **Type of alteration:** Rice levees were constructed to allow for control of the hydrologic connectivity between Wattensaw Bayou/Locust Creek and the Bank.

2. **Effect on the Hydrology:** Rice levees have altered the natural hydrologic regime for the area.

3. **Previous Hydrology:** Historic aerials, soils and topographic maps, indicate site hydrology was primarily associated with out-banking events of Wattensaw Bayou and Locust Creek.

4. **Wetland Hydrology?** Yes

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 12-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** **1-5**

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** **S** 12 **T** 3N **R** 9W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 0.0 **%** / 0.0 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.8949 N **Long.:** -91.9161 W **Datum:** Nad 83

Soil Map Unit Name: Calhoun silt loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○	**Is the Sampled Area**
Hydric Soil Present? Yes ◉ No ○	**within a Wetland?** **Yes** ◉ **No** ○
Wetland Hydrology Present? Yes ◉ No ○	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☑ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☑ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: 1-5

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1. Quercus phellos	50	✔	49.8%	FACW
2. Pinus taeda	25	✔	24.9%	FAC
3. Quercus pagoda	####	☐	12.4%	FACW
4. Quercus nigra	8	☐	8.0%	FAC
5. Ulmus crassifolia	5	☐	5.0%	FAC
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 50.25	20% of Total Cover: 20.1	100.5	= Total Cover	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1. Ulmus crassifolia	5	✔	100.0%	FAC
2.		☐	0.0%	
3.		☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 2.5	20% of Total Cover: 1	5	= Total Cover	
Shrub Stratum (Plot size: 30)				
1. Ulmus crassifolia	2.5	☐	100.0%	FAC
2.		☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 1.25	20% of Total Cover: 0.5	2.5	= Total Cover	
Herb Stratum (Plot size: 30)				
1. Carex cherokeensis	5	✔	100.0%	FACW
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 2.5	20% of Total Cover: 1	5	= Total Cover	
Woody Vine Stratum (Plot size: 30)				
1. Smilax smallii	5	✔	100.0%	FACU
2.		☐	0.0%	
3.		☐	0.0%	
4.		☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 2.5	20% of Total Cover: 1	5	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	67.5	x 2 =	135	
FAC species	45	x 3 =	135	
FACU species	5	x 4 =	20	
UPL species	0	x 5 =	0	
Column Totals:	117.5	(A)	290	(B)

Prevalence Index = B/A = 2.468

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ✔ **2 - Dominance Test is > 50%**
- ✔ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: 1-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-3	10YR	5/2	100						Silt Loam	
3-18	10YR	5/2	80	7.5YR	5/6	20	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: 1-5

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 12-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** **1-6**

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** **S** 12 **T** 3N **R** 9W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 **%** / 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.895 N **Long.:** -91.91331 W **Datum:** Nad 83

Soil Map Unit Name: Calloway silt loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ◉ **No** ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: 1-6

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1. **Liquidambar styraciflua**	60	☑	60.0%	FAC
2. **Ulmus alata**	25	☑	25.0%	FACU
3. **Diospyros virginiana**	15	☐	15.0%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 50 20% of Total Cover: 20	100	= Total Cover		
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1. **Liquidambar styraciflua**	20	☑	66.7%	FAC
2. **Diospyros virginiana**	10	☑	33.3%	FAC
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 15 20% of Total Cover: 6	30	= Total Cover		
Shrub Stratum (Plot size: 30)				
1. **Liquidambar styraciflua**	10	☑	66.7%	FAC
2. **Diospyros virginiana**	5	☑	33.3%	FAC
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 7.5 20% of Total Cover: 3	15	= Total Cover		
Herb Stratum (Plot size: 30)				
1. **Bidens bipinnata**	30	☑	37.5%	FAC
2. **Solidago gigantea**	25	☑	31.3%	FACW
3. **Dichanthelium clandestinum**	10	☐	12.5%	FACW
4. **Quercus stellata**	10	☐	12.5%	UPL
5. **Ulmus alata**	5	☐	6.3%	FACU
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 40 20% of Total Cover: 16	80	= Total Cover		
Woody Vine Stratum (Plot size: 30)				
1. **Rubus argutus**	10	☑	50.0%	FAC
2. **Vitis rotundifolia**	5	☑	25.0%	FAC
3. **Lonicera japonica**	5	☑	25.0%	FACU
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 10 20% of Total Cover: 4	20	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 81.8% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	165	x 3 =	495
FACU species	35	x 4 =	140
UPL species	10	x 5 =	50
Column Totals:	245 (A)		755 (B)

Prevalence Index = B/A = 3.082

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

Pyrus calleryana in sapling stratum 10% coverage; no indicator status

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: 1-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-12	10YR	6/2	75	10YR	6/6	25	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: 1-6

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 12-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** **1-7**

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** **S** 12 **T** 3N **R** 9W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 **%** / 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.8951 N **Long.:** -91.91274 W **Datum:** Nad 83

Soil Map Unit Name: Calloway silt loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ◉ **No** ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: 1-7

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	= Total Cover	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	= Total Cover	
Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	= Total Cover	
Herb Stratum (Plot size: 30)				
1. **Kummerowia striata**	60	☑	63.2%	FACU
2. **Diospyros virginiana**	20	☑	21.1%	FAC
3. **Liquidambar styraciflua**	10	☐	10.5%	FAC
4. **Dichanthelium acuminatum**	5	☐	5.3%	FAC
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 47.5	20% of Total Cover: 19	95	= Total Cover	
Woody Vine Stratum (Plot size: 30)				
1. **Rubus argutus**	10	☑	100.0%	FAC
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 5	20% of Total Cover: 2	10	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	45	x 3 =	135	
FACU species	60	x 4 =	240	
UPL species	0	x 5 =	0	
Column Totals:	105 (A)		375	(B)

Prevalence Index = B/A = 3.571

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

Crotin michauxii in herb stratum- 10% cover, no indicator status listed

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: 1-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-12	10YR	6/2	70	10YR	6/8	30	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: 1-7

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 12-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** **2-1**

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** **S** 13 **T** 3N **R** 9W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 **% /** 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.892 N **Long.:** -91.91588 W **Datum:** Nad 83

Soil Map Unit Name: Calhoun silt loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☑ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ◉ **No** ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
This tract has been farmed regularly since at least before 1960's. Thus, regular tillage, field planing, and levees have altered site conditions from that of historic condition prior to conversion.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: 2-1

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Herb Stratum (Plot size: 30)				
1. **Kummerowia striata**	75	☑	44.1%	FACU
2. **Setaria parviflora**	35	☑	20.6%	FACW
3. **Andropogon virginicus**	35	☑	20.6%	FAC
4. **Bidens bipinnata**	15	☐	8.8%	FAC
5. **Solidago gigantea**	10	☐	5.9%	FACW
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 85	20% of Total Cover: 34	170	**= Total Cover**	
Woody Vine Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	45	x 2 =	90	
FAC species	50	x 3 =	150	
FACU species	75	x 4 =	300	
UPL species	0	x 5 =	0	
Column Totals:	170 (A)		540	(B)

Prevalence Index = B/A = 3.176

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: 2-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-8	10YR	6/2	70	7.5YR	5/8	30	C	M	Silt Loam	
8-12	10YR	6/1	80	7.5YR	5/8	20	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: 2-1

DATA FORM
ATYPICAL SITUATIONS

Project Name: Wattensaw Bayou Mitigation Bank

Location: Lonoke, AR Date: September 11-13, 2017

A. VEGETATION:

1. **Type of alteration:** The site has been in agricultural production since the 1960's. Some clearing had occurred prior to 1949, remaining areas were cleared between 1949 and the 1970's. The vegetation has been significantly disturbed on site due to past agricultural management techniques (e.g. tilling, disking, mowing, herbicide, leveling). The site is currently fallow.

2. **Effect on the Vegetation:** Regular tilling, disking, mowing, herbicide, and leveling have prevented natural succession.

3. **Previous Vegetation:** Prior to 2011, wheat, soybeans, sweet potatoes, rice, corn, and other commodity crops. Prior to 1960's, the majority of the site was forested. Historic aerials (1949) and geomorphic position indicate that bottomland hardwood forested wetlands were present at that time.

4. **Hydrophytic Vegetation?** Yes

B. SOILS:

1. **Type of alteration:** The site has been in agricultural production for the past 50 years. The soil has been routinely disturbed on site due to tilling, disking, etc. leveling, and leveeing as part of an agricultural management regime. Micro and macro topographic features have been largely eliminated due to leveling.

2. **Effect on the Soil:** Microtopography has been mostly eliminated with exception to remnant rice levees on margins.

3. **Previous Soils:** Prior to clearing, the soils likely exhibited wetland characteristics and a hydroperiod more similar to that as the intact forested community abutting the Bank.

4. **Hydrophytic Soils?** Yes

C. HYDROLOGY:

1. **Type of alteration:** Rice levees were constructed to allow for control of the hydrologic connectivity between Wattensaw Bayou/Locust Creek and the Bank.

2. **Effect on the Hydrology:** Rice levees have altered the natural hydrologic regime for the area.

3. **Previous Hydrology:** Historic aerials, soils and topographic maps, indicate site hydrology was primarily associated with out-banking events of Wattensaw Bayou and Locust Creek.

4. **Wetland Hydrology?** Yes

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 12-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** **2-2**

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** **S** 13 **T** 3N **R** 9W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 **% /** 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.892 N **Long.:** -91.9128 W **Datum:** Nad 83

Soil Map Unit Name: Tichnor Silt Loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☑ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ◉ **No** ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
This tract has been farmed regularly since at least before 1960's. Thus, regular tillage, field planing, and levees have altered site conditions from that of historic condition prior to conversion.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☑ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: 2-2

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1. **Salix nigra**	15	☑	100.0%	OBL
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 7.5	20% of Total Cover: 3	15	**= Total Cover**	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Shrub Stratum (Plot size: 30)				
1. **Cephalanthus occidentalis**	3	☐	100.0%	OBL
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 1.5	20% of Total Cover: 0.6	3	**= Total Cover**	
Herb Stratum (Plot size: 30)				
1. **Juncus effusus**	60	☑	41.4%	OBL
2. **Setaria parviflora**	30	☑	20.7%	FACW
3. **Coleataenia rigidula**	30	☑	20.7%	FACW
4. **Phyla lanceolata**	10	☐	6.9%	OBL
5. **Persicaria pensylvanica**	10	☐	6.9%	FACW
6. **Dichanthelium clandestinum**	5	☐	3.4%	FACW
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 72.5	20% of Total Cover: 29	145	**= Total Cover**	
Woody Vine Stratum (Plot size: 30)				
1. **Lonicera japonica**	5	☑	100.0%	FACU
2. **Ipomoea hederacea**	0	☐	0.0%	FACU
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 2.5	20% of Total Cover: 1	5	**= Total Cover**	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	88	x 1 =	88	
FACW species	75	x 2 =	150	
FAC species	0	x 3 =	0	
FACU species	5	x 4 =	20	
UPL species	0	x 5 =	0	
Column Totals:	168	(A)	258	(B)

Prevalence Index = B/A = 1.536

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: 2-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-18	10YR	5/2	70	7.5YR	4/4	25	C	M	Silt Loam	
				7.5YR	2.5/1	5	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: 2-2

DATA FORM
ATYPICAL SITUATIONS

Project Name: Wattensaw Bayou Mitigation Bank

Location: Lonoke, AR Date: September 11-13, 2017

A. VEGETATION:

1. **Type of alteration:** The site has been in agricultural production since the 1960's. Some clearing had occurred prior to 1949, remaining areas were cleared between 1949 and the 1970's. The vegetation has been significantly disturbed on site due to past agricultural management techniques (e.g. tilling, disking, mowing, herbicide, leveling, leveeing) and anthropogenic force flooding for rice production. The site is currently fallow and rice field levees remain intact, ponding water.

2. **Effect on the Vegetation:** Ponded water has resulted in a very wet hydroperiod with aquatic species and OBL hydrophytes occurring throughout the fallow crop fields. Native herbaceous species adapted to disturbances as pioneer species, currently occupy drier portions of the site.

3. **Previous Vegetation:** Prior to 2011, soybeans, sweet potatoes, rice, corn, and other commodity crops. Prior to 1960's, the majority of the site was forested. Historic aerials (1949) and geomorphic position indicate that bottomland hardwood forested wetlands were present at that time.

4. **Hydrophytic Vegetation?** Yes

B. SOILS:

1. **Type of alteration:** The site has been in agricultural production for the past 50 years. The soil has been routinely disturbed on site due to tilling, disking, etc. leveling and leveeing, as part of an agricultural management regime. Micro and macro topographic features have been largely eliminated due to leveling.

2. **Effect on the Soil:** Microtopography has been mostly eliminated with exception to rice field levees. Presence of rice field levees ponds water excessively.

3. **Previous Soils:** Prior to clearing, the soils likely exhibited wetland characteristics and a hydroperiod more similar to that as the intact forested community abutting the Bank.

4. **Hydrophytic Soils?** Yes

C. HYDROLOGY:

1. **Type of alteration:** Levees were constructed to allow for control of the hydrologic connectivity between Wattensaw Bayou and the Bank. Force flooding and subsequent draw-downs for the promotion of commodity crops and fallow periods constitute normal *conditions* for agricultural/cropland.

2. **Effect on the Hydrology:** Rice field levees have altered the natural hydrologic regime for the Bank.

3. **Previous Hydrology:** Historic aerials, soils and topographic maps, indicate site hydrology was primarily associated with out-banking events of Wattensaw Bayou and Locust Creek.

4. **Wetland Hydrology?** Yes

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 12-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** **2-3**

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** **S** 13 **T** 3N **R** 9W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 **% /** 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.8918 N **Long.:** -91.9125 W **Datum:** Nad 83

Soil Map Unit Name: Tichnor Silt Loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☑ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ◉ **No** ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
This tract has been farmed regularly since at least before 1960's. Thus, regular tillage, field planing, and levees have altered site conditions from that of historic condition prior to conversion.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☑ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: 2-3

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Shrub Stratum (Plot size: 30)				
1. **Cephalanthus occidentalis**	35	☑	70.0%	OBL
2. **Salix nigra**	15	☑	30.0%	OBL
3.		☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 25	20% of Total Cover: 10	50	**= Total Cover**	
Herb Stratum (Plot size: 30)				
1. **Persicaria pensylvanica**	85	☑	81.0%	FACW
2. **Juncus effusus**	10	☐	9.5%	OBL
3. **Scirpus cyperinus**	10	☐	9.5%	OBL
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 52.5	20% of Total Cover: 21	105	**= Total Cover**	
Woody Vine Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	70	x 1 =	70	
FACW species	85	x 2 =	170	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	155	(A)	240	(B)

Prevalence Index = B/A = 1.548

Hydrophytic Vegetation Indicators:

- ☑ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: 2-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-18	10YR	6/2	90	7.5YR	5/8	10	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: 2-3

DATA FORM
ATYPICAL SITUATIONS

Project Name: Wattensaw Bayou Mitigation Bank

Location: Lonoke, AR Date: September 11-13, 2017

A. VEGETATION:

1. **Type of alteration:** The site has been in agricultural production since the 1960's. Some clearing had occurred prior to 1949, remaining areas were cleared between 1949 and the 1970's. The vegetation has been significantly disturbed on site due to past agricultural management techniques (e.g. tilling, disking, mowing, herbicide, leveling, leveeing) and anthropogenic force flooding for rice production. The site is currently fallow and rice field levees remain intact, ponding water.

2. **Effect on the Vegetation:** Ponded water has resulted in a very wet hydroperiod with aquatic species and OBL hydrophytes occurring throughout the fallow crop fields.

3. **Previous Vegetation:** Prior to 2011, soybeans, sweet potatoes, rice, corn, and other commodity crops. Prior to 1960's, the majority of the site was forested. Historic aerials (1949) and geomorphic position indicate that bottomland hardwood forested wetlands were present at that time.

4. **Hydrophytic Vegetation?** Yes

B. SOILS:

1. **Type of alteration:** The site has been in agricultural production for the past 50 years. The soil has been routinely disturbed on site due to tilling, disking, etc. leveling and leveeing, as part of an agricultural management regime. Micro and macro topographic features have been largely eliminated due to leveling.

2. **Effect on the Soil:** Microtopography has been mostly eliminated with exception to rice field levees. Presence of rice field levees ponds water excessively.

3. **Previous Soils:** Prior to clearing, the soils likely exhibited wetland characteristics and a hydroperiod more similar to that as the intact forested community abutting the Bank.

4. **Hydrophytic Soils?** Yes

C. HYDROLOGY:

1. **Type of alteration:** Levees were constructed to allow for control of the hydrologic connectivity between Wattensaw Bayou and the Bank. Force flooding and subsequent draw-downs for the promotion of commodity crops and fallow periods constitute normal *conditions* for agricultural/cropland.

2. **Effect on the Hydrology:** Rice field levees have altered the natural hydrologic regime for the Bank.

3. **Previous Hydrology:** Historic aerials, soils and topographic maps, indicate site hydrology was primarily associated with out-banking events of Wattensaw Bayou and Locust Creek.

4. **Wetland Hydrology?** Yes

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 12-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** **2-4**

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** **S** 18 **T** 3N **R** 8W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** flat **Slope:** 1.0 **%** / 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.892 N **Long.:** -91.90955 W **Datum:** Nad 83

Soil Map Unit Name: Tichnor Silt Loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○	**Is the Sampled Area**
Hydric Soil Present? Yes ◉ No ○	**within a Wetland?** **Yes** ◉ **No** ○
Wetland Hydrology Present? Yes ◉ No ○	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☑ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: 2-4

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1. Diospyros virginiana	15	☑	50.0%	FAC
2. Quercus phellos	10	☑	33.3%	FACW
3. Fraxinus pennsylvanica	5	☐	16.7%	FACW
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 15	20% of Total Cover: 6	30	= Total Cover	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1. Diospyros virginiana	15	☑	37.5%	FAC
2. Salix nigra	15	☑	37.5%	OBL
3. Ulmus alata	10	☑	25.0%	FACU
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 20	20% of Total Cover: 8	40	= Total Cover	
Shrub Stratum (Plot size: 30)				
1. Diospyros virginiana	15	☑	37.5%	FAC
2. Cephalanthus occidentalis	15	☑	37.5%	OBL
3. Carya ovata	5	☐	12.5%	FACU
4. Fraxinus pennsylvanica	5	☐	12.5%	FACW
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 20	20% of Total Cover: 8	40	= Total Cover	
Herb Stratum (Plot size: 30)				
1. Carex crus-corvi	85	☑	56.7%	OBL
2. Coleataenia rigidula	25	☐	16.7%	FACW
3. Rhynchospora corniculata	20	☐	13.3%	OBL
4. Commelina virginica	10	☐	6.7%	FACW
5. Persicaria hydropiper	10	☐	6.7%	OBL
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 75	20% of Total Cover: 30	150	= Total Cover	
Woody Vine Stratum (Plot size: 30)				
1. Mikania scandens	15	☑	75.0%	FACW
2. Vitis rotundifolia	5	☑	25.0%	FAC
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 10	20% of Total Cover: 4	20	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 90.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	145	x 1 =	145	
FACW species	70	x 2 =	140	
FAC species	50	x 3 =	150	
FACU species	15	x 4 =	60	
UPL species	0	x 5 =	0	
Column Totals:	280 (A)		495	(B)

Prevalence Index = B/A = 1.768

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: 2-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-8	10YR	4/2	80	7.5YR	4/6	10	C	M	Silt Loam	
				10YR	2/1	10	C	M	Silt Loam	
8-18	10YR	6/1	60	7.5YR	5/8	25	C	M	Silt Loam	
				10YR	5/1	15	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: 2-4

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 12-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** **2-5**

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** **S** 18 **T** 3N **R** 8W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 **%** / 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.892 N **Long.:** -91.90858 W **Datum:** Nad 83

Soil Map Unit Name: Tichnor Silt Loam **NWI classification:** Fresh. Emergent

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☑ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ◉ **No** ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
This tract has been farmed regularly since at least before 1960's. Thus, regular tillage, field planing, and levees have altered site conditions from that of historic condition prior to conversion.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☑ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 3

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: 2-5

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Shrub Stratum (Plot size: 30)				
1. **Cephalanthus occidentalis**	20	☑	80.0%	OBL
2. **Planera aquatica**	5	☑	20.0%	OBL
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 12.5	20% of Total Cover: 5	25	**= Total Cover**	
Herb Stratum (Plot size: 30)				
1. **Scirpus cyperinus**	40	☑	50.0%	OBL
2. **Persicaria hydropiper**	25	☑	31.3%	OBL
3. **Hibiscus laevis**	15	☐	18.8%	OBL
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 40	20% of Total Cover: 16	80	**= Total Cover**	
Woody Vine Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	105	x 1 =	105	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	105 (A)		105	(B)

Prevalence Index = B/A = 1.000

Hydrophytic Vegetation Indicators:

- ☑ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: 2-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-3	10YR	5/1	90	7.5YR	4/6	10	C	M	Silt Loam	
3-18	GLEY1	7/10	85	7.5YR	5/6	15	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☑ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: 2-5

DATA FORM
ATYPICAL SITUATIONS

Project Name: Wattensaw Bayou Mitigation Bank

Location: Lonoke, AR Date: September 11-13, 2017

A. VEGETATION:

1. **Type of alteration:** The site has been in agricultural production since the 1960's. Some clearing had occurred prior to 1949, remaining areas were cleared between 1949 and the 1970's. The vegetation has been significantly disturbed on site due to past agricultural management techniques (e.g. tilling, disking, mowing, herbicide, leveling, leveeing) and anthropogenic force flooding for rice production. The site is currently fallow and rice field levees remain intact, ponding water.

2. **Effect on the Vegetation:** Ponded water has resulted in a very wet hydroperiod with aquatic species and OBL hydrophytes occurring throughout the fallow crop fields.

3. **Previous Vegetation:** Prior to 2011, soybeans, sweet potatoes, rice, corn, and other commodity crops. Prior to 1960's, the majority of the site was forested. Historic aerials (1949) and geomorphic position indicate that bottomland hardwood forested wetlands were present at that time.

4. **Hydrophytic Vegetation?** Yes

B. SOILS:

1. **Type of alteration:** The site has been in agricultural production for the past 50 years. The soil has been routinely disturbed on site due to tilling, disking, etc. leveling and leveeing, as part of an agricultural management regime. Micro and macro topographic features have been largely eliminated due to leveling.

2. **Effect on the Soil:** Microtopography has been mostly eliminated with exception to rice field levees. Presence of rice field levees ponds water excessively.

3. **Previous Soils:** Prior to clearing, the soils likely exhibited wetland characteristics and a hydroperiod more similar to that as the intact forested community abutting the Bank.

4. **Hydrophytic Soils?** Yes

C. HYDROLOGY:

1. **Type of alteration:** Levees were constructed to allow for control of the hydrologic connectivity between Wattensaw Bayou and the Bank. Force flooding and subsequent draw-downs for the promotion of commodity crops and fallow periods constitute normal *conditions* for agricultural/cropland.

2. **Effect on the Hydrology:** Rice field levees have altered the natural hydrologic regime for the Bank.

3. **Previous Hydrology:** Historic aerials, soils and topographic maps, indicate site hydrology was primarily associated with out-banking events of Wattensaw Bayou and Locust Creek.

4. **Wetland Hydrology?** Yes

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 13-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** **2-6**

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** **S** 18 **T** 3N **R** 8W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 **%** / 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.892 N **Long.:** -91.9081 W **Datum:** Nad 83

Soil Map Unit Name: Kobel silt loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○	**Is the Sampled Area**
Hydric Soil Present? Yes ◉ No ○	**within a Wetland?** **Yes** ◉ **No** ○
Wetland Hydrology Present? Yes ◉ No ○	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: 2-6

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1. **Quercus phellos**	30	☑	75.0%	FACW
2. **Planera aquatica**	10	☑	25.0%	OBL
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 20 20% of Total Cover: 8	40	= **Total Cover**		
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0 20% of Total Cover: 0	0	= **Total Cover**		
Shrub Stratum (Plot size: 30)				
1. **Ilex decidua**	20	☑	57.1%	FACW
2. **Diospyros virginiana**	15	☑	42.9%	FAC
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 17.5 20% of Total Cover: 7	35	= **Total Cover**		
Herb Stratum (Plot size: 30)				
1. **Carex cherokeensis**	90	☑	69.2%	FACW
2. **Coleataenia rigidula**	40	☑	30.8%	FACW
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 65 20% of Total Cover: 26	130	= **Total Cover**		
Woody Vine Stratum (Plot size: 30)				
1. **Brunnichia ovata**	5	☑	50.0%	FACW
2. **Symphoricarpos orbiculatus**	5	☑	50.0%	FACU
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 5 20% of Total Cover: 2	10	= **Total Cover**		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 87.5% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	10	x 1 =	10	
FACW species	185	x 2 =	370	
FAC species	15	x 3 =	45	
FACU species	5	x 4 =	20	
UPL species	0	x 5 =	0	
Column Totals:	215 (A)		445	(B)

Prevalence Index = B/A = 2.070

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: 2-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-18	10YR	5/1	70	10YR	4/6	10	C	M	Silt Loam	
				7.5YR	5/8	10	C	M	Silt Loam	
				10YR	2/1	10	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: 2-6

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 12-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** **3-1**

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** **S** 13 **T** 3N **R** 9W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 **%** / 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.8899 N **Long.:** -91.91545 W **Datum:** Nad 83

Soil Map Unit Name: Calhoun silt loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☑ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ◉ **No** ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
This tract has been farmed regularly since at least before 1960's. Thus, regular tillage, field planing, and levees have altered site conditions from that of historic condition prior to conversion.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: 3-1

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Herb Stratum (Plot size: 30)				
1. **Andropogon glomeratus**	40	☑	33.3%	FACW
2. **Cynodon dactylon**	40	☑	33.3%	FACU
3. **Solidago gigantea**	20	☐	16.7%	FACW
4. **Eragrostis spectabilis**	10	☐	8.3%	FACU
5. **Bidens bipinnata**	5	☐	4.2%	FAC
6. **Kummerowia striata**	5	☐	4.2%	FACU
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 60	20% of Total Cover: 24	120	**= Total Cover**	
Woody Vine Stratum (Plot size: 30)				
1. **Rubus argutus**	10	☑	100.0%	FAC
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 5	20% of Total Cover: 2	10	**= Total Cover**	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0	
FACW species	60	x 2 =	120	
FAC species	15	x 3 =	45	
FACU species	55	x 4 =	220	
UPL species	0	x 5 =	0	
Column Totals:	130	(A)	385	(B)

Prevalence Index = B/A = 2.962

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: 3-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-6	10YR	5/2	90	10YR	5/8	10	C	M	Silt Loam	
6-18	10YR	6/2	80	10YR	5/8	20	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: 3-1

DATA FORM
ATYPICAL SITUATIONS

Project Name: Wattensaw Bayou Mitigation Bank

Location: Lonoke, AR Date: September 11-13, 2017

A. VEGETATION:

1. **Type of alteration:** The site has been in agricultural production since the 1960's. Some clearing had occurred prior to 1949, remaining areas were cleared between 1949 and the 1970's. The vegetation has been significantly disturbed on site due to past agricultural management techniques (e.g. tilling, disking, mowing, herbicide, leveling). The site is currently fallow.

2. **Effect on the Vegetation:** Regular tilling, disking, mowing, herbicide, and leveling have prevented natural succession.

3. **Previous Vegetation:** Prior to 2011, wheat, soybeans, sweet potatoes, rice, corn, and other commodity crops. Prior to 1960's, the majority of the site was forested. Historic aerials (1949) and geomorphic position indicate that bottomland hardwood forested wetlands were present at that time.

4. **Hydrophytic Vegetation?** Yes

B. SOILS:

1. **Type of alteration:** The site has been in agricultural production for the past 50 years. The soil has been routinely disturbed on site due to tilling, disking, etc. leveling, and leveeing as part of an agricultural management regime. Micro and macro topographic features have been largely eliminated due to leveling.

2. **Effect on the Soil:** Microtopography has been mostly eliminated with exception to remnant rice levees on margins.

3. **Previous Soils:** Prior to clearing, the soils likely exhibited wetland characteristics and a hydroperiod more similar to that as the intact forested community abutting the Bank.

4. **Hydrophytic Soils?** Yes

C. HYDROLOGY:

1. **Type of alteration:** Rice levees were constructed to allow for control of the hydrologic connectivity between Wattensaw Bayou/Locust Creek and the Bank.

2. **Effect on the Hydrology:** Rice levees have altered the natural hydrologic regime for the area.

3. **Previous Hydrology:** Historic aerials, soils and topographic maps, indicate site hydrology was primarily associated with out-banking events of Wattensaw Bayou and Locust Creek.

4. **Wetland Hydrology?** Yes

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 12-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** **3-2**

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** **S** 13 **T** 3N **R** 9W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 **% /** 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.89 N **Long.:** -91.91399 W **Datum:** Nad 83

Soil Map Unit Name: Tichnor Silt Loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☑ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ◉ **No** ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
This tract has been farmed regularly since at least before 1960's. Thus, regular tillage, field planing, and levees have altered site conditions from that of historic condition prior to conversion.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☑ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: 3-2

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Shrub Stratum (Plot size: 30)				
1. **Cephalanthus occidentalis**	35	☑	70.0%	OBL
2. **Salix nigra**	15	☑	30.0%	OBL
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 25	20% of Total Cover: 10	50	**= Total Cover**	
Herb Stratum (Plot size: 30)				
1. **Persicaria hydropiperoides**	85	☑	81.0%	OBL
2. **Juncus effusus**	10	☐	9.5%	OBL
3. **Scirpus cyperinus**	10	☐	9.5%	OBL
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 52.5	20% of Total Cover: 21	105	**= Total Cover**	
Woody Vine Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	155	x 1 =	155	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	155 (A)		155	(B)

Prevalence Index = B/A = 1.000

Hydrophytic Vegetation Indicators:

- ☑ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: 3-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-18	10YR	6/2	90	7.5YR	5/8	10	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: 3-2

DATA FORM
ATYPICAL SITUATIONS

Project Name: Wattensaw Bayou Mitigation Bank

Location: Lonoke, AR Date: September 11-13, 2017

A. VEGETATION:

1. **Type of alteration:** The site has been in agricultural production since the 1960's. Some clearing had occurred prior to 1949, remaining areas were cleared between 1949 and the 1970's. The vegetation has been significantly disturbed on site due to past agricultural management techniques (e.g. tilling, disking, mowing, herbicide, leveling, leveeing) and anthropogenic force flooding for rice production. The site is currently fallow and rice field levees remain intact, ponding water.

2. **Effect on the Vegetation:** Ponded water has resulted in a very wet hydroperiod with aquatic species and OBL hydrophytes occurring throughout the fallow crop fields.

3. **Previous Vegetation:** Prior to 2011, soybeans, sweet potatoes, rice, corn, and other commodity crops. Prior to 1960's, the majority of the site was forested. Historic aerials (1949) and geomorphic position indicate that bottomland hardwood forested wetlands were present at that time.

4. **Hydrophytic Vegetation?** Yes

B. SOILS:

1. **Type of alteration:** The site has been in agricultural production for the past 50 years. The soil has been routinely disturbed on site due to tilling, disking, etc. leveling and leveeing, as part of an agricultural management regime. Micro and macro topographic features have been largely eliminated due to leveling.

2. **Effect on the Soil:** Microtopography has been mostly eliminated with exception to rice field levees. Presence of rice field levees ponds water excessively.

3. **Previous Soils:** Prior to clearing, the soils likely exhibited wetland characteristics and a hydroperiod more similar to that as the intact forested community abutting the Bank.

4. **Hydrophytic Soils?** Yes

C. HYDROLOGY:

1. **Type of alteration:** Levees were constructed to allow for control of the hydrologic connectivity between Wattensaw Bayou and the Bank. Force flooding and subsequent draw-downs for the promotion of commodity crops and fallow periods constitute normal *conditions* for agricultural/cropland.

2. **Effect on the Hydrology:** Rice field levees have altered the natural hydrologic regime for the Bank.

3. **Previous Hydrology:** Historic aerials, soils and topographic maps, indicate site hydrology was primarily associated with out-banking events of Wattensaw Bayou and Locust Creek.

4. **Wetland Hydrology?** Yes

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 12-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** **3-3**

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** **S** 18 **T** 3N **R** 8W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 **%** / 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.8899 N **Long.:** -91.90924 W **Datum:** Nad 83

Soil Map Unit Name: Tichnor Silt Loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○ Hydric Soil Present? Yes ◉ No ○ Wetland Hydrology Present? Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ◉ **No** ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☑ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: 3-3

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1. **Salix nigra**	25	☑	50.0%	OBL
2. **Quercus phellos**	15	☑	30.0%	FACW
3. **Liquidambar styraciflua**	10	☑	20.0%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 25 20% of Total Cover: 10	50	= **Total Cover**		
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1. **Diospyros virginiana**	5	☑	50.0%	FAC
2. **Planera aquatica**	5	☑	50.0%	OBL
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 5 20% of Total Cover: 2	10	= **Total Cover**		
Shrub Stratum (Plot size: 30)				
1. **Cephalanthus occidentalis**	60	☑	63.2%	OBL
2. **Planera aquatica**	20	☑	21.1%	OBL
3. **Lyonia ligustrina**	15	☐	15.8%	FACW
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 47.5 20% of Total Cover: 19	95	= **Total Cover**		
Herb Stratum (Plot size: 30)				
1. **Juncus effusus**	80	☑	66.7%	OBL
2. **Carex crus-corvi**	15	☐	12.5%	OBL
3. **Rhynchospora corniculata**	10	☐	8.3%	OBL
4. **Commelina virginica**	5	☐	4.2%	FACW
5. **Coleataenia rigidula**	5	☐	4.2%	FACW
6. **Persicaria hydropiper**	5	☐	4.2%	OBL
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 60 20% of Total Cover: 24	120	= **Total Cover**		
Woody Vine Stratum (Plot size: 30)				
1. **Brunnichia ovata**	5	☑	50.0%	FACW
2. **Ipomoea hederacea**	5	☑	50.0%	FACU
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 5 20% of Total Cover: 2	10	= **Total Cover**		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 90.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	220	x 1 =	220	
FACW species	45	x 2 =	90	
FAC species	15	x 3 =	45	
FACU species	5	x 4 =	20	
UPL species	0	x 5 =	0	
Column Totals:	285 (A)		375	(B)

Prevalence Index = B/A = 1.316

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: 3-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-18	10YR	6/2	80	7.5YR	5/8	20	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: 3-3

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 12-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** **3-4**

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** **S** 18 **T** 3N **R** 8W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 **%** / 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.8898 N **Long.:** -91.90735 W **Datum:** Nad 83

Soil Map Unit Name: Tichnor Silt Loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☑ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ◉ **No** ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
This tract has been farmed regularly since at least before 1960's. Thus, regular tillage, field planing, and levees have altered site conditions from that of historic condition prior to conversion.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 12

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: 3-4

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Shrub Stratum (Plot size: 30)				
1. **Diospyros virginiana**	5	☑	100.0%	FAC
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 2.5	20% of Total Cover: 1	5	**= Total Cover**	
Herb Stratum (Plot size: 30)				
1. **Carex vulpinoidea**	80	☑	50.0%	FACW
2. **Iva annua**	40	☑	25.0%	FAC
3. **Lespedeza virginica**	30	☐	18.8%	UPL
4. **Persicaria pensylvanica**	10	☐	6.3%	FACW
5. **Dichanthelium clandestinum**	0	☐	0.0%	FACW
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 80	20% of Total Cover: 32	160	**= Total Cover**	
Woody Vine Stratum (Plot size: 30)				
1. **Brunnichia ovata**	20	☑	100.0%	FACW
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 10	20% of Total Cover: 4	20	**= Total Cover**	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0	
FACW species	110	x 2 =	220	
FAC species	45	x 3 =	135	
FACU species	0	x 4 =	0	
UPL species	30	x 5 =	150	
Column Totals:	185 (A)		505	(B)

Prevalence Index = B/A = 2.730

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

Passiflora incarnata present in Woody Vine stratum- 30% cover, no indicator status listed

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: 3-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-2	10YR	5/3	100						Silt Loam	
2-12	10YR	5/2	80	7.5YR	5/8	20	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: 3-4

DATA FORM
ATYPICAL SITUATIONS

Project Name: Wattensaw Bayou Mitigation Bank

Location: Lonoke, AR Date: September 11-13, 2017

A. VEGETATION:

1. **Type of alteration:** The site has been in agricultural production since the 1960's. Some clearing had occurred prior to 1949, remaining areas were cleared between 1949 and the 1970's. The vegetation has been significantly disturbed on site due to past agricultural management techniques (e.g. tilling, disking, mowing, herbicide, leveling). The site is currently fallow.

2. **Effect on the Vegetation:** Regular tilling, disking, mowing, herbicide, and leveling have prevented natural succession.

3. **Previous Vegetation:** Prior to 2011, wheat, hay, and other commodity crops. Prior to 1960's, the majority of the site was forested. Historic aerials (1949) and geomorphic position indicate that bottomland hardwood forested wetlands were present at that time.

4. **Hydrophytic Vegetation?** Yes

B. SOILS:

1. **Type of alteration:** The site has been in agricultural production for the past 50 years. The soil has been routinely disturbed on site due to tilling, disking, etc. leveling, as part of an agricultural management regime. Micro and macro topographic features have been largely eliminated due to leveling.

2. **Effect on the Soil:** Microtopography has been mostly eliminated with exception to old fence lines.

3. **Previous Soils:** Prior to clearing, the soils likely exhibited wetland characteristics and a hydroperiod more similar to that as the intact forested community abutting the Bank.

4. **Hydrophytic Soils?** Yes

C. HYDROLOGY:

1. **Type of alteration:** Remnant fence lines have caused minor topographic alterations across the community which impedes natural movement of water across the site. In addition, micro-topography has been largely reduced due to agricultural practices.

2. **Effect on the Hydrology:** Fence lines and leveling of microtopography have altered the natural hydrologic regime for the area.

3. **Previous Hydrology:** Historic aerials, soils and topographic maps, indicate site hydrology was primarily associated with out-banking events of Wattensaw Bayou and Locust Creek.

4. **Wetland Hydrology?** Yes

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 12-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** **R-1**

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** **S** 18 **T** 3N **R** 8W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** flat **Slope:** 1.0 **%** / 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.8928 N **Long.:** -91.90915 W **Datum:** Nad 83

Soil Map Unit Name: Tichnor Silt Loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ○ No ◉	**Is the Sampled Area within a Wetland?** **Yes** ○ **No** ◉
Hydric Soil Present? Yes ○ No ◉	
Wetland Hydrology Present? Yes ○ No ◉	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? **Yes** ○ **No** ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: R-1

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1. Pinus taeda	70	☑	70.0%	FAC
2. Liquidambar styraciflua	20	☑	20.0%	FAC
3. Ulmus alata	10	☐	10.0%	FACU
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 50 20% of Total Cover: 20	100	= Total Cover		
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1. Cercis canadensis	15	☑	33.3%	UPL
2. Carya tomentosa	10	☑	22.2%	UPL
3. Ulmus alata	10	☑	22.2%	FACU
4. Prunus serotina	10	☑	22.2%	FACU
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 22.5 20% of Total Cover: 9	45	= Total Cover		
Shrub Stratum (Plot size: 30)				
1. Fraxinus pennsylvanica	10	☑	50.0%	FACW
2. Juniperus virginiana	5	☑	25.0%	FACU
3. Ulmus alata	5	☑	25.0%	FACU
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 10 20% of Total Cover: 4	20	= Total Cover		
Herb Stratum (Plot size: 30)				
1. Carex cherokeensis	15	☑	50.0%	FACW
2. Fraxinus pennsylvanica	5	☑	16.7%	FACW
3. Quercus alba	5	☑	16.7%	FACU
4. Chasmanthium latifolium	5	☑	16.7%	FAC
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 15 20% of Total Cover: 6	30	= Total Cover		
Woody Vine Stratum (Plot size: 30)				
1. Parthenocissus quinquefolia	5	☑	62.5%	FACU
2. Toxicodendron radicans	2	☑	25.0%	FAC
3. Bignonia capreolata	1	☐	12.5%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 4 20% of Total Cover: 1.6	8	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 15 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 46.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	98	x 3 =	294
FACU species	50	x 4 =	200
UPL species	25	x 5 =	125
Column Totals:	203 (A)		679 (B)

Prevalence Index = B/A = 3.345

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☐ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: (If observed, list morphological adaptations below).

Pyus calleryana in shrub layer- 5% cover, no indicator status listed

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: R-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-8	10YR	4/3	60	7.5YR	5/6	40	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ○ **No** ◉

Remarks:

Sampling Point Labeled on Map: R1

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 13-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** R-2

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** S 18 T 3N R 8W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** flat **Slope:** 1.0 % / 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.8963 N **Long.:** -91.9123 W **Datum:** Nad 83

Soil Map Unit Name: Tichnor Silt Loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ○ **No** ◉
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ○ No ◉	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? **Yes** ○ **No** ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: R-2

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1. **Pinus taeda**	90	☑	94.7%	FAC
2. **Liquidambar styraciflua**	5	☐	5.3%	FAC
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 47.5	20% of Total Cover: 19	95	**= Total Cover**	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1. **Pinus taeda**	5	☑	50.0%	FAC
2. **Catalpa bignonioides**	5	☑	50.0%	UPL
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 5	20% of Total Cover: 2	10	**= Total Cover**	
Shrub Stratum (Plot size: 30)				
1. **Pinus taeda**	10	☑	43.5%	FAC
2. **Quercus phellos**	5	☑	21.7%	FACW
3. **Quercus falcata**	5	☑	21.7%	FACU
4. **Liquidambar styraciflua**	3	☐	13.0%	FAC
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 11.5	20% of Total Cover: 4.6	23	**= Total Cover**	
Herb Stratum (Plot size: 30)				
1. **Quercus falcata**	1	☐	25.0%	FACU
2. **Liquidambar styraciflua**	1	☐	25.0%	FAC
3. **Diospyros virginiana**	1	☐	25.0%	FAC
4. **Pinus taeda**	1	☐	25.0%	FAC
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 2	20% of Total Cover: 0.8	4	**= Total Cover**	
Woody Vine Stratum (Plot size: 30)				
1. **Campsis radicans**	2	☐	50.0%	FAC
2. **Vitis rotundifolia**	2	☐	50.0%	FAC
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 2	20% of Total Cover: 0.8	4	**= Total Cover**	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	5	x 2 =	10	
FAC species	120	x 3 =	360	
FACU species	6	x 4 =	24	
UPL species	5	x 5 =	25	
Column Totals:	136 (A)		419	(B)

Prevalence Index = B/A = 3.081

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

Pyrus calleryana in tree stratum- 15% cover, no indicator status listed

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: R-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-12	10YR	6/2	70	10YR	6/8	30	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: R2

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 13-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** R-3

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** S 12 T 3N R 9W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 % / 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.8962 N **Long.:** -91.91234 W **Datum:** Nad 83

Soil Map Unit Name: Calhoun silt loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ◉ **No** ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☑ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: R-3

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1. **Liquidambar styraciflua**	40	☑	100.0%	FAC
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 20 20% of Total Cover: 8	40	= Total Cover		
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1. **Liquidambar styraciflua**	5	☑	100.0%	FAC
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 2.5 20% of Total Cover: 1	5	= Total Cover		
Shrub Stratum (Plot size: 30)				
1. **Baccharis halimifolia**	35	☑	63.6%	FAC
2. **Liquidambar styraciflua**	15	☑	27.3%	FAC
3. **Ulmus americana**	5	☐	9.1%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 27.5 20% of Total Cover: 11	55	= Total Cover		
Herb Stratum (Plot size: 30)				
1. **Bidens bipinnata**	80	☑	45.7%	FAC
2. **Monarda fistulosa**	70	☑	40.0%	FACU
3. **Iva annua**	20	☐	11.4%	FAC
4. **Juncus marginatus**	5	☐	2.9%	FACW
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 87.5 20% of Total Cover: 35	175	= Total Cover		
Woody Vine Stratum (Plot size: 30)				
1. **Rubus argutus**	25	☑	83.3%	FAC
2. **Lonicera japonica**	5	☐	16.7%	FACU
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 15 20% of Total Cover: 6	30	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 85.7% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0	
FACW species	5	x 2 =	10	
FAC species	225	x 3 =	675	
FACU species	75	x 4 =	300	
UPL species	0	x 5 =	0	
Column Totals:	305	(A)	985	(B)

Prevalence Index = B/A = 3.230

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

Pyrus calleryana in tree stratum: 10% cover, no indicator status listed

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: R-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-12	10YR	6/2	70	10YR	6/8	30	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: R3

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 13-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** R-4

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** S 12 T 3N R 9W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 % / 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.8961 N **Long.:** -91.91878 W **Datum:** Nad 83

Soil Map Unit Name: Tichnor Silt Loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ◉ **No** ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☑ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☑ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: R-4

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Herb Stratum (Plot size: 30)				
1. **Persicaria hydropiperoides**	50	☑	45.5%	OBL
2. **Rhynchospora corniculata**	30	☑	27.3%	OBL
3. **Xanthium strumarium**	30	☑	27.3%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 55	20% of Total Cover: 22	110	**= Total Cover**	
Woody Vine Stratum (Plot size: 30)				
1. **Mikania scandens**	30	☑	100.0%	FACW
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 15	20% of Total Cover: 6	30	**= Total Cover**	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	80	x 1 =	80	
FACW species	30	x 2 =	60	
FAC species	30	x 3 =	90	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	140 (A)		230	(B)

Prevalence Index = B/A = 1.643

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: R-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-18	10YR	5/2	70	7.5YR	5/8	30	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map: R4

DATA FORM
ATYPICAL SITUATIONS

Project Name: Wattensaw Bayou Mitigation Bank

Location: Lonoke, AR Date: September 11-13, 2017

A. VEGETATION:

1. **Type of alteration:** The site has been in agricultural production since the 1960's. Some clearing had occurred prior to 1949, remaining areas were cleared between 1949 and the 1970's. The vegetation has been significantly disturbed on site due to past agricultural management techniques (e.g. tilling, disking, mowing, herbicide, leveling, leveeing) and anthropogenic force flooding for rice production. The site is currently fallow and rice field levees remain intact, ponding water.

2. **Effect on the Vegetation:** Ponded water has resulted in a very wet hydroperiod with aquatic species and OBL hydrophytes occurring throughout the fallow crop fields. Native herbaceous species adapted to disturbances as pioneer species, currently occupy drier portions of the site.

3. **Previous Vegetation:** Prior to 2011, soybeans, sweet potatoes, rice, corn, and other commodity crops. Prior to 1960's, the majority of the site was forested. Historic aerials (1949) and geomorphic position indicate that bottomland hardwood forested wetlands were present at that time.

4. **Hydrophytic Vegetation?** Yes

B. SOILS:

1. **Type of alteration:** The site has been in agricultural production for the past 50 years. The soil has been routinely disturbed on site due to tilling, disking, etc. leveling and leveeing, as part of an agricultural management regime. Micro and macro topographic features have been largely eliminated due to leveling.

2. **Effect on the Soil:** Microtopography has been mostly eliminated with exception to rice field levees. Presence of rice field levees ponds water excessively.

3. **Previous Soils:** Prior to clearing, the soils likely exhibited wetland characteristics and a hydroperiod more similar to that as the intact forested community abutting the Bank.

4. **Hydrophytic Soils?** Yes

C. HYDROLOGY:

1. **Type of alteration:** Levees were constructed to allow for control of the hydrologic connectivity between Wattensaw Bayou and the Bank. Force flooding and subsequent draw-downs for the promotion of commodity crops and fallow periods constitute normal *conditions* for agricultural/cropland.

2. **Effect on the Hydrology:** Rice field levees have altered the natural hydrologic regime for the Bank.

3. **Previous Hydrology:** Historic aerials, soils and topographic maps, indicate site hydrology was primarily associated with out-banking events of Wattensaw Bayou and Locust Creek.

4. **Wetland Hydrology?** Yes

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 13-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** R-5

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** S 18 T 3N R 8W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 % / 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.8907 N **Long.:** -91.9065 W **Datum:** Nad 83

Soil Map Unit Name: Tichnor Silt Loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☑ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ◉ **No** ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
This tract has been farmed regularly since at least before 1960's. Thus, regular tillage, field planing, and levees have altered site conditions from that of historic condition prior to conversion.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☑ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☑ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 0

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: R-5

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Shrub Stratum (Plot size: 30)				
1. **Cephalanthus occidentalis**	30	☑	75.0%	OBL
2. **Diospyros virginiana**	10	☑	25.0%	FAC
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 20	20% of Total Cover: 8	40	**= Total Cover**	
Herb Stratum (Plot size: 30)				
1. **Persicaria pensylvanica**	70	☑	38.9%	FACW
2. **Coleataenia rigidula**	40	☑	22.2%	FACW
3. **Iva annua**	40	☑	22.2%	FAC
4. **Commelina virginica**	30	☐	16.7%	FACW
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 90	20% of Total Cover: 36	180	**= Total Cover**	
Woody Vine Stratum (Plot size: 30)				
1. **Brunnichia ovata**	30	☑	75.0%	FACW
2. **Lonicera japonica**	10	☑	25.0%	FACU
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 20	20% of Total Cover: 8	40	**= Total Cover**	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 85.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	30	x 1 =	30	
FACW species	170	x 2 =	340	
FAC species	50	x 3 =	150	
FACU species	10	x 4 =	40	
UPL species	0	x 5 =	0	
Column Totals:	260 (A)		560	(B)

Prevalence Index = B/A = 2.154

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

Passiflora incarnata present in Woody Vine stratum- 30% cover, no indicator status listed

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: R-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-18	10YR	5/1	80	7.5YR	5/8	20	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

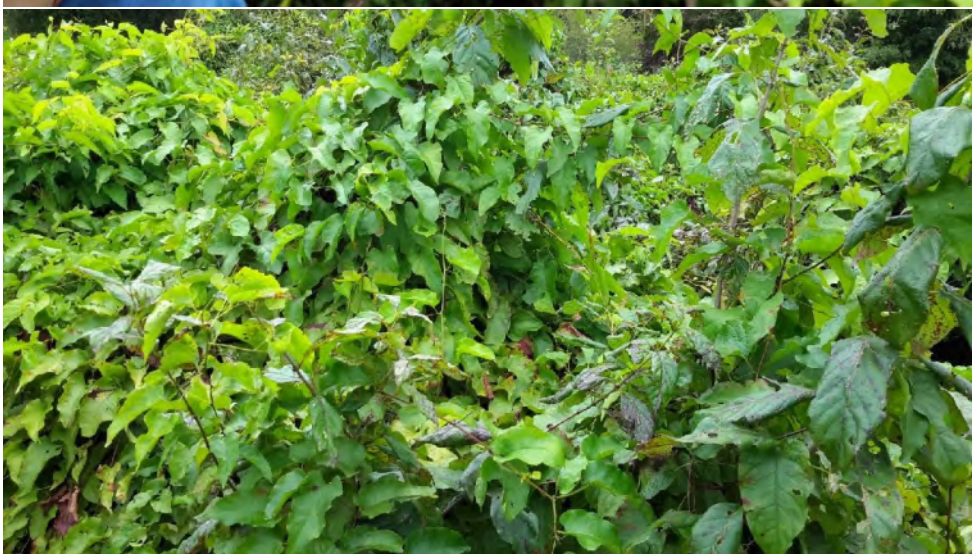
Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map R5:



DATA FORM
ATYPICAL SITUATIONS

Project Name: Wattensaw Bayou Mitigation Bank

Location: Lonoke, AR Date: September 11-13, 2017

A. VEGETATION:

1. **Type of alteration:** The site has been in agricultural production since the 1960's. Some clearing had occurred prior to 1949, remaining areas were cleared between 1949 and the 1970's. The vegetation has been significantly disturbed on site due to past agricultural management techniques (e.g. tilling, disking, mowing, herbicide, leveling). The site is currently fallow.

2. **Effect on the Vegetation:** Regular tilling, disking, mowing, herbicide, and leveling have prevented natural succession.

3. **Previous Vegetation:** Prior to 2011, wheat, hay, and other commodity crops. Prior to 1960's, the majority of the site was forested. Historic aerials (1949) and geomorphic position indicate that bottomland hardwood forested wetlands were present at that time.

4. **Hydrophytic Vegetation?** Yes

B. SOILS:

1. **Type of alteration:** The site has been in agricultural production for the past 50 years. The soil has been routinely disturbed on site due to tilling, disking, etc. leveling, as part of an agricultural management regime. Micro and macro topographic features have been largely eliminated due to leveling.

2. **Effect on the Soil:** Microtopography has been mostly eliminated with exception to old fence lines.

3. **Previous Soils:** Prior to clearing, the soils likely exhibited wetland characteristics and a hydroperiod more similar to that as the intact forested community abutting the Bank.

4. **Hydrophytic Soils?** Yes

C. HYDROLOGY:

1. **Type of alteration:** Remnant fence lines have caused minor topographic alterations across the community which impedes natural movement of water across the site. In addition, micro-topography has been largely reduced due to agricultural practices.

2. **Effect on the Hydrology:** Fence lines and leveling of microtopography have altered the natural hydrologic regime for the area.

3. **Previous Hydrology:** Historic aerials, soils and topographic maps, indicate site hydrology was primarily associated with out-banking events of Wattensaw Bayou and Locust Creek.

4. **Wetland Hydrology?** Yes

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 13-Sep-17

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** R-6

Investigator(s): CG,CK,HS,TW,GW,KK **Section, Township, Range:** S 18 T 3N R 8W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 % / 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.8908 N **Long.:** -91.9064 W **Datum:** Nad 83

Soil Map Unit Name: Tichnor Silt Loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☑ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ◉ **No** ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
This tract has been farmed regularly since at least before 1960's. Thus, regular tillage, field planing, and levees have altered site conditions from that of historic condition prior to conversion.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: R-6

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Herb Stratum (Plot size: 30)				
1. **Iva annua**	80	☑	40.0%	FAC
2. **Kummerowia striata**	50	☑	25.0%	FACU
3. **Coleataenia rigidula**	50	☑	25.0%	FACW
4. **Persicaria pensylvanica**	10	☐	5.0%	FACW
5. **Dichanthelium clandestinum**	10	☐	5.0%	FACW
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 100	20% of Total Cover: 40	200	**= Total Cover**	
Woody Vine Stratum (Plot size: 30)				
1. **Brunnichia ovata**	30	☑	60.0%	FACW
2. **Lonicera japonica**	20	☑	40.0%	FACU
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 25	20% of Total Cover: 10	50	**= Total Cover**	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0	
FACW species	100	x 2 =	200	
FAC species	80	x 3 =	240	
FACU species	70	x 4 =	280	
UPL species	0	x 5 =	0	
Column Totals:	250	(A)	720	(B)

Prevalence Index = B/A = 2.880

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: R-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-18	10YR	5/1	70	10YR	4/6	10	C	M	Silt Loam	
				7.5YR	5/8	10	C	M	Silt Loam	
				10YR	2/1	10	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map R6:

DATA FORM
ATYPICAL SITUATIONS

Project Name: Wattensaw Bayou Mitigation Bank

Location: Lonoke, AR Date: September 11-13, 2017

A. VEGETATION:

1. **Type of alteration:** The site has been in agricultural production since the 1960's. Some clearing had occurred prior to 1949, remaining areas were cleared between 1949 and the 1970's. The vegetation has been significantly disturbed on site due to past agricultural management techniques (e.g. tilling, disking, mowing, herbicide, leveling). The site is currently fallow.

2. **Effect on the Vegetation:** Regular tilling, disking, mowing, herbicide, and leveling have prevented natural succession.

3. **Previous Vegetation:** Prior to 2011, wheat, hay, and other commodity crops. Prior to 1960's, the majority of the site was forested. Historic aerials (1949) and geomorphic position indicate that bottomland hardwood forested wetlands were present at that time.

4. **Hydrophytic Vegetation?** Yes

B. SOILS:

1. **Type of alteration:** The site has been in agricultural production for the past 50 years. The soil has been routinely disturbed on site due to tilling, disking, etc. leveling, as part of an agricultural management regime. Micro and macro topographic features have been largely eliminated due to leveling.

2. **Effect on the Soil:** Microtopography has been mostly eliminated with exception to old fence lines.

3. **Previous Soils:** Prior to clearing, the soils likely exhibited wetland characteristics and a hydroperiod more similar to that as the intact forested community abutting the Bank.

4. **Hydrophytic Soils?** Yes

C. HYDROLOGY:

1. **Type of alteration:** Remnant fence lines have caused minor topographic alterations across the community which impedes natural movement of water across the site. In addition, micro-topography has been largely reduced due to agricultural practices.

2. **Effect on the Hydrology:** Fence lines and leveling of microtopography have altered the natural hydrologic regime for the area.

3. **Previous Hydrology:** Historic aerials, soils and topographic maps, indicate site hydrology was primarily associated with out-banking events of Wattensaw Bayou and Locust Creek.

4. **Wetland Hydrology?** Yes

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 14-Jun-18

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** R-7

Investigator(s): CG, TW **Section, Township, Range:** S 13 T 3N R 9W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 % / 0.6 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.889 N **Long.:** -91.9139 W **Datum:** Nad 83

Soil Map Unit Name: Tichnor Silt Loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ◉ **No** ○
Hydric Soil Present? Yes ◉ No ○	
Wetland Hydrology Present? Yes ◉ No ○	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☑ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 11.5

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: R-7

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1. **Liquidambar styraciflua**	10	☑	100.0%	FAC
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 5	20% of Total Cover: 2	10	**= Total Cover**	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1. **Diospyros virginiana**	10	☑	66.7%	FAC
2. **Cephalanthus occidentalis**	5	☑	33.3%	OBL
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 7.5	20% of Total Cover: 3	15	**= Total Cover**	
Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	**= Total Cover**	
Herb Stratum (Plot size: 30)				
1. **Persicaria hydropiper**	90	☑	100.0%	OBL
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 45	20% of Total Cover: 18	90	**= Total Cover**	
Woody Vine Stratum (Plot size: 30)				
1. **Brunnichia ovata**	70	☑	100.0%	FACW
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 35	20% of Total Cover: 14	70	**= Total Cover**	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	95	x 1 =	95	
FACW species	70	x 2 =	140	
FAC species	20	x 3 =	60	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	185 (A)		295	(B)

Prevalence Index = B/A = 1.595

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: (If observed, list morphological adaptations below).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: R-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-6	GLEY	6/10Y	40	2.5YR	3/6	40	C	M	Silt Loam	
				2.5YR	7/2	20	C	M		
6-12	GLEY 6	6/10Y	60	2.5YR	3/6	30	C	M	Silt Loam	
				2YR	7/2	10	C	M		

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☑ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map R7:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Wattensaw Bayou **City/County:** Lonoke/Lonoke **Sampling Date:** 14-Jun-18

Applicant/Owner: Mitigation Management **State:** Ar **Sampling Point:** R-8

Investigator(s): CG, TW **Section, Township, Range:** S 13 T 3N R 9W

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** **Slope:** 0.0 % / 0.0 °

Subregion (LRR or MLRA): LRR O **Lat.:** 34.8934 N **Long.:** -91.9119 W **Datum:** Nad 83

Soil Map Unit Name: Stuttgart silt loam **NWI classification:** none

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** **Yes** ◉ **No** ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) (LRR U)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? **Yes** ◉ **No** ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata) - Use scientific names of plants.

Sampling Point: R-8

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30)				
1. Liquidambar styraciflua	60	☑	50.0%	FAC
2. Fraxinus pennsylvanica	30	☑	25.0%	FACW
3. Ulmus alata	20	☐	16.7%	FACU
4. Quercus phellos	10	☐	8.3%	FACW
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 60	20% of Total Cover: 24	120	= Total Cover	
Sapling or Sapling/Shrub Stratum (Plot size: 30)				
1. Ulmus alata	40	☑	53.3%	FACU
2. Liquidambar styraciflua	30	☑	40.0%	FAC
3. Quercus nigra	5	☐	6.7%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
50% of Total Cover: 37.5	20% of Total Cover: 15	75	= Total Cover	
Shrub Stratum (Plot size: 30)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
50% of Total Cover: 0	20% of Total Cover: 0	0	= Total Cover	
Herb Stratum (Plot size: 30)				
1. Carex crus-corvi	60	☑	66.7%	OBL
2. Chasmanthium latifolium	30	☑	33.3%	FAC
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
50% of Total Cover: 45	20% of Total Cover: 18	90	= Total Cover	
Woody Vine Stratum (Plot size: 30)				
1. Parthenocissus quinquefolia	5	☑	100.0%	FACU
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
50% of Total Cover: 2.5	20% of Total Cover: 1	5	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 71.4% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	60	x 1 =	60	
FACW species	40	x 2 =	80	
FAC species	125	x 3 =	375	
FACU species	65	x 4 =	260	
UPL species	0	x 5 =	0	
Column Totals:	290 (A)		775	(B)

Prevalence Index = B/A = 2.672

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrophytic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (If observed, list morphological adaptations below).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: R-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-6	10YR	5/2	70	10YR	6/4	30	C	M	Silt Loam	
6-10	7.5YR	5/2	90	7.5YR	5/8	10	C	M	Silt Loam	
10-15	2.5YR	6/1	70	10YR	5/8	30	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) (LRR P, T, U)
- ☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
- ☐ Muck Presence (A8) (LRR U)
- ☐ 1 cm Muck (A9) (LRR P, T)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) (MLRA 150A)
- ☐ Sandy Muck Mineral (S1) (LRR O, S)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR P, S, T, U)
- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
- ☐ Thin Dark Surface (S9) (LRR S, T, U)
- ☐ Loamy Mucky Mineral (F1) (LRR O)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) (LRR U)
- ☐ Depleted Ochric (F11) (MLRA 151)
- ☐ Iron-Manganese Masses (F12) (LRR O, P, T)
- ☐ Umbric Surface (F13) (LRR P, T, U)
- ☐ Delta Ochric (F17) (MLRA 151)
- ☐ Reduced Vertic (F18) (MLRA 150A, 150B)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR O)
- ☐ 2 cm Muck (A10) (LRR S)
- ☐ Reduced Vertic (F18) (outside MLRA 150A,B)
- ☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
- ☐ Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ◉ **No** ○

Remarks:

Sampling Point Labeled on Map R8:

Appendix C

WETS Analysis

Rainfall Documentation To Determine Climatic/Hydrologic Conditions

Weather Station Cabot, AR

Site Visit : September 2017

Soil Types: Kobel silty clay loam, Tichnor silt loam,Calhoun silt loam,Calloway silt loam, Stuttgart silt loam

Growing Season: 365

Location: Lonoke County, Arkansas

Tract: Wattensaw Bayou MB

	Long term Rainfall Records							
	Month	3 yrs in 10 less than	Average	3 yrs in 10 greater than	Rainfall	*Conditional Value (a)	Weighted Value	Product of (a X b)
1st Prior Month	August	1.69	3.48	4.26	3.83	2	3	6
2nd Prior Month	July	1.55	3.13	3.83	4.78	3	2	6
3rd Prior Month	June	2.22	3.38	4.06	4.35	3	1	3

* Condition Value : Dry (1), Normal (2), and Wet (3)

SUM= **15**

If sum of Products of a X b is 6-9, then period was drier than normal
If sum of Products of a X b is 10-14, then period was normal
If sum of Products of a X b is 15-18, then period was wetter than normal

CONCLUSION : **Wetter than Normal**

Appendix D

Aerial Imagery

1949 Aerial Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas

Wattensaw Bayou MB Boundary

Wattensaw PRM Site

N W E S

3/5/2018

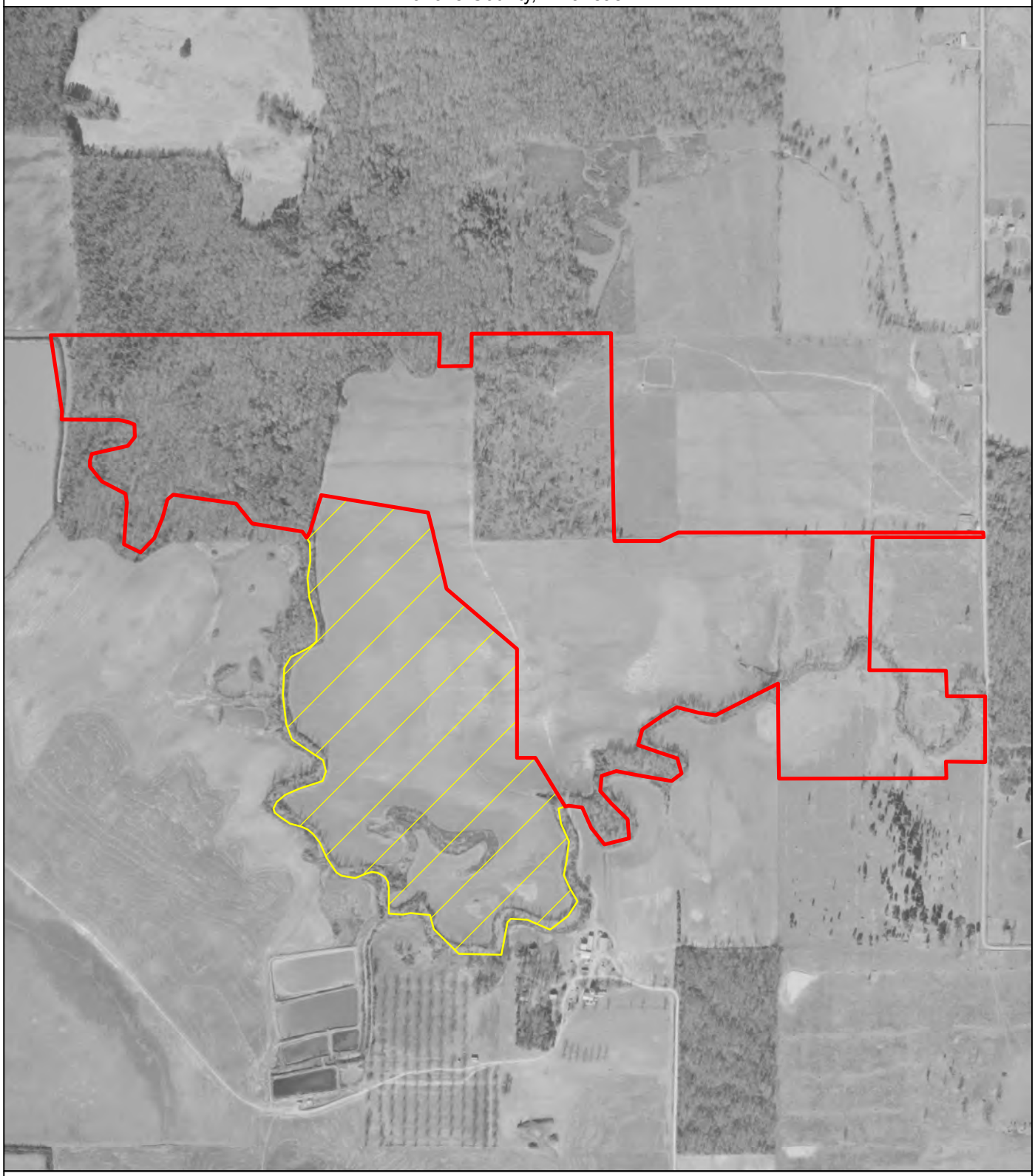
0 640 1,280 1,920 2,560 3,200 3,840 Feet

Imagery: 1949 P2 Energy

ADVANCED ECOLOGY

CG

1975 Aerial Wattensaw Bayou Mitigation Area
Lonoke County, Arkansas



Wattensaw Bayou MB Boundary

Wattensaw PRM Site

N W E S

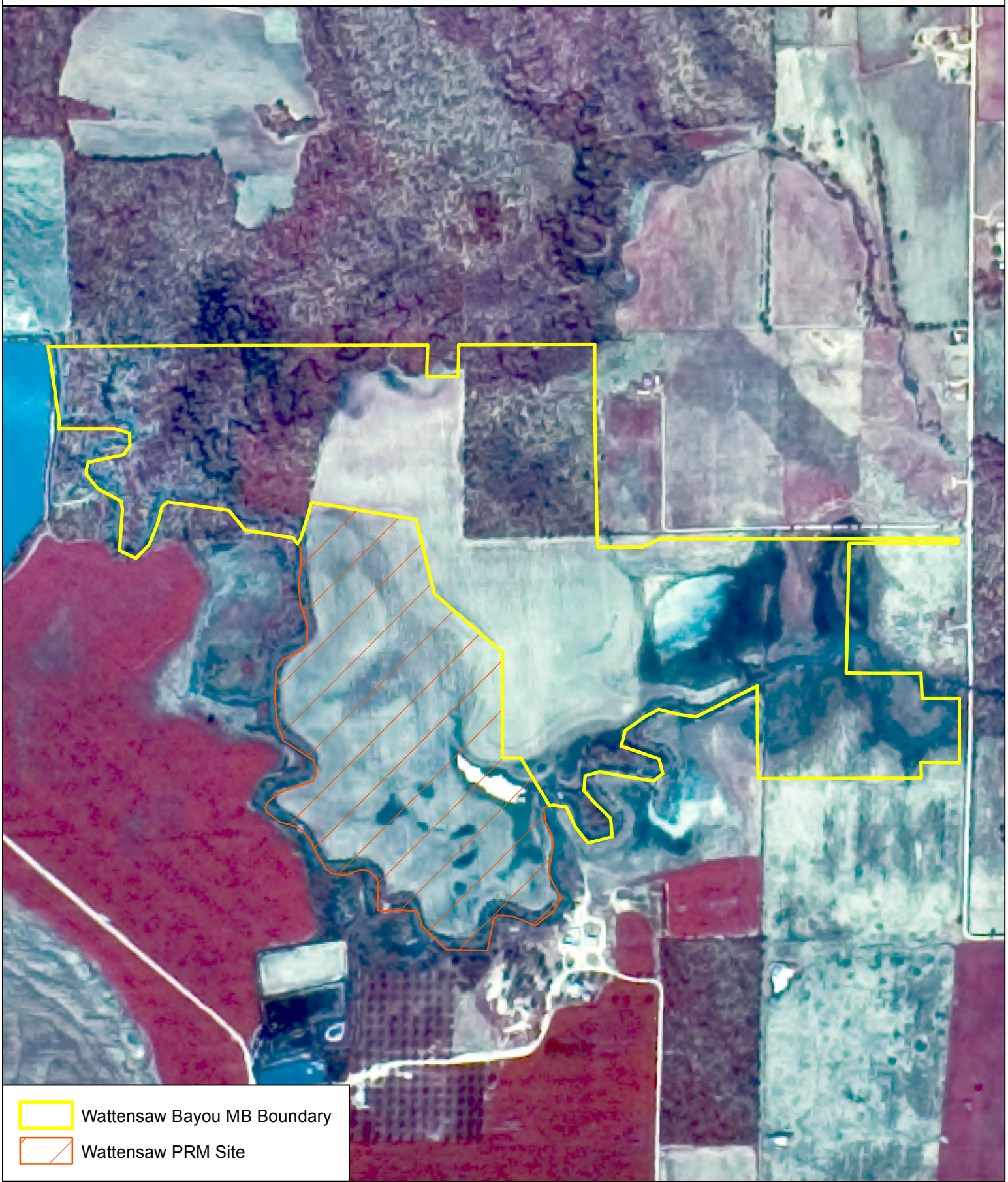
3/5/2018

0 640 1,280 1,920 2,560 3,200 3,840 Feet

Imagery: 1975 USGS

ADVANCED ECOLOGY

1990 Aerial Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



N
W E
S

3/5/2018

Imagery: 1990 USGS

0 500 1,000 1,500 2,000 2,500 Feet

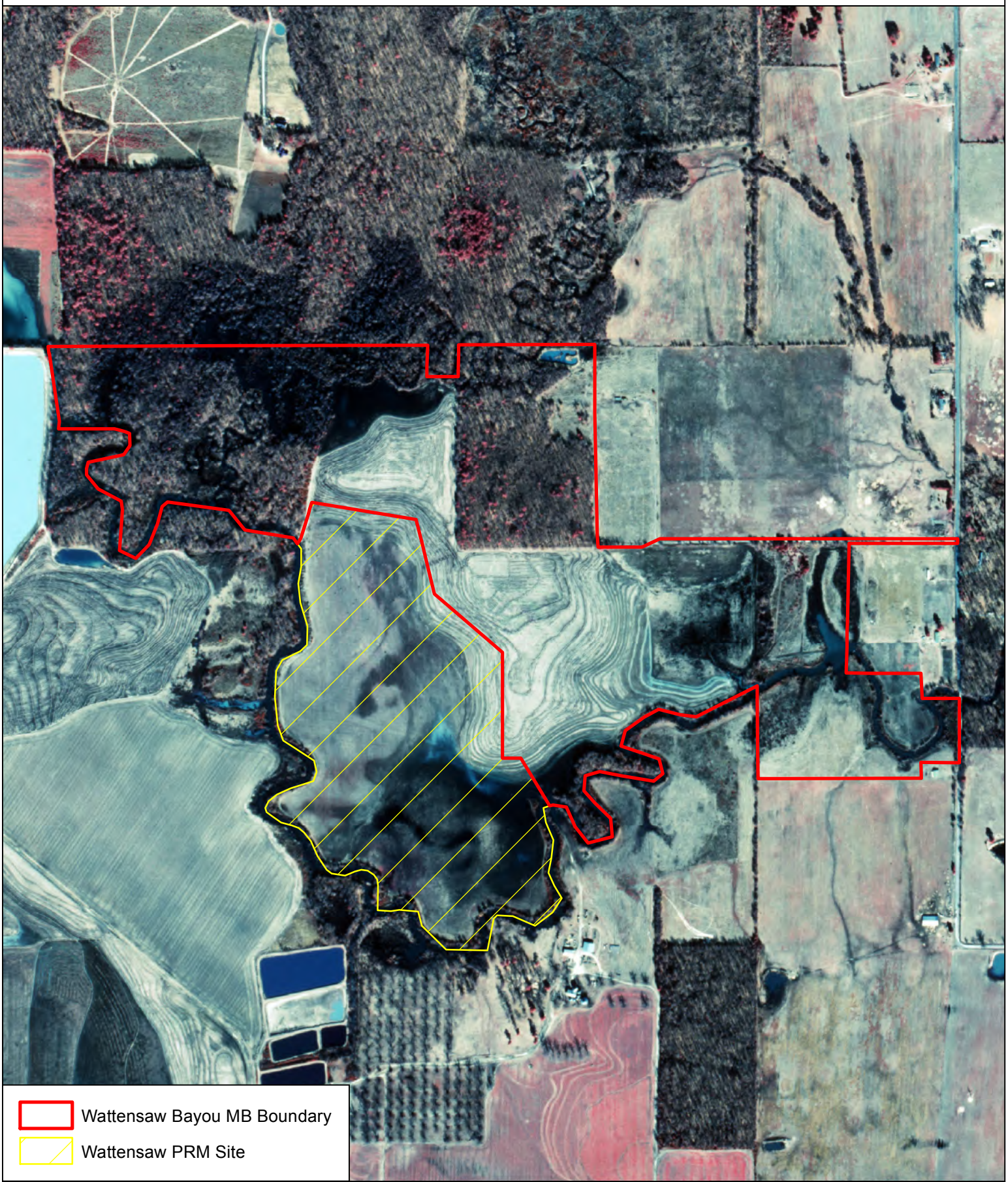
1 Inch = 832 Feet

ADVANCED ECOLOGY

Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

RC

2001 Aerial Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



N
W E
S

3/5/2018

Imagery: 2001 USGS

0 500 1,000 1,500 2,000 2,500 Feet

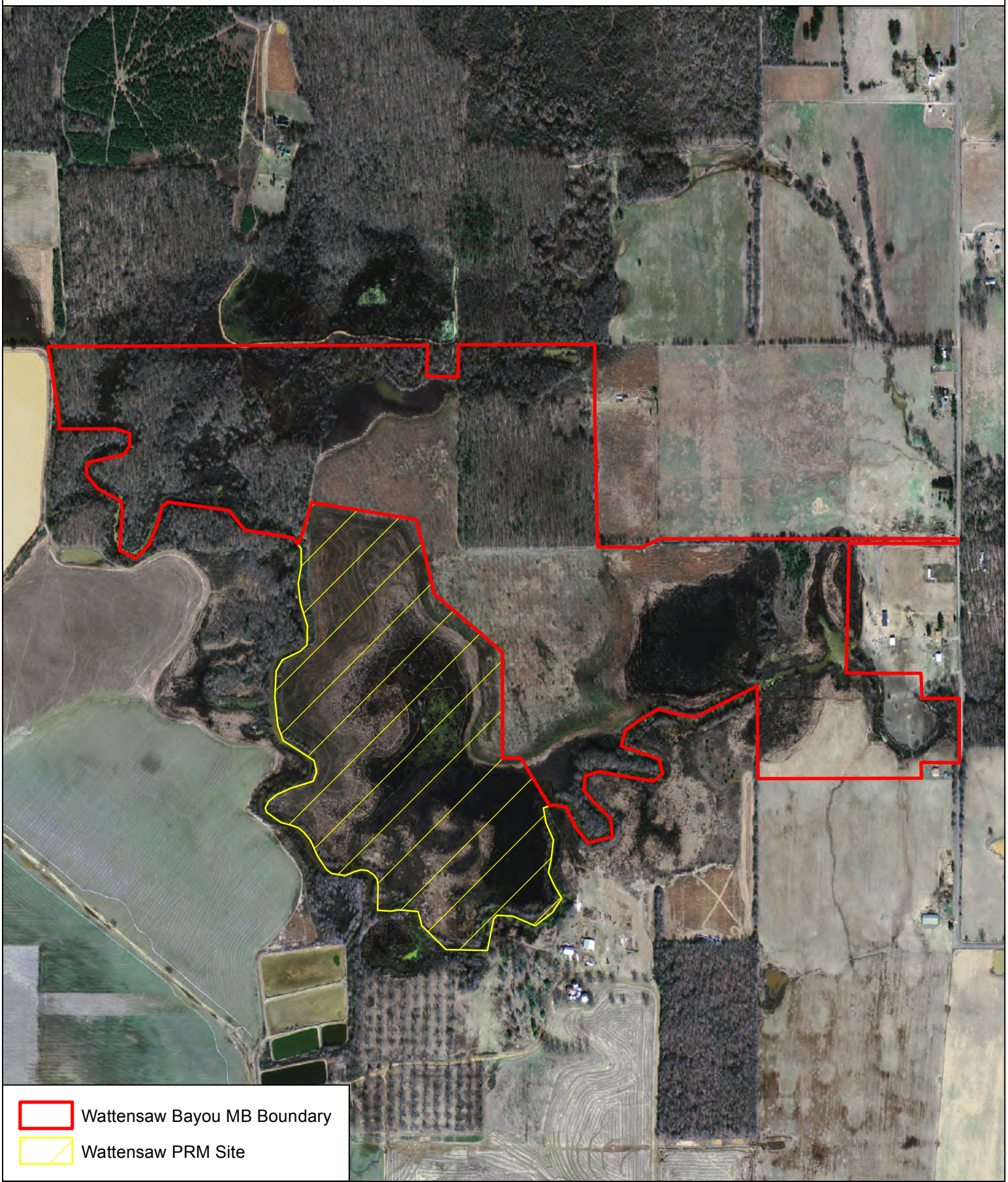
1 Inch = 832 Feet

ADVANCED ECOLOGY

Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

RC

2006 Aerial Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



N
W E
S

3/5/2018

Imagery: 2006 Ortho

0 500 1,000 1,500 2,000 2,500 Feet

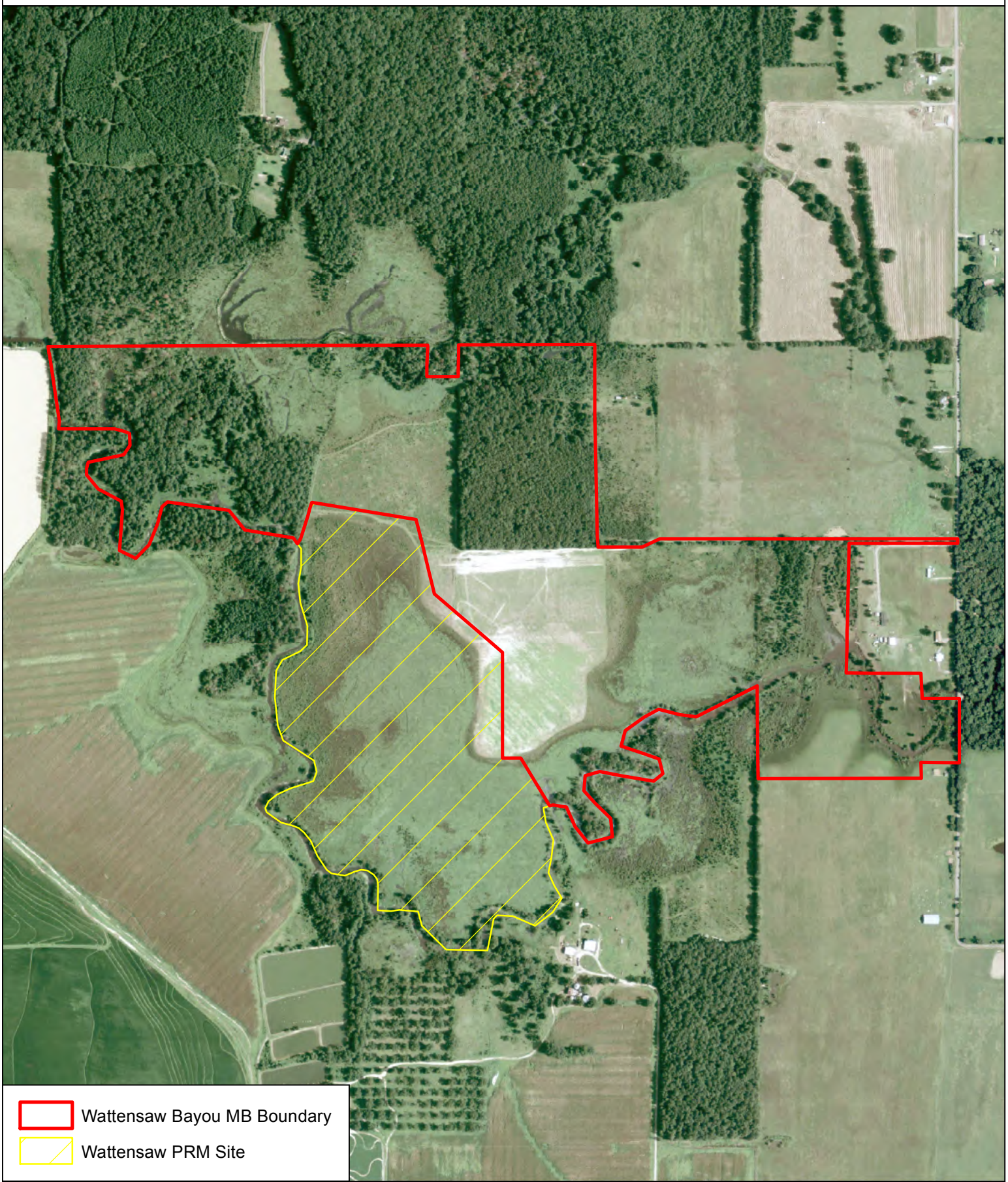
1 Inch = 832 Feet

ADVANCED ECOLOGY

Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

RC

2009 Aerial Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



N
W E
S

3/5/2018

Imagery: 2009 NAIP

0 500 1,000 1,500 2,000 2,500 Feet

1 Inch = 832 Feet

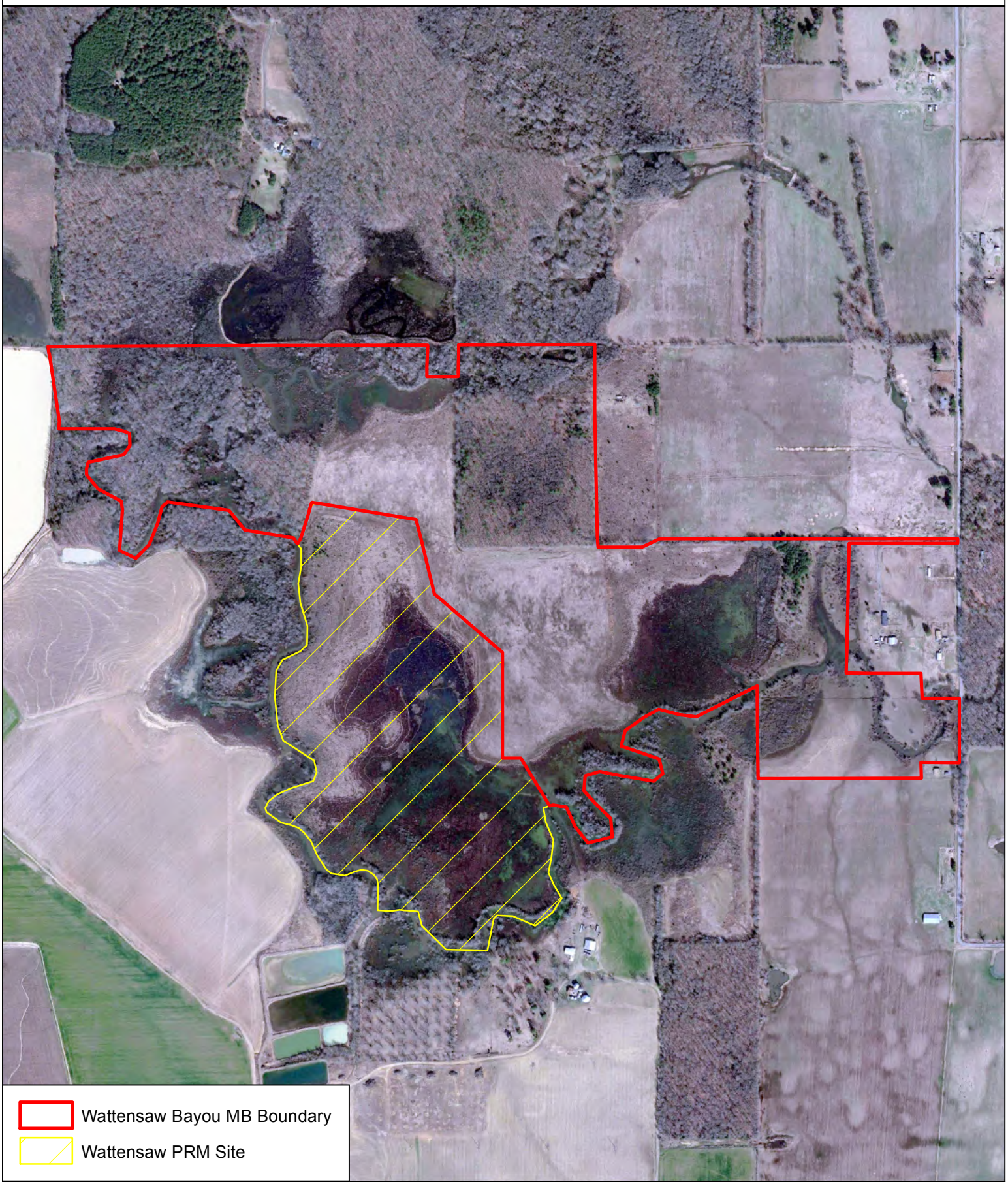
This map was generated by Advanced Ecology, LTD. No claims are made to the accuracy or completeness of the data depicted in this map or to the map's suitability for a particular use. The information depicted may contain inaccuracies and is provided "as is".

ADVANCED ECOLOGY

Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

RC

2012 Aerial Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



N
W E
S

3/5/2018

Imagery: 2012 Google Earth

0 500 1,000 1,500 2,000 2,500 Feet

1 Inch = 832 Feet

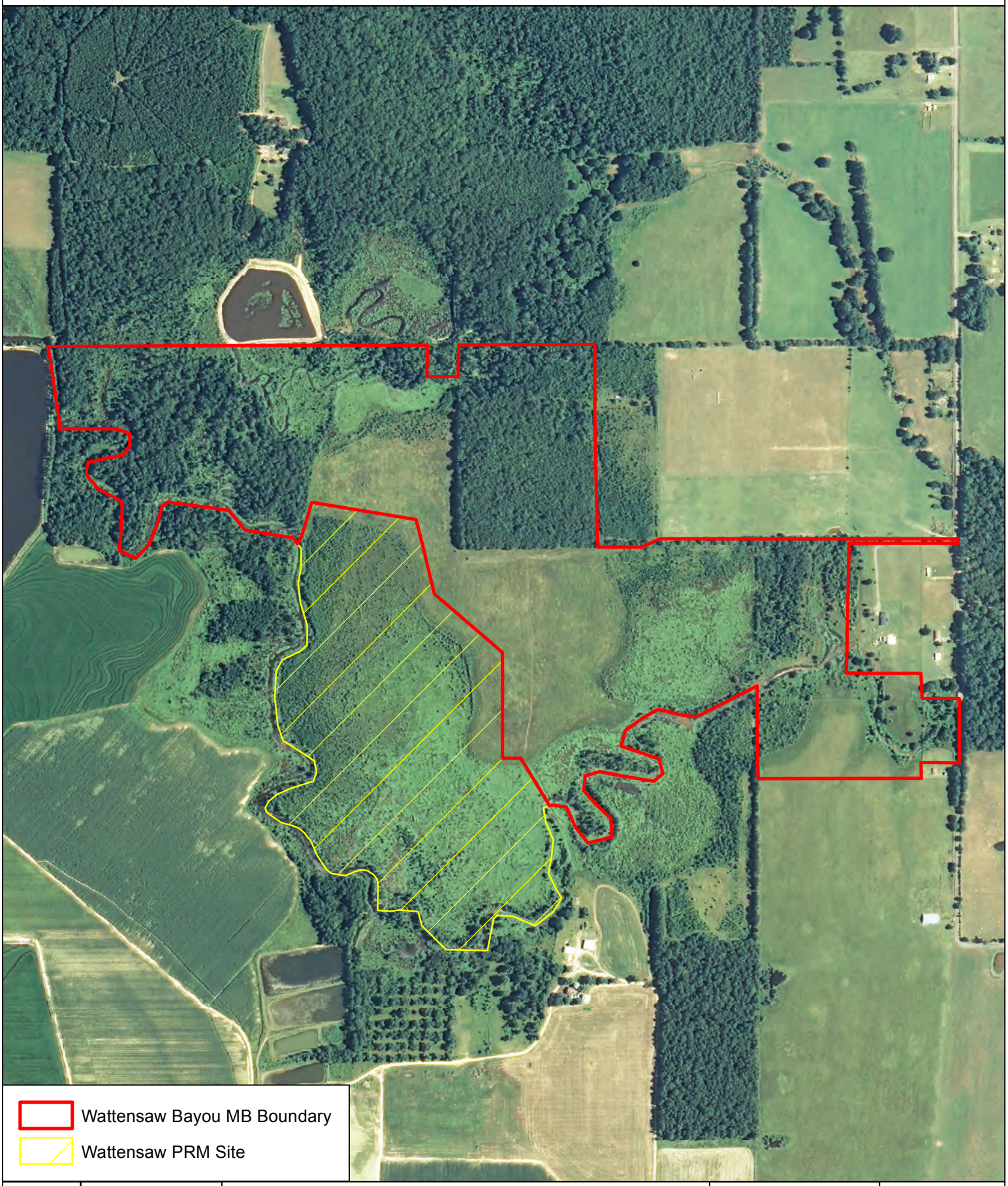
This map was generated by Advanced Ecology, LTD. No claims are made to the accuracy or completeness of the data depicted in this map or to the map's suitability for a particular use. The information depicted may contain inaccuracies and is provided "as is".

ADVANCED ECOLOGY

Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

RC

2013 Aerial Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



N
W E
S

3/5/2018

Imagery: 2013 NAIP

0 500 1,000 1,500 2,000 2,500 Feet

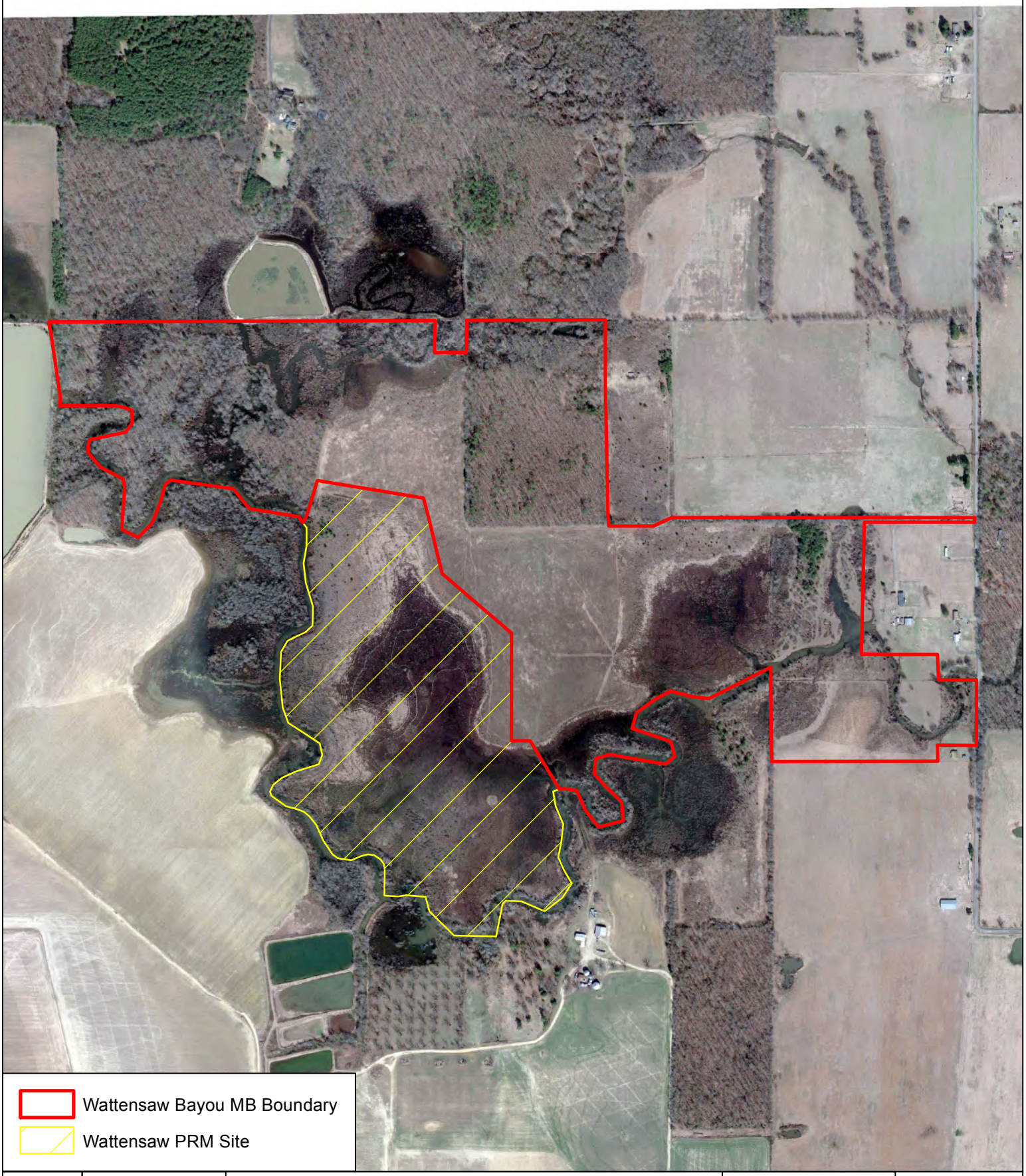
1 Inch = 832 Feet

ADVANCED ECOLOGY

Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

RC

2014 Aerial Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



N
W E
S

3/5/2018

Imagery: 2014 Google Earth

0 500 1,000 1,500 2,000 2,500 Feet

1 Inch = 832 Feet

This map was generated by Advanced Ecology, LTD. No claims are made to the accuracy or completeness of the data depicted in this map or to the map's suitability for a particular use. The information depicted may contain inaccuracies and is provided "as is".

ADVANCED ECOLOGY

Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

RC

APPENDIX E

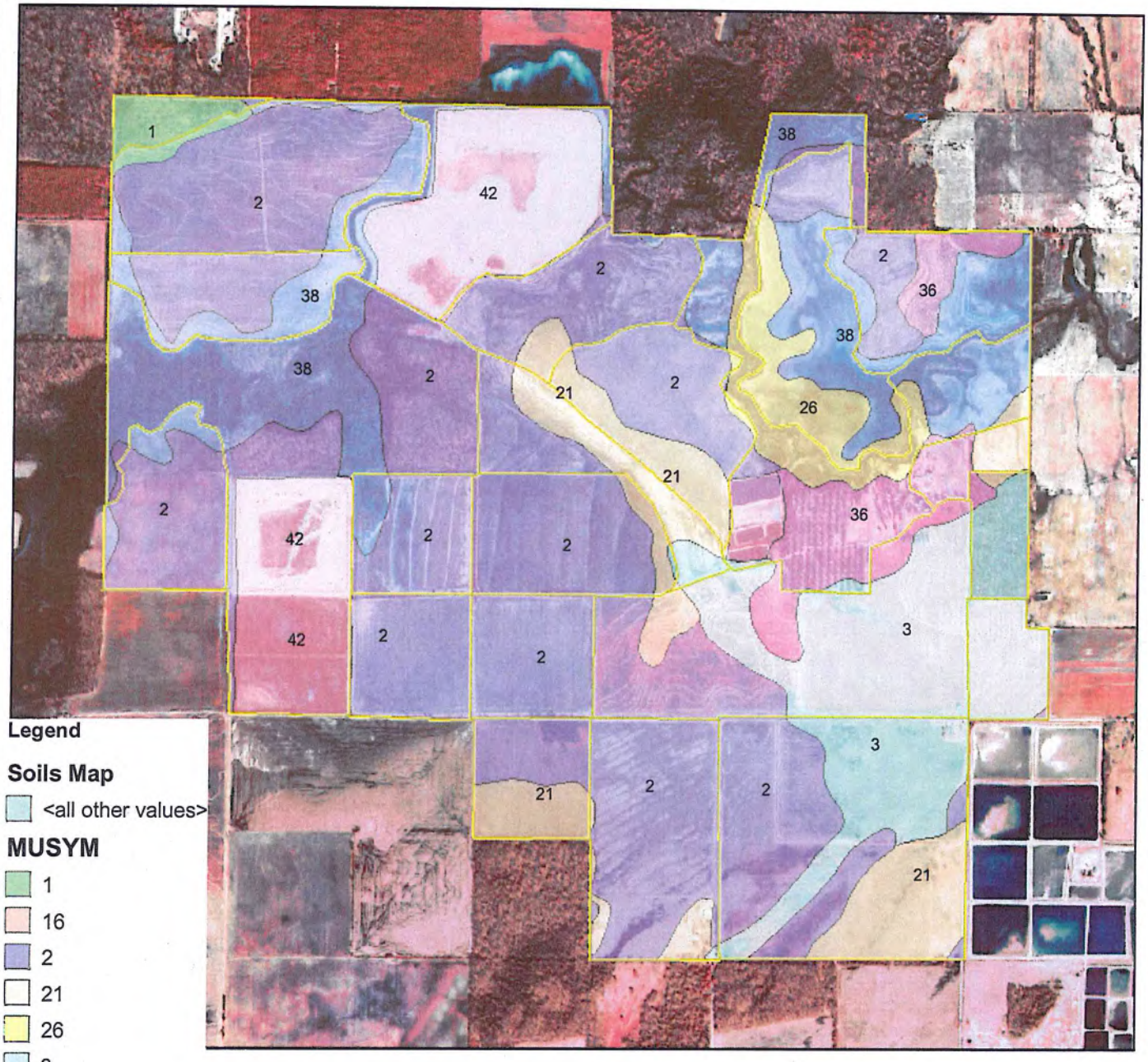
Prior Converted Documentation

Soils Map

Date: 6/14/2005

Customer(s): GEORGE W LASSETT III

Field Office: Lonoke Service Center
Agency: NRCS
Assisted By: David Vinyard



Legend

Soils Map

- <all other values>

MUSYM

- 1
- 16
- 2
- 21
- 26
- 3
- 36
- 38
- 42
- CSPAGOP

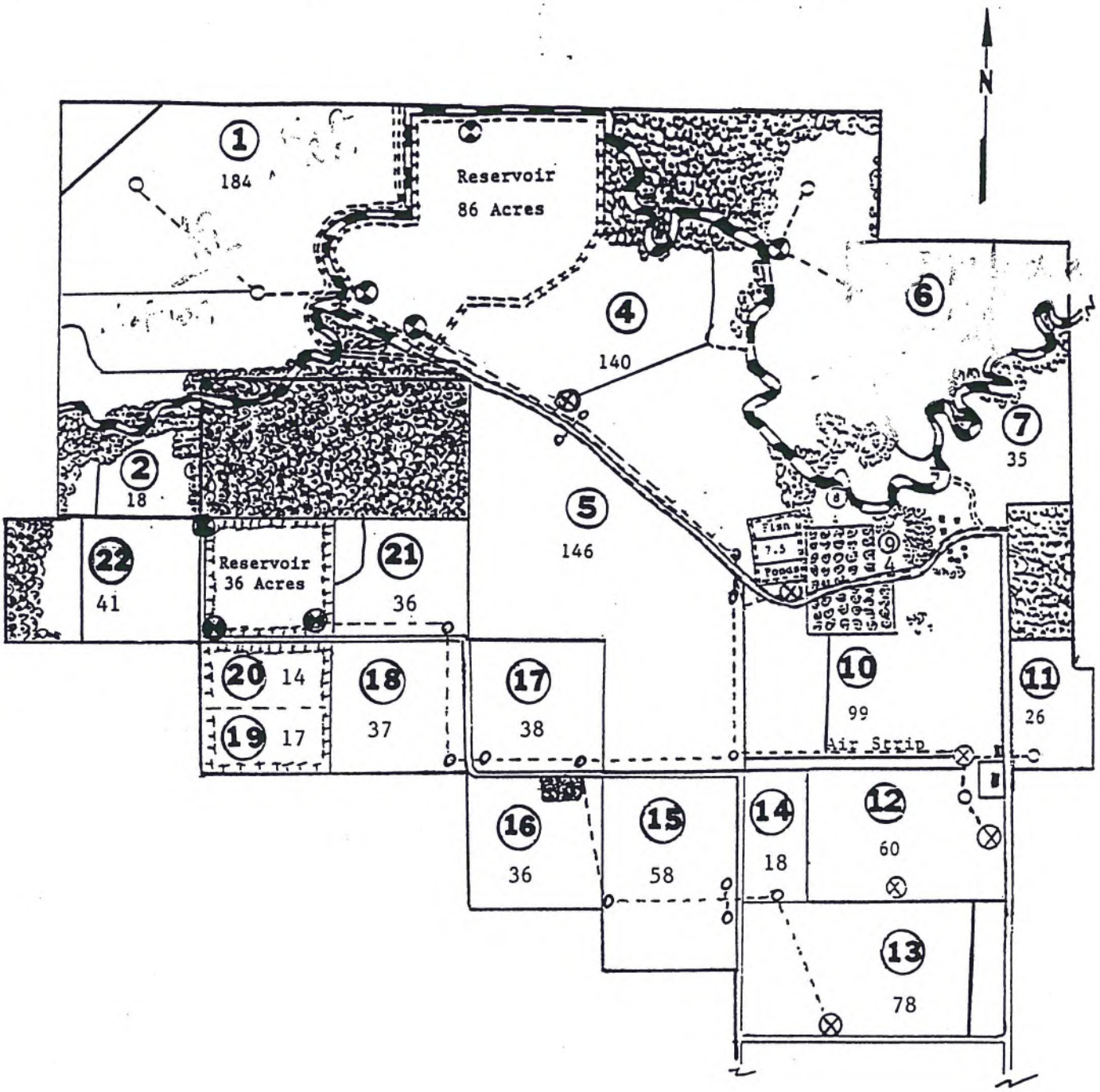
Image: ortho1-1_ar085.sid

825 0 825 1,650 2,475 3,300
Feet

N

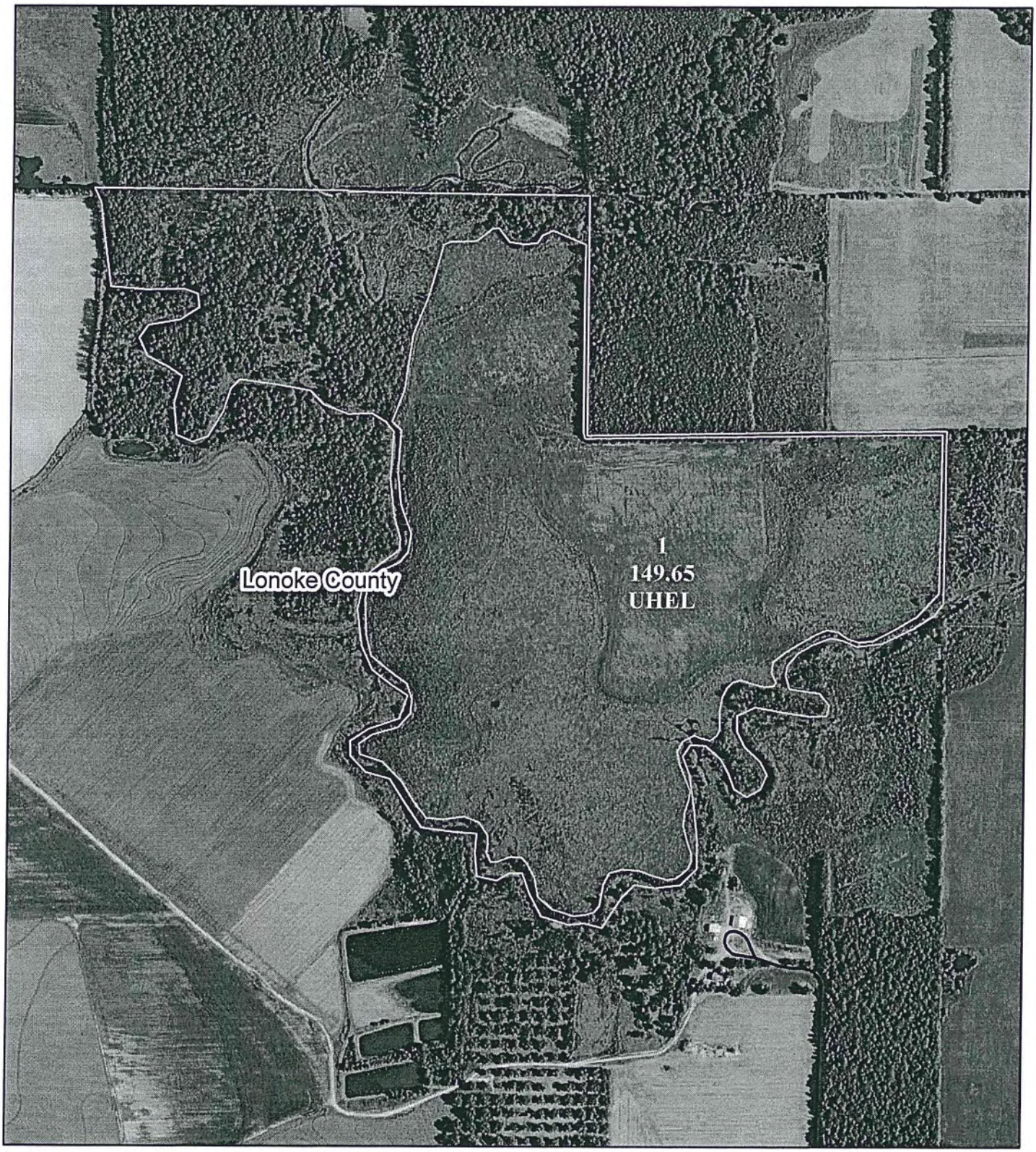
"EXHIBIT A"

WATTENSAW FARM, INC.
LONOKE COUNTY, ARKANSAS



MANAGED BY: AMERICAN AGRICULTURAL SERVICE ARKANSAS, INC. 7718 VALENTINE ROAD NORTH LITTLE ROCK, ARKANSAS 72117	SCALE: 13/16 inch = 1,320 ft.	DATE: 02-23-94
	DRAWN BY:	JP

Farm: 4498 Tract:#### Fiscal Year: 2013



USDA Farm Service Agency

Lonoke County, Arkansas

Note: This acreage is for FSA program purposes only.

Printed Date:

Wetland Determination Identifiers
- Restricted use
- Limited Restrictions
- Exempt from Conservation Compliance Provisions

0 200 400 800 1,200 1,600 Feet

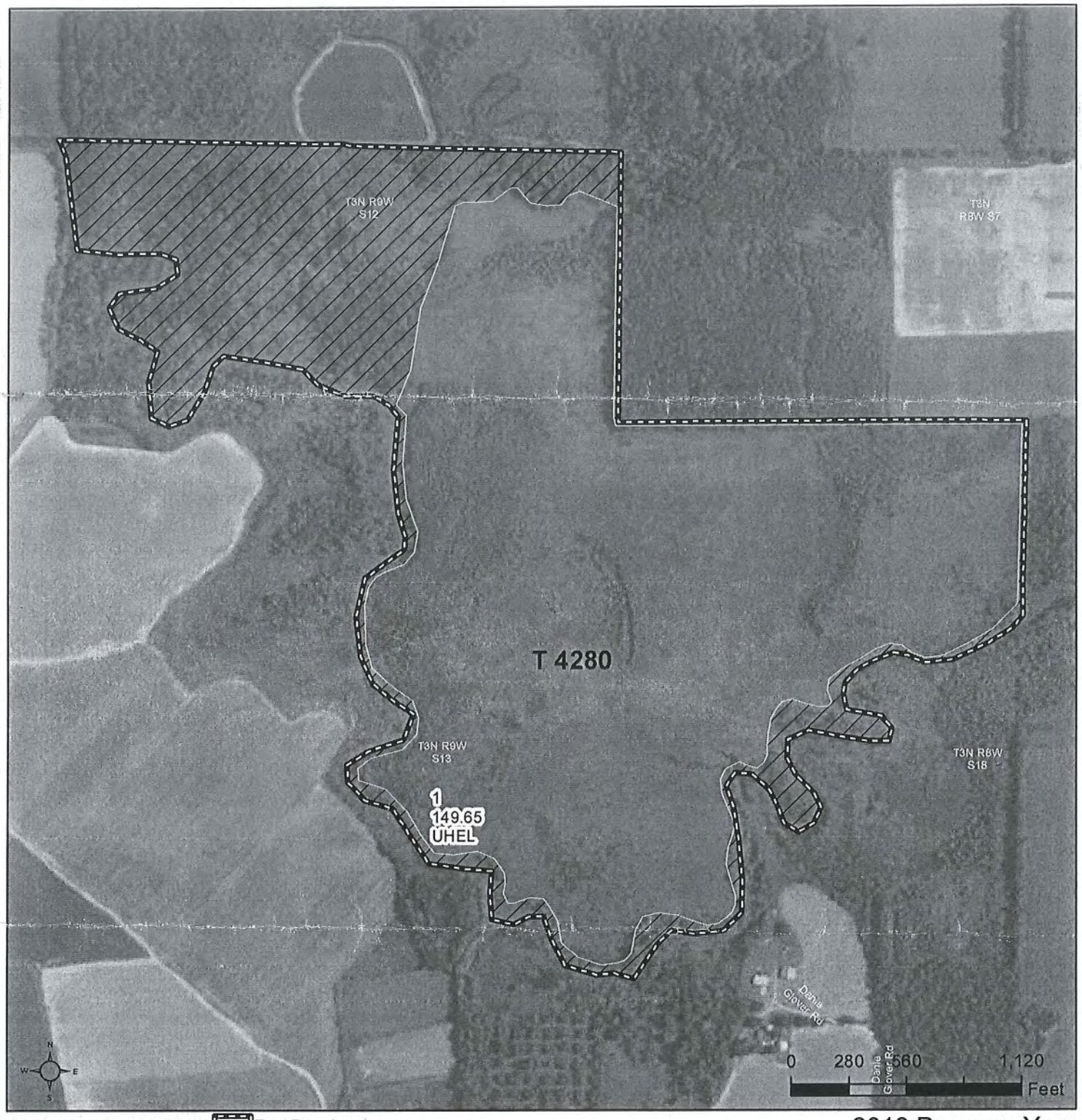
N

Photography Date: 2010

Disclaimer: Wetland identifiers do not represent size, shape, or specific determination of area. Refer to your original determination (CPA-026 and attached maps) for exact wetland boundaries and determinations, or contact NRCS.

USDA United States Department of Agriculture

Lonoke County, Arkansas



Common Land Unit
- Non-Cropland
- Cropland

Tract Boundary
PLSS

Wetland Determination
- Restricted Use
- Limited
- Exempt from Conservation Compliance Provisions

2018 Program Year
Map Created September 27, 2017

Farm **4498**
Tract **4280**

Tract Cropland Total: 149.65 acres

United States Department of Agriculture (USDA) Farm Service Agency (FSA) maps are for FSA Program administration only. This map does not represent a legal survey or reflect actual ownership; rather it depicts the information provided directly from the producer and/or National Agricultural Imagery Program (NAIP) imagery. The producer accepts the data 'as is' and assumes all risks associated with its use. USDA-FSA assumes no responsibility for actual or consequential damage incurred as a result of any user's reliance on this data outside FSA Programs. Wetland identifiers do not represent the size, shape, or specific determination of the area. Refer to your original determination (CPA-026 and attached maps) for exact boundaries and determinations or contact USDA Natural Resources Conservation Service (NRCS).

Farm: 4561 Tract: #### Fiscal Year: 2013

USDA Farm Service Agency

Lonoke County, Arkansas

Note: This acreage is for FSA program purposes only.

Printed Date:

Wetland Determination Identifiers

- ● Restricted use
- ▽ Limited Restrictions
- ■ Exempt from Conservation Compliance Provisions

0 750 1,500 3,000 4,500 6,000 Feet

N

Photography Date: ***2010***

Disclaimer: Wetland identifiers do not represent size, shape, or specific determination of area. Refer to your original determination (CPA-026 and attached maps) for exact wetland boundaries and determinations, or contact NRCS.

ARKANSAS
LONOKE
Form: FSA-156EZ
See Page 2 for non-discriminatory Statements.

United States Department of Agriculture
Farm Service Agency

Abbreviated 156 Farm Record

FARM : 4498
Prepared : Jul 18, 2018
Crop Year : 2018

Operator Name : MITIGATION MANAGEMENT LTD
Farms Associated with Operator : 05-085-4498
CRP Contract Number(s) : None
Recon ID : None

Farm Land Data

Farmland	Cropland	DCP Cropland	WBP	WRP	CRP	GRP	Sugarcane	Farm Status	Number Of Tracts
210.20	149.65	149.65	0.00	0.00	0.00	0.00	0.00	Active	1
State Conservation	**Other Conservation**	**Effective DCP Cropland**	**Double Cropped**		**MPL**	**Acre Election**	**EWP**	**DCP Ag.Rel. Activity**	**Broken From Native Sod**
0.00	0.00	149.65	0.00		0.00		0.00	0.00	0.00

Crop Election Choice

ARC Individual	ARC County	Price Loss Coverage
None	SORGH	WHEAT, RICE-LGR

DCP Crop Data

Crop Name	Base Acres	CCC-505 CRP Reduction Acres	CTAP Yield	PLC Yield	HIP
Wheat	62.70	0.00	0	36	
Grain Sorghum	0.10	0.00	0	45	
Rice-Long Grain	70.20	0.00	0	4737	
TOTAL	**133.00**	**0.00**			

NOTES

Tract Number : 4280

Description : G8
FSA Physical Location : ARKANSAS/LONOKE
ANSI Physical Location : ARKANSAS/LONOKE
BIA Unit Range Number :
HEL Status : HEL determinations not completed for all fields on the tract
Wetland Status : Wetland determinations not complete
WL Violations : None
Owners : MITIGATION MANAGEMENT LTD
Other Producers : None
Recon ID : None

Tract Land Data

Farm Land	Cropland	DCP Cropland	WBP	WRP	CRP	GRP	Sugarcane
210.20	149.65	149.65	0.00	0.00	0.00	0.00	0.00
State Conservation	**Other Conservation**	**Effective DCP Cropland**	**Double Cropped**	**MPL**	**EWP**	**DCP Ag. Rel Activity**	**Broken From Native Sod**
0.00	0.00	149.65	0.00	0.00	0.00	0.00	0.00

DCP Crop Data

Crop Name	Base Acres	CCC-505 CRP Reduction Acres	CTAP Yield	PLC Yield
Wheat	62.70	0.00	0	36

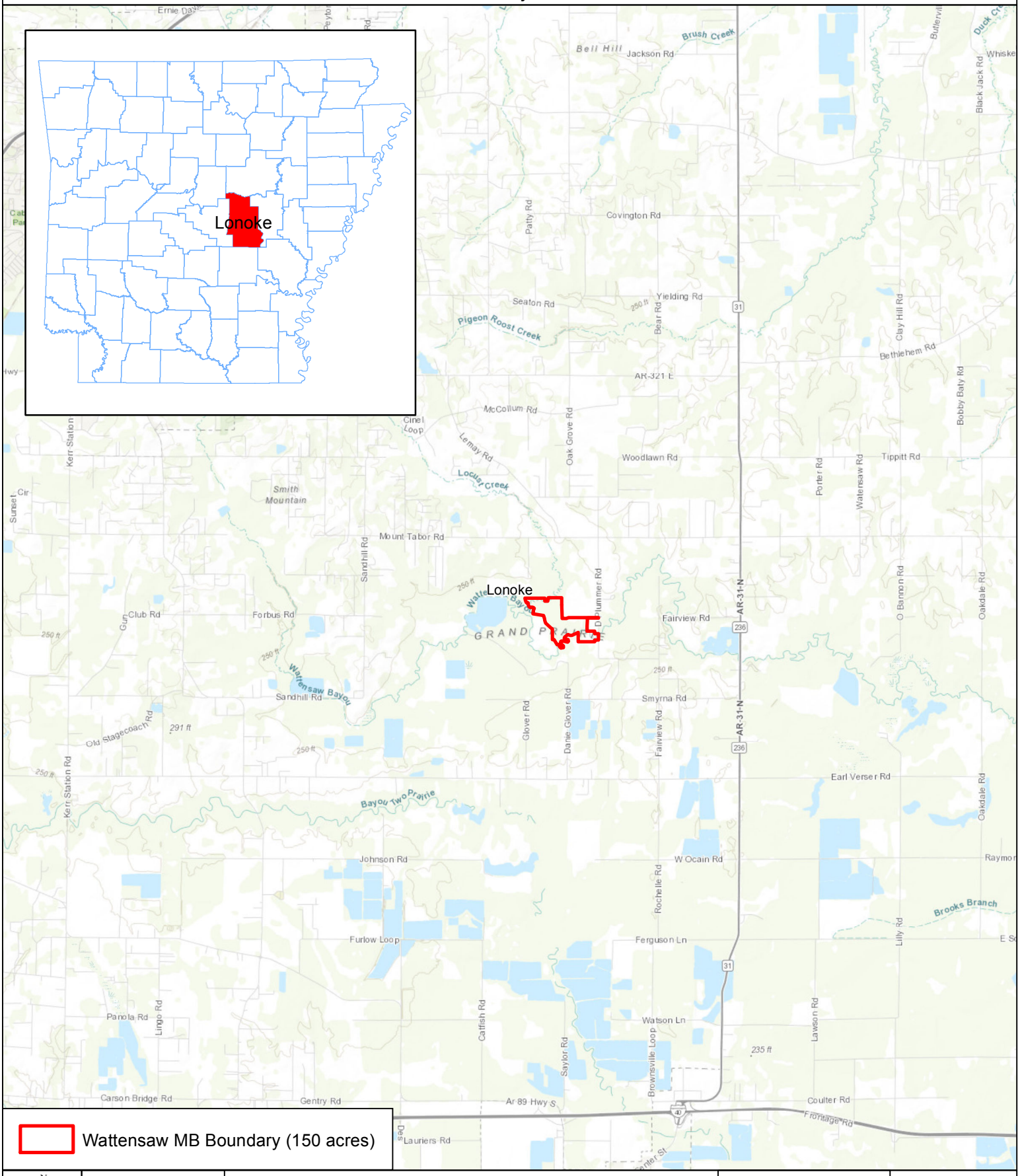
Abbreviated 156 Farm Record

Tract 4280 Continued ...

Grain Sorghum	0.10	0.00	0	45
Rice-Long Grain	70.20	0.00	0	4737
TOTAL	**133.00**	**0.00**		

NOTES

Figure 1
Location Map of the Proposed Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



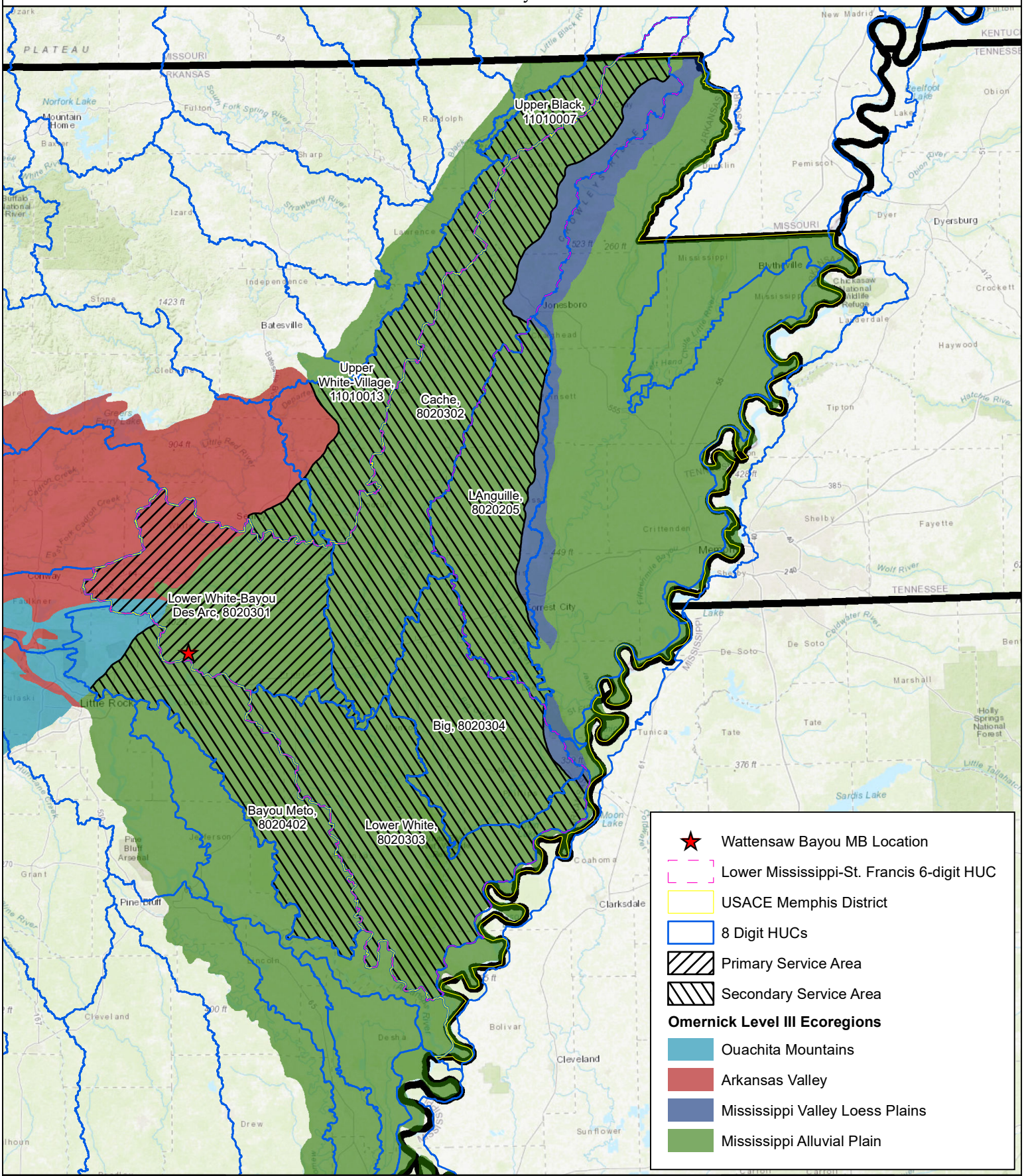
N W E S	2/22/2018 Basemap: ESRI World Topographic Map	0 1 2 3 4 5 Miles 1 Inch = 2 Miles	This map was generated by Advanced Ecology, LTD. No claims are made to the accuracy or completeness of the data depicted in this map or to the map's suitability for a particular use. The information depicted may contain inaccuracies and is provided "as is".

ADVANCED ECOLOGY

Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

RC

Figure 2
HUC & Ecoregion Map
Lonoke County, Arkansas



Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

RC

Figure 4A
Proximity of Wattensaw Bayou Mitigation Bank to Protected Areas
Lonoke County, Arkansas

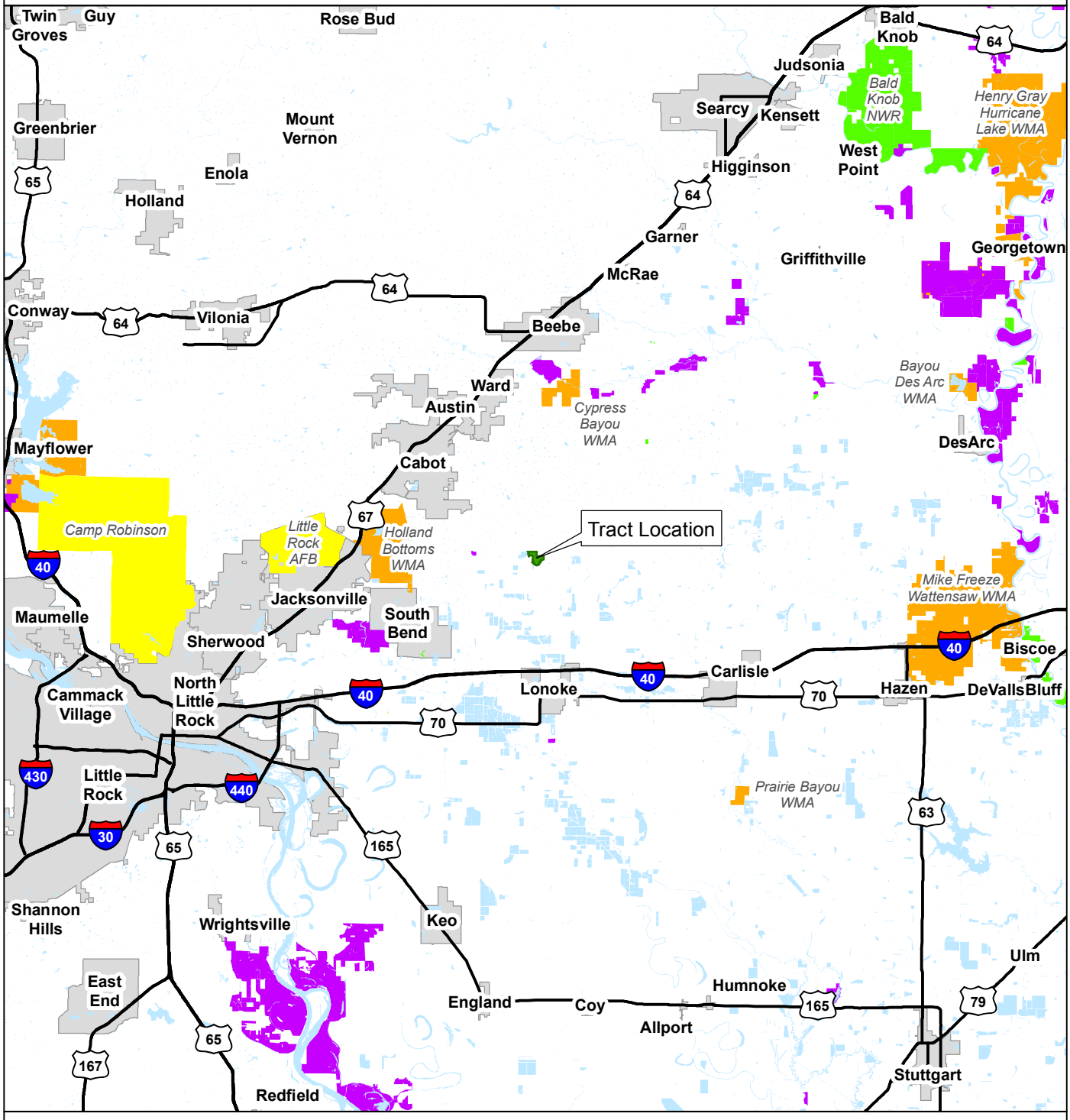
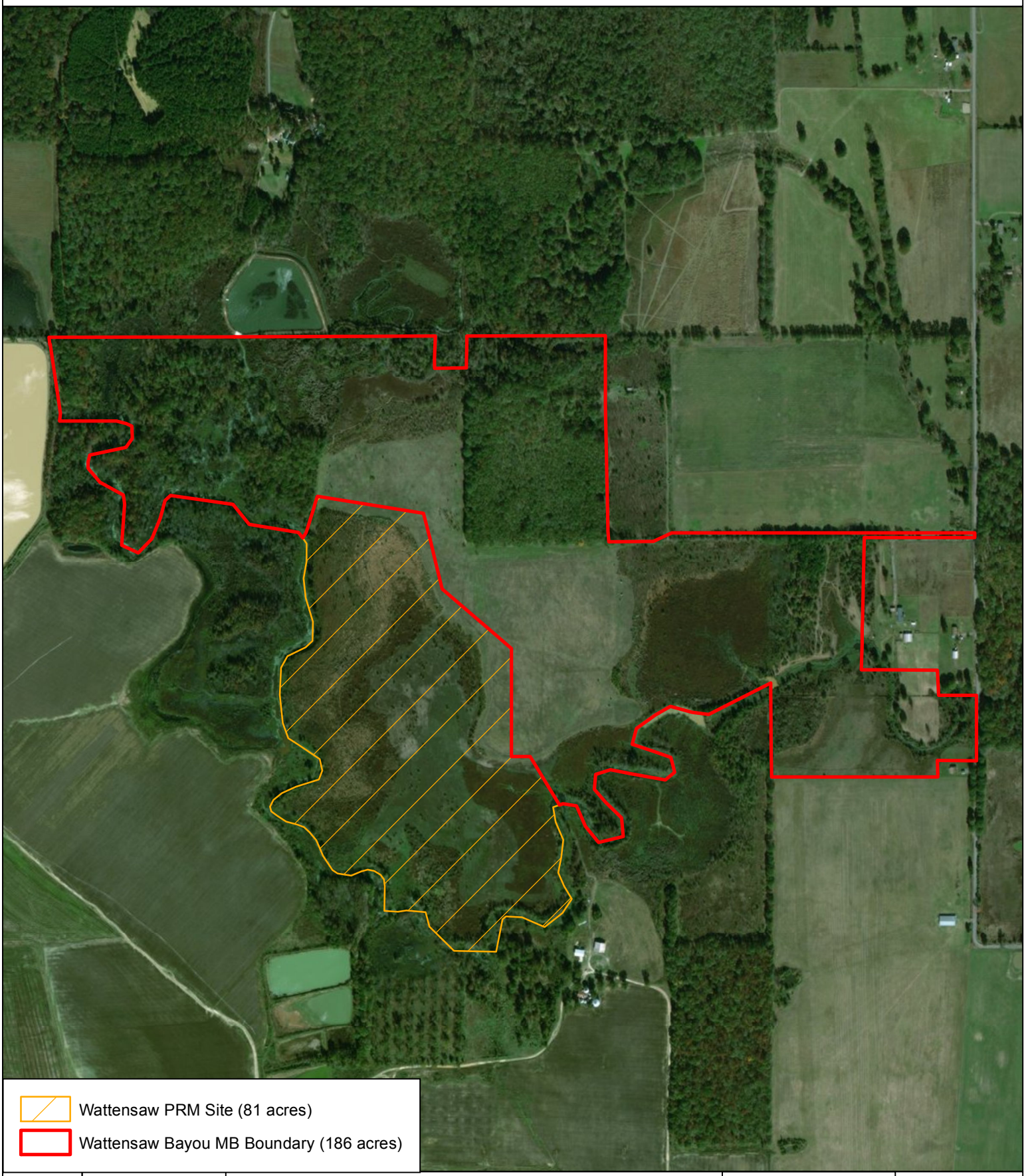


Figure 4b
Map of the Wattensaw PRM Site and the Proposed Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



N
W E
S

3/5/2018
Imagery: 2015 ESRI Basemap

0 625 1,250 1,875 2,500 Feet

1 Inch = 832 Feet

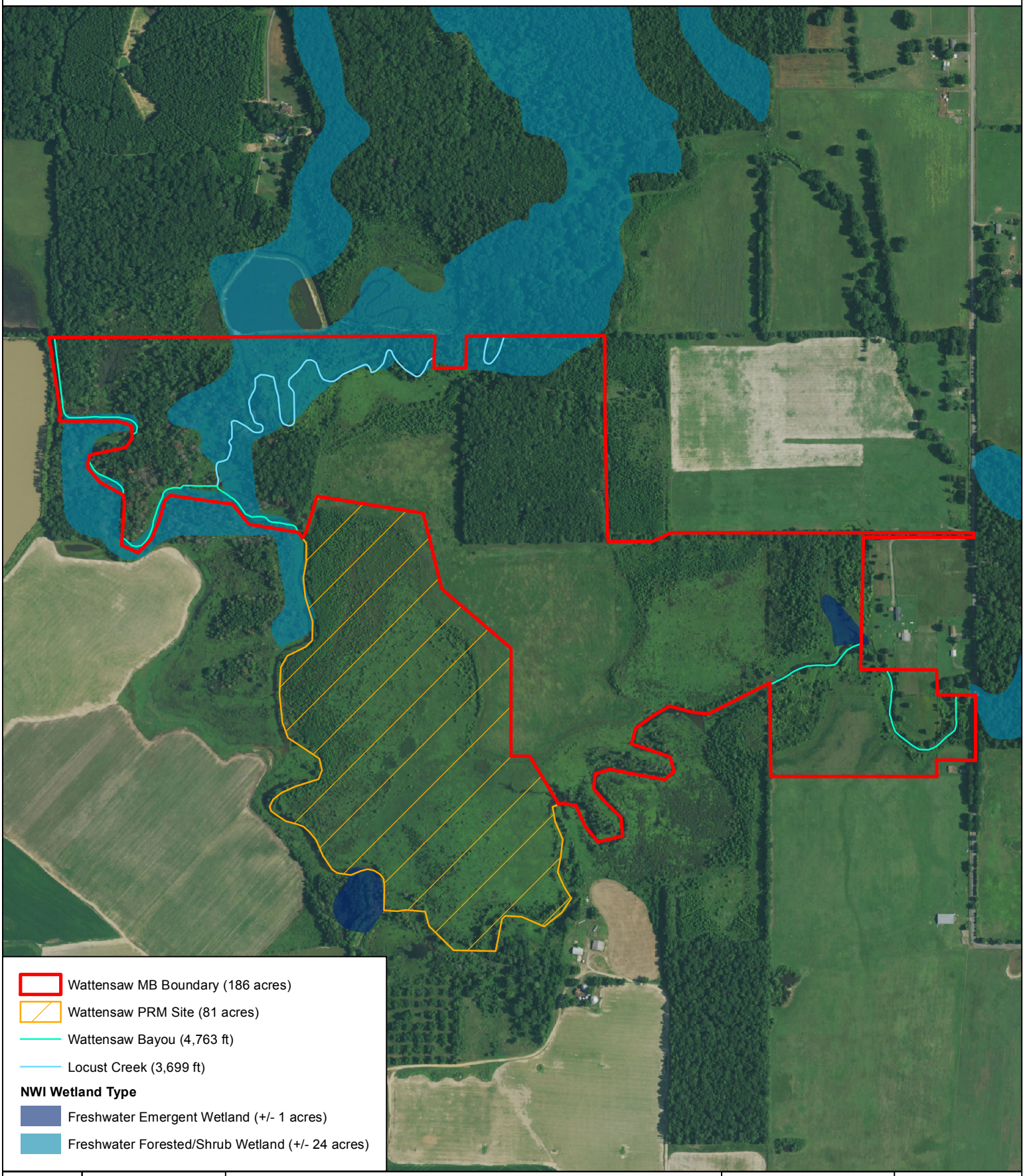
This map was generated by Advanced Ecology, LTD. No claims are made to the accuracy or completeness of the data depicted in this map or to the map's suitability for a particular use. The information depicted may contain inaccuracies and is provided "as is".

ADVANCED ECOLOGY

Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

CG

Figure 5
NWI Map of the Proposed Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



N
W E
S

3/16/2018

Imagery: 2015 NAIP

0 0.095 0.19 0.285 0.38 0.475 Miles

1 Inch = 832 feet

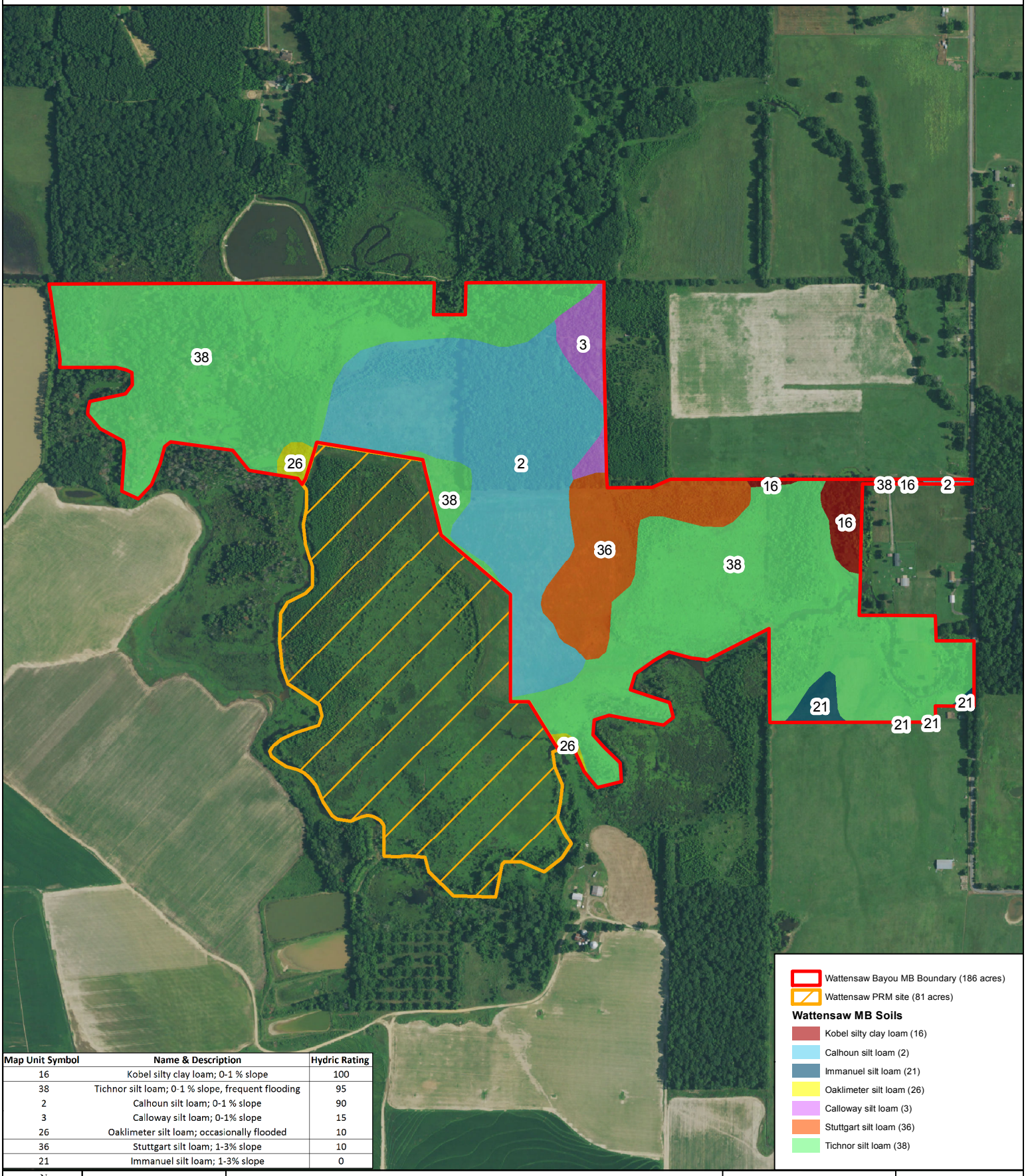
This map was generated by Advanced Ecology, LTD. No claims are made to the accuracy or completeness of the data depicted in this map or to the map's suitability for a particular use. The information depicted may contain inaccuracies and is provided "as is".

ADVANCED ECOLOGY

Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

CG

Figure 6
NRCS Soils Map of the Proposed Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



Map Unit Symbol	Name & Description	Hydric Rating
16	Kobel silty clay loam; 0-1 % slope	100
38	Tichnor silt loam; 0-1 % slope, frequent flooding	95
2	Calhoun silt loam; 0-1 % slope	90
3	Calloway silt loam; 0-1% slope	15
26	Oaklimeter silt loam; occasionally flooded	10
36	Stuttgart silt loam; 1-3% slope	10
21	Immanuel silt loam; 1-3% slope	0

N W E S

10/6/2017

Imagery: 2015 NAIP

0 630 1,260 1,890 2,520 Feet

1 Inch = 834 Feet

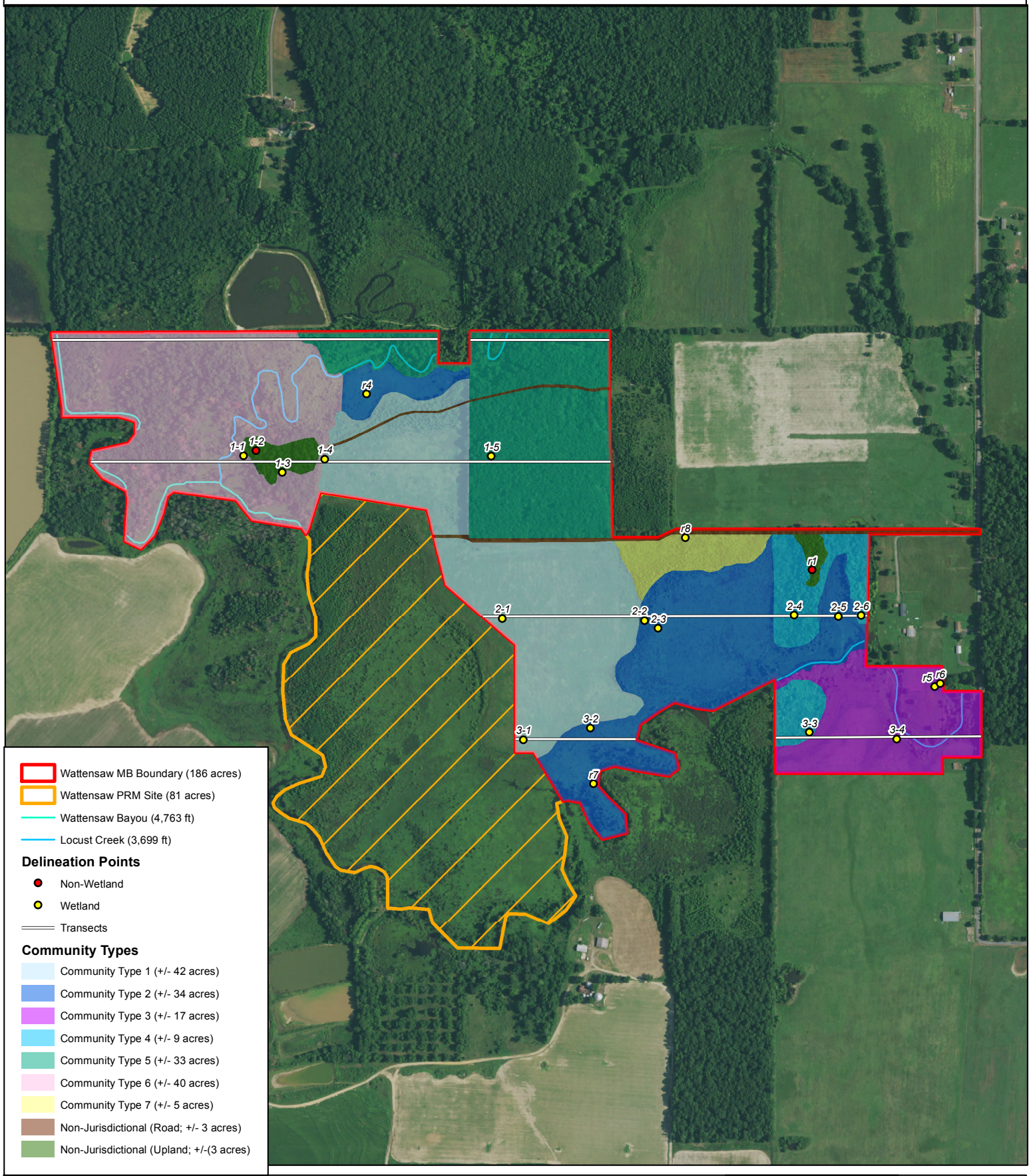
This map was generated by Advanced Ecology, LTD. No claims are made to the accuracy or completeness of the data depicted in this map or to the map's suitability for a particular use. The information depicted may contain inaccuracies and is provided "as is".

ADVANCED ECOLOGY

Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

CG

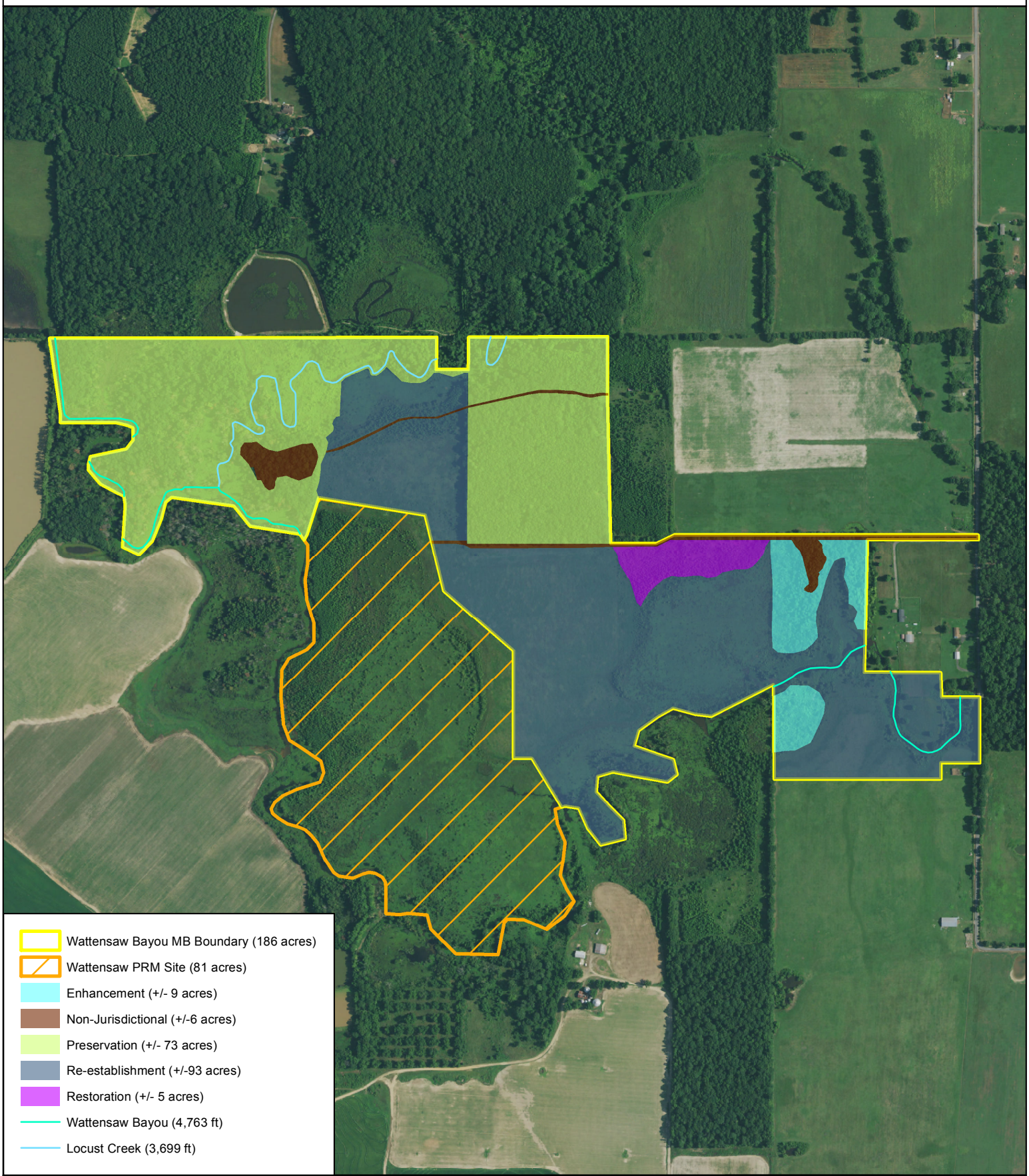
Figure 7
Wetland Delineation Map of the Proposed Wattensaw Bayou Mitigation Bank
Lonoke County, Arkansas



Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

CG

Figure 8
Wattensaw Bayou Mitigation Work Plan
Lonoke County, Arkansas



N W E S

7/19/2018

Imagery: 2015 NAIP

0 500 1,000 1,500 2,000 2,500 Feet

1 Inch = 832 Feet

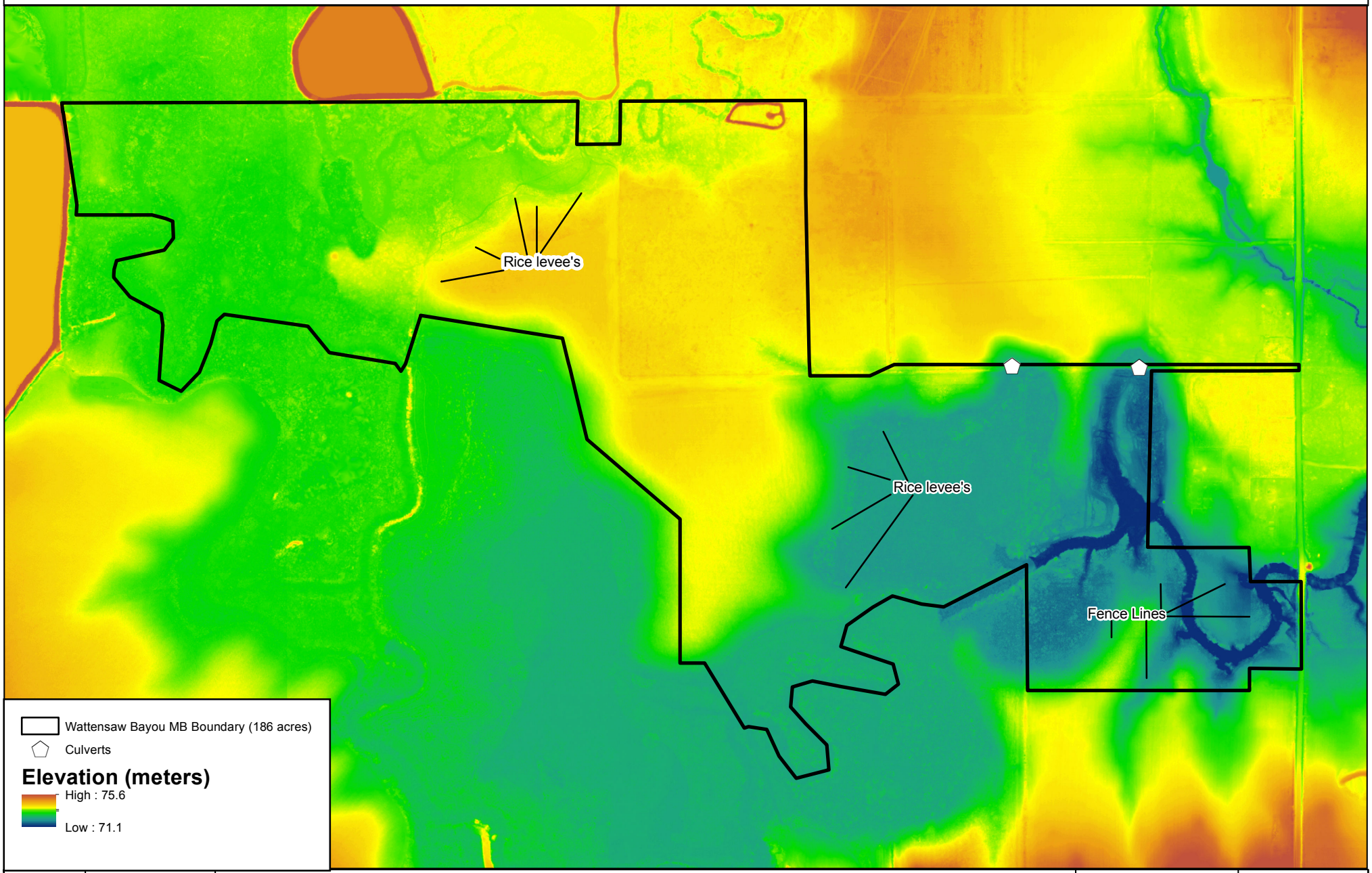
This map was generated by Advanced Ecology, LTD. No claims are made to the accuracy or completeness of the data depicted in this map or to the map's suitability for a particular use. The information depicted may contain inaccuracies and is provided "as is".

ADVANCED ECOLOGY

Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546

RC

Figure 9
Wattensaw Bayou Eleveation & Structures Map
Lonoke County, Arkansas



ADVANCED ECOLOGY

Texas Office: (936) 598-3053 Louisiana Office: (318) 797-1546