

**PROSPECTUS
HORSESHOE LAKE MITIGATION BANK
MVK-2018-663**

ATTALA & MADISON COUNTIES, MISSISSIPPI

Sponsored by:
Horseshoe Lake Land Company, LLC

Submitted to:
U.S. Army Corps of Engineers, Regulatory Branch,
Vicksburg District

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Table of Contents

1.0	INTRODUCTION.....	1
1.1	Bank Sponsor and Owner Horseshoe Lake Land Company, LLC	1
1.2	Site Location.....	1
2.0	PROJECT GOALS AND OBJECTIVES.....	3
3.0	ECOLOGICAL SUITABILITY OF THE SITE	6
3.1	Historic Site Conditions.....	6
3.2	Summary of Current Site Conditions.....	6
3.2.1	Current Land Uses.....	6
3.2.2	Current Vegetation.....	6
3.2.3	Current Hydrology.....	10
3.2.4	Historic Hydrology.....	10
3.2.5	Mapped Soil Types	11
3.2.6	Property Encumbrances	13
3.2.7	Adjacent Property Development	13
3.2.8	Preliminary Jurisdictional Determination	13
3.3	Water Rights and Hydrological Influences.....	13
3.3.1	Water Rights.....	13
3.3.2	General Watershed Characteristics	13
3.4	Water Quality.....	14
4.0	Wildlife Values.....	16
5.0	Bank Establishment.....	17
5.1	Mitigation Bank Overview.....	17
5.1.1	Bottomland Hardwood Rehabilitation I.....	17
5.1.2	Bottomland Hardwood Rehabilitation II	18
5.1.3	Bottomland Hardwood Rehabilitation III	19
5.1.4	Bottomland Hardwood Rehabilitation IV.....	21
5.1.5	Bottomland Hardwood Rehabilitation V.....	22
5.1.5	Bottomland Hardwood Preservation.....	23
5.1.6	Upland Hardwood Buffer Rehabilitation	24
5.1.7	Upland Hardwood Buffer Preservation.....	24
5.1.8	Non-Mitigation.....	24

5.2	Mitigation Work Plan	25
5.2.1	Hydrologic Work Plan	25
5.2.2	Vegetative Plantings	26
5.2.3	Noxious/Exotic Species Control	29
5.2.4	Monitoring	29
5.3	Proposed Service Area	29
5.3.1	Primary Service Area	29
5.4	General Bank and Need/Technical Feasibility	29
5.5	Future Ownership and Long-Term Management Strategy	30
5.5.1	Sponsor/Operations Manager/Long-Term Management	30
5.5.2	Landowner/Long-Term Ownership	30
5.5.3	Agent	30
5.5.4	Perpetual Site Protection Mechanism	30
5.5.5	Sponsor Qualifications	31
6.0	Conclusion	32
7.0	References	33

FIGURES:

- Figure 1: Vicinity Map**
- Figure 2: Topographic Site Map**
- Figure 3: Aerial Site Map**
- Figure 4: Watershed Location Map**
- Figure 5: Historical Imagery Map**
- Figure 6: Big Black River Watershed**
- Figure 7: Current Habitat Map**
- Figure 8: Current Hydrology Map**
- Figure 9: Historical Hydrology Map**
- Figure 10: Soils Location Map**
- Figure 11: Surrounding Land Use Map**
- Figure 12: Hydrologic Work Plan Map**
- Figure 12A: Cross Section A-A'**
- Figure 12B: Cross Section B-B'**
- Figure 13: LiDAR Map**
- Figure 14: Wetland Mitigation Map**
- Figure 15: Service Area Map**

**Prospectus
Horseshoe Lake Mitigation Bank
Attala & Madison Counties, Mississippi**

1.0 INTRODUCTION

The Horseshoe Lake Land Company, LLC (or the “Sponsor”), submits this prospectus to the U.S. Army Corps of Engineers, Vicksburg District (Vicksburg District), and the Interagency Review Team (IRT) to initiate evaluation of the proposed Horseshoe Lake Mitigation Bank (HLMB) pursuant to the plan to establish a bottomland hardwood wetland mitigation bank in both the upper and lower portions of the Big Black River Hydrologic Unit Codes (HUC) 08060201 and 08060202. The prospectus has been prepared in accordance with the Compensatory Mitigation for Losses of Aquatic Resources; Final Rule (Federal Registry/Vol. 73, No. 70/Thursday, April 10, 2008/Rules and Regulations) and with guidance presented by the U.S. Army Corps of Engineers (USACE), Vicksburg District, Prospectus (33 CFR §332.8(d)(2)/40 CFR §230.98(d)(2)). The purpose of this document is to provide a sufficient level of detail to support informed public and IRT decisions regarding the objectives, establishment, and operation of the HLMB proposal.

1.1 Bank Sponsor and Owner Horseshoe Lake Land Company, LLC

Managing members of the Horseshoe Lake Land Company, LLC are considered the Sponsor of the HLMB. The land will be owned in fee simple by Horseshoe Lake Land Company, LLC prior to the placement of the conservation easement. Horseshoe Lake Land Company, LLC will assume long term ownership and management of the HLMB. Horseshoe Lake Land Company, LLC will remain as the bank Sponsor assisting with establishment and long-term management of the bank.

1.2 Site Location

The HLMB consists of approximately 1,677.47 acres in one contiguous tract of land that is positioned adjacent to the east side of the Big Black River and is located within the Big Black River floodplain within portions of Attala & Madison Counties, Mississippi. The HLMB is situated east of Mississippi Highway 51 and just north of its intersection with Mississippi Highway 17 within the central portion of Attala & Madison Counties, Mississippi. The HLMB is located east of the City of Pickens, approximately 14 miles north of the City of Canton, and approximately 3.5 miles south of the City of Goodman (Figure 1). The HLMB is more specifically located within portions of Sections 13, 14, 18, 22, 23, 24, 27, Township 12 North, and Range 3 East, Attala & Madison Counties, Mississippi (Figures 2 and 3).

As previously mentioned, the HLMB will be comprised of approximately 1,677.47 acres as one contiguous tract of land. HLMB can be accessed via Mississippi Highway 17 located along the south boundary of the Bank Property at Global Positioning System (GPS) coordinates N32.865515 – 89.973802. The center GPS coordinates for the HLMB are N32.883484 -89.944687.

The Big Black River drainage area covers approximately 2,166,125 acres and extends over portions of the following counties in Mississippi: Attala, Carroll, Choctaw, Claiborne,

Hinds, Holmes, Leake, Madison, Montgomery, Oktibbeha, Warren, and Webster. The HLMB is located within the central portion of Attala & Madison Counties, Mississippi and the Big Black River watershed (Figure 4).

Madison County lies between two (2) rivers, which flow generally from the northeast to the southwest. Big Black River is the northwestern boundary, and the Pearl River is the southeastern boundary of the county. At the upstream end of the county, the rivers are about 22 miles apart; they are about 16 miles apart near the center and about 22 miles apart in the southwestern part of the county. As described, the Big Black river flows into the Mississippi River, and the Pearl River flows into the Gulf of Mexico. About 1/6 of the land of Madison County is on nearly level flood plains of the rivers and creeks that drain the county.

Attala County is about 22.5 miles from east to west on the northern border and about 34 miles from east to west in the southern part of the county. It is 24 miles long from the north to south on the east side and is as much as 32 miles long on the west side, along the Big Black River. Attala County is drained by three primary stream systems. The Big Black River is along the western border of the county. Along with its tributaries, it drains over 60 percent of the county, including the southwestern and north central parts. The Yockanookany River and its tributaries drain about 30 percent of the county, including the northeastern, central and south-central parts. Lobutch Creek is in the southeastern part of the county. Along with its tributaries, it drains about 10 percent of the county. About 30 percent of the land area of the county is flood plains along rivers, creeks and streams.

Much of the upper reaches of the Big Black River watershed consisted historically of bottomland hardwoods, bald cypress/tupelo sloughs and scrub/shrub swamp wetlands (Madison/Attala County). However, as with many floodplains much of this area was deforested and converted to agricultural/silviculture uses overtime (~35% of the counties). Programs administered by the Natural Resource Conservation Service (NRCS) have supported the reforestation of these floodplains. However, many areas remain intensively managed as cropland and monocultural timberlands. Other areas exhibit timber harvest operations or lack of forest management, all of which have reduced the overall quality of the historic bottomland hardwood ecosystems within the watershed (Figure 5).

2.0 PROJECT GOALS AND OBJECTIVES

HLMB is adjacent to the Big Black River. The Big Black River converges with the Mississippi River approximately 105 miles southwest of the Bank Property (Figure 6).

The design of the HLMB will further promote the rehabilitation and preservation of bottomland hardwood forest and riparian buffers along the Big Black River within Attala & Madison Counties, Mississippi and within the upper and lower reaches of this basin. The project will further reduce fragmentation of forestland within this region and protect it in perpetuity. The HLMB project would remove the ongoing silviculture activities within the Bank Property and restore the Bank Property to a higher quality historic bottomland hardwood ecosystem within the Big Black River watershed. The Bank Property will also ensure that the floodplain of the Big Black River is maintained and protected from a future change in use. As development trends continue north and northwest from the City of Jackson, Madison and Gluckstadt, this has become increasingly important. Encroachment within our streams floodplains has resulted in drainage and flooding problems within this region. The ability to preserve a significant portion of the Big Black River watershed, up gradient from the Jackson Metropolitan area would only benefit this ongoing challenge we all face with planned growth and development.

The predominant features of the HLMB will be the rehabilitation and preservation of a bottomland hardwood ecosystem that will provide a functional lift to the ecology of the Bank Property while maintaining water quality and quantity benefits to the Big Black River, the receiving water for the Bank Property. Major components of the plan would include the removal and restoration of drainage improvements and impediments within the Bank Property. Forest stand improvements would include the removal of monoculture pine plantation and the rehabilitation of bottomland hardwoods tracts. Other bank components include various rehabilitation practices of the bottomland hardwoods within the Bank Property. The rehabilitation of the bottomland hardwood ecosystem is considered critical in this management process to ultimately achieve the historic and natural state of the Bank Property. For the purpose of this prospectus, bottomland hardwoods include not only the hardwood species that are predominant in most forested floodplains but also the softwood species such as bald cypress and water Tupelo (Allen, J.A., Keeland, B.D., Stanturf, J.A., Clewell, A.F., and Kennedy, H.E., Jr. 2001. *A guide to bottomland hardwood restoration*: U.S. Geological Survey, Biological Resources Division Information and Technology Report. USGS/BRD/ITR-2000-0011, U.S. Department of Agriculture, Forest Service, Southern Research Station, General Technical Report SRS-40,132 p.).

As previously described, the goal of the HLMB is to provide the opportunity to rehabilitate and preserve 1,677.47 acres of bottomland hardwood and forested wetland habitat. The HLMB will also provide the opportunity to restore natural hydrological processes across the site through the removal of impediments created by land improvements overtime. The planned hydrologic restoration activities would be conducted in cohesion with the wetland rehabilitation work plan described within the contents of this prospectus document. Reference wetlands would be identified and used to guide the hydrologic, soil, and vegetative components of the project. Reference wetlands or target forest types can be identified within portions of the HLMB and adjacent properties, similarly managed by the Sponsor.

Table 1: Current Habitat Types and Land Uses for HLMB (Figure 7)

Current Habitat Type	Acres	Percentage
Bottomland Hardwood Forested Wetlands	490.02	29.21%
Pine Clearcut Wetlands	223.62	13.33%
BLH Clearcut Wetlands	28.32	1.69%
Degraded BLH Forested Wetlands	672.69	40.10%
Storm Damaged Wetlands	25.46	1.52%
Cypress/Tupelo Slough	86.20	5.14%
Upland Clearcut	22.05	1.31%
Upland Hardwoods	45.58	2.72%
Upland Open Field	1.27	0.07%
Emergent Wetlands	21.07	1.26%
Interior Access Roads	27.96	1.67%
Utility Easements	33.23	1.98%
Total:	1,677.47	100.0%

Table 2: Proposed Mitigation Bank Habitat Types for HLMB (Figure 14)

Current Habitat Type	Proposed Mitigation Bank Habitat Type	Acres	Percentage
Pine Clearcut Wetlands	BLH Rehabilitation I	223.62	13.33%
BLH Clearcut Wetlands	BLH Rehabilitation II	28.32	1.69%
Degraded BLH Forested Wetlands	BLH Rehabilitation III	305.43	18.21%
Degraded BLH Forested Wetlands	BLH Rehabilitation IV	367.26	21.89%
Storm Damaged Wetlands	BLH Rehabilitation V	25.46	1.52%
BLH Forested Wetlands	BLH Preservation	490.02	29.21%
Cypress/Tupelo Slough	Cypress/Tupelo Slough Preservation	86.20	5.14%
Upland Clearcut	Upland Hardwood Rehabilitation	22.05	1.31%
Upland Hardwoods	Upland Hardwood Preservation	45.58	2.72%
Upland Open Field	Wildlife Openings (Non-Mitigation)	1.27	0.07%
Emergent Wetlands	Wildlife Openings (Non-Mitigation)	21.07	1.26%
Utility Easements	Utility Easements (Non-Mitigation)	33.23	1.98%
Interior Access Roads	Interior Access Roads	27.96	1.67%
Total:		1,677.47	100%

3.0 ECOLOGICAL SUITABILITY OF THE SITE

3.1 Historic Site Conditions

HLMB is located within the southwestern corner of Attala County and in the northwestern corner of Madison County. Attala & Madison Counties are located in the central part of Mississippi having a total land area of 928,000 acres. The Big Black River flows along the western boundary of both Attala and Madison counties. Historically, Attala & Madison Counties were mainly farming areas with primary crops of cotton and soybeans. Portions of the HLMB lands are currently, and have been historically, used for silviculture purposes consistent with the counties referenced land uses.

3.2 Summary of Current Site Conditions

3.2.1 Current Land Uses

The vast majority of the HLMB property is utilized for silvicultural purposes. Alterations to the historic landscape would include interior roadways, rutting, and drainage improvements in support of the silviculture activities or recreational activities. Evidence of an old road right-of-way remains through the southcentral portion of the Bank Property. This is evident by the large right of way, roadbed and spoil material remaining in a perpendicular orientation against the drainage patterns. The current land use for timber production and cropland purposes are similar to the adjacent properties. Rural residential can be found in proximity to the Bank Property.

3.2.2 Current Vegetation

Pine Forested Wetlands (Rehabilitation I):

This tract is described as a scrub shrub wetland complex that has exhibited intensive timber management or prescriptions overtime. This tract is managed for loblolly pine (*Pinus taeda*) and is positioned adjacent to other bottomland hardwood tracts. The planted pine forest type is resultant of a post-harvest regeneration prescription. This tract is characterized in different stages of management but is managed for short term pine timberland. The current forest type lacks the diversity and development to adequately transition to a bottomland hardwood forest cover type adapted to alluvial soils and frequent flooding. Intensive management also eliminates competition with native or naturally regenerating species. Loblolly pine plantations are planted as short rotation to maximize timber productivity. This tract is located in smaller polygons throughout the Bank Property.

Scrub Shrub Wetlands (Rehabilitation II):

The degraded bottomland hardwood scrub-shrub wetland habitats encountered on the Bank Property are in specific places within areas where clear-cut timber harvesting practices have taken place, but with no subsequent reforestation efforts. A significant amount of light-seeded, soft mast species therefore established or are regenerating within this habitat type. These species include American sycamore (*Platanus occidentalis*), red maple (*Acer rubrum*), American

hornbeam (*Carpinus caroliniana*), black willow (*Salix nigra*), sweetgum (*Liquidambar styraciflua*), and American elm (*Ulmus americana*). Additionally, Chinese privet (*Ligustrum sinense*) and Chinese tallow (*Triadica sebifera*) are present within this tract. In terms of a regenerating bottomland hardwood habitat, the species composition within the scrub-shrub habitat would be considered degraded. Additionally, the presence of invasive Chinese privet (*Ligustrum sinense*) and Chinese tallow (*Triadica sebifera*) further degrades the overall habitat quality. Without a management prescription, the long-term health and vigor of this habitat type would be limited.

Degraded Bottomland Hardwoods (Rehabilitation III):

The bottomland hardwood rehabilitation process within this tract is necessary due to the prior timber harvests and management practices that have altered the vegetative composition. Further, the presence of the roadbed or abandoned roadbed has altered the historical drainage patterns within this portion of the Bank Property. It is believed that in combination, a degraded bottomland hardwood complex remains. Drainage within this habitat historically flowed through relic drainages, old river runs, cypress/tupelo sloughs, etc. that liter through the Bank Property. The presence of the roadbed perpendicular to the natural drainage patterns has altered the historic drainage creating concentrations of flows across this area, altering the health and vigor of vegetative components, ability to naturally regenerate for future timber stands and species composition due to unnatural progression of hydrology. In this habitat, the removal of the roadbed and the replacement of engineered designed low water crossings would provide a more natural connectivity and backwater and headwaters flows via the Big Black River floodplain. Further, the management of the timber components to a more desirable hard mast/soft mast percent and composition, exotic and invasive species control would provide a level or rehabilitation desired for a self-sustaining bottomland hardwood ecosystem.

Degraded Bottomland Hardwoods (Rehabilitation IV):

The bottomland hardwood rehabilitation process within this tract is necessary due to the prior timber harvests and management practices that have altered the vegetative composition. The Sponsor would propose the management of the timber components to a more desirable hard mast/soft mast percent and composition supporting a self-sustaining forestland. In terms of a regenerating bottomland hardwood habitat, the species composition within this tract would be considered degraded. Additionally, the presence of invasive Chinese privet (*Ligustrum sinense*) and Chinese tallow (*Triadica sebifera*) further degrades the overall habitat quality. In general, without an adapted management prescription, the long-term health and vigor of this habitat type would be limited. The management prescription would be similar to the adjacent bottomland and upland hardwood tracts but with a unique species composition and invasive species control plan. In short, Rehabilitation IV is similar in need as Rehabilitation III except for the hydrologic improvements associated with the roadbed removal process.

Storm Damaged Wetlands (Rehabilitation V):

The bottomland hardwood rehabilitation process within this tract is necessary due to storm damage that has altered the vegetative composition. The canopy and mid-

story species in this area were destroyed during a storm event in the early part of 2020. As a result, a significant amount of early successional light-seeded, soft mast species is regenerating within this habitat. These species include American sycamore (*Platanus occidentalis*), black willow (*Salix nigra*), sweetgum (*Liquidambar styraciflua*), and American elm (*Ulmus americana*). Additionally, Chinese privet (*Ligustrum sinense*) and Chinese tallow (*Triadica sebifera*) are present within the area and would be expected to increase overtime without future management/control. In terms of a regenerating bottomland hardwood habitat, the species composition within this habitat would be considered degraded. Additionally, the presence of invasive Chinese privet (*Ligustrum sinense*) and Chinese tallow (*Triadica sebifera*) further degrades the overall habitat quality. Without a management prescription, the long-term health and vigor of this habitat type would be limited.

Bottomland Hardwood Forested Wetlands (Preservation):

This tract exhibits a naturally regenerating bottomland hardwood forest system commonly observed within riparian ecosystems, such as the Big Black River. The linear form of the bottomland hardwood system links adjacent uplands to the riverine systems and provides critical terrestrial corridor habitat. Customary with riparian ecosystems, the complex is very diverse in species composition. However, the fullness of this bottomland hardwood system lies within the major forest associates that included swamp tupelo (*Nyssa biflora*), overcup oak (*Quercus lyrata*), swamp chestnut oak (*Quercus michauxii*), water oak (*Quercus nigra*), willow oak (*Quercus phellos*), red maple (*Acer rubrum*), black willow (*Salix nigra*), sweetgum (*Liquidambar styraciflua*), water hickory (*Carya aquatica*), bald cypress (*Taxodium distichum*), American sycamore (*Platanus occidentalis*), American hornbeam (*Carpinus caroliniana*), American holly (*Ilex opaca*), yellow poplar (*Liriodendron tulipifera*) and American beech (*Fagus grandifolia*) to name a few.

Commonly associated as a component of the bottomland hardwood ecosystem, the Bank Property possesses an expansive cypress/Tupelo slough complex. This is of significance due to the interrelated nature of the riverine systems and the adjacent bottomland hardwood complex. The cypress/tupelo sloughs were formed by past river and stream channels that serve to facilitate hydrology internally through the Bank Property. These systems are critical in that they serve as important nutrient sinks and nutrient cycling complexes. More appropriately described as alluvial swamps, these areas are permanently to semi-permanently inundated depressions that receive nutrient input during increased hydroperiods and serve to store and later cycle the nutrients through plant uptake.

Upland Hardwoods Rehabilitation:

The upland hardwood rehabilitation habitat is comprised of cut-over habitat located within the first levee or banks from the Big Black River or associated systems. These habitats are considered positioned on ridges or side slopes of each drainage system supporting the lower swale systems located within the flood plain of each drainage system. The upland forestlands are equally important to this ecosystem as they provide the corridor to the riverine systems but are simply positioned on higher banks or natural ridges. In most cases, these ridges remain

within the floodplain and are subject to frequent flood events. The soils and elevations prevent standing water for periods throughout the year. As it relates to the Bank Property, the upland hardwood rehabilitation complex is located abutting the bottomland hardwood forested habitat and the riverine systems supporting the overall Bank Property. This complex is considered cut-over or degraded habitat, but with no subsequent reforestation efforts. A significant amount of light-seeded, soft mast species therefore established or are regenerating within this habitat. These species include American sycamore (*Platanus occidentalis*), red maple (*Acer rubrum*), American hornbeam (*Carpinus caroliniana*), black willow (*Salix nigra*), sweetgum (*Liquidambar styraciflua*), and American elm (*Ulmus americana*). Additionally, Chinese privet (*Ligustrum sinense*) and Chinese tallow (*Triadica sebifera*) are present within the area. In terms of a regenerating bottomland hardwood habitat, the species composition within the scrub-shrub habitat would be considered degraded. Additionally, the presence of invasive Chinese privet (*Ligustrum sinense*) and Chinese tallow (*Triadica sebifera*) further degrades the overall habitat quality. In general, without a management prescription, the long-term health and vigor of this habitat type would be limited. The management prescription would be similar to the adjacent bottomland hardwood habitat but with a unique species composition site specific and suited for slightly higher micro-environments along the Big Black River basin.

Upland Hardwoods (Preservation):

This habitat exhibits a naturally regenerating upland hardwood forest system commonly observed within riparian ecosystems, such as the Big Black River. The linear form of the upland hardwood system links adjacent wetlands to the riverine systems and provides critical terrestrial corridor habitat. Customary with riparian ecosystems, the complex is very diverse in species composition. However, the fullness of this upland hardwood system lies within the major forest associates that included slightly higher species composition such as; white oak (*Quercus alba*), swamp chestnut oak (*Quercus michauxii*), water oak (*Quercus nigra*), willow oak (*Quercus phellos*), hickory (*Carya* spp), sassafras (*Sassafras albidum*), southern magnolia (*Magnolia grandiflora*), American beech (*Fagus grandifolia*), sweetgum (*Liquidambar styraciflua*), ironwood (*Carpinus caroliniana*), loblolly pine (*Pinus taeda*), American elm (*Ulmus Americana*), tulip poplar (*Liriodendron tulipifera*), American holly (*Ilex opaca*), *Andropogon* spp., Curly dock (*Rumex crispus*), vetch (*Vicia americana*), wood oats (*Chasmanthium sessiliflorum*) and alabama supplejack (*Berchemia scandens*).

Emergent Wetlands (Non-mitigation):

Approximately 21.07 acres of emergent wetland exist within the Bank Property. These areas are currently being utilized as wildlife openings for recreational purposes. The predominant vegetation present during the field assessment was annual ryegrass, soft rush (*Juncus effusus*), *Polygonum* spp., curly dock (*Rumex crispus*), *Cyperus* spp., lady's eardrop (*Brunnichia cirrhosa*), among others. Like other wildlife openings, these areas are managed with seasonal planting by the Sponsor.

Open Field Uplands (Non-mitigation):

Approximately 1.27 acres of open field uplands exist within the Bank Property. These areas are currently being utilized as wildlife openings for recreational purposes.

3.2.3 Current Hydrology

The Big Black River is situated just north of the Bank Property. The Big Black River is a perennial stream, which contains year-round flows bordering the HLMB property in a generally northeast to southwest orientation. The Big Black River has a width of approximately 130 - 170 feet and is considered the property's primary drainage feature. The Big Black River flows in a southwesterly direction before converging with the Mississippi River approximately 105 miles to the southwest.

Primary tributaries to the Big Black River in association with the Bank Property include Spring Branch located within the south and east boundary of the Bank Property. Jack Lake is also recognized within the eastern portion of the Bank Property. These drainages as well as a series of unnamed tributaries make up the significance of the current hydrologic regime within the Bank Property.

During periods of high rainfall and backwater events, seasonal flooding would also extend floodwaters from the Big Black River and other drainages across large portions of the Bank Property. As described, a large part of the Bank Property is comprised of meanders and tributaries of the Big Black River, influenced by overbank flooding from the river as well as storm water runoff from the north and east. This is significant due to the interrelated nature of the riparian systems associated with the river and its tributaries and the unique bottomland hardwood wetland complex. These open water and forested sloughs serve to facilitate hydrology internally through the property as well as assist in stabilizing the hydroperiod at normal water levels. These systems are critical in that they serve as important nutrient sinks and nutrient cycling complexes as well as by providing critical habitat functions. These areas are permanently to semi-permanently inundated depressions that receive nutrient input during increased hydroperiods and serve to store and later cycle the nutrients through plant uptake. These slough bodies also serve as vital habitat for certain piscivorous species as well as amphibians and reptiles. Wintering waterfowl also derive benefit from this type of habitat.

This project will promote the rehabilitation of the historic hydrologic regime within the Bank Property by reducing flow velocities and restoring the natural and relic overbank flooding patterns. Additionally, removal of in-stream impediments caused by road crossings and culverts will alleviate backwater congestion; promote exchange of surface and subsurface waters; and the transfer of materials between the sloughs, wetlands, and floodplain networks present within the Bank Property. The current hydrology of the Bank Property is depicted in [Figure 8](#).

3.2.4 Historic Hydrology

The Bank Property is located within the Big Black River Basin with portions of the storm water flows conveyed through the Big Black River and its unnamed

tributaries. The Big Black River is also a direct tributary of the Mississippi River and the two (2) systems converge approximately 105 miles to the southwest of the Bank Property (Figure 6). The drainage area associated with the Bank Property is collectively approximately 949,747 acres that, as described, flow through the Bank Property prior to the convergence of the Big Black River with the Mississippi River.

Sources of hydrology on the Bank include rainfall, sheet flow and overbank flooding of the Big Black River and its tributaries. Interior drainage has been compromised somewhat by past timber harvesting practices where perpendicular rutting and silviculture ditches have impeded direction of flow. Further, drainage alterations have occurred due to the presence of the roadbed within the south-central portion of the site perpendicular to the drainage patterns. The historic hydrology of the Bank Property and the adjacent properties are depicted in Figure 9.

3.2.5 Mapped Soil Types

Soils – As evidenced by the *Soil Survey for Attala & Madison Counties Mississippi*, published in October 1980 by the USDA - Soil Conservation Service [now Natural Resources Conservation Service (NRCS)], the soils on the subject property primarily consist of Oaklimeter-Ariel-Gillsburg association, Chenneby silt loam, Rosebloom-Arkabutla association, Mantachie loam, and Kirkville loam. Additional soils include Calhoun silt loam, Grenada silt loam, and Smithdale-Providence association (Figure 10).

The Oaklimeter soil series are moderately well drained soils occurring on floodplains and low terrace bordering streams that drain the Southern Mississippi Valley Silty Uplands. These soils are moderately permeable and formed in silty alluvium. The surface layer is a brown silt loam. The subsoil is a yellowish-brown silt loam. It is underlain by several feet of gray clay mottled with dark yellowish-brown.

The Ariel soil series are well drained soils formed in slightly convex slopes and occur on floodplains. The surface layer is a dark brown silt loam. The subsoil is a dark yellowish-brown silt loam.

The Gillsburg soil series are somewhat poorly drained soils formed in silty alluvial. They occur on broad flood plains. The surface layer is dark grayish-brown silt loam. The subsoil is brown silt loam with pale brown mottles underlain with light brownish gray silt loam mottled with yellowish brown.

The Chenneby soil series consist of deep, somewhat poorly drained soils formed in loamy and silty materials. They occur on floodplains and depressions. The surface layer is dark grayish brown to brown silt loam. The subsoil is a brown silt loam.

The Rosebloom soil series are deep, poorly drained soils formed in silty alluvium. These soils are typically found on floodplains of streams. Typically, the surface layer is a mottled brown. The subsoil is gray with mottles.

The Arkabutla soil series are deep, somewhat poorly drained, level soils formed in silty alluvium and typically occur on floodplains. The surface is a brown silt loam. The subsoil is a brown to light brownish gray silt loam.

The Mantachie soil series are very deep, somewhat poorly drained, minimal sloping soils formed in loamy materials and typically occur on floodplains. The surface is a dark grayish brown fine sandy loam. The subsoil is a gray loam.

The Kirkville soil series are very deep, moderately well drained, minimal sloping soils formed in loamy materials and typically occur on floodplains. The surface is a dark grayish brown loam. The subsoil is a gray sandy loam.

The Calhoun soil series consists of level, poorly drained soils formed in loess with minimal slopes. The surface layer is a dark brown silt loam. The subsoil is a light brown brownish gray with yellowish brown mottles silt loam.

The Grenada soil series consists of very deep, moderately well drained soils that formed in loess. They are formed in slopes on uplands. The surface layer is a dark grayish brown silt loam. The subsoils are yellowish brown silt loam.

The Smithdale soil series are very deep, well drained, soils formed loamy marine sediments. They occur on ridge tops and hill slopes. The surface layer is a dark grayish brown fine sandy loam. The subsoils are brown to yellowish red sandy clay loam.

The Providence soil series consists of moderately well drained soils. These soils formed in a mantle of silty materials. They are nearly level to moderately steep slopes. The surface layer is a dark gray silt loam. The subsoils are a brown silt loam.

Table 3 below, indicates the soil series present on site. [Figure 10](#) details the locations of the soils noted within the project site.

Table 3: Soils Report (Figure 10)

Soil Name	Soil Symbol	Acres	Percentage
Rosebloom-Arkabutla association, 0 to 2 percent slopes, frequently flooded	10	74.9	4.5%
Chenneby-Rosebloom complex, frequently flooded	14	0.1	0.0%
Oaklimeter silt loam, occasionally flooded	2	200.5	12.0%
Chenneby silt loam, frequently flooded	3	429.9	25.6%
Smithdale fine sandy loam, 15 to 40 percent slopes	32F	2.4	0.1%

Soil Name	Soil Symbol	Acres	Percentage
Kirkville loam, occasionally flooded	4	1.3	0.1%
Gillsburg silt loam, occasionally flooded	6	31.1	1.9%
Mantachie loam, 0 to 2 percent slopes, frequently flooded	9	56.6	3.4%
Calhoun silt loam	Ca	2.3	0.1%
Gillsburg silt loam	Gb	29	1.7%
Grenada silt loam, 0 to 2 percent slopes	GrA	0.0	0.0%
Oaklimeter-Ariel-Gillsburg association	OG	849.3	50.6%
Smithdale-Providence association, hilly	SR	0.1	0.0%
Total:		1,677.46	100.0%

3.2.6 Property Encumbrances

Three (3) utility easement right-of-way (ROW) bisects portions of the HLMB property. No other encumbrances were identified with Bank Property.

3.2.7 Adjacent Property Development

HLMB is connected to and primarily surrounded by forested wetland areas. When considering a one (1) mile radius around the Bank Property, the current land use type consists of 40% woody wetlands, 20% deciduous forest, 2% emergent wetlands, 3% herbaceous, 5% mixed forest, 4% scrub-shrub, 9% cultivated cropland, 2% pasture/open field or fallow, 8% rural development and 3% water (Figure 11).

3.2.8 Preliminary Jurisdictional Determination

The USACE has completed a preliminary jurisdictional determination for the Bank Property referenced as MVK-2018-663. A copy of the preliminary jurisdictional determination is included within the appendices of this prospectus for your review.

3.3 Water Rights and Hydrological Influences

3.3.1 Water Rights

The State of Mississippi treats water resources under the theory of absolute ownership and rule of capture, provided capture does not result in harm to neighbors.

3.3.2 General Watershed Characteristics

3.3.2.1 Water Sources and Losses

The sources of water to the project area are currently direct precipitation and surface flow from adjacent land from the northeast to the southwest. Additionally, overland flooding from Big Black River and its tributaries provides a source of surface water during normal seasonal flooding events. Storm water flows across the site generally via overland flows into drainages interconnected to Big Black River. Big Black River is considered a direct tributary of the Mississippi River, located to the west of the Bank Property.

Attala & Madison Counties are centrally located within the state of Mississippi. The Big Black River transects the western portion of the County. Spring Branch flows along the south and southeast boundary of the Bank Property. Interconnected sloughs were observed throughout the HLMB property. No other notable streams were identified within the limits of the HLMB property.

The total annual average precipitation is 52+/- inches. Of this, 26 inches, or 50 percent, usually falls in April through September which includes the majority of the growing season.

3.3.2.2 Hydroperiod

Hydric soils indicate that the site is either currently inundated or saturated in the upper soil profile for at least 14 consecutive days per year. This site is comprised primarily of Chenneby and Oaklimeter-Ariel-Gillsburg soils which, in this area, typically have a seasonal high-water table between 18 and 30 inches below the surface during the months of December and April.

3.4 Water Quality

Based upon the Mississippi Department of Environmental Quality (MDEQ) 2018 listing for impaired waterbodies (303d), the Big Black River has multiple creeks/tributaries impaired due to biological impairment. These impaired water bodies are identified in the table below. As described, the Big Black River merges with the Mississippi River approximately 105 miles southwest of the Bank Property.

Consequently, restoring, enhancing, and preserving bottomland hardwood habitat for this project will result in overall water quality improvements due to increased filtration and plant uptake. Elimination of current forestry activities will result in the reduction of agricultural pesticides and herbicides, reduction of use of nitrogenous or phosphorous fertilizers, and minimization of sedimentation/siltation as well as TSS and turbidity (i.e., nonpoint source pollution prevention).

Table 4: 303d Listed Streams South of HLMB

Water Body	ID	County	Impaired Use	Pollutant	Location
Pepper/Rucker Creek	104511	Yazoo	Aquatic Life Use Support	Biological Impairment	Near Canton From Headwaters To Mouth At Beaver Run
Persimmon Creek	106311	Madison	Aquatic Life Use Support	Biological Impairment	From Headwaters to Confluence with Big Black River
Porter Creek	107611	Hinds	Aquatic Life Use Support	Biological Impairment	Near Lynchburg From Headwaters to Mouth at Big Black River
Silver Creek	108012	Warren	Aquatic Life Use Support	Biological Impairment	From the Headwaters to The Mouth at The Big Black River
Turkey Creek	108711	Hinds	Aquatic Life Use Support	Biological Impairment	From Headwaters to Mouth at Fourteen Mile Creek
Willis Creek	109511	Warren	Aquatic Life Use Support	Biological Impairment	Near Galloway From the Headwaters to Mouth at Big Black River

4.0 Wildlife Values

Bottomland hardwood forests provide important ecosystem functions, including maintenance of water quality, habitat for fish and wildlife species, regulation of flooding, and stream recharge. In addition to the many species present in bottomland hardwood forests, the HLMB seems properly sited to add to habitat and corridors of and for the Louisiana Black Bear (*Ursus americanus luteolus*) as set forth by the U.S. Fish & Wildlife Services. Once considered Critical Bear Habitat, the forestlands along the Big Black River remain vital to the continued success of the Louisiana Black Bear recovery. The HLMB is uniquely located within the Big Black River floodplain and within an important bottomland hardwood complex.

There are no Wildlife Management Areas (WMAs) near the HLMB. As a result, restoration and enhancement of this property will undoubtedly serve the purpose of increasing habitat and reducing fragmentation and as an interconnecting corridor habitat for the Louisiana Black Bear. The rehabilitation of the forest will also provide wintering habitat for neotropical migrants. The size, configuration and position of the Bank Property should also be considered as a unique and exciting opportunity to rehabilitate and protect along the Big Black River system.

5.0 Bank Establishment

5.1 Mitigation Bank Overview

5.1.1 Bottomland Hardwood Rehabilitation I

The Sponsor proposes the rehabilitation of 223.62 acres of bottomland hardwood forested wetlands located within the Bank Property. The rehabilitation work plan is necessary due to the prior conversion to loblolly pine (*Pinus taeda*) and management practices that have altered the vegetative composition. These areas have been identified throughout the Bank Property referenced as rehabilitation I habitat due to its pine plantation habitat or management prescriptions. The management practices have resulted in a pine stand and the introduction of Chinese privet (*Ligustrum sinense*) and Chinese tallow (*Triadica sebifera*). The rehabilitation efforts will include the reduction of invasive species to no more than 5% coverage and select removal of undesirable species (pine) followed by planting of required bottomland hardwood species composition. The bottomland hardwood rehabilitation process within the pine plantation may include the following steps:

1. Removal of residual planted pine (summer/fall 2021)
2. Herbicide application to remove the competing shrub layer, residual pine trees and undesirable/invasive midstory and understory canopy (summer/fall 2021)
3. Mechanical site preparations as applicable to rutting, surface scars, loader sets, etc. (summer/fall 2021)
4. Prescribed burning (if necessary) (summer/fall 2021)
5. Planting of site suitable 1-year old bareroot hardwood seedlings in accordance with the planting plan described within this restoration work plan (January/February 2022)
6. Tree species will be hand planted on a 12' x 12' spacing yielding approximately 302 seedlings per acre
7. Planting would be conducted to establish seven (7) to ten (10) target species or greater per acre with a range of hard to soft mast ratio between 50/50 and 60/40
8. Exotic and invasive species control not comprised of more than 5% cover.

Topography of the site will dictate the species to be chosen for planting and specific microtopography will determine individual species placement. In and around the bottom of the swales, water tupelo and bald cypress will be planted. At slightly higher elevations, species planted will include overcup oak (*Quercus lyrata*), water oak (*Quercus nigra*), willow oak (*Quercus phellos*), and swamp chestnut oak (*Quercus michauxii*). Cherrybark oak (*Quercus pagoda*) and common persimmon (*Diospyros virginiana*) will be planted in the areas of higher elevations. Elevation data will be utilized to establish the planting zones. Other native species such as sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), and American elm (*Ulmus americana*) commonly occur

within this region and would therefore be expected to naturally re-establish within this complex.

5.1.2 Bottomland Hardwood Rehabilitation II

The Sponsor proposes the rehabilitation of 28.32 acres of bottomland hardwood forested wetlands located within the Bank Property. The rehabilitation work plan is necessary due to prior timber harvest and management practices that have altered the historic vegetative composition. These areas have been identified throughout the Bank Property referenced as rehabilitation II habitat due to its scrub scrub/cut-over composition. These areas were included in the forest management prescription, but due to disturbances, forestry hydrology impairments, light-seeded, soft mast species have established. Additionally, the presence of invasive species such as Chinese privet (*Ligustrum sinense*) and Chinese tallow tree (*Triadica sebifera*) further degrade this habitat the success of natural regeneration. The rehabilitation efforts will focus on the restoration of the natural contours to allow the natural sheet flow across the property and the connectivity to the adjacent habitats. Additionally, the rehabilitation efforts will include the reduction of invasive species to no more than 5% coverage and select removal of undesirable species followed by planting of required bottomland hardwood species composition. The rehabilitation process within the bottomland hardwood rehabilitation II may include the following steps:

1. Herbicide application to remove the competing shrub layer, residual pine trees and undesirable/invasive midstory and understory canopy (summer/fall 2021)
2. Mechanical site preparations as applicable to rutting, surface scars, loader sets, etc. (summer/fall 2021)
3. Prescribed burning (if necessary) (summer/fall 2021)
4. Planting of site suitable 1-year old bareroot hardwood seedlings in accordance with the planting plan described within this restoration work plan (January/February 2022)
5. Tree species will be hand planted on a 12' x 12' spacing yielding approximately 302 seedlings per acre
6. Planting would be conducted to establish seven (7) to ten (10) target species or greater per acre with a range of hard to soft mast ratio between 50/50 and 60/40
7. Exotic and invasive species control not comprised of more than 5% cover.

Topography of the site will dictate the species to be chosen for planting and specific microtopography will determine individual species placement. In and around the bottom of the swales, water tupelo and bald cypress will be planted. At slightly higher elevations, species planted will include overcup oak (*Quercus lyrata*), water oak (*Quercus nigra*), willow oak (*Quercus phellos*), and swamp chestnut oak (*Quercus michauxii*). Cherrybark oak (*Quercus pagoda*) and common persimmon (*Diospyros virginiana*) will be planted in the areas of higher elevations. Elevation data will be utilized to establish the planting zones. Other native species such as

sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), and American elm (*Ulmus americana*) commonly occur within this region and would therefore be expected to naturally re-establish within this complex.

5.1.3 Bottomland Hardwood Rehabilitation III

The Sponsor proposes the rehabilitation of 305.43 acres of bottomland hardwood forested wetlands located within the Bank Property. The rehabilitation work plan will be based on the degrading of an old roadbed right of way located within the south-central portion of the Bank Property. The Sponsor proposes to conduct a study of the hydraulics within this tract developing a model and plan that would be implemented as part of the overall work plan for this tract. The study will review the backflow and overflow occurring across this tract and portion of the Bank Property and provide a plan to reduce the roadbed and/or development of low water crossings to minimize concentrations of flows and an alteration of the historic drainage patterns within the floodplain.

The following specific services as part of the hydraulic analysis and review are as follows:

1. Utilize the existing hydrology of the Big River Basin and develop a HEC-RAS 2D hydraulic model(s) of the Big Black River floodplain. An existing condition model will be developed for the overbank area. A 2D (dimensional) model will not only provide flow depths, but velocity and flow direction within the floodplain. This allows for visualization of existing conditions and how proposed alternatives could impact the area.
 - a) A 2D model will be developed to include the existing conditions with the existing roadbed embankment and relief openings that are currently located along the roadbed. Existing Lidar will be used for the area and updated survey information will be developed along the roadbed to ensure existing reliefs are captured.
 - b) Once the existing conditions model is developed, the entire roadbed will be removed to see what conditions existed prior to any road being placed in the floodplain.
 - c) Alternatives of degrading or providing more relief openings to the existing road embankments will be developed to review to try to maximize the opportunities for restoring areas in the floodplain to acceptable environmental conditions.
2. Prepare and submit documentation of the evaluation summarizing the results of the existing and proposed alternatives and make any modifications after final review.

Rehabilitating the natural hydrologic regime within this portion of the bank property is expected to increase the functions and services of the area recognized as rehabilitation III. Upon the completion of the hydrologic work plan, it is further planned to rehabilitate species composition within this bottomland hardwood habitat type. Additionally, the presence of invasive species such as Chinese privet (*Ligustrum sinense*) and Chinese tallow tree (*Triadica sebifera*) are present and would be controlled as part of the rehabilitation work plan.

As part of the project planning, 1/10 acre plots were tallied within this complex to identify baseline hard mast/soft mast percentage of the dominant and co dominant strata, exotic and invasive species composition, species diversity and natural regeneration. The plot data tallied during the summer of 2020 is summarized below:

Bottomland Hardwood Rehabilitation III – Baseline Conditions

Hard mast %	Soft Mast %	Exotic/Invasive %	Diversity (sp/ac)	Regeneration Coverage %	TPA
50.67	49.33	43	5	1.25	103

Given the baseline conditions, rehabilitation work plan will include the control of exotic/invasive species within understory and midstory strata. Timber stand improvements or select thinning would be completed of less desirable and concentrations of soft mast species with the interplanting of hard mast species to achieve desired hard mast/soft mast and diversity percentages. Timber stand improvements and interplanting is also orientated to provide desirable regeneration within the understory and midstory strata providing diversity and habitat structure.

The rehabilitation process within the bottomland hardwood rehabilitation III may include the following steps:

1. Hydrologic work plan (summer/fall 2021)
2. Herbicide application to remove the competing shrub layer, undesirable soft mast and exotic/invasive species as needed for preferred stand stocking (summer/fall 2021)
3. Timber stand improvements or select thinning operation of less desirable and concentrations of soft mast species
4. Inter-planting of site suitable 1-year old bareroot hardwood seedlings in accordance with the planting zone plan described within this restoration work plan (January/February 2022)
5. Tree species will be hand planted on 15' x 15' spacing yielding approximately 200 seedlings per acre in improvement areas.
6. Planting would be conducted to establish seven (7) to ten (10) target species or greater per acre with a range of hard to soft mast ratio between 50/50 to 60/40
7. Exotic and invasive species control not comprised of more than 5% cover.

Topography of the site will dictate the species to be chosen for planting and specific microtopography will determine individual species placement. In and around the bottom of the swales, water tupelo and bald cypress will be planted. At slightly higher elevations, species planted will include overcup oak (*Quercus lyrata*), water oak (*Quercus nigra*), willow oak (*Quercus phellos*), and swamp chestnut oak (*Quercus michauxii*). Cherrybark oak (*Quercus pagoda*) and common persimmon (*Diospyros virginiana*) will be planted in the areas of higher elevations. Elevation data will be utilized to establish the planting zones. Other native species such as sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), and American elm (*Ulmus americana*) commonly occur within this region and would therefore be expected to naturally re-establish within this complex. Plantings would concentrate on hard mast species providing variety and diversity within this complex.

5.1.4 Bottomland Hardwood Rehabilitation IV

The Sponsor proposes the rehabilitation of 367.26 acres of bottomland hardwood forested wetlands located within the central portion of the Bank Property. The rehabilitation work plan will be based on the management of species composition and exotic/invasive species control, similar to other tracts, previously described. This tract is positioned parallel with the river and is characterized as a degraded forested habitat due in part to the species composition and significant presence of exotic and invasive species.

As part of the project planning, 1/10 acre plots were tallied within this complex to identify baseline hard mast/soft mast percentage of the dominant and co dominant strata, exotic and invasive species composition, species diversity and natural regeneration. The plot data tallied during the summer of 2020 is summarized below:

Bottomland Hardwood Rehabilitation IV – Baseline Conditions

Hard mast %	Soft Mast %	Exotic/Invasive %	Diversity (sp/ac)	Regeneration Coverage %	TPA
58.45	41.55	53	4	1.5	95

Given the baseline conditions, rehabilitation work plan will include the control of exotic/invasive species within understory and midstory strata. Timber stand improvements or select thinning would be completed of less desirable and concentrations of soft mast species with the interplanting of hard mast species to achieve desired hard mast/soft mast and diversity percentages. Timber stand improvements and interplanting is also orientated to provide desirable regeneration within the understory and midstory strata providing diversity and habitat structure.

The rehabilitation process within the bottomland hardwood rehabilitation IV may include the following steps:

1. Herbicide application to remove the competing shrub layer, undesirable soft mast and exotic/invasive species as needed for preferred stand stocking (summer/fall 2021)
2. Timber stand improvements or select thinning operation of less desirable and concentrations of soft mast species
3. Inter-planting of site suitable 1-year old bareroot hardwood seedlings in accordance with the planting zone plan described within this restoration work plan (January/February 2022)
4. Tree species will be hand planted on 15' x 15' spacing yielding approximately 200 seedlings per acre in improvement areas.
5. Planting would be conducted to establish seven (7) to ten (10) target species or greater per acre with a range of hard to soft mast ratio between 50/50 to 60/40
6. Exotic and invasive species control not comprised of more than 5% cover.

Topography of the site will dictate the species to be chosen for planting and specific microtopography will determine individual species placement. In and around the bottom of the swales, water tupelo and bald cypress will be planted. At slightly higher elevations, species planted will include overcup oak (*Quercus lyrata*), water oak (*Quercus nigra*), willow oak (*Quercus phellos*), and swamp chestnut oak (*Quercus michauxii*). Cherrybark oak (*Quercus pagoda*) and common persimmon (*Diospyros virginiana*) will be planted in the areas of higher elevations. Elevation data will be utilized to establish the planting zones. Other native species such as sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), and American elm (*Ulmus americana*) commonly occur within this region and would therefore be expected to naturally re-establish within this complex. Plantings would concentrate on hard mast species providing variety and diversity within this complex.

5.1.5 Bottomland Hardwood Rehabilitation V

The Sponsor proposes the rehabilitation of 25.46 acres of bottomland hardwood forested wetlands located within the Bank Property. The rehabilitation work plan is necessary due to prior storm damage that has altered the vegetative composition. These areas have been identified throughout the Bank Property referenced as Rehabilitation V storm damaged wetlands. These areas were included in the forest management prescription, but due to disturbances, early successional light-seeded, soft mast species have established. Additionally, the presence of invasive species such as Chinese privet (*Ligustrum sinense*) and Chinese tallow tree (*Triadica sebifera*) further degrade this habitat the success of natural regeneration. The rehabilitation efforts will focus on the restoration of the natural contours to allow the natural sheet flow across the property and the connectivity to the adjacent habitats. Additionally, the rehabilitation efforts will include the reduction of invasive species to no more than 5% coverage and select removal of undesirable species followed by planting of required bottomland hardwood species composition.

The rehabilitation process within the bottomland hardwood rehabilitation V may include the following steps:

1. Herbicide application to remove the competing shrub layer, residual pine trees and undesirable/invasive midstory and understory canopy (summer/fall 2021)
2. Mechanical site preparations as applicable to rutting, surface scars, loader sets, etc. (summer/fall 2021)
3. Prescribed burning (if necessary) (summer/fall 2021)
4. Planting of site suitable 1-year old bareroot hardwood seedlings in accordance with the planting plan described within this restoration work plan (January/February 2022)
5. Tree species will be hand planted on a 12' x 12' spacing yielding approximately 302 seedlings per acre
6. Planting would be conducted to establish seven (7) to ten (10) target species or greater per acre with a range of hard to soft mast ratio between 50/50 and 60/40
7. Exotic and invasive species control not comprised of more than 5% cover.

Topography of the site will dictate the species to be chosen for planting and specific microtopography will determine individual species placement. In and around the bottom of the swales, water tupelo and bald cypress will be planted. At slightly higher elevations, species planted will include overcup oak (*Quercus lyrata*), water oak (*Quercus nigra*), willow oak (*Quercus phellos*), and swamp chestnut oak (*Quercus michauxii*). Cherrybark oak (*Quercus pagoda*) and common persimmon (*Diospyros virginiana*) will be planted in the areas of higher elevations. Elevation data will be utilized to establish the planting zones. Other native species such as sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), and American elm (*Ulmus americana*) commonly occur within this region and would therefore be expected to naturally re-establish within this complex.

5.1.5 Bottomland Hardwood Preservation

The Sponsor proposes to preserve 490.02 acres of bottomland hardwood forested wetlands and 86.20 acres of cypress/tupelo sloughs within the Bank Property. There will be no prescribed treatment other than monitoring to ensure the species integrity of these areas. If colonization of exotic/nuisance or noxious species are found, an eradication plan will be implemented to control infestation and adhere to performance criteria of the less than 5% of vegetative cover of the exotic/nuisance species and less than 20% cover of noxious species. These areas of preservation will be utilized as reference sites to guide the hydrologic, soil, and vegetative components of the project.

As part of the project planning, 1/10 acre plots were tallied within the bottomland hardwood forested wetland complex to identify baseline hard mast/soft mast percentage of the dominant and co dominant strata, exotic and invasive species

composition, species diversity and natural regeneration. The plot data tallied during the summer of 2020 is summarized below:

Bottomland Hardwood Preservation – Baseline Conditions

Hard mast %	Soft Mast %	Exotic/Invasive %	Diversity (sp/ac)	Regeneration Coverage %	TPA
67.40	32.60	Less than 5	7	4.3	133

Baseline plots were not installed within the cypress/tupelo slough preservation area given the general unique character and persistent water of this habitat.

5.1.6 Hardwood Upland Buffer Rehabilitation

The Sponsor proposes the rehabilitation of 22.05 acres of hardwood uplands located within the Bank Property. The hardwood uplands buffer rehabilitation plan will be completed similarly and in conjunction with the bottomland hardwood rehabilitation II, III, IV, and V previously described. Habitat types are similar in species composition but are located on slightly higher ridges particularly along the bank of the Big Black River and major tributaries.

5.1.7 Hardwood Upland Buffer Preservation

The Sponsor proposes the preservation of 45.58 acres of hardwood uplands located in conjunction with the Bank Property. The upland hardwood buffer preservation areas will be preserved similar to the bottomland hardwood preservation areas, previously described. They are uniquely found throughout portions of the Bank Property offered substantial habitat, connectivity and forested corridors within the site.

5.1.8 Non-Mitigation

The Sponsor proposes to maintain the following areas as non-mitigation:

- **Utility easements**
- **Interior access roads**
- **Wildlife openings**

Each exclusion is not expected to adversely affect the goals and intent of the bank proposal. Each item has been identified on the mitigation work plan map and Figures presented within this Prospectus document. Non-mitigation areas would be maintained through clipping, trimming, herbicide applications, etc. as necessary.

5.2 Mitigation Work Plan

5.2.1 Hydrologic Work Plan

The Sponsor proposes to rehabilitate the natural drainage patterns and species composition within the HLMB as part of this mitigation bank work plan. The hydrologic work plan will include the degrading of a roadbed transecting the south-central portion of the Bank Property in a northwest to southeast orientation. The roadbed was built to historically provide access across the Big Black River. Since being abandoned, it has been used by local traffic and recreational purposes only. Evidence is found of concentrated sheet flow and flooding impairments/alterations due specifically from the presence of the roadbed perpendicular to the natural sheet flows and drainage patterns. [Figure 12](#) depicts the location of the roadbed with current cross-sectional views as [Figure 12A](#) and [12B](#). The roadbed is located within the Bottomland Hardwood Rehabilitation III complex. [Figure 13](#) also depicts the location of the roadbed, drainage patterns and scars within the Bank Property.

It is proposed that a hydraulic analysis will be performed to determine existing and proposed conditions regarding the removal or modification of the roadbed that now traverses the floodplain.

The following specific services as part of the hydraulic analysis and review are as follows:

1. Utilize the existing hydrology of the Big River Basin and develop a HEC-RAS 2D hydraulic model(s) of the Big Black River floodplain. An existing condition model will be developed for the overbank area. A 2D (dimensional) model will not only provide flow depths, but velocity and flow direction within the floodplain. This allows for visualization of existing conditions and how proposed alternatives could impact the area.
 - a) A 2D model will be developed to include the existing conditions with the existing roadbed embankment and relief openings that are currently located along the roadbed. Existing Lidar will be used for the area and updated survey information will be developed along the roadbed to ensure existing reliefs are captured.
 - b) Once the existing conditions model is developed, the entire roadbed will be removed to see what conditions existed prior to any road being placed in the floodplain.
 - c) Alternatives of degrading or providing more relief openings to the existing road embankments will be developed to review to try to maximize the opportunities for restoring areas in the floodplain to acceptable environmental conditions.
2. Prepare and submit documentation of the evaluation summarizing the results of the existing and proposed alternatives and make any modifications after final review.

Further, consideration for all interior roads will be completed to improve culvert and low water crossings to ensure that secondary impacts are not occurring within the drainage patterns found within the Bank Property.

5.2.2 Vegetative Plantings

The Sponsor proposes to complete the appropriate work plan within the following tracts as depicted in [Figure 14](#):

The Sponsor proposes to consider the following general methodologies when completing the rehabilitation work plan described above for each compartment:

1. Removal of residual planted pine/mixed hardwoods (summer/fall 2021)
2. Herbicide application to remove the competing shrub layer, residual pine trees and undesirable/invasive mid-story and understory canopy (summer/fall 2021)
3. Mechanical site preparations as applicable to rutting, surface scars, loader sets, etc. (summer/fall 2021)
4. Prescribed burning (if necessary) (summer/fall 2021)
5. Planting of site suitable 1-year old bareroot hardwood seedlings in accordance with the planting plan described within this restoration work plan (January/February 2022) (Table 5)
6. Tree species will be hand planted on a 12' x 12' spacing yielding approximately 302 seedlings per acre
7. Planting would be conducted to establish seven (7) to ten (10) target species or greater per acre with a range

Planting procedures will adhere to the following specifications:

- a. One (1) year old bare-root seedlings obtained from a registered licensed regional nursery grower and of a regional eco-type species properly stored and handled to ensure viability will be planted at the Bank during the period December 15 through March 15 (planting season). Events, such as, spring flooding may warrant storage of trees with planting in late spring or early summer. If seedlings listed are not available, then substitutions may be made if they are approved by the USACE. The anticipated schedule for planting is the non-growing season of 2021-2022. The Sponsor will plant appropriate species in such a manner to ensure adequate species diversity and to ensure that monotypic tree rows will not be established.
- b. Seedlings will be planted following a 12' x 12' spacing to achieve an initial stand density of, at minimum, 302 seedlings per acre.
- c. Species selected for planting will be planted in a random mixture as dictated by terrain and edaphic conditions. The species selected will

be site appropriate in terms of habitat design, soil-moisture regime and species diversity. Seven or more species may be represented in the planting assemblage to insure adequate species diversity. The exact species and quantities for planting will be determined by the availability of such species from commercial nurseries providing localized ecotype seedlings. Seedlings would certainly be mixed upon plantings so that areas are not comprised of a single species. The distribution of stems will create a mosaic of hard and soft mast species that will provide seasonally available forages for a wide range of indigenous wildlife including the Louisiana black bear. The availability of soft mast species is important during the summer and hard mast is critical in the fall and early winter for the buildup of fat reserves in black bears preparing for denning. Single species plantings will generally be avoided.

Management procedures will adhere to the following specifications:

- a. The Bank will be maintained, on an as-needed basis, by the use of mechanical or chemical control or some combination thereof in order to control exotic species colonization or other plant competition.
- b. For a given planting, a minimum of 240 trees/acre will be present following the third full growing season and 150 trees/acre following the 5th growing season. Tree species will be planted to achieve an overall composition, on average, of seven (7) to ten (10) target species or greater per acre from the species listed in Table 5, with no single species comprising more than 25% of the stocking and hard mast species comprising between 50 to 60% of the total species planted. At Year 10, the overall stand density shall be composed, on average, of seven (7) to ten (10) target tree species/acre or greater at a minimum density of 120 trees/acre, including desirable natural recruits with a target hard to soft mast ratio of 50/50 to 60/40.

Table 5: Plant Species Proposed for the Bank Property

Bottomland Hardwood Plantings		
Common Name	Scientific Name	Percent Composition
nuttall oak*	<i>Quercus nuttallii</i>	20%
willow oak	<i>Quercus phellos</i>	15%
water oak	<i>Quercus nigra</i>	10%
bald cypress*	<i>Taxodium distichum</i>	10%
sweet pecan	<i>Carya illinoensis</i>	5%
overcup oak*	<i>Quercus lyrata</i>	5%
green ash	<i>Fraxinus pennsylvanica</i>	5%
Drummond red maple	<i>Acer rubrum var. drummondii</i>	5%
sweetgum	<i>Liquidambar styraciflua</i>	5%
common persimmon*	<i>Diospyros virginiana</i>	5%
sugarberry	<i>Celtis laevigata</i>	5%
American elm	<i>Ulmus Americana</i>	5%
mayhaw	<i>Crataegus opaca</i>	2.0%
buttonbush*	<i>Cephalanthus occidentalis</i>	1.0%
water hickory*	<i>Carya aquatica</i>	1.0%
box elder	<i>Acer negundo</i>	1.0%

*Species to be concentrated within natural low-lying swales and contours.

5.2.3 Noxious/Exotic Species Control

Exotic and nuisance species (Chinese tallow tree and Chinese privet) shall not comprise more than 5% cover and noxious species (e.g., honey locust, black willow, cotton wood, thistle, and baccharis) shall not comprise more than 20% of the total stem density. Exotic and/or noxious species will be removed using various techniques which may include pre-and post-emergent herbicide applications, direct application by spray and/or injection, mowing and any other successful technique during initial planting. The percent cover of invasive plants will be monitored during short-term and long-term success monitoring and appropriate action taken, if needed. (Please reference 5.2.2. Vegetative Plantings.)

5.2.4 Monitoring

Monitoring shall commence immediately following plantings such that a baseline is established for the HLMB. Monitoring will then occur following the growing seasons in years 1, 3, 5, 8 and 10 so that any corrective measures by the Sponsor may be undertaken. Monitoring reports will be submitted to the Chair of the IRT no later than December 15th following monitoring activities. Monitoring efforts will be conducted to verify the success of the restoration activities and will include vegetative surveys, wildlife observations, hydrologic observations, and overall property assessments.

5.3 Proposed Service Area

5.3.1 Primary Service Area

The HLMB will be established to provide mitigation to compensate for impacts to Waters of the United States, including wetlands and streams, within the Vicksburg District. The HLMB is located within the U.S.G.S. 8-Digit Hydrologic Unit Code (HUC) 08060201 and 08060202 and is included within a portion of Attala & Madison Counties within that part of the cataloging units occurring in Mississippi. Given that the Bank Property is within both primary HUCS of the Big Black River, it is proposed to consider 08060201 and 08060202 as the service area for this project. (Figure 15).

Decisions authorizing use of credits from the HLMB for impacts outside of the designated service area and for out-of-kind impacts will be made on a case-by-case basis by the USACE Vicksburg District.

5.4 General Bank and Need/Technical Feasibility

HLMB is proposed to provide compensatory mitigation for Vicksburg District approved projects within the HUC 080602 (Big Black River). Projects located outside the HUC 080602 would be evaluated on a case by case basis by the District.

In addition to providing mitigation for activities associated with continued population growth within the community, the proposed service area has a history of oil and gas exploration and production, federal water control projects and considerable linear activities, including transportation, power transmission and pipelines.

5.5 Future Ownership and Long-Term Management Strategy

5.5.1 Sponsor/Operations Manager/Long-Term Management

Horseshoe Lake Land Company, LLC
POC: Mr. Chris Gouras
P.O. Box 1465
Ridgeland, MS 39158
Chrisgouras@gourasandassociates.com

5.5.2 Landowner/Long-Term Ownership

Horseshoe Lake Land Company, LLC
P.O. Box 1465
Ridgeland, MS 39158

5.5.3 Agent

Headwaters, Inc.
POC: Mr. Clay Cromwell
P.O. Box 2836
Ridgeland, MS 39158
www.headwaters-inc.com

5.5.4 Perpetual Site Protection Mechanism

To ensure long-term protection of the Bank Property, the Sponsor will be responsible for maintaining and protecting lands contained within the HLMB in perpetuity, unless the lands are transferred to a state or federal resource agency, non-profit conservation organization, or this responsibility is contractually conveyed to another person, all of which will be subject to approval by the Vicksburg District. A conservation easement will be prepared to include a non-profit or state agency as the Grantor and Holder. This conservation easement specifically prohibits activities that would reduce the quality of the restored wetlands. The conservation easement also specifies permissible activities, such as hunting, fishing and recreational use, given the activity causes no negative effect on the functions and values of the restored wetlands. Forest management within the conservation easement would be allowed, given that this activity is performed to maintain or improve the overall ecological function of the Bank. Impacts that adversely affect the function and value of the Bank, which are caused by permissible activities, will require permitting and subsequent mitigation.

5.5.5 Sponsor Qualifications

Horseshoe Lake Mitigation Bank, managed by Mr. Chris Gouras, will be the primary operator for the Bank Property, management and office operations. Mr. Chris Gouras will be supported by Mr. Clay Cromwell and Headwaters, Inc., who have considerable experience in mitigation banking in Vicksburg, New Orleans and the Mobile Districts.

6.0 Conclusion

In summary, the HLMB has the potential to rehabilitate and protect approximately 1,593.94 acres of bottomland hardwood habitat through a combination of approximately 950.09 acres of bottomland hardwood rehabilitation, 490.02 acres of bottomland hardwood preservation, 86.20 acres of cypress/tupelo slough preservation, 22.05 acres of upland hardwood rehabilitation and 45.58 acres of upland hardwood preservation following the completion of the planned mitigation work plan described within the contents of this Prospectus. The planned Bank Property would be protected and maintained by a Conservation Easement in perpetuity. More detailed information regarding financial assurances, monitoring provisions, and credit release schedules will be provided in the subsequent draft Mitigation Banking Instrument (MBI) and will reflect current standards within the Vicksburg District.

7.0 References

Code of Federal Regulations, Title 33, Parts 325 and 332 and Title 40, Part 230, as published on pages 19594-19704 in the Federal Register dated 10 April 2008.

United States Department of Agriculture – Natural Resources Conservation Service, Web Soil Survey, Attala & Madison Counties, Mississippi.

<http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

United States Department of Agriculture – Soil Surveys of Attala & Madison Counties, Mississippi, issued October 1980.

Mississippi Department of Environmental Quality, Mississippi Water Quality Inventory: Integrated Report (305(b)/303(d)).

<http://www.deq.Mississippi.gov/portal/DIVISIONS/WaterPermits/WaterQualityStandardsAssessment/WaterQualityInventorySection305b/2012IntegratedReport.aspx>

<http://www.deq.Mississippi.gov/portal/Portals/0/planning/305b/2012/12%20IR1%20Appendix%20A%20Text%20and%20Maps%20FINAL%201-25-13.pdf>

National Wetland Plant List, Version 3.2. U.S. Army Corps of Engineers, 2016.

http://wetland_plants.usace.army.mil/

The Natural Communities of Mississippi. Mississippi Department of Wildlife and Fisheries Mississippi Natural Heritage Program 2009.

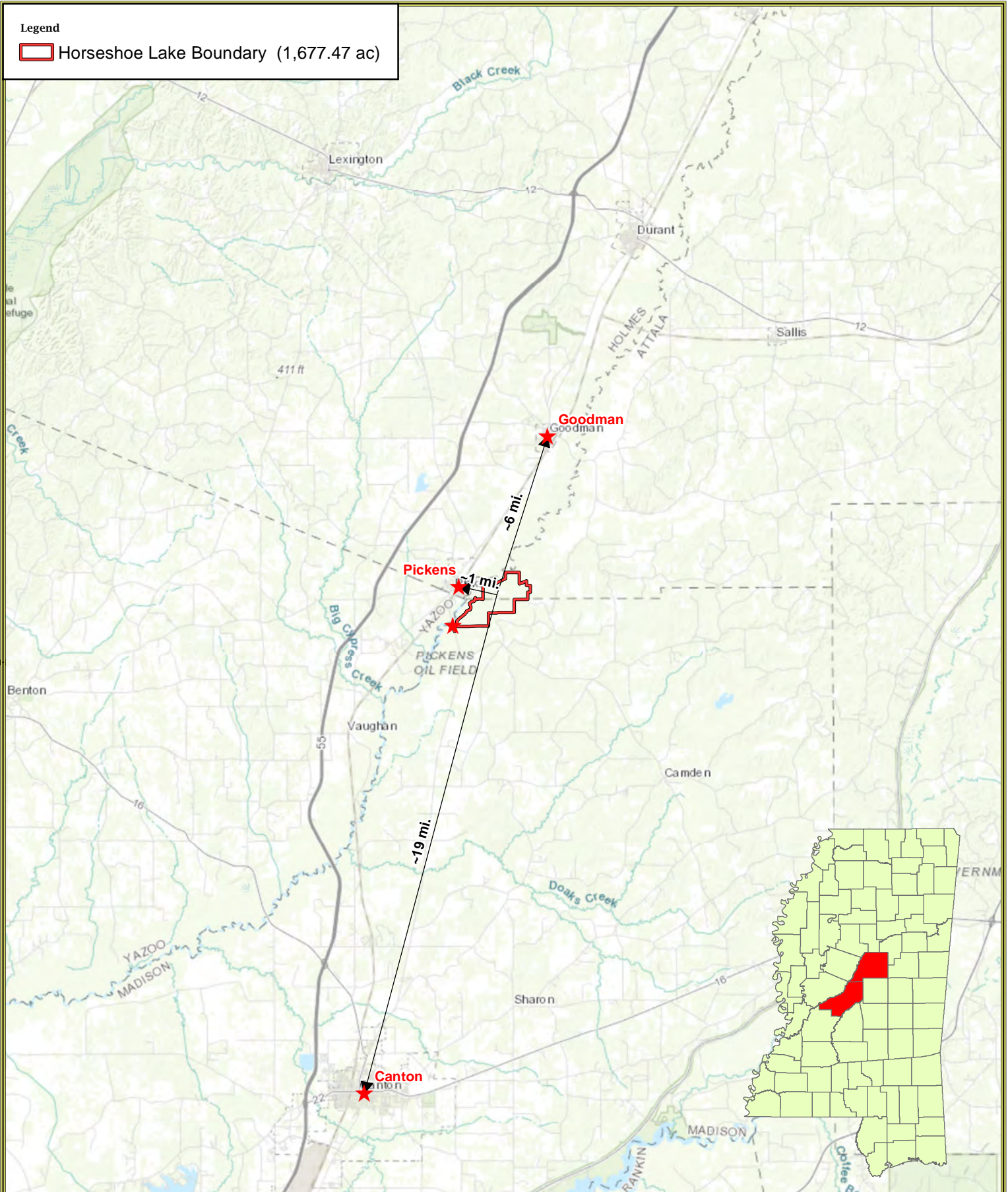
http://www.wlf.Mississippi.gov/sites/default/files/pdf/page_wildlife/6776are%20Natural%20Communities/LA_NAT_COM.pdf

<http://law.justia.com/codes/mississippi/2015/title-51/chapter-3/article-1/section-51-3-7/>

Figures

Legend

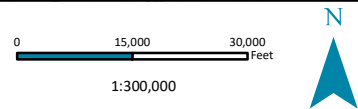
 Horseshoe Lake Boundary (1,677.47 ac)



Horseshoe Lake Mitigation Bank

Attala & Madison Counties, Mississippi


Figure 1 - Vicinity Map

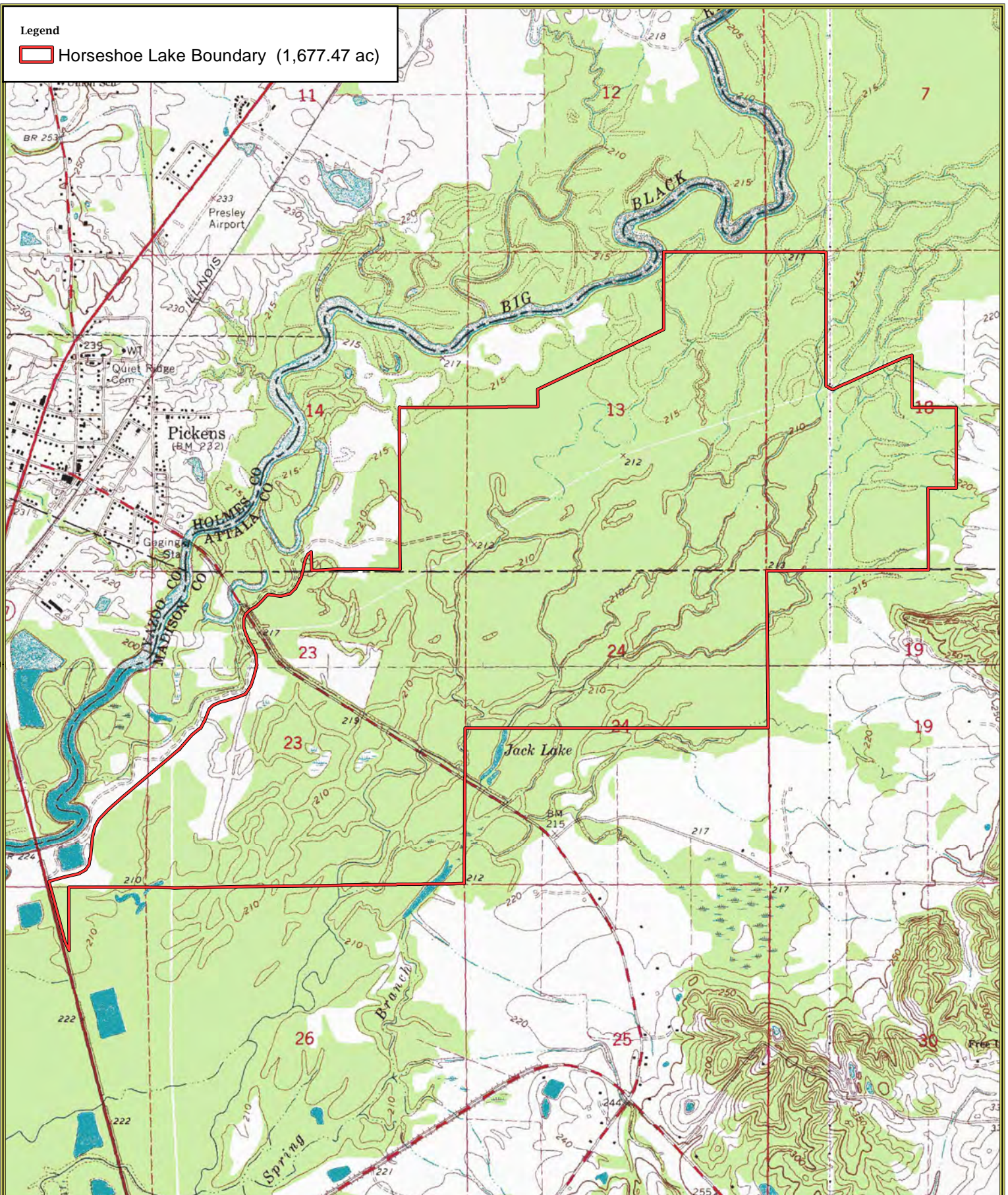


NAD 1983 StatePlane Mississippi West FIPS 2302 Feet

ESRI World Topographic Basemap

Legend

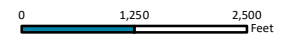
 Horseshoe Lake Boundary (1,677.47 ac)



Horseshoe Lake Mitigation Bank

Attala & Madison Counties, Mississippi

Figure 2 - Site Location Map



1:25,500



NAD 1983 StatePlane Mississippi West FIPS 2302 Feet

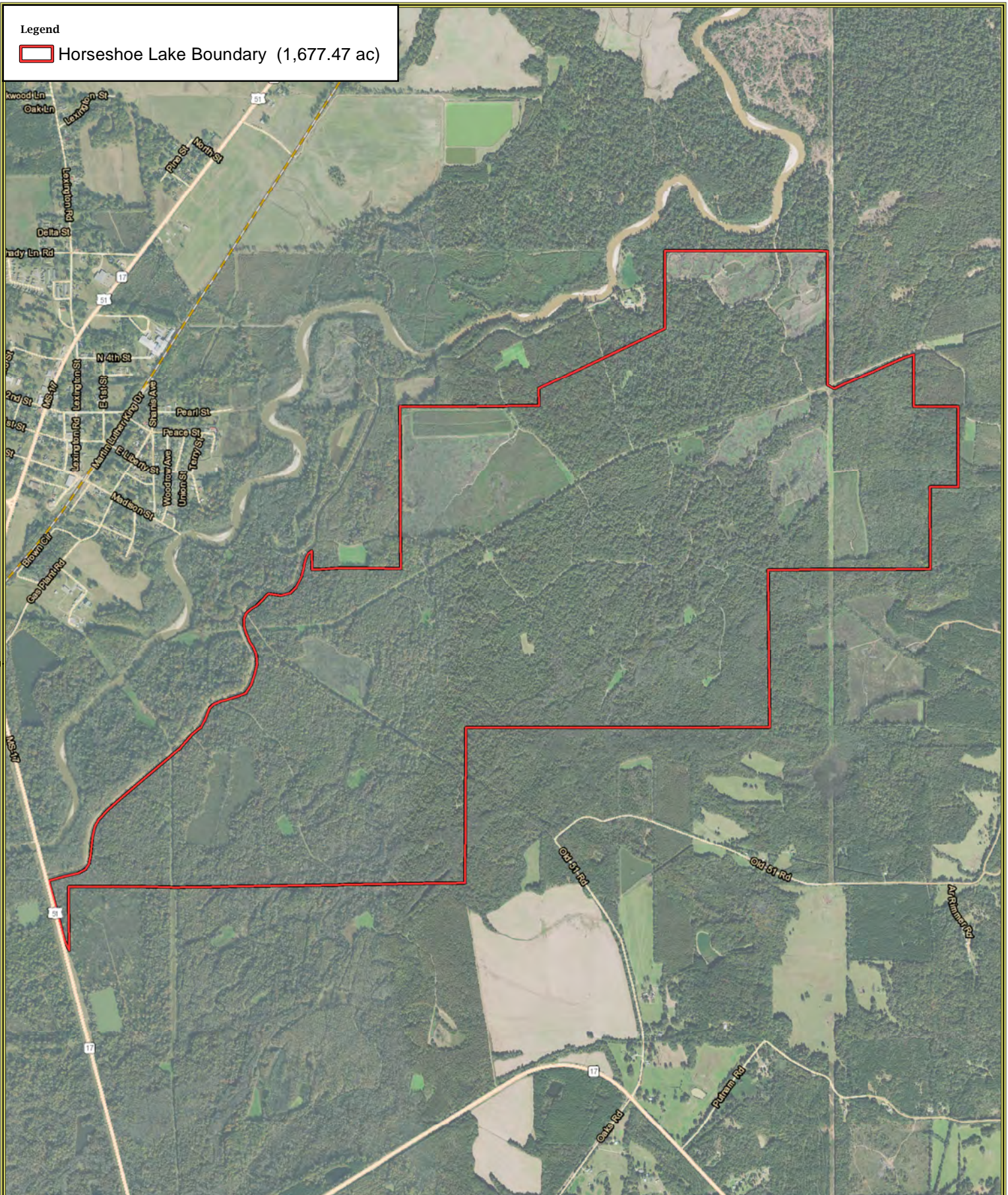
USGS Cameron/Goodman (MS) Quad Basemap

Date Created: 9/3/2020

Created by: JDL

Legend

 Horseshoe Lake Boundary (1,677.47 ac)



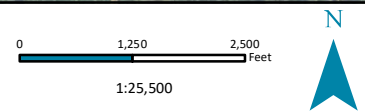
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Created by: JDL

Horseshoe Lake Mitigation Bank

Attala & Madison Counties, Mississippi


Figure 3 - Site Location Map




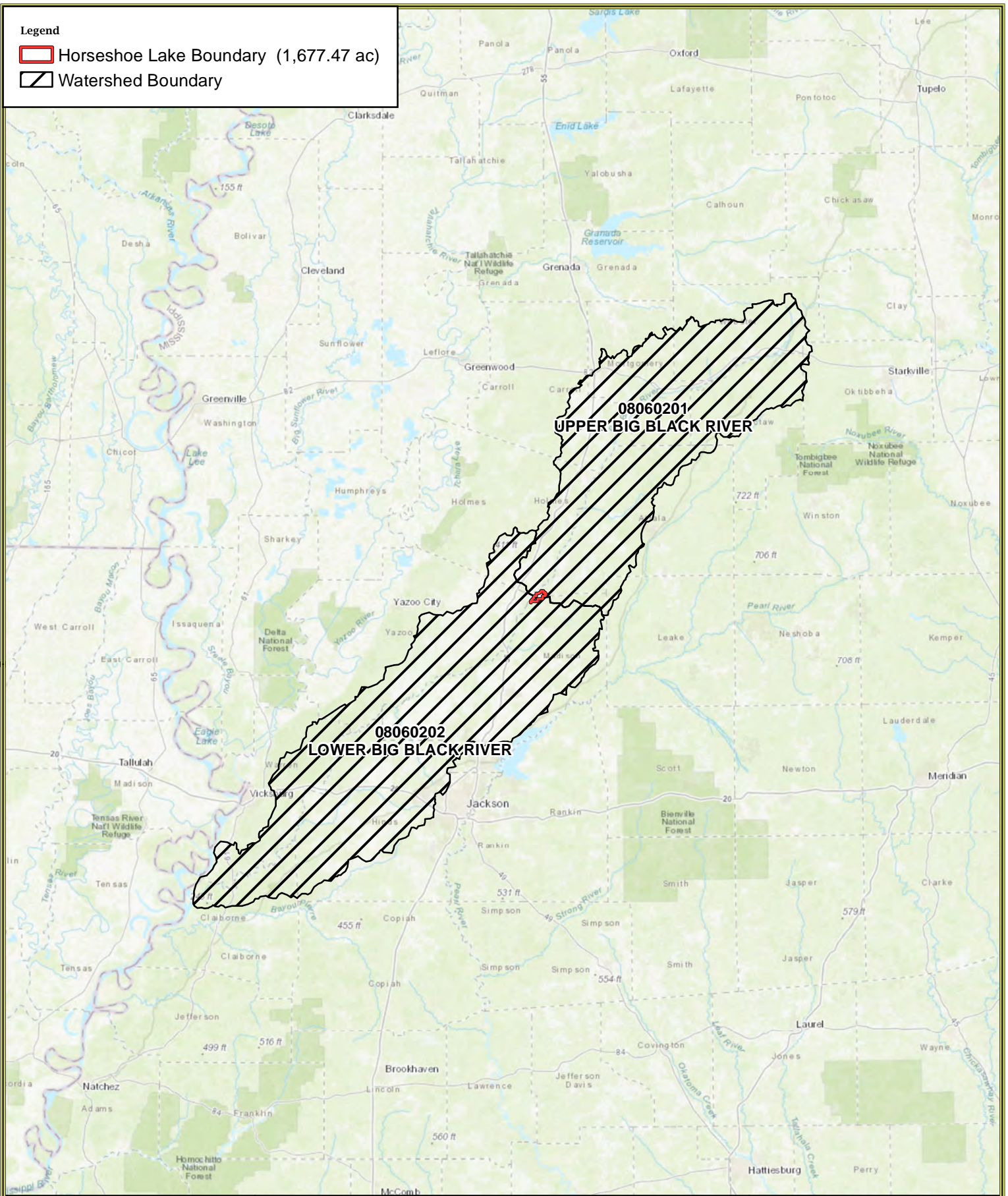
NAD 1983 StatePlane Mississippi West FIPS 2302 Feet

USDA NAIP 2018 Imagery Basemap

Legend

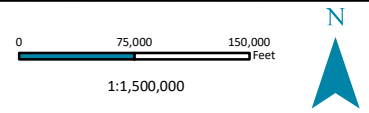
 Horseshoe Lake Boundary (1,677.47 ac)

 Watershed Boundary



Horseshoe Lake Mitigation Bank

Attala & Madison Counties, Mississippi
[Figure 4 - Watershed Location Map](#)




NAD 1983 StatePlane Mississippi West FIPS 2302 Feet

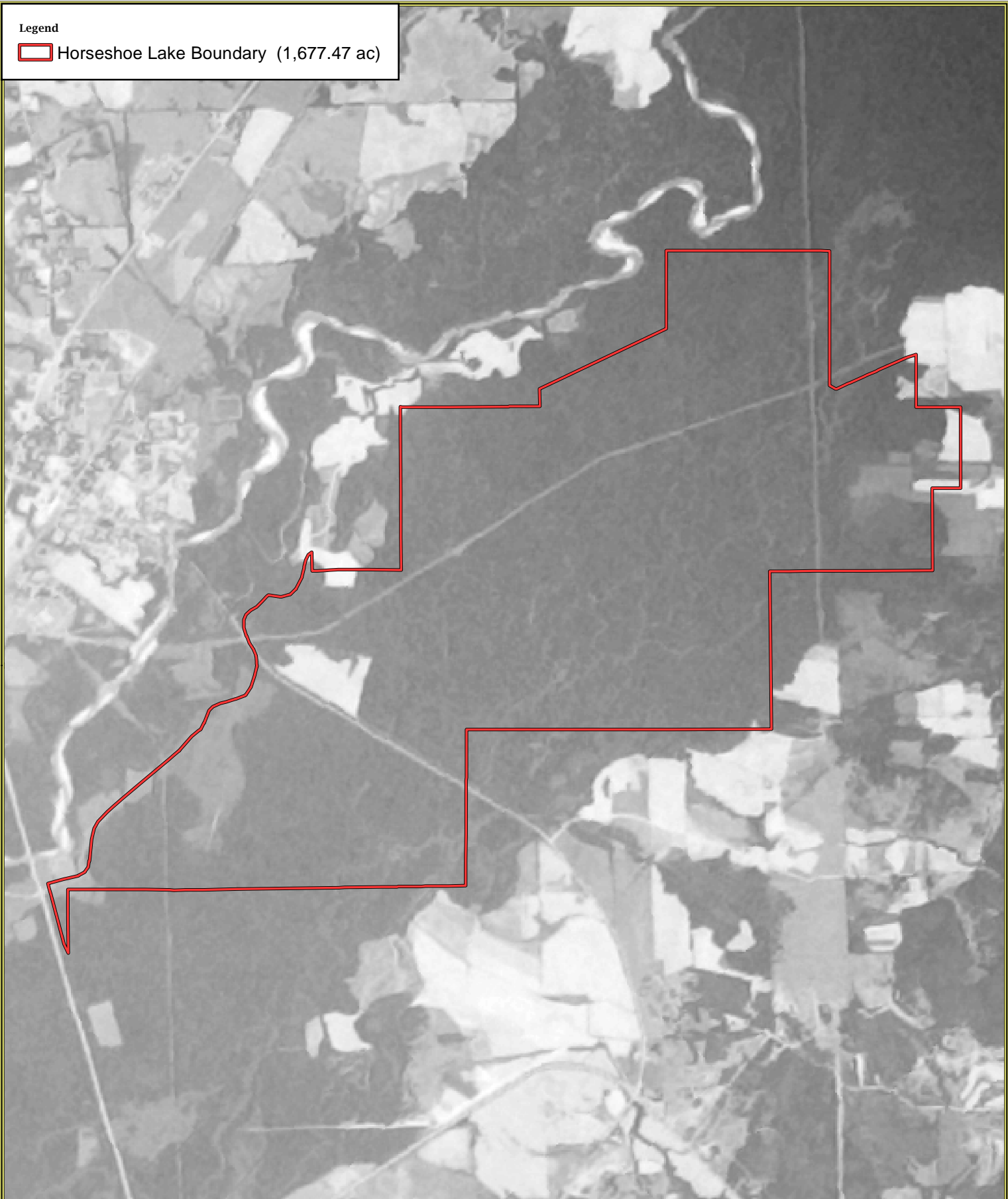
USDA NAIP 2018 Imagery Basemap

Date Created: 9/3/2020

Created by: JDL

Legend

 Horseshoe Lake Boundary (1,677.47 ac)



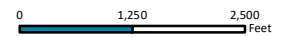
Date Created: 9/3/2020

Created by: JDL

Horseshoe Lake Hunting Club

Attala & Madison Counties, Mississippi

Figure 5 - Historical Imagery Map




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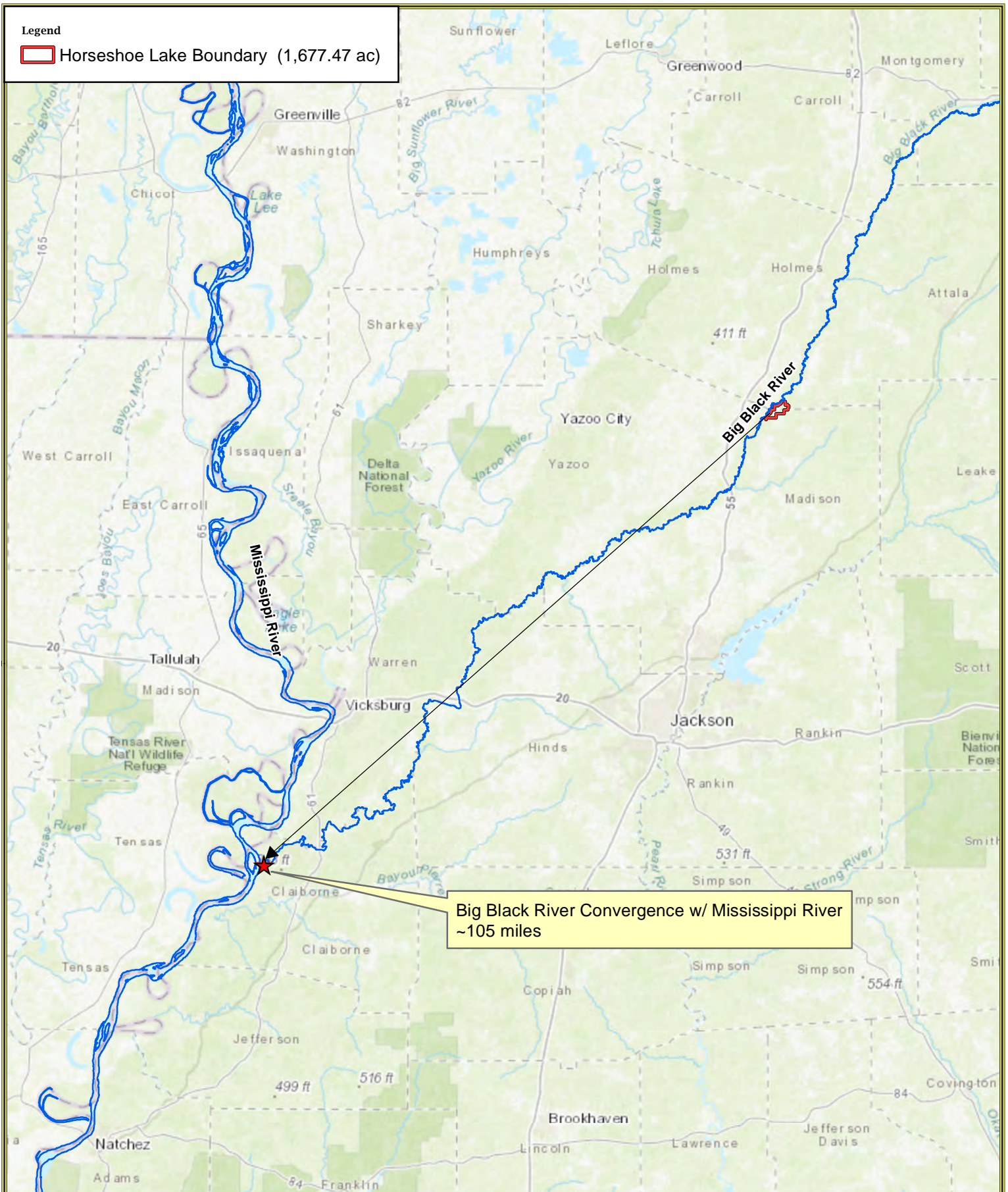


NAD 1983 StatePlane Mississippi West FIPS 2302 Feet

ESRI World Imagery Basemap

Legend

 Horseshoe Lake Boundary (1,677.47 ac)

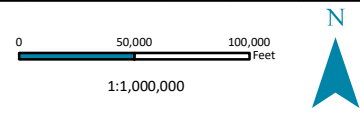


Big Black River Convergence w/ Mississippi River
~105 miles



Horseshoe Lake Mitigation Bank

Attala & Madison Counties, Mississippi
Figure 6 - Big Black River Watershed



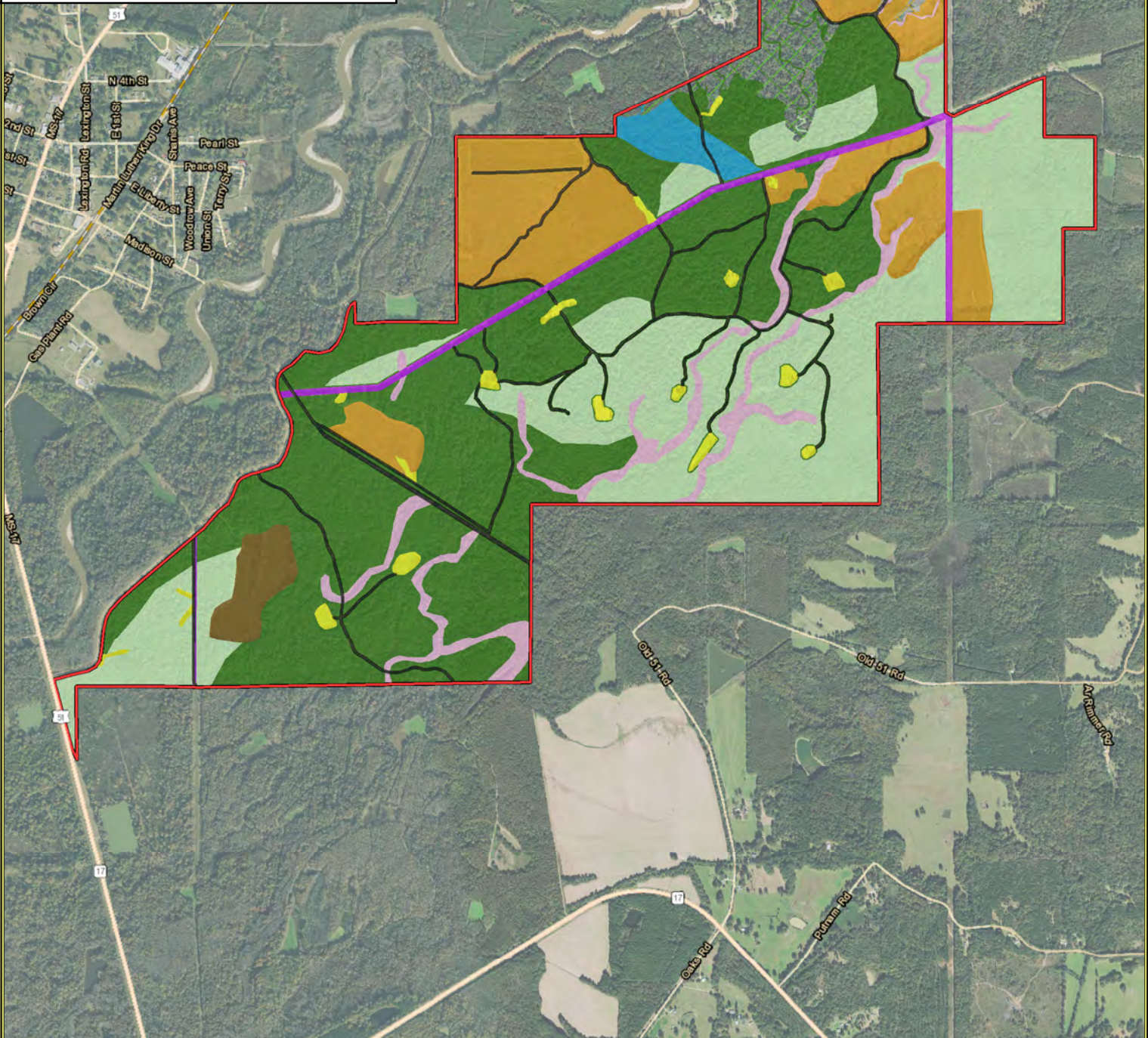
NAD 1983 StatePlane Mississippi West FIPS 2302 Feet

ESRI World Topographic Basemap

Date Created: 9/3/2020

Created by: JDL

- Legend**
- Horseshoe Lake Boundary (1,677.47 ac)
 - Interior Access Roads (Non-Mitigation) (27.96 ac)
 - Utility Easements (Non-Mitigation) (33.23 ac)
 - BLH Forested Wetlands (490.02 ac)
 - Cypress/Tupelo Slough (86.20 ac)
 - Degraded BLH Forested Wetlands (672.69 ac)
 - Storm Damaged Wetlands (25.46 ac)
 - Emergent Wetlands (21.07 ac)
 - BLH Clearcut Wetlands (28.32 ac)
 - Pine Clearcut Wetlands (223.62 ac)
 - Upland Clearcut (22.05 ac)
 - Upland Hardwoods (45.58 ac)
 - Upland Open Field (1.27 ac)



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Date Created: 9/3/2020 Created by: JDL

Horseshoe Lake Mitigation Bank

Attala & Madison Counties, Mississippi

Figure 7 - Current Habitat Type

0 1,400 2,800
 Feet

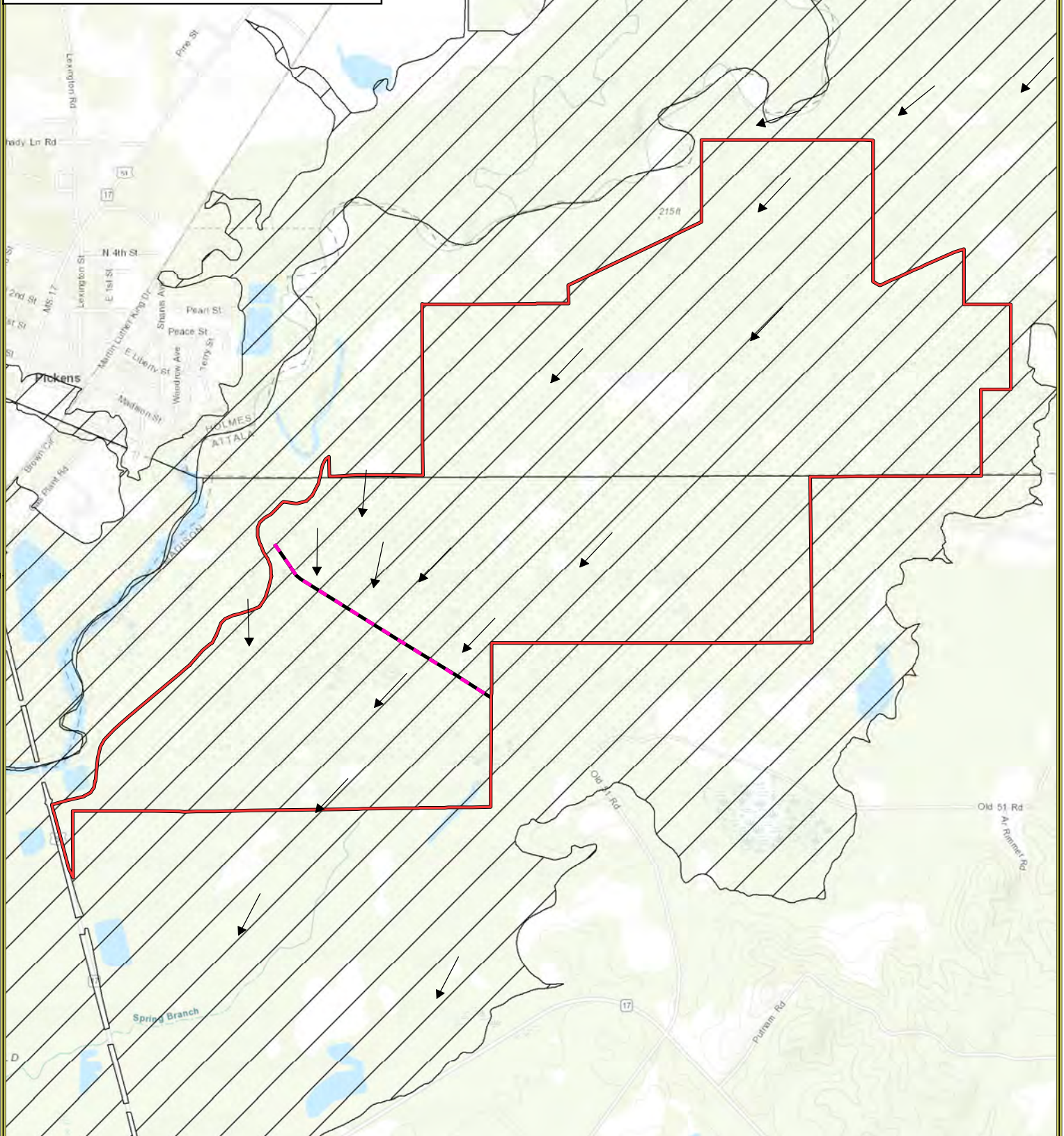
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NAD 1983 StatePlane Mississippi West FIPS 2302 Feet

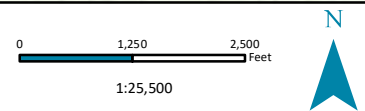
USDA NAIP 2018 Imagery Basemap

- Legend**
- Drainage Direction
 - Horseshoe Lake Boundary (1,677.47 ac)
 - Relic Road Bed to be Removed (4,267.21 lf x 40.00 lf)
 - FEMA 100 yr. Flood Zone



Horseshoe Lake Mitigation Bank

Attala & Madison Counties, Mississippi
Figure 8 - Current Hydrology Map






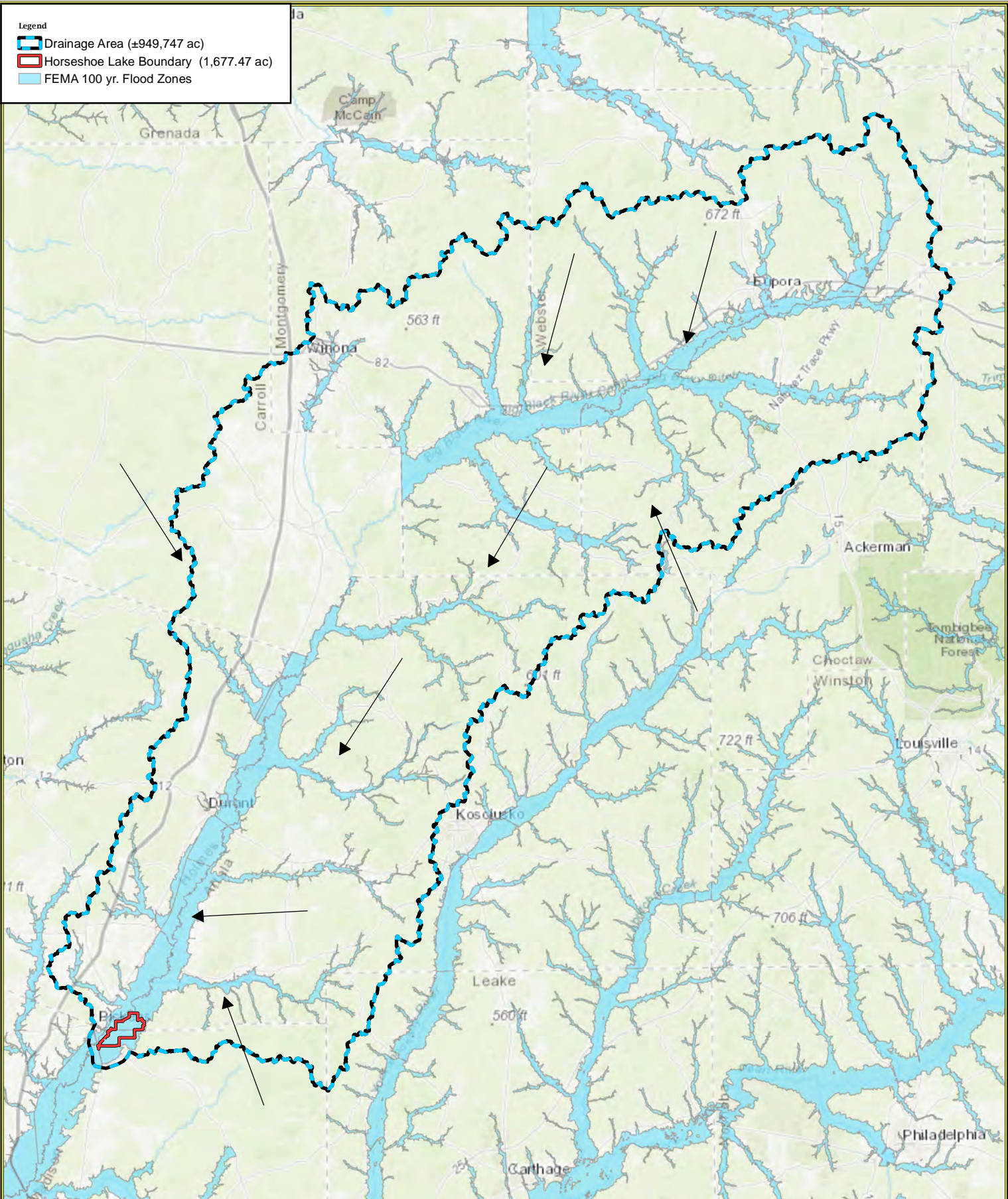
NAD 1983 StatePlane Mississippi West FIPS 2302 Feet

ESRI World Topographic Basemap

Date Created: 9/3/2020

Created by: JDL

- Legend**
-  Drainage Area (±949,747 ac)
 -  Horseshoe Lake Boundary (1,677.47 ac)
 -  FEMA 100 yr. Flood Zones




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Horseshoe Lake Mitigation Bank

Attala & Madison Counties, Mississippi

Figure 9 - Historical Hydrology Map

N


0 25,000 50,000
Feet

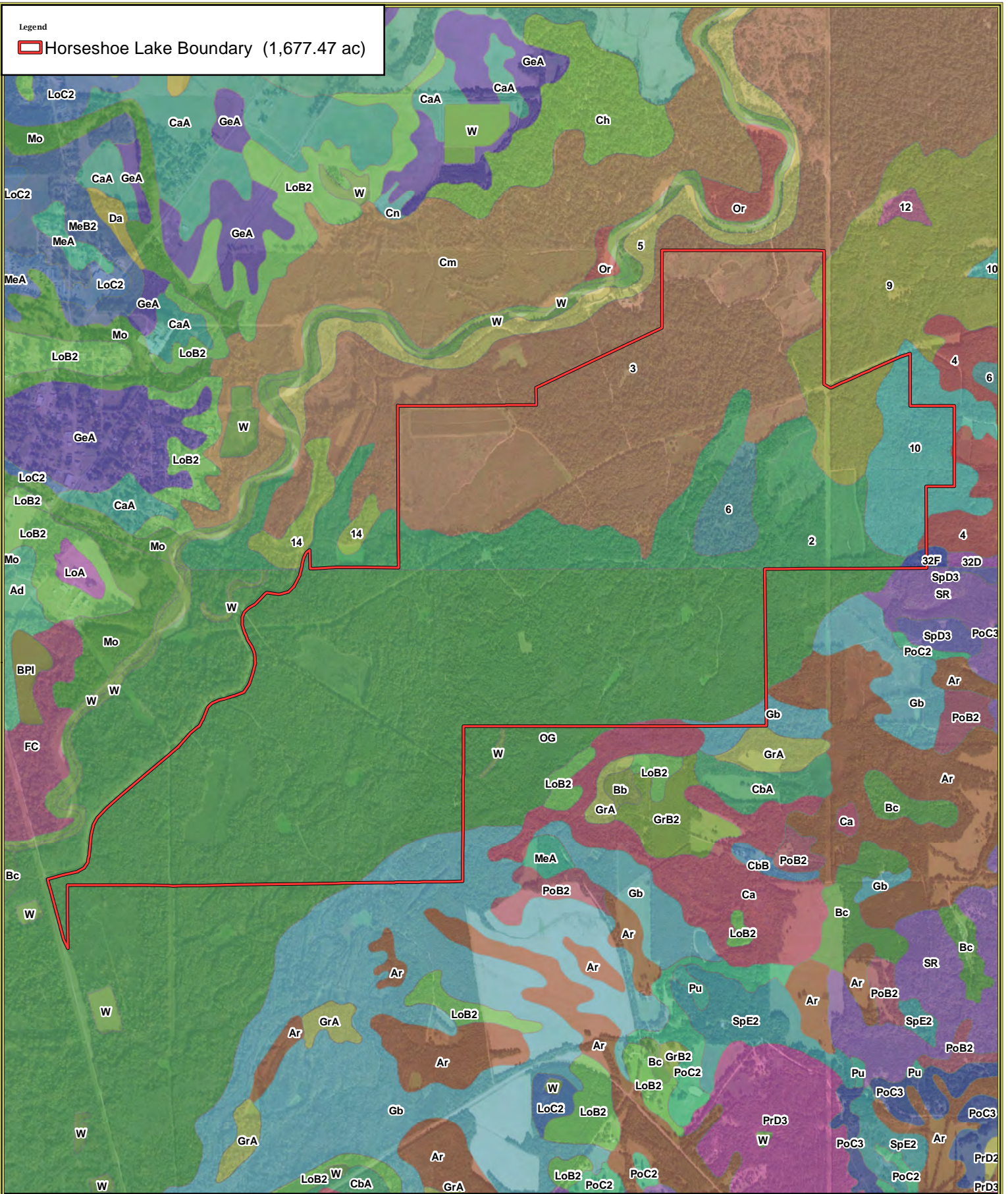
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NAD 1983 StatePlane Mississippi West FIPS 2302 Feet

ESRI World Topographic Basemap

Legend

 Horseshoe Lake Boundary (1,677.47 ac)



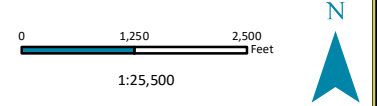

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Date Created: 9/3/2020 Created by: JDL

Horseshoe Lake Mitigation Bank

Attala & Madison Counties, Mississippi

Figure 10 - NRCS Soils Map



0 1,250 2,500
Feet

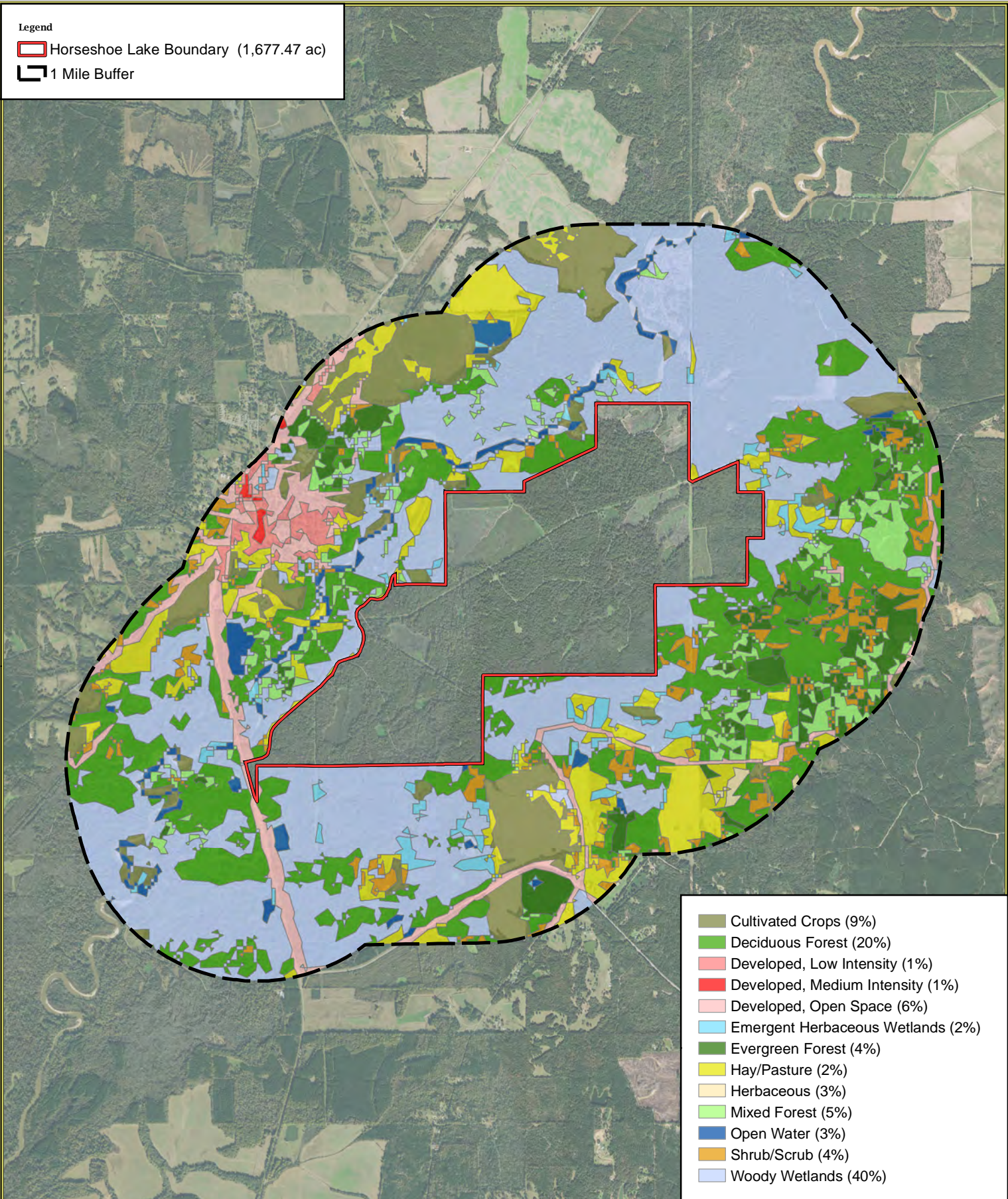
1:25,500

NAD 1983 StatePlane Mississippi West FIPS 2302 Feet

USDA NAIP 2018 Imagery Basemap

Legend

- Horseshoe Lake Boundary (1,677.47 ac)
- 1 Mile Buffer



- Cultivated Crops (9%)
- Deciduous Forest (20%)
- Developed, Low Intensity (1%)
- Developed, Medium Intensity (1%)
- Developed, Open Space (6%)
- Emergent Herbaceous Wetlands (2%)
- Evergreen Forest (4%)
- Hay/Pasture (2%)
- Herbaceous (3%)
- Mixed Forest (5%)
- Open Water (3%)
- Shrub/Scrub (4%)
- Woody Wetlands (40%)

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Horseshoe Lake Hunting Club

Attala & Madison Counties, Mississippi




Figure 11 - Surrounding Land Use Map

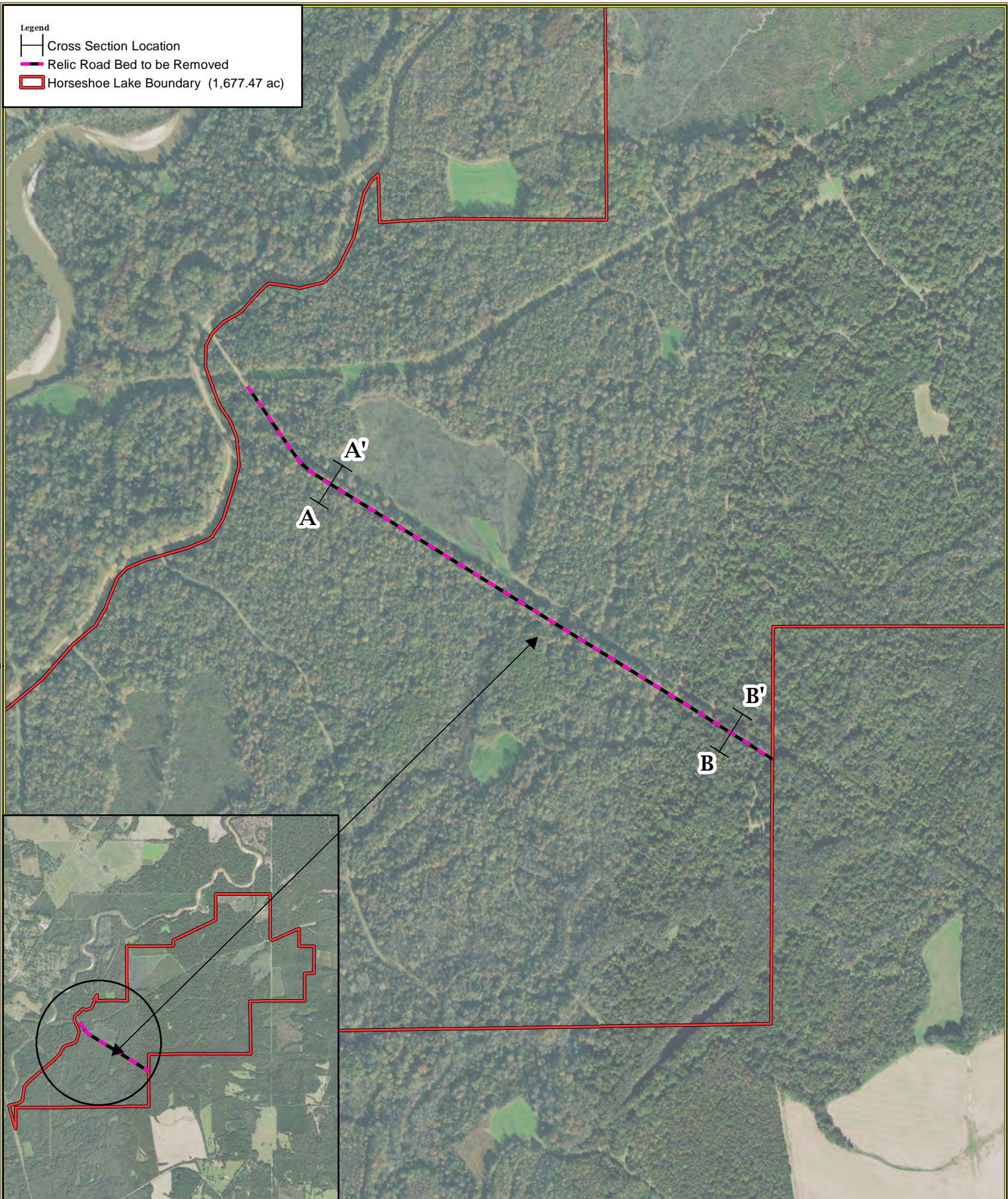
0 2,500 5,000 Feet
1:45,000

NAD 1983 StatePlane Mississippi West FIPS 2302 Feet

USDA NAIP 2016 Imagery Basemap

Legend

-  Cross Section Location
-  Relic Road Bed to be Removed
-  Horseshoe Lake Boundary (1,677.47 ac)




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Attala & Madison Counties, Mississippi

Figure 12 - Hydrologic Work Plan Map

0 500 1,000
Feet

1:10,000

N

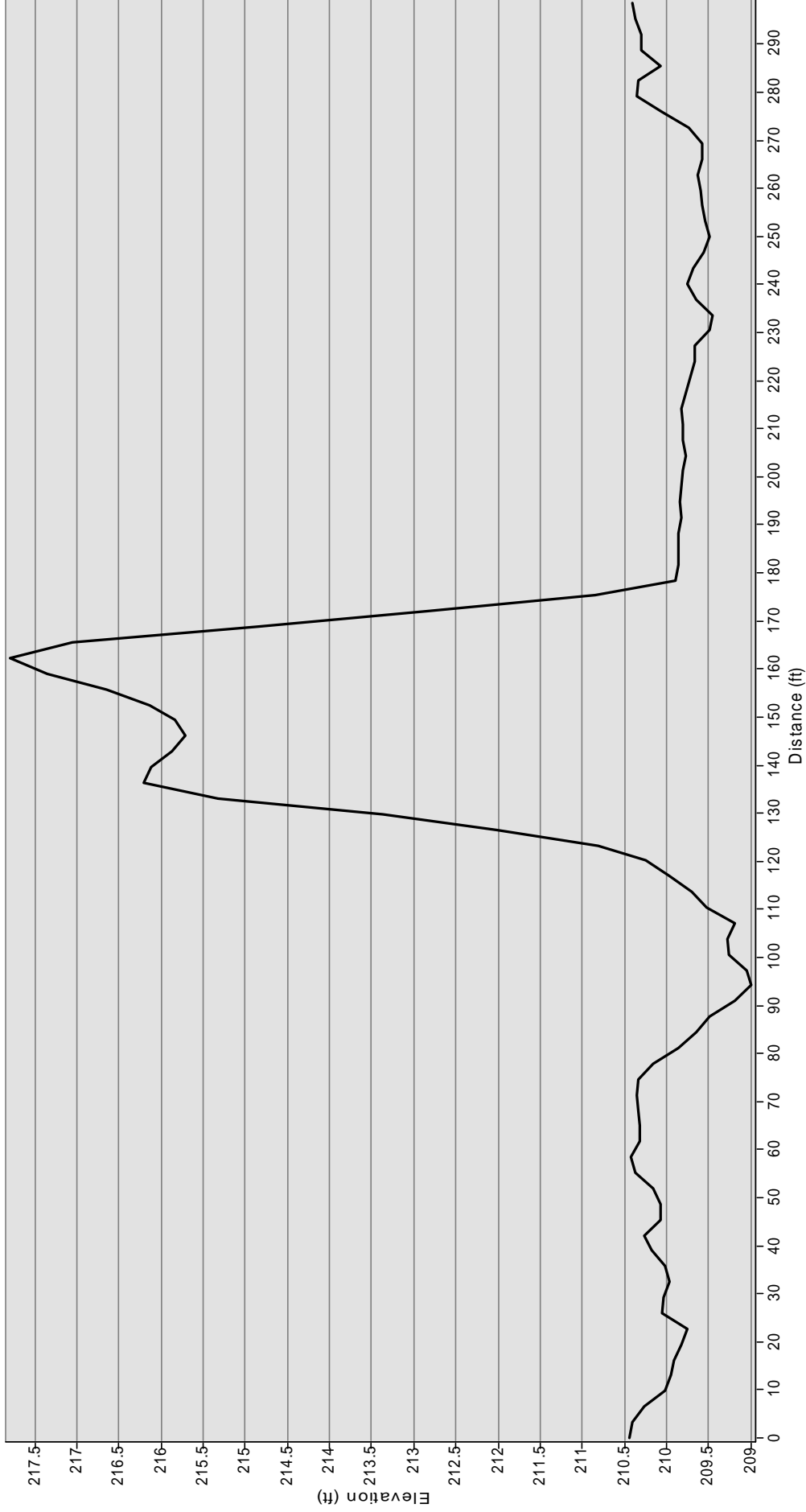
NAD 1983 StatePlane Mississippi West FIPS 2302 Feet

USDA NAIP 2018 Imagery Basemap


Cross Section A-A'



Cross Section B-B'





Legend

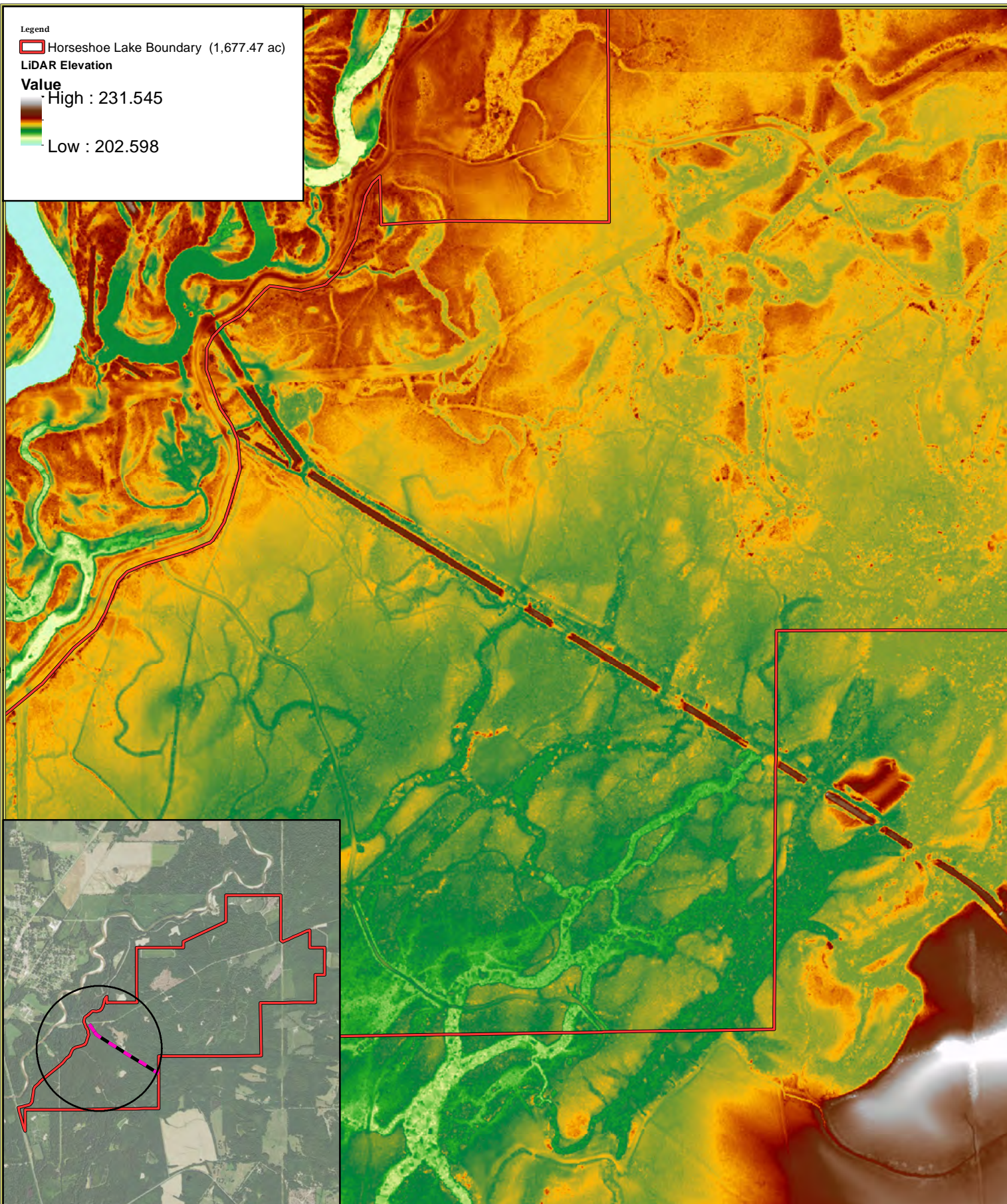
 Horseshoe Lake Boundary (1,677.47 ac)

LiDAR Elevation

Value

 High : 231.545

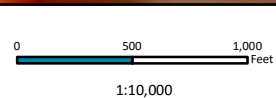
 Low : 202.598



Horseshoe Lake Hunting Club

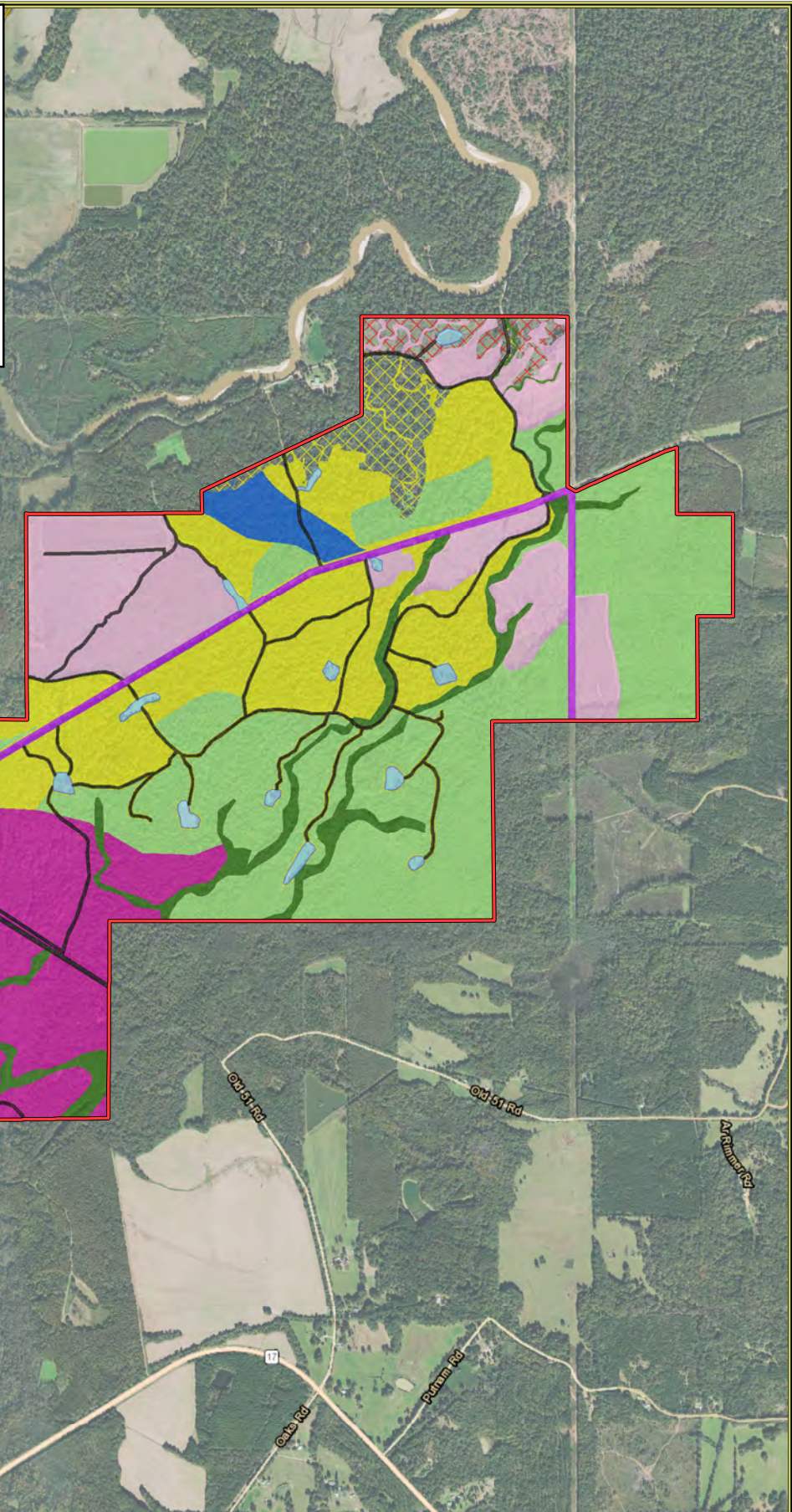
Attala & Madison Counties, Mississippi

Figure 13 - LiDAR Elevation Map



Legend

- Horseshoe Lake Boundary (1,677.47 ac)
- Interior Access Roads (Non-Mitigation) (27.96 ac)
- Utility Easements (Non-Mitigation) (33.23 ac)
- Wildlife Openings (Non-Mitigation) (22.34 ac)
- BLH Rehabilitation I (223.62 ac)
- BLH Rehabilitation II (28.32 ac)
- BLH Rehabilitation III (305.43 ac)
- BLH Rehabilitation IV (367.26 ac)
- BLH Rehabilitation V (Storm Damaged Area) (25.46 ac)
- BLH Preservation (490.02 ac)
- Cypress/Tupelo Slough Preservation (86.20 ac)
- Upland Hardwood Rehabilitation (22.05 ac)
- Upland Hardwood Preservation (45.58 ac)



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Horseshoe Lake Mitigation Bank

Attala & Madison Counties, Mississippi

Figure 14 - Wetland Mitigation Plan Map

0 1,250 2,500
 Feet


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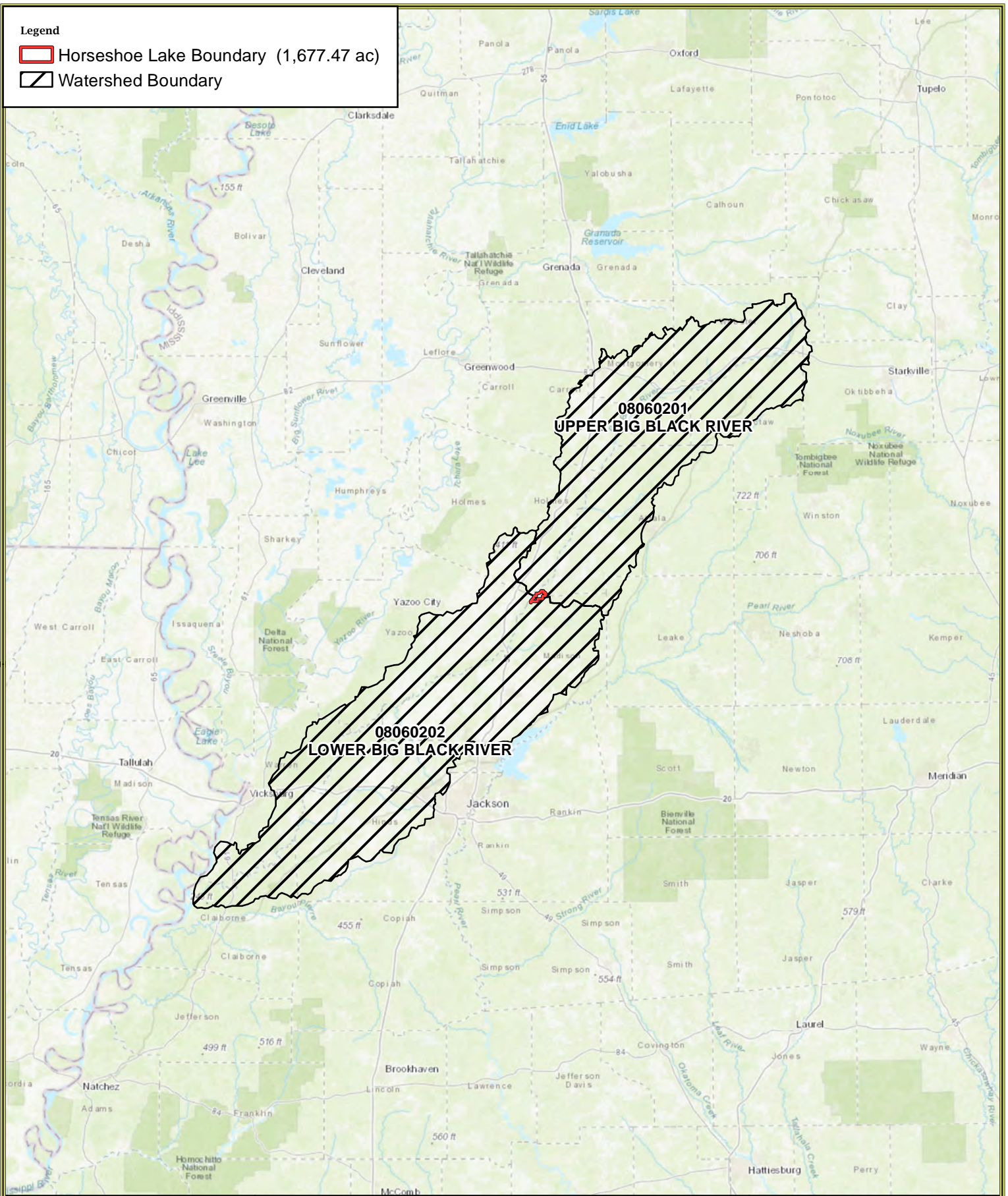
NAD 1983 StatePlane Mississippi West FIPS 2302 Feet

USDA NAIP 2018 Imagery Basemap

Legend

 Horseshoe Lake Boundary (1,677.47 ac)

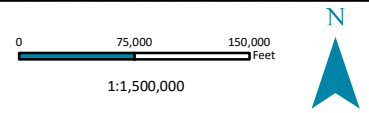
 Watershed Boundary



Horseshoe Lake Mitigation Bank

Attala & Madison Counties, Mississippi

Figure 15 - Service Area Map



NAD 1983 StatePlane Mississippi West FIPS 2302 Feet

USDA NAIP 2018 Imagery Basemap

Date Created: 9/3/2020

Created by: JDL

**Preliminary Jurisdictional Determination
MVK-2018-663**



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, VICKSBURG DISTRICT
4155 CLAY STREET
VICKSBURG, MISSISSIPPI 39183-3435

May 18, 2020

Operations Division

SUBJECT: Jurisdictional Determination – Proposed Horseshoe Lake Mitigation Bank, Horseshoe Lake Land Company, Attala and Madison Counties, Mississippi, MVK-2018-663

Mr. J. Clay Cromwell
Headwaters, Incorporated
Post Office Box 2836
Ridgeland, Mississippi 39158

Dear Mr. Cromwell:

I refer to your letter requesting a jurisdictional determination for the subject property located along the Big Black River in Attala and Madison Counties, Mississippi (enclosure 1).

Based upon the information provided, it appears that there are jurisdictional wetlands and other waters of the United States located within the boundary of the property subject to regulation pursuant to Section 404 of the Clean Water Act. Any work involving the discharge of dredged or fill material (land clearing, ditching, filling, leveeing, etc.) within jurisdictional waters will require a Department of the Army Section 404 permit prior to beginning work. For your information, I have enclosed a copy of our appeals form (enclosure 2) for this preliminary jurisdictional determination.

For your convenience, an application packet may be obtained at our Regulatory Program webpage: <http://www.mvk.usace.army.mil/Missions/Regulatory/Permits.aspx>. An application for work in wetlands or other waters of the United States should be submitted at least 120 days in advance of the proposed starting date. To expedite the evaluation process, please refer to Identification No. MVK-2018-663 when submitting the application or requesting project updates.

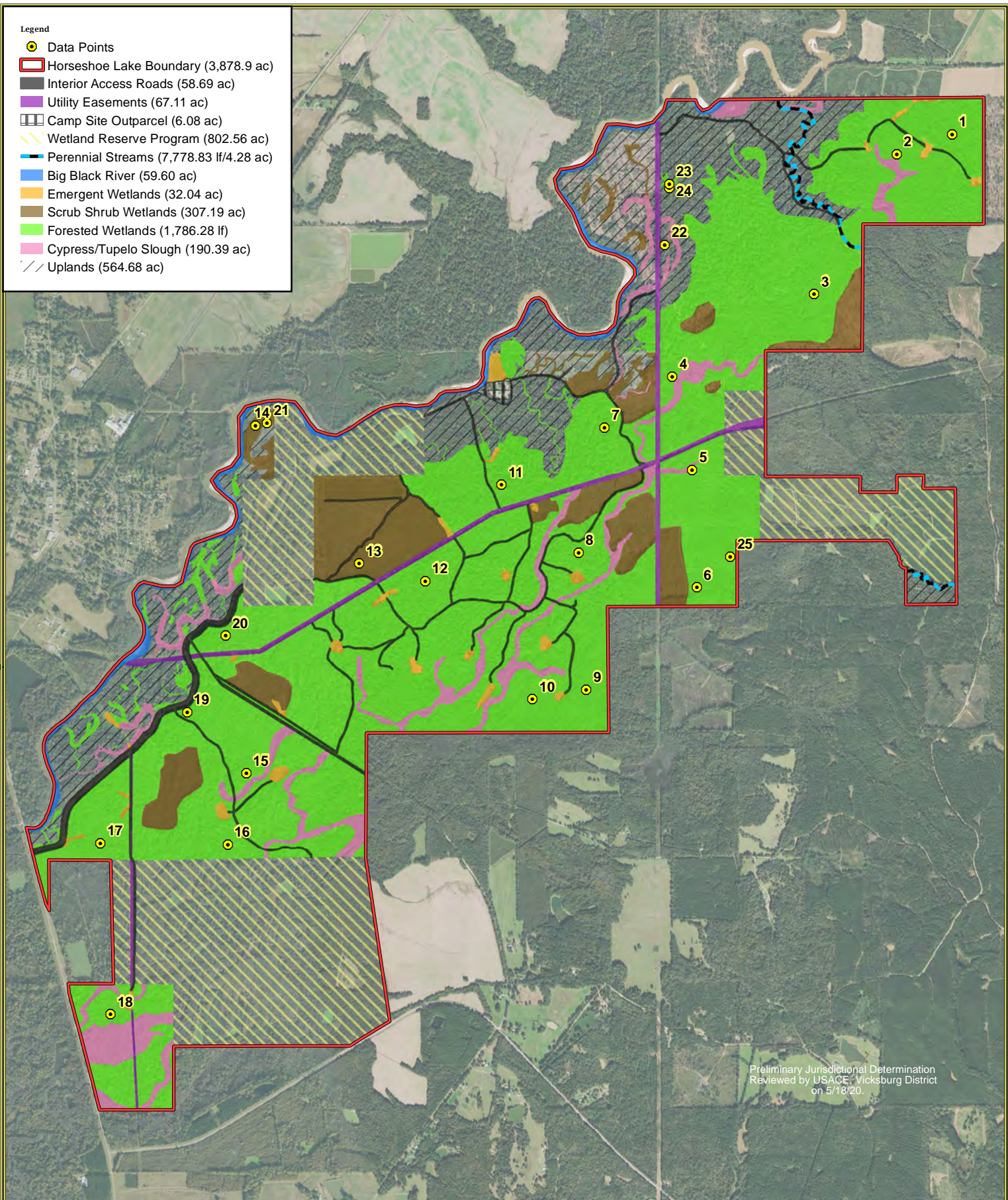
If you have any questions, please contact Mr. Bryton Hixson, of this office, telephone 601-631-5591 or e-mail address: Bryton.K.Hixson@usace.army.mil.

Sincerely,

Charles R. Allred, Jr.
Chief, Enforcement Section
Regulatory Branch

Enclosures

- Legend**
- Data Points
 - ▭ Horseshoe Lake Boundary (3,878.9 ac)
 - ▭ Interior Access Roads (58.69 ac)
 - ▭ Utility Easements (67.11 ac)
 - ▭ Camp Site Outparcel (6.08 ac)
 - ▭ Wetland Reserve Program (802.56 ac)
 - ▭ Perennial Streams (7,778.83 lf/4.28 ac)
 - ▭ Big Black River (59.60 ac)
 - ▭ Emergent Wetlands (32.04 ac)
 - ▭ Scrub Shrub Wetlands (307.19 ac)
 - ▭ Forested Wetlands (1,786.28 lf)
 - ▭ Cypress/Tupelo Slough (190.39 ac)
 - ▭ Uplands (564.68 ac)

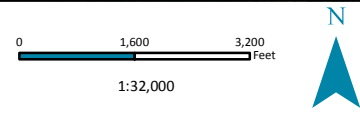


Preliminary Jurisdictional Determination
Reviewed by USACE, Vicksburg District
on 5/18/20.



Horseshoe Lake Mitigation Bank

Attala & Madison Counties, Mississippi
Wetland Location Map



NAD 1983 StatePlane Mississippi West FIPS 2302 Feet

USDA NAIP 2018 Imagery Basemap

Date Created: 5/8/2020

Created by: JDL

**NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND
REQUEST FOR APPEAL**

Applicant: Horseshoe Lake Land Company, LLC	File No.: MVK-2018-663	Date: 5/18/20
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
X	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://usace.army.mil/inet/functions/cw/cecwo/reg> or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Attn: Bryton Hixson
Regulatory Branch
4155 Clay Street
Vicksburg, MS 39183-3435
(601) 631-5591

If you only have questions regarding the appeal process you may also contact the Division Engineer through:

Administrative Appeals Review Officer
Mississippi Valley Division
P.O. Box 80 (1400 Walnut Street)
Vicksburg, MS 39181-0080
601-634-5820 FAX: 601-634-5816

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or agent.

Date:

Telephone number:

Baseline Data Summary and Site Figure

Horseshoe Lake Mitigation Bank Prospectus

BLH Rehabilitation III - Baseline Summary

Data Plots		Trees										Shrub					Ground Cover					Summary	
		TPA			Percent Cover			# of Species	Species	Percent Cover		# of Species	Species	Percent Cover		# of Species	Species	Percent Cover		# of Species	Hardmast %	Softmast %	
		Trees per Plot	Trees per Acre	Total	Per Species	Total	Per Species			Total	Per Species			Total	Per Species			Total					
8	<i>Quercus nigra</i>	5	50	140	40%	100%	7	<i>Quercus nigra</i>	5%	40%	3	<i>Saururus cernuus</i>	5%	7%	2		57.14	42.86					
	<i>Quercus lyrata</i>	3	30		20%			<i>Ulmus americana</i>	5%			<i>Quercus nigra</i>	2%										
	<i>Liquidambar styraciflua</i>	2	20		15%			<i>Ilex decidua</i>	30%														
	<i>Ulmus americana</i>	1	10		10%																		
	<i>Acer rubrum</i>	1	10		5%																		
	<i>Fraxinus pennsylvanica</i>	1	10		5%																		
	<i>Platanus occidentalis</i>	1	10		5%																		
15	<i>Quercus lyrata</i>	3	30	90	35%	90%	5	<i>Ilex decidua</i>	15%	25%	3	<i>Commelina virginica</i>	10%	14%	3		55.56	44.44					
	<i>Fraxinus pennsylvanica</i>	2	20		20%			<i>Quercus nigra</i>	5%			<i>Saururus cernuus</i>	2%										
	<i>Liquidambar styraciflua</i>	1	10		10%			<i>Ulmus americana</i>	5%			<i>Carex spp.</i>	2%										
	<i>Ulmus americana</i>	1	10		10%																		
	<i>Quercus phellos</i>	2	20		15%																		
			0																				
17	<i>Liquidambar styraciflua</i>	4	40	100	35%	85%	4	<i>Ligustrum sinense</i>	60%	75%	3	<i>Quercus phellos</i>	2%	2%	1		40.00	60.00					
	<i>Ulmus americana</i>	2	20		15%			<i>Quercus nigra</i>	5%														
	<i>Quercus phellos</i>	2	20		15%			<i>Ilex decidua</i>	10%														
	<i>Quercus nigra</i>	2	20		20%																		
			0																				
			0																				
18	<i>Quercus nigra</i>	3	30	80	35%	75%	4	<i>Ligustrum sinense</i>	20%	30%	3	<i>Quercus phellos</i>	1%	3%	2		50.00	50.00					
	<i>Quercus phellos</i>	1	10		10%			<i>Triadica sebifera</i>	5%			<i>Quercus nigra</i>	2%										
	<i>Liquidambar styraciflua</i>	2	20		15%			<i>Quercus nigra</i>	5%														
	<i>Ulmus americana</i>	2	20		15%																		
			0																				
			0																				
		TPA	103	Diversity		5	Total Exotics/Invasives	43%	1.25%		Total	Desirable Regeneration %	50.67	49.33									

BLH Rehabilitation V - Baseline Summary

5	<i>Liquidambar styraciflua</i>	2	20	30		35%	45%		2	10%		20%	3	15%		66.67			
	<i>Quercus nigra</i>	1	10			10%				5%				10%			33.33		
			0							5%				5%				4	
			0																35%
			0																
11	<i>Quercus nigra</i>	2	20	70		25%	60%		4	60%		60%	1	20%		54.76			
	<i>Quercus michauxii</i>	2	20			15%											45.24		
	<i>Liquidambar styraciflua</i>	2	20			15%												Total	
	<i>Carpinus caroliniana</i>	1	10			5%													57.14
			0																
		0													Desirable Regeneration %				
		TPA		50	Diversity		3	Total Exotics/Invasives		35%	Total		45.24	54.76					

BLH Preservation - Baseline Summary

4	<i>Quercus michauxii</i>	3	30	130	25%	7	<i>Quercus michauxii</i>	5%	12%	3	<i>Fraxinus pennsylvanica</i>	4%	5%	0	61.54	38.46			
	<i>Quercus nigra</i>	4	40		33%		<i>Quercus nigra</i>	5%			<i>Quercus phellos</i>	2%							
	<i>Liquidambar styraciflua</i>	2	20		15%		<i>Quercus phellos</i>	2%											
4	<i>Quercus phellos</i>	1	10	130	5%	7	<i>Fraxinus pennsylvanica</i>	2%	12%	3			5%	0	61.54	38.46			
	<i>Platanus occidentalis</i>	1	10		5%														
	<i>Fraxinus pennsylvanica</i>	1	10		5%														
	<i>Acer rubrum</i>	1	10		5%														
			0																
13	<i>Quercus nigra</i>	6	60		45%	6	<i>Quercus michauxii</i>	10%	25%	4	<i>Quercus nigra</i>	4%	2%	0	69.23	30.77			
	<i>Quercus phellos</i>	2	20		20%			<i>Quercus nigra</i>			5%								
	<i>Ulmus americana</i>	2	20		15%			<i>Ulmus americana</i>			5%								
	<i>Liquidambar styraciflua</i>	1	10	130	5%			<i>Ilex decidua</i>			5%								
	<i>Quercus michauxii</i>	1	10		5%			<i>Fraxinus pennsylvanica</i>			2%								
	<i>Fraxinus pennsylvanica</i>	1	10		5%														
			0																
		0																	
16	<i>Quercus nigra</i>	5	50		40%	8	<i>Quercus michauxii</i>	10%	27%	4	<i>Quercus phellos</i>	3%	3%	0	71.43	28.57			
	<i>Quercus michauxii</i>	2	20		15%			<i>Quercus nigra</i>			5%								
	<i>Quercus phellos</i>	2	20		15%			<i>Ulmus americana</i>			5%								
	<i>Ulmus americana</i>	1	10	140	10%			<i>Ilex decidua</i>			5%								
	<i>Liquidambar styraciflua</i>	1	10		5%			<i>Acer rubrum</i>			2%								
	<i>Acer rubrum</i>	1	10		5%														
	<i>Quercus lyrata</i>	1	10		5%														
<i>Diospyros virginiana</i>	1	10		2%															
			TPA	133	Diversity	7	Total Exotics/Invasives				Desirable Regeneration %	4.3%	Total	67.40	32.60				