US Army Corps
of Engineers
Vicksburg District
4155 Clay Street
Vicksburg, MS 39183-3435
www.mvk.usace.army.mil

Public Notice

APPLICATION NO.:	**MVK-2018-663**
EVALUATOR:	**Ms. Tarmiko Graham**
PHONE NO.:	**(601) 631-5540**
E-MAIL:	**Tarmiko.V.Graham@usace.army.mil**
DATE:	**November 3, 2020**
EXPIRATION DATE:	**December 3, 2020**

Interested parties are hereby notified that the U.S. Army Corps of Engineers, Vicksburg District (Corps), is considering a proposal to establish the Horseshoe Lake Mitigation Bank (HLMB). A prospectus has been received describing the proposed bank from Horseshoe Lake Land Company, LLC, the bank Sponsor. The proposed site is located in Sections 13, 14, 18, 22, 23, 24, 27, Township 12 North, and Range 3 East, Attala & Madison Counties, Mississippi (enclosure 1).

Description: The Horseshoe Lake Mitigation Bank is being proposed by the bank Sponsor as a means to meet the requirements for compensatory mitigation for future and yet unknown wetland and stream losses, which may be permitted by the Corps under the authority of Section 404 of the Clean Water Act.

The bank Sponsor proposes to develop a mitigation bank by enhancing wetlands within the Big Black basin. The proposed work would increase the wetland function, provide species diversity, and provide a wildlife corridor within both the upper and lower portions of the Big Black River Watershed (HUC: 08060201 and 08060202).

Baseline Conditions / Current Land Use / Proposed Actions: The property 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 proposed HLMB would be located east of Mississippi Highway 51 and just north of its intersection with Mississippi Highway 17 within the central portion of Attala & Madison Counties, Mississippi. 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.

The design of the HLMB would 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. Major components of the plan would include the removal and restoration of drainage improvements and impediments within the Bank Property. The project would 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 would also ensure that the floodplain of the Big Black River is maintained and protected from a future change in use.

The goal of the HLMB is to provide the opportunity to rehabilitate and preserve 1,677.47 acres of bottomland hardwood and other forested wetland habitat (enclosure 2). The HLMB would 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 concurrent with the wetland rehabilitation work plan.

Proposed Mitigation Bank Establishment

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%**

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.

Service Area: This Mitigation Bank would be established to provide mitigation to compensate for impacts to waters of the United States, including wetlands, within the Corps of Engineers Vicksburg District. The service areas are demarcated by the United States Geologic Survey as hydrologic unit code 08060201 and 08060202 (primary service areas). Decisions authorizing the use of credits from the Mitigation Bank will be made by the appropriate authority on a case by case basis in accordance with all applicable requirements.

Comments on this proposed mitigation bank may be provided to the Corps at the address below. Comments should be received no later than the expiration date of this public notice. The prospectus, which outlines the conceptual plan for the bank, is available at the following website: http://www.mvk.usace.army.mil/Missions/Regulatory/PublicNotices.aspx and is also available for review at the Vicksburg District, Corps of Engineers at the address given below.

Please provide comments to:

U.S. Army Corps of Engineers
Vicksburg District
ATTN: CEMVK- RD
4155 Clay Street
Vicksburg, Mississippi 39183-3485

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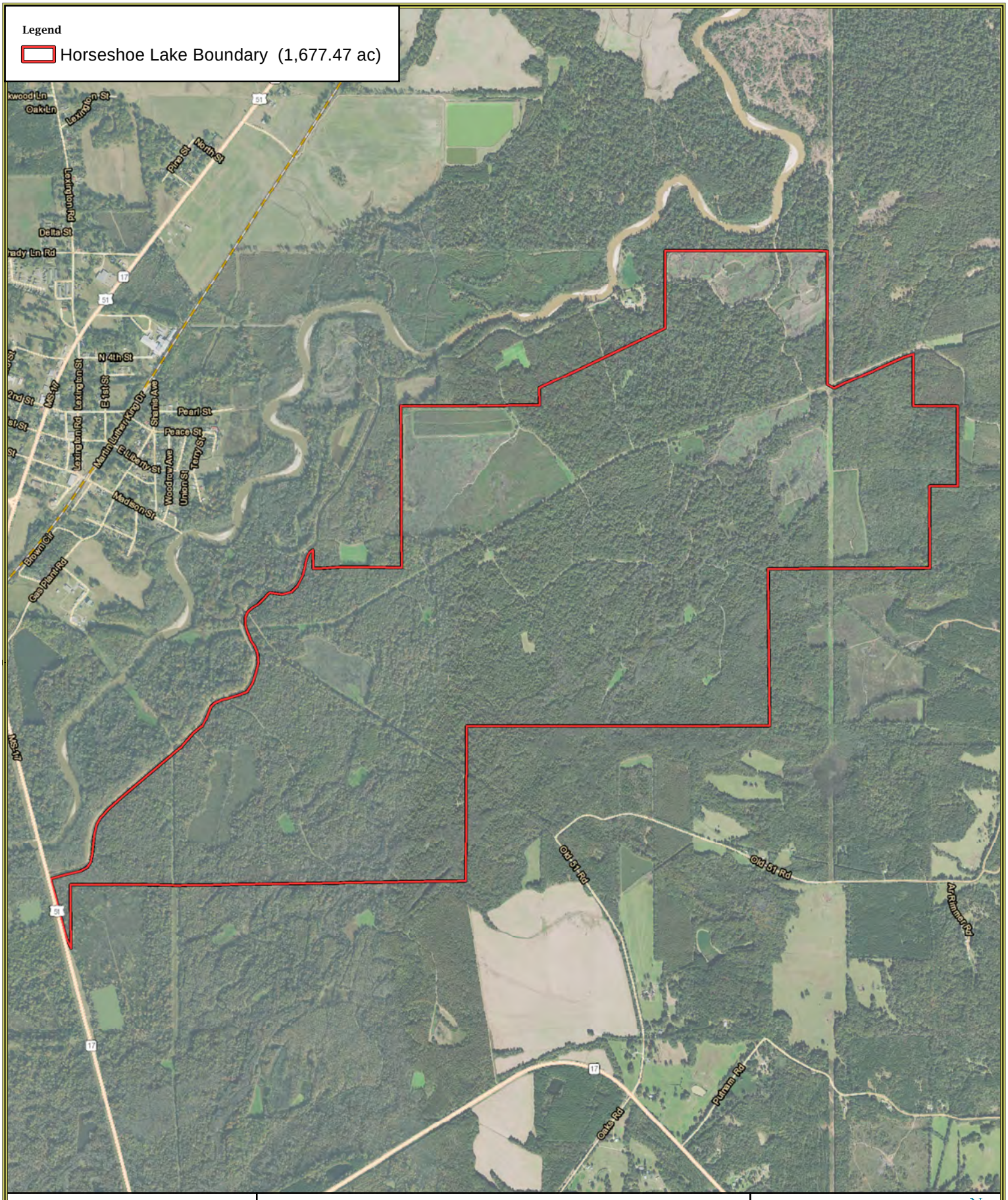
Cori Carraway
Chief, Permit & Evaluation Branch
Regulatory Division

Enclosures



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

Horseshoe Lake Mitigation Bank

Attala & Madison Counties, Mississippi

Figure 3 - Site Location Map

0 1,250 2,500 Feet

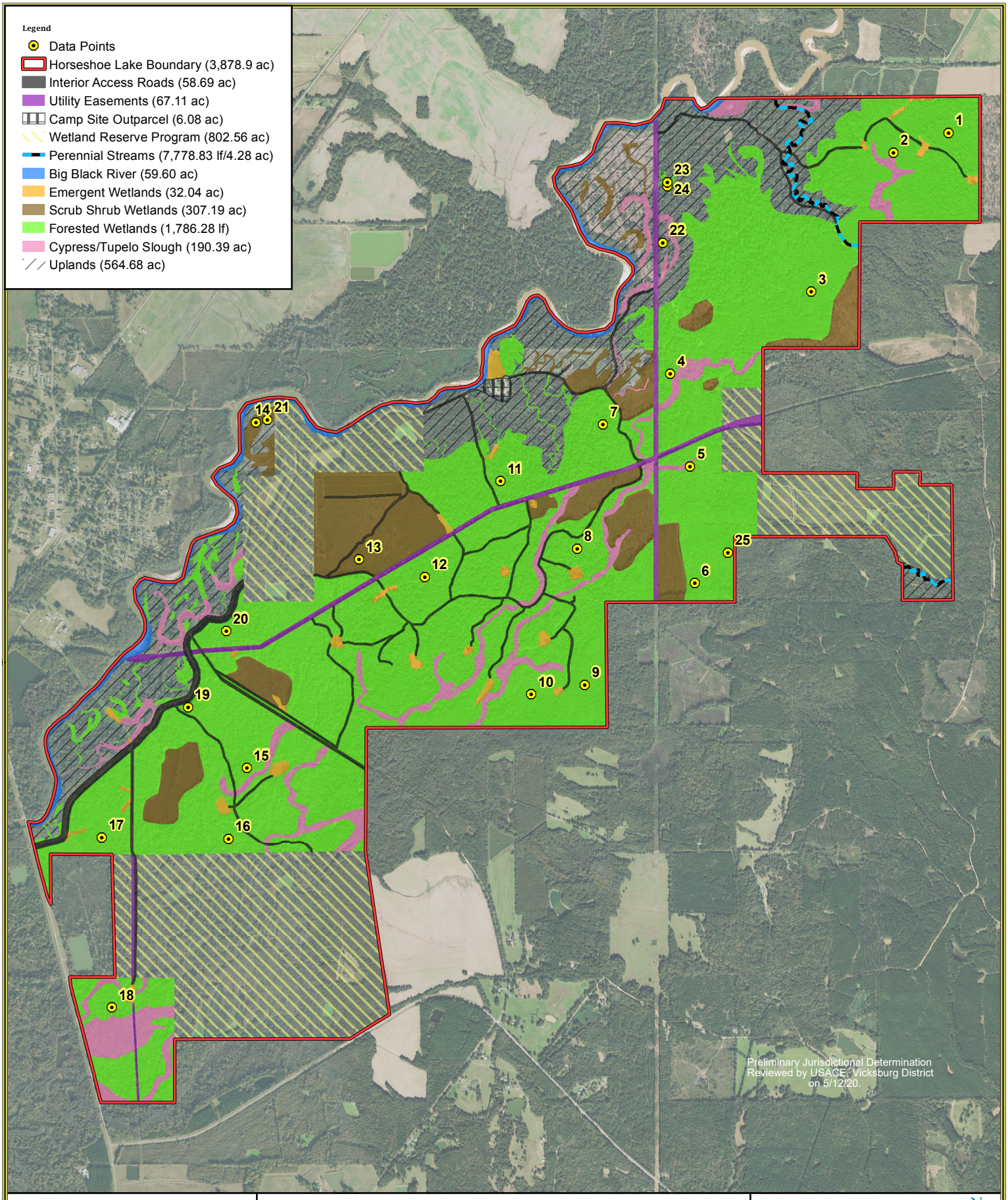
1:25,500

N

NAD 1983 StatePlane Mississippi West FIPS 2302 Feet

USDA NAIP 2018 Imagery Basemap

enclosure 1



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Date Created: 5/8/2020 | Created by: JDL

Horseshoe Lake Mitigation Bank

Attala & Madison Counties, Mississippi

Wetland Location Map

0 1,600 3,200 Feet

1:32,000

N

NAD 1983 StatePlane Mississippi West FIPS 2302 Feet

USDA NAIP 2018 Imagery Basemap

enclosure 2

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.