

# PROSPECTUS

**PROPOSED  
CLOVER CREEK MITIGATION BANK  
HARDEMAN COUNTY, TENNESSEE**

APPROXIMATELY 333± ACRES  
HATCHIE RIVER WATERSHED  
(HUC 08010208)

**SPONSOR:**

Clover Creek MB LLC

**PREPARED BY:**



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**SUBMISSION DATE:**

**April 18, 2023**

**SUBMITTED TO:**

Memphis District Interagency Review Team  
*Representing:*

U.S. Army Corps of Engineers; Memphis District  
U.S. Environmental Protection Agency; Region IV  
U.S. Fish and Wildlife Service  
Tennessee Department of Environment and Conservation

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## INTRODUCTION

This prospectus provides an overview of the proposed Clover Creek Mitigation Bank (Bank) and is the basis for initial public and the Memphis District Interagency Review Team (IRT) review and comment. This prospectus summarizes the current conditions and activities proposed within the Bank site. The 2008 Compensatory Mitigation Rule, Title 33 Code of Federal Regulations (CFR) Parts 332 and 40 CFR Part 230, states that a complete prospectus must include the information, as described below. Information has been organized in this document to follow the “Requirements of a Complete Prospectus” as published on the US Army Corps of Engineers (USACE) Memphis District (MVM) page of the Regulatory In-Lieu Fee and Bank Information Tracking System (RIBITS). See **Table 1** for required elements, supplemental baseline information, and the associated location in this prospectus.

The proposed Clover Creek Mitigation “Bank” is being considered for public and private use to provide compensatory mitigation for USACE permits for unavoidable impacts to Waters of the United States, including stream and wetland impacts which result from activities authorized under Section 404 of the Clean Water Act, and Section 10 of Rivers and Harbor Act, provided such activities have met all applicable requirements and is authorized by appropriate regulatory authorities.

**TABLE 1. REQUIRED ELEMENTS OF A MITIGATION BANK PROSPECTUS**

| INFORMATIONAL ELEMENT  | LOCATION IN DOCUMENT    | PAGE(S)                |
|--|-------------------------|------------------------|
| <b>Contact Information &amp; Ownerships:</b> Bank sponsor, landowners, agent, etc.   | Section I. A            | Page 2                 |
| <b>Qualifications:</b> Demonstration of experience for Sponsor/Sponsor’s Agent to successfully complete the proposed mitigation plan, to include past activities                     | Section I. B            | Page 2                 |
| <b>Project Location and Site Access:</b> Nearest roads/towns, site coordinates, access permissions.  | Section II              | Page 3, Figures        |
| <b>Objectives:</b> explanation of specific functional improvements proposed to aquatic resources.  | Section III             | Pages 3 - 7            |
| <b>Bank Establishment and Operation:</b> Proposed work, performance standards, monitoring efforts, and how objectives will be achieved.  | Section IV              | Pages 8 - 14           |
| <b>Ecological Suitability &amp; Baseline Information:</b> Ecological characteristics of the site; how site will support the planned types of aquatic resources and functions.        | Section V               | Pages 15 – 18, Figures |
| <b>Proposed Service Area:</b> Description and mapping of the area within which the Bank will provide compensatory mitigation.  | Section V.E             | Page 18<br>Figure 13   |
| <b>Need and Feasibility:</b> General explanation for the need of the Bank in the given watershed, o description of the technical feasibility of the proposed bank, site constraints. | Section VI              | Pages 19 - 21          |
| <b>Ownership Arrangements and Long-Term Management:</b> Proposed ownership arrangements and long-term management strategy for the Bank.  | Section VII             | Page 22                |
| <b>Water Rights:</b> Assurance of sufficient rights to support sustainability of the mitigation bank.  | Section VIII            | Page 23                |
| <b>Section 106 and Section 7 Consultation Information</b>  | Section IX<br>Section X | Page 23<br>Pages 24-25 |

**SECTION I. OWNERSHIP AND AGENT**

**A. Ownership and Sponsor**

Clover Creek LLC will own and manage the property for the proposed Bank and Clover Creek MB LLC will act as the Bank Sponsor. Headwaters LLC is acting as the agent. Section VII, within this prospectus, provides further details on the proposed ownership arrangements and long-term management strategy for the site. Qualifications of the agent to successfully complete the types of mitigation proposed, including information on past activities, is also included in Section I, B.

**B. Agent and Agent Qualifications**

The Agent, acting on behalf of the Owner and Sponsor, is Headwaters LLC (Headwaters). The staff at Headwaters has over 120 years of combined experience performing wetland and stream permitting and restoration as well as establishing mitigation banks in the southeast. They are proficient in various stream assessment and design methods, including Rosgen stream classification, The Tennessee Stream Quantification Tool (TN SQT), ecological assessment protocols, and natural channel design. To date, Headwaters has consulted in the successful approval of nine mitigation banks in the southeast, all authorized through the USACE Mobile District (MBM). Select projects relevant to this Prospectus include:

**TABLE 2. MITIGATION BANKING EXPERIENCE OF AGENT**

| <b>BANK NAME<br/>(LOCATION)</b>      | <b>WATERSHED<br/>(HUC8)</b>                      | <b>USACE NUMBER</b> | <b>CREDITS GENERATED</b>                | <b>YEAR MBI<br/>APPROVED</b> |
|--------------------------------------|--|---------------------|---|------------------------------|
| McLemore<br>(Montgomery, AL)         | Lower Tallapoosa<br>(03150110)                   | SAM-2001-3201-MBM   | Stream = 113,894.50<br>Wetland = 337.47 | 2002                         |
| Broadview<br>(Auburn, AL)            | Lower Tallapoosa<br>(03150110)                   | SAM-2008-00328-JSC  | Stream = 180,857.10                     | 2008                         |
| MidCreeks<br>(Eufaula, AL)           | Middle Chattahoochee-<br>WFG Reservoir (3130003) | SAM-2007-00374-ARW  | Stream = 127,839.80<br>Wetland = 224.86 | 2009                         |
| Cahaba River<br>(Brent, AL)          | Cahaba<br>(03150202)                             | SAM-2008-00700-MBM  | Stream = 279,872.52<br>Wetland = 215.32 | 2010                         |
| Wolf Run<br>(Poplarville, MS)        | Mississippi Coastal<br>(03170009)                | SAM-2010-1283-MBM   | Stream = 57,089.65<br>Wetland = 357.69  | 2015                         |
| Broadview (Phase II)<br>(Auburn, AL) | Lower Tallapoosa<br>(03150110)                   | SAM-2010-01469-JSC  | Wetland = 33.5                          | 2016                         |
| Selma Dixon<br>(Selma, AL)           | Cahaba<br>(03150202)                             | SAM-2016-00080-MBM  | Stream = 40, 939.10<br>Wetland = 15.2   | 2018                         |
| Dry Creek<br>(Cleveland, AL)         | Locust Fork<br>(03160111)                        | SAM-2014-01190-MBM  | Stream = 255,783.06                     | 2019                         |
| Bucksnot<br>(Trafford, AL)           | Locust Fork<br>(HUC 03160111)                    | SAM-2018-00539-MBM  | Stream = 98,437.50<br>Wetland = 6.09    | 2021                         |

The contact information for the Agent is:  
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## **SECTION II. PROJECT LOCATION AND SITE ACCESS**

The site is located approximately 2 miles north of Toone, Tennessee, in Hardeman County. A general vicinity map and property boundary from plat map is provided as within **Appendix I** as **Figure 1** (all figures referenced within this Prospectus are located in Appendix I). Site access is achieved via both Melvin Young Road and Overton Loop Road. The entire property owned is approximately 755± acres. The proposed mitigation area within the larger parcel is 333± acres with the central coordinates as latitude 35.389057° and longitude -88.944855°. It is sited within the Lower Clover Creek Watershed, Hydrologic Unit Code 12 (HUC12) 080102080302 of the Lower Hatchie River Watershed, HUC8 08010208. These watersheds are part of the Mississippi River drainage basin, The project is also within the Southeastern Plains of the U.S. Environmental Protection Agency (EPA) Level III Ecoregion.

An aerial photograph identifying the limits of the entire property owned (land ownership map) and a recent aerial view of current site conditions, including all water resources located within the site, is provided as **Figure 2**. A U.S. Geological Survey (USGS) Topographic Quadrangle Map with the property boundary and the limits of the proposed mitigation area within the parent parcel is provided as **Figure 3**. Authorization for USACE and the Tennessee Department of Environment and Conservation (TDEC) to access the site is provided in written documentation from the current property owner, included as **Appendix II**. Representative site photographs are included as **Appendix III**.

## **SECTION III. GOALS AND OBJECTIVES**

### **A. Project Goals**

The primary goal of the proposed Bank is to restore and enhance existing aquatic resources, including streams, associated riparian buffers, and wetlands. This is intended to result in self-sustaining habitats that will achieve the desired ecosystem functionality of the mitigation plan. Overall goals for the proposed Bank include improving existing stream and wetland conditions with rehabilitation actions that;

- a) are effective in dissipating flood energy;
- b) maintain stream channels with stable pattern, profile, and dimension;
- c) ensure streams have access to adequate floodplain during bankfull events;
- d) are ecologically diverse with a variety of in-stream and wetland habitats supporting fish and other wildlife;
- e) are supported by riparian buffers encouraging natural infiltration and sediment deposition processes with minimal occurrence of non-native vegetation;
- f) improve water quality by cessation of agricultural activities, reducing non-point source pollution and sediment contribution;
- g) restore or enhance native plant communities within riparian buffers and wetland areas while minimizing the occurrence and spread of invasive, non-native vegetation;
- h) offer perpetual protection for such resources within the Bank boundary by execution of land use restrictions in the form of a conservation easement.

A further purpose of the Bank will be to provide stream and wetland mitigation credits to satisfy compensatory mitigation requirements for adverse impacts to streams permitted under Section 404/401 of the Clean Water Act. The Bank will generate such credits by restoring, enhancing, and preserving aquatic resources throughout the proposed mitigation area.

In the current condition the proposed Bank contains  $\pm 24,809$  linear feet (LF) of perennial and intermittent streams, including a significant portion of Clover Creek, which serve as tributaries to the Hatchie River. The site also includes over 160 acres of palustrine wetlands. Note; the limits of aquatic resources (stream reaches, associated riparian buffers, independent wetlands) as depicted on the figures, as well as the associated linear footages and acreages described in this prospectus, are subject to change following a completed Waters of the United States (WOTUS) delineation and subsequent USACE jurisdictional determination (JD).

Evidence of historic alteration and degradation through stream channelization and modification, man-made hydrologic impoundments, and extensive conversion of native habitats to agriculture, are present throughout the site. A comprehensive description of current on-site conditions with the proposed Bank is provided in Section V, this prospectus. In summary, stream reaches and wetlands within the proposed Bank site do not display natural attributes typical of the region and may potentially contribute to water quantity and quality concerns in the watershed. These may include, but are not limited to, lack of flood storage, impaired groundwater recharge, turbidity, sedimentation, and increased water temperature.

The goals of the Bank would address such impaired ecosystem functions in the current condition by the re-establishment, rehabilitation, enhancement, and preservation of streams, their associated riparian buffers, and wetland communities within the Bank footprint. A summary of goals and the method in which those goals are intended to be achieved (objectives) is provided, below. The objectives are largely driven by measurable metrics identified in the TDEC Division of Water Resources (DWR) Stream Mitigation Guidelines, as revised May 20, 2019, and the Tennessee SQT User Manual, also revised May 20, 2019.

## **B. Project Objectives**

To achieve desired goals, proposed activities include a series of objectives specific to the unique issues of each aquatic resource. A listing of such objectives is provided in **Table 3**. For streams, the objectives primarily focus on returning impaired and altered watercourses to natural, fully functional channels with the appropriate pattern, profile, and dimension. For riparian buffers, these areas are to be re-established with native, desirable vegetation with minimal non-native or exotic species, preserved in perpetuity. In regards to wetlands, objectives emphasize eliminating agriculture activities, restoring converted farmlands to more native palustrine conditions, and perpetual preservation. Benefits of these activities include an increase in the diversity and availability of important aquatic and semi-aquatic habitats and niches, such as areas for feeding and refugia, spawning, and nursery sites for a variety of fish and wildlife, including amphibious species. These proposed activities will enhance the quality and ecological function of aquatic resources within the Bank site, Clover Creek and the Lower Hatchie River Watersheds. Examples of objectives within the proposed Bank are:

- a. Restore stable stream dimensions, patterns, and profiles using natural channel design techniques;
- b. Improve stream hydraulics and hydrology by removing culverts, farm ponds, and other man-made impoundments on-site, as possible;
- c. Decrease channel velocities by increasing sinuosity and improving floodplain connectivity;
- d. Establish, enhance, and/or preserve riparian buffers (200-ft minimum for perennial streams and 100-ft minimum for intermittent streams) on either side of each stream reach with native vegetation to provide shade, increase stream bank stability, nutrient filtration, and habitat;
- e. Eliminate agricultural activities within riparian buffers and independent wetland areas;
- f. Re-plant buffers or wetlands converted to agriculture with native, ecoregion-appropriate vegetation;
- g. Protect all mitigation areas with a conservation easement (CE) that include land use restrictions.

**TABLE 3. GOALS AND OBJECTIVES FOR ON-SITE AQUATIC RESOURCES**

| STREAM ID                     | GOALS  | OBJECTIVES   |
|-------------------------------|--|--|
| <b>WETLAND A</b>              | Reduce nutrient and sediment input from upstream stream discharges. Improve vegetative community and preserve wetland habitat.   | Eliminate agricultural activities within wetland areas. Re-plant converted wetlands with native wetland vegetation appropriate for the ecoregion and manage for non-native, invasive vegetation. Execute land use restrictions that prevent development, agriculture, silviculture, or similar activities.                             |
| <b>CLOVER CREEK</b>           | Reduce nutrient and sediment input from upstream stream discharges and preserve riparian habitats.                               | Preserve a minimum 200ft riparian buffer along both Stream Bank Right and Left. Execute land use restrictions that prevent development, agriculture, silviculture, or similar activities.  |
| <b>STREAM A REACHES 1 – 3</b> | Reduce nutrient and sediment input from lateral drainage areas. Improve riparian habitat and associated stormwater infiltration. | Establish a minimum 200ft riparian buffer on either side of all reaches. Eliminate agricultural activities within buffers and replant with native tree and shrub species. Achieve a minimum 0.90 SQT Index Value for Riparian Vegetation and SQT Stormwater Infiltration Field Value of $\geq 0.80$ .                                  |
|                               | Improve floodplain connectivity and channel sinuosity.   | Design and construct stable channel dimensions, patterns and profiles to achieve a Bank Height Ratio (BHR) of 1.0 and an Entrenchment Ration (ER) of $\geq 5$ . Sinuosity to increase to 1.2 - 1.3. Braided system, that interconnects with Stream C, to be explored during draft stream design.                                       |
|                               | Restore bedform diversity and restore physical habitat for aquatic invertebrates, fish, other aquatic / semi-aquatic wildlife.   | Restore natural pool-pool spacing & % riffle habitat, as appropriate. Restore habitats by use of LWD, rock & other structures, as needed. Install a minimum 30 pieces LWD / 330 lf.  |
|                               | Improve lateral stability and reduce sediment supply from eroding stream banks.  | Re-establish bank vegetation through seeding and/or native planting. Stream structures and coconut coir matting shall be utilized to provide reduction of erosion/sedimentation, grade control, natural armoring of bends, and habitat. The proposed channel shall achieve a dominant BEHI/NBS score of L/L or less.                   |
| <b>STREAM B R1, R2</b>        | Reduce nutrient and sediment input from lateral drainage areas. Improve riparian habitat and associated stormwater infiltration. | Establish a minimum 200ft riparian buffer on either side of both reaches. Eliminate agricultural activities within buffers and replant with native tree and shrub species. Achieve a minimum 0.90 SQT Index Value for Riparian Vegetation and Stormwater Infiltration Field Value of $\geq 0.80$ , STR-B R1, and $\geq 0.85$ STR-B R2. |
|                               | Improve floodplain connectivity and channel sinuosity.   | Design and construct stable channel dimensions, patterns and profiles to achieve a BHR of 1.0 and an ER of at least 5. Sinuosity to increase to 1.2 - 1.3  |
|                               | Restore bedform diversity and restore physical habitat for aquatic invertebrates, fish, other aquatic / semi-aquatic wildlife.   | Restore natural pool-pool spacing & % riffle habitat, as appropriate. Restore habitats by use of LWD, rock & other structures, as needed. Install a minimum 30 pieces LWD / 330 lf.  |
|                               | Improve lateral stability and reduce sediment supply from eroding stream banks.  | Re-establish bank vegetation through seeding and/or native planting. Stream structures and coconut coir matting shall be utilized to provide reduction of erosion/sedimentation, grade control, natural armoring of bends, and habitat. The proposed channel shall achieve a dominant BEHI/NBS score of L/L or less.                   |
|                               | Restore natural hydrologic connectivity and flow. Reduce barriers to aquatic organisms.  | Remove culverts along stream reaches that serve as obstruction to natural flow regimes and barriers to fish and other aquatic organism passage.  |

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**TABLE 3. GOALS AND OBJECTIVES FOR ON-SITE AQUATIC RESOURCES (CONTINUED)**

| STREAM ID   | GOALS   | OBJECTIVES   |
|---|---|--|
| <b>STREAM C</b>   | Reduce nutrient and sediment input from lateral drainage areas. Improve riparian habitat and associated stormwater infiltration.              | Establish a minimum 200ft riparian buffer along both Stream Bank Right and Left. Eliminate agricultural activities within buffer, replant with native tree and shrub species. Achieve minimum 0.90 SQT Index Value for Riparian Vegetation; Stormwater Infiltration Value of $\geq 0.80$ .   |
|   | Improve floodplain connectivity and channel sinuosity.  | Design and construct stable channel dimensions, patterns and profiles to achieve a BHR of 1.0 and an ER of at least 5. Sinuosity to increase to 1.2 - 1.3. Braided system, that interconnects with Stream A R3, to be explored during draft stream design.   |
|   | Restore bedform diversity and restore physical habitat for aquatic invertebrates, fish, other aquatic / semi-aquatic wildlife.                | Restore natural pool-pool spacing & % riffle habitat, as appropriate. Restore habitats by use of LWD, rock & other structures, as needed. Install a minimum 30 pieces LWD / 330 lf.  |
|   | Improve lateral stability and reduce sediment supply from eroding stream banks.   | Re-establish bank vegetation through seeding and/or native planting. Stream structures and coconut coir matting shall be utilized to provide reduction of erosion/sedimentation, grade control, natural armoring of bends, and habitat. The proposed channel shall achieve a dominant BEHI/NBS score of L/L or less.                       |
|   | Restore natural hydrologic connectivity and flow. Reduce barriers to aquatic organisms.   | Remove earthen barriers and culverts along stream reach that serve as obstruction to natural flow regimes and barriers to fish and other aquatic organism passage.   |
| <b>STREAM D<br/>STREAM E<br/>STREAM F R2<br/>STREAM H<br/>STREAM I R2<br/>STREAM J<br/>STREAM K</b> | Reduce nutrient and sediment input from lateral drainage areas. Improve riparian habitat and associated stormwater infiltration.              | Establish a minimum 100ft riparian buffer along both Stream Bank Right and Left of all reaches. Eliminate agricultural activities within buffers and replant with native tree and shrub species. Achieve minimum 0.90 SQT Index Value for Riparian Vegetation and SQT Stormwater Infiltration Field Value of $\geq 0.85$ .                 |
|   | Improve floodplain connectivity and channel sinuosity.  | Design and construct stable channel dimensions, patterns and profiles to achieve a BHR of 1.0 and an ER of at least 5. Sinuosity to increase to 1.2 -1.3.  |
|   | Restore bedform diversity and restore physical habitat for aquatic invertebrates, fish, other aquatic / semi-aquatic wildlife.                | Restore natural pool-pool spacing & % riffle habitat, as appropriate. Restore habitats by use of LWD, rock & other structures, as needed. Install a minimum 30 pieces LWD / 330 lf.  |
|   | Improve lateral stability and reduce sediment supply from eroding stream banks.   | Re-establish bank vegetation through seeding and/or native planting. Stream structures and coconut coir matting shall be utilized to provide reduction of erosion/sedimentation, grade control, natural armoring of bends, and habitat. Proposed channel to achieve a dominant BEHI/NBS score of M/M or less.                              |
|   | Restore natural hydrologic connectivity and flow. Reduce barriers to aquatic organisms.   | Remove culverts, farm ponds, and/or earthen barriers within stream reach that serve as an obstruction to natural flow and barriers to fish and other aquatic organism passage.   |
| <b>STREAM G<br/>STREAM F R1<br/>STREAM I R1</b>   | Reduce nutrient and sediment input from upstream stream discharges and preserve riparian habitats to reduce sediment inputs and bank erosion. | Preserve a minimum 100ft riparian buffer along both Stream Bank Right and Left. Achieve a minimum 0.90 SQT Index Value for Riparian Vegetation. Improve lateral stability and reduce percent stream bank erosion by at least 5%. Execute land use restrictions that prevent development, agriculture, silviculture, or similar activities. |

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**TABLE 3. GOALS AND OBJECTIVES FOR ON-SITE AQUATIC RESOURCES (CONTINUED)**

| STREAM ID                       | GOALS   | OBJECTIVES   |
|---------------------------------|---|--|
| <b>STREAM L</b>                 | Reduce nutrient and sediment input from lateral drainage areas. Improve riparian habitat and associated stormwater infiltration.              | Establish a minimum 100ft riparian buffer either side of both streams. Eliminate agricultural activities within buffer and replant with native tree and shrub species. Achieve a minimum 0.90 SQT Index Value for Riparian Vegetation; Stormwater Infiltration Value of $\geq 0.80$ .  |
|                                 | Restore floodplain connectivity and channel sinuosity.  | Design and construct stable channel dimensions, patterns and profiles to achieve a BHR of 1.0 and an ER of at least 5. Sinuosity restored to 1.2 – 1.3. Braided system, that interconnects with Stream A R2, to be explored during draft stream design.  |
|                                 | Restore bedform diversity physical habitat for aquatic invertebrates, fish, and other aquatic / semi-aquatic wildlife.                        | Restore natural pool-pool spacing & % riffle habitat, as appropriate. Restore habitats by use of LWD, rock & other structures, as needed. Install a minimum 30 pieces LWD / 330 lf.  |
|                                 | Design a stable stream and reduce sediment supply from eroding stream banks.  | Re-establish bank vegetation through seeding and/or native planting. Stream structures and coconut coir matting shall be utilized to provide reduction of erosion/sedimentation, grade control, natural armoring of bends, and habitat. Proposed channel shall achieve dominant BEHI/NBS score of M/M or less.                             |
| <b>STREAM M REACH 1 &amp; 2</b> | Reduce nutrient and sediment input from lateral drainage areas. Improve riparian habitat and associated stormwater infiltration.              | Establish a minimum 100ft riparian buffer along both reaches. Eliminate agricultural activities within buffers and replant with native tree and shrub species. Achieve a minimum 0.90 SQT Index Value for Riparian Vegetation and SQT Stormwater Infiltration Field Value of $\geq 0.85$ .   |
|                                 | Improve floodplain connectivity and channel sinuosity.  | Design and construct stable channel dimensions, patterns and profiles to achieve a BHR of 1.0 and an ER of at least 5. Sinuosity to increase to 1.2 -1.3.  |
|                                 | Restore bedform diversity and restore physical habitat for aquatic invertebrates, fish, other aquatic / semi-aquatic wildlife                 | Restore natural pool-pool spacing & % riffle habitat, as appropriate. Restore habitats by use of LWD, rock & other structures, as needed. Install a minimum 30 pieces LWD / 330 lf.  |
|                                 | Improve lateral stability and reduce sediment supply from eroding stream banks.   | Re-establish bank vegetation through seeding and/or native planting. Stream structures and coconut coir matting shall be utilized to provide reduction of erosion/sedimentation, grade control, natural armoring of bends, and habitat. Proposed channel shall achieve dominant BEHI/NBS score of M/M or less.                             |
|                                 | Restore natural hydrologic connectivity and flow. Reduce barriers to aquatic organisms.   | Remove earthen barriers within stream reach that serve as an obstruction to natural flow and barriers to fish and other aquatic organism passage.  |
| <b>STREAM N<br/>STREAM O</b>    | Reduce nutrient and sediment input from upstream stream discharges and preserve riparian habitats to reduce sediment inputs and bank erosion. | Preserve a minimum 100ft riparian buffer along both Stream Bank Right and Left. Achieve a minimum 0.90 SQT Index Value for Riparian Vegetation. Improve lateral stability and reduce percent stream bank erosion by at least 5%. Execute land use restrictions that prevent development, agriculture, silviculture, or similar activities. |

## SECTION IV. MITIGATION BANK ESTABLISHMENT

The Bank Sponsor will be responsible for preparing a Mitigation Banking Instrument (MBI) to establish the specific management plan for the proposed Bank. The MVM IRT, comprised of individuals from state and federal agencies, will act as the approval and oversight board for the MBI. As part of the final MBI, the proposed Bank site will be recorded in a CE and held by a third-party entity with enforcement rights. The work within the proposed Bank will be executed by experienced contractors, with oversight by the Sponsor's Agent. Additionally, the mitigation approach for the Bank will be designed in accordance with the TDEC DWR Stream Mitigation Guidelines, as revised May 20, 2019, and the Tennessee SQT User Manual, also revised May 20, 2019.

### A. Type of Work Proposed

A comprehensive conceptual development plan, depicting the proposed mitigation management areas and activities within the site, has been included as **Figure 4**. Specific descriptions of the work required to conduct these activities can be provided after the site inspection with members of the IRT. After feedback and input from agency staff, a more defined work plan that is supported by agency guidance can be drafted. At this time, the mitigation activities proposed for the proposed Bank site include four distinct forms of compensatory mitigation methods as herein described:

- (i) **Stream re-establishment**; the manipulation of a former natural stream channel with the goal of returning the historic physical, chemical, and/or biological functions to the aquatic resource. Re-establishment essentially results in rebuilding a degraded or impounded stream and results in a gain in aquatic resource area and resource functions. For the proposed Bank, re-establishment activities may include, but are not limited to, the designing and construction of stable streams that exhibit appropriate channel dimensions, patterns, profiles, bedform diversity, and physical habitats appropriate for the ecoregion.
- (ii) **Stream and riparian buffer rehabilitation**; the manipulation of the physical, chemical, or biological characteristics of a stream and/or a riparian buffer resource with the goal of repairing degraded natural/historic functions. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area. For the proposed Bank, rehabilitation activities may include, but are not limited to, augmenting stream channels with structures made from natural materials to help reduce bank erosion and improve in-stream habitats. Rehabilitation actions within riparian buffers will include cessation of agricultural practices and the re-planting of such areas with native tree, shrub, and herbaceous vegetation to return degraded buffers to functioning riparian habitats.
- (iii) **Riparian buffer enhancement**; includes activities intended to modify the existing physical and biological characteristics of these aquatic resources to heighten, intensify, or improve specific ecological function(s). Enhancement activities improve ecosystem values of a given resource but do not result in a gain in aquatic resource area. For the proposed Bank, enhancement activities will include the removal of invasive or non-native vegetation, supplemental native vegetation planting, as needed, and vegetative monitoring.
- (iv) **Stream, riparian buffer, and wetland preservation**; includes actions that remove threats to, or prevents the decline of, aquatic resources. Preservation does not result in a gain of aquatic resource area or functions. For the proposed Bank, preservation will be enacted through the execution of a CE that will offer perpetual protection for the associated aquatic resources. The CE will include land use restrictions preventing development, agriculture, silviculture, or similar activities within the Bank boundary.

## **B. Establishing Ecological Performance Standards**

The 2008 Compensatory Mitigation Rule provides that ecological performance standards for any proposed mitigation activity must be directly associated with the objectives identified by the project. In addition, performance standards must be “verifiable and based on the best available science”. Additionally, such standards should consider the anticipated stages of the proposed aquatic resource improvement and strategies for adaptive management. In this case, to successfully meet goals and objectives for the mitigation activities proposed, the most recently accepted methodologies, protocols and performance standards recommended by the MVM IRT will be implemented in the design and work for all proposed mitigation activity components of the proposed Bank addition. The use of reference aquatic resources (high quality streams, riparian buffers, and wetlands that are representative of the ecoregion) will also be employed, as requested by the IRT, to establish appropriate, site-specific performance standards.

Performance standards for aquatic resources within the Bank site will be documented with routine monitoring. Monitoring will be conducted by the bank Sponsor or authorized agent. Monitoring will also be used as a measure to determine if adaptive management strategies should be implemented in the event the Bank is not meeting expected standards. The Bank will be monitored annually during construction and establishment and also for a period of at least five years after final construction and planting. It is understood that extending the monitoring period beyond the five year minimum may be required depending on the resource type selected for mitigation activities (e.g., forested wetlands, riparian corridors, bottomland hardwood forests). Upon a determination by the Corps and IRT that performance standards have not been met, the monitoring period may be extended. The IRT may also revise monitoring requirements when remediation and/or when an adaptive management plan are required.

Maintenance activities will be conducted, as needed within each aquatic resource mitigation area, based upon data collected during monitoring events and the consistency with established performance metrics. Maintenance will include any activities necessary to improve and sustain the ecological functions within the site that have been identified in the approved MBI

### ***i. Performance Standards – Streams and Riparian Buffers***

Restoration methods shall adhere to the Rosgen natural channel design process as well as the guidance described in the TDEC DWR Stream Mitigation Guidelines (May 20, 2019), and regional data from the "Tennessee Reference Stream Morphology and Large Woody Debris Assessment", supplemented with parameters collected from nearby reference reaches. Performance standards for streams and riparian buffers within the Bank site will include the following types of metrics as identified in the 2019 TDEC DWR guidelines:

1. Quantitative Assessments - The TN SQT will be used to establish existing and proposed conditions for improvements at the Bank site. This method will identify the metrics proposed for improvements to each discrete stream reach as associated performance standards specific to that reach. This method provides documentation of pre-project existing conditions followed by subsequent monitoring events to document the stream function improvements that occur as a result of mitigation activities.

2. As-built surveys - Post-construction plans, or “as-builts”, will be submitted for specific areas within the proposed Bank immediately following construction to document post-construction conditions. As-built reports will be submitted within 6 months of project construction. As-builts are not required for preservation areas, however. Depending on the type of work proposed for a given stream reach or buffer, the following information will be included with a provided As-built:
  - photo documentation at all cross sections and structures;
  - a plan view survey;
  - a longitudinal profile;
  - vegetation plot information (type, number and location of species planted);
  - documentation of compliance with special signage or deed restrictions;
  - location data including upstream and downstream coordinates of the reach and buffer width.
  
3. Visual Inspections – During each monitoring event a thorough visual inspection of the stream channel, banks and associated riparian corridors will be conducted. Any areas of concern, such as low stem density, poor plant vigor, exotic invasive species, indicators of livestock access, stream instability, or other areas of concern are to be documented. A brief narrative of the assessment will be included in applicable monitoring reports. Areas of concern requiring action shall be identified on a plan view of the site, with photographs, and with a description of the issue. In general, repairs will be required when stream stability issues are identified that continue to worsen, pose a threat to other portions of the stream (headcuts, etc.), or are symptomatic of more serious issues with the design and/or construction of the project.
  
4. Riparian Buffer Vegetation Standards – Vegetation within proposed buffers should include native woody (trees and shrubs) and herbaceous species. Stem densities and specific plant communities will be determined on a project by project basis. Use of a reference forest type, which includes target species for reforestation and replanting, will be selected based on canopy, subcanopy and shrub species appropriate for the ecoregion and approved by the IRT. Performance standards for riparian vegetation will adhere to the following metrics:
  - Buffers should contain less than 5% areal coverage of species identified on the Tennessee Invasive Exotic Plant List ([www.tneppc.org](http://www.tneppc.org).) throughout the monitoring period;
  - No contiguous areas greater than 200 square feet should be vegetated with more than 50% relative areal coverage of invasive species at the end of the monitoring period;
  - No species may comprise more than 30% of the total planted trees.

**ii. Performance Standards - Wetlands**

Although no Bottomland Hardwood (BLH) restoration is proposed within the Bank site at this time, all wetland management activities will be planned and conducted in accordance with technical guidance approved by the IRT. An additional resource for wetland enhancement and management planning includes "A Guide to Bottomland Hardwood Restoration" a U.S. Department of Agriculture, Forest Service (USDA-FS) Southern Research Station publication. This guide provides proven techniques for successful restoration, rehabilitation and management of BLH forests such as species selection based on topography, soils and hydrology, seeding and planting of seedlings, and contingency planning.

There are some specific parameters for wetland vegetation that will be established for measuring performance. These will be modeled after the metrics for riparian buffer vegetation for consistency in documentation, monitoring, and reporting. These include;

- Vegetation within wetland management polygons will be based upon reference wetland types with species appropriate for the ecoregion and approved by the IRT;
- Wetland management polygons should contain less than 5% areal coverage of species identified on the Tennessee Invasive Exotic Plant List ([www.tneppc.org](http://www.tneppc.org).) throughout the monitoring period;
- No contiguous areas greater than 200 square feet should be vegetated with more than 50% relative areal coverage of invasive species at the end of the monitoring period.

Prior to detailed wetland enhancement planning, self-sustaining wetland reference sites will be selected to identify target community types specific for the local area. Site hydrology and topography will also be carefully evaluated. The development of the final wetland enhancement plan will consider guidance from the BLH Success Criteria and the USDA-FS, data collected from local reference wetlands, and hydrologic and topographic variations within the Bank site. This will allow the most appropriate species to be selected for various elevations and soil moisture conditions throughout the wetland enhancement areas and promote a higher probability of mitigation activity success.

Designated vegetative monitoring plots will be established to evaluate vegetative health and community composition, documentation of wildlife utilization, and estimations of percent cover by nuisance and exotic species will be documented. Monitoring reports will be utilized in determining whether established performance standards are being met. Maintenance activities will be conducted, as needed, within each wetland management polygon based upon monitoring data collected. Maintenance will include any activities necessary to improve and sustain the ecological functions within the site that have been identified in the approved MBI. These may include, but are not limited to, introduction of prescribed fire, tree planting, and application of mechanical and chemical means to control and eliminate exotic and nuisance species.

### C. Establishing Functional Lift

#### *i. Functional Lift - Streams and Riparian Buffers*

The TN SQT will be used to establish baseline function scores for each stream reach, as follows,

- Not Functioning - Index value is less than 0.3
- Functioning at Risk - Index value between 0.3 and 0.7
- Functioning - index scores are 0.7 or greater

In the current condition, a cursory review of the site using a rapid application of the TN SQT workbook indicates that the stream reaches and/or their associated riparian buffers proposed for re-establishment, rehabilitation, or enhancement are not-functioning, or functioning at risk, based on low index scores for stormwater infiltration, floodplain connectivity, geomorphology, lateral migration, LWD, bedform diversity, sinuosity and riparian vegetation.

In the proposed condition, all stream reaches within the proposed Bank site will achieve a “Functioning” status in four(4) stream parameters; floodplain connectivity, lateral migration, riparian vegetation, and bedform diversity, as required by the 2019 TDEC Stream Mitigation Guidelines. This will be achieved by establishing a proper geomorphology (dimension, pattern, and profile) based on dimensionless ratios, regional curve and reference reach data. The exception to this may be Clover Creek.

Earthen dams, culverts, farm ponds and other man-made impoundments will be removed, facilitating natural hydrologic connectivity and stream flow and removing obstacles to aquatic organisms. Both BHR and ER will be improved, thereby restoring floodplain connectivity. Geomorphology will further be supported by the installation of LWD, rock, and other in-stream structures. Bedform diversity will be restored via establishing proper sinuosity, appropriate pool-to-pool spacing, percent riffle and pool habitats. The riparian vegetation parameter of the geomorphology function will be lifted to functioning by executing a proposed conservation easement over all riparian buffer areas, expanding the minimum buffer width to 200ft on either side of perennial streams and 100ft on either side of intermittent streams, planting native vegetation within the expanded riparian buffers, and conducting invasive vegetation management and monitoring.

Under the current assessment, the proposed Bank contains 24,809 LF of streams considered for mitigation activities. The approximate existing functional condition and proposed mitigation activities for individual stream reaches within the Bank site are identified in **Table 4**. It should be noted that the limits of the streams and riparian buffers depicted on the figures and the associated linear footages in this prospectus are subject to change following a completed WOTUS delineation and USACE JD. Additionally, the estimated functional feet of stream mitigation credits will be finalized at the conclusion of the stream restoration design process.

**TABLE 4. PROPOSED STREAM AND RIPARIAN BUFFER MITIGATION**

| <b>STREAM ID</b>   | <b>EXISTING CONDITION STATUS</b> | <b>PROPOSED MITIGATION ACTION</b> | <b>PROPOSED CONDITION STATUS</b> | <b>CURRENT LF</b> | <b>PROPOSED LF</b> |
|--|----------------------------------|-----------------------------------|----------------------------------|-------------------|--------------------|
| STREAM A R1-R3   | Not Functioning                  | Re-Establishment                  | Functioning                      | 7912              | 9400               |
| STREAM B R1-R2   | Not Functioning                  | Re-Establishment                  | Functioning                      | 3066              | 3671               |
| STREAM C   | Not Functioning                  | Re-Establishment                  | Functioning                      | 1373              | 1647               |
| STREAM D   | Functioning At Risk              | Re-Establishment                  | Functioning                      | 590               | 649                |
| STREAM E   | Functioning At Risk              | Re-Establishment                  | Functioning                      | 370               | 407                |
| STREAM F R2  | Functioning At Risk              | Re-Establishment                  | Functioning                      | 237               | 285                |
| STREAM H   | Functioning At Risk              | Re-Establishment                  | Functioning                      | 358               | 430                |
| STREAM I R2  | Not Functioning                  | Re-Establishment                  | Functioning                      | 150               | 180                |
| STREAM J   | Not Functioning                  | Re-Establishment                  | Functioning                      | 334               | 880                |
| STREAM K   | Not Functioning                  | Re-Establishment                  | Functioning                      | 323               | 388                |
| STREAM L   | Not Functioning                  | Re-Establishment                  | Functioning                      | 1634              | 1797               |
| STREAM M R1  | Functioning At Risk              | Rehabilitation                    | Functioning                      | 527               | 527                |
| STREAM M R2  | Not Functioning                  | Re-Establishment                  | Functioning                      | 935               | 1122               |
| <b>TOTAL LF FOR RESTORATION</b>  |                                  |                                   |                                  | <b>17,809</b>     | <b>21,383</b>      |
| CLOVER CREEK   | Functioning At Risk              | Preservation                      | Functioning At Risk              | 4153              | 4153               |
| STREAM G   | Functioning                      | Preservation                      | Functioning                      | 248               | 248                |
| STREAM F R1  | Functioning                      | Preservation                      | Functioning                      | 288               | 288                |
| STREAM I R1  | Functioning                      | Preservation                      | Functioning                      | 621               | 621                |
| STREAM N   | Functioning                      | Preservation                      | Functioning                      | 1362              | 1362               |
| STREAM O   | Functioning                      | Preservation                      | Functioning                      | 328               | 328                |
| <b>TOTAL LF FOR PRESERVATION<br/>(~ 3% of Total Stream Mitigation)</b> |                                  |                                   |                                  | <b>7,000</b>      | <b>7,000</b>       |
| <b>GRAND TOTAL LINEAR FEET</b>   |                                  |                                   |                                  | <b>24,809</b>     | <b>28,383</b>      |



**ii. Functional Lift - Wetlands**

As described in the goals for the proposed Bank, there are specific objectives for the dedicated wetland preservation areas, those located outside of the riparian buffers that are intended to generate wetland mitigation credits. These areas include Wetland A North and Wetland A South. These two management areas are separated by Clover Creek and its associated riparian buffer (200 foot buffer on either side of the stream). Clover Creek and its buffer are to be assessed and monitored separately for functional lift, as described in the previous subsection.

Ultimately, it is expected for both Wetland A North and South that the Bank will achieve a diverse, highly functional palustrine systems, with both emergent and forested wetland classes (Cowardin, et al. 1979) that supports negligible amounts of invasive vegetation. Wetland credits will be generated through the cessation of agricultural activities, re-planting wetlands converted to farmlands with native, desirable species appropriate for the ecoregion, and removal of non-native, invasive vegetation. It should be noted that the limits of the wetland management polygons depicted on the figures and the associated acreage in this prospectus are subject to change following a completed wetland delineation and USACE JD.

The Wetland Rapid Assessment Procedure (WRAP) will be used to establish proposed wetland mitigation credits. In concept, wetland credits will be derived through the preservation and enhancement of approximately 160 acres of wetlands, which currently consist of some agricultural fields and large expanses of both freshwater emergent and forested wetlands. **Table 5** provides a general description and acreage for the Wetland A management polygons.

**TABLE 5. PROPOSED WETLAND MITIGATION**

| <b>WETLAND MANAGEMENT POLYGON</b> | <b>CURRENT USE OR HABITAT</b>  | <b>MITIGATION TYPE</b>        | <b>ACREAGE*</b> |
|-----------------------------------|--|-------------------------------|-----------------|
| WETLAND A NORTH                   | Palustrine Wetlands<br>(Emergent and Forested)                         | Preservation                  | 58.1            |
| WETLAND A SOUTH                   | Agricultural Fields,<br>Palustrine Wetlands<br>(Emergent and Forested) | Enhancement &<br>Preservation | 102.5           |
| <b>TOTAL</b>                      |  |                               | <b>160.6*</b>   |

\*Wetland Polygon acreages will be adjusted following the USACE jurisdictional determination.

## SECTION V. ECOLOGICAL SUITABILITY

### A. Historical Land Use

Historical aerial imagery of the site (**Figures 5 – 9**) confirm the property has been continuously used for agricultural purposes (row crops and hay cultivation) for greater than 70 years. Farming activities, the removal of native riparian vegetation, the relocation and straightening of stream channels to facilitate land improvements have all contributed to the degradation of on-site streams and wetlands through habitat alteration, man-made impoundments, siltation, nonpoint source pollution, and loss of productive habitat.

### B. Adjacent Land Uses

The location surrounding the proposed Bank site is characterized by rural communities in a slow growth area. Land uses in the Clover Creek Watershed are primarily agricultural (livestock pasture, hay cultivation, green fields, and row crops) with an approximately equal distribution of native hardwood forests. Some minor silviculture (planted pine) land use is also present. Within the catchments for the stream reaches on the Bank site, there are minimal roads and a few single-family residences, rural homesteads, and farming operations. Impervious surfaces account for less than 10% coverage in the Clover Creek Watershed.

### C. Current Conditions Summary

In the present state, the proposed Bank site contains a connected matrix of emergent and forested wetlands, perennial, and intermittent streams surrounded by a rural landscape of agricultural fields and mixed hardwood forests. Representative site photographs are provided as **Appendix III**. “Stream A” is the central perennial branch within the subject site. It receives discharges from several unnamed tributaries along its course until making confluence with an expansive wetland system (~160 acres) at the northern aspect of the site. This wetland area (Wetland A) comprises a large part of the floodplain for Clover Creek. Approximately 4,153 LF of Clover Creek also occurs within the proposed Bank footprint. This named perennial stream flows east to west and has confluence with the Hatchie River approximately 5 miles west of the Bank boundary.

Stream reaches within the Bank site were preliminarily assessed using TN SQT rapid assessment methods. Characteristics of most streams channelization, entrenchment, impoundment (culverts, farm ponds), eroding banks, poor or inconsistent stream bed diversity, and riparian buffers that are either absent, minimal in width, and/or support non-native vegetation. Data forms associated with the SQT assessment can be made available to the IRT during the prospectus phase of the project, as needed. All watercourses within the proposed Bank were classified as streams through a Tennessee Hydrologic Determination (HD). The completed HD forms for each reach can also be provided to the IRT upon request and/or finalization of this draft prospectus.

Preliminary SQT field measurements have yielded BHR exceeding 1.5, indicating loss of floodplain connectivity. Channel depths were also noted to significantly exceed predicted values using established ecoregional data found in “Tennessee Reference Stream Morphology and Large Woody Debris Assessment”. Visual inspections of actively eroding banks provided estimates of H/H to VH/VH with respect to BEHI/NBS methodology. Similarly, a significant portion of riparian buffers and independent wetlands have also been subject to extensive alteration such as conversion to row crops, artificial drainage, and removal of native vegetation. For those areas retaining vegetation, the presence of non-native species, considered “established threat” pest plants by the Tennessee Invasive Plant Council (<https://www.tnipc.org>), were documented. These include lespedeza (*Lespedeza cuneata*), Chinese privet (*Ligustrum sinense*), Japanese stiltgrass (*Microstegium vimenium*), beefsteak plant (*Perilla frutescens*), and some limited areas of kudzu vine (*Pueraria montana*).

*i. Soils*

The U.S. Department of Agriculture (USDA) National Resources Conservation Service (NRCS) Web Soil Survey (<http://websoilsurvey.nrcs.usda.gov>) was consulted for data on soil mapping and classification for the proposed Bank site (**Figure 10**). **Table 6** lists the NRCS soil map units identified within the subject site and provides information on the associated hydrologic rating, hydric soil status and typical landforms associated with each. These soil characteristics help land managers assess what mitigation activities may be possible at a given location.

For aquatic resource restoration and enhancement projects, it is important to establish if on-site soils and landforms are appropriate for the proposed mitigation actions. This evaluation of soils is essential in determining ecological suitability of a subject site. In this case, NRCS data indicates the site is comprised of nine (9) discrete soil map units. Most soils (84% cover) are associated with floodplains in the landscape position, have a hydric soil rating (>50% cover), and support various hydrologic ratings.

Hydrologic ratings are based on estimates of runoff potential and rate of water infiltration for each soil map unit. Hydrologic groups B, C, and D occur within the Bank boundary. For soils classified into a dual hydrologic group (B/D or C/D), these are soils for which, in the native undrained condition, would be classified as a Group D soil. However, in a drained condition, the letter preceding the "D" indicates the group for which that respective "Group D" soil may then be classified. These ratings are defined as follows: Group B: Soils having a moderate infiltration rate that typically consist of moderately deep to deep, or moderately well-drained to well-drained soils; Group C: Soils having a slow infiltration rate that typically consist of soils having a layer that impedes the infiltration of water; Group D: Soils having a very slow infiltration rate (high runoff potential). These typically consist of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan/clay layer at or near the surface, and soils that are shallow over nearly impervious material.

In addition to examining hydrologic ratings within the subject site, the presence of mapped hydric soils is important to consider. "Hydric" soils are defined by the National Technical Committee for Hydric Soils (NTCHS) and are typically associated with current or historical wetland communities. Soils within the subject site that are designated as hydric include Chenneby and Enville soils, frequently flooded, and the Rosebloom and Bibb soil complexes. These soil types are found along portions of Clover Creek and portions of the Stream A floodplain within the project boundary.

It should be noted that the NRCS soil survey can only be used as supplemental information. Actual field determinations, using USACE hydric soil indicators, must be conducted to verify hydric soils. A NRCS soil map unit does not need to be officially designated as hydric to meet the definition of a hydric soil in the field. Even a soil mapped and designated as a hydric may not contain wetlands, therefore, field verification of hydric soils is always necessary. In this case, the soils within the boundary of the Bank were inspected by representatives of GMC in the fall of 2022. All areas indicated as supporting wetlands within the Bank were confirmed as containing hydric soils, as supported by the presence of one or more hydric soil indicators, or evidence of wetland hydrology, within each management area. Hydric soil indicators noted in the field included Organic Bodies (A6) and Muck Presence (A8). Primary wetland hydrology indicators included Surface Water, (A1), High water Table (A2), Saturation (A3), Water Marks (B1), Sediment Deposits (B2), Algal Mats (B4), Inundation Visible on Aerial Imagery (B7), and Water Stained Leaves (B9).

In consideration of the soil mapping data; the presence of appropriate landforms, hydrologic ratings sufficient to support hydrology, hydric soil indicators within floodplains and wetland areas, and existing vegetation seed sources, the site for the proposed Bank would appear to;

- contain sufficient coverage of appropriate soil groups;
- experience appropriate hydric soil biogeochemical processes; and
- support sufficient soil moisture to be ecologically suitable to achieve the goals and objectives of the restoration and enhancement activities proposed.

**TABLE 6. NRCS SOIL MAP UNITS**

| Map Symbol    | Map Unit Name  | Major Landform Association | Hydrologic Soil Group* | Hydric Soil Status | Approximate Acres | Approximate % of Site |
|---------------|--|----------------------------|------------------------|--------------------|-------------------|-----------------------|
| CE            | Chenneby and Enville soils, frequently flooded             | Floodplains                | B/D                    | Yes                | 47                | 14%                   |
| lu            | luka silt loam, occasionally flooded                       | Floodplains                | C                      | No                 | 51                | 15%                   |
| Oc            | Ochlockonee silt loam, rarely flooded                      | Floodplains                | B                      | No                 | 52                | 15.5%                 |
| RB            | Rosebloom and Bibb soils, frequently flooded               | Floodplains                | B/D                    | Yes                | 95                | 28.5%                 |
| RO            | Rosebloom and Bibb soils, occasionally flooded             | Floodplains                | B/D                    | Yes                | 13                | 4%                    |
| SaE3          | Smithdale loam, 12-25% slopes, severely eroded             | Hillslopes                 | B                      | No                 | 29                | 9%                    |
| SeD3          | Smithdale & Lexington soils, 8-12% slopes, severely eroded | Hillslopes                 | B                      | No                 | 5                 | 1.5%                  |
| St            | Steens loam  | Terraces                   | C/D                    | No                 | 3.0               | <1%                   |
| STF           | Smithdale & Toinette soils, 20-45% slopes                  | Hillslopes                 | B                      | No                 | 13                | 4%                    |
| W             | Water  | N/A                        | N/A                    | N/A                | 25                | 7.5%                  |
| <b>TOTALS</b> |  |                            |                        |                    | <b>333</b>        | <b>100%</b>           |

\*NRCS ratings are based on estimates of runoff potential for each soil map unit, defined as follows: Group B: Soils having a moderate infiltration rate. Typically consist of moderately deep to deep, or moderately well-drained to well-drained soils; Group C: Soils having a slow infiltration rate. Typically consist of soils having a layer that impedes the infiltration of water; Group D: Soils having a very slow infiltration rate (high runoff potential). Typically consist of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan/clay layer at or near the surface, and soils that are shallow over nearly impervious material.

**ii. National Wetlands Inventory**

The National Wetlands Inventory (NWI) mapping service was consulted for the presence of potential wetlands within the Bank boundary. This service is provided by the United States Fish and Wildlife Service (USFWS) and can be accessed at: <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/>. It should be noted that the map service can be used only as a guide and does not constitute a jurisdictional determination of water resources within a given site. The service is merely a tool to estimate potential areas that may support aquatic resources.

The NWI approximates the limits of aquatic resources by use of image analysts who identify signatures of such features utilizing aerial imagery. Potential areas for inclusion in the NWI are also classified using the Cowardin System (Cowardin, et al. 1979). In this case, the NWI indicates the site likely contains several streams and wetland areas, as depicted within **Figure 11**. These areas have been inspected in the field and were confirmed, among other areas not included on the Inventory, to contain water resources.

**D. Proposed Benefits to Ecological Resources**

Activities conducted within the proposed Bank are intended to improve the current condition of on-site aquatic resources and their associated ecological functions. Anticipated benefits of the Bank include improvements to overall water quality and associated aquatic habitats. The proposed Bank intends to reduce non-point source pollution from agriculture and land clearing activities. Other actions include the re-forestation/revegetation of native riparian habitats and wetland communities, removal and prevention of invasive species. Groundwater resources will also be protected through conservation and pollution prevention practices. The entirety of the Bank will receive perpetual protection, with explicit land use restrictions, that will ensure the protection of aquatic resources and associated fish and wildlife habitats.

**E. Service Area**

Based on current guidance from the IRT, the primary service area (PSA) for mitigation banks will consist of the HUC-8 watershed in which the bank is located. The secondary service area must be a) within the same major river drainage basin as the PSA; b) be adjacent to the PSA, and c); be located within ecoregions with similar aquatic resource types as the PSA.

In this case, the Clover Creek Mitigation Bank will conduct stream and wetland mitigation activities to include the restoration, enhancement, and preservation of aquatic resources within the PSA of the Lower Hatchie River Watershed (HUC 08010208), is sited within the Mississippi River Basin (the major drainage basin of the PSA). The proposed PSA drains approximately 1,464 square miles and includes portions of Chester, Fayette, Hardeman, Haywood, Lauderdale, Madison, and Tipton counties. The secondary service area will include two of the three following watersheds, as directed by guidance from the IRT; South Fork Forked Deer (HUC 08010205), Loosahatchie River (HUC 08010209), Wolf River (HUC 08010210). All three are located within the Mississippi River Basin. A depiction of the PSA and posed secondary service areas are provided as **Figure 12**. Secondary service area selection will be finalized prior to the MBI process associated with the proposed Bank.

**F. Jurisdictional Delineation**

A WOTUS Delineation of the proposed Bank is in progress. The approximate locations of the on-site streams, limits of associated riparian buffers, and wetland boundaries provided in this prospectus have been approximated in the field verified by the Sponsor's agent. A jurisdictional determination (JD) of the site will be conducted by the USACE. The final, approved JD will be submitted after IRT acceptance of this prospectus.

## **SECTION VI. NEED AND FEASIBILITY**

### **A. Watershed Planning**

The Division of Water Pollution Control (Division) is responsible for administration of the Tennessee Water Quality Control Act of 1977 (TCA 69-3-101). The mission of the Division is to “abate existing pollution of the waters of Tennessee, to reclaim polluted waters, to prevent the future pollution of the waters, and to plan for the future use of the waters so that the water resources of Tennessee might be used and enjoyed to the fullest extent consistent with the maintenance of unpolluted waters.”

As part of this mission, the Division adopted a watershed approach to water quality with the state in 1996. This approach considers that water quality issues are most effectively and efficiently addressed at the watershed level. The state of Tennessee includes fifty-five HUC8 watersheds. The Division has organized these HUC8s into management unit groups, Group 1 through Group 5. Each Group contains one-fifth of the state’s watersheds. Every year since the implementation of the watershed approach, TDEC cycles through various elements needed to evaluate each Group; monitoring for one Group; water quality assessment, priority setting and follow-up monitoring on a second; modeling and TMDL studies in a third; developing management plans in a fourth; and implementing management plans in the fifth.

The Lower Hatchie River Watershed is included with Group 4 of the above referenced strategy and has undergone assessment leading to the development of a watershed management plan; Lower Hatchie Watershed (08010208) of the Mississippi River Basin Watershed Water Quality Management Plan (Plan), issued October 11, 2007. This Plan describes fundamental objectives including the reduction of non-point source pollution and partnerships with private landowners that are essential for success. In accordance with the Plan, the proposed Bank will assist in attaining the following objectives; reduction of non-point source pollution from agriculture, forestry and land clearing activities, protection of groundwater resources through conservation and pollution prevention, protection of fish and wildlife habitat, and the tracking of trends in physical, chemical and biological water quality parameters.

Therefore, water quality and native habitat improvements which occur within the proposed project site are not only consistent with the regional goals in watershed planning and management, the activities will provide a benefit to downstream habitats by decreasing sediment, siltation and turbidity, increasing flood storage and local subsurface storage capacity, increasing in-stream foraging, refugia, nesting and breeding habitats for fish and other aquatic wildlife, reducing seed sources of non-native vegetation, and improving native habitats for avian and terrestrial wildlife species.

### **B. Site Selection Criteria**

The location in and surrounding the proposed Bank site is characterized by rural communities in a slow growth area. Land uses in the Clover Creek watershed, where the proposed Bank is located, are primarily agricultural (livestock pasture, hay cultivation, green fields, and row crops) with an approximately equal distribution of native hardwood forests. Some minor silviculture (planted pine) land use is also present. Within the catchments for the stream reaches on the Bank site, there are minimal roads and a few single-family residences, rural homesteads, and farming operations.

The current site conditions within the proposed Bank are ideal for the staging of stream restoration and ecological enhancement efforts; the subject property is sited within a rural watershed generally characterized

by wide valleys with gently meandering streams, flanked by gently sloping hills and ridges. In this case the valley area within the Bank site was almost fully converted to agricultural prior to 1953. Historical aerial imagery of the site confirms the property has been continuously used for agricultural purposes for at least the last 70 years. Farming activities, the removal of native riparian vegetation, and the relocation and straightening of stream channels to facilitate land improvements have all contributed to the degradation of on-site streams through habitat alteration, man-made impoundments, siltation, nonpoint source pollution, and loss of productive habitat. Field inspections and preliminary stream cross-section and longitudinal profile data analysis indicate that streams located within the proposed Bank site display lack of floodplain connectivity, diminished lateral stability, increased stream entrenchment, and suboptimal aquatic and riparian habitats. All of these factors support that streams located within the Bank site are appropriate candidates for restoration efforts.

Additionally, the site is easily accessed from multiple points along Overton Loop Road and Melvin Young Road. The property also supports numerous farming and all-terrain vehicle (ATV) paths that facilitate movement throughout the interior of the property. These existing interior trail roads and staging areas will also facilitate the movement and storage of construction equipment, supplies and materials with minimal disturbance to the surrounding landscape. It is anticipated that only standard, commonplace land management techniques (grubbing, grading, excavation, etc.) with commonly used construction and earthmoving equipment (excavators, backhoes, soil stabilizers, dump trucks, bull dozers, etc.) will be necessary to achieve the proposed stream restoration design and riparian buffer re-establishment and enhancement activities.

#### **C. Risks to Bank Site Resources**

Without the establishment of the Bank and the proposed mitigation activities, risks to the Bank site include continued and expanded use in agricultural (or potentially silviculture) operations, further entrenchment of on-site streams, continued contributions of sediment and other nutrients into the watershed, and continued suboptimal habitats provided to fish and other wildlife. Additionally, as the subject property is approximately 20 miles from the high growth area of Jackson, Tennessee, there is potential for the property to be converted to residential or commercial land uses as the population of that area increases and development expands into surrounding rural areas.

#### **D. Feasibility of Bank Development Plan**

The proposed project is located within the Southeastern Plains of the U.S. EPA Level III Ecoregion. The Agent for the Sponsor, Headwaters LLC, has extensive experience with the design and construction of mitigation projects within this unique region of the state and in accordance with USACE standards and success criteria. The Agent has successfully designed and executed similar stream restoration and riparian buffer enhancement projects, and has achieved successful mitigation bank credit releases for such activities. In addition to demonstrated success with similar projects by the Agent for the Sponsor, the current site conditions within the proposed Bank are ideal for the staging of project efforts. The site is easily accessed from multiple entrance points and only standard land management techniques and equipment will be necessary to achieve the proposed stream and wetland mitigation designs.

In determining the feasibility of the proposed Bank, potential successful credit sales must also be considered, in addition to effective credit release. In this case, the proposed Bank would help to support the Tennessee Department of Transportation (TDOT) mitigation needs within the primary and secondary basins of the Bank's Service Area. A review of content provided on the TDOT Environmental Mitigation Office

<https://www.tn.gov/tdot/environmental-home/transportation-environmental-mitigation-office.html>

indicates that the Department is currently seeking stream and wetland mitigation across the state. Specifically, in the basins associated with the proposed Bank Service Area, more than 30 transportation projects are anticipated to require stream mitigation. Moreover, expansion of local infrastructure to accommodate the developments associated with “Blue Oval City”, a planned automotive industrial complex between Brownville and Stanton, Tennessee, will likely also increase demand for mitigation credits in the Lower Hatchie and Loosahatchie watersheds. Therefore, mitigation credits generated by the Bank are anticipated to be highly marketable for a variety of different projects and clients in the Bank’s Service Area.

#### **E. Site Constraints**

The proposed Bank and associated mitigation areas are located within a larger “parent parcel” wholly owned and held by the Bank Sponsor, Clover Creek MB LLC. This parent parcel is located approximately 0.30 miles east of a closed and capped landfill. During operational years (1960s and 1970s), the landfill accepted chemical wastes which leached into groundwater within and around the landfill footprint. Detection of organic contaminants in local wells was documented in 1978. This resulted in extensive sampling and geologic and hydrological assessments. The landfill was also closed and capped. This action was taken to prevent further contamination and to initiate monitoring of such contamination in and around the landfill for an extended period (December 1983). The EPA also designated the area as a Superfund Site. It was added to the National Priorities List (NPL) in September of 1983.

Based on this information, the Agent for the Bank Owner and Sponsor contacted the EPA. Interviews between the Agent and a representative from the EPA were conducted via several emails and phone calls to obtain information about this NPL site and its potential effect to the proposed Bank property; the EPA indicated that the boundary of the NPL site does include the eastern portion of the proposed Bank area. However, contamination (confirmed through the use of monitoring wells on the parent parcel) is isolated to a portion of the parent parcel that is outside the proposed Bank footprint. These interviews also confirmed that the only land use restrictions for the subject NPL boundary are the use of groundwater as potable water. There are no other land use restrictions for the NPL site and the proposed Bank area. The depiction of the limits for the closed landfill, associated NPL Boundary, and monitoring well locations with the parent parcel of the proposed Bank are provided as **Figure 13**.

There are no physical, chemical, or biological constraints that would limit stream design, riparian buffer width, wetland restoration/enhancement, construction methodology, site protection, and/or stream or wetland functions. There are currently no known or proposed developments on or adjacent to the proposed Bank site. Adjacent land uses are anticipated to remain in as forested, silviculture, agriculture or low density residential use and will not affect the Bank's function. Similarly, there are no known site constraints, conflicts, or special risks that could affect bank development or ecological benefits to surrounding areas.

A review of the Tennessee Historic Commission (THC) Viewer indicated there are no listed or potentially eligible historic properties within the proposed Bank boundary. Similarly, a review of the USFWS Information for Planning and Consultation (IPaC) report indicated no critical habitat for threatened or endangered species has been designated within the project boundaries. Further details on cultural and historical resources, as well as protected species and habitats, is provided in Section IX and Section X, respectively.



## **SECTION VII. SITE PROTECTION**

Clover Creek LLC will own the property and has retained Headwaters LLC to assist in preparing and implementing a management plan for the proposed Bank. The MVM District IRT, comprised of individuals from state and federal agencies, will act as the approval board for the proposed Bank. In addition, the IRT will provide appropriate oversight in ensuring that the provisions of the MBI are appropriately carried out. As part of the final MBI, the proposed Bank addition property will be recorded in a Conservation Easement and held by a third-party entity with enforcement rights. The Bank addition will be established by qualified contractors, with oversight by Headwaters LLC, immediately upon approval.

### **A. Long-term Management Strategy**

The Owner anticipates maintaining ownership and management of the proposed Bank. Management will include protection efforts to ensure that incompatible uses do not occur, annual surveillance of the Bank addition to detect and remove/treat invasive species, and implementation of other management actions to address any specific requirements identified in the MBI.

### **B. Responsible Parties**

The long-term stewardship board will perform all work necessary to maintain the proposed Bank, in perpetuity, in an ecological condition consistent with the final ecological requirements/success criteria required by the MBI. A Non-Wasting Escrow Account for the long-term management of the property will be established and the land trust board will have full and sole responsibility in managing the interest generated from this fund for long-term management activities. Maintenance will include any and all activities necessary to improve and sustain the ecological stream functions within the site. Such may include but are not limited to tree planting and application of mechanical and chemical means to control and eliminate exotic and nuisance species as described elsewhere in this document. The long-term stewardship board will consist of a five-member board consisting of two members from the holder of the conservation easement, and three members appointed by the Sponsor and approved by the IRT. The board is also responsible for long-term monitoring requirements of the site and for providing access to the site for the IRT as required for inspections.

### **C. Bank Site Protection and Responsible Entity**

The proposed Bank will be subject to a legally binding CE, which will be held by a third party entity. In addition, a long-term stewardship board that balances the interests of the Sponsor and conservation interests will be responsible for long-term management of the property.

## SECTION VIII. WATER RIGHTS AND HYDROLOGIC SUSTAINABILITY

The Mitigation Rule includes a requirement for bank proponents to assure and demonstrate that sufficient water rights are available to support long-term sustainability of the mitigation bank. There are no water rights issues that would negatively affect the Bank addition once established. The Bank owner would be the owner of all water rights within the proposed Bank boundary.

### A. Hydrologic Disturbance

There is a beaver dam located approximately mid-reach of Stream A R3. This dam is well established and appears to have been in the area for some time. The dam is holding stream grade. At this time it is proposed to leave the beaver dam intact. If the dam were to be breached or beavers leave the area, there are reference conditions on site that could provide basis for design for an instream drop structure or other grade control methods as part of the adaptive management of the bank site.

### B. Structural Management for Hydrologic Restoration

The proposed Bank addition does not include any hydrologic restoration; therefore, there are no temporary or long-term man-made structures that will be necessary to control or maintain hydrology at the site.

### C. General Site Hydrology

Data regarding site hydrology was collected during the field investigations of the site and included a review of hydric soil indicators, and evidence of hydrology. Additional data from NRCS soil maps, USGS topological surveys, USGS National Water Information System, USGS "StreamStats" web application, and the USGS National Hydrography Dataset was also consulted. A review of the collected information indicates in the current condition, the site drains to the north and west, with ultimate discharge to Clover Creek and The Hatchie River. The drainage basin is an open system with typical inputs and outputs for the region. In general, hydrologic inputs at the site are provided by natural processes, such as rainfall, wetland stores, groundwater surplus, and flooding of onsite and adjacent uplands, wetlands and streams. Outputs include, primarily, discharge to receiving waters, as well as evaporation and transpiration.

## SECTION IX. SECTION 106 CONSULTATION

Both the National Register of Historical National Archives Catalog (<https://catalog.archives.gov/search>) and the Tennessee Historical Commission (THC) online data viewer (<https://tnmap.tn.gov/historicalcommission>) were accessed in April 2023 to evaluate the site for the presence of cultural, archeological, or historic resources. After reviewing the available information, the proposed site does not contain any documented resources within the Bank property limits. However, there are numerous documented historical structures adjacent to the Bank boundary within a 5-mile radius of the center coordinates. **Appendix IV** provides a complete listing of all recorded historic resources documented by either the National Register or the THC within this 5-mile radius. The locations of the resources are depicted in **Figure 14**. No other known cultural, archaeological, or historic resources have been documented within the subject site.

**SECTION X. SECTION 7 CONSULTATION**

The USFWS Information for Planning and Consultation (IPaC) Database, the Tennessee Wildlife Resource Agency (TWRA), and the TDEC Natural Heritage Program Rare Species Database were consulted in the development of the information regarding plants, wildlife, and protected species discussed in the following subsections. **Table 7** identifies protected federal and state wildlife species that are known to exist within USGS Quadrangle of Teague, Tennessee, where the proposed Bank is sited. Though several species were noted as having the potential to occur on or near to the vicinity of the project, no designated critical habitats exist within the proposed Bank boundary. A comprehensive Threatened and Endangered Species survey, to include vegetation as well as avian, aquatic, and terrestrial wildlife, will be conducted after acceptance of this prospectus by the IRT. The complete IPaC report is included as **Appendix V**.

**TABLE 7. PROTECTED PLANTS AND ANIMALS IN VICINITY OF PROPOSED BANK SITE**

| COMMON NAME   | SCIENTIFIC NAME                    | STATE STATUS                                   | FEDERAL STATUS | SUITABLE HABITAT ON-SITE? |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
|---|------------------------------------|--|----------------|---------------------------|----------------------|---------------------------|---------------------------------|----------------------|---------------------------|---------------------------------|--------------------------|---------------------------------|---|---------------------------------|------------------------------------|--|-----------------|--|--|
| <b>Mammals</b>  |                                    |  |                |                           |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| American beaver   | <i>Castor canadensis</i>           | SGS  | -              | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| American mink   | <i>Neovison vison</i>              | SGS  | -              | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Bobcat  | <i>Lynx rufus</i>                  | SGS  | -              | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Common muskrat  | <i>Odatra zibethicus</i>           | SGS  | -              | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Coyote  | <i>Canis latrans</i>               | SGS  | -              | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Gray fox  | <i>Urocyon cinereoargenteus</i>    | SGS  | -              | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Eastern cottontail  | <i>Sylvilagus floridanus</i>       | SGS  | -              | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Eastern gray squirrel   | <i>Sciurus carolinensis</i>        | SGS  | -              | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Indiana bat   | <i>Myotis sodalis</i>              | SE   | LE             | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Nine-banded armadillo   | <i>Dasyopus novemcinctus</i>       | SGS  | -              | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| North American river otter  | <i>Lontra canadensis</i>           | SGS  | -              | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Northern long-eared bat   | <i>Myotis septentrionalis</i>      | ST   | LT             | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Raccoon   | <i>Procyon lotor</i>               | SGS  | -              | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Red fox   | <i>Vulpes vulpes</i>               | SGS  | -              | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Southern bog lemming  | <i>Synaptomys cooperi</i>          | D  | -              | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Striped skunk   | <i>Mephitis mephitis</i>           | SGS  | -              | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Tricolored bat  | <i>Perimyotis subflavus</i>        | PE   | PE             | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Virginia opossum  | <i>Didelphis virginiana</i>        | SGS  | -              | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| White-tailed deer   | <i>Odocoileus virginianus</i>      | SGS  | -              | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Woodchuck   | <i>Marmota monax</i>               | SGS  | -              | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| <p><i>Protection Status Key:</i></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">ST= state threatened</td> <td style="width: 33%;">D = in need of management</td> <td style="width: 33%;">LE= federally listed endangered</td> </tr> <tr> <td>SE= state endangered</td> <td>R= rare, not state listed</td> <td>LT= federally listed threatened</td> </tr> <tr> <td>SGS = state game species</td> <td>MBTA =Migratory Bird Treaty Act</td> <td>PE=Proposed federally and state as endangered</td> </tr> <tr> <td>SSC= species of special concern</td> <td>BBC = Bird of Conservation Concern</td> <td>PT= Proposed federally and state as threatened</td> </tr> <tr> <td>CAN = candidate</td> <td></td> <td>BGEPA = Bald and Golden Eagle Protection Act</td> </tr> </table> |                                    |  |                |                           | ST= state threatened | D = in need of management | LE= federally listed endangered | SE= state endangered | R= rare, not state listed | LT= federally listed threatened | SGS = state game species | MBTA =Migratory Bird Treaty Act | PE=Proposed federally and state as endangered | SSC= species of special concern | BBC = Bird of Conservation Concern | PT= Proposed federally and state as threatened | CAN = candidate |  | BGEPA = Bald and Golden Eagle Protection Act |
| ST= state threatened  | D = in need of management          | LE= federally listed endangered                |                |                           |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| SE= state endangered  | R= rare, not state listed          | LT= federally listed threatened                |                |                           |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| SGS = state game species  | MBTA =Migratory Bird Treaty Act    | PE=Proposed federally and state as endangered  |                |                           |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| SSC= species of special concern   | BBC = Bird of Conservation Concern | PT= Proposed federally and state as threatened |                |                           |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| CAN = candidate   |                                    | BGEPA = Bald and Golden Eagle Protection Act   |                |                           |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |

**Continued next page**

**TABLE 7. PROTECTED PLANTS AND ANIMALS IN VICINITY OF PROPOSED BANK SITE *CONTINUED***

| COMMON NAME  | SCIENTIFIC NAME                          | STATE STATUS                                   | FEDERAL STATUS | SUITABLE HABITAT ON-SITE? |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
|--|--|--|----------------|---------------------------|----------------------|---------------------------|---------------------------------|----------------------|---------------------------|---------------------------------|--------------------------|---------------------------------|---|---------------------------------|------------------------------------|--|-----------------|--|--|
| <b>Reptiles</b>  |  |  |                |                           |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Alligator snapping turtle  | <i>Macrochelys temminckii</i>            | PT   | PT             | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Eastern slender glass lizard   | <i>Ophisaurus attenuatus longicaudus</i> | D  | -              | No                        |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| <b>Invertebrates</b>   |  |  |                |                           |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Monarch butterfly  | <i>Danaus plexippus</i>                  | -  | CAN            | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| <b>Birds</b>   |  |  |                |                           |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Bald eagle   | <i>Haliaeetus leucocephalus</i>          | -  | BGEPA/MBTA     | No                        |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Chimney swift  | <i>Chaetura pelagica</i>                 | -  | MBTA/BCC       | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Kentucky warbler   | <i>Oporornis formosus</i>                | -  | MBTA/BCC       | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Prairie warbler  | <i>Dendroica discolor</i>                | -  | MBTA/BCC       | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Prothonotary warbler   | <i>Protonotaria citrea</i>               | -  | MBTA/BCC       | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Red-headed woodpecker  | <i>Melanerpes erythrocephalus</i>        | -  | MBTA/BCC       | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Wood Thrush  | <i>Hylocichla mustelina</i>              | -  | MBTA/BCC       | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Wild Turkey  | <i>Meleagris gallopavo</i>               | SGS  | MBTA           | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
| Other native, non-listed   |  | -  | MBTA           | Yes                       |                      |                           |                                 |                      |                           |                                 |                          |                                 |   |                                 |                                    |  |                 |  |  |
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