

Prospectus

Butler County Wetland Mitigation Bank

January 10, 2024

INTRODUCTION

Mitico, LLC, a Missouri limited liability company (the Sponsor) is proposing to establish and operate the Butler County Wetland Mitigation Bank (the Bank) in a watershed service area in Missouri including the Ozark Black/Current and Mississippi Alluvial Basin Black/Cache, Mississippi Alluvial Basin St Francis/Little, and Mississippi Alluvial Basin St John's Bayou Ecological Drainage Units (EDUs) in Missouri, established and recognized by the US Army Corps of Engineers (Corps or USACE).

OBJECTIVES

The primary objectives of the proposed mitigation bank are to provide compensatory mitigation for unavoidable impacts to jurisdictional waters of the United States that occur within the bank service area in a manner consistent with the Clean Water Act (CWA) Section 404 (33 U.S.C. §1344) and the Rivers and Harbors Act of 1899 (RHA) Section 10 (33 U.S.C. §403) and to improve the water quality and wildlife habitat functions at the mitigation bank site.

These objectives will be achieved by establishing forested and emergent wetland habitats at the proposed mitigation bank site. The proposed mitigation site will restore and protect 1.8 acres of forested wetlands and 23.2 acres of emergent wetlands, generating 112.86 wetland credits. These restored habitats will reduce nutrient pollution and runoff into the Black River Watershed while supporting a diverse community of native plants. Wetland habitats will support native wildlife including species of conservation concern found in the service area, and the restored wetland hydrology will help reduce the impact of future flood events on areas downstream along and the Black River.

ESTABLISHMENT AND OPERATION

Bank Instrument and Operation

The Bank will be established and operated pursuant to a Final Banking Instrument prepared in accordance with 33 CFR 332.8 and reviewed and approved following public notice and comment by the Corps and members of the Interagency Review Team (IRT) consisting of the US Environmental Protection Agency, the US Fish and Wildlife Service, the Missouri Department of Natural Resources, and the Missouri Department of Conservation and chaired by the Corps (the Final Instrument).

The Final Instrument will serve as a binding legal instrument regarding the operation and management of the bank and include the following prescribed elements as outlined in Missouri 2015 Guidance from the Corps:

1. Introduction
2. Watershed approach

3. Service area
4. Mitigation plan requirements
 - a. Objectives
 - b. Site selection
 - c. Site protection instrument
 - d. Baseline information
 - e. Determination of credits
 - f. Mitigation work plan
 - g. Operation and maintenance plan
 - h. Ecological performance standards
 - i. Monitoring requirements
 - j. Long term management plan
 - k. Adaptive management plan
 - l. Financial assurances
5. Credit release schedule
6. Accounting procedures
 - a. Use of credits
 - b. Ledger
7. Reporting for the mitigation site
 - a. Monitoring reports
 - b. Ledger accounting reports
 - c. Financial assurance reports
8. Default and closure provisions
 - a. Default provisions
 - b. Closure provisions
9. Approval of the final instrument and the incorporation of the IRT's comments

The Final Instrument will also include the following prescribed text, in bold font:

The U.S. Army Corps of Engineers (USACE) approval of this Instrument constitutes the regulatory approval required for the Butler County Wetland Mitigation Bank to be used to provide compensatory mitigation for Department of the Army permits pursuant to 33 C.F.R. 332.8(a)(1). This Instrument is not a contract between the Sponsor or the Property Owner and the USACE or any other agency of the federal government. Any dispute arising under the Instrument will not give rise to any claim by the Sponsor or the Property Owner for monetary damages. This provision is controlling notwithstanding any other provision or statement in the Instrument to the contrary.

Butler County Wetland Mitigation Bank Site

A mitigation site has been identified, the Butler County Wetland Mitigation Bank Site in Butler County, Missouri (Butler County Site) and a plan for the site is being submitted contemporaneously with this Prospectus (see Appendix A). Once revised and updated consistent with feedback from the Corps and IRT, the plan will also be submitted with the Final Instrument.

The Butler County Site plan at Appendix C will serve as a binding legal instrument for the design, construction, maintenance, and long-term management of the site, and includes the following prescribed elements:

1. Objectives
2. Site Selection
3. Site Protection Instrument
4. Baseline Information
5. Determination of Credits
6. Mitigation Work Plan
7. Operation and Maintenance Plan
8. Ecological Performance Standards
9. Monitoring Requirements
10. Long-Term Management Plan
11. Adaptive Management plan
12. Financial Assurances

Credit Release and Sale

Credits will be released according to the milestones described in Table 1, below. As the Sponsor achieves those milestones, it will report proof to the Corps. Subject to verification, the Corps will confirm each credit release and report it through the Regulatory In lieu fee and Bank Information Tracking System (RIBITS) ([https://ribits.ops.usace.army.mil/ords/f?p=107:2:::~:Y:::~::](https://ribits.ops.usace.army.mil/ords/f?p=107:2:::)).

Once released, these credits may be sold by Sponsor to third parties at reasonable market rates determined by the Sponsor and they may be used by those third parties as compensatory mitigation for impacts to waters of the United States.

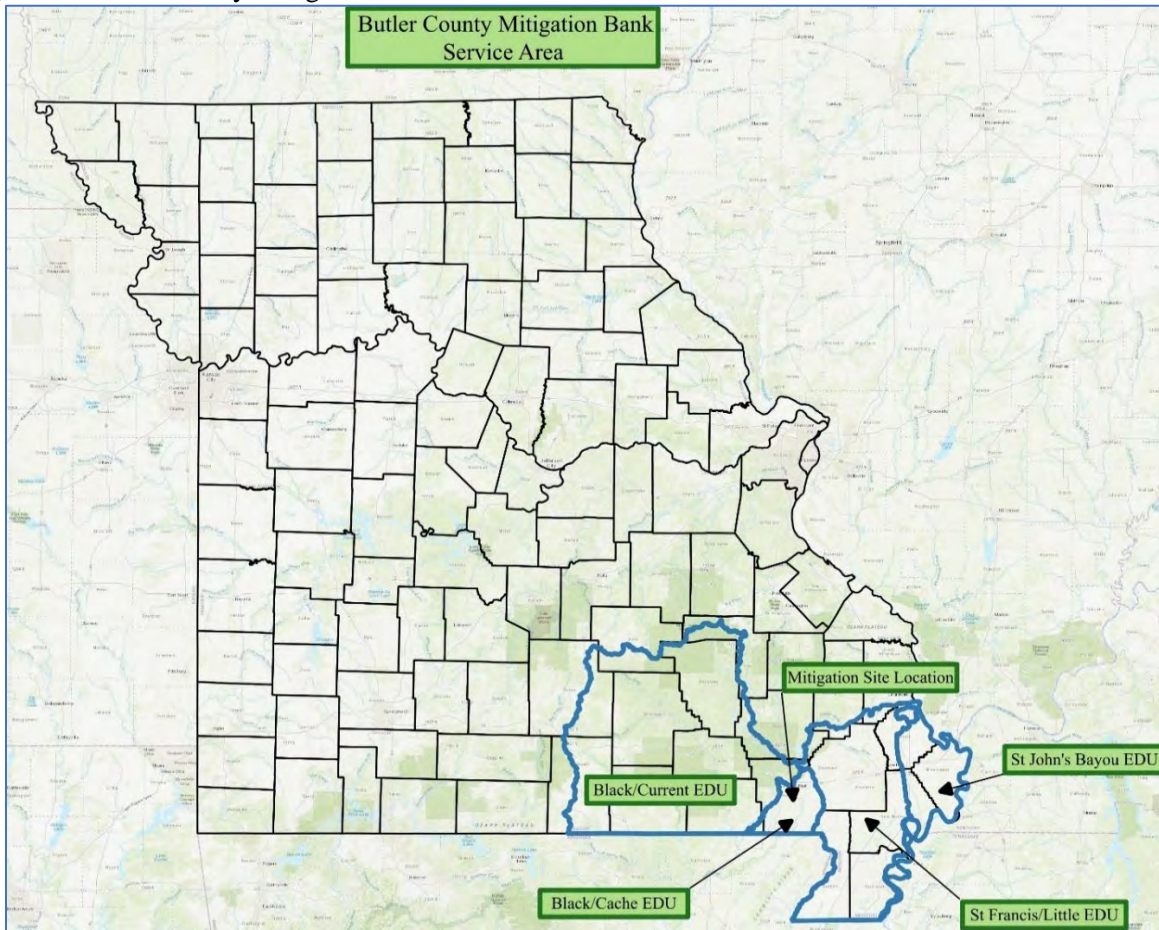
Table 1. Credit Release Schedule

Credit Release	Milestone(s)	Percent of Credits Released
1	Final mitigation plan approved, Short-term financial assurances funded and in place, and Conservation Easement recorded and provided to the Corps	20%
2	Construction and/or planting substantially complete and as-built figure approved by Corps	20%
3	First monitoring report approved by Corps showing all wetland and/or stream performance standards achieved	10%
4	Second monitoring report approved by Corps showing all wetland and/or stream performance standards achieved	10%
5	Third monitoring report approved by Corps showing all wetland and/or stream performance standards achieved	10%
6	Fourth monitoring report approved by Corps showing all wetland and/or stream performance standards achieved	10%
7	Fifth (and final) monitoring report approved by Corps showing all wetland and/or stream performance standards achieved	20%

SERVICE AREA

The service area proposed for the Bank is comprised of four EDUs within Southeast Missouri: The Ozark / Black/Current EDU, the Mississippi Alluvial Basin / Black/Cache EDU, the Mississippi Alluvial Basin / St Francis/Little EDU, and the Mississippi Alluvial Basin / St John's Bayou EDU. This service area is described in **Figure 1**, below.

This service area was selected because the watersheds within the service area are generally hydrologically and ecologically similar to the Black/Cache EDU, which contains the proposed mitigation site, and mitigation options in this region of Missouri are limited. A RIBITS search in November 2024 showed no active mitigation banks in Missouri within the proposed service area. Mitigation banks can help meet the needs of developers, including municipalities and state agencies, without temporal lag that could result in losses of aquatic resources.

Figure 1. Butler County Mitigation Bank Service Area

Watershed Context of Service Area

Black River Watershed

The proposed mitigation site lies in the floodplain of the Black River, which flows just one mile to the east of the proposed site. The eight digit Hydrological Unit Code (HUC 8) for the watershed containing the site is 11010007, or the Upper Black River Watershed. This HUC 8 crosses both the Black/Current and Black/Cache EDUs in Missouri, which is the reason for their inclusion in the proposed service area.

70% of the Black/Current EDU is comprised of portions HUCs 11010007 (Upper Black) and 11010008 (Current). These watersheds comprise 90% of the Black/Cache EDU. The Current River HUC 8 drains to the Upper Black HUC 8 in Arkansas, so mitigating impacts to the Current River watershed within the upper portion of the Black River watershed is justified. Further, the habitat types provided by this mitigation site (forested and emergent wetlands) primarily occur in the southeastern portion of the Black/Current EDU, either along the Black River or the Current River as it nears its confluence with the Black River. These habitats occur in lowland areas that are geographically similar and proximate to the proposed site (see **Figure 3**, below).

The resources to be restored at the mitigation site are similar and proximate to the habitats that are most likely to be impacted within the Black/Current EDU, as significant upstream portions of the Current River are protected by federal designation as a National Scenic Riverway. Historic losses of wetland habitats within the Mississippi Alluvial Basin are drastic, so siting the proposed bank within the Black/Cache EDU

and proximate to the Black/Current EDU will meet the needs of the Black River within both EDUs and create additional uplift by providing habitat where it is needed most.

Mississippi Alluvial Basin

The proposed mitigation site lies in the Mississippi Alluvial Basin ecoregion of Missouri. The proposed service area contains the entirety of this ecoregion, which is comprised of three EDUs within Missouri. These EDUs are relatively small, containing portions of six HUC8 watersheds, only one of which is entirely contained within Missouri. These areas were historically hydrologically connected by a dense network of forested wetlands, but over 90% of wetlands that were once present have been drained and many levees, channels, and other structures now interrupt the hydrology. In terms of habitat types, geography, topography, and historic wetland loss, these EDUs are very similar. The habitats restored at the proposed site will offset losses within the ecoregion by creating resources of similar type and structure to those that have been lost historically. Many wetland species, especially migratory birds, are not bound by hydrological connections, and will benefit from the mitigated habitats, even if impacts occur within a nearby watershed.

Figure 2, below, shows USGS modeled land cover changes in the Mississippi Alluvial Basin ecoregion of Missouri from 1938 to 1992. These data show a drastic reduction in wetland acreage, as well as overall similarity of habitat types across all three EDUs.

Figure 2: Modeled Historic Land Cover for the Mississippi Alluvial Basin Region of Missouri

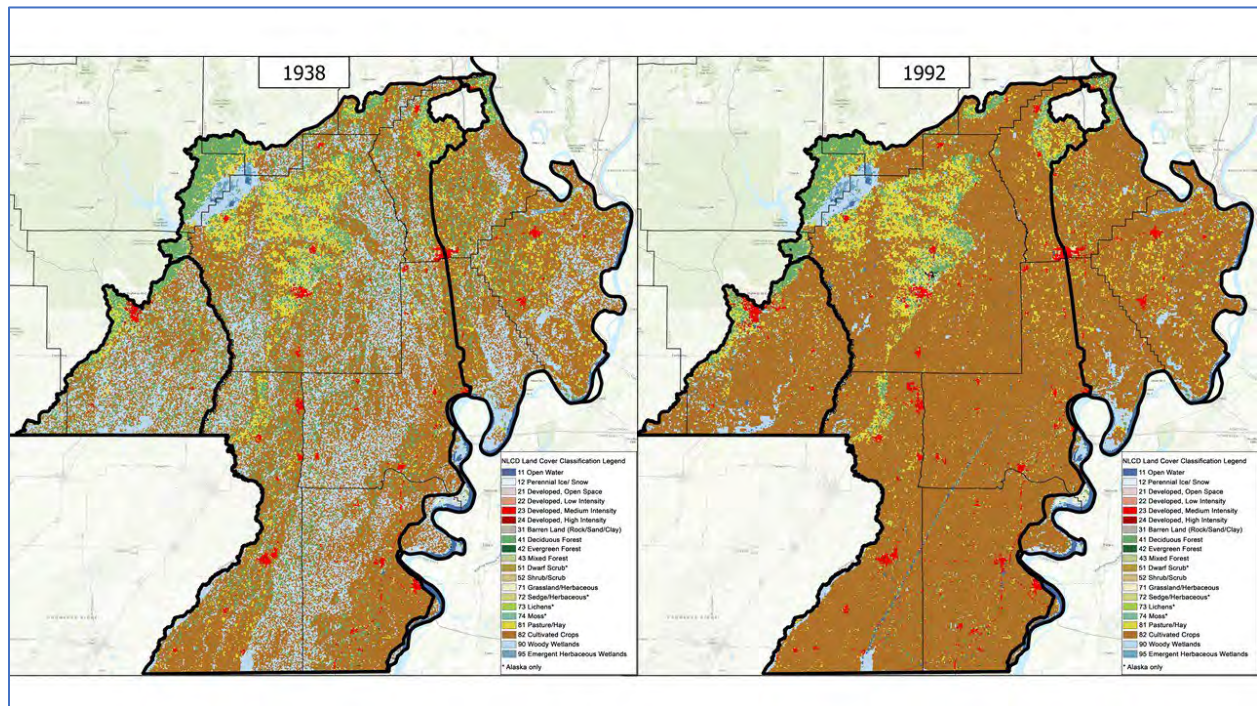
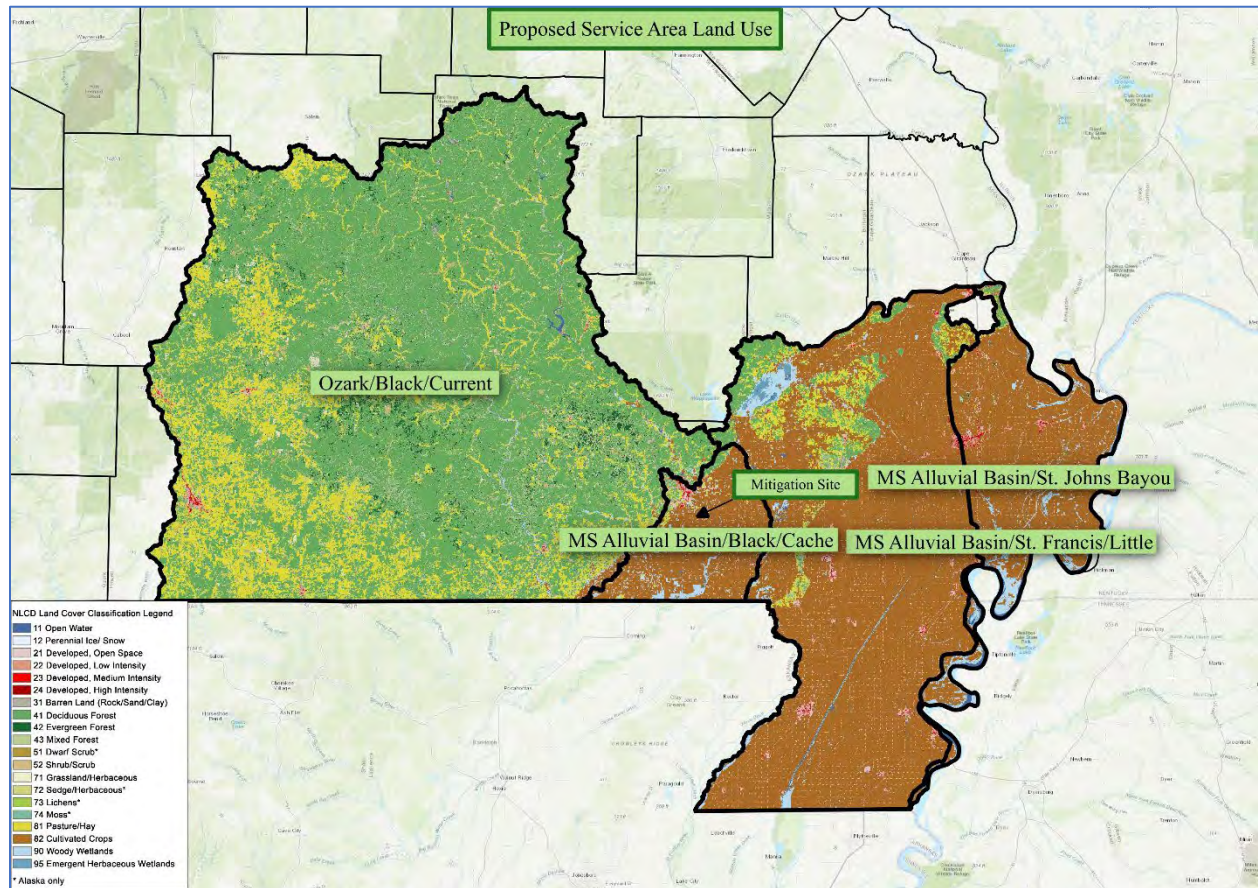


Figure 3: 2016 Land Cover Data for Proposed Service Area

GENERAL NEED AND TECHNICAL FEASIBILITY

General Need

A recent history of mitigation credit demand in the Service Area demonstrates the need for the Bank. Current mitigation options in the Service Area are limited, and the Bank will help provide more options for mitigation to developers, municipalities, government agencies, and other impactors who operate in this part of Missouri. This can help developers plan for mitigation more readily and avoid temporal lag sometimes associated with permittee responsible and in-lieu fee mitigation projects.

Demand for mitigation credits in the proposed service area supports the need for the Bank. Large infrastructure projects, like expansion of major highways, have driven recent demand for mitigation credits in the Service Area. Additionally, this region of Missouri has experienced substantial loss of aquatic resources over the last 150 years. Appropriately sized mitigation banks will help offset further losses of aquatic resources without temporal lag, providing additional lift to a degraded watershed.

Technical Feasibility

The Butler County site is well suited for wetland restoration. The Sponsor owns fee title to the site, which has suitable soils and hydrology for restoration of emergent and forested wetlands. Likely success of the site is further demonstrated by the adjacent successful permittee responsible mitigation site managed by the Sponsor.

Further details are provided in the proposed plan attached as Appendix A.

OWNERSHIP ARRANGEMENTS AND MANAGEMENT STRATEGY

Ownership Arrangements

The Sponsor holds fee title to the proposed mitigation bank site and will retain ownership of the site during development and operation of the Bank. The site will be subject to a deed restriction in a form approved by the Corps (see Appendix D). Sponsor will also confirm that any encumbrances or other property rights associated with the site are subordinated to that deed restriction.

Long-Term Management Strategy

Once performance standards are met, Sponsor will continue management of the Bank until all credits are sold. Once all credits are sold, long-term management responsibilities will be transferred to a non-profit land trust as described in the site plan attached at Appendix A.

SPONSOR QUALIFICATIONS

Mitico, LLC is a Missouri limited liability company with substantial experience in wetland and stream mitigation. Through its staff and expert consultants, Mitico has planned and performed every phase of the mitigation of environmental impacts, from preliminary site assessment and land acquisition to the development of mitigation planning instruments and construction oversight of mitigation projects. Mitico counts on the talents of a diverse group of staff and subcontracted experts. Mitico staff are listed below.

Chief Executive Officer **Walter S Iman** is a seasoned professional who has been locating and assisting in the acquisition and restoration of environmentally sensitive land tracts for over a decade. Having been involved in location, acquisition and restoration of over 12,000 acres of environmental land (WRP and CRP) since 1999, Wally continues to seek and consult with owners of high-quality land targets with excellent wetland and riparian characteristics for restoration and mitigation purposes. Having spent nearly 45 years in the real estate industry, Wally has developed a systematic approach to land analysis and is considered an expert in alternative, ecological land uses.

Chief Operating Officer **Zach Morris** holds a BS in Wildlife Biology from Missouri State University and an MS in Natural Resource Science and Management from the University of Missouri. Zach's background in aquatic conservation includes agency, university, and non-profit projects focused on management, scientific research, and advocacy. Zach oversees all mitigation planning and implementation for Mitico's projects. He works closely with conservation partners across Missouri to expand the reach and ecological lift of mitigation and other restoration projects. This includes a focus on native, wildlife friendly vegetation, sustainable restoration practices, and developing management plans that will best enhance the aquatic resources at each project site.

Staff Biologist and Landowner Outreach Coordinator **Stephanie Fenzl** has a BS in Wildlife Biology and Certificate in Environmental Education from Missouri State University. She has worked to conserve wildlife in different settings through scientific research and public education. Stephanie is a team biologist and landowner liaison, and she supports landowner outreach as well as planning and implementation of riverine and wetland habitat restoration on project sites.

Certified Crop Adviser **Nick Cuchetti** is a soil scientist with a degree from the University of Missouri. Since graduation, his work has focused on promoting the principles of soil health and scaling Regenerative Agriculture. Nick's focus areas include nutrient management, pest management, organic farming, ecological farm management, and carbon sequestration.

Environmental engineer **Katherine “Kat” Brookshire**, EIT holds a BS in Geological Engineering with minors in biology, geology, and explosives from Missouri University of Science and Technology. Kat's background in environmental remediation includes large contaminant sites, groundwater, drinking water, wastewater, soils, heavy metals, hazardous materials, mining remediation, petroleum, geotechnical design, and erosion control. As Environmental Engineer, Kat is responsible for assessing and designing stream mitigation projects and ensuring the projects are built according to design. She also assists with mitigation plans, wetlands, and other projects as needed.

ECOLOGICAL SUITABILITY

The Butler County Site is highly suitable for restoration of aquatic habitats, evidenced by the successful establishment of a permittee responsible mitigation site within the same land tract and adjacent to the proposed bank site. The site lies in the floodplain of the Black River along a channelized intermittent stream and was historically part of the extensive wetland complex that covered this region of Missouri. Additional information, including baseline conditions and a wetland delineation of the site, can be found in the site plan attached as Appendix A.

WATER & MINERAL RIGHTS & EXISTING ENCUMBRANCES

Sufficient Water Source

The Butler County Site has suitable hydrology to support development of wetland habitats. Multiple drainage features can be found within the site to remove hydrology for agricultural production, and the site lies along a channelized intermittent stream. The site is also within the 100-year floodplain of the Black River, which flows approximately one mile to the east. Additional information can be found in the site plan attached as Appendix A.

Mineral Rights and Real Estate Encumbrances

The Butler County site has no real estate encumbrances within the project area. According to the Survey conducted in 2023, there is a telecommunications easement that coincides with the right-of-way of Missouri Highway 53. No construction activities are planned for this area, and the conservation easement will not include the area.

REFERENCES

Black River Watershed and Inventory Assessment. Paul Cieslewicz, Missouri Department of Conservation (2004)

Missouri As It Is In 1867: an illustrated historical gazetteer of Missouri. George Clinton Swallow. (1867; <https://mdh.contentdm.oclc.org/digital/collection/mocohist/id/93441/rec/149>)

Missouri Spatial Data Information Service (<https://msdis.missouri.edu/>)

Missouri State Wildlife Action Plan (2015) – Missouri Department of Conservation

Modeled Historical Land Use and Land Cover for the Conterminous United States (2016) – United States Geological Survey

APPENDICES

Appendix A: Butler County Wetland Mitigation Site Plan 20 pages

Appendix B: Wetland Delineation. 12 Pages.

Appendix C: Soil Map. 3 Pages.

Appendix D: Deed Restriction. 1 Page.

Appendix E: Cultural Resources Information. 2 pages.

Appendix A

Butler County Wetland Mitigation Site Plan

Butler County, MO



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Introduction

The main objective of the mitigation project is to restore and preserve functional wetland habitats within the Black River watershed. These activities will provide enhanced water quality and wildlife habitat in the region. The proposed mitigation project would restore approximately 25 acres of forested and emergent wetlands. This project will benefit habitat types that have historically been a part of the Black River watershed but have been removed and impaired to accommodate expanded agricultural practices and urbanization. The Black River watershed has undergone significant land use changes, primarily drainage of wetlands that corresponds to an increase in agricultural land. As a result of land use changes, stormwater runoff and nutrient pollution have drastically increased and remaining aquatic habitats are extremely impaired. The restoration and protection of wetland habitats, such as the ones proposed, will help slow runoff and prevent further input of sediment and nutrients into the Black River. This mitigation project represents a welcomed opportunity to protect a significant area of a highly altered watershed.

This mitigation site consists of aquatic resource(s) that are restored and preserved expressly for the purpose of providing compensatory mitigation for authorized impacts. The purpose of the mitigation plan is to establish guidelines and responsibilities for the maintenance and protection of the restored wetland habitats. The restored and preserved habitats will be used to provide compensatory mitigation for the authorized impact to waters of the United States. The mitigation plan may be amended in accordance with the procedures used to establish the plan and subject to agreement by the signatories.

The establishment, maintenance, and protection of special aquatic sites of the mitigation area is carried out in accordance with the following authorities:

1. Federal:
 - a. The Clean Water Act (33 U.S.C. 1344)
 - b. Compensatory Mitigation for Losses of Aquatic Resources (FR, Vol. 73, No. 70, Pages 19594-19705, April 10, 2008)
 - c. Rivers and Harbors Act of 1899, Section 10 (33 U.S.C. 403 *et. seq.*)
 - d. Environmental Protection Agency, Section 404 (b)(1) Guidelines (40 CFR Part 230). Guidelines for Specification of Disposal Sites for Dredged or Fill Material.
 - e. Department of the Army, Section 404 Permits Regulations (33CFR Parts 320-332). Policies for evaluating permit applications to discharge dredged or fill material.
 - f. Memorandum of Agreement between the Environmental Protection Agency and the Department of the Army concerning the Determination of Mitigation under the Clean Water Act, Section 404 (b)(1) Guidelines (February 6, 1990).
 - g. Title XII Food Security Act of 1985 as amended by the Food, Agriculture, Conservation and Trade Act of 1990 (16 U.S.C. 3801 *et. seq.*)
 - h. National Environmental Policy Act (42 U.S.C. 4321 *et. seq.*), including the Council on Environmental Quality's implementing regulations (40 CFR Parts 1500-1508).
 - i. Fish and Wildlife Coordination Act (16 U.S.C. 661 *et. seq.*)
 - j. Fish and Wildlife Service Mitigation Policy (46 FR pages 7644-7663, 1981).
 - k. National Historic Preservation Act, Section 106 (16 U.S.C. 470).
2. State:
 - a. Missouri State Water Quality Certification (10 CSR 20-6.060.).
 - b. Missouri State Water Quality Standards (10 CSR 20-7.031.).
 - c. State of Missouri Wetland Mitigation Method
 - d. State of Missouri Aquatic Resources Mitigation Guidelines
 - e. Missouri Clean Water Law

The main objective of the proposed mitigation site is to restore and protect forested and emergent wetlands with suitable hydrology a desirable plant community in accordance with conditions specified under the ecological performance standards, to facilitate enhanced water quality and wildlife habitat in the Black River watershed. The mitigation site will restore and protect 1.8 acres of forested wetlands and 23.2 acres of emergent wetlands. The protection of these wetland habitats will create wildlife habitat and reduce sediment and nutrient loads entering the Black River watershed. Widespread land use changes have resulted in loss of nearly all of the historic wetlands in the Black River watershed. As a result, runoff, sedimentation, flooding, and nutrient pollution are chronic problems throughout the watershed. Wetland restoration and protection, as proposed, will help slow and filter runoff and reduce nutrient pollution in an area where these issues are widespread.

Figure 1. Butler County Wetland Mitigation Site Vicinity

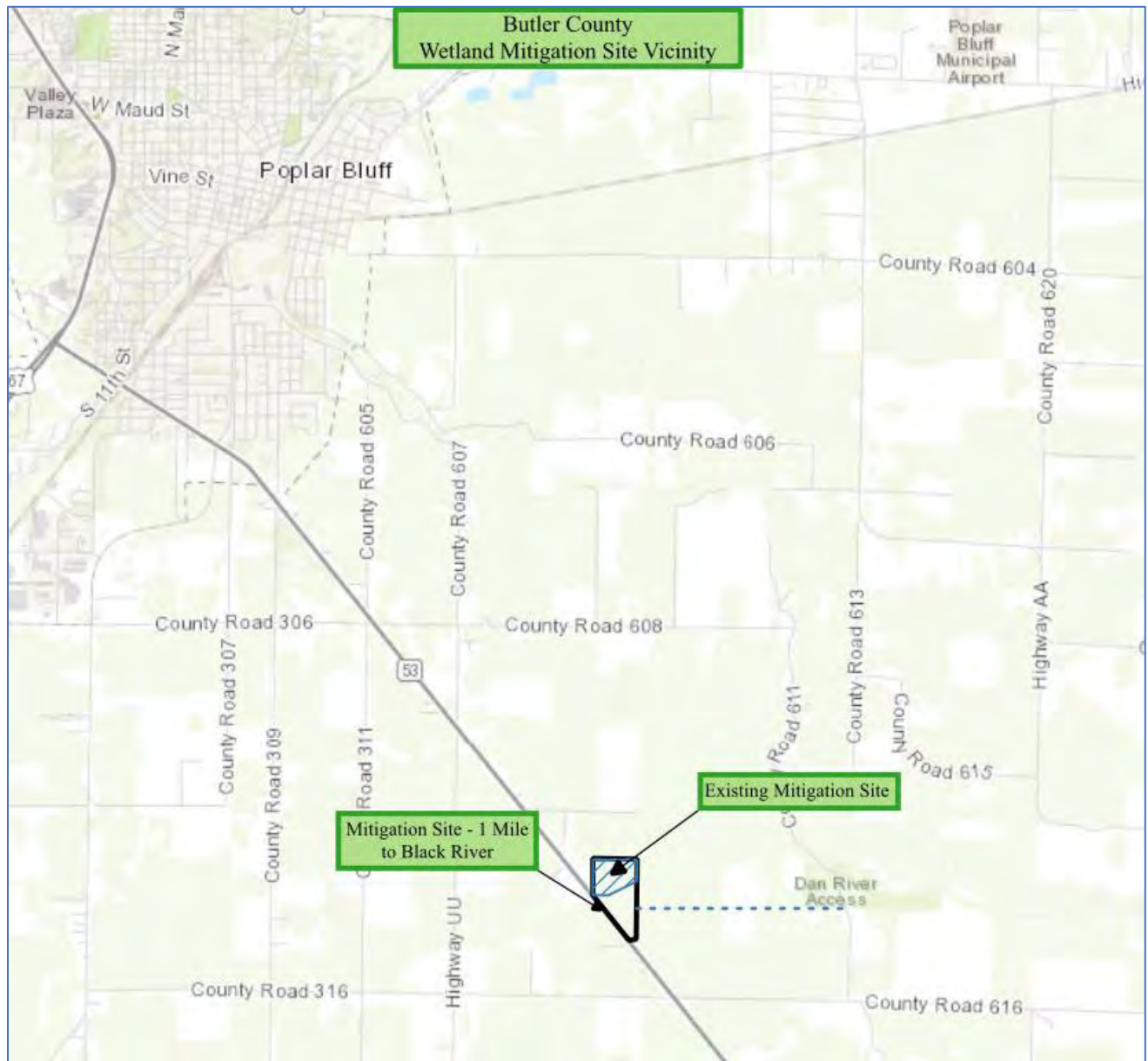
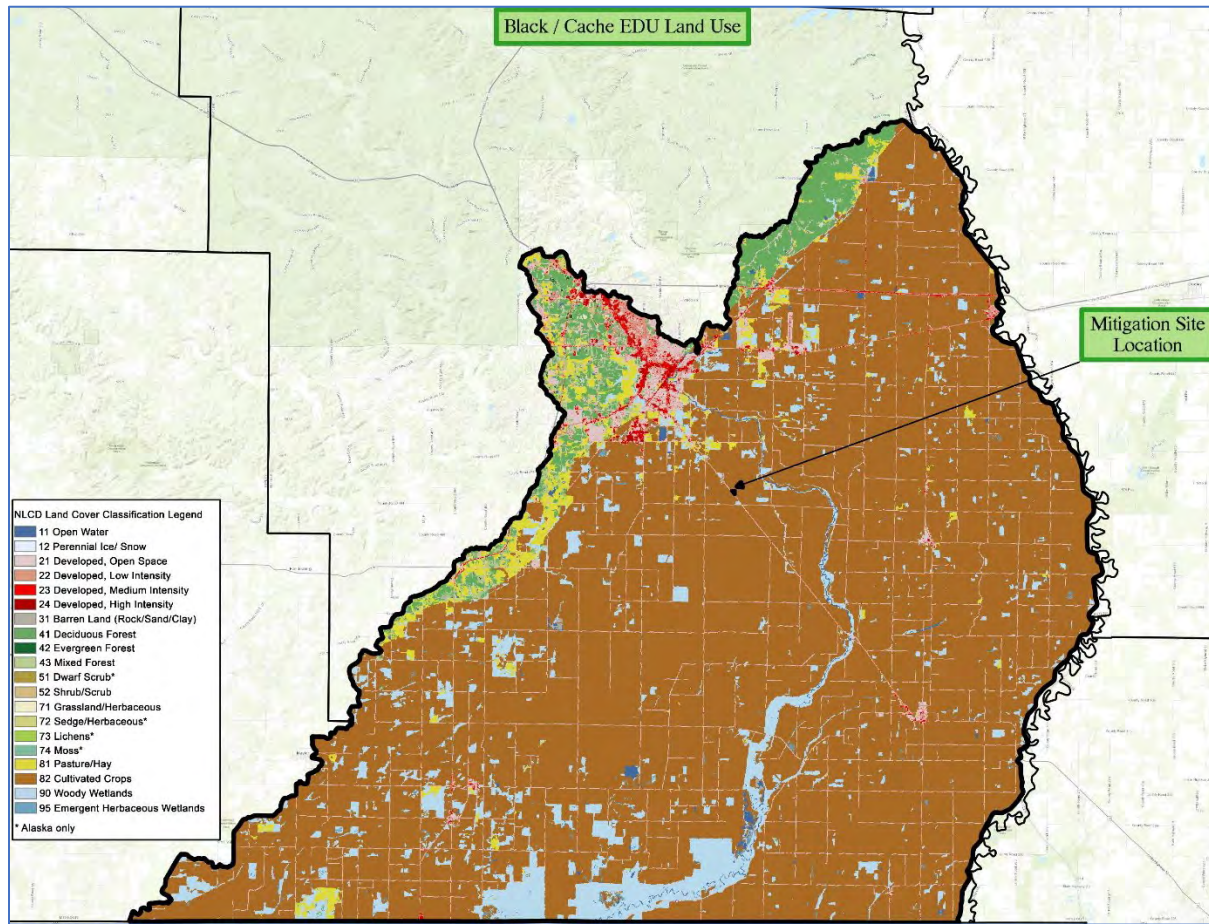


Figure 2. Butler County Wetland Mitigation Site Location and Surrounding Land Use



Watershed Approach to Mitigation Site Selection

The proposed mitigation site is located along an unnamed perennial tributary to the Black River near Poplar Bluff in Butler County, Missouri. The unnamed perennial tributary is a 2nd order stream at the proposed mitigation site. The site lies in the floodplain of the Black River, which is a 6th order perennial stream where it flows approximately one mile to the east of the proposed site.

The Black River watershed covers 1.1 million acres in Southwest Missouri and Northwest Arkansas. This includes portions of Reynolds, Wayne, Butler, and Iron Counties in Missouri. There are more than 298,500 acres of public land in the Missouri portion of the Black River Watershed, majority owned by the U.S. Forest Service, followed by the Missouri Department of Conservation and the U.S. Army Corps of Engineers. The watershed is separated into two subbasins, the upper subbasin and lower subbasin, due to differences in land use, geology, hydrology, and habitat.

The proposed mitigation site is located in the lower subbasin, within the Mississippi Alluvial Plain. Historically, the entire alluvial plain region was inundated by the Mississippi River, and most of the land in the Black River watershed was forested wetland. The conversion of these swamplands to agriculture began as early as the late 1860s, so it is difficult to quantify the severity of wetland loss in the watershed. The 1867 Illustrated Gazetteer of Missouri describes the portion of Butler County where the proposed project lies as being a swamp that was inundated by the Mississippi River. Portions of Butler County further downstream along the Black River are described as a lake. Today, wetlands are absent from most of the watershed, and many streams have been channelized to ditches and lack many of their historical ecological functions.

Water quality in the Black River watershed is generally fair, but several streams in the lower subbasin are impaired. Six waterbodies are listed as 303(d) impaired for various reasons, including heavy metal contamination, high water temperature, and low dissolved oxygen.

Despite highly altered aquatic systems, the lower subbasin of the Black River watershed is home to several state endangered fish: the Cypress Minnow, Taillight Shiner, Sabine Shiner, Mountain Madtom, Crystal Darter, Swamp Darter, Harlequin Darter, and Longnose Darter. These species depend on slow moving lowland streams and wetlands for their life cycle, and many such habitats have been lost in the watershed.

Mitigation Site Goals and Objectives

The objectives of the Butler County Wetland Mitigation Site are to restore aquatic habitats that have been historically depleted in the Black River Watershed, including forested and emergent wetlands. Each of these habitat types has been depleted over time to accommodate expanded agricultural development, and the proposed site is located in a strategic position to meet the needs of the watershed. The proposed mitigation site will restore and protect 1.8 acres of forested wetlands and 23.2 acres of emergent wetlands, generating 112.86 wetland credits. These restored habitats will reduce nutrient pollution and runoff into the Black River Watershed while supporting a diverse community of native plants. Wetland habitats will support native wildlife including species of conservation concern found in the watershed, and the restored wetland hydrology will help reduce the impact of future flood events on areas downstream along the unnamed perennial tributary and the Black River. The proposed site is proximate to other restored and protected lands and contains soil types and current uses that are compatible with restoration.

Site Selection

The proposed mitigation site was chosen based on characteristics that will meet the needs of the Black River Watershed. The watershed is impaired due to historic wetland loss and stream channelization, including widespread loss of forested habitats. This has led to increased nutrient pollution and other impairments related to agricultural runoff. This site will address multiple functions of the watershed by restoring emergent and forested wetland habitats. Its location is proximate to other restored and protected lands and high enough in the watershed to benefit a lengthy stretch downstream of the site.

The proposed wetland areas are highly suitable for wetland restoration with hydric soils and evidence of wetland vegetation. However, the site is currently drained for farming and is not functioning as a wetland. The site is graded to drain eastward to the unnamed perennial tributary, which forms the eastern border of the site. There is a drainage feature exhibiting some erosion where runoff from the field enters the tributary. A water control berm will be placed across this drainage feature to prevent water from draining to the unnamed perennial tributary. Another berm will be placed along the western border of the property to prevent drainage to the road ditch along Missouri Highway 53.

The surrounding land use is almost entirely agriculture. Missouri Highway 53 borders the site to the west. The site is well positioned to capture and filter agricultural runoff, and the restored wetlands will provide additional habitat to wetland species in the area. This region of Missouri is a major flyway for waterfowl and other migratory birds, including many species of conservation concern, that could benefit from the restored wetlands on the proposed mitigation site.

Site Protection Instrument

The areas that will be restored and preserved will be placed under deed restriction in perpetuity.

A USACE approved Deed Restriction for mitigation sites will be filed and recorded with the Butler County Recorder of Deeds to ensure that the mitigation site is protected in perpetuity. A copy of the language that shall be used to deed restrict the mitigation site is included as Exhibit C.

Baseline Information

Overview

The proposed mitigation site is a 25 acre portion of a larger agricultural property. The project area is currently in row crop production. The remainder of the property was restored to wetlands as a permittee responsible mitigation project, part of Corps project number SWL-2021-00025.

Aquatic Resources

The site is bordered by a perennial stream and contains conditions appropriate for restoring wetland habitats. A wetland delineation and additional baseline information, including a summary of all aquatic resources on site, is provided as Exhibit A, below.

Photos



1 – Aerial overview of proposed project area and erosion feature draining the site to the adjacent intermittent stream. Facing northwest.



2 – Aerial overview of the proposed project area facing southeast.



3 – Aerial overview of proposed project area and erosion feature draining the site to the adjacent intermittent stream. Facing southwest.

Cultural Resources

The site was surveyed for cultural resources in 2023, when the area was being investigated as a permittee responsible mitigation site for the Missouri Department of Transportation (MoDOT). Subsequently, the north parcel was developed for MoDOT instead, but the results of the initial survey are still applicable. The initial survey revealed no cultural resources on site, as confirmed by the attached letter from the State Historic Preservation Office (see Appendix E). Time has passed since the initial survey, so an additional cultural resource survey is planned for early spring 2025, the results of which will be attached to the Final Instrument or otherwise shared with the Corps.

Determination of Credits

Wetland Credits

Wetland credits were calculated using the Missouri Wetland Mitigation Method (MWMM, 2017). Each credit generating element is defined below. Wetland areas are defined in **Figure 3**, below.

Mitigation Activity: The proposed work includes forested and emergent wetland restoration.

Aquatic Resource Type: MWMM defined resource types included in the proposed work are Type A (forested wetlands with canopy height > 6 meters) and Type B (emergent wetlands).

Priority Category: The proposed mitigation site is adjacent to an existing mitigation site and assigned secondary priority under the MWMM.

Site Control: The project will be placed under a perpetual deed restriction enforced by the Corps.

Temporal Loss: Site conditions are well suited to wetland restoration, so emergent wetlands will achieve desired ecological functions within five years. Forested wetlands will take ten to twenty years to mature, which introduces some temporal loss into credit calculations.

Credit Schedule: Mitigation banks are assigned Credit Schedule 1 under the MWMM.

Kind: The MWMM assigns Category 1, or 100% in-kind, to mitigation banks. The proposed site includes multiple resource types that will meet the needs of the watershed.

Vegetation: Wetland areas will be planted with appropriate native vegetation.

Wetland credits generated for each mitigation activity are detailed in **Table 1**, below.

Table 1. Wetland Credit Factors for Butler County Wetland Mitigation Site

	Emergent Wetland Restoration	Forested Wetland Restoration
Aquatic Resource Type	Type B – 0.40	Type A – 0.80
Priority Category	Secondary – 0.5	Secondary – 0.5
Site Control	Deed Restriction – 2.0	Deed Restriction – 2.0
Temporal Loss	0 to 5 years – 0	10 to 20 years – (-0.2)
Credit Schedule	Schedule 1 – 0.60	Schedule 1 – 0.60
Kind	Category 1 – 0.80	Category 1 – 0.80
Vegetation	Planted – 0.20	Planted – 0.20
Sum of Factors	4.5	4.7
Mitigation Area	23.2 ac	1.8 ac
Credits	104.4	8.46

Total Wetland Credits: 112.86

Mitigation Work Plan

Restoring Wetland Hydrology

Mitico will restore hydrology to proposed wetland areas by reversing the drainage between the field and the unnamed perennial tributary. A topographic overview of the site with proposed construction areas is provided below.

Three low-profile berms will be created to retain hydrology in proposed wetland areas. The longest berm will run along the western boundary of the proposed wetland area to prevent the site from draining to the road ditch along Missouri Highway 53, and another smaller berm will reverse each of two existing drainage features that connects the site to the unnamed perennial tributary (**Figure 4**). Each proposed berm will be constructed to an elevation of 320 feet above sea level and will retain water in the proposed wetland area without flooding any adjacent properties. At full pool, the emergent wetland areas will be inundated to an average depth of less than one foot, and forested wetland areas will be saturated within one foot of the surface.

In addition to the berms described above to retain hydrology, a spillway will be placed within the berm separating this proposed site from the previously completed wetland mitigation site. Its elevation will be the same as the existing spillway to the unnamed tributary, allowing excess hydrology from the existing site to flow to the newly proposed site without impacting the existing wetland hydrology.

Figure 3. Butler County Wetland Mitigation Site Overview



Restoring Wetland Vegetation

Upon completion of construction, all wetland areas will be seeded with an appropriate mix of native vegetation. Where appropriate, non-native species will be managed prior to seeding and during ongoing site maintenance. Emergent wetlands will be seeded with the mix of species found in **Table 2**, and forested wetlands will be seeded with the species found in **Table 3**.

Forested wetlands will be planted with a mix of native wetland trees with 25 foot spacing. Trees will be planted from the list found in **Table 4** as appropriate and depending on tree availability. No species will account for greater than 10 percent of the individual trees planted.

Figure 4. Detail Map of Wetland Topography and Construction Areas

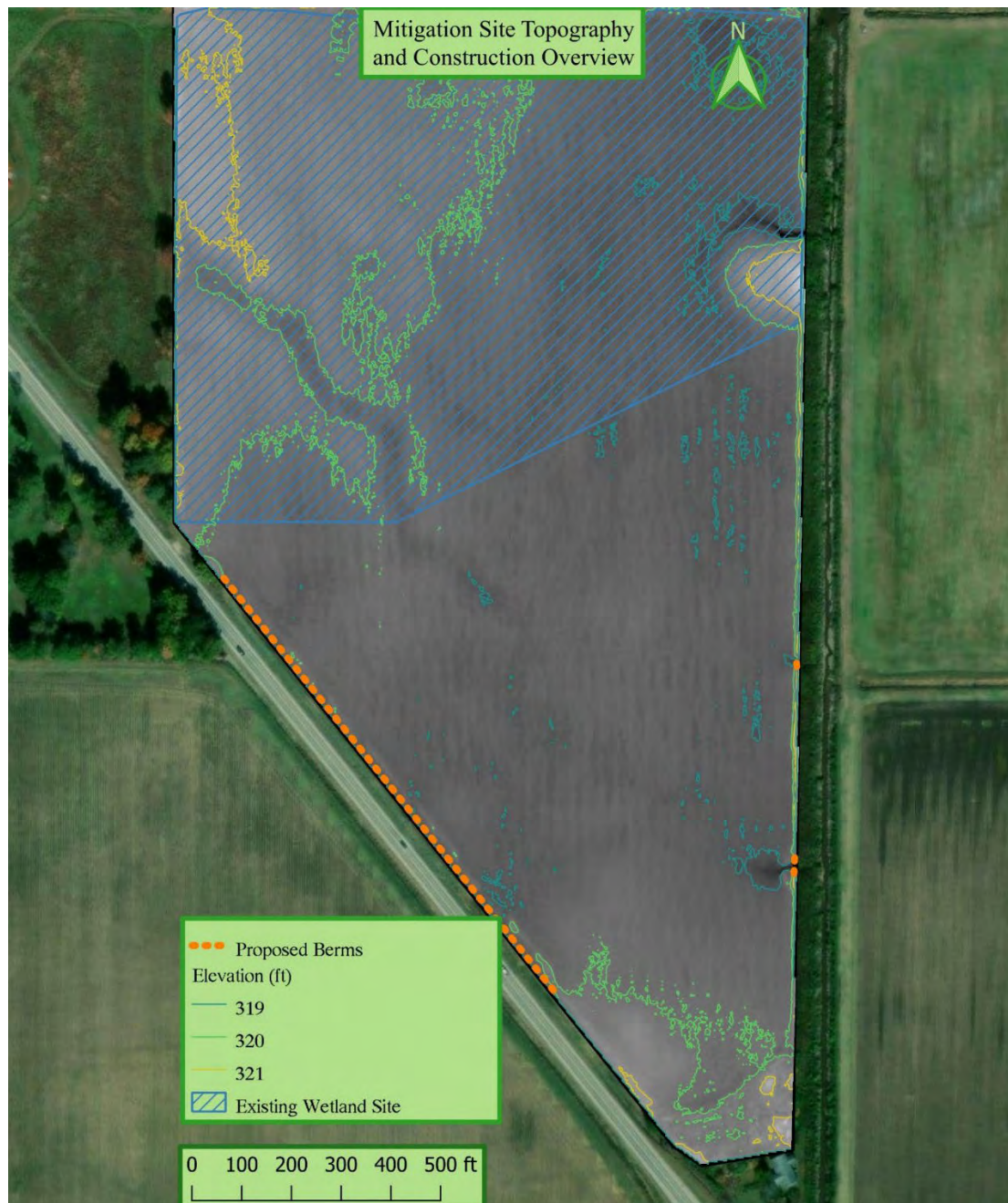


Table 2. Emergent Wetland Seed Mix

Common Name	Scientific Name	Common Name (cont.)	Scientific Name (cont.)
Small Yellow Fox Sedge	<i>Carex annectens</i>	Prairie Blazing Star	<i>Liatris pycnostachya</i>
Brown Fox Sedge	<i>Carex vulpinoidea</i>	Seedbox	<i>Ludwigia alternifolia</i>
Canada Wild Rye	<i>Elymus canadensis</i>	Wild Bergamont	<i>Monarda fistulosa</i>
Virginia Wild Rye	<i>Elymus virginicus</i>	Common Evening Primrose	<i>Oenothera biennis</i>
Switch Grass	<i>Panicum virgatum</i>	Foxglove Beardtongue	<i>Penstemon digitalis</i>
Plains Coreopsis	<i>Coreopsis tinctorial</i>	Purple Prairie Clover	<i>Petalostemum purpureum</i>
Swamp Milkweed	<i>Asclepias incarnata</i>	Obedient Plant	<i>Physostegia virginiana</i>
Common Milkweed	<i>Asclepias syriaca</i>	Slender Mountain Mint	<i>Pycnanthemum tenuifolium</i>
Partridge Pea	<i>Cassia fasciculata</i>	Grayhead Coneflower	<i>Ratibida pinnata</i>
Lance-leaved Coreopsis	<i>Coreopsis lanceolata</i>	Black-eyed Susan	<i>Rudbeckia hirta</i>
Illinois Bundle Flower	<i>Desmanthus illinoensis</i>	Stiff Goldenrod	<i>Solidago rigida</i>
Showy Tick Trefoil	<i>Desmodium canadense</i>	New England Aster	<i>Symphyotrichum novae-angliae</i>
Purple Coneflower	<i>Echinacea purpurea</i>	Blue Vervain	<i>Verbena hastata</i>
Rattlesnake Master	<i>Eryngium yuccifolium</i>	Culvers Root	<i>Veronicastrum virginicum</i>
False Sunflower	<i>Heliopsis helianthoides</i>	Golden Alexanders	<i>Zizia aurea</i>

Table 3. Forested Wetland Seed Mix

Common Name	Scientific Name	Common Name (cont.)	Scientific Name (cont.)
Fringed Sedge	<i>Carex crinita</i>	Great Blue Lobelia	<i>Lobelia siphilitica</i>
Bristly Cattail Sedge	<i>Carex frankii</i>	Bunch Flower	<i>Melanthium virginicum</i>
Sallow Sedge	<i>Carex lurida</i>	Monkey Flower	<i>Mimulus ringens</i>
River Oats	<i>Chasmanthium latifolium</i>	Hairy Beardtongue	<i>Penstemon hirsutus</i>
Virginia Wild Rye	<i>Elymus virginicus</i>	Solomon's Seal	<i>Polygonatum biflorum</i>
Fowl Manna Grass	<i>Glyceria striata</i>	Wild Golden Glow	<i>Rudbeckia laciniata</i>
Fowl Bluegrass	<i>Poa palustris</i>	Brown Eyed Susan	<i>Rudbeckia triloba</i>
Common Beggarticks	<i>Bidens frondosa</i>	Wild Senna	<i>Senna herbecarpa</i>
Smallspike False Nettle	<i>Boehmeria cylindrica</i>	Cup Plant	<i>Silphium perfoliatum</i>
Tall Bellflower	<i>Campanula americana</i>	Calico Aster	<i>Symphyotrichum lateriflorus</i>
Buttonbush	<i>Cephalanthus occidentalis</i>	Wingstem	<i>Verbesina alternifolia</i>
Sweet Joe Pye Weed	<i>Eupatorium purpureum</i>	Golden Alexanders	<i>Zizia aurea</i>
White Snakeroot	<i>Eupatorium rugosum</i>		

Table 4. Forested Wetland Tree and Shrub List

Common Name	Scientific Name	Common Name (cont.)	Scientific Name (cont.)
Box Elder	<i>Acer negundo</i>	Eastern Cottonwood	<i>Populus deltoides</i>
Silver Maple	<i>Acer saccharinum</i>	Swamp White Oak	<i>Quercus bicolor</i>
Sugarberry	<i>Celtis laevigata</i>	Overcup Oak	<i>Quercus lyrata</i>
Hackberry	<i>Celtis occidentalis</i>	Bur Oak	<i>Quercus macrocarpa</i>
Buttonbush	<i>Cephalanthus occidentalis</i>	Pin Oak	<i>Quercus palustris</i>
Silky Dogwood	<i>Cornus amomum</i>	Sandbar Willow	<i>Salix interior</i>
Water Tupelo	<i>Nyssa aquatica</i>	Black Willow	<i>Salix nigra</i>
American Sycamore	<i>Platanus occidentalis</i>	Bald Cypress	<i>Taxodium distichum</i>

Maintenance Plan

The mitigation site will be operated and maintained by Mitico, a Missouri limited liability company, until all performance standards have been met, and performance will be assured through the bond described in this Plan at page 20. Fee title to the site is owned by Mitico, and the property will be subject to the perpetual deed restriction in a form approved by the Corps and attached below as Appendix D. Monitoring, maintenance and long-term management will conform with the details outlined below at pages 17 and 18.

Ecological Performance Standards

All wetland areas will be evaluated for performance based on objective attributes consistent with 33 CFR 332.5 and based on establishment of hydrology and wetland vegetation. **Table 5**, below, shows performance standards for forested and emergent wetlands.

Table 5. Wetland Performance Standards

Emergent Wetlands		
Performance Standards	Years 1-3	Years 4-5
Hydrology	<ul style="list-style-type: none"> All wetland areas must be inundated or saturated to within 12 inches of the soil surface for at least 14 consecutive days each growing season. No more than 20% of the wetland area shall consist of unvegetated open water, measured no later than September 15th of each monitoring year. 	
Vegetation	<ul style="list-style-type: none"> At least 50% of vegetative cover is Facultative or wetter (FAC, FACW, OBL) No more than 25% of vegetative cover is comprised of undesirable or non-native species No species shall account for more than 30% of vegetative cover 	<ul style="list-style-type: none"> At least 80% of vegetative cover is Facultative or wetter (FAC, FACW, OBL) No more than 10% of vegetative cover is comprised of undesirable or non-native species No species shall account for more than 10% of vegetative cover
Forested Wetlands		
Performance Standards	Years 1-3	Years 4-5
Hydrology	<ul style="list-style-type: none"> All wetland areas must be inundated or saturated to within 12 inches of the soil surface for at least 14 consecutive days each growing season. No more than 20% of the wetland area shall consist of unvegetated open water, measured no later than September 15th of each monitoring year. 	
Vegetation	<ul style="list-style-type: none"> At least 50% of herbaceous vegetative cover is Facultative or wetter (FAC, FACW, OBL) At least 50% of woody vegetative cover is Facultative or wetter (FAC, FACW, OBL) No more than 25% of vegetative cover is comprised of undesirable or non-native species No species shall account for more than 30% of the herbaceous vegetative cover No species shall account for more than 30% of the woody vegetative cover 	<ul style="list-style-type: none"> At least 80% of herbaceous vegetative cover is Facultative or wetter (FAC, FACW, OBL) At least 50% of woody vegetative cover is Facultative or wetter (FAC, FACW, OBL) No more than 10% of vegetative cover is comprised of undesirable or non-native species No species shall account for more than 10% of the herbaceous vegetative cover No species shall account for more than 10% of the woody vegetative cover

Monitoring Plan

Annual monitoring will be conducted by the Sponsor, or its authorized agent, consistent with 33 CFR 332.6 to determine whether the compensatory mitigation project is meeting key performance milestones. Monitoring will begin prior to the end of the first growing season (understood to be May 1 to November 1) during which construction is complete or substantially complete and continue for a minimum of five years (monitoring cycles). It may be extended if the Corps determines that performance standards are not being met or that the mitigation site is not on track to meet them.

Monitoring will include a site visit with a schedule of monitoring events and a visual analysis showing site conditions and progress toward achieving performance standards consistent with Corps' Regulatory Guidance Letter 08-03 Minimum Monitoring Requirements for Compensatory Mitigation Projects Involving the Restoration, Establishment, and/or Enhancement of Aquatic Resources and Section E of the 1987 Corps of Engineers Wetlands Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0), as these documents may be revised or updated from time to time.

For each resource type (emergent wetland, forested wetland), 10% of the total area will be evaluated through transects or randomized plots as determined to be appropriate by the Sponsor. Annual monitoring will document conditions and establish photo points to visually document conditions. The Sponsor will take any needed remedial actions, including repair of constructed elements and replanting, consistent with adaptive management principles.

If monitoring reveals site conditions or ecological responses that were not anticipated in this plan or that call for a change in plan design or parameters, the Sponsor will notify the Corps immediately and propose an adaptive management strategy.

Monitoring findings will be documented in a written report provided to the USACE for review within 60 days of the completion of each monitoring visit. The report, in accordance with Regulatory Guidance Letter 08-03, will identify how the observed site conditions have progressed toward and/or achieved the ecological performance standards identified above. The report will also include a list of invasive/undesirable plant species, and their coverage, along with recommendations for control, and a narrative description of any damage to the earthen berms and any damage from wildlife or insects. The report will also contain a photographic summary of all relevant features that support its findings.

If, at the end of the five-year monitoring period, the USACE has determined that the performance standards and mitigation objectives have been met, the mitigation will be considered self-sustaining, and further annual monitoring is not required. If five-year performance standards are met prior to the end of five years, monitoring will nevertheless continue to the fifth year. However, if the USACE determines that the mitigation project has not met the performance standards by the end of five years, then the USACE at its discretion may require additional monitoring, and/or corrective actions for an additional period.

Long-Term Management and Maintenance

After performance standards are met and annual monitoring is discontinued, the Sponsor will enter into a contractual arrangement with Land Learning Foundation, a Missouri nonprofit corporation and land trust, (LLF) to manage the site for conservation consistent with adaptive management principles pursuant to the provisions of 33 CFR 332.7(c). This will include, when needed, addressing any serious condition that threatens project integrity consistent with adaptive management principles, and repairing or replacing damaged signs.

To ensure that sufficient resources are available for long-term management as required by 33 CFR 332.7(d)(3), the Sponsor will transfer funds to LLF for deposit to a nonwasting stewardship endowment. The amount of transfer is based on an actuarial risk-based model derived from the Land Trust Alliance that calculates the present value of annual long-term site management. It is estimated that an endowed fund of \$50,000 will be sufficient to cover these costs.

Should LLF for any reason wish to transfer long-term management responsibilities of the site to a third party, LLF will notify the Corps prior to transfer and the requirements of 33 CFR 332.7(d) will be met.

Adaptive Management plan

If the compensatory mitigation project cannot be constructed in accordance with this plan, or if monitoring or other information indicates that the compensatory mitigation project is not progressing toward performance standard milestones as anticipated the Sponsor will notify the USACE pursuant to 33 CFR 332.7(c). The Sponsor will provide relevant details and submit a plan to address any deficiencies, including any needed modification of the project or revision of performance standards. The USACE will evaluate and approve or pursue measures to address deficiencies. Any significant modification of the project requires USACE approval. In evaluating and approving corrective measures or modifications, the USACE will consider whether the compensatory mitigation project is providing ecological benefits comparable to the original objectives of the compensatory mitigation project.

Financial Assurances

In accordance with 33 CFR 332.3(n), financial assurances will be in the form of a performance bond. The bond issuer will enter an agreement with the Sponsor to fund fulfillment of mitigation obligations at the site in the event it is determined by USACE that the Sponsor has failed to meet those obligations as outlined in this Banking Instrument. The USACE has the sole authority to determine compliance with those obligations.

Should the USACE determine that remedial action is necessary because mitigation obligations have not been met, the Sponsor will develop and implement an action plan in coordination with the USACE. The Sponsor assumes the financial and actual responsibility to implement that plan. If the Sponsor fails to complete the remedial action within 120 calendar days after approval of the remedial action plan, the USACE may make a claim by providing written notice to the bond issuer.

If such a claim is made, the bond issuer will satisfy any deficiencies determined by the USACE through payment to an approved USACE-designee. A claim can only be made by the USACE, and any corrective measures must be approved by the USACE.

The initial dollar limit of liability secured by the bond will be in an amount sufficient to conduct repairs of constructed elements and replanting if needed following completion of construction. The amount was determined in accordance with 33 CFR 332.2(n) based on the size and complexity of the compensatory mitigation contemplated by this Plan, the degree of completion of the project, the likelihood of success, and the past performance of the project sponsor. Specific maintenance and management cost estimates are set forth in the table below and are based on Sponsor's experience with multiple restoration and mitigation sites throughout the State of Missouri. They reflect the best estimate of costs to complete the required element if remedial action becomes necessary.

Table 6. Financial Assurance Amounts

Maintenance / Management Element	Estimated Cost
Wetland Re-planting	\$10,000
Invasive Species Control	\$5,000
Wetland Berm Repairs (Material & Labor)	\$5,000
Total Initial Bond Amount	\$20,000

Should a claim not be made, the dollar limit of liability will be reduced according to the following schedule: fifty percent (50%) after the second year's performance standards are met and the remaining value of the bond after the fifth year's performance standards are met. Any endorsement by the Corps acknowledging that these milestones have been met must be provided in writing to the bond issuer. The issuer may then reduce or adjust the limit of liability accordingly by issuing an endorsement to the Policy setting forth the new limit of liability.

Other Provisions

In the event of a complete or partial mitigation site failure attributed to natural catastrophes, such as a flood of historic proportion, fire, wind, drought, disease, regional pest infestation, etc.; the Sponsor will contact the USACE to evaluate the physical and functional changes to the mitigation area. If such events occur before performance standards are met, the USACE will determine the extent of site changes. The Sponsor in consultation with USACE will request changes to any corrective actions, modification to the performance

standards, or credit availability for the mitigation site. The Sponsor may not be held responsible for natural catastrophes that may occur after the mitigation site has successfully met performance standards. If such events occur after performance standards are met the site will be evaluated to determine if additional efforts are necessary.

Mitico will not grant easements, rights of way, or any other property interest without the written consent of the Landowner and USACE.

References

Black River Watershed and Inventory Assessment. Paul Cieslewicz, Missouri Department of Conservation (2004)

Missouri As It Is In 1867: an illustrated historical gazetteer of Missouri. George Clinton Swallow. (1867; <https://mdh.contentdm.oclc.org/digital/collection/mocohist/id/93441/rec/149>)

Missouri Spatial Data Information Service (<https://msdis.missouri.edu/>)

Appendix B: Wetland Delineation

Butler County Wetland Mitigation Site Baseline Conditions Report

On-Site Soils performed a baseline conditions survey to record existing site conditions and evaluate the suitability of the site for restoration.

- Historic and existing plant communities

Historically, the floodplains along the Black River watershed consisted of emergent and forested wetlands and bottomland forests. During the last 150 years much of this area has been drained, separated from the stream by levees, and cleared for agricultural purposes. Unfortunately, the subject site has experienced this same manipulation and lacks any pre-settlement habitat conditions. The entire site has been row cropped and has been for decades.

- Historic and existing hydrology

Historically, this area would receive floodwater from the Black River. Today, due to levee construction, this area only sees floodwater during flood and rain events. The site does fall within FEMA's 100-year floodplain. According to the Butler County soil survey, the areas that are proposed for wetland restoration have a water table that exists at less than 12 inches. During soil sampling, many of the samples contained redoximorphic conditions starting at a depth of 3-12 inches.

-Soil Conditions

Our soil sampling methods focused on the potential area for wetland development. The area chosen for wetland development contained broad swales and drainage patterns that focus overland water.

The soils found within the entire site were classified as silty clay with some silt loam. In all soil samples, redoximorphic features were observed which gives evidence to the presence of saturated conditions. Many of these features consisted of a reduced matrix with few masses and depletions of iron.

-Wetland Delineation

Since the site has been row cropped for many decades, the traditional wetland characteristics have been masked or altered. Due to row cropping, the vegetation has been altered from its natural state therefore our focus was on hydrology and soils. The site is adjacent to an existing drainage ditch that has been present since the early 1900's. A historic slide review was conducted to determine the frequency of saturation or inundation. Historic aerial photos were reviewed that covered years 1985 through 2020. During those years, there were areas that showed inundation during the growing season. Below is an aerial photo showing the location of the sample sites.



WETLAND DETERMINATION DATA FORM – Midwest Region (DRAFT)

Project/Site: Butler County Wetland Mitigation Site City/County: Butler Co Sampling Date: 11/8/22

Applicant/Owner: MITICO State: MO Sampling Point: T1S1

Investigator(s): On-Site Soils – Matt Roth Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none

Slope (%): 0-2% Lat 36.699089 Long: -90.358109 Datum: _____

Soil Map Unit Name: Calhoun silt loam NWI classification: None

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

Are Vegetation yes, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes _____ No x

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes NA No NA

Hydric Soil Present? Yes x No _____

Wetland Hydrology Present? Yes x No _____

Is the Sampled Area
Within a Wetland? Yes x No _____

Remarks: The entire project site was under cultivation during the growing season.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot sizes: 10 meter radias)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
Total Cover: _____			

Sapling/Shrub Stratum (_____)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
Total Cover: _____			

Herb Stratum (10 meter radias)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
Total Cover: _____			

Woody Vine Stratum (_____)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
Total Cover: _____			

Dominance Test worksheet:

Number of Dominant Species
That Are OBL, FACW, or FAC: _____ (A)

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

Percent of Dominant Species
That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%
 ____ Prevalence Index is < or = to 3.0*
 ____ Morphological Adaptations* (Provide supporting
 data in Remarks or on a separate sheet)
 ____ Problematic Hydrophytic Vegetation* (Explain)

*Indicators of hydric soil and wetland hydrology must
 be present.

Hydrophytic Vegetation
 Present? Yes _____ No _____

Remarks: (Include photo numbers here or on a separate sheet.) Vegetation was not used as a determining factor due to cultivation and time of year

SOIL

Sampling Point: T1S1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10 YR 4/4		10 YR 5/8	20	D	M	sil	
6-10	10 YR 5/4		10 YR 5/8	20	D	M	sil	
10-15	10 YR 5/3		10 YR 5/6	20	D	M	sil	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Coast Prairie Redox (A18)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input checked="" type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> 2 cm Muck (A10)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reductions in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge of Well Data D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____Water Table Present? Yes ☐ No ☒ Depth (inches): _____Saturation Present? Yes ☐ No ☒ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Hydrology has been altered by drainage ditches to remove water. It is probably due to these conditions that only secondary indicators are apparent.

WETLAND DETERMINATION DATA FORM – Midwest Region (DRAFT)

Project/Site: Butler County Wetland Mitigation Site City/County: Butler Co Sampling Date: 11/8/22

Applicant/Owner: MITICO State: MO Sampling Point: T1S2

Investigator(s): On-Site Soils – Matt Roth Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none

Slope (%): 0-2% Lat 36.699559 Long: -90.357528 Datum: _____

Soil Map Unit Name: Calhoun silt loam NWI classification: None

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

Are Vegetation yes, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes _____ No x

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes NA No NA

Hydric Soil Present? Yes x No _____

Wetland Hydrology Present? Yes x No _____

Is the Sampled Area Within a Wetland? Yes x No _____

Remarks: The entire project site was under cultivation during the growing season.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot sizes: 10 meter radias)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
Total Cover: _____			

Sapling/Shrub Stratum (_____)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
Total Cover: _____			

Herb Stratum (10 meter radias)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
Total Cover: _____			

Woody Vine Stratum (_____)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
Total Cover: _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%

____ Prevalence Index is < or = to 3.0*

____ Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation* (Explain)

*Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes _____ No _____

Remarks: (Include photo numbers here or on a separate sheet.) Vegetation was not used as a determining factor due to cultivation and time of year

SOILSampling Point: T1S2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10 YR 4/4		10 YR 5/8	20	D	M	sil	
8-11	10 YR 5/4		10 YR 5/8	20	D	M	sil	
11-15	10 YR 5/3		10 YR 5/6	20	D	M	sil	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Coast Prairie Redox (A18)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input checked="" type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> 2 cm Muck (A10)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reductions in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge of Well Data D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____Water Table Present? Yes ☐ No ☒ Depth (inches): _____Saturation Present? Yes ☐ No ☒ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Hydrology has been altered by drainage ditches to remove water. It is probably due to these conditions that only secondary indicators are apparent.

WETLAND DETERMINATION DATA FORM – Midwest Region (DRAFT)

Project/Site: Butler County Wetland Mitigation Site City/County: Butler Co Sampling Date: 11/8/22

Applicant/Owner: MITICO State: MO Sampling Point: T1S3

Investigator(s): On-Site Soils – Matt Roth Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none

Slope (%): 0-2% Lat 36.699761 Long: -90.356750 Datum: _____

Soil Map Unit Name: Calhoun silt loam NWI classification: None

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

Are Vegetation yes, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes _____ No x

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes NA No NA

Hydric Soil Present? Yes x No _____

Wetland Hydrology Present? Yes x No _____

Is the Sampled Area Within a Wetland? Yes x No _____

Remarks: The entire project site was under cultivation during the growing season.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot sizes: 10 meter radias)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
Total Cover: _____			

Sapling/Shrub Stratum (_____)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
Total Cover: _____			

Herb Stratum (10 meter radias)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
Total Cover: _____			

Woody Vine Stratum (_____)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
Total Cover: _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%

____ Prevalence Index is < or = to 3.0*

____ Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation* (Explain)

*Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes _____ No _____

Remarks: (Include photo numbers here or on a separate sheet.) Vegetation was not used as a determining factor due to cultivation and time of year

SOIL

Sampling Point: T1S3

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10 YR 4/4		10 YR 5/8	20	D	M	sil	
8-110	10 YR 5/4		10 YR 5/8	20	D	M	sil	
10-15	10 YR 5/3		10 YR 5/6	20	D	M	sil	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Coast Prairie Redox (A18)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input checked="" type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> 2 cm Muck (A10)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reductions in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Guage of Well Data D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____Water Table Present? Yes ☐ No ☒ Depth (inches): _____Saturation Present? Yes ☐ No ☒ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspection), if available

Remarks:

Hydrology has been altered by drainage ditches to remove water. It is probably due to these conditions that only secondary indicators are apparent.

WETLAND DETERMINATION DATA FORM – Midwest Region (DRAFT)

Project/Site: Butler County Wetland Mitigation Site City/County: Butler Co Sampling Date: 11/8/22

Applicant/Owner: MITICO State: MO Sampling Point: T2S1

Investigator(s): On-Site Soils – Matt Roth Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none

Slope (%): 0-2% Lat 36.698286 Long: -90.357499 Datum: _____

Soil Map Unit Name: Calhoun silt loam NWI classification: None

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

Are Vegetation yes, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes _____ No x

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes NA No NA

Hydric Soil Present? Yes x No _____

Wetland Hydrology Present? Yes x No _____

Is the Sampled Area
Within a Wetland? Yes x No _____

Remarks: The entire project site was under cultivation during the growing season.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot sizes: 10 meter radias)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
Total Cover: _____			

Sapling/Shrub Stratum (_____)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
Total Cover: _____			

Herb Stratum (10 meter radias)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
Total Cover: _____			

Woody Vine Stratum (_____)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
Total Cover: _____			

Dominance Test worksheet:

Number of Dominant Species
That Are OBL, FACW, or FAC: _____ (A)

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

Percent of Dominant Species
That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%
 ____ Prevalence Index is < or = to 3.0*
 ____ Morphological Adaptations* (Provide supporting
 data in Remarks or on a separate sheet)
 ____ Problematic Hydrophytic Vegetation* (Explain)

*Indicators of hydric soil and wetland hydrology must
 be present.

**Hydrophytic Vegetation
Present?** Yes _____ No _____

Remarks: (Include photo numbers here or on a separate sheet.) Vegetation was not used as a determining factor due to cultivation and time of year

SOIL

Sampling Point: T2S1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10 YR 4/4		10 YR 5/8	20	D	M	sil	
6-110	10 YR 5/4		10 YR 5/8	20	D	M	sil	
10-15	10 YR 5/3		10 YR 5/6	20	D	M	sil	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Coast Prairie Redox (A18)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input checked="" type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> 2 cm Muck (A10)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reductions in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge of Well Data D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____
Water Table Present? Yes ☐ No ☒ Depth (inches): _____
Saturation Present? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Hydrology has been altered by drainage ditches to remove water. It is probably due to these conditions that only secondary indicators are apparent.

WETLAND DETERMINATION DATA FORM – Midwest Region (DRAFT)

Project/Site: Butler County Wetland Mitigation Site City/County: Butler Co Sampling Date: 11/8/22

Applicant/Owner: MITICO State: MO Sampling Point: T2S2

Investigator(s): On-Site Soils – Matt Roth Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none

Slope (%): 0-2% Lat 36.698579 Long: -90.356591 Datum: _____

Soil Map Unit Name: Calhoun silt loam NWI classification: None

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

Are Vegetation yes, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes _____ No x

Are Vegetation no, Soil no, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes NA No NA

Hydric Soil Present? Yes x No _____

Wetland Hydrology Present? Yes x No _____

Is the Sampled Area Within a Wetland? Yes x No _____

Remarks: The entire project site was under cultivation during the growing season.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot sizes: 10 meter radias)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
Total Cover: _____			

Sapling/Shrub Stratum (_____)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
Total Cover: _____			

Herb Stratum (10 meter radias)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
Total Cover: _____			

Woody Vine Stratum (_____)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
Total Cover: _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%

____ Prevalence Index is < or = to 3.0*

____ Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation* (Explain)

*Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes _____ No _____

Remarks: (Include photo numbers here or on a separate sheet.) Vegetation was not used as a determining factor due to cultivation and time of year

SOILSampling Point: T2S2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10 YR 4/4		10 YR 5/8	20	D	M	sil	
6-12	10 YR 5/4		10 YR 5/8	20	D	M	sil	
12-15	10 YR 5/3		10 YR 5/6	20	D	M	sil	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Coast Prairie Redox (A18)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input checked="" type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> 2 cm Muck (A10)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reductions in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge of Well Data D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____
 Water Table Present? Yes ☐ No ☒ Depth (inches): _____
 Saturation Present? Yes ☐ No ☒ Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

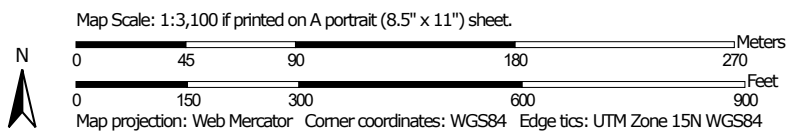
Hydrology has been altered by drainage ditches to remove water. It is probably due to these conditions that only secondary indicators are apparent.

Appendix C: Soil Map

Soil Map—Butler County, Missouri
(Butler County Wetland Mitigation Site)




Soil Map may not be valid at this scale.



Soil Map—Butler County, Missouri
(Butler County Wetland Mitigation Site)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Butler County, Missouri

Survey Area Data: Version 27, Aug 19, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 18, 2022—Sep 25, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
86001	Calhoun silt loam, 0 to 1 percent slopes, occasionally flooded	24.4	100.0%
Totals for Area of Interest		24.4	100.0%

Appendix D: Deed Restriction

NOTICE OF DEED RESTRICTION

STATE OF MISSOURI

COUNTY OF _____

KNOW ALL MEN BY THESE PRESENTS THAT _____ is the owner of that real property more particularly described in the enclosed legal description and shown in the enclosed map of the mitigation site based on a survey performed by a registered professional land surveyor; the legal description and the map attached as Exhibit A are both made a part hereof. For all purposes throughout this document, that real property will be referred to as the "Property." As of the date executed, the Property has been designated as a mitigation site associated with US Army Corps of Engineers Section 404 Permit No. <<Action Number>>, or a revision thereof. The permit grants authorization to the Missouri Department of Transportation for the placement of fill material in waters of the United States, and the mitigation site on the Property is intended to offset the impact of that placement. Any purchaser of all or any part of the Property or any person having an interest in or proposing to acquire an interest in all or any part of the Property, or any person proposing to develop or improve all or any part of the Property, is hereby notified of the following development restriction affecting the Property:

Any activity on the Property must comply with the terms and special conditions described in US Army Corps of Engineers Section 404 Permit No. <<Action Number>>, or a revision thereof. It should be noted that the Property has been designated to be preserved for riparian buffer and wildlife habitat mitigation, and may not be converted to another use, including but not limited to: clearing, logging, bushhogging, mowing, spraying with herbicides, filling, leveling, draining, dumping, construction of any structure other than for wildlife enhancement, or any other activity that would adversely impact the natural state of the area. Natural resource management or wildlife enhancement activities involving alteration of the Property would require prior approval from the Little Rock District Corps of Engineers.

EXECUTED this _____ day of _____, 20__ By:

SUBSCRIBED AND SWORN TO BEFORE ME by _____, on this _____ day of _____, 20__ to certify which witness my hand and seal of office.

Notary Public in and for the State of Missouri

My Commission expires:

Printed Name of Notary:

Appendix E: Cultural Resources Information



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Michael L. Parson
Governor

Dru Buntin
Director

August 25, 2023

Burns & McDonnell
Attn: Andrew Gottsfield
9400 Ward Parkway
Kansas City, MO 64114

Re: **SHPO Project Number: 028-BU-23** – MoDOT Upper Black River Wetland Mitigation Site,
4395 Route MO-53, Poplar Bluff, Butler County, Missouri (USACE/FHWA)

Dear Andrew Gottsfield:

Thank you for submitting information to the State Historic Preservation Office (SHPO) regarding the above-referenced project for review pursuant to Section 106 of the National Historic Preservation Act, P.L. 89-665, as amended (NHPA), and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which require identification and evaluation of historic properties.

We have reviewed the information regarding the above-referenced project and have included our comments on the following page(s). Please retain this documentation as evidence of consultation with the Missouri SHPO under Section 106 of the NHPA. SHPO concurrence does not complete the Section 106 process as federal agencies will need to conduct consultation with all interested parties. **Please be advised that, if the current project area or scope of work changes, such as a borrow area being added, or cultural materials are encountered during construction, appropriate information must be provided to this office for further review and comment.**

If you have questions please contact the SHPO at (573) 751-7858 or call/email Amy Rubingh, (573) 751-4589, amy.rubingh@dnr.mo.gov. If additional information is required please submit the information via email to MOSection106@dnr.mo.gov.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE

Brian Stith
Deputy Director Division of State Parks and
Deputy Missouri State Historic Preservation Officer

c: Michael Meyer, MoDOT
Michael Meinkoth, MoDOT
Taylor Peter, FHWA



August 25, 2023
Andrew Gottsfield
Page 2 of 2

SHPO Project Number: 028-BU-23 – MoDOT Upper Black River Wetland Mitigation Site, 4395 Route MO-53, Poplar Bluff, Butler County, Missouri (USACE/FHWA)

COMMENTS:

An adequate cultural resource survey has been conducted for this project titled, *MoDOT - Upper Black River Wetland Mitigation Site, Butler County, MO, Butler, Route MO-53* by Bruce Darnell and Andrew Gottsfield. Based on this survey SHPO concurs with your determination that site 23BU1594 should be considered **not eligible** for listing in the National Register of Historic Places. Therefore, SHPO concurs with your determination of **No Historic Properties Affected**.