US Army Corps
of Engineers®
Little Rock District

PUBLIC NOTICE

CORPS OF ENGINEERS

Application Number: MVK 2021-00270
Date: April 5, 2021
Comments Due: May 5, 2021

TO WHOM IT MAY CONCERN: **Comments are invited on the work described below. Please see the Public Involvement section for details on submitting comments**.

Point of Contact. If additional information is desired, please contact the regulator, Johnny McLean, telephone number: (501) 340-1382, mailing address: Little Rock District Corps of Engineers, Regulatory Division, PO Box 867, Little Rock, Arkansas 72203-0867, email address: Johnny.L.McLean@usace.army.mil. An electronic copy of the Arkansas Department of Transportation-Moro Creek Mitigation Bank prospectus and wetland delineation can be viewed on the Little Rock District, Regulatory Division webpage at http://www.swl.usace.army.mil/Missions/Regulatory/PublicNotices.aspx or a hard copy can be obtained from the Corps of Engineers through the contact information listed above.

Project Information. Pursuant to Section 404 of the Clean Water Act (33 U.S. Code 1344), notice is hereby given that

Arkansas Department of Transportation
PO Box 2261
Little Rock, Arkansas 72203-2261

proposes the establishment of a wetland and stream mitigation bank in Cleveland and Dallas Counties, Arkansas, and has submitted their Moro Creek Mitigation Bank prospectus. The proposed 944.7-acre site is located approximately five miles southeast of the community of Carthage and just east of Highway 229 and west of Highway 167. The prospectus outlines the proposal for developing and operating the bank, which is known as the banking instrument. After public comments are received and any issues are resolved on the prospectus, Arkansas Department of Transportation (ArDOT) will submit a draft banking instrument to the District Engineer. The District Engineer will then distribute the draft banking instrument to the Interagency Review Team (IRT), which is made up of the Corps and the pertinent state and Federal resource agencies. The IRT will review the banking instrument and coordinate with Arkansas Department of Transportation on any issues until a final banking instrument is completed. Finally, the District Engineer will review the final instrument and make a decision to approve or not approve.

The primary purpose of this bank is to mitigate for unavoidable impacts to streams and wetlands for highway construction and maintenance authorized under Section 404 of the Clean Water Act and located within the U.S. Army Corps of Engineers Vicksburg District. The management goal for the mitigation bank is the restoration and preservation of wetlands and streams, and riparian areas along with associated uplands. Objectives include the preservation of existing forested

wetlands and riparian areas and the restoration of wetlands and riparian areas through reforestation of clear-cut land with bottomland hardwood tree species. Stream function would be restored by the removal of several crossings that were constructed during the logging of the property. The site has been burned and treated with herbicide once in order to remove logging debris and control vegetation. There is a total of approximately 532.4 acres of wetlands (preservation and restoration) located on the property and ArDOT is proposing 30.1 acres of wetland preservation and 502.3 acres of wetland restoration. There is a total of approximately 299.2 acres of riparian stream buffer located on the property and ArDOT is proposing 235.2 acres of riparian restoration and 64 acres of riparian preservation.

The primary considerations for site selection were watershed needs, baseline conditions, and habitat connectivity. The proposed mitigation bank includes Moro Creek, Lawrence Moro Creek, Fite Creek, Pickett Creek, Spy Branch and the wetlands/riparian areas associated with the creek channels. The Arkansas Department of Natural Heritage records indicate historic occurrences of the Red-Cockaded Woodpecker (*Leuconotopicus borealis*) located just north and south of the proposed mitigation bank site.

Much of the property lies within the 100-year floodplain of the Moro Creek. A 1956 aerial image illustrates that the areas identified for riparian and wetland restoration were historically forested. These areas were clear cut during standard silviculture operations. Upland areas of the property will function as a buffer and wildlife sanctuary for terrestrial wildlife and migratory birds in times of flooding. The proposed Moro Creek Mitigation Bank is in the Tertiary Uplands (Level IV Ecoregion, 35a) of the South Central Plains (Level III Ecoregion, 35). Potential natural vegetation is oak-hickory-pine forest. Mixed shortleaf pine-loblolly pine forest and upland deciduous forest is native. In riparian areas, potential natural vegetation is bottomland forest. Native vegetation in the clear-cut areas; e.g. warty panicgrass (*Panicum verrucosum*) (FACW), fowl mannagrass (*Glyceria striata*) (OBL), clammy hedgehyssop (*Gratiola neglecta*) (OBL), false nettle (*Boehmeria cylindrica*) (FACW), bearded beggarticks (*Bidens aristosa*) (FACW), cypress panicgrass (*Dichanthelium dichotomum*) (FAC), and variable panicgrass (*Dichanthelium commutatum*) (FAC). Native woody vegetation on the natural levees and forested preservation areas; e.g. red maple (*Acer rubrum*) (FAC), ironwood (*Carpinus caroliniana*) (FAC), sweetgum (*Liquidambar styraciflua*) (FAC), deciduous holly (*Ilex decidua*) (FACW), blackgum (*Nyssa sylvatica*) (FAC), persimmon (*Diospyros virginiana*) (FAC), water oak (*Quercus nigra*) (FAC), cherrybark oak (*Quercus pagoda*) (FACW), American holly (*Ilex opaca*) (FAC), willow oak (*Quercus phellos*) (FACW), water oak (*Quercus nigra*) (FAC), swamp chestnut oak (*Quercus michauxii*) (FACW), and Nuttall's oak (*Quercus texana*) (FACW).

Soils on the site are mapped into five soil units by the USDA (*Soil Survey of Calhoun and Dallas Counties, Arkansas 1980; Soil Survey of Cleveland County, Arkansas 1968*). Guyton soils consist of very deep, poorly drained to very poorly drained, slowly permeable soils that formed in thick loamy sediments. Guyton soils are typically found on Coastal Plain local stream floodplains and in depressional areas on late Pleistocene age terraces; slopes range from 0 to 1 percent (Guyton OSD 2019). Amy silt loam is described as very deep, poorly drained, slowly permeable soils that formed in alluvium high in silt. Amy soils are found on Pleistocene terraces in the Western and Southern Coastal Plains; slopes range from 0 to 3 percent (Amy OSD 2019).

Wehadkee soils are described as very deep, poorly to very poorly drained that formed in loamy sediments. Wehadkee soils are typical soils on floodplains along streams that drain from the mountains and piedmont; slopes range from 0 to 2 percent (Wehadkee OSD 2019). Ouachita soils consist of deep, well drained, moderately slowly permeable soils that formed in loamy alluvium. These level to nearly level soils—slopes range from 0 to 3 percent—are on floodplains and natural levees along streams in the Western Coastal Plains (Ouachita OSD 2019). Pheba soils are described as deep, nearly level to very gently sloping somewhat poorly drained soils with moderately slowly permeability that formed in loamy sediments. Pheba soils are typical in broad uplands and terraces in the Southern Coastal Plains Major Land Resource Area; slopes range from 0 to 3 percent (Pheba OSD 2019). Savannah soils consist of very deep, moderately well drained, moderately slowly permeable soils that formed in loamy marine or fluvial terrace deposits. Savannah soils are typically found on uplands and terraces in the Southern Coastal Plain, where slopes range from 0 to 15 percent (Savannah OSD 2019). See Figure 6.

The bank site is located in the Lower Ouachita-Smackover 8-digit (08040201) sub-basin. The primary service and secondary service areas would include the sub-basins, 8-digit hydrologic unit codes (HUCs), in the South-Central Plains Ecoregion from Interstate 30 to the Arkansas/Louisiana state line. The primary service area would include all portions of Bayou D'Arbonne (08040206), Lower Ouachita-Bayou DeLoutre (08040202) and Lower Ouachita-Smackover (08040201). The secondary service area would include all portions of Upper Ouachita (08040102), Lower Saline (08040204) and Bayou Bartholomew (08040205). These sub-basins all are included in the Lower Red-Ouachita sub-region (0804).

The 2002 Charleston Method with the Little Rock Addendum and the 2011 Little Rock Stream Method would be used as the functional assessments and credit generation mechanisms for this bank.

The location and general plan for the proposed work are shown on the enclosed sheets 1 through 5 of 5.

Cultural Resources. ArDOT staff archeologists will review topographic maps, the National Register of Historic Places, and other data on reported sites in the area. The FHWA will be the lead agency for coordination with all associated Native American Nations and tribal governments. The District Engineer invites responses to this public notice from Native American Nations or tribal governments; Federal, State, and local agencies; historical and archeological societies; and other parties likely to have knowledge of or concerns with historic properties in the area.

Endangered Species. Our preliminary determination is that the proposed activity will not affect listed Endangered Species or their critical habitat. A copy of this notice is being furnished to the U.S. Fish and Wildlife Service and appropriate state agencies and constitutes a request to those agencies for information on whether any listed or proposed-to-be-listed endangered or threatened species may be present in the area which would be affected by the proposed activity.

Floodplain. We are providing copies of this notice to appropriate floodplain officials in accordance with 44 Code of Federal Regulations (CFR) Part 60 (Floodplain Management Regulations Criteria for Land Management and Use) and Executive Order 11988 on Floodplain Management.

Regulatory Authority. Implementation of the proposed mitigation bank will require Department of the Army Authorization under Section 404 of the Clean Water Act. Based on preliminary evaluation by the USACE, it appears the proposed bank may be authorized by Nationwide Permit 27 for Aquatic Habitat Restoration, Establishment, and Enhancement Activities.

Public Involvement. Any interested party is invited to submit to the above-listed POC written comments or objections relative to the proposed work on or before **May 5, 2021**. Substantive comments, both favorable and unfavorable, will be accepted and made a part of the record and will receive full consideration in determining whether this work would be in the public interest. The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Any person may request in writing within the comment period specified in this notice that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. The District Engineer will determine if the issues raised are substantial and whether a hearing is needed for making a decision.

NOTE: The mailing list for this Public Notice is arranged by state and county(s) where the project is located, and includes any addressees who have asked to receive copies of all public notices. Please discard notices that are not of interest to you. If you have no need for any of these notices, please advise us so that your name can be removed from the mailing list.

Enclosures

Approximate Coordinates of Project Center

Latitude: **34.013086** Longitude: **-92.476476**

UTM Zone: **15N** North: **3763082** East: **548262**

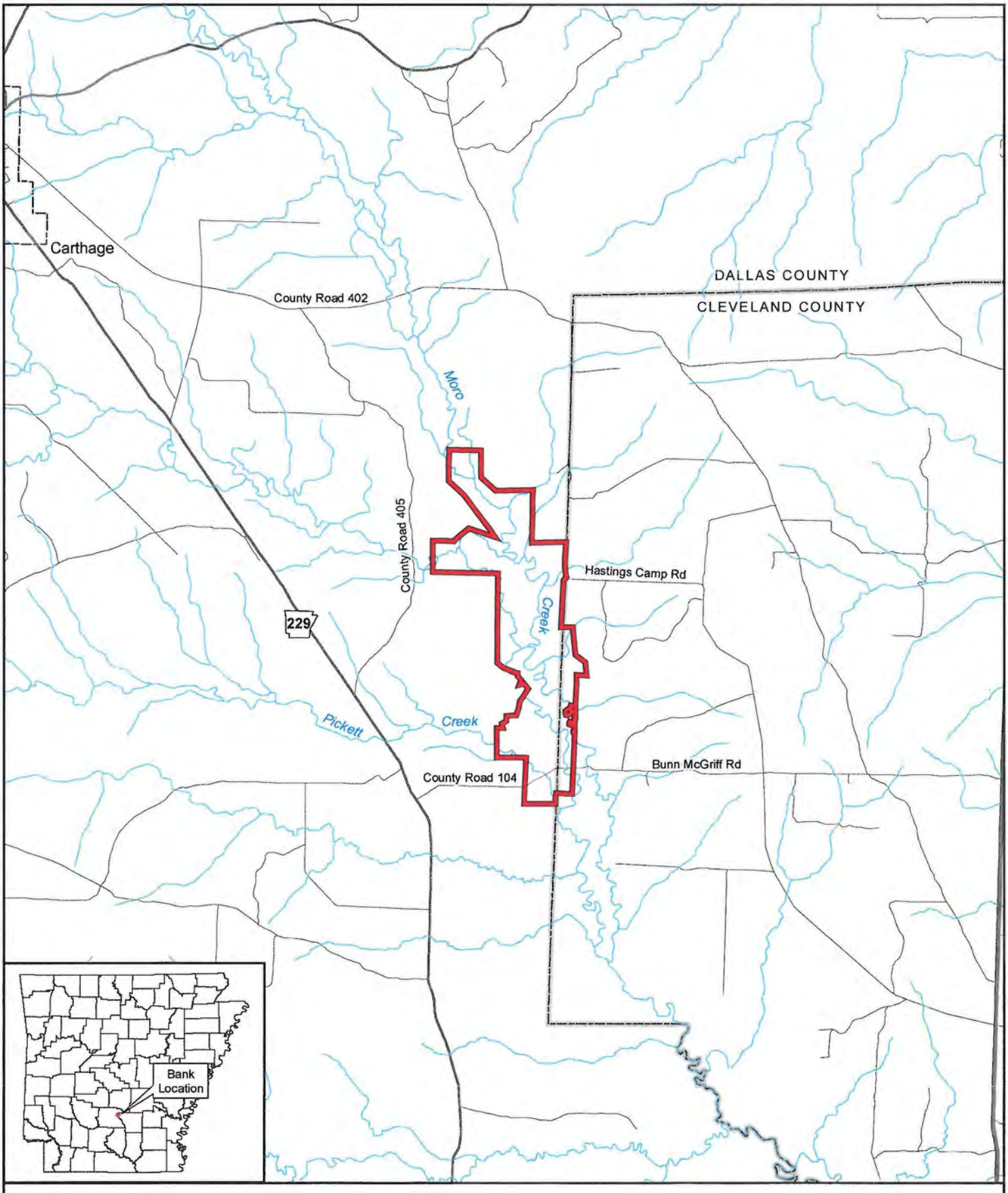


Figure 1.
Proposed Moro Creek
Mitigation Bank

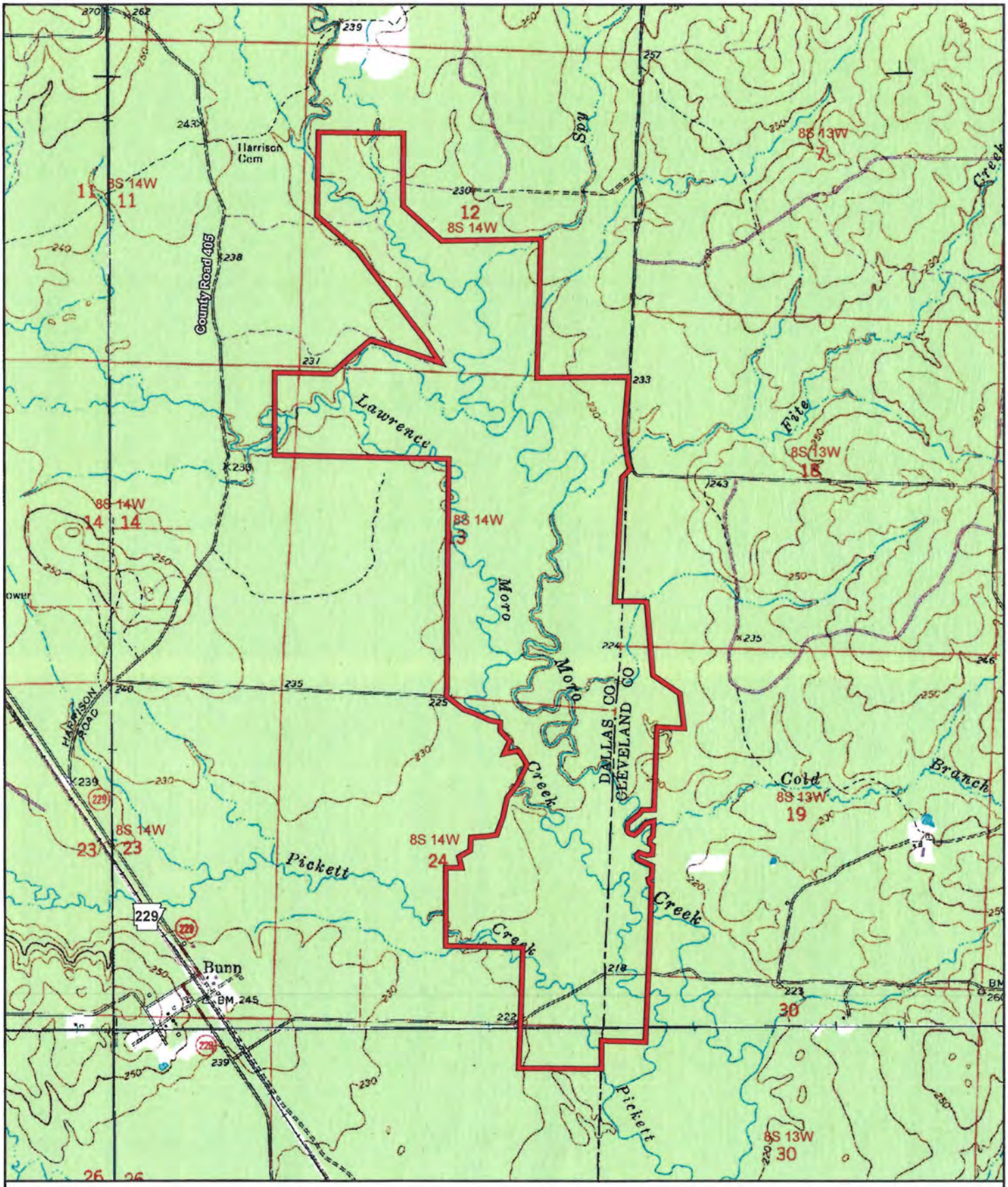


Figure 2.
Proposed Moro Creek
Mitigation Bank

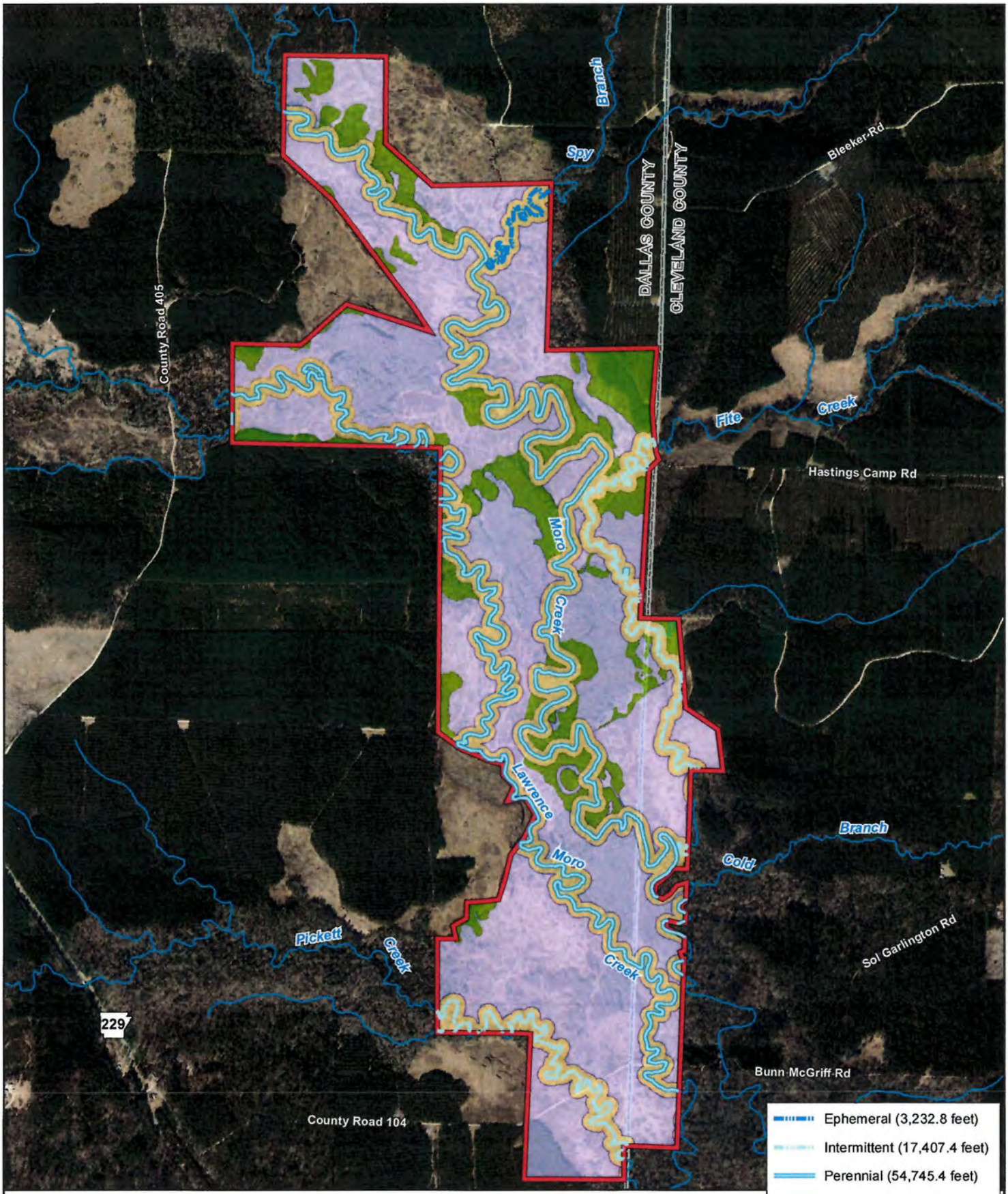
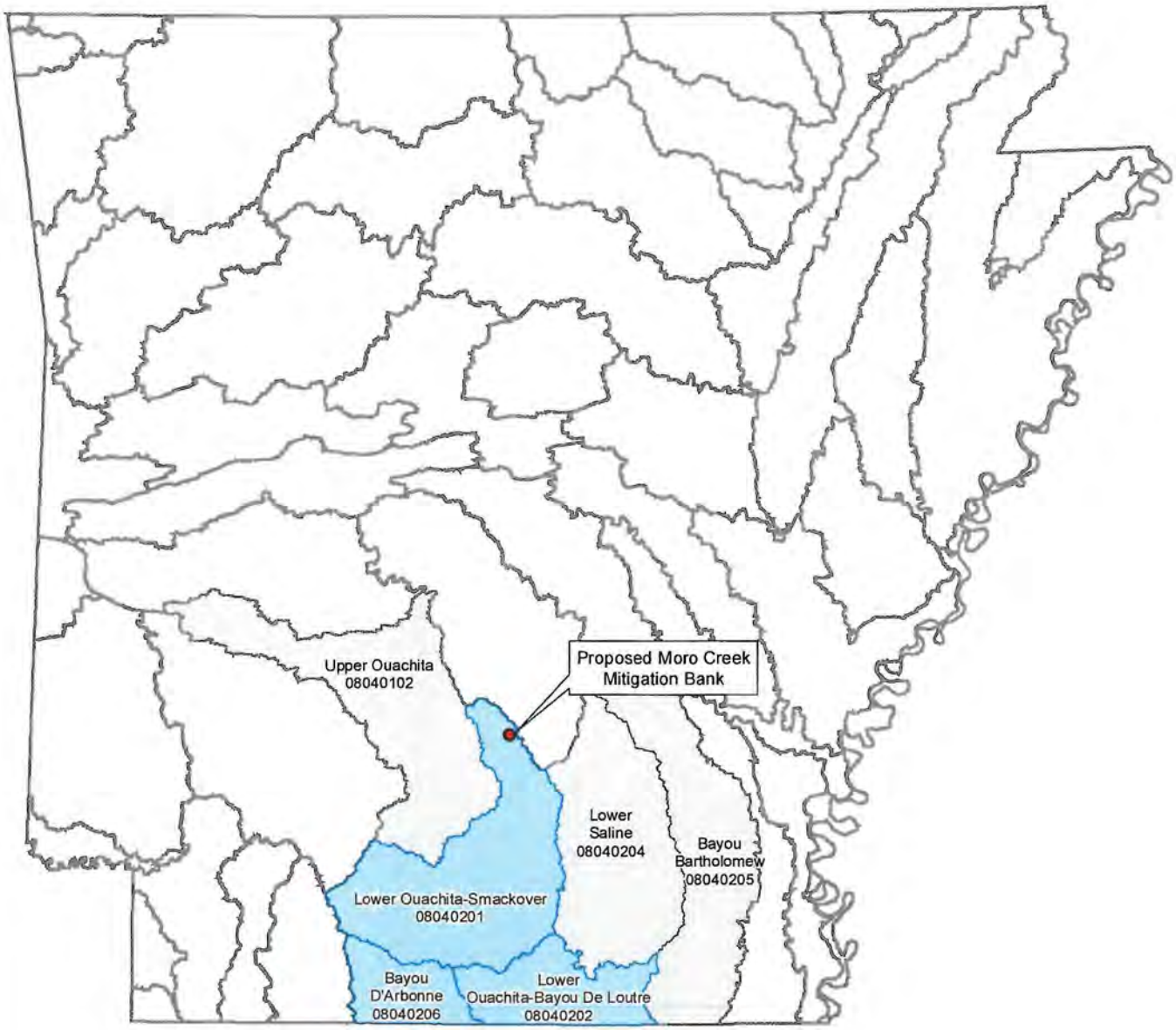


Figure 3.
Wetland and
Stream Locations



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ARDOT - Environmental GIS - Reed
September 16, 2019

Figure 4.
Proposed Service
Area Watersheds

Primary Service Area
Case-by-Case Basis

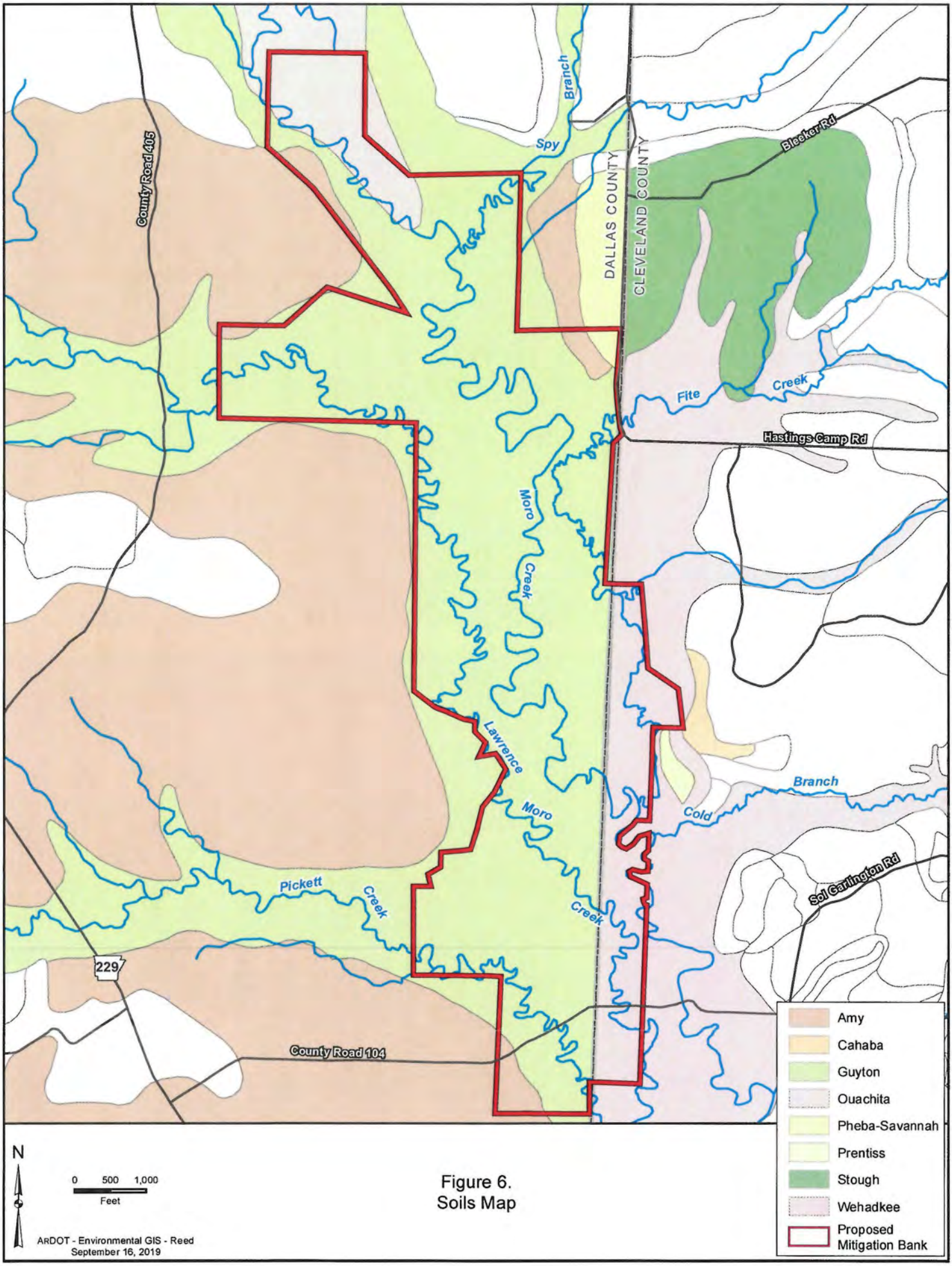

Figure 6.
Soils Map

WETLAND DELINEATION

OF THE

PROPOSED MORO CREEK MITIGATION BANK

CLEVELAND AND DALLAS COUNTIES

PREPARED BY:

ENVIRONMENTAL DIVISION

ARKANSAS DEPARTMENT OF TRANSPORTATION

OCTOBER 2019

TABLE OF CONTENTS

INTRODUCTION

The Arkansas Department of Transportation (ARDOT) delineated wetlands and assessed streams on the proposed Moro Creek Mitigation Bank site (944.40 acres) during September and October of 2018. The objective of the wetland and stream determination is to determine if waters of the United States; e.g., wetlands and streams, are present, and to what extent, on the proposed bank site. If so, the boundaries are identified and wetland acreages and stream lengths are calculated. This information will be used to calculate the generation of wetland and stream credits for the proposed Moro Creek Mitigation Bank in future documents.

The proposed property is owned by the ARDOT and is located in Cleveland and Dallas Counties, Arkansas. The wetland and stream determination was conducted by certified ARDOT personnel under the procedures outlined in the 1987 Corps of Engineers Wetland Delineation Manual in conjunction with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region. The identification of other waters of the United States on the proposed site is in accordance with the definitions in 33 CFR 328.3(a). **All findings on the project site are not official until determined jurisdictional by the U.S. Army Corps of Engineers, Little Rock District.**

PROPERTY LOCATION

The proposed mitigation bank site is located in Cleveland and Dallas Counties, Arkansas, approximately 1.0 mile east of Bunn, Arkansas. The proposed bank site is just east of Highway 229 and west of Highway 167. See Figure 1.

Proposed Site	USGS Quadrangle	County	Sections	Township	Range
Moro Creek Mitigation Bank	Bunn	Cleveland	18, 19, & 30	8 South	13 West
Moro Creek Mitigation Bank	Bunn	Dallas	12, 13, 24, & 25	8 South	14 West

WETLAND DELINEATION METHODOLOGY

Wetlands are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, wet depressions, and similar habitats.

Wetlands are characterized by the following three parameters:

1. Hydrophytic Vegetation
2. Hydric Soils
3. Wetland Hydrology

HYDROPHYTIC VEGETATION

The "2016 National Wetland Plant List" was used to determine the wetland indicator status for all species identified within each plot. The indicator categories for vegetation are as follows:

1. **Obligate Wetland (OBL)** – Occur almost always (estimated probability 99%) under natural conditions in wetlands.
2. **Facultative Wetland (FACW)** – Usually occur in wetlands (estimated probability 67% to 99% occurrence in wetlands) but occasionally found in non-wetlands.
3. **Facultative (FAC)** – Equally likely to occur in wetlands and non-wetlands with an estimated probability 34% to 64% occurrence.
4. **Upland (UPL)** – Rarely occurs in wetlands, but occur almost always with an (estimated probability greater than 99%) under natural conditions in non-wetlands.

An area is defined to meet the required hydrophytic vegetation parameter when all dominant plant species are obligate, facultative wetland, or facultative, if utilizing the Rapid Test. The Dominance Test requires that more than 50% of the dominant species across all strata are obligate, facultative wetland, or facultative. If more uncertain

situations arise, the Prevalence Index can be utilized to determine if the vegetation is considered hydrophytic.

HYDRIC SOIL

Hydric soil indicators have been established to determine whether an area contains the required hydric soil parameters. Soil samples are pulled and the soil profile is documented on the wetland delineation data sheets. Munsell® Soil Color Charts are used to determine the matrix and mottle or redox feature colors of the soil. Other required soil characteristics, such as texture, are documented on the data sheets. The most common field indicator of hydric soils in the Atlantic Gulf Coastal Plain Region is the presence of a Depleted Matrix (F3).

WETLAND HYDROLOGY

Wetland hydrology is more specifically defined as flooding, ponding, or saturation to the surface for a long or very long duration during the growing season. A long duration is a single event that causes water to flood, pond, or saturate the soil and lasts 7 to 30 days. Very long duration is a single event that lasts more than 30 days. Wetland hydrology can also be defined as flooding, ponding, or saturation that occurs for 3% - 5% of the growing season. In this part of Arkansas, that would be a minimum of 14 consecutive days. Field indicators have been developed to document whether an area meets the mandatory criteria to establish if the required wetland parameter exist. The presence of surface water on any given day is insufficient to establish that an area is flooded, ponded, or saturated for 14 consecutive days. Other indicators have been established and used to assess the duration of soils saturation; e.g., water stained leaves, drift deposits, water marks, oxidized root channels, etc. Likewise, the absence of water on the date of wetland delineations does not mean that wetlands are not present. Most wetlands are dry during a portion of the year.

GENERAL DESCRIPTION OF THE PROPERTY

The proposed bank site is located in the west central portion of the Lower Ouachita River drainage basin—Lower Ouachita-Smackover watershed (8-digit HUC 08040201)—

in the Tertiary Uplands (Level IV Ecoregion, 35a) of the South Central Plains (Level III Ecoregion, 35). Potential natural vegetation is oak-hickory-pine forest. Mixed shortleaf pine-loblolly pine forest and upland deciduous forest is native. In riparian areas, potential natural vegetation is bottomland forest.

Native woody vegetation on the natural levees; i.e., those higher areas adjacent to streams, include: red maple (*Acer rubrum*) (FAC), ironwood (*Carpinus caroliniana*) (FAC), sweetgum (*Liquidambar styraciflua*) (FAC), deciduous holly (*Ilex decidua*) (FACW), blackgum (*Nyssa sylvatica*) (FAC), persimmon (*Diospyros virginiana*) (FAC), water oak (*Quercus nigra*) (FAC), cherrybark oak (*Quercus pagoda*) (FACW). Native woody vegetation remaining on the floodplains; e.g., backwater sloughs and wet depressional features, include: American holly (*Ilex opaca*) (FAC), willow oak (*Quercus phellos*) (FACW), water oak (*Quercus nigra*) (FAC), swamp chestnut oak (*Quercus michauxii*) (FACW), Nuttall's oak (*Quercus texana*) (FACW), cherrybark oak (*Quercus pagoda*) (FACW). In historical imagery from 1956, the proposed site is completely forested, see Figure 7.

Most of the bottomland hardwood forests in the floodplain areas were clear-cut, with the exception of some scattered forest patches that were too wet to log at the time. Some small strips of riparian forest remain along some of the streams, but riparian areas were also clear-cut. The clear-cut areas are dominated by warty panicgrass (*Panicum verrucosum*) (FACW), fowl mannagrass (*Glyceria striata*) (OBL), clammy hedgehyssop (*Gratiola neglecta*) (OBL), false nettle (*Boehmeria cylindrica*) (FACW), bearded beggarticks (*Bidens aristosa*) (FACW), cypress panicgrass (*Dichanthelium dichotomum*) (FAC), variable panicgrass (*Dichanthelium commutatum*) (FAC). Currently, adjacent properties are largely pine plantations and bottomland hardwood forests. Reforestation of the proposed property would re-establish habitat connectivity with adjacent bottomland hardwood forested areas.

The Natural Resource Conservation Service (NRCS) has mapped the following soils on the proposed site: Guyton soils, Amy silt loam, Wehadkee silt loam, Ouachita soils, and Pheba-Savannah association (*Soil Survey of Calhoun and Dallas Counties, Arkansas 1980; Soil Survey of Cleveland County, Arkansas 1968*). Guyton soils consist of very deep, poorly drained to very poorly drained, slowly permeable soils that formed in

thick loamy sediments. Guyton soils are typically found on Coastal Plain local stream floodplains and in depressional areas on late Pleistocene age terraces; slopes range from 0 to 1 percent (Guyton OSD 2019). Amy silt loam is described as very deep, poorly drained, slowly permeable soils that formed in alluvium high in silt. Amy soils are found on Pleistocene terraces in the Western and Southern Coastal Plains; slopes range from 0 to 3 percent (Amy OSD 2019). Wehadkee soils are described as very deep, poorly to very poorly drained that formed in loamy sediments. Wehadkee soils are typical soils on floodplains along streams that drain from the mountains and piedmont; slopes range from 0 to 2 percent (Wehadkee OSD 2019). Ouachita soils consist of deep, well drained, moderately slowly permeable soils that formed in loamy alluvium. These level to nearly level soils—slopes range from 0 to 3 percent—are on floodplains and natural levees along streams in the Western Coastal Plains (Ouachita OSD 2019). Pheba soils are described as deep, nearly level to very gently sloping somewhat poorly drained soils with moderately slowly permeability that formed in loamy sediments. Pheba soils are typical in broad uplands and terraces in the Southern Coastal Plains Major Land Resource Area; slopes range from 0 to 3 percent (Pheba OSD 2019). Savannah soils consist of very deep, moderately well drained, moderately slowly permeable soils that formed in loamy marine or fluvial terrace deposits. Savannah soils are typically found on uplands and terraces in the Southern Coastal Plain, where slopes range from 0 to 15 percent (Savannah OSD 2019). See Figure 6.

WETLAND DELINEATION AND STREAM ASSESSMENT – FINDINGS

In accordance with the 1987 Corps of Engineers Wetland Delineation Manual and the Atlantic Gulf Coastal Plain Regional Supplement, there were 533.0 acres of wetlands and 75,385.6 linear feet of stream identified on the proposed mitigation bank site. The wetlands are located on much of the proposed site and are located within the floodplains of several streams that traverse the property. The wetland types are collectively best described as riparian wetlands. Riparian wetlands are characterized as zones of deposition, where a typical broad floodplain contains several major wetland features: meander scrolls, oxbows, sloughs, and backswamps. Major expanses of riparian wetlands are called bottomland hardwood forests, many of which have been cleared and

drained (Mitsch and Gosselink 2000). There were two perennial streams (Moro Creek, Lawrence Moro Creek), two intermittent streams (Fite Creek, Picket Creek), and one ephemeral stream (Spy Branch) identified on the proposed mitigation bank site. See Figure 5.

Stream Name	Stream Type	Location	Linear Feet
Moro Creek	Perennial	Northwest - Southeast	30,054.8
Lawrence Moro Creek	Perennial	Northwest - Southeast	24,690.6
Fite Creek	Intermittent	East side	9,470.4
Picket Creek	Intermittent	Southwest side	7,937
Spy Branch	Ephemeral	Northeast side	3,232.8

There was a total of 82 data sheets completed for the proposed bank site, see attached Data Sheets and Figure 4. The three parameters defined by the U.S. Army Corps of Engineers were used to determine the presence/absence and extent of wetlands on the proposed bank site.

SUMMARY

The wetland areas identified on the proposed bank site that total 533.0 acres. Stream length identified on the proposed bank site totaled 75,385.6 linear feet. The ARDOT would like to restore, enhance, and preserve the wetlands and riparian zones by removing stream crossings and planting bottomland hardwood tree species to create a mitigation bank on the proposed site.

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LARANCE, F.C., JAY, J.E., ELDER, W.R., DANIELS, J.L., AND G.E. BARNUM. 1968. *Soil Survey of Cleveland County, Arkansas.* U.S. Dept. of Agriculture, Soil Conservation Service, in cooperation with the Arkansas Agricultural Experiment Station.

MITSCH, W.J. AND J.G. GOSSELINK. 2000. Wetlands. Third Edition. John Wiley & Sons, Inc., New York, NY, USA.

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SOIL SURVEY STAFF, NATURAL RESOURCES CONSERVATION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE. Official Soil Series Descriptions. Available online at https://soilseries.sc.egov.usda.gov/OSD_Docs/W/WEHADKEE.html. Accessed 1/18/2019.

APPENDIX A

Project Location Map

Topographic Map

Floodplain Map

Data Plots Map

Wetland and Stream Location Map

Soil Map

1956 Historic Aerial Imagery

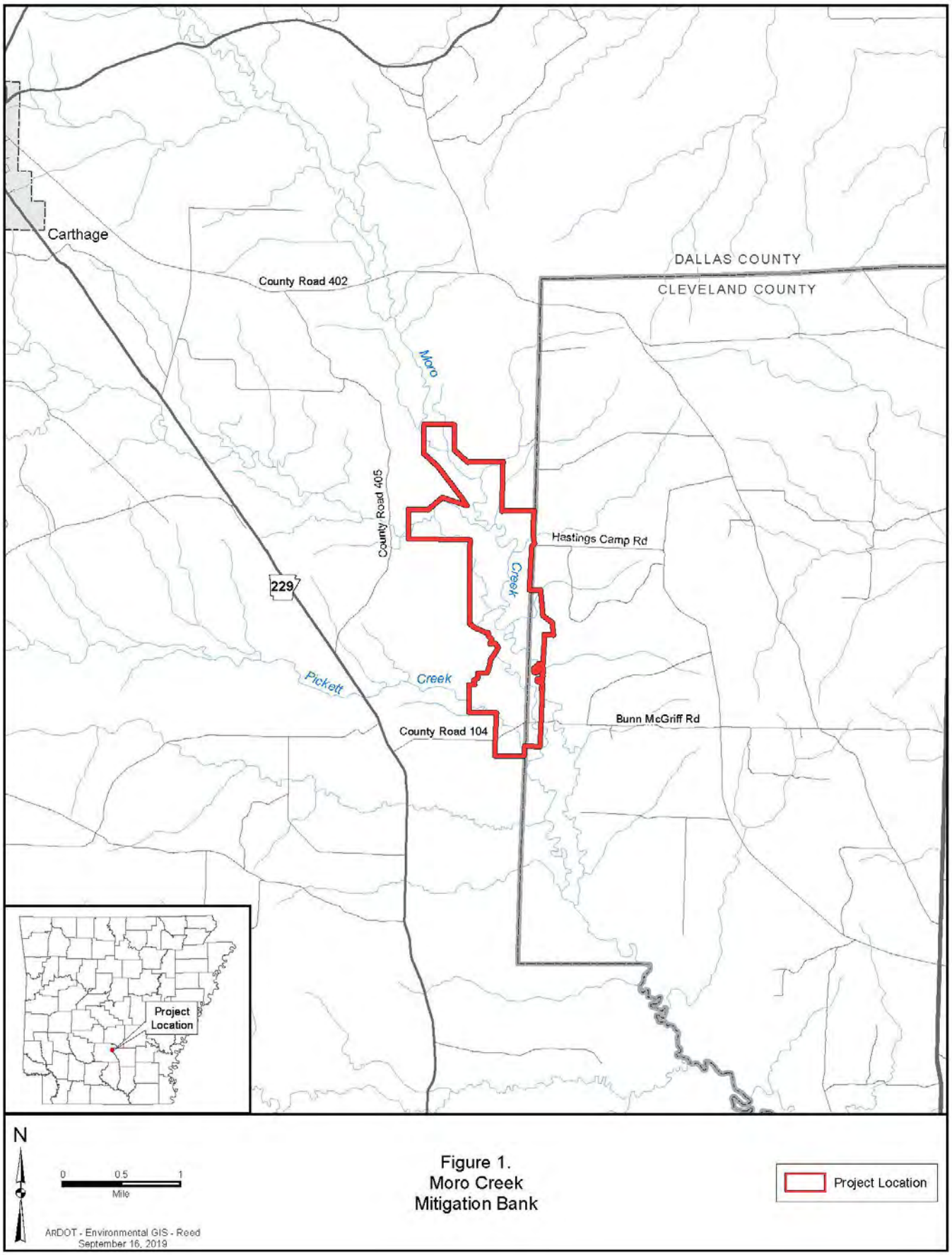

Figure 1.
Moro Creek
Mitigation Bank

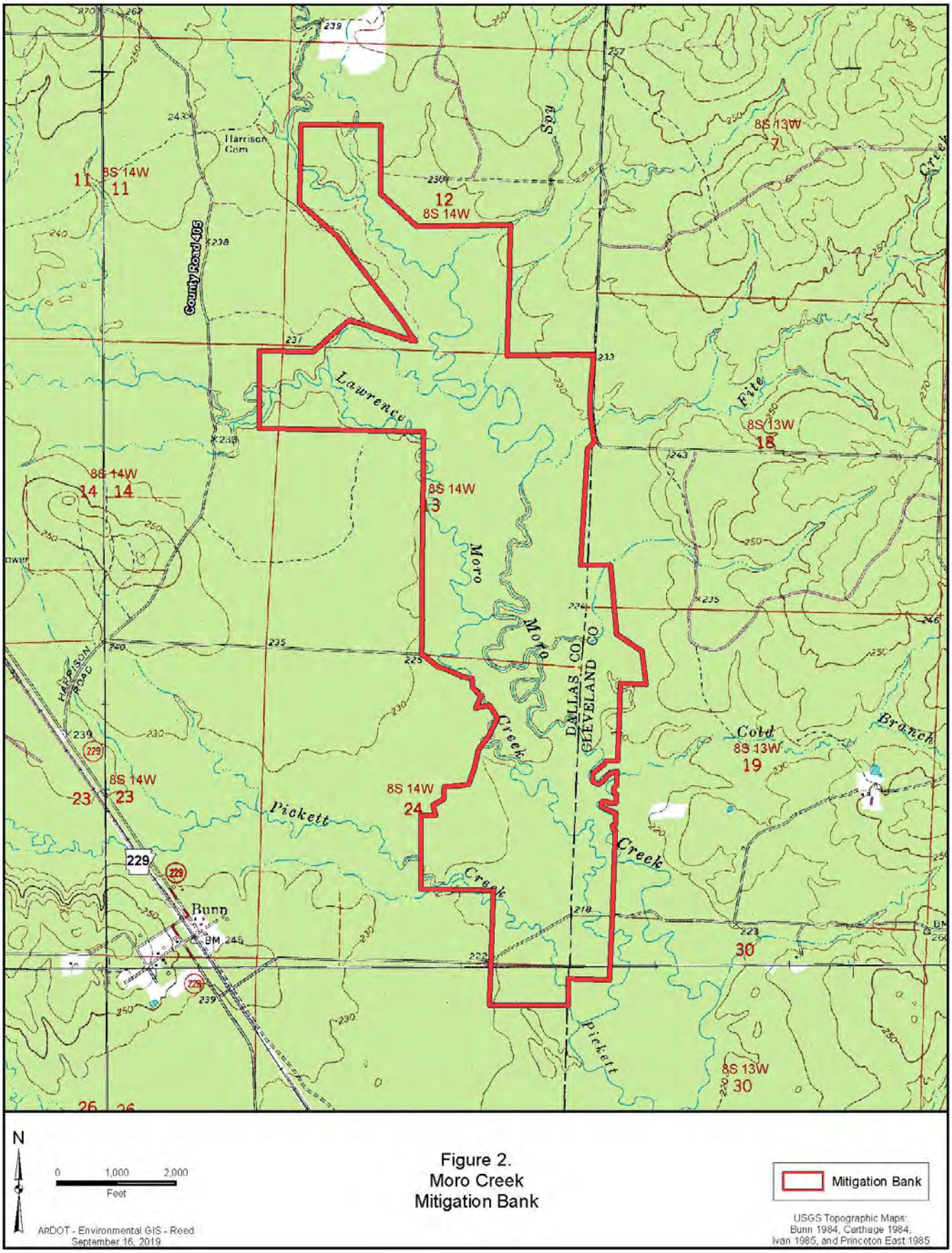

Figure 2.
Moro Creek
Mitigation Bank

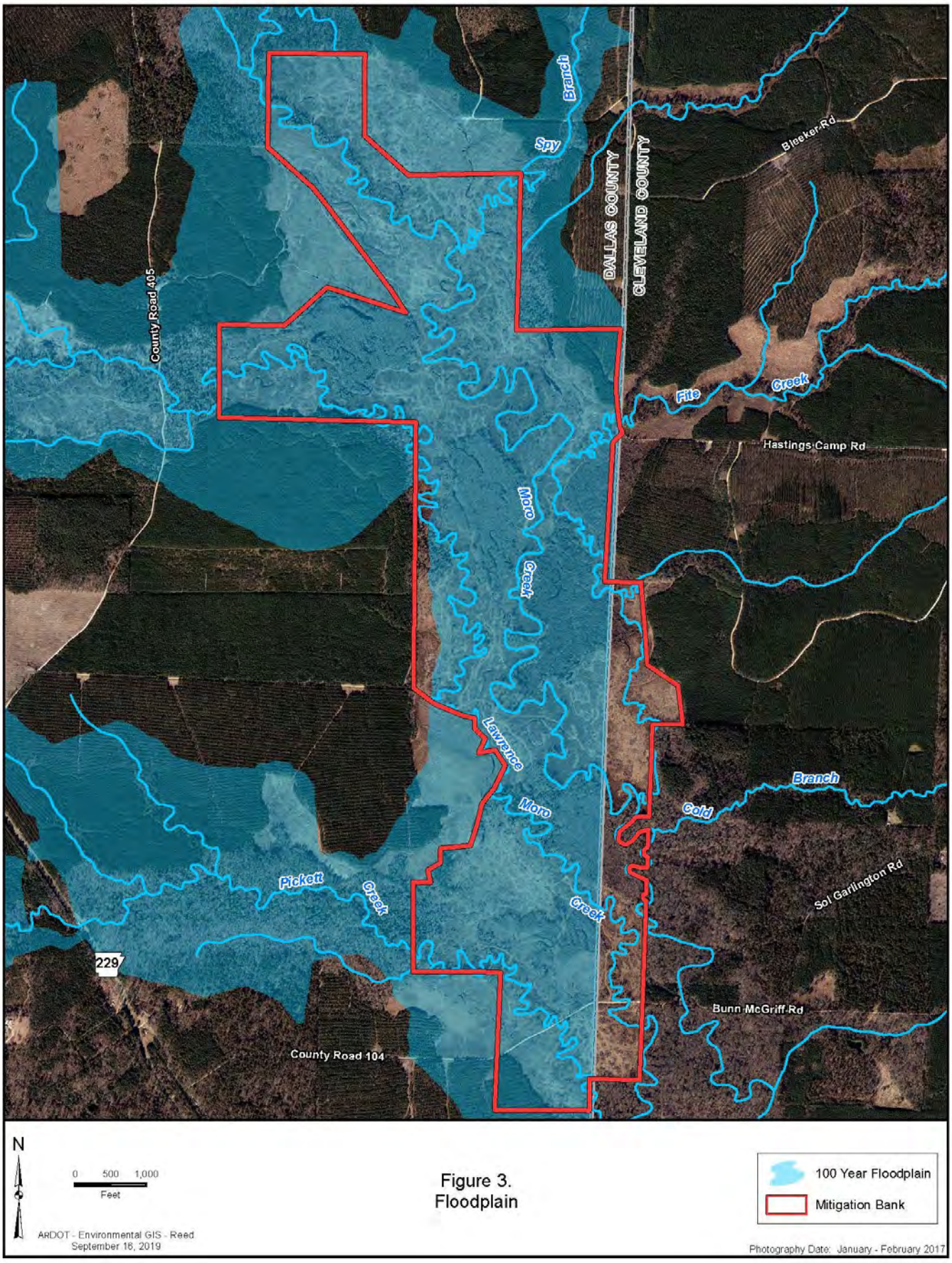

Figure 3.
Floodplain

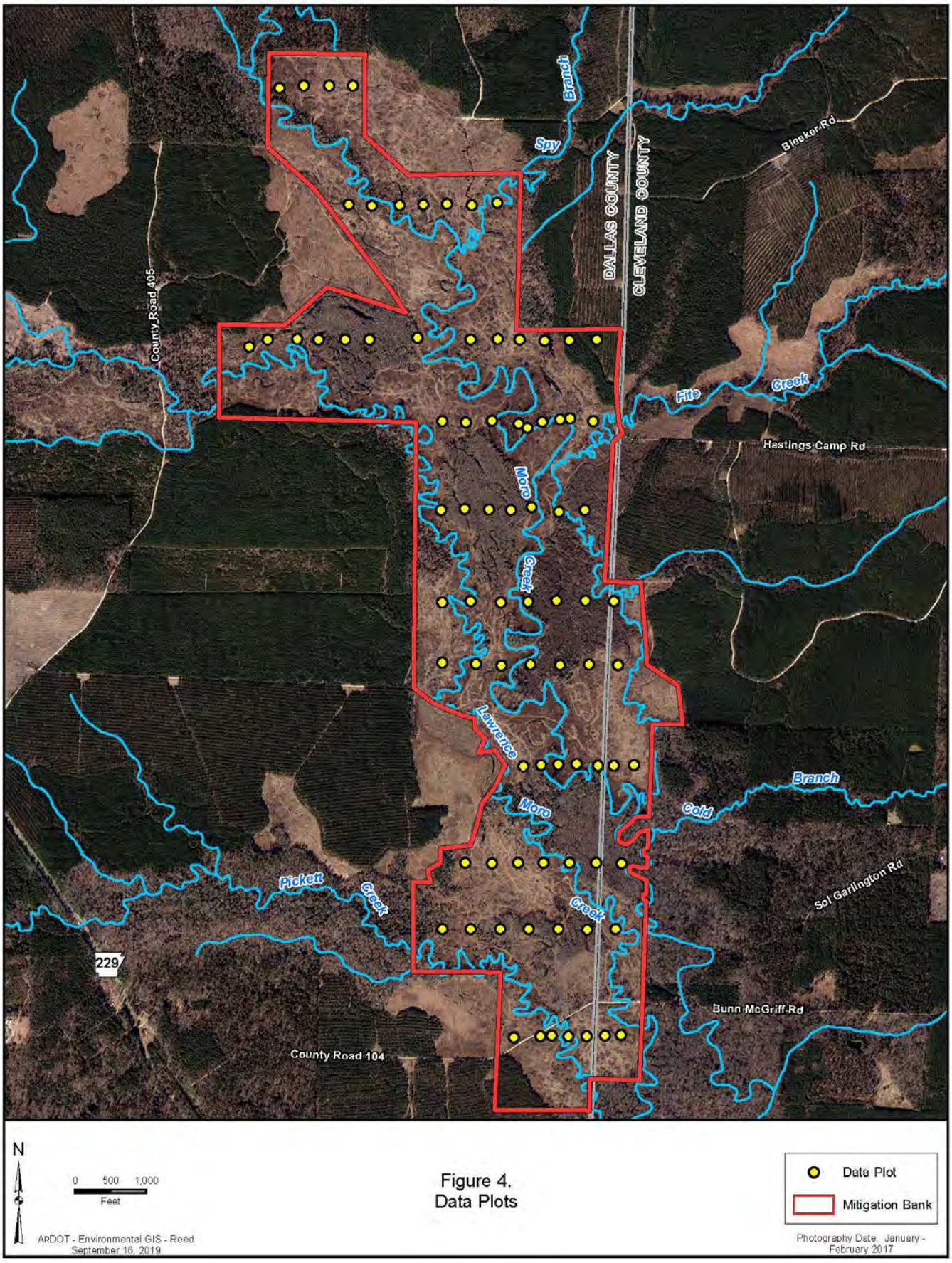

Figure 4.
Data Plots

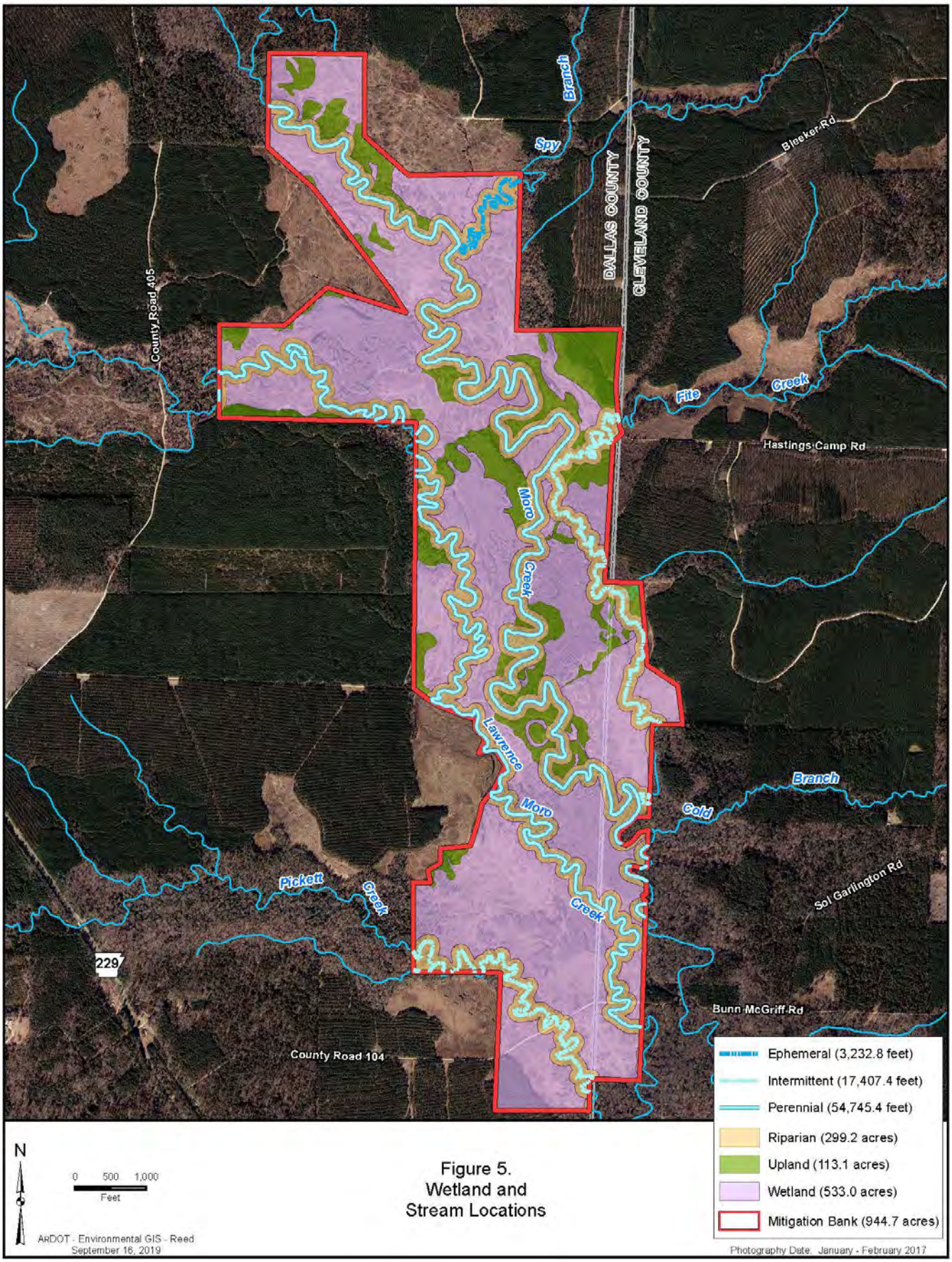

Figure 5.
Wetland and
Stream Locations

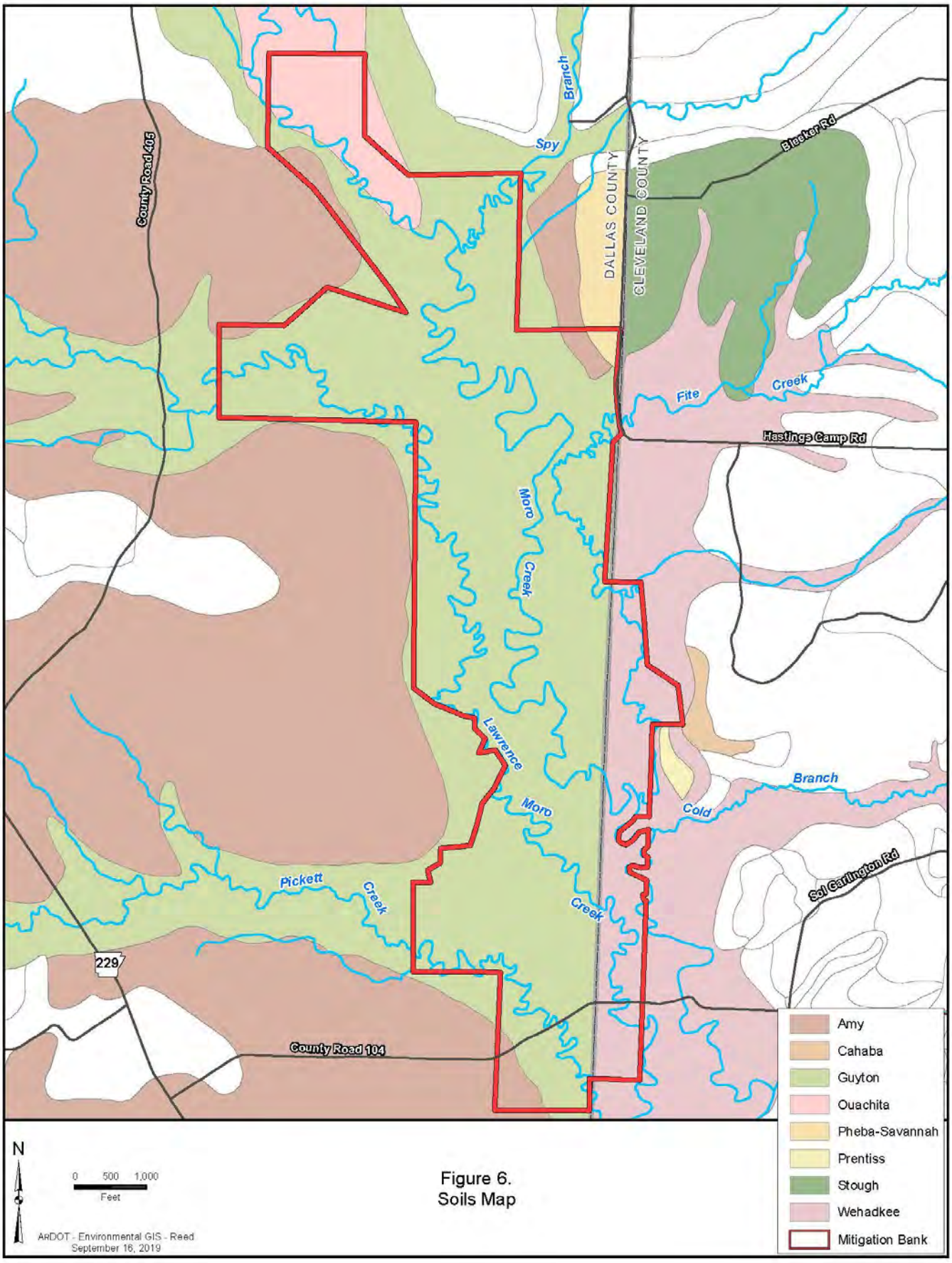

Figure 6.
Soils Map

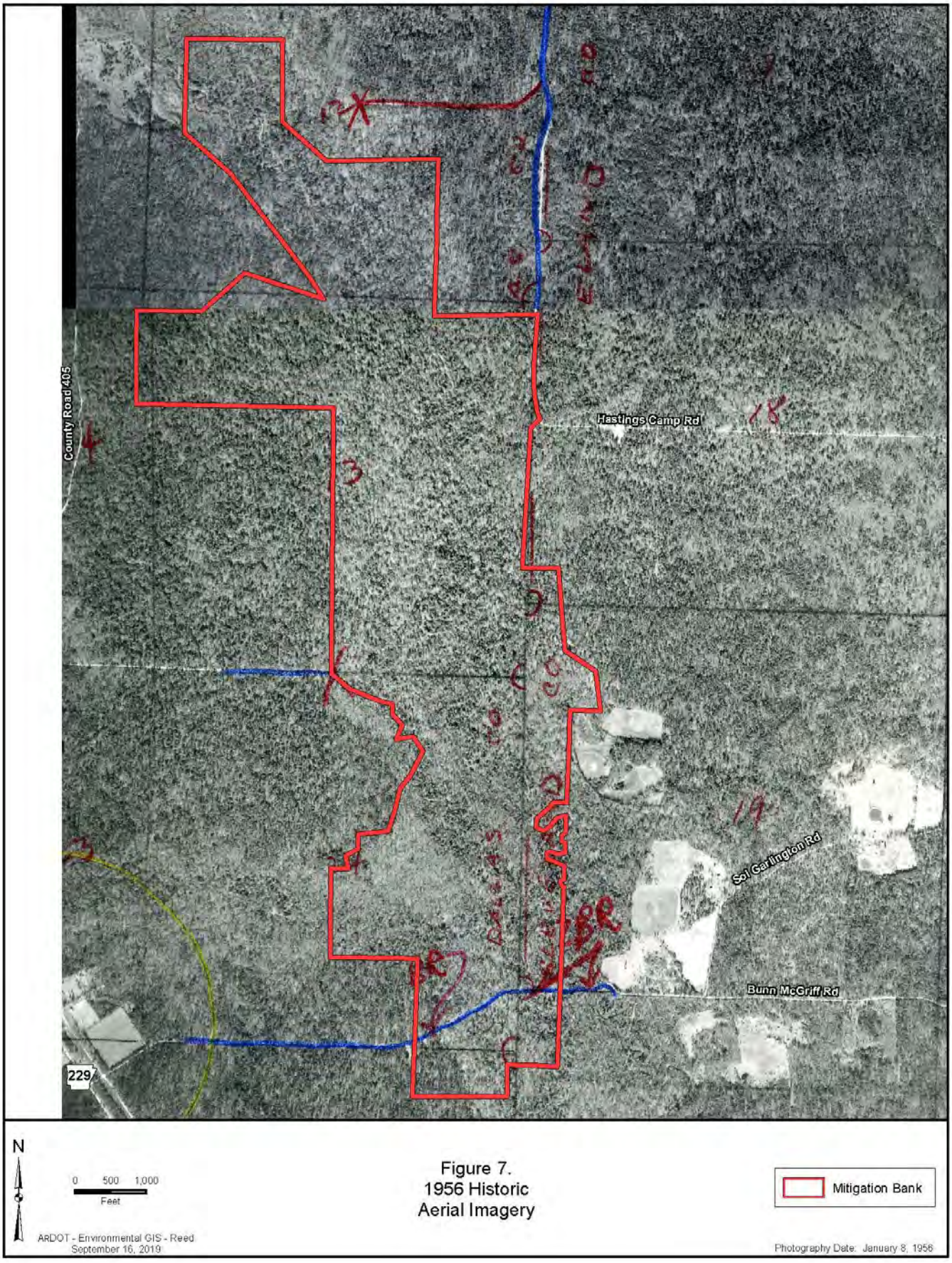

Figure 7.
1956 Historic
Aerial Imagery

APPENDIX B

Photographs (6)

Typical view of herbaceous wetlands in the clear-cut areas.

Typical view of remaining bottomland hardwood forests.

Typical view of slough.

Typical view of backswamp.

Typical view of slough.

Typical view of streams.

APPENDIX C

Data Sheets (82)

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn/Dallas** Sampling Date: **2018/09/10**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 1**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation **X**, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** **X**	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes **X**	No ____	Depth (inches)	**12**	
Water table present?	Yes **X**	No ____	Depth (inches)	**0**	**Wetland hydrology present?**
Saturation present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches)	**0**	**Yes** **X** **No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

standing water 6" to 18" deep

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 1**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Nyssa sylvatica***	**2**	**N**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	2 = Total Cover		
50% of total cover: **1**	20% of total cover: **0.4**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Nyssa sylvatica***	**2**	**N**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	2 = Total Cover		
50% of total cover: **1**	20% of total cover: **0.4**		
Herb Stratum (Plot size: **1m²**)			
1 ***Ludwigia palustris***	**8**	**Y**	**OBL**
2 ***Saururus cernuus***	**5**	**Y**	**OBL**
3 ***Rhynchospora corniculata***	**2**	**N**	**OBL**
4 ***Glyceria striata***	**1**	**N**	**OBL**
5 ***Gratiola neglecta***	**1**	**N**	**OBL**
6 ***Pluchea camphorata***	**1**	**N**	**FACW**
7			
8			
9			
10			
11			
12			
	18 = Total Cover		
50% of total cover: **9**	20% of total cover: **3.6**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Smilax rotundifolia***	**7**	**Y**	**FAC**
2 ***Brunnichia ovata***	**5**	**Y**	**FACW**
3 ***Vitis rotundifolia***	**2**	**N**	**FAC**
4			
5			
6			
	14 = Total Cover		
50% of total cover: **7**	20% of total cover: **2.8**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**17**	x 1 =	**17**	
FACW species	**6**	x 2 =	**12**	
FAC species	**13**	x 3 =	**39**	
FACU species	**0**	x 4 =	**0**	
UPL species	**0**	x 5 =	**0**	
Column totals	**36** (A)		**68**	(B)

Prevalence Index = B/A = **1.89**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 1**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	**10YR 5/2**	**95**	**10YR 5/8**	**5**	**C**	**PL**	**silty clay loam**	
4 - 6	**10YR 5/2**	**98**	**10YR 5/8**	**2**	**C**	**PL**	**silty clay loam**	
6 - 10	**10YR 5/1**	**60**	**7.5YR 5/8**	**40**	**C**	**PL**	**silty clay loam**	**Mn/Fe concretions**

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/10**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 2**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation **X**, soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 2**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Quercus pagoda***	**2**	**N**	**FACW**
2 ***Quercus macrocarpa***	**1**	**N**	**FACU**
3 ***Ilex opaca***	**1**	**N**	**FAC**
4			
5			
6			
7			
8			
	4 = Total Cover		
50% of total cover: **2**	20% of total cover: **0.8**		
Herb Stratum (Plot size: **1m²**)			
1 ***Boehmeria cylindrica***	**75**	**Y**	**FACW**
2 ***Eupatorium capillifolium***	**15**	**N**	**FACU**
3 ***Steinchisma hians***	**12**	**N**	**OBL**
4			
5			
6			
7			
8			
9			
10			
11			
12			
	102 = Total Cover		
50% of total cover: **51**	20% of total cover: **20.4**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**7**	**Y**	**FAC**
2 ***Bignonia capreolata***	**1**	**N**	**FAC**
3 ***Smilax rotundifolia***	**1**	**N**	**FAC**
4			
5			
6			
	9 = Total Cover		
50% of total cover: **4.5**	20% of total cover: **1.8**		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **2** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**12**	x 1 =	**12**	
FACW species	**77**	x 2 =	**154**	
FAC species	**10**	x 3 =	**30**	
FACU species	**16**	x 4 =	**64**	
UPL species	**0**	x 5 =	**0**	
Column totals	**115** (A)		**260**	(B)

Prevalence Index = B/A = **2.26**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: **Plot 2**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 1	**7.5YR 3/4**	**100**					**loam**	
1 - 4	**10YR 5/2**	**90**	**10YR 5/8**	**10**	**C**	**PL**	**silty clay loam**	
4 - 10	**10YR 4/2**	**98**	**7.5YR 4/6**	**2**	**C**	**M**	**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/10**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 3**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation **X**, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ Aquatic Fauna (B13)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Marl Deposits (B15) **(LRR U)**	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Hydrogen Sulfide Odor (C1)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Thin Muck Surface (C7)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Other (Explain in Remarks)	**X** Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)		___ Shallow Aquitard (D3)
___ Water-Stained Leaves (B9)		**X** FAC-Neutral Test (D5)
		___ Sphagnum moss (D8) **(LRR T, U)**

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present? Yes ____ No **X** Depth (inches) ____

Water table present? Yes ____ No **X** Depth (inches) ____

Saturation present? Yes ____ No **X** Depth (inches) ____

(includes capillary fringe)

Wetland hydrology present?

Yes X **No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 3**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Baccharis halimifolia***	**6**	**Y**	**FAC**
2 ***Liquidambar styraciflua***	**3**	**Y**	**FAC**
3 ***Betula nigra***	**3**	**Y**	**FACW**
4 ***Quercus macrocarpa***	**1**	**N**	**FACU**
5			
6			
7			
8			
	13 = Total Cover		
50% of total cover: **6.5**	20% of total cover: **2.6**		
Herb Stratum (Plot size: **1m²**)			
1 ***Glyceria striata***	**15**	**Y**	**OBL**
2 ***Pluchea camphorata***	**12**	**Y**	**FACW**
3 ***Coleataenia rigidula***	**10**	**N**	**FACW**
4 ***Ludwigia palustris***	**7**	**N**	**OBL**
5 ***Boehmeria cylindrica***	**7**	**N**	**FACW**
6 ***Gratiola neglecta***	**1**	**N**	**OBL**
7 ***Dichanthelium sp.***	**1**	**N**	
8			
9			
10			
11			
12			
	53 = Total Cover		
50% of total cover: **26.5**	20% of total cover: **10.6**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Smilax rotundifolia***	**5**	**Y**	**FAC**
2 ***Vitis rotundifolia***	**2**	**Y**	**FAC**
3 ***Rubus laudatus***	**1**	**N**	
4 ***Parthenocissus quinquefolia***	**1**	**N**	**FACU**
5 ***Bignonia capreolata***	**1**	**N**	**FAC**
6			
	10 = Total Cover		
50% of total cover: **5**	20% of total cover: **2**		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **7** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**23**	x 1 =	**23**
FACW species	**32**	x 2 =	**64**
FAC species	**17**	x 3 =	**51**
FACU species	**2**	x 4 =	**8**
UPL species	**0**	x 5 =	**0**
Column totals	**74** (A)		**146** (B)

Prevalence Index = B/A = **1.97**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 3**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	**10YR 3/2**	**98**	**10YR 5/6**	**2**	**C**	**M**	**silty clay loam**	
6 - 12	**10YR 4/2**	**96**	**10YR 4/4**	**2**	**C**	**M**	**silty clay loam**	
			10YR 5/6	**2**	**C**	**M**		

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/10**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 4**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation **X**, soil **X**, or hydrology ___ significantly disturbed? Are "normal circumstances" present?

Are vegetation ___, soil ___, or hydrology ___ naturally problematic? Yes **X** No

(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 **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Hydric soil present?	Yes **X**	No			
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Disturbed soil: skid trail and/or logging access path.

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 4**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Ilex opaca***	**5**	**Y**	**FAC**
2 ***Quercus phellos***	**1**	**N**	**FACW**
3 ***Liquidambar styraciflua***	**1**	**N**	**FAC**
4 ***Quercus texana***	**1**	**N**	**FACW**
5			
6			
7			
8			
	8 = Total Cover		
50% of total cover: **4**	20% of total cover: **1.6**		
Herb Stratum (Plot size: **1m²**)			
1 ***Glyceria striata***	**35**	**Y**	**OBL**
2 ***Callicarpa americana***	**20**	**Y**	**FACU**
3 ***Boehmeria cylindrica***	**15**	**N**	**FACW**
4 ***Coleataenia rigidula***	**10**	**N**	**FACW**
5 ***Gratiola neglecta***	**7**	**N**	**OBL**
6 ***Ludwigia alternifolia***	**2**	**N**	**OBL**
7 ***Acalypha gracilens***	**2**	**N**	**FAC**
8			
9			
10			
11			
12			
	91 = Total Cover		
50% of total cover: **45.5**	20% of total cover: **18.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Smilax rotundifolia***	**4**	**Y**	**FAC**
2 ***Vitis rotundifolia***	**2**	**Y**	**FAC**
3			
4			
5			
6			
	6 = Total Cover		
50% of total cover: **3**	20% of total cover: **1.2**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **80.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**44**	x 1 =	**44**	
FACW species	**27**	x 2 =	**54**	
FAC species	**14**	x 3 =	**42**	
FACU species	**20**	x 4 =	**80**	
UPL species	**0**	x 5 =	**0**	
Column totals	**105** (A)		**220** (B)	
Prevalence Index = B/A =			**2.10**	

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** Plot 4

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 1	10YR 3/3	100					loam	
1 - 4	10YR 5/4	98	10YR 5/8	2	C	M	silty clay loam	Fe/Mn concretions
4 - 12	10YR 6/2	39	10YR 5/6	2	C	M	silty clay loam	Fe/Mn concretions
	10YR 5/3	59						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** X **No** _____

Remarks:

Disturbed soil. Skid trail and/or logging road. A layer of soil greater than 4" thick has Fe/Mn masses, but just under 40% of matrix with chroma 2 or less. It may not be entirely within 12" of the soil surface, but it was not noted whether the Fe/Mn masses extended to the bottom of the layer.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/10**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 5**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 5**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6 ***Herbaceous***			
7 ***Persicaria hydropiperoides***	**1**	**N**	**OBL**
8 ***Lobelia puberula***	**1**	**N**	**FACW**
	2 = Total Cover		
50% of total cover: **1**	20% of total cover: **0.4**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Betula nigra***	**4**	**Y**	**FACW**
2 ***Nyssa sylvatica***	**2**	**Y**	**FAC**
3 ***Ulmus alata***	**2**	**Y**	**FACU**
4 ***Liquidambar styraciflua***	**2**	**Y**	**FAC**
5 ***Ilex opaca***	**2**	**Y**	**FAC**
6 ***Quercus texana***	**1**	**N**	**FACW**
7 ***Quercus nigra***	**1**	**N**	**FAC**
8			
	14 = Total Cover		
50% of total cover: **7**	20% of total cover: **2.8**		
Herb Stratum (Plot size: **1m²**)			
1 ***Betula nigra***	**35**	**Y**	**FACW**
2 ***Arundinaria gigantea***	**15**	**N**	**FACW**
3 ***Phytolacca americana***	**11**	**N**	**FACU**
4 ***Gratiola neglecta***	**7**	**N**	**OBL**
5 ***Glyceria striata***	**7**	**N**	**OBL**
6 ***Dichanthelium dichotomum***	**5**	**N**	**FAC**
7 ***Panicum dichotomiflorum***	**5**	**N**	**FACW**
8 ***Boehmeria cylindrica***	**3**	**N**	**FACW**
9 ***Commelina sp.***	**2**	**N**	
10 ***Acalypha gracilens***	**2**	**N**	**FAC**
11 ***Eupatorium capillifolium***	**1**	**N**	**FACU**
12 ***Pluchea camphorata***	**1**	**N**	**FACW**
	96 = Total Cover		
50% of total cover: **48**	20% of total cover: **19.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Bignonia capreolata***	**2**	**N**	**FAC**
2 ***Vitis rotundifolia***	**1**	**N**	**FAC**
3			
4			
5			
6			
	3 = Total Cover		
50% of total cover: **1.5**	20% of total cover: **0.6**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **5** (A)

Total Number of Dominant Species Across all Strata: **6** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **83.33%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**15**	x 1 =	**15**
FACW species	**65**	x 2 =	**130**
FAC species	**17**	x 3 =	**51**
FACU species	**14**	x 4 =	**56**
UPL species	**0**	x 5 =	**0**
Column totals	**111** (A)		**252** (B)

Prevalence Index = B/A = **2.27**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 5**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3.5	**10YR 3/2**	**100**					**silt loam**	
3.5 - 12	**10YR 6/2**	**49**	**10YR 5/8**	**2**	**C**	**M**	**silty clay loam**	
	10YR 5/3	**49**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn/Cleveland** Sampling Date: **2018/09/10**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 6**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: _____ Long: _____ Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No _____ (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present?

Are vegetation _____, soil _____, or hydrology _____ naturally problematic? Yes **X** No _____

(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 **X**	No _____			
Hydric soil present?	Yes **X**	No _____	**Is the sampled area within a wetland?**	**Yes** X	**No** _____
Wetland hydrology present?	Yes **X**	No _____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ Aquatic Fauna (B13)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Marl Deposits (B15) **(LRR U)**	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Hydrogen Sulfide Odor (C1)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Thin Muck Surface (C7)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Other (Explain in Remarks)	**X** Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)		___ Shallow Aquitard (D3)
___ Water-Stained Leaves (B9)		**X** FAC-Neutral Test (D5)
		___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface water present?	Yes _____	No **X**	Depth (inches) _____	**Wetland hydrology present?**	
Water table present?	Yes _____	No **X**	Depth (inches) _____		
Saturation present? (includes capillary fringe)	Yes _____	No **X**	Depth (inches) _____	**Yes** X	**No** _____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 6**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Gleditsia triacanthos***	**1**	**N**	**FAC**
2 ***Quercus nigra***	**1**	**N**	**FAC**
3			
4			
5			
6			
7			
8			
	2 = Total Cover		
50% of total cover: **1**	20% of total cover: **0.4**		
Herb Stratum (Plot size: **1m²**)			
1 ***Coleataenia rigidula***	**95**	**Y**	**FACW**
2 ***Scoparia dulcis***	**3**	**N**	
3 ***Pluchea camphorata***	**2**	**N**	**FACW**
4 ***Diospyros virginiana***	**2**	**N**	**FAC**
5 ***Persicaria hydropiperoides***	**1**	**N**	**OBL**
6 ***Boehmeria cylindrica***	**1**	**N**	**FACW**
7 ***Heliotropium indicum***	**1**	**N**	**FAC**
8 ***Acalypha gracilens***	**1**	**N**	**FAC**
9 ***Eupatorium serotinum***	**1**	**N**	**FAC**
10 ***Gratiola neglecta***	**1**	**N**	**OBL**
11			
12			
	108 = Total Cover		
50% of total cover: **54**	20% of total cover: **21.6**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis cinerea***	**1**	**N**	**FAC**
2 ***Toxicodendron radicans***	**1**	**N**	**FAC**
3 ***Smilax rotundifolia***	**1**	**N**	**FAC**
4 ***Passiflora incarnata***	**1**	**N**	
5			
6			
	4 = Total Cover		
50% of total cover: **2**	20% of total cover: **0.8**		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **1** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**2**	x 1 =	**2**	
FACW species	**98**	x 2 =	**196**	
FAC species	**10**	x 3 =	**30**	
FACU species	**0**	x 4 =	**0**	
UPL species	**0**	x 5 =	**0**	
Column totals	**110** (A)		**228**	(B)

Prevalence Index = B/A = **2.07**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 6**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	**10YR 3/2**	**98**	**7.5YR 4/6**	**2**	**C**	**M**	**silt loam**	
5 - 10	**7.5YR 3/2**	**88**	**7.5YR 5/6**	**2**	**C**	**M**	**silty clay loam**	
	7.5YR 5/2	**5**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn/Cleveland** Sampling Date: **2018/09/10**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 7**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ Aquatic Fauna (B13)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Marl Deposits (B15) **(LRR U)**	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Hydrogen Sulfide Odor (C1)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Thin Muck Surface (C7)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Other (Explain in Remarks)	**X** Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)		___ Shallow Aquitard (D3)
___ Water-Stained Leaves (B9)		**X** FAC-Neutral Test (D5)
		___ Sphagnum moss (D8) **(LRR T, U)**

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present? Yes ____ No **X** Depth (inches) ____

Water table present? Yes ____ No **X** Depth (inches) ____

Saturation present? Yes ____ No **X** Depth (inches) ____

(includes capillary fringe)

Wetland hydrology present?

Yes X **No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 7**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**25**	**Y**	**FAC**
2 ***Betula nigra***	**9**	**Y**	**FACW**
3 ***Quercus texana***	**5**	**N**	**FACW**
4 ***Quercus phellos***	**1**	**N**	**FACW**
5 ***Gleditsia triacanthos***	**1**	**N**	**FAC**
6 ***Ilex opaca***	**1**	**N**	**FAC**
7 ***Callicarpa americana***	**1**	**N**	**FACU**
8			
	43 = Total Cover		
50% of total cover: **21.5**	20% of total cover: **8.6**		
Herb Stratum (Plot size: **1m²**)			
1 ***Arundinaria gigantea***	**12**	**Y**	**FACW**
2 ***Boehmeria cylindrica***	**10**	**Y**	**FACW**
3 ***Liquidambar styraciflua***	**8**	**Y**	**FAC**
4 ***Perilla frutescens***	**2**	**N**	**FACU**
5			
6			
7			
8			
9			
10			
11			
12			
	32 = Total Cover		
50% of total cover: **16**	20% of total cover: **6.4**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Toxicodendron radicans***	**5**	**Y**	**FAC**
2 ***Smilax rotundifolia***	**2**	**N**	**FAC**
3 ***Vitis rotundifolia***	**2**	**N**	**FAC**
4 ***Bignonia capreolata***	**1**	**N**	**FAC**
5 ***Rubus laudatus***	**1**	**N**	
6			
	11 = Total Cover		
50% of total cover: **5.5**	20% of total cover: **2.2**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **6** (A)

Total Number of Dominant Species Across all Strata: **6** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**37**	x 2 =	**74**
FAC species	**45**	x 3 =	**135**
FACU species	**3**	x 4 =	**12**
UPL species	**0**	x 5 =	**0**
Column totals	**85** (A)		**221** (B)

Prevalence Index = B/A = **2.60**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 7**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	**7.5YR 3/2**	**98**	**10YR 3/6**	**2**	**C**	**M**	**silty clay loam**	
4 - 10	**10YR 4/2**	**98**	**10YR 3/6**	**2**	**C**	**M**	**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn/Cleveland** Sampling Date: **2018/09/11**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 8**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: **40.00001** Long: **-81.00001** Datum: **WGS84**

Soil Map Unit Name: **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ Aquatic Fauna (B13)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Marl Deposits (B15) **(LRR U)**	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Hydrogen Sulfide Odor (C1)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Thin Muck Surface (C7)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Other (Explain in Remarks)	**X** Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)		___ Shallow Aquitard (D3)
___ Water-Stained Leaves (B9)		**X** FAC-Neutral Test (D5)
		___ Sphagnum moss (D8) **(LRR T, U)**

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**
Water table present?	Yes ____	No **X**	Depth (inches) ____	
Saturation present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches) ____	**Yes** X **No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 8**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Ilex opaca***	**8**	**Y**	**FAC**
2 ***Pinus taeda***	**1**	**N**	**FAC**
3 ***Nyssa sylvatica***	**1**	**N**	**FAC**
4 ***Quercus texana***	**1**	**N**	**FACW**
5 ***Betula nigra***	**1**	**N**	**FACW**
6			
7			
8			
	12 = Total Cover		
50% of total cover: **6**	20% of total cover: **2.4**		
Herb Stratum (Plot size: **1m²**)			
1 ***Betula nigra***	**7**	**Y**	**FACW**
2 ***Acalypha gracilens***	**6**	**Y**	**FAC**
3 ***Dichanthelium dichotomum***	**6**	**Y**	**FAC**
4 ***Boehmeria cylindrica***	**4**	**N**	**FACW**
5 ***Pluchea camphorata***	**4**	**N**	**FACW**
6 ***Solidago altissima***	**3**	**N**	**FACU**
7 ***Scoparia dulcis***	**2**	**N**	
8 ***Dichanthelium commutatum***	**2**	**N**	**FAC**
9 ***Saururus cernuus***	**1**	**N**	**OBL**
10			
11			
12			
	35 = Total Cover		
50% of total cover: **17.5**	20% of total cover: **7**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis cinerea***	**1**	**N**	**FAC**
2 ***Berchemia scandens***	**1**	**N**	**FAC**
3			
4			
5			
6			
	2 = Total Cover		
50% of total cover: **1**	20% of total cover: **0.4**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**1**	x 1 =	**1**	
FACW species	**17**	x 2 =	**34**	
FAC species	**26**	x 3 =	**78**	
FACU species	**3**	x 4 =	**12**	
UPL species	**0**	x 5 =	**0**	
Column totals	**47**	(A)	**125**	(B)

Prevalence Index = B/A = **2.66**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 8**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	**10YR 6/2**	**98**	**10YR 5/8**	**2**	**C**	**M**	**silty clay loam**	
6 - 12	**10YR 5/2**	**48**	**10YR 5/8**	**2**	**C**	**M**	**silty clay loam**	
	10YR 6/2	**48**	**10YR 3/6**	**2**	**C**	**M**		

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/11**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **plot 9**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ Aquatic Fauna (B13)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Marl Deposits (B15) **(LRR U)**	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Hydrogen Sulfide Odor (C1)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Thin Muck Surface (C7)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Other (Explain in Remarks)	**X** Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)		___ Shallow Aquitard (D3)
___ Water-Stained Leaves (B9)		**X** FAC-Neutral Test (D5)
		___ Sphagnum moss (D8) **(LRR T, U)**

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**
Water table present?	Yes ____	No **X**	Depth (inches) ____	
Saturation present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches) ____	**Yes** X **No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **plot 9**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: **1m²**)			
1 ***Coleataenia rigidula***	**85**	**Y**	**FACW**
2 ***Rhynchospora corniculata***	**15**	**N**	**OBL**
3 ***Gratiola neglecta***	**3**	**N**	**OBL**
4 ***Quercus phellos***	**2**	**N**	**FACW**
5 ***Pluchea camphorata***	**1**	**N**	**FACW**
6 ***Boehmeria cylindrica***	**1**	**N**	**FACW**
7 ***Cyperus cf. odoratus***	**1**	**N**	
8 ***Andropogon virginicus***	**1**	**N**	**FAC**
9 ***Callicarpa americana***	**1**	**N**	**FACU**
10 ***Cyperus pseudovegetus***	**1**	**N**	**FACW**
11 ***Eupatorium capillifolium***	**0**	**N**	**FACU**
12			
	111 = Total Cover		
50% of total cover: **55.5**	20% of total cover: **22.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1			
2			
3			
4			
5			
6			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **1** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**18**	x 1 =	**18**
FACW species	**90**	x 2 =	**180**
FAC species	**1**	x 3 =	**3**
FACU species	**1**	x 4 =	**4**
UPL species	**0**	x 5 =	**0**
Column totals	**110** (A)		**205** (B)

Prevalence Index = B/A = **1.86**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

Percent cover was not estimated for Eupatorium capillifolium. Percent cover by this species was always much less than 10%, so would not change the results of either the dominance or prevalence tests.

SOIL **Sampling Point:** plot 9

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	7.5YR 3/2	98	7.5YR 5/8	2	C	M	silty clay loam	
6 - 12	7.5YR 3/2	49	7.5YR 4/6	2	C	M	silty clay loam	
	7.5YR 6/2	49						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/11**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **plot 10**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	
Water table present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**
Saturation present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches) ____	**Yes** X **No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **plot 10**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**7**	**Y**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	7 = Total Cover		
50% of total cover: **3.5**	20% of total cover:	**1.4**	
Herb Stratum (Plot size: **1m²**)			
1 ***Glyceria striata***	**45**	**Y**	**OBL**
2 ***Coleataenia rigidula***	**35**	**Y**	**FACW**
3 ***Eupatorium capillifolium***	**7**	**N**	**FACU**
4 ***Mikania scandens***	**5**	**N**	**FACW**
5 ***Liquidambar styraciflua***	**3**	**N**	**FAC**
6 ***Callicarpa americana***	**2**	**N**	**FACU**
7 ***Pluchea camphorata***	**1**	**N**	**FACW**
8 ***Ulmus sp.***	**1**	**N**	
9			
10			
11			
12			
	99 = Total Cover		
50% of total cover: **49.5**	20% of total cover:	**19.8**	
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Smilax rotundifolia***	**2**	**N**	**FAC**
2 ***Rubus laudatus***	**1**	**N**	
3			
4			
5			
6			
	3 = Total Cover		
50% of total cover: **1.5**	20% of total cover:	**0.6**	

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**45**	x 1 =	**45**	
FACW species	**41**	x 2 =	**82**	
FAC species	**12**	x 3 =	**36**	
FACU species	**9**	x 4 =	**36**	
UPL species	**0**	x 5 =	**0**	
Column totals	**107** (A)		**199**	(B)

Prevalence Index = B/A = **1.86**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** plot 10

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 3/2	88	10YR 3/6	2	C	M	silty clay loam	
	10YR 4/2	10						
4 - 12	10YR 4/2	88	10YR 4/6	2	C	M	loamy clay	
	10YR 5/3	10						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/11**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **plot 11**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**	
Water table present?	Yes ____	No **X**	Depth (inches) ____		
Saturation present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches) ____	**Yes** X	**No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **plot 11**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Liquidambar styraciflua***	**1**	**N**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	1 = Total Cover		
50% of total cover: **0.5**	20% of total cover: **0.2**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**6**	**Y**	**FAC**
2 ***Quercus phellos***	**4**	**Y**	**FACW**
3 ***Betula nigra***	**1**	**N**	**FACW**
4			
5			
6			
7			
8			
	11 = Total Cover		
50% of total cover: **5.5**	20% of total cover: **2.2**		
Herb Stratum (Plot size: **1m²**)			
1 ***Pluchea camphorata***	**35**	**Y**	**FACW**
2 ***Rhynchospora corniculata***	**10**	**Y**	**OBL**
3 ***Eupatorium capillifolium***	**10**	**Y**	**FACU**
4 ***Andropogon virginicus***	**10**	**Y**	**FAC**
5 ***Gratiola neglecta***	**10**	**Y**	**OBL**
6 ***Coleataenia rigidula***	**10**	**Y**	**FACW**
7 ***Glyceria striata***	**10**	**Y**	**OBL**
8 ***Solidago altissima***	**2**	**N**	**FACU**
9 ***Cyperus pseudovegetus***	**1**	**N**	**FACW**
10			
11			
12			
	98 = Total Cover		
50% of total cover: **49**	20% of total cover: **19.6**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Smilax rotundifolia***	**1**	**N**	**FAC**
2 ***Berchemia scandens***	**1**	**N**	**FAC**
3 ***Vitis cinerea***	**1**	**N**	**FAC**
4 ***Rubus laudatus***	**1**	**N**	
5			
6			
	4 = Total Cover		
50% of total cover: **2**	20% of total cover: **0.8**		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **9** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **88.89%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**30**	x 1 =	**30**
FACW species	**51**	x 2 =	**102**
FAC species	**20**	x 3 =	**60**
FACU species	**12**	x 4 =	**48**
UPL species	**0**	x 5 =	**0**
Column totals	**113** (A)		**240** (B)

Prevalence Index = B/A = **2.12**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: **plot 11**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	**10YR 5/2**	**98**	**10YR 3/6**	**2**	**C**	**M**	**silty clay loam**	
2 - 6	**10YR 4/2**	**49**	**10YR 3/6**	**2**	**C**	**PL**	**silty clay loam**	
	10YR 5/2	**49**						
6 - 12	**10YR 5/2**	**96**	**10YR 5/8**	**2**	**C**	**M**	**loamy clay**	
			10YR 3/6	**2**	**C**	**M**		

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/11**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **plot 12**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ Aquatic Fauna (B13)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Marl Deposits (B15) **(LRR U)**	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Hydrogen Sulfide Odor (C1)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Thin Muck Surface (C7)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Other (Explain in Remarks)	**X** Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)		___ Shallow Aquitard (D3)
___ Water-Stained Leaves (B9)		**X** FAC-Neutral Test (D5)
		___ Sphagnum moss (D8) **(LRR T, U)**

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**
Water table present?	Yes ____	No **X**	Depth (inches) ____	
Saturation present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches) ____	**Yes** X **No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **plot 12**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Carpinus caroliniana***	**2**	**Y**	**FAC**
2 ***Quercus nigra***	**2**	**Y**	**FAC**
3 ***Liquidambar styraciflua***	**1**	**N**	**FAC**
4 ***Acer rubrum***	**1**	**N**	**FAC**
5 ***Prunus serotina***	**1**	**N**	**FACU**
6			
7			
8			
	7 = Total Cover		
50% of total cover: **3.5**	20% of total cover: **1.4**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Carpinus caroliniana***	**10**	**Y**	**FAC**
2 ***Liquidambar styraciflua***	**2**	**N**	**FAC**
3 ***Quercus phellos***	**1**	**N**	**FACW**
4			
5			
6			
7			
8			
	13 = Total Cover		
50% of total cover: **6.5**	20% of total cover: **2.6**		
Herb Stratum (Plot size: **1m²**)			
1 ***Coleataenia rigidula***	**35**	**Y**	**FACW**
2 ***Boehmeria cylindrica***	**12**	**N**	**FACW**
3 ***Dichanthelium dichotomum***	**8**	**N**	**FAC**
4 ***Gratiola neglecta***	**6**	**N**	**OBL**
5 ***Mikania scandens***	**5**	**N**	**FACW**
6 ***Pluchea camphorata***	**4**	**N**	**FACW**
7 ***Eupatorium capillifolium***	**4**	**N**	**FACU**
8 ***Dichanthelium commutatum***	**2**	**N**	**FAC**
9 ***Hypericum mutilum***	**2**	**N**	**FACW**
10 ***Solidago altissima***	**2**	**N**	**FACU**
11 ***Acalypha gracilens***	**2**	**N**	**FAC**
12 ***Andropogon virginicus***	**2**	**N**	**FAC**
	84 = Total Cover		
50% of total cover: **42**	20% of total cover: **16.8**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis cinerea***	**15**	**Y**	**FAC**
2 ***Vitis rotundifolia***	**3**	**N**	**FAC**
3			
4			
5			
6			
	18 = Total Cover		
50% of total cover: **9**	20% of total cover: **3.6**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **5** (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**6**	x 1 =	**6**
FACW species	**59**	x 2 =	**118**
FAC species	**50**	x 3 =	**150**
FACU species	**7**	x 4 =	**28**
UPL species	**0**	x 5 =	**0**
Column totals	**122** (A)		**302** (B)

Prevalence Index = B/A = **2.48**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

Herbaceous layer also includes Callicarpa americana (FACU) at 1%.

SOIL **Sampling Point:** plot 12

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3	10YR 4/2	98	10YR 4/6	2	C	PL	silty clay loam	
3 - 6	10YR 4/2	58	10YR 3/6	2	C	M	silty clay loam	
	10YR 5/2	38	10YR 5/8	2	C	M		
6 - 12	10YR 5/2	96	10YR 4/6	2	C	M	silty clay loam	
			10YR 3/6	2	C	M		

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/11**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **plot 13**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range:

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**	
Water table present?	Yes ____	No **X**	Depth (inches) ____		
Saturation present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches) ____	**Yes** X	**No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **plot 13**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Quercus phellos***	**1**	**N**	**FACW**
2			
3			
4			
5			
6			
7			
8			
	1 = Total Cover		
50% of total cover: **0.5**	20% of total cover: **0.2**		
Herb Stratum (Plot size: **1m²**)			
1 ***Panicum verrucosum***	**100**	**Y**	**FACW**
2 ***Scoparia dulcis***	**12**	**N**	
3 ***Perilla frutescens***	**10**	**N**	**FACU**
4 ***Mikania scandens***	**2**	**N**	**FACW**
5 ***Eupatorium capillifolium***	**2**	**N**	**FACU**
6			
7			
8			
9			
10			
11			
12			
	126 = Total Cover		
50% of total cover: **63**	20% of total cover: **25.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**2**	**N**	**FAC**
2 ***Vitis cinerea***	**1**	**N**	**FAC**
3			
4			
5			
6			
	3 = Total Cover		
50% of total cover: **1.5**	20% of total cover: **0.6**		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **1** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**	
FACW species	**103**	x 2 =	**206**	
FAC species	**3**	x 3 =	**9**	
FACU species	**12**	x 4 =	**48**	
UPL species	**0**	x 5 =	**0**	
Column totals	**118**	(A)	**263**	(B)

Prevalence Index = B/A = **2.23**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** plot 13

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	10YR 4/2	59	10YR 4/6	2	C	M	silty clay loam	
	10YR 5/2	39						
2 - 6	10YR 5/2	98	10YR 5/8	2	C	PL	silty clay loam	
6 - 12	10YR 5/2	96	10YR 5/8	2	C	M	sandy clay	
			10YR 3/4	2	C	M		

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** X **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/11**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 14**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 14**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Liquidambar styraciflua***	**15**	**Y**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	15 = Total Cover		
50% of total cover: **7.5**	20% of total cover: **3**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**50**	**Y**	**FAC**
2 ***Carpinus caroliniana***	**30**	**Y**	**FAC**
3 ***Quercus texana***	**1**	**N**	**FACW**
4 ***Cephalanthus occidentalis***	**1**	**N**	**OBL**
5 ***Hamamelis virginiana***	**1**	**N**	**FACU**
6 ***Callicarpa americana***	**1**	**N**	**FACU**
7 ***Diospyros virginiana***	**1**	**N**	**FAC**
8			
	85 = Total Cover		
50% of total cover: **42.5**	20% of total cover: **17**		
Herb Stratum (Plot size: **1m²**)			
1 ***Panicum verrucosum***	**75**	**Y**	**FACW**
2 ***Boehmeria cylindrica***	**40**	**Y**	**FACW**
3 ***Hypericum mutilum***	**6**	**N**	**FACW**
4 ***Eupatorium capillifolium***	**4**	**N**	**FACU**
5 ***Ipomoea sp.***	**1**	**N**	
6 ***Carpinus caroliniana***	**0**	**N**	**FAC**
7			
8			
9			
10			
11			
12			
	126 = Total Cover		
50% of total cover: **63**	20% of total cover: **25.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Rubus laudatus***	**5**	**Y**	
2 ***Vitis rotundifolia***	**4**	**Y**	**FAC**
3 ***Smilax glauca***	**1**	**N**	**FAC**
4 ***Lonicera japonica***	**1**	**N**	**FACU**
5			
6			
	11 = Total Cover		
50% of total cover: **5.5**	20% of total cover: **2.2**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **6** (A)

Total Number of Dominant Species Across all Strata: **7** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **85.71%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**1**	x 1 =	**1**
FACW species	**122**	x 2 =	**244**
FAC species	**101**	x 3 =	**303**
FACU species	**7**	x 4 =	**28**
UPL species	**0**	x 5 =	**0**
Column totals	**231** (A)		**576** (B)

Prevalence Index = B/A = **2.49**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

Herbaceous cover of Carpinus caroliniana was not estimated, would not affect conclusions.

SOIL **Sampling Point:** **Plot 14**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	**10YR 3/2**	**98**	**10YR 3/6**	**2**	**C**	**M**	**silty clay loam**	
4 - 12	**10YR 3/2**	**59**	**10YR 3/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 4/2	**39**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/11**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 15**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

____ Surface Water (A1)	____ Aquatic Fauna (B13)	____ Surface Soil Cracks (B6)
X High Water Table (A2)	____ Marl Deposits (B15) **(LRR U)**	____ Sparsely Vegetated Concave Surface (B8)
X Saturation (A3)	____ Hydrogen Sulfide Odor (C1)	____ Drainage Patterns (B10)
____ Water Marks (B1)	____ Oxidized Rhizospheres on Living Roots (C3)	____ Moss Trim Lines (B16)
____ Sediment Deposits (B2)		____ Dry-Season Water Table (C2)
____ Drift Deposits (B3)	____ Presence of Reduced Iron (C4)	____ Crayfish Burrows (C8)
____ Algal Mat or Crust (B4)	____ Recent Iron Reduction in Tilled Soils (C6)	____ Saturation Visible on Aerial Imagery (C9)
____ Iron Deposits (B5)		**X** Geomorphic Position (D2)
____ Inundation Visible on Aerial Imagery (B7)	____ Thin Muck Surface (C7)	____ Shallow Aquitard (D3)
____ Water-Stained Leaves (B9)	____ Other (Explain in Remarks)	**X** FAC-Neutral Test (D5)
		____ Sphagnum moss (D8) **(LRR T, U)**

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**	
Water table present?	Yes **X**	No ____	Depth (inches) ____		
Saturation present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches) ____	**Yes** X	**No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

water in 12" core hole

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 15**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**6**	**Y**	**FAC**
2 ***Quercus phellos***	**4**	**Y**	**FACW**
3 ***Nyssa sylvatica***	**1**	**N**	**FAC**
4 ***Acer rubrum***	**1**	**N**	**FAC**
5 ***Ilex opaca***	**1**	**N**	**FAC**
6			
7			
8			
	13 = Total Cover		
50% of total cover: **6.5**	20% of total cover: **2.6**		
Herb Stratum (Plot size: **1m²**)			
1 ***Panicum verrucosum***	**90**	**Y**	**FACW**
2 ***Boehmeria cylindrica***	**20**	**N**	**FACW**
3 ***Lycopus sp.***	**3**	**N**	
4 ***Liquidambar styraciflua***	**2**	**N**	**FAC**
5			
6			
7			
8			
9			
10			
11			
12			
	115 = Total Cover		
50% of total cover: **57.5**	20% of total cover: **23**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Smilax rotundifolia***	**5**	**Y**	**FAC**
2			
3			
4			
5			
6			
	5 = Total Cover		
50% of total cover: **2.5**	20% of total cover: **1**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**	
FACW species	**114**	x 2 =	**228**	
FAC species	**16**	x 3 =	**48**	
FACU species	**0**	x 4 =	**0**	
UPL species	**0**	x 5 =	**0**	
Column totals	**130**	(A)	**276**	(B)
Prevalence Index = B/A =			**2.12**	

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: **Plot 15**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 1	**10YR 3/2**	**100**					**silty clay loam**	
1 - 8	**10YR 3/2**	**86**	**10YR 4/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 6/2	**10**	**10YR 3/6**	**2**	**C**	**M**		
8 - 12	**10YR 6/2**	**98**	**10YR 5/8**	**2**	**C**	**M**	**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/11**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 16**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

____ Surface Water (A1)	____ Aquatic Fauna (B13)	____ Surface Soil Cracks (B6)
X High Water Table (A2)	____ Marl Deposits (B15) **(LRR U)**	____ Sparsely Vegetated Concave Surface (B8)
X Saturation (A3)	____ Hydrogen Sulfide Odor (C1)	____ Drainage Patterns (B10)
____ Water Marks (B1)	____ Oxidized Rhizospheres on Living Roots (C3)	____ Moss Trim Lines (B16)
____ Sediment Deposits (B2)		____ Dry-Season Water Table (C2)
____ Drift Deposits (B3)	____ Presence of Reduced Iron (C4)	____ Crayfish Burrows (C8)
____ Algal Mat or Crust (B4)	____ Recent Iron Reduction in Tilled Soils (C6)	____ Saturation Visible on Aerial Imagery (C9)
____ Iron Deposits (B5)		**X** Geomorphic Position (D2)
____ Inundation Visible on Aerial Imagery (B7)	____ Thin Muck Surface (C7)	____ Shallow Aquitard (D3)
____ Water-Stained Leaves (B9)	____ Other (Explain in Remarks)	**X** FAC-Neutral Test (D5)
		____ Sphagnum moss (D8) **(LRR T, U)**

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**	
Water table present?	Yes **X**	No ____	Depth (inches) ____		
Saturation present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches) ____	**Yes** X	**No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

water in 12" core hole

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 16**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Carpinus caroliniana***	**1**	**N**	**FAC**
2 ***Quercus texana***	**1**	**N**	**FACW**
3 ***Quercus nigra***	**1**	**N**	**FAC**
4 ***Liquidambar styraciflua***	**1**	**N**	**FAC**
5			
6			
7			
8			
	4 = Total Cover		
50% of total cover: **2**	20% of total cover: **0.8**		
Herb Stratum (Plot size: **1m²**)			
1 ***Boehmeria cylindrica***	**30**	**Y**	**FACW**
2 ***Saccharum baldwinii***	**25**	**Y**	**OBL**
3 ***Panicum verrucosum***	**15**	**N**	**FACW**
4 ***Ludwigia sp.***	**10**	**N**	
5 ***Pluchea camphorata***	**8**	**N**	**FACW**
6 ***Mikania scandens***	**5**	**N**	**FACW**
7 ***Gratiola neglecta***	**3**	**N**	**OBL**
8 ***Lycopus sp.***	**2**	**N**	
9			
10			
11			
12			
	98 = Total Cover		
50% of total cover: **49**	20% of total cover: **19.6**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Smilax rotundifolia***	**60**	**Y**	**FAC**
2 ***Berchemia scandens***	**1**	**N**	**FAC**
3			
4			
5			
6			
	61 = Total Cover		
50% of total cover: **30.5**	20% of total cover: **12.2**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**28**	x 1 =	**28**
FACW species	**59**	x 2 =	**118**
FAC species	**64**	x 3 =	**192**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**151** (A)		**338** (B)

Prevalence Index = B/A = **2.24**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: **Plot 16**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	**10YR 4/2**	**98**	**10YR 4/6**	**2**	**C**	**PL**	**silty clay loam**	**Fe/Mn concretions**
2 - 8	**10YR 4/2**	**96**	**10YR 5/8**	**2**	**C**	**M**	**silty clay loam**	
			7.5YR 4/6	**2**	**C**	**M**		
8 - 12	**10YR 5/2**	**98**	**10YR 5/8**	**2**	**C**	**M**	Pl **clay**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/11**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 17**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 17**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**4**	**N**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	4 = Total Cover		
50% of total cover: **2**	20% of total cover:	**0.8**	
Herb Stratum (Plot size: **1m²**)			
1 ***Boehmeria cylindrica***	**40**	**Y**	**FACW**
2 ***Panicum verrucosum***	**15**	**N**	**FACW**
3 ***Mikania scandens***	**10**	**N**	**FACW**
4 ***Phaseolus sp.***	**8**	**N**	
5 ***Pluchea camphorata***	**6**	**N**	**FACW**
6 ***Eupatorium capillifolium***	**5**	**N**	**FACU**
7 ***Rhexia mariana***	**4**	**N**	**FACW**
8			
9			
10			
11			
12			
	88 = Total Cover		
50% of total cover: **44**	20% of total cover:	**17.6**	
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Smilax rotundifolia***	**10**	**Y**	**FAC**
2 ***Smilax bona-nox***	**1**	**N**	**FAC**
3			
4			
5			
6			
	11 = Total Cover		
50% of total cover: **5.5**	20% of total cover:	**2.2**	

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **2** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**	
FACW species	**75**	x 2 =	**150**	
FAC species	**15**	x 3 =	**45**	
FACU species	**5**	x 4 =	**20**	
UPL species	**0**	x 5 =	**0**	
Column totals	**95**	(A)	**215**	(B)

Prevalence Index = B/A = **2.26**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 17**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	**10YR 4/2**	**98**	**10YR 5/8**	**2**	**C**	**M**	**silty clay loam**	
2 - 8	**10YR 4/2**	**49**	**7.5YR 4/6**	**2**	**C**	**PL**	**silty clay loam**	
	10YR 5/2	**49**						
8 - 12	**10YR 5/2**	**96**	**10YR 5/8**	**2**	**C**	**M**	**loamy clay**	
			10YR 3/6	**2**	**C**	**M**		

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/11**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 18**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 18**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**4**	**Y**	**FAC**
2 ***Quercus phellos***	**2**	**Y**	**FACW**
3			
4			
5			
6			
7			
8			
	6 = Total Cover		
50% of total cover: **3**	20% of total cover: **1.2**		
Herb Stratum (Plot size: **1m²**)			
1 ***Boehmeria cylindrica***	**80**	**Y**	**FACW**
2 ***Panicum verrucosum***	**25**	**Y**	**FACW**
3 ***Eupatorium capillifolium***	**10**	**N**	**FACU**
4 ***Pluchea camphorata***	**4**	**N**	**FACW**
5 ***Mikania scandens***	**3**	**N**	**FACW**
6 ***Persicaria hydropiperoides***	**2**	**N**	**OBL**
7			
8			
9			
10			
11			
12			
	124 = Total Cover		
50% of total cover: **62**	20% of total cover: **24.8**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis cinerea***	**22**	**Y**	**FAC**
2 ***Vitis rotundifolia***	**18**	**Y**	**FAC**
3 ***Smilax rotundifolia***	**5**	**N**	**FAC**
4			
5			
6			
	45 = Total Cover		
50% of total cover: **22.5**	20% of total cover: **9**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **6** (A)

Total Number of Dominant Species Across all Strata: **6** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**2**	x 1 =	**2**	
FACW species	**114**	x 2 =	**228**	
FAC species	**49**	x 3 =	**147**	
FACU species	**10**	x 4 =	**40**	
UPL species	**0**	x 5 =	**0**	
Column totals	**175** (A)		**417**	(B)
Prevalence Index = B/A =			**2.38**	

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 18**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	**10YR 4/2**	**98**	**10YR 3/6**	**2**	**C**	**M**	**silty clay loam**	
2 - 12	**10YR 4/2**	**78**	**10YR 3/6**	**2**	**C**	**PL**	**sandy clay loam**	**silty clay loam**
	10YR 5/2	**20**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/11**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 19**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes	No **X**	**Is the sampled area within a wetland?**	**Yes**	**No X**
Wetland hydrology present?	Yes	No **X**			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes** **No X**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 19**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Carpinus caroliniana***	**1**	**N**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	1 = Total Cover		
50% of total cover: **0.5**	20% of total cover: **0.2**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Carpinus caroliniana***	**5**	**Y**	**FAC**
2 ***Liquidambar styraciflua***	**3**	**Y**	**FAC**
3			
4			
5			
6			
7			
8			
	8 = Total Cover		
50% of total cover: **4**	20% of total cover: **1.6**		
Herb Stratum (Plot size: **1m²**)			
1 ***Coleataenia rigidula***	**45**	**Y**	**FACW**
2 ***Eupatorium capillifolium***	**30**	**Y**	**FACU**
3 ***Callicarpa americana***	**30**	**Y**	**FACU**
4 ***Gratiola neglecta***	**25**	**N**	**OBL**
5 ***Cyperus sp.***	**10**	**N**	
6			
7			
8			
9			
10			
11			
12			
	140 = Total Cover		
50% of total cover: **70**	20% of total cover: **28**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**4**	**Y**	**FAC**
2 ***Smilax rotundifolia***	**1**	**Y**	**FAC**
3			
4			
5			
6			
	5 = Total Cover		
50% of total cover: **2.5**	20% of total cover: **1**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **5** (A)

Total Number of Dominant Species Across all Strata: **7** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **71.43%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**25**	x 1 =	**25**
FACW species	**45**	x 2 =	**90**
FAC species	**14**	x 3 =	**42**
FACU species	**60**	x 4 =	**240**
UPL species	**0**	x 5 =	**0**
Column totals	**144** (A)		**397** (B)

Prevalence Index = B/A = **2.76**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 19**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 1	**10YR 4/3**	**100**					**silty clay loam**	
1 - 12	**10YR 4/2**	**50**					**sandy clay loam**	**silty clay loam**
	10YR 5/2	**50**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** _____ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/11**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 20**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes **X**	No	Depth (inches) **3**	**Wetland hydrology present?**	
Water table present?	Yes **X**	No	Depth (inches) **0**		
Saturation present? (includes capillary fringe)	Yes **X**	No	Depth (inches) **0**	**Yes X**	**No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

water to surface in core hole and surface water within 15-foot radius

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 20**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**8**	**Y**	**FAC**
2			
3			
4			
5			
6			
7 ***Herbaceous:***			
8 ***Ludwigia alternifolia***	**1**	**N**	**OBL**
	8 = Total Cover		
50% of total cover: **4**	20% of total cover: **1.6**		
Herb Stratum (Plot size: **1m²**)			
1 ***Coleataenia rigidula***	**30**	**Y**	**FACW**
2 ***Gratiola neglecta***	**8**	**Y**	**OBL**
3 ***Ludwigia palustris***	**7**	**N**	**OBL**
4 ***Eupatorium capillifolium***	**6**	**N**	**FACU**
5 ***Andropogon virginicus***	**6**	**N**	**FAC**
6 ***Pluchea camphorata***	**6**	**N**	**FACW**
7 ***Dichanthelium dichotomum***	**5**	**N**	**FAC**
8 ***Rhynchospora corniculata***	**4**	**N**	**OBL**
9 ***Cyperus cf. odorata***	**4**	**N**	
10 ***Betula nigra***	**2**	**N**	**FACW**
11 ***Boehmeria cylindrica***	**2**	**N**	**FACW**
12 ***Cyperus pseudovegetus***	**1**	**N**	**FACW**
	81 = Total Cover		
50% of total cover: **40.5**	20% of total cover: **16.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis cinerea***			**FAC**
2 ***Rubus laudatus***			
3			
4			
5			
6			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**20**	x 1 =	**20**	
FACW species	**41**	x 2 =	**82**	
FAC species	**19**	x 3 =	**57**	
FACU species	**6**	x 4 =	**24**	
UPL species	**0**	x 5 =	**0**	
Column totals	**86**	(A)	**183**	(B)

Prevalence Index = B/A = **2.13**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

forgot to estimate cover of woody vines, but the two species (one FAC and the other NI) could not change the determination.

SOIL **Sampling Point:** **Plot 20**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 12	**10YR 5/2**	**96**	**10YR 3/6**	**2**	**C**	**PL**	**silty clay loam**	
			10YR 5/6	**2**	**C**	**PL**		

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn/Cleveland** Sampling Date: **2018/09/11**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 21**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 21**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Ilex opaca***	**2**	**N**	**FAC**
2 ***Carpinus caroliniana***	**1**	**N**	**FAC**
3			
4			
5			
6			
7			
8			
	3 = Total Cover		
50% of total cover: **1.5**	20% of total cover: **0.6**		
Herb Stratum (Plot size: **1m²**)			
1 ***Coleataenia rigidula***	**95**	**Y**	**FACW**
2 ***Pluchea camphorata***	**7**	**N**	**FACW**
3 ***Callicarpa americana***	**7**	**N**	**FACU**
4 ***Andropogon virginicus***	**5**	**N**	**FAC**
5 ***Gratiola neglecta***	**4**	**N**	**OBL**
6 ***Hypericum mutilum***	**2**	**N**	**FACW**
7 ***Chasmanthium laxum***	**2**	**N**	**FACW**
8 ***Eupatorium capillifolium***	**1**	**N**	**FACU**
9 ***Rhynchospora corniculata***	**1**	**N**	**OBL**
10			
11			
12			
	124 = Total Cover		
50% of total cover: **62**	20% of total cover: **24.8**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**40**	**Y**	**FAC**
2 ***Smilax rotundifolia***	**4**	**N**	**FAC**
3 ***Vitis cinerea***	**1**	**N**	**FAC**
4 ***Berchemia scandens***	**1**	**N**	**FAC**
5			
6			
	46 = Total Cover		
50% of total cover: **23**	20% of total cover: **9.2**		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **2** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**5**	x 1 =	**5**
FACW species	**106**	x 2 =	**212**
FAC species	**54**	x 3 =	**162**
FACU species	**8**	x 4 =	**32**
UPL species	**0**	x 5 =	**0**
Column totals	**173** (A)		**411** (B)

Prevalence Index = B/A = **2.38**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 21**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3	**10YR 3/2**	**98**	**10YR 4/6**	**2**	**C**	**M**	**silty clay loam**	
3 - 12	**10YR 4/2**	**98**	**10YR 4/4**	**2**	**C**	**M**	**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/13**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 22**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 22**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Nyssa sylvatica***	**25**	**Y**	**FAC**
2 ***Ilex opaca***	**2**	**N**	**FAC**
3 ***Diospyros virginiana***	**1**	**N**	**FAC**
4 ***Ulmus alata***	**1**	**N**	**FACU**
5			
6			
7			
8			
	29 = Total Cover		
50% of total cover: **14.5**	20% of total cover:	**5.8**	
Herb Stratum (Plot size: **1m²**)			
1 ***Boehmeria cylindrica***	**40**	**Y**	**FACW**
2 ***Pluchea camphorata***	**25**	**Y**	**FACW**
3 ***Nyssa sylvatica***	**15**	**N**	**FAC**
4 ***Dichanthelium dichotomum***	**10**	**N**	**FAC**
5 ***Gratiola neglecta***	**6**	**N**	**OBL**
6 ***Coleataenia rigidula***	**3**	**N**	**FACW**
7			
8			
9			
10 ***Additional vines***			
11 ***Smilax glauca***	**1**	**N**	**FAC**
12 ***Berchemia scandens***	**1**	**N**	**FAC**
	99 = Total Cover		
50% of total cover: **49.5**	20% of total cover:	**19.8**	
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Smilax rotundifolia***	**10**	**Y**	**FAC**
2 ***Brunnichia ovata***	**3**	**N**	**FACW**
3 ***Rubus laudatus***	**3**	**N**	
4 ***Vitis cinerea***	**2**	**N**	**FAC**
5 ***Bignonia capreolata***	**1**	**N**	**FAC**
6 ***Vitis rotundifolia***	**1**	**N**	**FAC**
	22 = Total Cover		
50% of total cover: **11**	20% of total cover:	**4.4**	

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**6**	x 1 =	**6**	
FACW species	**71**	x 2 =	**142**	
FAC species	**69**	x 3 =	**207**	
FACU species	**1**	x 4 =	**4**	
UPL species	**0**	x 5 =	**0**	
Column totals	**147**	(A)	**359**	(B)
Prevalence Index = B/A =			**2.44**	

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 22**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 1	**10YR 4/3**	**100**					**silty clay loam**	
1 - 6	**10YR 5/2**	**98**	**10YR 5/6**	**2**	**C**	**PL**	**silty clay loam**	
6 - 12	**10YR 5/2**	**98**	**10YR 4/6**	**2**	**C**	**PL**	**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/13**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 23**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No	**X**	Depth (inches) ____	**Wetland hydrology present?**
Water table present?	Yes ____	No	**X**	Depth (inches) ____	
Saturation present? (includes capillary fringe)	Yes ____	No	**X**	Depth (inches) ____	**Yes** X **No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 23**

	Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1	***Carpinus caroliniana***	**4**	**Y**	**FAC**
2	***Ilex opaca***	**3**	**Y**	**FAC**
3	***Acer rubrum***	**2**	**Y**	**FAC**
4				
5				
6				
7				
8				
		9	= Total Cover	
	50% of total cover: **4.5**	20% of total cover:	**1.8**	
	Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1	***Carpinus caroliniana***	**5**	**Y**	**FAC**
2	***Carya alba***	**2**	**Y**	
3				
4				
5				
6				
7				
8				
		7	= Total Cover	
	50% of total cover: **3.5**	20% of total cover:	**1.4**	
	Herb Stratum (Plot size: **1m²**)			
1	***Dichanthelium dichotomum***	**90**	**Y**	**FAC**
2	***Gratiola neglecta***	**6**	**N**	**OBL**
3	***Eupatorium capillifolium***	**3**	**N**	**FACU**
4	***Coleataenia rigidula***	**3**	**N**	**FACW**
5	***Carpinus caroliniana***	**2**	**N**	**FAC**
6	***Nyssa sylvatica***	**2**	**N**	**FAC**
7	***Vaccinium sp.***	**2**	**N**	
8	***Dichanthelium commutatum***	**1**	**N**	**FAC**
9	***Carex sp.***	**1**	**N**	
10				
11				
12				
		110	= Total Cover	
	50% of total cover: **55**	20% of total cover:	**22**	
	Woody Vine Stratum (Plot size: **15-m radius**)			
1	***Smilax rotundifolia***	**4**	**Y**	**FAC**
2	***Vitis rotundifolia***	**3**	**Y**	**FAC**
3	***Rubus laudatus***	**1**	**N**	
4	***Lonicera japonica***	**1**	**N**	**FACU**
5				
6				
		9	= Total Cover	
	50% of total cover: **4.5**	20% of total cover:	**1.8**	

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **87.50%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**6**	x 1 =	**6**
FACW species	**3**	x 2 =	**6**
FAC species	**116**	x 3 =	**348**
FACU species	**4**	x 4 =	**16**
UPL species	**0**	x 5 =	**0**
Column totals	**129** (A)		**376** (B)

Prevalence Index = B/A = **2.91**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 23**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	**10YR 4/2**	**98**	**10YR 3/6**	**2**	**C**	**PL**	**silty clay loam**	
6 - 12	**10YR 5/3**	**98**	**10YR 5/8**	**2**	**C**	**M**	**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/13**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 24**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes	No **X**	**Is the sampled area within a wetland?**	**Yes**	**No X**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 24**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Acer rubrum***	**5**	**Y**	**FAC**
2 ***Quercus nigra***	**4**	**Y**	**FAC**
3			
4			
5			
6			
7			
8			
	9 = Total Cover		
50% of total cover: **4.5**	20% of total cover:	**1.8**	
Herb Stratum (Plot size: **1m²**)			
1 ***Persicaria hydropiperoides***	**35**	**Y**	**OBL**
2 ***Boehmeria cylindrica***	**25**	**Y**	**FACW**
3 ***Ludwigia alternifolia***	**25**	**Y**	**OBL**
4 ***Carex tribuloides***	**5**	**N**	**FACW**
5 ***Dichanthelium dichotomum***	**4**	**N**	**FAC**
6 ***Phytolacca americana***	**3**	**N**	**FACU**
7 ***Panicum verrucosum***	**1**	**N**	**FACW**
8			
9			
10			
11			
12			
	98 = Total Cover		
50% of total cover: **49**	20% of total cover:	**19.6**	
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**10**	**Y**	**FAC**
2 ***Smilax glauca***	**8**	**Y**	**FAC**
3			
4			
5			
6			
	18 = Total Cover		
50% of total cover: **9**	20% of total cover:	**3.6**	

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **7** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**60**	x 1 =	**60**	
FACW species	**31**	x 2 =	**62**	
FAC species	**31**	x 3 =	**93**	
FACU species	**3**	x 4 =	**12**	
UPL species	**0**	x 5 =	**0**	
Column totals	**125** (A)		**227**	(B)

Prevalence Index = B/A = **1.82**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 24**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	**10YR 4/2**	**100**					**silty clay loam**	
4 - 6	**10YR 5/3**	**88**	**10YR 5/8**	**2**	**C**	**M**	**silty clay loam**	
	10YR 6/1	**10**						
6 - 12	**10YR 5/3**	**78**	**10YR 5/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 6/1	**20**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** _____ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/17**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 25**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ Aquatic Fauna (B13)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Marl Deposits (B15) **(LRR U)**	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Hydrogen Sulfide Odor (C1)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Thin Muck Surface (C7)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Other (Explain in Remarks)	**X** Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)		___ Shallow Aquitard (D3)
___ Water-Stained Leaves (B9)		**X** FAC-Neutral Test (D5)
		___ Sphagnum moss (D8) **(LRR T, U)**

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**
Water table present?	Yes ____	No **X**	Depth (inches) ____	
Saturation present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches) ____	**Yes** X **No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 25**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Ilex opaca***	**3**	**N**	**FAC**
2 ***Betula nigra***	**1**	**N**	**FACW**
3			
4			
5			
6			
7			
8			
	4 = Total Cover		
50% of total cover: **2**	20% of total cover: **0.8**		
Herb Stratum (Plot size: **1m²**)			
1 ***Coleataenia rigidula***	**55**	**Y**	**FACW**
2 ***Boehmeria cylindrica***	**30**	**Y**	**FACW**
3 ***Pluchea camphorata***	**5**	**N**	**FACW**
4 ***Arundinaria gigantea***	**4**	**N**	**FACW**
5 ***Gratiola neglecta***	**2**	**N**	**OBL**
6 ***Eupatorium capillifolium***	**2**	**N**	**FACU**
7 ***Phytolacca americana***	**1**	**N**	**FACU**
8			
9			
10			
11			
12			
	99 = Total Cover		
50% of total cover: **49.5**	20% of total cover: **19.8**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**30**	**Y**	**FAC**
2 ***Vitis cinerea***	**10**	**N**	**FAC**
3 ***Smilax rotundifolia***	**10**	**N**	**FAC**
4 ***Berchemia scandens***	**1**	**N**	**FAC**
5			
6			
	51 = Total Cover		
50% of total cover: **25.5**	20% of total cover: **10.2**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**2**	x 1 =	**2**	
FACW species	**95**	x 2 =	**190**	
FAC species	**54**	x 3 =	**162**	
FACU species	**3**	x 4 =	**12**	
UPL species	**0**	x 5 =	**0**	
Column totals	**154**	(A)	**366**	(B)
Prevalence Index = B/A =			**2.38**	

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 25**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 8	**10YR 4/2**	**49**	**10YR 5/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 5/2	**49**						
8 - 12	**10YR 4/2**	**39**	**10YR 5/8**	**2**	**C**	**M**	**silty clay**	
	10YR 5/2	**59**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/17**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 26**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes	No **X**	**Is the sampled area within a wetland?**	**Yes**	**No X**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 26**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Ilex opaca***	**10**	**Y**	**FAC**
2 ***Betula nigra***	**4**	**Y**	**FACW**
3			
4			
5			
6			
7			
8			
	14 = Total Cover		
50% of total cover: **7**	20% of total cover: **2.8**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Betula nigra***	**2**	**N**	**FACW**
2 ***Cephalanthus occidentalis***	**1**	**N**	**OBL**
3 ***Quercus texana***	**1**	**N**	**FACW**
4			
5			
6			
7			
8			
	4 = Total Cover		
50% of total cover: **2**	20% of total cover: **0.8**		
Herb Stratum (Plot size: **1m²**)			
1 ***Panicum verrucosum***	**65**	**Y**	**FACW**
2 ***Gratiola neglecta***	**8**	**N**	**OBL**
3 ***Rhexia mariana***	**5**	**N**	**FACW**
4 ***Boehmeria cylindrica***	**2**	**N**	**FACW**
5 ***Spermacoce glabra***	**1**	**N**	**FACW**
6			
7			
8			
9			
10			
11			
12			
	81 = Total Cover		
50% of total cover: **40.5**	20% of total cover: **16.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Rubus laudatus***	**17**	**Y**	
2 ***Smilax rotundifolia***	**3**	**N**	**FAC**
3 ***Bignonia capreolata***	**1**	**N**	**FAC**
4			
5			
6			
	21 = Total Cover		
50% of total cover: **10.5**	20% of total cover: **4.2**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **75.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**9**	x 1 =	**9**
FACW species	**80**	x 2 =	**160**
FAC species	**14**	x 3 =	**42**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**103** (A)		**211** (B)

Prevalence Index = B/A = **2.05**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 26**

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 12	**10YR 4/3**						**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** _____ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn/Cleveland** Sampling Date: **2018/09/17**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 27**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: _____ Long: _____ Datum: **WGS84**

Soil Map Unit Name: **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No _____ (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present?

Are vegetation _____, soil _____, or hydrology _____ naturally problematic? Yes **X** No _____

(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 **X**	No _____			
Hydric soil present?	Yes **X**	No _____	**Is the sampled area within a wetland?**	**Yes** X	**No** _____
Wetland hydrology present?	Yes **X**	No _____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ Aquatic Fauna (B13)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Marl Deposits (B15) **(LRR U)**	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Hydrogen Sulfide Odor (C1)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Thin Muck Surface (C7)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Other (Explain in Remarks)	**X** Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)		___ Shallow Aquitard (D3)
___ Water-Stained Leaves (B9)		**X** FAC-Neutral Test (D5)
		___ Sphagnum moss (D8) **(LRR T, U)**

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes _____	No **X**	Depth (inches) _____	**Wetland hydrology present?**
Water table present?	Yes _____	No **X**	Depth (inches) _____	
Saturation present? (includes capillary fringe)	Yes _____	No **X**	Depth (inches) _____	**Yes** X **No** _____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 27**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Ilex opaca***	**8**	**Y**	**FAC**
2 ***Quercus phellos***	**2**	**Y**	**FACW**
3			
4			
5			
6			
7			
8			
	10 = Total Cover		
50% of total cover: **5**	20% of total cover: **2**		
Herb Stratum (Plot size: **1m²**)			
1 ***Panicum verrucosum***	**85**	**Y**	**FACW**
2 ***Boehmeria cylindrica***	**8**	**N**	**FACW**
3 ***Pluchea camphorata***	**5**	**N**	**FACW**
4 ***Ilex opaca***	**5**	**N**	**FAC**
5 ***Coleataenia rigidula***	**5**	**N**	**FACW**
6 ***Dichanthelium dichotomum***	**2**	**N**	**FAC**
7			
8			
9			
10			
11			
12			
	110 = Total Cover		
50% of total cover: **55**	20% of total cover: **22**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis cinerea***	**2**	**N**	**FAC**
2 ***Smilax glauca***	**1**	**N**	**FAC**
3			
4			
5			
6			
	3 = Total Cover		
50% of total cover: **1.5**	20% of total cover: **0.6**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**	
FACW species	**105**	x 2 =	**210**	
FAC species	**18**	x 3 =	**54**	
FACU species	**0**	x 4 =	**0**	
UPL species	**0**	x 5 =	**0**	
Column totals	**123** (A)		**264**	(B)
Prevalence Index = B/A =			**2.15**	

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 27**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 8	**10YR 3/2**	**98**	**10YR 3/6**	**2**	**C**	**M**	**silty clay loam**	
8 - 12	**10YR 3/2**	**49**	**10YR 4/6**	**2**	**C**	**M**	**silty clay loam**	
			10YR 6/1	**49**	**D**	**M**		

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn/Cleveland** Sampling Date: **2018/09/18**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 28**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

Surface Water (A1)	Aquatic Fauna (B13)	Secondary Indicators (minimum of two required)
High Water Table (A2)	Marl Deposits (B15) **(LRR U)**	Surface Soil Cracks (B6)
Saturation (A3)	Hydrogen Sulfide Odor (C1)	Sparsely Vegetated Concave Surface (B8)
Water Marks (B1)	Oxidized Rhizospheres on Living	Drainage Patterns (B10)
Sediment Deposits (B2)	Roots (C3)	Moss Trim Lines (B16)
Drift Deposits (B3)	Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled	**X** Crayfish Burrows (C8)
Iron Deposits (B5)	Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Inundation Visible on Aerial Imagery (B7)	**X** Thin Muck Surface (C7)	**X** Geomorphic Position (D2)
Water-Stained Leaves (B9)	Other (Explain in Remarks)	Shallow Aquitard (D3)
		X FAC-Neutral Test (D5)
		Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	**Wetland hydrology present?**
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	**Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

crayfish mounds, mucky surface

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 28**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**5**	**Y**	**FAC**
2 ***Quercus phellos***	**2**	**Y**	**FACW**
3			
4			
5			
6			
7			
8			
	7 = Total Cover		
50% of total cover: **3.5**	20% of total cover: **1.4**		
Herb Stratum (Plot size: **1m²**)			
1 ***Coleataenia rigidula***	**35**	**Y**	**FACW**
2 ***Boehmeria cylindrica***	**20**	**Y**	**FACW**
3 ***Rhynchospora corniculata***	**20**	**Y**	**OBL**
4 ***Pluchea camphorata***	**3**	**N**	**FACW**
5 ***Ludwigia palustris***	**3**	**N**	**OBL**
6			
7			
8			
9			
10			
11			
12			
	81 = Total Cover		
50% of total cover: **40.5**	20% of total cover: **16.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Smilax rotundifolia***	**3**	**N**	**FAC**
2 ***Wisteria frutescens***	**1**	**N**	**FACW**
3			
4			
5			
6			
	4 = Total Cover		
50% of total cover: **2**	20% of total cover: **0.8**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **5** (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**23**	x 1 =	**23**
FACW species	**61**	x 2 =	**122**
FAC species	**8**	x 3 =	**24**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**92** (A)		**169** (B)

Prevalence Index = B/A = **1.84**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 28**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	**10YR 6/1**	**90**	**10YR 6/8**	**10**	**C**	**M**	**silty clay loam**	
2 - 4	**10YR 6/1**	**98**	**10YR 6/8**	**2**	**C**	**M**	**silty clay loam**	
4 - 12	**10YR 6/2**	**70**	**10YR 6/8**	**30**	**C**	**M**	**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

"mucky surface"

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn/Cleveland** Sampling Date: **2018/09/18**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 29**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 29**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Acer rubrum***	**4**	**Y**	**FAC**
2 ***Ilex opaca***	**2**	**Y**	**FAC**
3 ***Cephalanthus occidentalis***	**1**	**N**	**OBL**
4 ***Quercus phellos***	**1**	**N**	**FACW**
5 ***Liquidambar styraciflua***	**1**	**N**	**FAC**
6			
7			
8			
	9 = Total Cover		
50% of total cover: **4.5**	20% of total cover: **1.8**		
Herb Stratum (Plot size: **1m²**)			
1 ***Boehmeria cylindrica***	**30**	**Y**	**FACW**
2 ***Eupatorium capillifolium***	**8**	**N**	**FACU**
3 ***Coleataenia rigidula***	**7**	**N**	**FACW**
4 ***Persicaria hydropiperoides***	**5**	**N**	**OBL**
5 ***Rhexia mariana***	**5**	**N**	**FACW**
6 ***Ludwigia peploides***	**3**	**N**	**OBL**
7 ***Gratiola neglecta***	**2**	**N**	**OBL**
8 ***Panicum verrucosum***	**2**	**N**	**FACW**
9 ***Senecio hieraciifolius***	**2**	**N**	**FAC**
10 ***Cyperus sp.***	**2**	**N**	
11			
12			
	66 = Total Cover		
50% of total cover: **33**	20% of total cover: **13.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Smilax rotundifolia***	**3**	**Y**	**FAC**
2 ***Vitis cinerea***	**2**	**Y**	**FAC**
3			
4			
5			
6			
	5 = Total Cover		
50% of total cover: **2.5**	20% of total cover: **1**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **5** (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**11**	x 1 =	**11**	
FACW species	**45**	x 2 =	**90**	
FAC species	**14**	x 3 =	**42**	
FACU species	**8**	x 4 =	**32**	
UPL species	**0**	x 5 =	**0**	
Column totals	**78**	(A)	**175**	(B)
Prevalence Index = B/A =			**2.24**	

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

Senecio hieraciifolius = Erechtites hieraciifolius

SOIL **Sampling Point:** **Plot 29**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	**10YR 4/2**	**98**	**10YR 5/6**	**2**	**C**	**PL**	**silty clay loam**	
2 - 8	**10YR 5/2**	**98**	**10YR 5/6**	**2**	**C**	**PL**	**silty clay loam**	
8 - 12	**10YR 5/2**	**98**	**7.5YR 5/6**	**2**	**C**	**M**	**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/18**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 30**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes	No **X**	**Is the sampled area within a wetland?**	**Yes**	**No X**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 30**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Quercus texana***	**15**	**Y**	**FACW**
2 ***Liquidambar styraciflua***	**12**	**Y**	**FAC**
3 ***Ilex opaca***	**5**	**N**	**FAC**
4 ***Betula nigra***	**2**	**N**	**FACW**
5 ***Cephalanthus occidentalis***	**1**	**N**	**OBL**
6			
7			
8			
	35 = Total Cover		
50% of total cover: **17.5**	20% of total cover: **7**		
Herb Stratum (Plot size: **1m²**)			
1 ***Coleataenia rigidula***	**65**	**Y**	**FACW**
2 ***Panicum verrucosum***	**25**	**Y**	**FACW**
3 ***Boehmeria cylindrica***	**20**	**N**	**FACW**
4 ***Gratiola neglecta***	**3**	**N**	**OBL**
5 ***Phytolacca americana***	**2**	**N**	**FACU**
6 ***Solanum carolinense***	**1**	**N**	**FACU**
7			
8			
9			
10			
11			
12			
	116 = Total Cover		
50% of total cover: **58**	20% of total cover: **23.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Parthenocissus quinquefolia***	**3**	**Y**	**FACU**
2 ***Smilax rotundifolia***	**2**	**Y**	**FAC**
3 ***Vitis cinerea***	**2**	**Y**	**FAC**
4			
5			
6			
	7 = Total Cover		
50% of total cover: **3.5**	20% of total cover: **1.4**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **6** (A)

Total Number of Dominant Species Across all Strata: **7** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **85.71%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**4**	x 1 =	**4**
FACW species	**127**	x 2 =	**254**
FAC species	**21**	x 3 =	**63**
FACU species	**6**	x 4 =	**24**
UPL species	**0**	x 5 =	**0**
Column totals	**158** (A)		**345** (B)

Prevalence Index = B/A = **2.18**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 30**

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 12	**10YR 3/3**						**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** _____ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/18**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 31**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	
Water table present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**
Saturation present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches) ____	**Yes** X **No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 31**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Liquidambar styraciflua***	**90**	**Y**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	90 = Total Cover		
50% of total cover: **45**	20% of total cover: **18**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**60**	**Y**	**FAC**
2 ***Carpinus caroliniana***	**12**	**N**	**FAC**
3 ***Ilex opaca***	**10**	**N**	**FAC**
4			
5			
6			
7			
8			
	82 = Total Cover		
50% of total cover: **41**	20% of total cover: **16.4**		
Herb Stratum (Plot size: **1m²**)			
1 ***Carex sp.***	**3**	**N**	
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	3 = Total Cover		
50% of total cover: **1.5**	20% of total cover: **0.6**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**10**	**Y**	**FAC**
2 ***Lonicera japonica***	**3**	**Y**	**FACU**
3 ***Bignonia capreolata***	**1**	**N**	**FAC**
4 ***Berchemia scandens***	**1**	**N**	**FAC**
5			
6			
	15 = Total Cover		
50% of total cover: **7.5**	20% of total cover: **3**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **75.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**184**	x 3 =	**552**
FACU species	**3**	x 4 =	**12**
UPL species	**0**	x 5 =	**0**
Column totals	**187** (A)		**564** (B)

Prevalence Index = B/A = **3.02**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- ___ 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 31**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	**10YR 4/2**	**90**	**10YR 3/6**	**2**	**C**	**M**	**silty clay loam**	
			10YR 5/2	**10**	**D**	**PL**		
6 - 12	**10YR 4/2**	**49**	**10YR 3/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 5/2	**49**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/18**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 32**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 32**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Liquidambar styraciflua***	**80**	**Y**	**FAC**
2 ***Carpinus caroliniana***	**10**	**N**	**FAC**
3			
4			
5			
6			
7			
8			
	90 = Total Cover		
50% of total cover: **45**	20% of total cover: **18**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**60**	**Y**	**FAC**
2 ***Carpinus caroliniana***	**10**	**N**	**FAC**
3 ***Quercus nigra***	**1**	**N**	**FAC**
4			
5			
6			
7			
8			
	71 = Total Cover		
50% of total cover: **35.5**	20% of total cover: **14.2**		
Herb Stratum (Plot size: **1m²**)			
1 ***Carex sp.***	**1**	**N**	
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	1 = Total Cover		
50% of total cover: **0.5**	20% of total cover: **0.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis cinerea***	**10**	**Y**	**FAC**
2 ***Smilax rotundifolia***	**5**	**Y**	**FAC**
3 ***Berchemia scandens***	**3**	**N**	**FAC**
4 ***Smilax glauca***	**2**	**N**	**FAC**
5			
6			
	20 = Total Cover		
50% of total cover: **10**	20% of total cover: **4**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**181**	x 3 =	**543**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**181** (A)		**543** (B)

Prevalence Index = B/A = **3.00**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 32**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	**10YR 5/2**	**98**	**10YR 5/6**	**2**	**C**	**M**	**silty clay loam**	
2 - 10	**10YR 5/2**	**80**	**10YR 5/8**	**20**	**C**	**PL**	**silty clay loam**	
10 - 12	**10YR 5/2**	**95**	**10YR 5/8**	**5**	**C**	**M**	**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/18**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 33**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: _____ Long: _____ Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No _____ (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present?

Are vegetation _____, soil _____, or hydrology _____ naturally problematic? Yes **X** No _____

(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 **X**	No _____			
Hydric soil present?	Yes **X**	No _____	**Is the sampled area within a wetland?**	**Yes** _____	**No** **X**
Wetland hydrology present?	Yes _____	No **X**			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes _____	No **X**	Depth (inches) _____	**Wetland hydrology present?**
Water table present?	Yes _____	No **X**	Depth (inches) _____	
Saturation present? (includes capillary fringe)	Yes _____	No **X**	Depth (inches) _____	**Yes** _____ **No** **X**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 33**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Quercus phellos***	**12**	**Y**	**FACW**
2 ***Liquidambar styraciflua***	**6**	**Y**	**FAC**
3 ***Baccharis halimifolia***	**5**	**Y**	**FAC**
4 ***Callicarpa americana***	**1**	**N**	**FACU**
5			
6			
7			
8			
	24 = Total Cover		
50% of total cover: **12**	20% of total cover: **4.8**		
Herb Stratum (Plot size: **1m²**)			
1 ***Callicarpa americana***	**10**	**Y**	**FACU**
2 ***Chasmanthium laxum***	**1**	**N**	**FACW**
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	11 = Total Cover		
50% of total cover: **5.5**	20% of total cover: **2.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Rubus laudatus***	**45**	**Y**	
2 ***Vitis rotundifolia***	**15**	**Y**	**FAC**
3 ***Vitis cinerea***	**5**	**N**	**FAC**
4 ***Smilax rotundifolia***	**3**	**N**	**FAC**
5 ***Toxicodendron radicans***	**3**	**N**	**FAC**
6			
	71 = Total Cover		
50% of total cover: **35.5**	20% of total cover: **14.2**		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **6** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **66.67%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**13**	x 2 =	**26**
FAC species	**37**	x 3 =	**111**
FACU species	**11**	x 4 =	**44**
UPL species	**0**	x 5 =	**0**
Column totals	**61** (A)		**181** (B)

Prevalence Index = B/A = **2.97**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- ___ 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 33**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 9	**10YR 3/3**	**98**	**10YR 3/6**	**2**	**C**	**M**	**silty clay loam**	
9 - 12	**10YR 3/2**	**59**	**10YR 6/8**	**2**	**C**	**M**	**silty clay loam**	
			10YR 6/1	**39**	**D**	**M**		**<4", so not F7**

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

Disturbed soils, due to the logging operations that occurred on the site.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/18**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 34**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: _____ Long: _____ Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No _____ (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present?

Are vegetation _____, soil _____, or hydrology _____ naturally problematic? Yes **X** No _____

(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 **X**	No _____			
Hydric soil present?	Yes **X**	No _____	**Is the sampled area within a wetland?**	**Yes** X	**No** _____
Wetland hydrology present?	Yes **X**	No _____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes _____	No **X**	Depth (inches) _____	**Wetland hydrology present?**
Water table present?	Yes _____	No **X**	Depth (inches) _____	
Saturation present? (includes capillary fringe)	Yes _____	No **X**	Depth (inches) _____	**Yes** X **No** _____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 34**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Liquidambar styraciflua***	**45**	**Y**	**FAC**
2 ***Quercus lyrata***	**25**	**Y**	**OBL**
3 ***Taxodium distichum***	**10**	**N**	**OBL**
4 ***Carpinus caroliniana***	**10**	**N**	**FAC**
5 ***Nyssa sylvatica***	**10**	**N**	**FAC**
6			
7			
8			
	100 = Total Cover		
50% of total cover: **50**	20% of total cover: **20**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**30**	**Y**	**FAC**
2 ***Carpinus caroliniana***	**4**	**N**	**FAC**
3 ***Betula nigra***	**2**	**N**	**FACW**
4 ***Taxodium distichum***	**1**	**N**	**OBL**
5 ***Ilex decidua***	**1**	**N**	**FACW**
6			
7			
8			
	38 = Total Cover		
50% of total cover: **19**	20% of total cover: **7.6**		
Herb Stratum (Plot size: **1m²**)			
1 ***Nyssa sylvatica***	**2**	**N**	**FAC**
2 ***Boehmeria cylindrica***	**1**	**N**	**FACW**
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	3 = Total Cover		
50% of total cover: **1.5**	20% of total cover: **0.6**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**10**	**Y**	**FAC**
2 ***Brunnichia ovata***	**1**	**N**	**FACW**
3			
4			
5			
6			
	11 = Total Cover		
50% of total cover: **5.5**	20% of total cover: **2.2**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**36**	x 1 =	**36**
FACW species	**5**	x 2 =	**10**
FAC species	**111**	x 3 =	**333**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**152** (A)		**379** (B)

Prevalence Index = B/A = **2.49**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: **Plot 34**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	**10YR 5/2**	**98**	**10YR 5/8**	**2**	**C**	**PL**	**silty clay loam**	
4 - 8	**10YR 5/2**	**49**	**10YR 5/8**	**2**	**C**	**M**	**silty clay loam**	
	10YR 6/1	**49**						
8 - 12	**10YR 5/2**	**98**	**10YR 6/8**	**2**	**C**	**M**	**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/18**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 35**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No	**X**	Depth (inches) ____	**Wetland hydrology present?**
Water table present?	Yes ____	No	**X**	Depth (inches) ____	
Saturation present? (includes capillary fringe)	Yes ____	No	**X**	Depth (inches) ____	**Yes** X **No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 35**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Liquidambar styraciflua***	**50**	**Y**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	50 = Total Cover		
50% of total cover: **25**	20% of total cover: **10**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**50**	**Y**	**FAC**
2 ***Ilex opaca***	**20**	**N**	**FAC**
3 ***Quercus lyrata***	**12**	**N**	**OBL**
4 ***Quercus nigra***	**8**	**N**	**FAC**
5 ***Acer rubrum***	**5**	**N**	**FAC**
6 ***Vaccinium sp.***	**5**	**N**	
7 ***Carpinus caroliniana***	**2**	**N**	**FAC**
8			
	102 = Total Cover		
50% of total cover: **51**	20% of total cover: **20.4**		
Herb Stratum (Plot size: **1m²**)			
1 ***Carex sp.***	**2**	**N**	
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	2 = Total Cover		
50% of total cover: **1**	20% of total cover: **0.4**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Smilax rotundifolia***	**12**	**Y**	**FAC**
2 ***Vitis cinerea***	**2**	**N**	**FAC**
3 ***Bignonia capreolata***	**1**	**N**	**FAC**
4 ***Rubus laudatus***	**1**	**N**	
5			
6			
	16 = Total Cover		
50% of total cover: **8**	20% of total cover: **3.2**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**12**	x 1 =	**12**
FACW species	**0**	x 2 =	**0**
FAC species	**150**	x 3 =	**450**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**162** (A)		**462** (B)

Prevalence Index = B/A = **2.85**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 35**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	**10YR 5/2**	**98**	**10YR 6/8**	**2**	**C**	**PL**	**silty clay loam**	
6 - 12	**10YR 5/2**	**70**	**10YR 6/8**	**30**	**C**	**PL**	**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/18**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 36**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: _____ Long: _____ Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No _____ (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present?

Are vegetation _____, soil _____, or hydrology _____ naturally problematic? Yes **X** No _____

(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 **X**	No _____			
Hydric soil present?	Yes **X**	No _____	**Is the sampled area within a wetland?**	**Yes** X	**No** _____
Wetland hydrology present?	Yes **X**	No _____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ Aquatic Fauna (B13)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Marl Deposits (B15) **(LRR U)**	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Hydrogen Sulfide Odor (C1)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)		___ Dry-Season Water Table (C2)
X Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		**X** Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)	___ Thin Muck Surface (C7)	___ Shallow Aquitard (D3)
X Water-Stained Leaves (B9)	___ Other (Explain in Remarks)	___ FAC-Neutral Test (D5)
		___ Sphagnum moss (D8) **(LRR T, U)**

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes _____	No **X**	Depth (inches) _____	**Wetland hydrology present?**
Water table present?	Yes _____	No **X**	Depth (inches) _____	
Saturation present? (includes capillary fringe)	Yes _____	No **X**	Depth (inches) _____	**Yes** X **No** _____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 36**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Liquidambar styraciflua***	**60**	**Y**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	60 = Total Cover		
50% of total cover: **30**	20% of total cover: **12**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**90**	**Y**	**FAC**
2 ***Carpinus caroliniana***	**10**	**N**	**FAC**
3 ***Quercus phellos***	**2**	**N**	**FACW**
4 ***Vaccinium sp.***	**1**	**N**	
5			
6			
7			
8			
	103 = Total Cover		
50% of total cover: **51.5**	20% of total cover: **20.6**		
Herb Stratum (Plot size: **1m²**)			
1 ***Poaceae sp.***	**1**	**N**	
2 ***Unknown forb***	**1**	**N**	
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	2 = Total Cover		
50% of total cover: **1**	20% of total cover: **0.4**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**25**	**Y**	**FAC**
2 ***Smilax rotundifolia***	**5**	**N**	**FAC**
3 ***Bignonia capreolata***	**2**	**N**	**FAC**
4 ***Toxicodendron radicans***	**1**	**N**	**FAC**
5 ***Parthenocissus quinquefolia***	**1**	**N**	**FACU**
6			
	34 = Total Cover		
50% of total cover: **17**	20% of total cover: **6.8**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**2**	x 2 =	**4**
FAC species	**193**	x 3 =	**579**
FACU species	**1**	x 4 =	**4**
UPL species	**0**	x 5 =	**0**
Column totals	**196** (A)		**587** (B)

Prevalence Index = B/A = **2.99**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 36**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	**10YR 4/2**	**98**	**10YR 5/6**	**2**	**C**	**M**	**silty clay loam**	
4 - 12	**10YR 4/2**	**50**	**10YR 5/8**	**30**	**C**	**M**	**silty clay loam**	
	10YR 6/1	**20**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/18**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 37**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: _____ Long: _____ Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No _____ (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present?

Are vegetation _____, soil _____, or hydrology _____ naturally problematic? Yes **X** No _____

(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 **X**	No _____			
Hydric soil present?	Yes _____	No **X**	**Is the sampled area within a wetland?**	**Yes** _____	**No** **X**
Wetland hydrology present?	Yes _____	No **X**			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ Aquatic Fauna (B13)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Marl Deposits (B15) **(LRR U)**	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Hydrogen Sulfide Odor (C1)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	___ Presence of Reduced Iron (C4)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Thin Muck Surface (C7)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Other (Explain in Remarks)	**X** Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)		___ Shallow Aquitard (D3)
___ Water-Stained Leaves (B9)		___ FAC-Neutral Test (D5)
		___ Sphagnum moss (D8) **(LRR T, U)**

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes _____	No **X**	Depth (inches) _____	**Wetland hydrology present?**
Water table present?	Yes _____	No **X**	Depth (inches) _____	
Saturation present? (includes capillary fringe)	Yes _____	No **X**	Depth (inches) _____	**Yes** _____ **No** **X**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 37**

	Absolute % Cover	Dominant Species	Indicator Staus
Tree Stratum (Plot size: **30-m radius**)			
1 ***Liquidambar styraciflua***	**50**	**Y**	**FAC**
2 ***Quercus nigra***	**10**	**N**	**FAC**
3			
4			
5			
6			
7			
8			
	60 = Total Cover		
50% of total cover: **30**	20% of total cover: **12**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**40**	**Y**	**FAC**
2 ***Carpinus caroliniana***	**40**	**Y**	**FAC**
3 ***Ilex opaca***	**10**	**N**	**FAC**
4 ***Quercus alba***	**1**	**N**	**FACU**
5 ***Carya alba***	**1**	**N**	
6 ***Vaccinium sp.***	**1**	**N**	
7			
8			
	93 = Total Cover		
50% of total cover: **46.5**	20% of total cover: **18.6**		
Herb Stratum (Plot size: **1m²**)			
1 ***Carpinus caroliniana***	**1**	**N**	**FAC**
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	1 = Total Cover		
50% of total cover: **0.5**	20% of total cover: **0.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**3**	**N**	**FAC**
2			
3			
4			
5			
6			
	3 = Total Cover		
50% of total cover: **1.5**	20% of total cover: **0.6**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**154**	x 3 =	**462**
FACU species	**1**	x 4 =	**4**
UPL species	**0**	x 5 =	**0**
Column totals	**155** (A)		**466** (B)

Prevalence Index = B/A = **3.01**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- ___ 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 37**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 12	**10YR 3/4**	**100**					**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** _____ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/18**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 38**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: _____ Long: _____ Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No _____ (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present?

Are vegetation _____, soil _____, or hydrology _____ naturally problematic? Yes **X** No _____

(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 **X**	No _____			
Hydric soil present?	Yes **X**	No _____	**Is the sampled area within a wetland?**	**Yes** _____	**No** **X**
Wetland hydrology present?	Yes _____	No **X**			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes _____	No **X**	Depth (inches) _____	**Wetland hydrology present?**
Water table present?	Yes _____	No **X**	Depth (inches) _____	
Saturation present? (includes capillary fringe)	Yes _____	No **X**	Depth (inches) _____	**Yes** _____ **No** **X**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 38**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**2**	**Y**	**FAC**
2 ***Nyssa sylvatica***	**1**	**Y**	**FAC**
3 ***Callicarpa americana***	**1**	**Y**	**FACU**
4 ***Ilex opaca***	**1**	**Y**	**FAC**
5			
6			
7			
8			
	5 = Total Cover		
50% of total cover: **2.5**	20% of total cover: **1**		
Herb Stratum (Plot size: **1m²**)			
1 ***Panicum verrucosum***	**100**	**Y**	**FACW**
2 ***Phytolacca americana***	**10**	**N**	**FACU**
3 ***Boehmeria cylindrica***	**10**	**N**	**FACW**
4			
5			
6			
7			
8			
9			
10			
11			
12			
	120 = Total Cover		
50% of total cover: **60**	20% of total cover: **24**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**3**	**N**	**FAC**
2			
3			
4			
5			
6			
	3 = Total Cover		
50% of total cover: **1.5**	20% of total cover: **0.6**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **80.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**	
FACW species	**110**	x 2 =	**220**	
FAC species	**7**	x 3 =	**21**	
FACU species	**11**	x 4 =	**44**	
UPL species	**0**	x 5 =	**0**	
Column totals	**128**	(A)	**285**	(B)
Prevalence Index = B/A =			**2.23**	

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 38**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3	**10YR 3/2**	**78**	**10YR 4/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 4/2	**20**						
3 - 12	**10YR 5/2**	**49**	**10YR 5/8**	**2**	**C**	**M**	**clay loam**	
	10YR 4/2	**49**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/18**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 39**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 39**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**3**	**Y**	**FAC**
2 ***Ilex opaca***	**3**	**Y**	**FAC**
3 ***Quercus phellos***	**2**	**N**	**FACW**
4 ***Quercus nigra***	**2**	**N**	**FAC**
5 ***Diospyros virginiana***	**2**	**N**	**FAC**
6 ***Callicarpa americana***	**1**	**N**	**FACU**
7			
8			
	13 = Total Cover		
50% of total cover: **6.5**	20% of total cover: **2.6**		
Herb Stratum (Plot size: **1m²**)			
1 ***Panicum verrucosum***	**90**	**Y**	**FACW**
2 ***Diospyros virginiana***	**15**	**N**	**FAC**
3 ***Callicarpa americana***	**8**	**N**	**FACU**
4 ***Perilla frutescens***	**5**	**N**	**FACU**
5 ***Arundinaria gigantea***	**3**	**N**	**FACW**
6 ***Quercus phellos***	**2**	**N**	**FACW**
7 ***Eupatorium capillifolium***	**1**	**N**	**FACU**
8 ***Dichanthelium dichotomum***	**1**	**N**	**FAC**
9			
10			
11			
12			
	125 = Total Cover		
50% of total cover: **62.5**	20% of total cover: **25**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**2**	**N**	**FAC**
2 ***Smilax rotundifolia***	**1**	**N**	**FAC**
3			
4			
5			
6			
	3 = Total Cover		
50% of total cover: **1.5**	20% of total cover: **0.6**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**	
FACW species	**97**	x 2 =	**194**	
FAC species	**29**	x 3 =	**87**	
FACU species	**15**	x 4 =	**60**	
UPL species	**0**	x 5 =	**0**	
Column totals	**141** (A)		**341**	(B)
Prevalence Index = B/A =			**2.42**	

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 39**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3	**10YR 4/2**	**98**	**10YR 5/8**	**2**	**C**	**PL**	**silty clay loam**	
3 - 6	**10YR 4/2**	**39**	**7.5YR 4/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 5/2	**59**						
6 - 12	**10YR 5/2**	**10**	**10YR 5/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 6/1	**88**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/19**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 40**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ Aquatic Fauna (B13)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Marl Deposits (B15) **(LRR U)**	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Hydrogen Sulfide Odor (C1)	___ Drainage Patterns (B10)
___ Water Marks (B1)	Oxidized Rhizospheres on Living	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)	**X** Roots (C3)	___ Dry-Season Water Table (C2)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)	___ Soils (C6)	**X** Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)	___ Thin Muck Surface (C7)	___ Shallow Aquitard (D3)
___ Water-Stained Leaves (B9)	___ Other (Explain in Remarks)	___ FAC-Neutral Test (D5)
		___ Sphagnum moss (D8) **(LRR T, U)**

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**	
Water table present?	Yes ____	No **X**	Depth (inches) ____		
Saturation present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches) ____	**Yes** X	**No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 40**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Quercus nigra***	**20**	**Y**	**FAC**
2 ***Liquidambar styraciflua***	**8**	**Y**	**FAC**
3 ***Carpinus caroliniana***	**2**	**N**	**FAC**
4 ***Ilex opaca***	**2**	**N**	**FAC**
5			
6			
7			
8			
	32 = Total Cover		
50% of total cover: **16**	20% of total cover: **6.4**		
Herb Stratum (Plot size: **1m²**)			
1 ***Panicum verrucosum***	**90**	**Y**	**FACW**
2 ***Perilla frutescens***	**15**	**N**	**FACU**
3 ***Quercus nigra***	**5**	**N**	**FAC**
4 ***Senecio hieraciifolius***	**4**	**N**	**FAC**
5			
6			
7			
8			
9			
10			
11			
12			
	114 = Total Cover		
50% of total cover: **57**	20% of total cover: **22.8**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Lonicera japonica***	**10**	**Y**	**FACU**
2 ***Vitis rotundifolia***	**5**	**Y**	**FAC**
3 ***Smilax rotundifolia***	**2**	**N**	**FAC**
4 ***Smilax glauca***	**2**	**N**	**FAC**
5			
6			
	19 = Total Cover		
50% of total cover: **9.5**	20% of total cover: **3.8**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **80.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**	
FACW species	**90**	x 2 =	**180**	
FAC species	**50**	x 3 =	**150**	
FACU species	**25**	x 4 =	**100**	
UPL species	**0**	x 5 =	**0**	
Column totals	**165**	(A)	**430**	(B)
Prevalence Index = B/A =			**2.61**	

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 40**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	**10YR 4/3**	**100**					**silty clay loam**	
2 - 6	**10YR 4/2**	**39**	**10YR 5/8**	**2**	**C**	**PL**	**silty clay loam**	
	10YR 4/3	**59**						
6 - 12	**10YR 5/3**	**68**	**10YR 5/8**	**2**	**C**	**M**	**silty clay loam**	
	10YR 5/2	**30**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/19**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 42**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: _____ Long: _____ Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No _____ (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present?

Are vegetation _____, soil _____, or hydrology _____ naturally problematic? Yes **X** No _____

(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 **X**	No _____			
Hydric soil present?	Yes _____	No **X**	**Is the sampled area within a wetland?**	**Yes** _____	**No** **X**
Wetland hydrology present?	Yes _____	No **X**			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes _____	No **X**	Depth (inches) _____	**Wetland hydrology present?**
Water table present?	Yes _____	No **X**	Depth (inches) _____	
Saturation present? (includes capillary fringe)	Yes _____	No **X**	Depth (inches) _____	**Yes** _____ **No** **X**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 42**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Ilex opaca***	**35**	**Y**	**FAC**
2 ***Nyssa sylvatica***	**20**	**Y**	**FAC**
3 ***Carpinus caroliniana***	**10**	**N**	**FAC**
4			
5			
6			
7			
8			
	65 = Total Cover		
50% of total cover: **32.5**	20% of total cover: **13**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Ilex opaca***	**60**	**Y**	**FAC**
2 ***Carpinus caroliniana***	**25**	**Y**	**FAC**
3 ***Symplocos tinctoria***	**10**	**N**	**FAC**
4 ***Asimina triloba***	**5**	**N**	**FAC**
5			
6			
7			
8			
	100 = Total Cover		
50% of total cover: **50**	20% of total cover: **20**		
Herb Stratum (Plot size: **1m²**)			
1 ***Carpinus caroliniana***	**10**	**Y**	**FAC**
2 ***Ilex opaca***	**2**	**N**	**FAC**
3 ***Carex sp.***	**1**	**N**	
4			
5			
6			
7			
8			
9			
10			
11			
12			
	13 = Total Cover		
50% of total cover: **6.5**	20% of total cover: **2.6**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**20**	**Y**	**FAC**
2 ***Rubus laudatus***	**10**	**Y**	
3 ***Bignonia capreolata***	**8**	**N**	**FAC**
4 ***Smilax rotundifolia***	**5**	**N**	**FAC**
5			
6			
	43 = Total Cover		
50% of total cover: **21.5**	20% of total cover: **8.6**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **6** (A)

Total Number of Dominant Species Across all Strata: **7** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **85.71%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**210**	x 3 =	**630**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**210** (A)		**630** (B)

Prevalence Index = B/A = **3.00**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 42**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 12	**10YR 5/3**	**100**					**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** _____ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/19**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 43**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 43**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Ilex opaca***	**10**	**Y**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	10 = Total Cover		
50% of total cover: **5**	20% of total cover: **2**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Baccharis halimifolia***	**20**	**Y**	**FAC**
2 ***Symplocos tinctoria***	**5**	**N**	**FAC**
3 ***Liquidambar styraciflua***	**4**	**N**	**FAC**
4 ***Nyssa sylvatica***	**4**	**N**	**FAC**
5 ***Hamamelis virginiana***	**3**	**N**	**FACU**
6 ***Callicarpa americana***	**2**	**N**	**FACU**
7 ***Salix nigra***	**1**	**N**	**OBL**
8			
	39 = Total Cover		
50% of total cover: **19.5**	20% of total cover: **7.8**		
Herb Stratum (Plot size: **1m²**)			
1 ***Lycopus sp.***	**15**	**Y**	
2 ***Baccharis halimifolia***	**15**	**Y**	**FAC**
3 ***Carex joorii***	**8**	**N**	**OBL**
4 ***Dichanthelium dichotomum***	**3**	**N**	**FAC**
5 ***Boehmeria cylindrica***	**3**	**N**	**FACW**
6 ***Persicaria hydropiperoides***	**1**	**N**	**OBL**
7 ***Carex tribuloides***	**1**	**N**	**FACW**
8 ***Panicum verrucosum***	**1**	**N**	**FACW**
9			
10			
11			
12			
	47 = Total Cover		
50% of total cover: **23.5**	20% of total cover: **9.4**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Rubus laudatus***	**80**	**Y**	
2 ***Vitis rotundifolia***	**20**	**N**	**FAC**
3 ***Smilax glauca***	**4**	**N**	**FAC**
4 ***Smilax rotundifolia***	**1**	**N**	**FAC**
5			
6			
	105 = Total Cover		
50% of total cover: **52.5**	20% of total cover: **21**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **60.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**10**	x 1 =	**10**
FACW species	**5**	x 2 =	**10**
FAC species	**86**	x 3 =	**258**
FACU species	**5**	x 4 =	**20**
UPL species	**0**	x 5 =	**0**
Column totals	**106** (A)		**298** (B)

Prevalence Index = B/A = **2.81**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- ___ 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 43**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	**10YR 4/2**	**78**	**10YR 5/8**	**2**	**C**	**PL**	**silty clay loam**	
	10YR 4/3	**20**						
4 - 12	**10YR 5/2**	**78**	**10YR 5/8**	**2**	**C**	**M**	**sandy clay**	
	10YR 5/3	**20**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/19**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 44**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	
Water table present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**
Saturation present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches) ____	**Yes** X **No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 44**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Quercus phellos***	**80**	**Y**	**FACW**
2 ***Quercus nigra***	**10**	**N**	**FAC**
3			
4			
5			
6			
7			
8			
	90 = Total Cover		
50% of total cover: **45**	20% of total cover: **18**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Quercus phellos***	**45**	**Y**	**FACW**
2 ***Acer rubrum***	**5**	**N**	**FAC**
3 ***Liquidambar styraciflua***	**3**	**N**	**FAC**
4 ***Diospyros virginiana***	**2**	**N**	**FAC**
5 ***Nyssa sylvatica***	**1**	**N**	**FAC**
6			
7			
8			
	56 = Total Cover		
50% of total cover: **28**	20% of total cover: **11.2**		
Herb Stratum (Plot size: **1m²**)			
1 ***None***			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	= Total Cover		
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Smilax rotundifolia***	**10**	**Y**	**FAC**
2 ***Berchemia scandens***	**1**	**N**	**FAC**
3			
4			
5			
6			
	11 = Total Cover		
50% of total cover: **5.5**	20% of total cover: **2.2**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**125**	x 2 =	**250**
FAC species	**32**	x 3 =	**96**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**157** (A)		**346** (B)

Prevalence Index = B/A = **2.20**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 44**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	**10YR 5/2**	**98**	**7.5YR 5/8**	**2**	**C**	**PL**	**silty clay loam**	
4 - 12	**10YR 5/2**	**70**	**10YR 5/8**	**30**	**C**	**M**	**sandy clay**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/19**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 45**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No	**X**	Depth (inches) ____	**Wetland hydrology present?**
Water table present?	Yes ____	No	**X**	Depth (inches) ____	
Saturation present? (includes capillary fringe)	Yes ____	No	**X**	Depth (inches) ____	**Yes** X **No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 45**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Quercus nigra***	**50**	**Y**	**FAC**
2 ***Quercus phellos***	**30**	**Y**	**FACW**
3 ***Liquidambar styraciflua***	**10**	**N**	**FAC**
4			
5			
6			
7			
8			
	90 = Total Cover		
50% of total cover: **45**	20% of total cover: **18**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Carpinus caroliniana***	**25**	**Y**	**FAC**
2 ***Quercus phellos***	**15**	**Y**	**FACW**
3 ***Quercus michauxii***	**5**	**N**	**FACW**
4 ***Liquidambar styraciflua***	**5**	**N**	**FAC**
5 ***Quercus velutina***	**1**	**N**	
6			
7			
8			
	51 = Total Cover		
50% of total cover: **25.5**	20% of total cover: **10.2**		
Herb Stratum (Plot size: **1m²**)			
1 ***None***			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	= Total Cover		
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**5**	**Y**	**FAC**
2 ***Smilax rotundifolia***	**2**	**Y**	**FAC**
3 ***Berchemia scandens***	**1**	**N**	**FAC**
4 ***Bignonia capreolata***	**1**	**N**	**FAC**
5			
6			
	9 = Total Cover		
50% of total cover: **4.5**	20% of total cover: **1.8**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **6** (A)

Total Number of Dominant Species Across all Strata: **6** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**50**	x 2 =	**100**
FAC species	**99**	x 3 =	**297**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**149** (A)		**397** (B)

Prevalence Index = B/A = **2.66**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 45**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	**10YR 5/3**	**98**	**10YR 6/8**	**2**	**C**	**M**	**silty clay loam**	
2 - 8	**10YR 5/2**	**88**	**10YR 6/8**	**2**	**C**	**PL**	**silty clay loam**	
	10YR 6/1	**10**						
8 - 12	**10YR 6/1**	**90**	**10YR 5/8**	**10**	**C**	**M**	**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/19**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 46**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes	No **X**	**Is the sampled area within a wetland?**	**Yes**	**No X**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 46**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Quercus phellos***	**2**	**N**	**FACW**
2 ***Liquidambar styraciflua***	**1**	**N**	**FAC**
3			
4			
5			
6			
7			
8			
	3 = Total Cover		
50% of total cover: **1.5**	20% of total cover: **0.6**		
Herb Stratum (Plot size: **1m²**)			
1 ***Gratiola neglecta***	**90**	**Y**	**OBL**
2 ***Cyperus odoratus***	**15**	**N**	**FACW**
3 ***Coleataenia rigidula***	**6**	**N**	**FACW**
4 ***Pluchea camphorata***	**5**	**N**	**FACW**
5 ***Andropogon virginicus***	**4**	**N**	**FAC**
6 ***Panicum verrucosum***	**2**	**N**	**FACW**
7 ***Callicarpa americana***	**1**	**N**	**FACU**
8 ***Ludwigia palustris***	**1**	**N**	**OBL**
9 ***Glyceria striata***	**1**	**N**	**OBL**
10 ***Cyperus sp.***	**1**	**N**	
11			
12			
	126 = Total Cover		
50% of total cover: **63**	20% of total cover: **25.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**7**	**Y**	**FAC**
2 ***Smilax rotundifolia***	**1**	**N**	**FAC**
3 ***Smilax glauca***	**1**	**N**	**FAC**
4 ***Vitis cinerea***	**1**	**N**	**FAC**
5			
6			
	10 = Total Cover		
50% of total cover: **5**	20% of total cover: **2**		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **2** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**92**	x 1 =	**92**
FACW species	**30**	x 2 =	**60**
FAC species	**15**	x 3 =	**45**
FACU species	**1**	x 4 =	**4**
UPL species	**0**	x 5 =	**0**
Column totals	**138** (A)		**201** (B)

Prevalence Index = B/A = **1.46**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 46**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 12	**10YR 4/3**	**98**	**7.5YR 5/8**	**2**	**C**	**M**	**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** _____ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/19**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 47**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No	
Hydric soil present?	Yes	No **X**	**Is the sampled area within a wetland?** Yes No **X**
Wetland hydrology present?	Yes	No **X**	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? Yes No **X**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

could pass the FAC-neutral test, depending on unknown Carex, unknown forb, and Rubus laudatus (no status)

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 47**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**60**	**Y**	**FAC**
2 ***Symplocos tinctoria***	**15**	**Y**	**FAC**
3			
4			
5			
6			
7			
8			
	75 = Total Cover		
50% of total cover: **37.5**	20% of total cover:	**15**	
Herb Stratum (Plot size: **1m²**)			
1 ***Liquidambar styraciflua***	**95**	**Y**	**FAC**
2 ***Carex tribuloides***	**1**	**N**	**FACW**
3 ***Carex sp.***	**1**	**N**	
4 ***Unknown forb***	**1**	**N**	
5			
6			
7			
8			
9			
10			
11			
12			
	98 = Total Cover		
50% of total cover: **49**	20% of total cover:	**19.6**	
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Rubus laudatus***	**60**	**Y**	
2 ***Vitis rotundifolia***	**2**	**N**	**FAC**
3			
4			
5			
6			
	62 = Total Cover		
50% of total cover: **31**	20% of total cover:	**12.4**	

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **75.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**1**	x 2 =	**2**
FAC species	**172**	x 3 =	**516**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**173** (A)		**518** (B)

Prevalence Index = B/A = **2.99**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- ___ 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 47**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 12	**10YR 5/4**	**100**					**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** _____ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/19**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 41**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil **X** , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No	
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?** Yes **X** No
Wetland hydrology present?	Yes **X**	No	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 41**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Nyssa sylvatica***	**20**	**Y**	**FAC**
2 ***Quercus nigra***	**3**	**N**	**FAC**
3 ***Quercus texana***	**1**	**N**	**FACW**
4			
5			
6			
7			
8			
	24 = Total Cover		
50% of total cover: **12**	20% of total cover: **4.8**		
Herb Stratum (Plot size: **1m²**)			
1 ***Acalypha gracilens***	**25**	**Y**	**FAC**
2 ***Pluchea camphorata***	**15**	**Y**	**FACW**
3 ***Gratiola neglecta***	**15**	**Y**	**OBL**
4 ***Callicarpa americana***	**12**	**N**	**FACU**
5 ***Ludwigia alternifolia***	**10**	**N**	**OBL**
6 ***Dichanthelium dichotomum***	**7**	**N**	**FAC**
7 ***Boehmeria cylindrica***	**3**	**N**	**FACW**
8 ***Eupatorium capillifolium***	**2**	**N**	**FACU**
9 ***Coleataenia rigidula***	**1**	**N**	**FACW**
10			
11			
12			
	90 = Total Cover		
50% of total cover: **45**	20% of total cover: **18**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Rubus laudatus***	**25**	**Y**	
2 ***Vitis rotundifolia***	**12**	**Y**	**FAC**
3 ***Smilax rotundifolia***	**1**	**N**	**FAC**
4 ***Vitis cinerea***	**1**	**N**	**FAC**
5			
6			
	39 = Total Cover		
50% of total cover: **19.5**	20% of total cover: **7.8**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **5** (A)

Total Number of Dominant Species Across all Strata: **6** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **83.33%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**25**	x 1 =	**25**	
FACW species	**20**	x 2 =	**40**	
FAC species	**69**	x 3 =	**207**	
FACU species	**14**	x 4 =	**56**	
UPL species	**0**	x 5 =	**0**	
Column totals	**128**	(A)	**328**	(B)
Prevalence Index = B/A =			**2.56**	

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 41**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3	**10YR 4/2**	**49**	**10YR 5/8**	**2**	**C**	**PL**	**silty clay loam**	
	10YR 5/2	**49**						
3 - 10	**10YR 5/3**	**30**	**10YR 5/8**	**2**	**C**	**M**	**silty clay loam**	
	10YR 5/2	**68**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

disturbed soils

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/19**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 48**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes	No **X**	**Is the sampled area within a wetland?**	**Yes**	**No X**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Passes FAC-neutral test if Rubus laudatus is acting as hydrophyte.

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 48**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Diospyros virginiana***	**30**	**Y**	**FAC**
2 ***Ilex opaca***	**8**	**N**	**FAC**
3 ***Baccharis halimifolia***	**2**	**N**	**FAC**
4 ***Symplocos tinctoria***	**1**	**N**	**FAC**
5			
6			
7			
8			
	41 = Total Cover		
50% of total cover: **20.5**	20% of total cover: **8.2**		
Herb Stratum (Plot size: **1m²**)			
1 ***Panicum verrucosum***	**100**	**Y**	**FACW**
2 ***Persicaria hydropiperoides***	**2**	**N**	**OBL**
3 ***Rhexia mariana***	**1**	**N**	**FACW**
4			
5			
6			
7			
8			
9			
10			
11			
12			
	103 = Total Cover		
50% of total cover: **51.5**	20% of total cover: **20.6**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Rubus laudatus***	**20**	**Y**	
2 ***Vitis rotundifolia***	**15**	**Y**	**FAC**
3 ***Smilax glauca***	**12**	**Y**	**FAC**
4 ***Smilax rotundifolia***	**2**	**N**	**FAC**
5			
6			
	49 = Total Cover		
50% of total cover: **24.5**	20% of total cover: **9.8**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **80.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**2**	x 1 =	**2**
FACW species	**101**	x 2 =	**202**
FAC species	**70**	x 3 =	**210**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**173** (A)		**414** (B)

Prevalence Index = B/A = **2.39**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: **Plot 48**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 12	**10YR 5/3**	**100**					**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** _____ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/19**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 49**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No	**X**	Depth (inches) ____	**Wetland hydrology present?**
Water table present?	Yes ____	No	**X**	Depth (inches) ____	
Saturation present? (includes capillary fringe)	Yes ____	No	**X**	Depth (inches) ____	**Yes** X **No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 49**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Liquidambar styraciflua***	**40**	**Y**	**FAC**
2 ***Quercus nigra***	**12**	**N**	**FAC**
3 ***Acer rubrum***	**8**	**N**	**FAC**
4 ***Quercus michauxii***	**5**	**N**	**FACW**
5			
6			
7			
8			
	65 = Total Cover		
50% of total cover: **32.5**	20% of total cover: **13**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Carpinus caroliniana***	**30**	**Y**	**FAC**
2 ***Liquidambar styraciflua***	**20**	**Y**	**FAC**
3 ***Ilex opaca***	**10**	**N**	**FAC**
4 ***Quercus michauxii***	**8**	**N**	**FACW**
5 ***Carya alba***	**1**	**N**	
6			
7			
8			
	69 = Total Cover		
50% of total cover: **34.5**	20% of total cover: **13.8**		
Herb Stratum (Plot size: **1m²**)			
1 ***None***			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	= Total Cover		
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**30**	**Y**	**FAC**
2 ***Smilax rotundifolia***	**20**	**Y**	**FAC**
3 ***Bignonia capreolata***	**3**	**N**	**FAC**
4			
5			
6			
	53 = Total Cover		
50% of total cover: **26.5**	20% of total cover: **10.6**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **5** (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**13**	x 2 =	**26**
FAC species	**173**	x 3 =	**519**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**186** (A)		**545** (B)

Prevalence Index = B/A = **2.93**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 49**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	**10YR 4/3**	**49**	**10YR 5/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 5/2	**49**						
2 - 10	**10YR 5/2**	**59**	**10YR 4/6**	**2**	**C**	**PL**	**silty clay loam**	
	10YR 4/3	**39**						
10 - 12	**10YR 6/1**	**98**	**10YR 6/8**	**2**	**C**	**M**	**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/20**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 50**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	
Water table present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**
Saturation present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches) ____	**Yes** X **No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 50**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***None***			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***None***			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: **1m²**)			
1 ***Bidens aristosa***	**100**	**Y**	**FACW**
2 ***Solidago gigantea***	**25**	**N**	**FACW**
3 ***Persicaria hydropiperoides***	**10**	**N**	**OBL**
4 ***Panicum verrucosum***	**3**	**N**	**FACW**
5			
6			
7			
8			
9			
10			
11			
12			
	138 = Total Cover		
50% of total cover: **69**	20% of total cover: **27.6**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***None***			
2			
3			
4			
5			
6			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **1** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**10**	x 1 =	**10**
FACW species	**128**	x 2 =	**256**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**138** (A)		**266** (B)

Prevalence Index = B/A = **1.93**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 50**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3	**10YR 3/2**	**98**	**10YR 3/6**	**2**	**C**	**M**	**silty clay loam**	
3 - 12	**10YR 3/2**	**98**	**10YR 3/6**	**2**	**C**	**M**	**clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/20**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 51**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(If needed, explain any answers in Remarks.)

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

Hydrophytic vegetation present?	Yes	No **X**			
Hydric soil present?	Yes	No **X**	**Is the sampled area within a wetland?**	**Yes**	**No X**
Wetland hydrology present?	Yes	No **X**			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes** **No X**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

may pass FAC-neutral test

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 51**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Carya alba***	**18**	**Y**	
2 ***Nyssa sylvatica***	**5**	**N**	**FAC**
3 ***Quercus nigra***	**2**	**N**	**FAC**
4 ***Taxodium distichum***	**1**	**N**	**OBL**
5			
6			
7			
8			
	26 = Total Cover		
50% of total cover: **13**	20% of total cover: **5.2**		
Herb Stratum (Plot size: **1m²**)			
1 ***Panicum verrucosum***	**35**	**Y**	**FACW**
2 ***Panicum repens***	**20**	**Y**	**FACW**
3 ***Persicaria hydropiperoides***	**10**	**N**	**OBL**
4 ***Carya alba***	**5**	**N**	
5 ***Tridens flavus***	**2**	**N**	**FACU**
6			
7			
8			
9			
10			
11			
12			
	72 = Total Cover		
50% of total cover: **36**	20% of total cover: **14.4**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Rubus laudatus***	**40**	**Y**	
2 ***Smilax glauca***	**2**	**N**	**FAC**
3 ***Vitis cinerea***	**2**	**N**	**FAC**
4 ***Bignonia capreolata***	**1**	**N**	**FAC**
5			
6			
	45 = Total Cover		
50% of total cover: **22.5**	20% of total cover: **9**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **50.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**11**	x 1 =	**11**	
FACW species	**55**	x 2 =	**110**	
FAC species	**12**	x 3 =	**36**	
FACU species	**2**	x 4 =	**8**	
UPL species	**0**	x 5 =	**0**	
Column totals	**80**	(A)	**165**	(B)

Prevalence Index = B/A = **2.06**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid test for hydrophytic vegetation

___ 2 - Dominance test is >50%

___ 3 - Prevalence index is ≤3.0*

___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** ___ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet)

less than 80% of total cover is identified to species with indicator status. Panicum repens has only been recorded in one other Arkansas county.

SOIL **Sampling Point:** **Plot 51**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	**10YR 3/2**	**100**					**silty clay loam**	
6 - 12	**10YR 3/2**	**100**					**sandy clay**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** _____ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/09/20**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 52**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil **X** , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

may pass FAC-neutral test

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 52**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Baccharis halimifolia***	**30**	**Y**	**FAC**
2 ***Liquidambar styraciflua***	**4**	**N**	**FAC**
3 ***Callicarpa americana***	**2**	**N**	**FACU**
4			
5			
6			
7			
8			
	36 = Total Cover		
50% of total cover: **18**	20% of total cover: **7.2**		
Herb Stratum (Plot size: **1m²**)			
1 ***Chasmanthium laxum***	**50**	**Y**	**FACW**
2 ***Rhexia mariana***	**3**	**N**	**FACW**
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	53 = Total Cover		
50% of total cover: **26.5**	20% of total cover: **10.6**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Rubus laudatus***	**85**	**Y**	
2 ***Smilax rotundifolia***	**2**	**N**	**FAC**
3 ***Gelsemium sempervirens***	**1**	**N**	**FAC**
4			
5			
6			
	88 = Total Cover		
50% of total cover: **44**	20% of total cover: **17.6**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **66.67%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**	
FACW species	**53**	x 2 =	**106**	
FAC species	**37**	x 3 =	**111**	
FACU species	**2**	x 4 =	**8**	
UPL species	**0**	x 5 =	**0**	
Column totals	**92**	(A)	**225**	(B)
Prevalence Index = B/A =			**2.45**	

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- ___ 3 - Prevalence index is ≤3.0*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

less than 80% of cover is identified to species having indicator status

SOIL **Sampling Point:** **Plot 52**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3	**10YR 4/3**	**98**	**10YR 5/6**	**2**	**C**	**M**	**silty clay loam**	
3 - 10	**10YR 5/2**	**80**	**10YR 5/8**	**20**	**C**	**PL**	**silty clay loam**	
10 - 12	**10YR 5/2**	**90**	**10YR 6/8**	**10**	**C**	**M**	**silty clay loam**	
12 - 14	**10YR 4/3**	**100**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

disturbed soil

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/02**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 53**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes** X	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes** X **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 53**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**10**	**Y**	**FAC**
2 ***Ilex opaca***	**2**	**N**	**FAC**
3 ***Carya myristiciformis***	**1**	**N**	**FACW**
4			
5			
6			
7			
8			
	13 = Total Cover		
50% of total cover: **6.5**	20% of total cover: **2.6**		
Herb Stratum (Plot size: **1m²**)			
1 ***Coleataenia rigidula***	**35**	**Y**	**FACW**
2 ***Boehmeria cylindrica***	**25**	**Y**	**FACW**
3 ***Rhynchospora corniculata***	**20**	**Y**	**OBL**
4 ***Persicaria hydropiperoides***	**5**	**N**	**OBL**
5 ***Gratiola neglecta***	**5**	**N**	**OBL**
6 ***Arundinaria gigantea***	**2**	**N**	**FACW**
7 ***Pluchea camphorata***	**2**	**N**	**FACW**
8 ***Bidens aristosa***	**2**	**N**	**FACW**
9 ***Rhexia mariana***	**1**	**N**	**FACW**
10 ***Eupatorium capillifolium***	**1**	**N**	**FACU**
11			
12			
	98 = Total Cover		
50% of total cover: **49**	20% of total cover: **19.6**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**15**	**Y**	**FAC**
2 ***Smilax rotundifolia***	**8**	**Y**	**FAC**
3			
4			
5			
6			
	23 = Total Cover		
50% of total cover: **11.5**	20% of total cover: **4.6**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **6** (A)

Total Number of Dominant Species Across all Strata: **6** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**30**	x 1 =	**30**
FACW species	**68**	x 2 =	**136**
FAC species	**35**	x 3 =	**105**
FACU species	**1**	x 4 =	**4**
UPL species	**0**	x 5 =	**0**
Column totals	**134** (A)		**275** (B)

Prevalence Index = B/A = **2.05**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 53**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	**10YR 5/2**	**98**	**10YR 5/6**	**2**	**C**	**PL**	**silty clay loam**	
2 - 6	**10YR 5/2**	**60**	**7.5YR 4/6**	**20**	**C**	**M**	**silty clay loam**	
			7.5YR 5/8	**20**	**C**	**M**		
6 - 12	**10YR 6/1**	**90**	**10YR 6/8**	**10**	**C**	**M**	**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/02**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 54**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 54**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Ilex opaca***	**12**	**Y**	**FAC**
2 ***Acer rubrum***	**1**	**N**	**FAC**
3 ***Pinus taeda***	**1**	**N**	**FAC**
4 ***Nyssa sylvatica***	**1**	**N**	**FAC**
5 ***Quercus nigra***	**1**	**N**	**FAC**
6			
7			
8			
	16 = Total Cover		
50% of total cover: **8**	20% of total cover: **3.2**		
Herb Stratum (Plot size: **1m²**)			
1 ***Bidens aristosa***	**55**	**Y**	**FACW**
2 ***Boehmeria cylindrica***	**25**	**Y**	**FACW**
3 ***Panicum verrucosum***	**15**	**N**	**FACW**
4 ***Senecio hieraciifolius***	**3**	**N**	**FAC**
5 ***Dichanthelium dichotomum***	**1**	**N**	**FAC**
6			
7			
8			
9			
10			
11			
12			
	99 = Total Cover		
50% of total cover: **49.5**	20% of total cover: **19.8**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**8**	**Y**	**FAC**
2			
3			
4			
5			
6			
	8 = Total Cover		
50% of total cover: **4**	20% of total cover: **1.6**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**	
FACW species	**95**	x 2 =	**190**	
FAC species	**28**	x 3 =	**84**	
FACU species	**0**	x 4 =	**0**	
UPL species	**0**	x 5 =	**0**	
Column totals	**123**	(A)	**274**	(B)
Prevalence Index = B/A =			**2.23**	

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 54**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	**10YR 3/2**	**98**	**7.5YR 4/6**	**2**	**C**	**M**	**silty clay loam**	
2 - 8	**10YR 4/2**	**88**	**7.5YR 4/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 5/1	**10**						
8 - 12	**10YR 5/2**	**80**	**10YR 5/8**	**5**	**C**	**M**	**silty clay loam**	
	10YR 5/3	**10**	**7.5YR 4/6**	**5**	**C**	**M**		

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/02**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 55**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes	No **X**	**Is the sampled area within a wetland?**	**Yes**	**No X**
Wetland hydrology present?	Yes	No **X**			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes** **No X**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

may pass FAC-neutral test

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 55**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Hamamelis virginiana***	**25**	**Y**	**FACU**
2 ***Liquidambar styraciflua***	**5**	**N**	**FAC**
3 ***Symplocos tinctoria***	**5**	**N**	**FAC**
4 ***Ilex opaca***	**4**	**N**	**FAC**
5 ***Callicarpa americana***	**4**	**N**	**FACU**
6 ***Quercus pagoda***	**2**	**N**	**FACW**
7 ***Carpinus caroliniana***	**2**	**N**	**FAC**
8 ***Quercus nigra***	**1**	**N**	**FAC**
	47 = Total Cover		
50% of total cover: **23.5**	20% of total cover: **9.4**		
Herb Stratum (Plot size: **1m²**)			
1 ***Chasmanthium laxum***	**12**	**Y**	**FACW**
2 ***Dichanthelium commutatum***	**8**	**Y**	**FAC**
3 ***Dichanthelium dichotomum***	**5**	**Y**	**FAC**
4			
5			
6			
7			
8			
9			
10			
11			
12			
	25 = Total Cover		
50% of total cover: **12.5**	20% of total cover: **5**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Rubus laudatus***	**75**	**Y**	
2 ***Smilax rotundifolia***	**7**	**N**	**FAC**
3 ***Vitis rotundifolia***	**2**	**N**	**FAC**
4			
5			
6			
	84 = Total Cover		
50% of total cover: **42**	20% of total cover: **16.8**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **60.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**14**	x 2 =	**28**
FAC species	**39**	x 3 =	**117**
FACU species	**29**	x 4 =	**116**
UPL species	**0**	x 5 =	**0**
Column totals	**82** (A)		**261** (B)

Prevalence Index = B/A = **3.18**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- ___ 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: **Plot 55**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	**10YR 3/2**	**100**					**silty clay loam**	
6 - 12	**10YR 3/2**	**100**					**loamy clay**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** _____ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/02**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 56**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No	**X**	Depth (inches) ____	**Wetland hydrology present?**
Water table present?	Yes ____	No	**X**	Depth (inches) ____	
Saturation present? (includes capillary fringe)	Yes ____	No	**X**	Depth (inches) ____	**Yes** X **No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 56**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Liquidambar styraciflua***	**40**	**Y**	**FAC**
2 ***Acer rubrum***	**20**	**Y**	**FAC**
3 ***Carpinus caroliniana***	**15**	**Y**	**FAC**
4			
5			
6			
7			
8			
	75 = Total Cover		
50% of total cover: **37.5**	20% of total cover: **15**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**17**	**Y**	**FAC**
2 ***Carpinus caroliniana***	**12**	**Y**	**FAC**
3 ***Ilex opaca***	**10**	**N**	**FAC**
4 ***Acer rubrum***	**10**	**N**	**FAC**
5 ***Quercus nigra***	**2**	**N**	**FAC**
6			
7			
8			
	51 = Total Cover		
50% of total cover: **25.5**	20% of total cover: **10.2**		
Herb Stratum (Plot size: **1m²**)			
1 ***Carex sp.***	**1**	**N**	
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	1 = Total Cover		
50% of total cover: **0.5**	20% of total cover: **0.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**15**	**Y**	**FAC**
2 ***Smilax rotundifolia***	**3**	**N**	**FAC**
3			
4			
5			
6			
	18 = Total Cover		
50% of total cover: **9**	20% of total cover: **3.6**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **6** (A)

Total Number of Dominant Species Across all Strata: **6** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**	
FACW species	**0**	x 2 =	**0**	
FAC species	**144**	x 3 =	**432**	
FACU species	**0**	x 4 =	**0**	
UPL species	**0**	x 5 =	**0**	
Column totals	**144**	(A)	**432**	(B)

Prevalence Index = B/A = **3.00**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 56**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	**10YR 3/2**	**98**	**7.5YR 4/6**	**2**	**C**	**M**	**silty clay loam**	
6 - 12	**10YR 3/2**	**96**	**10YR 4/6**	**2**	**C**	**M**	**sandy loam**	
	10YR 6/1	**2**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/02**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 57**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

some raised areas nearby have more upland soil

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 57**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Liquidambar styraciflua***	**45**	**Y**	**FAC**
2 ***Quercus phellos***	**20**	**Y**	**FACW**
3 ***Quercus nigra***	**15**	**N**	**FAC**
4			
5			
6			
7			
8			
	80 = Total Cover		
50% of total cover: **40**	20% of total cover: **16**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Carpinus caroliniana***	**20**	**Y**	**FAC**
2 ***Liquidambar styraciflua***	**15**	**Y**	**FAC**
3 ***Vaccinium sp.***	**6**	**N**	
4 ***Symplocos tinctoria***	**1**	**N**	**FAC**
5			
6			
7			
8			
	42 = Total Cover		
50% of total cover: **21**	20% of total cover: **8.4**		
Herb Stratum (Plot size: **1m²**)			
1 ***Carpinus caroliniana***	**1**	**N**	**FAC**
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	1 = Total Cover		
50% of total cover: **0.5**	20% of total cover: **0.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**6**	**Y**	**FAC**
2 ***Smilax rotundifolia***	**3**	**Y**	**FAC**
3 ***Berchemia scandens***	**2**	**N**	**FAC**
4 ***Smilax glauca***	**2**	**N**	**FAC**
5			
6			
	13 = Total Cover		
50% of total cover: **6.5**	20% of total cover: **2.6**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **6** (A)

Total Number of Dominant Species Across all Strata: **6** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**20**	x 2 =	**40**
FAC species	**110**	x 3 =	**330**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**130** (A)		**370** (B)

Prevalence Index = B/A = **2.85**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 57**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 1	**10YR 3/2**	**39**	**10YR 5/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 5/1	**59**						
1 - 6	**10YR 4/2**	**98**	**10YR 5/8**	**2**	**C**	**M**	**silty clay loam**	
6 - 12	**10YR 5/2**	**80**	**10YR 5/8**	**2**	**C**	**M**	**sandy loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

some raised areas nearby have more upland soil

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/02**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 58**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No	**X**	Depth (inches) ____	**Wetland hydrology present?**
Water table present?	Yes ____	No	**X**	Depth (inches) ____	
Saturation present? (includes capillary fringe)	Yes ____	No	**X**	Depth (inches) ____	**Yes** X **No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 58**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Quercus pagoda***	**15**	**Y**	**FACW**
2 ***Quercus nigra***	**8**	**Y**	**FAC**
3 ***Quercus michauxii***	**5**	**N**	**FACW**
4			
5			
6			
7			
8			
	28 = Total Cover		
50% of total cover: **14**	20% of total cover: **5.6**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Ilex opaca***	**12**	**Y**	**FAC**
2 ***Carpinus caroliniana***	**10**	**Y**	**FAC**
3 ***Quercus michauxii***	**2**	**N**	**FACW**
4 ***Carya myristiciformis***	**1**	**N**	**FACW**
5			
6			
7			
8			
	25 = Total Cover		
50% of total cover: **12.5**	20% of total cover: **5**		
Herb Stratum (Plot size: **1m²**)			
1 ***None***			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	= Total Cover		
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**25**	**Y**	**FAC**
2 ***Berchemia scandens***	**2**	**N**	**FAC**
3 ***Smilax glauca***	**2**	**N**	**FAC**
4			
5			
6			
	29 = Total Cover		
50% of total cover: **14.5**	20% of total cover: **5.8**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **5** (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**23**	x 2 =	**46**
FAC species	**59**	x 3 =	**177**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**82** (A)		**223** (B)

Prevalence Index = B/A = **2.72**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 58**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 1	**10YR 5/3**	**100**					**silty clay loam**	
1 - 6	**10YR 4/2**	**49**	**7.5YR 4/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 5/1	**49**	**7.5YR 3/6**	**2**	**C**	**M**		
6 - 12	**10YR 4/2**	**49**	**7.5YR 3/6**	**2**	**C**	**M**	**sandy loam**	
	10YR 5/2	**49**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/02**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 59**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

____ Surface Water (A1)	____ Aquatic Fauna (B13)	____ Surface Soil Cracks (B6)
X High Water Table (A2)	____ Marl Deposits (B15) **(LRR U)**	____ Sparsely Vegetated Concave Surface (B8)
X Saturation (A3)	____ Hydrogen Sulfide Odor (C1)	____ Drainage Patterns (B10)
____ Water Marks (B1)	____ Oxidized Rhizospheres on Living Roots (C3)	____ Moss Trim Lines (B16)
____ Sediment Deposits (B2)	____ Presence of Reduced Iron (C4)	____ Dry-Season Water Table (C2)
____ Drift Deposits (B3)	____ Recent Iron Reduction in Tilled Soils (C6)	____ Crayfish Burrows (C8)
____ Algal Mat or Crust (B4)	____ Thin Muck Surface (C7)	____ Saturation Visible on Aerial Imagery (C9)
____ Iron Deposits (B5)	____ Other (Explain in Remarks)	**X** Geomorphic Position (D2)
____ Inundation Visible on Aerial Imagery (B7)		____ Shallow Aquitard (D3)
____ Water-Stained Leaves (B9)		**X** FAC-Neutral Test (D5)
		____ Sphagnum moss (D8) **(LRR T, U)**

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**	
Water table present?	Yes **X**	No ____	Depth (inches) ____		
Saturation present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches) ____	**Yes** X	**No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

water in hole; basin topography

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 59**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***None***			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***None***			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: **1m²**)			
1 ***Mikania scandens***	**35**	**Y**	**FACW**
2 ***Bidens aristosa***	**35**	**Y**	**FACW**
3 ***Panicum verrucosum***	**15**	**N**	**FACW**
4 ***Boehmeria cylindrica***	**15**	**N**	**FACW**
5 ***Pluchea camphorata***	**10**	**N**	**FACW**
6 ***Eupatorium capillifolium***	**5**	**N**	**FACU**
7 ***Eupatorium serotinum***	**5**	**N**	**FAC**
8			
9			
10			
11			
12			
	120 = Total Cover		
50% of total cover: **60**	20% of total cover: **24**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**17**	**Y**	**FAC**
2 ***Smilax rotundifolia***	**1**	**N**	**FAC**
3			
4			
5			
6			
	18 = Total Cover		
50% of total cover: **9**	20% of total cover: **3.6**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**110**	x 2 =	**220**
FAC species	**23**	x 3 =	**69**
FACU species	**5**	x 4 =	**20**
UPL species	**0**	x 5 =	**0**
Column totals	**138** (A)		**309** (B)

Prevalence Index = B/A = **2.24**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 59**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	**10YR 4/2**	**96**	**10YR 5/8**	**2**	**C**	**PL**	**silty clay loam**	
			7.5YR 4/6	**2**	**C**	**M**		
4 - 12	**10YR 5/2**	**98**	**10YR 5/6**	**2**	**C**	**M**	**sandy loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/03**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 60**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes	No **X**	**Is the sampled area within a wetland?**	**Yes**	**No X**
Wetland hydrology present?	Yes	No **X**			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes** **No X**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

may pass FAC-neutral test

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 60**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Carpinus caroliniana***	**25**	**Y**	**FAC**
2 ***Liquidambar styraciflua***	**10**	**Y**	**FAC**
3			
4			
5			
6			
7			
8			
	35 = Total Cover		
50% of total cover: **17.5**	20% of total cover: **7**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**40**	**Y**	**FAC**
2 ***Carpinus caroliniana***	**15**	**Y**	**FAC**
3 ***Quercus velutina***	**5**	**N**	
4 ***Quercus nigra***	**2**	**N**	**FAC**
5 ***Callicarpa americana***	**1**	**N**	**FACU**
6 ***Diospyros virginiana***	**1**	**N**	**FAC**
7			
8			
	64 = Total Cover		
50% of total cover: **32**	20% of total cover: **12.8**		
Herb Stratum (Plot size: **1m²**)			
1 ***Poaceae sp.***	**1**	**N**	
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	1 = Total Cover		
50% of total cover: **0.5**	20% of total cover: **0.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Rubus laudatus***	**25**	**Y**	
2 ***Vitis rotundifolia***	**10**	**Y**	**FAC**
3 ***Smilax rotundifolia***	**2**	**N**	**FAC**
4			
5			
6			
	37 = Total Cover		
50% of total cover: **18.5**	20% of total cover: **7.4**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **5** (A)

Total Number of Dominant Species Across all Strata: **6** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **83.33%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**	
FACW species	**0**	x 2 =	**0**	
FAC species	**105**	x 3 =	**315**	
FACU species	**1**	x 4 =	**4**	
UPL species	**0**	x 5 =	**0**	
Column totals	**106**	(A)	**319**	(B)

Prevalence Index = B/A = **3.01**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- ___ 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 60**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	**10YR 4/3**	**98**	**7.5YR 4/6**	**2**	**C**	**M**	**silty clay loam**	
2 - 8	**10YR 4/3**	**49**	**7.5YR 4/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 5/2	**49**						
8 - 12	**10YR 4/3**	**59**	**10YR 5/8**	**2**	**C**	**M**	**silty clay**	
	10YR 5/2	**39**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** _____ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/03**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 61**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes ____	No **X**	**Is the sampled area within a wetland?**	**Yes** ____	**No** **X**
Wetland hydrology present?	Yes ____	No **X**			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**
Water table present?	Yes ____	No **X**	Depth (inches) ____	
Saturation present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches) ____	**Yes** ____ **No** **X**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

may pass the FAC-neutral test

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 61**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Ilex opaca***	**10**	**Y**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	10 = Total Cover		
50% of total cover: **5**	20% of total cover: **2**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**10**	**Y**	**FAC**
2 ***Symplocos tinctoria***	**5**	**Y**	**FAC**
3 ***Quercus nigra***	**3**	**N**	**FAC**
4 ***Betula nigra***	**3**	**N**	**FACW**
5 ***Ilex opaca***	**2**	**N**	**FAC**
6 ***Callicarpa americana***	**1**	**N**	**FACU**
7			
8			
	24 = Total Cover		
50% of total cover: **12**	20% of total cover: **4.8**		
Herb Stratum (Plot size: **1m²**)			
1 ***Chasmanthium laxum***	**60**	**Y**	**FACW**
2 ***Coleataenia rigidula***	**20**	**N**	**FACW**
3 ***Dichanthelium dichotomum***	**10**	**N**	**FAC**
4 ***Andropogon virginicus***	**5**	**N**	**FAC**
5 ***Gratiola neglecta***	**3**	**N**	**OBL**
6 ***Eupatorium capillifolium***	**1**	**N**	**FACU**
7 ***Panicum verrucosum***	**1**	**N**	**FACW**
8 ***Glyceria striata***	**1**	**N**	**OBL**
9			
10			
11			
12			
	101 = Total Cover		
50% of total cover: **50.5**	20% of total cover: **20.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Rubus laudatus***	**55**	**Y**	
2 ***Smilax rotundifolia***	**2**	**N**	**FAC**
3 ***Smilax glauca***	**2**	**N**	**FAC**
4			
5			
6			
	59 = Total Cover		
50% of total cover: **29.5**	20% of total cover: **11.8**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **80.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**4**	x 1 =	**4**
FACW species	**84**	x 2 =	**168**
FAC species	**49**	x 3 =	**147**
FACU species	**2**	x 4 =	**8**
UPL species	**0**	x 5 =	**0**
Column totals	**139** (A)		**327** (B)

Prevalence Index = B/A = **2.35**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- ___ 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 61**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	**10YR 5/3**	**98**	**10YR 5/8**	**2**	**C**	**M**	**silty clay loam**	
6 - 12	**10YR 4/2**	**98**	**10YR 5/8**	**2**	**C**	**M**	**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** _____ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/03**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 62**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes**	**No X**
Wetland hydrology present?	Yes	No **X**			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes** **No X**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 62**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Liquidambar styraciflua***	**15**	**Y**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	15 = Total Cover		
50% of total cover: **7.5**	20% of total cover: **3**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**70**	**Y**	**FAC**
2 ***Hamamelis virginiana***	**15**	**N**	**FACU**
3 ***Carpinus caroliniana***	**5**	**N**	**FAC**
4 ***Symplocos tinctoria***	**2**	**N**	**FAC**
5 ***Callicarpa americana***	**1**	**N**	**FACU**
6			
7			
8			
	93 = Total Cover		
50% of total cover: **46.5**	20% of total cover: **18.6**		
Herb Stratum (Plot size: **1m²**)			
1 ***Poaceae sp.***	**2**	**N**	
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	2 = Total Cover		
50% of total cover: **1**	20% of total cover: **0.4**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Rubus laudatus***	**30**	**Y**	
2 ***Vitis rotundifolia***	**15**	**Y**	**FAC**
3 ***Smilax rotundifolia***	**5**	**N**	**FAC**
4 ***Smilax glauca***	**2**	**N**	**FAC**
5 ***Bignonia capreolata***	**1**	**N**	**FAC**
6			
	53 = Total Cover		
50% of total cover: **26.5**	20% of total cover: **10.6**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **75.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**115**	x 3 =	**345**
FACU species	**16**	x 4 =	**64**
UPL species	**0**	x 5 =	**0**
Column totals	**131** (A)		**409** (B)

Prevalence Index = B/A = **3.12**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- ___ 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 62**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	**10YR 3/2**	**98**	**7.5YR 4/6**	**2**	**C**	**M**	**silty clay loam**	
4 - 8	**10YR 3/2**	**98**	**7.5YR 4/6**	**2**	**C**	**M**	**clay loam**	
8 - 12	**10YR 3/2**	**88**	**7.5YR 4/6**	**2**	**C**	**M**	**clay**	
	10YR 5/1	**18**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/03**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 63**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(If needed, explain any answers in Remarks.)

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

Hydrophytic vegetation present?	Yes	No **X**			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes**	**No X**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)		
Water table present?	Yes	No **X**	Depth (inches)		
Saturation present? (includes capillary fringe)	Yes **X**	No	Depth (inches)	**3**	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 63**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Ilex opaca***	**3**	**N**	**FAC**
2 ***Liquidambar styraciflua***	**1**	**N**	**FAC**
3			
4			
5			
6			
7			
8			
	4 = Total Cover		
50% of total cover: **2**	20% of total cover: **0.8**		
Herb Stratum (Plot size: **1m²**)			
1 ***Eupatorium capillifolium***	**55**	**Y**	**FACU**
2 ***Panicum verrucosum***	**20**	**Y**	**FACW**
3 ***Eupatorium serotinum***	**6**	**N**	**FAC**
4 ***Senecio hieraciifolius***	**5**	**N**	**FAC**
5 ***Rhus copallinum***	**3**	**N**	**UPL**
6 ***Callicarpa americana***	**2**	**N**	**FACU**
7 ***Unknown fern***	**2**	**N**	
8 ***Gratiola neglecta***	**1**	**N**	**OBL**
9			
10			
11			
12			
	94 = Total Cover		
50% of total cover: **47**	20% of total cover: **18.8**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**5**	**Y**	**FAC**
2 ***Rubus laudatus***	**2**	**Y**	
3 ***Smilax rotundifolia***	**1**	**N**	**FAC**
4			
5			
6			
	8 = Total Cover		
50% of total cover: **4**	20% of total cover: **1.6**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **50.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**1**	x 1 =	**1**	
FACW species	**20**	x 2 =	**40**	
FAC species	**21**	x 3 =	**63**	
FACU species	**57**	x 4 =	**228**	
UPL species	**3**	x 5 =	**15**	
Column totals	**102**	(A)	**347**	(B)
Prevalence Index = B/A =			**3.40**	

Hydrophytic Vegetation Indicators:

___ 1 - Rapid test for hydrophytic vegetation

___ 2 - Dominance test is >50%

___ 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*

___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** ___ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 63**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3	**10YR 4/3**	**58**	**10YR 4/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 4/2	**20**						
	10YR 5/1	**20**						**redox depletion?**
3 - 12	**10YR 6/1**	**98**	**10YR 4/6**	**2**	**C**	**M**	**sandy clay**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/03**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 64**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 64**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**1**	**N**	**FAC**
2 ***Ilex opaca***	**1**	**N**	**FAC**
3 ***Diospyros virginiana***	**1**	**N**	**FAC**
4			
5			
6			
7			
8			
	3 = Total Cover		
50% of total cover: **1.5**	20% of total cover: **0.6**		
Herb Stratum (Plot size: **1m²**)			
1 ***Rhynchospora inexpansa***	**40**	**Y**	**FACW**
2 ***Panicum verrucosum***	**40**	**Y**	**FACW**
3 ***Rhynchospora glomerata***	**15**	**N**	**OBL**
4 ***Eupatorium rotundifolium***	**5**	**N**	**FAC**
5 ***Coleataenia rigidula***	**2**	**N**	**FACW**
6 ***Dichanthelium dichotomum***	**2**	**N**	**FAC**
7			
8			
9			
10			
11			
12			
	104 = Total Cover		
50% of total cover: **52**	20% of total cover: **20.8**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Smilax rotundifolia***	**4**	**Y**	**FAC**
2 ***Vitis rotundifolia***	**1**	**Y**	**FAC**
3			
4			
5			
6			
	5 = Total Cover		
50% of total cover: **2.5**	20% of total cover: **1**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**15**	x 1 =	**15**
FACW species	**82**	x 2 =	**164**
FAC species	**15**	x 3 =	**45**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**112** (A)		**224** (B)

Prevalence Index = B/A = **2.00**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 64**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	**10YR 6/1**	**20**	**7.5YR 4/6**	**2**	**C**	**M**	**sandy clay**	
	10YR 5/2	**76**	**10YR 6/8**	**2**	**C**	**M**		
6 - 12	**10YR 6/1**	**50**	**10YR 6/8**	**30**	**C**	**M**	**sandy clay**	
	10YR 7/1	**20**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/08**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 65**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(If needed, explain any answers in Remarks.)

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

Hydrophytic vegetation present?	Yes	No **X**			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes**	**No X**
Wetland hydrology present?	Yes	No **X**			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes** **No X**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 65**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Carpinus caroliniana***	**2**	**N**	**FAC**
2 ***Acer rubrum***	**1**	**N**	**FAC**
3			
4			
5			
6			
7			
8			
	3 = Total Cover		
50% of total cover: **1.5**	20% of total cover: **0.6**		
Herb Stratum (Plot size: **1m²**)			
1 ***Berchemia scandens***	**40**	**Y**	**FAC**
2 ***Phytolacca americana***	**35**	**Y**	**FACU**
3 ***Callicarpa americana***	**25**	**N**	**FACU**
4 ***Arundinaria gigantea***	**15**	**N**	**FACW**
5 ***Panicum verrucosum***	**10**	**N**	**FACW**
6 ***Eupatorium capillifolium***	**1**	**N**	**FACU**
7 ***Carex sp.***	**1**	**N**	
8			
9			
10			
11			
12			
	127 = Total Cover		
50% of total cover: **63.5**	20% of total cover: **25.4**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis cinerea***	**1**	**N**	**FAC**
2 ***Brunnichia ovata***	**1**	**N**	**FACW**
3 ***Vitis rotundifolia***	**1**	**N**	**FAC**
4			
5			
6			
	3 = Total Cover		
50% of total cover: **1.5**	20% of total cover: **0.6**		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **2** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **50.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**	
FACW species	**26**	x 2 =	**52**	
FAC species	**45**	x 3 =	**135**	
FACU species	**61**	x 4 =	**244**	
UPL species	**0**	x 5 =	**0**	
Column totals	**132**	(A)	**431**	(B)

Prevalence Index = B/A = **3.27**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid test for hydrophytic vegetation

___ 2 - Dominance test is >50%

___ 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*

___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** ___ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 65**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	**10YR 3/2**	**98**	**10YR 4/6**	**2**	**C**	**M**	**clay loam**	
2 - 6	**10YR 4/2**	**49**	**10YR 5/6**	**2**	**C**	**M**	**silty clay**	
	10YR 4/3	**49**						
6 - 12	**10YR 5/3**	**58**	**10YR 5/8**	**4**	**C**	**M**	**silty clay**	
	10YR 5/2	**38**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/08**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 66**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 66**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Quercus nigra***	**1**	**N**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	1 = Total Cover		
50% of total cover: **0.5**	20% of total cover: **0.2**		
Herb Stratum (Plot size: **1m²**)			
1 ***Panicum verrucosum***	**75**	**Y**	**FACW**
2 ***Boehmeria cylindrica***	**30**	**Y**	**FACW**
3 ***Mikania scandens***	**25**	**N**	**FACW**
4 ***Persicaria hydropiperoides***	**2**	**N**	**OBL**
5			
6			
7			
8			
9			
10			
11			
12			
	132 = Total Cover		
50% of total cover: **66**	20% of total cover: **26.4**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Smilax rotundifolia***	**1**	**N**	**FAC**
2			
3			
4			
5			
6			
	1 = Total Cover		
50% of total cover: **0.5**	20% of total cover: **0.2**		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **2** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**2**	x 1 =	**2**
FACW species	**130**	x 2 =	**260**
FAC species	**2**	x 3 =	**6**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**134** (A)		**268** (B)

Prevalence Index = B/A = **2.00**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 66**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3	**10YR 5/1**	**83**	**10YR 5/8**	**15**	**C**	**M**	**silty clay loam**	
			7.5YR 4/4	**2**	**C**	**M**		
3 - 12	**10YR 5/2**	**75**	**10YR 5/6**	**20**	**C**	**M**	**silty clay loam**	
			10YR 5/8	**3**	**C**	**M**		
			7.5YR 4/4	**2**	**C**	**M**		

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/08**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 67**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 67**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***None***			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Ilex opaca***	**2**	**N**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	2 = Total Cover		
50% of total cover: **1**	20% of total cover: **0.4**		
Herb Stratum (Plot size: **1m²**)			
1 ***Panicum verrucosum***	**50**	**Y**	**FACW**
2 ***Bidens aristosa***	**30**	**Y**	**FACW**
3 ***Solidago gigantea***	**25**	**N**	**FACW**
4 ***Persicaria punctata***	**15**	**N**	**OBL**
5 ***Boehmeria cylindrica***	**10**	**N**	**FACW**
6			
7			
8			
9			
10			
11			
12			
	130 = Total Cover		
50% of total cover: **65**	20% of total cover: **26**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***None***			
2			
3			
4			
5			
6			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **2** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**15**	x 1 =	**15**	
FACW species	**115**	x 2 =	**230**	
FAC species	**2**	x 3 =	**6**	
FACU species	**0**	x 4 =	**0**	
UPL species	**0**	x 5 =	**0**	
Column totals	**132**	(A)	**251**	(B)

Prevalence Index = B/A = **1.90**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 67**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	**10YR 3/2**	**98**	**10YR 5/8**	**2**	**C**	**M**	**silty clay loam**	
4 - 10	**10YR 3/2**	**78**	**10YR 5/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 4/2	**20**						
10 - 12	**10YR 4/2**	**88**	**10YR 5/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 5/1	**10**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

Fe and Mn concretions. Layers containing them not recorded.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/08**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 68**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

____ Surface Water (A1)	____ Aquatic Fauna (B13)	____ Surface Soil Cracks (B6)
X High Water Table (A2)	____ Marl Deposits (B15) **(LRR U)**	____ Sparsely Vegetated Concave Surface (B8)
X Saturation (A3)	____ Hydrogen Sulfide Odor (C1)	____ Drainage Patterns (B10)
____ Water Marks (B1)	____ Oxidized Rhizospheres on Living Roots (C3)	____ Moss Trim Lines (B16)
____ Sediment Deposits (B2)		____ Dry-Season Water Table (C2)
____ Drift Deposits (B3)	____ Presence of Reduced Iron (C4)	____ Crayfish Burrows (C8)
____ Algal Mat or Crust (B4)	____ Recent Iron Reduction in Tilled Soils (C6)	____ Saturation Visible on Aerial Imagery (C9)
____ Iron Deposits (B5)		**X** Geomorphic Position (D2)
____ Inundation Visible on Aerial Imagery (B7)	____ Thin Muck Surface (C7)	____ Shallow Aquitard (D3)
____ Water-Stained Leaves (B9)	____ Other (Explain in Remarks)	**X** FAC-Neutral Test (D5)
		____ Sphagnum moss (D8) **(LRR T, U)**

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**	
Water table present?	Yes **X**	No ____	Depth (inches) ____		
Saturation present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches) ____	**Yes** X	**No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

water in hole

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 68**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Liquidambar styraciflua***	**3**	**N**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	3 = Total Cover		
50% of total cover: **1.5**	20% of total cover: **0.6**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Diospyros virginiana***	**1**	**N**	**FAC**
2 ***Quercus phellos***	**1**	**N**	**FACW**
3			
4			
5			
6			
7			
8			
	2 = Total Cover		
50% of total cover: **1**	20% of total cover: **0.4**		
Herb Stratum (Plot size: **1m²**)			
1 ***Coleataenia rigidula***	**70**	**Y**	**FACW**
2 ***Rhynchospora corniculata***	**10**	**N**	**OBL**
3 ***Boehmeria cylindrica***	**4**	**N**	**FACW**
4 ***Commelina diffusa***	**2**	**N**	**FACW**
5			
6			
7			
8			
9			
10			
11			
12			
	86 = Total Cover		
50% of total cover: **43**	20% of total cover: **17.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**35**	**Y**	**FAC**
2 ***Smilax rotundifolia***	**5**	**N**	**FAC**
3 ***Brunnichia ovata***	**2**	**N**	**FACW**
4			
5			
6			
	42 = Total Cover		
50% of total cover: **21**	20% of total cover: **8.4**		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **2** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**10**	x 1 =	**10**	
FACW species	**79**	x 2 =	**158**	
FAC species	**44**	x 3 =	**132**	
FACU species	**0**	x 4 =	**0**	
UPL species	**0**	x 5 =	**0**	
Column totals	**133**	(A)	**300**	(B)
Prevalence Index = B/A =			**2.26**	

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 68**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 1	**10YR 4/2**	**98**	**10YR 4/6**	**2**	**C**	**M**	**silty clay loam**	
1 - 6	**10YR 5/1**	**90**	**10YR 5/6**	**10**	**C**	**M**	**silty clay loam**	
6 - 12	**10YR 5/1**	**80**	**10YR 5/6**	**10**	**C**	**M**	**silty clay**	
			10YR 6/8	**10**	**C**	**M**		

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/08**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 69**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 69**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Quercus phellos***	**2**	**Y**	**FACW**
2 ***Pinus taeda***	**1**	**N**	**FAC**
3 ***Quercus pagoda***	**1**	**N**	**FACW**
4 ***Carpinus caroliniana***	**1**	**N**	**FAC**
5 ***Carya sp.***	**1**	**N**	
6			
7			
8			
	6 = Total Cover		
50% of total cover: **3**	20% of total cover: **1.2**		
Herb Stratum (Plot size: **1m²**)			
1 ***Bidens aristosa***	**95**	**Y**	**FACW**
2 ***Persicaria punctata***	**10**	**N**	**OBL**
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	105 = Total Cover		
50% of total cover: **52.5**	20% of total cover: **21**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Smilax rotundifolia***	**2**	**N**	**FAC**
2 ***Vitis rotundifolia***	**1**	**N**	**FAC**
3			
4			
5			
6			
	3 = Total Cover		
50% of total cover: **1.5**	20% of total cover: **0.6**		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **2** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**10**	x 1 =	**10**
FACW species	**98**	x 2 =	**196**
FAC species	**5**	x 3 =	**15**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**113** (A)		**221** (B)

Prevalence Index = B/A = **1.96**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: **Plot 69**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	**10YR 5/2**	**90**	**10YR 5/6**	**10**	**C**	**M**	**silty clay loam**	
2 - 12	**10YR 6/2**	**98**	**10YR 6/6**	**2**	**C**	**M**	**sandy clay**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/08**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 70**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)	___ Aquatic Fauna (B13)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Marl Deposits (B15) **(LRR U)**	___ Sparsely Vegetated Concave Surface (B8)
___ Saturation (A3)	___ Hydrogen Sulfide Odor (C1)	___ Drainage Patterns (B10)
___ Water Marks (B1)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Moss Trim Lines (B16)
___ Sediment Deposits (B2)		___ Dry-Season Water Table (C2)
X Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Crayfish Burrows (C8)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Saturation Visible on Aerial Imagery (C9)
___ Iron Deposits (B5)		**X** Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)	___ Thin Muck Surface (C7)	___ Shallow Aquitard (D3)
X Water-Stained Leaves (B9)	___ Other (Explain in Remarks)	**X** FAC-Neutral Test (D5)
		___ Sphagnum moss (D8) **(LRR T, U)**

Secondary Indicators (minimum of two required)

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**	
Water table present?	Yes ____	No **X**	Depth (inches) ____		
Saturation present? (includes capillary fringe)	Yes ____	No **X**	Depth (inches) ____	**Yes** X	**No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 70**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Liquidambar styraciflua***	**50**	**Y**	**FAC**
2 ***Pinus taeda***	**15**	**N**	**FAC**
3 ***Quercus pagoda***	**10**	**N**	**FACW**
4 ***Quercus nigra***	**5**	**N**	**FAC**
5 ***Ilex opaca***	**1**	**N**	**FAC**
6			
7			
8			
	81 = Total Cover		
50% of total cover: **40.5**	20% of total cover: **16.2**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Ilex opaca***	**10**	**Y**	**FAC**
2 ***Carpinus caroliniana***	**10**	**Y**	**FAC**
3 ***Quercus nigra***	**1**	**N**	**FAC**
4 ***Acer rubrum***	**1**	**N**	**FAC**
5 ***Quercus pagoda***	**1**	**N**	**FACW**
6 ***Diospyros virginiana***	**1**	**N**	**FAC**
7			
8			
	24 = Total Cover		
50% of total cover: **12**	20% of total cover: **4.8**		
Herb Stratum (Plot size: **1m²**)			
1 ***None***			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	= Total Cover		
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**10**	**Y**	**FAC**
2 ***Berchemia scandens***	**5**	**Y**	**FAC**
3			
4			
5			
6			
	15 = Total Cover		
50% of total cover: **7.5**	20% of total cover: **3**		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **5** (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**11**	x 2 =	**22**
FAC species	**109**	x 3 =	**327**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**120** (A)		**349** (B)

Prevalence Index = B/A = **2.91**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: **Plot 70**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	**10YR 4/2**	**98**	**10YR 5/6**	**2**	**C**	**PL**	**silty clay loam**	
6 - 12	**10YR 5/2**	**90**	**10YR 4/6**	**5**	**C**	**M**	**silty clay loam**	
			10YR 5/6	**5**	**C**	**M**		

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/08**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 71**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 71**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Ilex opaca***	**15**	**Y**	**FAC**
2 ***Aralia spinosa***	**2**	**N**	**FAC**
3 ***Carya alba***	**2**	**N**	
4 ***Symplocos tinctoria***	**1**	**N**	**FAC**
5			
6			
7			
8			
	20 = Total Cover		
50% of total cover: **10**	20% of total cover: **4**		
Herb Stratum (Plot size: **1m²**)			
1 ***Panicum verrucosum***	**70**	**Y**	**FACW**
2 ***Boehmeria cylindrica***	**8**	**N**	**FACW**
3 ***Perilla frutescens***	**5**	**N**	**FACU**
4 ***Bidens aristosa***	**4**	**N**	**FACW**
5 ***Eupatorium capillifolium***	**3**	**N**	**FACU**
6 ***Solidago gigantea***	**3**	**N**	**FACW**
7			
8			
9			
10			
11			
12			
	93 = Total Cover		
50% of total cover: **46.5**	20% of total cover: **18.6**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**8**	**Y**	**FAC**
2 ***Berchemia scandens***	**1**	**N**	**FAC**
3			
4			
5			
6			
	9 = Total Cover		
50% of total cover: **4.5**	20% of total cover: **1.8**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**85**	x 2 =	**170**
FAC species	**27**	x 3 =	**81**
FACU species	**8**	x 4 =	**32**
UPL species	**0**	x 5 =	**0**
Column totals	**120** (A)		**283** (B)

Prevalence Index = B/A = **2.36**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 71**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	**10YR 3/2**	**88**	**10YR 3/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 5/1	**10**						
6 - 12	**10YR 4/2**	**49**	**10YR 3/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 5/2	**49**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/09**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 72**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 72**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Quercus phellos***	**2**	**N**	**FACW**
2			
3			
4			
5			
6			
7			
8			
	2 = Total Cover		
50% of total cover: **1**	20% of total cover:	**0.4**	
Herb Stratum (Plot size: **1m²**)			
1 ***Coleataenia rigidula***	**95**	**Y**	**FACW**
2 ***Saccharum baldwinii***	**12**	**N**	**OBL**
3 ***Boehmeria cylindrica***	**10**	**N**	**FACW**
4 ***Mikania scandens***	**5**	**N**	**FACW**
5 ***Persicaria hydropiperoides***	**5**	**N**	**OBL**
6 ***Gratiola neglecta***	**5**	**N**	**OBL**
7 ***Panicum verrucosum***	**1**	**N**	**FACW**
8 ***Ludwigia alternifolia***	**1**	**N**	**OBL**
9 ***Glyceria striata***	**1**	**N**	**OBL**
10			
11			
12			
	135 = Total Cover		
50% of total cover: **67.5**	20% of total cover:	**27**	
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**4**	**N**	**FAC**
2			
3			
4			
5			
6			
	4 = Total Cover		
50% of total cover: **2**	20% of total cover:	**0.8**	

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **1** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**24**	x 1 =	**24**
FACW species	**113**	x 2 =	**226**
FAC species	**4**	x 3 =	**12**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**141** (A)		**262** (B)

Prevalence Index = B/A = **1.86**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 72**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	**10YR 5/2**	**80**	**10YR 5/8**	**10**	**C**	**PL**	**silty clay loam**	
			7.5YR 4/6	**10**	**C**	**PL**		
4 - 8	**10YR 5/1**	**40**	**10YR 5/8**	**10**	**C**	**M**	**sandy clay**	
	10YR 4/2	**40**	**7.5YR 4/6**	**10**	**C**	**M**		
8 - 12	**10YR 5/1**	**75**	**7.5YR 5/8**	**15**	**C**	**M**	**sandy clay**	
	10YR 5/3	**10**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/09**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 73**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 73**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Ilex opaca***	**2**	**N**	**FAC**
2 ***Hamamelis virginiana***	**1**	**N**	**FACU**
3 ***Rubus laudatus***	**1**	**N**	
4			
5			
6			
7			
8			
	4 = Total Cover		
50% of total cover: **2**	20% of total cover: **0.8**		
Herb Stratum (Plot size: **1m²**)			
1 ***Panicum verrucosum***	**100**	**Y**	**FACW**
2 ***Boehmeria cylindrica***	**5**	**N**	**FACW**
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	105 = Total Cover		
50% of total cover: **52.5**	20% of total cover: **21**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Smilax rotundifolia***	**1**	**N**	**FAC**
2 ***Smilax glauca***	**1**	**N**	**FAC**
3 ***Vitis rotundifolia***	**1**	**N**	**FAC**
4			
5			
6			
	3 = Total Cover		
50% of total cover: **1.5**	20% of total cover: **0.6**		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **1** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**	
FACW species	**105**	x 2 =	**210**	
FAC species	**5**	x 3 =	**15**	
FACU species	**1**	x 4 =	**4**	
UPL species	**0**	x 5 =	**0**	
Column totals	**111**	(A)	**229**	(B)
Prevalence Index = B/A =			**2.06**	

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 73**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	**10YR 3/1**	**45**	**7.5YR 5/8**	**5**	**C**	**M**	**silty clay loam**	
	10YR 4/1	**45**	**10YR 5/8**	**5**	**C**	**M**		
2 - 9	**10YR 5/2**	**80**	**7.5YR 5/8**	**10**	**C**	**M**	**silty clay loam**	
	10YR 5/3	**10**				**M**		
9 - 12	**10YR 5/3**	**80**	**7.5YR 5/8**	**10**	**C**	**M**	**sandy clay**	
	10YR 5/2	**10**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/09**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 74**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes **X**	No ____	Depth (inches) **3**	**Wetland hydrology present?**	
Water table present?	Yes **X**	No ____	Depth (inches) ____		
Saturation present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches) ____	**Yes** X	**No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 74**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Quercus nigra***	**1**	**N**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	1 = Total Cover		
50% of total cover: **0.5**	20% of total cover: **0.2**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**1**	**N**	**FAC**
2			
3			
4			
5			
6			
7			
8			
	1 = Total Cover		
50% of total cover: **0.5**	20% of total cover: **0.2**		
Herb Stratum (Plot size: **1m²**)			
1 ***Rhynchospora corniculata***	**95**	**Y**	**OBL**
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	95 = Total Cover		
50% of total cover: **47.5**	20% of total cover: **19**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**1**	**N**	**FAC**
2 ***Smilax rotundifolia***	**1**	**N**	**FAC**
3			
4			
5			
6			
	2 = Total Cover		
50% of total cover: **1**	20% of total cover: **0.4**		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **1** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**95**	x 1 =	**95**
FACW species	**0**	x 2 =	**0**
FAC species	**4**	x 3 =	**12**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**99** (A)		**107** (B)

Prevalence Index = B/A = **1.08**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 74**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 1	**10YR 3/2**	**100**					**silty clay loam**	
1 - 4	**10YR 5/1**	**98**	**10YR 6/8**	**2**	**C**	**M**	**silty clay loam**	
4 - 12	**10YR 4/2**	**96**	**10YR 5/8**	**2**	**C**	**M**	**sandy clay**	
			7.5YR 5/8	**2**	**C**	**M**		

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/09**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 75**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 75**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Quercus phellos***	**5**	**Y**	**FACW**
2 ***Quercus nigra***	**3**	**Y**	**FAC**
3 ***Carya alba***	**1**	**N**	
4			
5			
6			
7			
8			
	9 = Total Cover		
50% of total cover: **4.5**	20% of total cover: **1.8**		
Herb Stratum (Plot size: **1m²**)			
1 ***Panicum verrucosum***	**25**	**Y**	**FACW**
2 ***Lespedeza cuneata***	**20**	**Y**	**FACU**
3 ***Bidens aristosa***	**15**	**N**	**FACW**
4 ***Rhexia mariana***	**15**	**N**	**FACW**
5 ***Persicaria hydropiperoides***	**15**	**N**	**OBL**
6 ***Mikania scandens***	**10**	**N**	**FACW**
7 ***Gratiola neglecta***	**5**	**N**	**OBL**
8 ***Nyssa sylvatica***	**5**	**N**	**FAC**
9			
10			
11			
12			
	110 = Total Cover		
50% of total cover: **55**	20% of total cover: **22**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1			
2			
3			
4			
5			
6			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **75.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**20**	x 1 =	**20**
FACW species	**70**	x 2 =	**140**
FAC species	**8**	x 3 =	**24**
FACU species	**20**	x 4 =	**80**
UPL species	**0**	x 5 =	**0**
Column totals	**118** (A)		**264** (B)

Prevalence Index = B/A = **2.24**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 75**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	**10YR 3/2**	**98**	**10YR 3/6**	**2**	**C**	**M**	**silty clay loam**	
4 - 10	**10YR 3/2**	**98**	**10YR 4/6**	**2**	**C**	**M**	**silty clay loam**	
10 - 12	**10YR 4/2**	**88**	**10YR 4/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 4/3	**10**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/09**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 76**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes**	**No X**
Wetland hydrology present?	Yes	No **X**			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes** **No X**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

vegetation could pass FAC-neutral test, depending on Rubus laudatus

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 76**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***Nyssa sylvatica***	**20**	**Y**	**FAC**
2 ***Liquidambar styraciflua***	**10**	**Y**	**FAC**
3			
4			
5			
6			
7			
8			
	30 = Total Cover		
50% of total cover: **15**	20% of total cover: **6**		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Carpinus caroliniana***	**30**	**Y**	**FAC**
2 ***Symplocos tinctoria***	**20**	**Y**	**FAC**
3 ***Ilex opaca***	**10**	**N**	**FAC**
4 ***Liquidambar styraciflua***	**10**	**N**	**FAC**
5 ***Quercus phellos***	**5**	**N**	**FACW**
6 ***Quercus nigra***	**2**	**N**	**FAC**
7 ***Hamamelis virginiana***	**1**	**N**	**FACU**
8			
	78 = Total Cover		
50% of total cover: **39**	20% of total cover: **15.6**		
Herb Stratum (Plot size: **1m²**)			
1 ***Panicum verrucosum***	**45**	**Y**	**FACW**
2 ***Eupatorium serotinum***	**1**	**N**	**FAC**
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	46 = Total Cover		
50% of total cover: **23**	20% of total cover: **9.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Smilax rotundifolia***	**3**	**Y**	**FAC**
2 ***Rubus laudatus***	**3**	**Y**	
3 ***Vitis rotundifolia***	**2**	**Y**	**FAC**
4 ***Vitis cinerea***	**1**	**N**	**FAC**
5			
6			
	9 = Total Cover		
50% of total cover: **4.5**	20% of total cover: **1.8**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **87.50%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**50**	x 2 =	**100**
FAC species	**109**	x 3 =	**327**
FACU species	**1**	x 4 =	**4**
UPL species	**0**	x 5 =	**0**
Column totals	**160** (A)		**431** (B)

Prevalence Index = B/A = **2.69**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 76**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	**10YR 3/2**	**98**	**10YR 4/6**	**2**	**C**	**M**	**silty clay loam**	
6 - 12	**10YR 3/2**	**90**	**10YR 3/6**	**10**	**C**	**M**	**sandy clay**	**"heavier clay"**

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/09**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 77**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes X**	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**	
Water table present?	Yes ____	No **X**	Depth (inches) ____		
Saturation present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches) ____	**Yes X**	**No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 77**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: **1m²**)			
1 ***Andropogon virginicus***	**80**	**Y**	**FAC**
2 ***Gratiola neglecta***	**25**	**N**	**OBL**
3 ***Jacquemontia tamnifolia***	**15**	**N**	**FACU**
4 ***Senecio hieraciifolius***	**5**	**N**	**FAC**
5 ***Hypericum hypericoides***	**1**	**N**	**FAC**
6			
7			
8			
9			
10			
11			
12			
	126 = Total Cover		
50% of total cover: **63**	20% of total cover: **25.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1			
2			
3			
4			
5			
6			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **1** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**25**	x 1 =	**25**	
FACW species	**0**	x 2 =	**0**	
FAC species	**86**	x 3 =	**258**	
FACU species	**15**	x 4 =	**60**	
UPL species	**0**	x 5 =	**0**	
Column totals	**126**	(A)	**343**	(B)

Prevalence Index = B/A = **2.72**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 77**

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 2	**10YR 5/2**	**80**	**10YR 5/6**	**20**	**C**	**M**	**silty clay loam**	
2 - 6	**10YR 5/1**	**43**	**10YR 5/6**	**15**	**C**	**M**	**silty clay loam**	
	10YR 4/2	**42**						
6 - 12	**10YR 5/2**	**85**	**10YR 5/8**	**15**	**C**	**M**	**sandy clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/09**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 78**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 78**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***None***			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***None***			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: **1m²**)			
1 ***Gratiola neglecta***	**95**	**Y**	**OBL**
2 ***Andropogon virginicus***	**20**	**N**	**FAC**
3 ***Senecio hieraciifolius***	**2**	**N**	**FAC**
4			
5			
6			
7			
8			
9			
10			
11			
12			
	117 = Total Cover		
50% of total cover: **58.5**	20% of total cover: **23.4**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Rubus laudatus***	**1**	**N**	
2 ***Vitis rotundifolia***	**1**	**N**	**FAC**
3			
4			
5			
6			
	2 = Total Cover		
50% of total cover: **1**	20% of total cover: **0.4**		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: **1** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**95**	x 1 =	**95**
FACW species	**0**	x 2 =	**0**
FAC species	**23**	x 3 =	**69**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**118** (A)		**164** (B)

Prevalence Index = B/A = **1.39**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 78**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3	**10YR 5/1**	**59**	**10YR 3/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 4/2	**39**						
3 - 6	**10YR 4/2**	**38**	**10YR 6/8**	**2**	**C**	**M**	**silty clay loam**	
	10YR 5/1	**58**	**10YR 3/6**	**2**	**C**	**M**		
6 - 12	**10YR 5/1**	**80**	**10YR 4/6**	**10**	**C**	**M**	**silty clay loam**	
			10YR 3/6	**10**	**C**	**M**		

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/09**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 79**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(If needed, explain any answers in Remarks.)

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

Hydrophytic vegetation present?	Yes	No **X**			
Hydric soil present?	Yes	No **X**	**Is the sampled area within a wetland?**	**Yes**	**No X**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	**Wetland hydrology present?**	
Water table present?	Yes	No **X**	Depth (inches)		
Saturation present? (includes capillary fringe)	Yes **X**	No	Depth (inches)	**Yes X**	**No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 79**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**2**	**Y**	**FAC**
2 ***Symplocos tinctoria***	**2**	**Y**	**FAC**
3 ***Carya alba***	**2**	**Y**	
4 ***Ilex opaca***	**1**	**N**	**FAC**
5			
6			
7			
8			
	7 = Total Cover		
50% of total cover: **3.5**	20% of total cover: **1.4**		
Herb Stratum (Plot size: **1m²**)			
1 ***Lespedeza repens***	**50**	**Y**	
2 ***Dichanthelium dichotomum***	**8**	**N**	**FAC**
3 ***Senecio hieraciifolius***	**3**	**N**	**FAC**
4 ***Gratiola neglecta***	**3**	**N**	**OBL**
5 ***Eupatorium serotinum***	**2**	**N**	**FAC**
6 ***Andropogon virginicus***	**2**	**N**	**FAC**
7 ***Rhexia mariana***	**1**	**N**	**FACW**
8 ***Eupatorium capillifolium***	**1**	**N**	**FACU**
9 ***Solanum carolinense***	**1**	**N**	**FACU**
10			
11			
12			
	71 = Total Cover		
50% of total cover: **35.5**	20% of total cover: **14.2**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Rubus laudatus***	**1**	**N**	
2			
3			
4			
5			
6			
	1 = Total Cover		
50% of total cover: **0.5**	20% of total cover: **0.2**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **50.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**3**	x 1 =	**3**	
FACW species	**1**	x 2 =	**2**	
FAC species	**20**	x 3 =	**60**	
FACU species	**2**	x 4 =	**8**	
UPL species	**0**	x 5 =	**0**	
Column totals	**26** (A)		**73**	(B)
Prevalence Index = B/A =			**2.81**	

Hydrophytic Vegetation Indicators:

___ 1 - Rapid test for hydrophytic vegetation

___ 2 - Dominance test is >50%

___ 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*

___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** ___ **No** **X**

Remarks: (Include photo numbers here or on a separate sheet)

plot includes 20% cover of sphagnum

SOIL **Sampling Point:** **Plot 79**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	**10YR 3/2**	**90**					**silty clay loam**	**contrast faint for F7**
	10YR 4/3	**10**						
2 - 4	**10YR 5/3**	**49**	**10YR 5/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 6/3	**49**						
4 - 12	**10YR 6/3**	**98**	**10YR 5/6**	**2**	**C**	**M**	**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** _____ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/09**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 80**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 80**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Symplocos tinctoria***	**15**	**Y**	**FAC**
2 ***Ilex opaca***	**10**	**Y**	**FAC**
3 ***Quercus phellos***	**1**	**N**	**FACW**
4 ***Carya alba***	**1**	**N**	
5			
6			
7			
8			
	27 = Total Cover		
50% of total cover: **13.5**	20% of total cover: **5.4**		
Herb Stratum (Plot size: **1m²**)			
1 ***Panicum verrucosum***	**90**	**Y**	**FACW**
2 ***Jacquemontia tamnifolia***	**15**	**N**	**FACU**
3 ***Solidago gigantea***	**8**	**N**	**FACW**
4 ***Phytolacca americana***	**5**	**N**	**FACU**
5 ***Lespedeza repens***	**4**	**N**	
6 ***Persicaria hydropiperoides***	**3**	**N**	**OBL**
7 ***Lespedeza cuneata***	**1**	**N**	**FACU**
8 ***Boehmeria cylindrica***	**1**	**N**	**FACW**
9			
10			
11			
12			
	127 = Total Cover		
50% of total cover: **63.5**	20% of total cover: **25.4**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1 ***Vitis rotundifolia***	**2**	**N**	**FAC**
2 ***Rubus laudatus***	**1**	**N**	
3			
4			
5			
6			
	3 = Total Cover		
50% of total cover: **1.5**	20% of total cover: **0.6**		

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**3**	x 1 =	**3**
FACW species	**100**	x 2 =	**200**
FAC species	**27**	x 3 =	**81**
FACU species	**21**	x 4 =	**84**
UPL species	**0**	x 5 =	**0**
Column totals	**151** (A)		**368** (B)

Prevalence Index = B/A = **2.44**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

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

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 80**

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	**10YR 3/2**	**98**	**10YR 3/6**	**2**	**C**	**M**	**silty clay loam**	
6 - 12	**10YR 3/2**	**88**	**10YR 3/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 4/2	**10**						

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/09**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 81**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

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

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present?

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? Yes **X** No ____

(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 **X**	No ____			
Hydric soil present?	Yes **X**	No ____	**Is the sampled area within a wetland?**	**Yes** X	**No** ____
Wetland hydrology present?	Yes **X**	No ____			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes ____	No **X**	Depth (inches) ____	**Wetland hydrology present?**	
Water table present?	Yes ____	No **X**	Depth (inches) ____		
Saturation present? (includes capillary fringe)	Yes **X**	No ____	Depth (inches) ____	**Yes** X	**No** ____

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 81**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Diospyros virginiana***	**12**	**Y**	**FAC**
2 ***Ilex opaca***	**3**	**N**	**FAC**
3 ***Liquidambar styraciflua***	**3**	**N**	**FAC**
4 ***Quercus nigra***	**1**	**N**	**FAC**
5			
6			
7			
8			
	19 = Total Cover		
50% of total cover: **9.5**	20% of total cover: **3.8**		
Herb Stratum (Plot size: **1m²**)			
1 ***Panicum verrucosum***	**100**	**Y**	**FACW**
2 ***Ilex opaca***	**10**	**N**	**FAC**
3 ***Dichanthelium dichotomum***	**5**	**N**	**FAC**
4 ***Boehmeria cylindrica***	**5**	**N**	**FACW**
5 ***Oldenlandia uniflora***	**1**	**N**	**FACW**
6 ***Eupatorium capillifolium***	**1**	**N**	**FACU**
7			
8			
9			
10			
11			
12			
	122 = Total Cover		
50% of total cover: **61**	20% of total cover: **24.4**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1			
2			
3			
4			
5			
6			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **2** (A)

Total Number of Dominant Species Across all Strata: **2** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**0**	x 1 =	**0**
FACW species	**106**	x 2 =	**212**
FAC species	**34**	x 3 =	**102**
FACU species	**1**	x 4 =	**4**
UPL species	**0**	x 5 =	**0**
Column totals	**141** (A)		**318** (B)

Prevalence Index = B/A = **2.26**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 81**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3	**10YR 4/1**	**49**	**10YR 5/6**	**2**	**C**	**PL**	**silty clay loam**	
	10YR 4/3	**49**						
3 - 9	**10YR 5/2**	**98**	**10YR 5/6**	**2**	**C**	**M**	**silty clay loam**	
9 - 12	**10YR 4/3**	**98**	**10YR 5/8**	**2**	**C**	**M**	**silty clay loam**	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P. T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR U**)
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150E**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A10) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

[3]Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: **Moro Creek Mitigation Bank** City/County: **Bunn** Sampling Date: **2018/10/09**

Applicant/Owner: **Arkansas Department of Transportation** State: **AR** Sampling Point: **Plot 82**

Investigator(s): **Kayti Ewing, Joe Ledvina** Section, Township, Range: **T8S R14W S24**

Landform (hillslope, terrace, etc.): **none** Local relief (concave, convex, none): **none**

Slope (%): **0** Lat: Long: Datum: **WGS84**

Soil Map Unit Name **Wehadkee silt loam** NWI Classification: **PFO1A**

Are climatic/hydrologic conditions of the site typical for this time of the year? Yes **X** No (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed? Are "normal circumstances" present?

Are vegetation , soil , or hydrology naturally problematic? Yes **X** No

(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 **X**	No			
Hydric soil present?	Yes **X**	No	**Is the sampled area within a wetland?**	**Yes X**	**No**
Wetland hydrology present?	Yes **X**	No			

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15) **(LRR U)**
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- **X** Geomorphic Position (D2)
- Shallow Aquitard (D3)
- **X** FAC-Neutral Test (D5)
- Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface water present?	Yes	No **X**	Depth (inches)	
Water table present?	Yes	No **X**	Depth (inches)	
Saturation present? (includes capillary fringe)	Yes	No **X**	Depth (inches)	

Wetland hydrology present? **Yes X** **No**

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION -- Use scientific names of plants.

Sampling Point: **Plot 82**

Tree Stratum (Plot size: **30-m radius**)	Absolute % Cover	Dominant Species	Indicator Staus
1 ***None***			
2			
3			
4			
5			
6			
7			
8			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratun (Plot size: **15-m radius**)			
1 ***Liquidambar styraciflua***	**45**	**Y**	**FAC**
2 ***Baccharis halimifolia***	**15**	**Y**	**FAC**
3 ***Quercus nigra***	**10**	**N**	**FAC**
4 ***Ilex opaca***	**2**	**N**	**FAC**
5			
6			
7			
8			
	72 = Total Cover		
50% of total cover: **36**	20% of total cover: **14.4**		
Herb Stratum (Plot size: **1m²**)			
1 ***Bidens aristosa***	**30**	**Y**	**FACW**
2 ***Scirpus cyperinus***	**20**	**Y**	**OBL**
3 ***Solidago gigantea***	**15**	**N**	**FACW**
4 ***Panicum verrucosum***	**10**	**N**	**FACW**
5 ***Gelsemium sempervirens***	**3**	**N**	**FAC**
6 ***Mikania scandens***	**2**	**N**	**FACW**
7			
8			
9			
10			
11			
12			
	80 = Total Cover		
50% of total cover: **40**	20% of total cover: **16**		
Woody Vine Stratum (Plot size: **15-m radius**)			
1			
2			
3			
4			
5			
6			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across all Strata: **4** (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100.00%** (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	**20**	x 1 =	**20**
FACW species	**57**	x 2 =	**114**
FAC species	**75**	x 3 =	**225**
FACU species	**0**	x 4 =	**0**
UPL species	**0**	x 5 =	**0**
Column totals	**152** (A)		**359** (B)

Prevalence Index = B/A = **2.36**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid test for hydrophytic vegetation
- **X** 2 - Dominance test is >50%
- **X** 3 - Prevalence index is ≤3.0 and at least 80% of total cover has indicator status*
- ___ 4 - Morphogical 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, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? **Yes** **X** **No** ___

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** **Plot 82**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 1	**10YR 4/3**	**98**	**10YR 5/6**	**2**	**C**	**M**	**silty clay loam**	
1 - 6	**10YR 5/1**	**49**	**10YR 5/6**	**2**	**C**	**M**	**silty clay loam**	
	10YR 5/2	**49**						
6 - 12	**10YR 5/2**	**49**	**10YR 4/6**	**2**	**C**	**M**	**sandy clay**	**Fe/Mn concretions**
	10YR 5/3	**49**						**"heavier clay"**

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P. T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR U**)
- ___ Depleted Ochric (F11) **(MLRA 151)**
- **X** Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150E**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A10) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

[3]Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? **Yes** **X** **No** _____

Remarks: