Aquatic Resources Delineation Report for the Proposed Arkansas Aeroplex I Site

U.S. Army Corps of Engineers Memphis District Area of Responsibility—Mississippi County, Arkansas

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PREPARED FOR

Mississippi County, Arkansas

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AQUATIC RESOURCES DELINEATION REPORT FOR THE PROPOSED ARKANSAS AEROPLEX I SITE, MISSISSIPPI COUNTY, ARKANSAS

U.S. Army Corps of Engineers Memphis District Area of Responsibility

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1 INTRODUCTION

On behalf of Mississippi County, Arkansas Economic Development (Mississippi County), SWCA Environmental Consultants (SWCA) conducted an intensive aquatic resources delineation on the proposed Arkansas Aeroplex Project (project) northwest of Blytheville in northeastern Mississippi County, Arkansas.

The proposed project is ~100 acres of privately owned cultivated crop fields mainly for soybean (*Glycine max*) production and runways supporting the adjacent airport (Arkansas International Airport-BYH), located approximately 3.5 miles northwest of central Blytheville within Section 31 of Township 16 North, Range 11 East in Mississippi County, Arkansas. The project area is accessed via Idaho Street to the south with no public roads bordering the northern, eastern, or western boundaries.

The proposed project will be constructed primarily with typical land clearing and grading for the construction of housing development. Land grading will be done with heavy equipment including bulldozers and tractors with dirt pans for the potential fill and/or reroute of drainages within the project footprint. The project will include construction of paved roads, gutter systems, and other infrastructure for residential development. Construction of the proposed project will employ best management practices (BMPs) during dirt moving and establishing final surface contours during construction. Construction of the proposed project is not yet scheduled, and final engineering plans have not been developed.

The proposed project falls under the jurisdiction of the U.S. Army Corps of Engineers (USACE) Memphis District. SWCA used available data provided by Mississippi County to encompass the approximate project boundary and perform an aquatics resources delineation within this defined boundary, herein referred as the area of delineation (AOD). This report summarizes the findings from the aquatics resources delineation effort conducted within the approximately ~100-acre AOD. Refer to Appendix A for the project location and vicinity map.

2 METHODS

Methods for conducting USACE wetland delineations are described within the Corps of Engineers Wetlands Delineation Manual (Manual) (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0) (AGCP Regional Supplement) (USACE 2010). SWCA biologists evaluated on-site watercourses by using the recommendations from the 2005 USACE Regulatory Guidance Letter (RGL) 05-05: Ordinary High Water Mark Identification (USACE 2005). These publications provide the basis for identifying and delineating the boundaries of wetland communities and waters of the U.S., and are the only methodologies approved by the USACE for performing aquatic resource delineations.

2.1 Desktop Methods

Prior to initiating formal on-site field investigations, SWCA reviewed baseline data for the ~100-acre AOD, including U.S. Geological Survey (USGS) topographic quadrangle maps (USGS 2021), U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data (USFWS 2021, USGS National Hydrography Dataset (USGS 2004) data, and aerial photographs of the survey corridor (Google Earth 2021).

The spatial extent of aquatic resources (data collected in the field; see Section 2.2) and data point locations were transferred onto an ArcGIS base map, and acreages of each resource were calculated using ArcGIS software.

2.2 Field Methodology

Desktop data were synthesized and reviewed by field biologists. They were used to identify areas with higher likelihood of wetland and stream features in order to focus survey efforts in those areas. The entire AOD was reviewed, though the desktop data were used to prioritize areas that required more thorough analyses in the field.

SWCA conducted a field evaluation to determine the likely presence or absence of wetlands and other jurisdictional waters in accordance with guidance and information available from the Manual and Regional Supplement (USACE 1987, 2010), as well as additional guidance form the following sources:

- *USACE Corps of Engineers Wetland Delineation Manual* (USACE 1987)
- *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: AGCP Region (Version 2.0)* (USACE 2010)
- Field Indicators of Hydric Soils in the United States, Version 8.2 (U.S. Department of Agriculture Natural Resources Conservation Service [USDA NRCS] 2018)
- Revised (December 2, 2008) Clean Water Act Jurisdiction Following the Supreme Court's Decision in *Rapanos v. U.S.* and *Carabell v. U.S.* (revision to the joint memorandum issued by the USACE and the Environmental Protection Agency [EPA] on 5 June 2007) (EPA 2008)

The presence or absence of wetlands was determined in the field using routine determination methods outlined in the Manual and Regional Supplement (USACE 1987, 2010). Wetlands were identified by positive indicators of hydrology, hydrophytic vegetation, and hydric soils. Under normal conditions, all three parameters must be present for an area to be considered a wetland in accordance with Section 404 of the Clean Water Act (CWA).

2.2.1 Wetlands/Special Aquatic Sites

Wetlands identified in the field were classified according to the Cowardin System, as described in Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979). This classification is a hierarchical system based on the topographic position and vegetation type of a wetland, which aids resource managers and others by providing uniformity of concepts and terms used to define wetlands according to hydrologic, geomorphologic, chemical, and biological factors. Vegetation community types within the AOD were categorized based on the uppermost layer of vegetation with aerial cover of 20 percent or more into one of three categories: emergent/herbaceous, scrub-shrub, or forested communities. These communities can be further designated as wetland or upland types. Wetland and non-wetland vegetation communities were differentiated by the presence or absence of hydrophytic vegetation, hydrology, and hydric soils. If hydrophytic vegetation was present, these wetland vegetation community types are identified into one of three categories: palustrine forested wetlands (PFO), palustrine scrub-shrub wetlands (PSS), or palustrine emergent wetlands (PEM) according to the Cowardin classification system.

Data collected at each site were used to approximate the wetland boundary and were recorded on USACE AGCP wetland determination data forms (datasheets). Wetland boundaries were recorded using a global

positioning system (GPS) unit capable of sub-meter accuracy for reporting, but boundaries were not flagged or marked in the field.

2.2.1.1 VEGETATION

Vegetation within each sampling plot was identified to the species level when possible to identify the plant communities present. A hydrophytic plant community, which is one parameter of a wetland, is defined as a plant community with over 50 percent of the dominant plant species ranked as obligate wetland (OBL), facultative wetland (FACW), or facultative (FAC). The appropriate wetland indicator status, as recorded in both the National Wetland Plant List: 2014 Update of Wetland Ratings - Northcentral and Northeast (Lichvar et al. 2016) and the 2018 National Wetland Plant List (USACE 2018), was assigned to each plant species. The absolute cover of each plant species within the plot area (2-meter [m] radius plot for herbaceous vegetation, 5-m radius for shrub/vine strata, 15-m radius for tree stratum) was visually estimated, and then the absolute percent cover (e.g., each species may be rated up to 100 percent, and the total can be over 100 percent cover). Next, one of the following was used to determine the presence or absence of hydrophytic vegetation: the rapid test (i.e., all dominant species across all strata are OBL or FACW); the dominance test (i.e., 50/20 test; > 50% of the total cover represented by plant species combined and including any species >20% of cover by itself, across all strata rated OBL, FACW, or FAC); or the prevalence index (i.e., average value of wetland indicator statuses [OBL=1…UPL=5] of all species in the plot, weighted by percent cover ≤ 3.0).

2.2.1.2 SOILS

A soil test pit was dug to a depth of at least 16 inches and the soil profile was described by horizon to determine the presence or absence of hydric conditions at each data point location. As defined by the National Technical Committee of Hydric Soils, a hydric soil is a "soil that formed under the conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (USDA NRCS 1994). Each horizon was evaluated for soil color; thickness; color, abundance, and contrast of redoximorphic features (i.e., depletions or mottles); and soil texture. Munsell Soil Color Charts were used to determine the color of the soil matrix and redoximorphic features (X-Rite 2010). The "feel" or "ribbon" test was used to determine soil texture (Thien 1979). The soil profile was studied for the hydric soil indicators and hydric soil determinations were made according to criteria listed in the Manual and Regional Supplement, and *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 8.2* (USDA NRCS 2018). If the soil profile displayed one or more hydric soil indicators, a positive hydric soil determination was made.

2.2.1.3 HYDROLOGY

Wetland hydrology was primarily determined in the field by considering frequency and duration of inundation, visual observation of saturation in the upper 12 inches of the soil profile, and the presence of other primary wetland hydrology indicators such as aquatic invertebrates, hydrogen sulfide odor, drift deposits, water-stained leaves, inundation visible on aerial imagery, or algal matting. Secondary indicators used to determine wetland hydrology included surface soil cracks, crayfish burrows, geomorphic position, or the FAC-neutral vegetation test. If the soil profile displayed one or more primary hydrology indicators or two or more secondary hydrology indicators as listed in the Manual and AGCP Regional Supplement, a positive hydrology determination was made. See the AGCP datasheets located in Appendix B for additional primary and secondary indicators used to identify hydrology.

Rainfall has the most substantial influence on maintaining wetland hydrology. During the summer months, evapotranspiration rates are at their highest, which often results in receding water tables. Therefore, it is important to accurately evaluate the normality of rainfall with respect to its influence on

wetland hydrology. Hydrology is assessed in this report using the Antecedent Precipitation Tool (APT), an automated computer program developed by the USACE (2021) to rapidly and consistently facilitate the comparison of rainfall at a given location and date to the normal rainfall range during the preceding 30 years. Rainfall and weather station data used by the APT are sourced from the Global Historical Climatology Network Daily database (Menne et al. 2012; National Oceanic and Atmospheric Administration [NOAA] 2012). The APT rainfall analysis classifies rainfall condition into one of three categories: drier than normal, normal, or wetter than normal. In addition to the rainfall condition, the APT also provides the NOAA Palmer Drought Severity Index (DPSI) value for the corresponding U.S. climatological division and uses data from the Web-based Water-budget Interactive Modeling Program (WebWIMP) to determine whether the analyzed time frame falls within the analyzed location's dry season or wet season (Matsuura 2009; NOAA 2012; Palmer 1965). SWCA used the APT results, along with rainfall data from during or shortly before the delineation, to determine if observed wetland and watercourse hydrology indicators should be considered normal or resultant of wetter than normal conditions, or if hydrology indicators were lacking due to abnormally dry or problematic conditions.

2.2.1.4 PROBLEMATIC WETLAND DETERMINATIONS

The requirement for meeting all three parameters may be waived in "problematic sites" or if "normal circumstances" are not met, a common scenario in an agricultural landscape where natural vegetation communities have been cleared for row-crop production. The USACE provides that "…wetland determinations on difficult or problematic sites must be based on the best information available to the field inspector, interpreted in light of his or her professional experience and knowledge of the ecology of wetlands in the region" (USACE 2010). In situations where one or more of the three criteria were deemed problematic, atypical, or disturbed, SWCA applied their professional judgement and on-site experience to extrapolate the presumed conditions under normal circumstances. For example, if hydric soil and wetland hydrology indicators were observed in an actively cultivated field, SWCA may compare the area with a nearby undisturbed reference plot to extrapolate what the vegetation community may contain under normal circumstances.

2.2.2 Streams/Waterbodies

Streams (e.g., creeks, rivers, human-made agricultural ditches) were identified by the presence of an ordinary high-water mark (OHWM), usually identifiable by indicators such as the level of water present, scouring of the channel, or a vegetation line within the channel. The OHWM is a defining element for identifying the lateral limits of non-wetland waters. SWCA biologists recorded the OHWMs of waterbodies encountered during the aquatic resource delineation. Streams were classified as perennial, intermittent, or ephemeral based on field observations.

A perennial stream has water flowing year-round during a typical year. The water table is located above the stream bed for most of the year and groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for perennial stream flow.

An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for intermittent stream flow.

An ephemeral stream has flowing water only during, and shortly after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water, and runoff from rainfall is the primary source of water for ephemeral stream flow.

As with streams, other surface waters (e.g., ponds, lakes, and irrigation canals) were delineated at the OHWM and classified as either natural, human-made, or modified. SWCA biologists recorded the OHWMs of all waterbodies encountered during the site delineation.

2.3 Mapping

The spatial extent of features was collected in the field using a Juniper Geode global positioning system (GPS) receiver capable of submeter accuracy through the Environmental Systems Research Institute (ESRI) Collector app on an android tablet. Coordinates of vertices were recorded along the perimeter of each wetland and other potential waters of the U.S.

2.4 Photographs

Biologists photographed each feature delineated in the field. Photographs of wetland, stream, and upland data point locations were taken to support the presence or absence of aquatic features. Photographs representative of each feature type, and additional photographs supporting field efforts, are provided in Appendix C. Photographs at specific data point or stream locations not included in Appendix C are available upon request. A delineation map showing the location of each feature type where the photographs were taken can be found in Appendix A.

3 RESULTS

SWCA biologists performed a delineation of waters of the U.S. of the project area on November 30, 2021. The following sections detail the results of this delineation for the portions of the survey conducted within the Memphis District.

3.1 Desktop Analysis

3.1.1 Landscape Setting

Topography within the AOD primarily slopes to the east, with the elevation ranging from 250 to 240 feet above mean sea level. Review of Google Earth (2021) aerial imagery revealed that the majority of the AOD is row-crop agricultural land as well as supporting infrastructure for the adjacent airport. Surrounding land use consists of row-crop agriculture on the north and west sides with an airport adjacent to the south and east sides.

3.1.2 Hydrology

Wetland classes observed during the delineation display at least one primary or two secondary indicators of wetland hydrology, as defined by the USACE (2010). Upland classes either fail to display hydrology indicators or fail to meet one or more of the other two wetland criteria, as defined by the USACE (2010). Typical wetland hydrology indicators observed in the field include surface water, high water table, saturation, drift deposits, algal mats or crusts, drainage patterns, surface soil cracks, sparsely vegetated concave surface, crayfish burrows, FAC-neutral test, and/or geomorphic position. Refer to the datasheets in Appendix B for specific hydrology indicators identified at each data point location.

According to the APT, the hydrologic determination was performed during the wet season but the project area's corresponding climatological division was experiencing drier than normal conditions. At the

project area scale, the rainfall condition at the time of the hydrologic determination was calculated to be normal. The 30-day precipitation total during SWCA's fieldwork was within the 30-year normal range. The APT analysis output is provided in Appendix D

Table 1. DAREM Wetland Hydrologic Condition During November 2021

Prior Month		WETS Percentile (in)		Measured Rainfall	Rainfall Condition[a]	Month Weight[b]	Score[c]
		30th	70th				
1st	November	2.27	4.91	2.10	1	3	3
2nd	October	2.40	3.99	2.33	1	2	2
3rd	September	1.92	2.92	1.34	1	1	1
DAREM Score (i.e., Scores Total)							**6**

DAREM Score	**6**	7	8	9	10	11	12	13	14	15	16	17	18
DAREM Wetland Hydrologic Condition	Drier than normal				Normal					**Wetter than normal**			

Source: USACE Antecedent Precipitation Tool (2021).

[a] 1 = measured rainfall that were less than the WETS 30th percentile, 2 = measured rainfall that were between the WETS 30th and 70th percentiles, and 3 = measured rainfall that were greater than the WETS 70th-percentile.

[b] 1st prior month = 3, 2nd prior month = 2, and 3rd prior month = 1.

3.1.3 Vegetation/Land Use

The proposed project is located within one natural region and one subregion within the USACE Memphis District. These natural regions generally correspond to the USDA NRCS Land Resource Regions (LRRs) and subregions correspond to the Major Land Resource Areas (MLRAs) (USDA NRCS 2006). The following describes the MLRA within the project area, which is a subregion of the larger LRR.

LRR O – Mississippi Delta Cotton and Feed Grains Region: MLRA 131A – Southern Mississippi River Alluvium

This area makes up most of the Mississippi Alluvial Plain Section of the Coastal Plain Province of the Atlantic Plain. The landforms in the area are level or depressional to very gently undulating alluvial plains, backswamps, oxbows, natural levees, and terraces. The landform shapes range from convex on natural levees and undulating terraces to concave in oxbows. These landform shapes differentiate water-shedding from water-receiving positions, both of which play a major role in soil formation and hydrology. Soils in this MLRA are very deep, dominantly poorly drained and somewhat poorly drained, and dominantly loamy or clayey. This area once consisted entirely of bottom-land hardwood deciduous forests and mixed hardwood and cypress swamps. Currently, areas of bottom-land hardwood consist of water oak (*Quercus nigra*), Nuttall oak (*Quercus texana*), cherrybark oak (*Quercus pagoda*), pecan (*Carya illinoinensis*), red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), eastern cottonwood (*Populus deltoides*), and hickory (*Carya spp*.). Some of the major wildlife species in this area are white-tailed deer, feral hogs, red fox, coyote, rabbit, gray squirrel, American alligator, water turtles, water snakes, frogs, otters, beavers, armadillo, crawfish, wild turkey, mourning doves, ducks, and geese. Most of the area is in farms, which produce cash crops of primarily cotton, soybeans, milo, and corn. Catfish and crawfish are produced commercially on farm ponds that are contained by levees. Migratory waterfowl is harvested throughout the area and hardwood timber is harvested on most forested wetlands. Most forested areas are managed for wildlife (USDA NRCS 2006).

3.1.4 National Wetlands Inventory

SWCA reviewed the USFWS NWI mapping system to determine the potential presence of wetland features within the AOD (Table 2; Figure A-2, Appendix A). The NWI wetland mapping system is a web-based viewer that depicts areas where the agency believes wetlands may occur. Based on this review no wetlands were identified within the AOD (Figure A-2, Appendix A).

3.1.5 Soils

According to the USDA NRCS (2021b) soil surveys for Mississippi County, 4 soil map units are present within the AOD. Only 3 of the 4 soil units meet the hydric soil criteria within the AOD; however, the designation of "hydric" for a given soil map unit assigned by NRCS does not satisfy the hydric soil parameter requirement under the routine USACE wetland determination methods; documentation of hydric soil indicators in the field is necessary to confirm hydric soils for the purposes of a wetland delineation. Table 2 provides the flooding frequency and additional detail for these soil types within the AOD. Refer to the datasheets in Appendix B for soil profile descriptions at each data point location and to Appendix C for a detailed description of each soil map unit within the AOD.

Table 2. Mapped NRCS Soil Types Within the Arkansas Aeroplex I Site AOD

Map Unit Name (Unit Symbol)	Hydric Map Unit (Yes/No)	Hydric Component Characteristics		Acreage within AOD	Percentage within AOD
		Landform	Frequency of Flooding/Ponding		
Amagon sandy loam (An)	Yes	Runway	None	1.5	1.3
Routon-Dundee-Crevasse complex (Rd)	Yes	Ag field	None	76.0	79.5
Steele silty clay loam (Sr)	No	Ag field	Rare	2.4	2.0
Steele and Tunica soils (St)	Yes	Ag field	Rare	20.1	17.2
TOTAL				**100.00**	**100**

Source: USDA NRCS (2021a).

Although an NRCS hydric listing alone is generally insufficient to determine if soils for a site are hydric, it does provide data that suitable soil properties or conditions may or may not exist that promote the formation of hydric soil conditions.

3.1.6 National Hydrography Database

SWCA reviewed USGS NHD mapping to determine the potential presence of streams and waterbodies within the AOD (Table 4; see Figure A-2, Appendix A). A review of the NHD found no streams or waterbodies within the AOD. The data was reviewed by field biologists prior to field data collection to provide context.

3.1.7 Floodplains

SWCA's review of the FEMA National Flood Hazard Layer shows that the AOD is not located within any floodplain area. Figure A-2 (Appendix A) shows the floodplain areas in proximity to the AOD.

3.2 Field Investigations

SWCA conducted field investigations on November 30th, 2021, to assess the general site characteristics, ground-truth any mapped features identified during the desktop analysis and delineate the boundaries of all features determined to be present based on the field survey (Figure A-3, Appendix A). Listed below are the aquatic resources and their potential jurisdictional determinations observed during the field investigation. Photographs representing each type of aquatic resource are provided in Appendix D Photographs at specific data point, photograph point, or stream locations not included in Appendix D are available upon request

3.2.1 Vegetation communities

3.2.1.1 WETLANDS

SWCA did not identify any wetlands within the project area.

3.2.1.2 UPLANDS

SWCA identified and delineated one upland habitat type within the AOD. While this habitat had facultative vegetation or wetter species present (along with facultative upland and upland species), wetland hydrology and/or hydric soil indicators were lacking. Upland habitats are not regulated under the jurisdiction of the USACE. Upland habitat data points were used to determine the extent of the wetland boundaries, if present, and used to identify the vegetation community types within the AOD. Refer to Appendix D for representative photographs of the uplands located within the AOD.

Refer to Appendix B for datasheets listing the vegetation species observed at each upland data point recorded and to Appendix C for representative photographs of each upland type located within the AOD.

Herbaceous Upland

The herbaceous upland class consists of non-wetland areas dominated by non-woody vegetation such as grasses and forbs. Most herbaceous uplands in the AOD were agricultural fields dominated by row-crop production of rice and soybeans, or drainage canal levee/banks dominated by herbaceous vegetation including bird vetch (*Vicia cracca*), Carolina geranium (*Geranium carolinianum*), great ragweed (*Ambrosia trifida*), and annual ryegrass (*Lolium multiflorum*).

3.2.2 Watercourses

SWCA identified and delineated a total of two watercourses within the proposed project area: two ephemeral dry washes. Table 2 provides the OHWM widths, lengths within the AOD, and acreages for each of the watercourses delineated within the AOD. Refer to Appendix C for representative photographs of each type of waterbody encountered within the AOD.

Table 3. Waterbody Summary for the Proposed Project Area

Feature ID	Map Sheet No. (Figure 2, Appendix A)	Feature Name	Flow	Feature Type	Estimated Width Between OHWMs (feet)	Length Within Project Area (feet)	Acres Within Project Area
WCA001	2	UT	ephemeral	Dry Wash	<1	3,174.64	0.073

Feature ID	Map Sheet No. (Figure 2, Appendix A)	Feature Name	Flow	Feature Type	Estimated Width Between OHWMs (feet)	Length Within Project Area (feet)	Acres Within Project Area
WCA002	2	UT	Ephemeral	Dry Wash	<1	255.63	0.006
					Total	**3,430.27**	**0.079**

UT = Unnamed Tributary

Ephemeral Dry Washes

All watercourses within the AOD were determined to be ephemeral dry washes due to the lack of observable OHWMs, and ephemeral flow. See Figure A-3 of Appendix A for a depiction of location and hydrologic connection on the AOD. It is SWCA's opinion that both ephemeral features would not be considered waters of the U.S. and not within the jurisdiction of the USACE.

4 SUMMARY

SWCA biologists performed a delineation of waters of the U.S. within the ~100-acre proposed Aeroplex I Site AOD within the Memphis District during the month of November 2021.

SWCA identified and delineated two ephemeral dry washes within the USACE Memphis District functioning as agricultural drainage within the AOD. Table 3 provides the total acreages of each type of wetland and waterbody feature delineated within the project area.

Table 4. Delineation Summary for the Area of Delineation

Feature Type	Total Linear Feet within AOD	Total Acreage within AOD
Ephemeral Dry Wash	3,430.27	0.079
Streams Total	**3,430.27**	**0.079**

The scope of this delineation effort was to ascertain the presence of potential jurisdictional areas within the AOD. In SWCA's professional opinion, the two ephemeral watercourses are not likely jurisdictional due to the lack of a consistent OHWM. Note, this report is not a legal delineation of the boundaries of waters of the U.S. or a determination of their jurisdictional status. Only the USACE has final and/or legal authority in determining the presence of jurisdictional waters of the U.S. and the extent of their boundaries.

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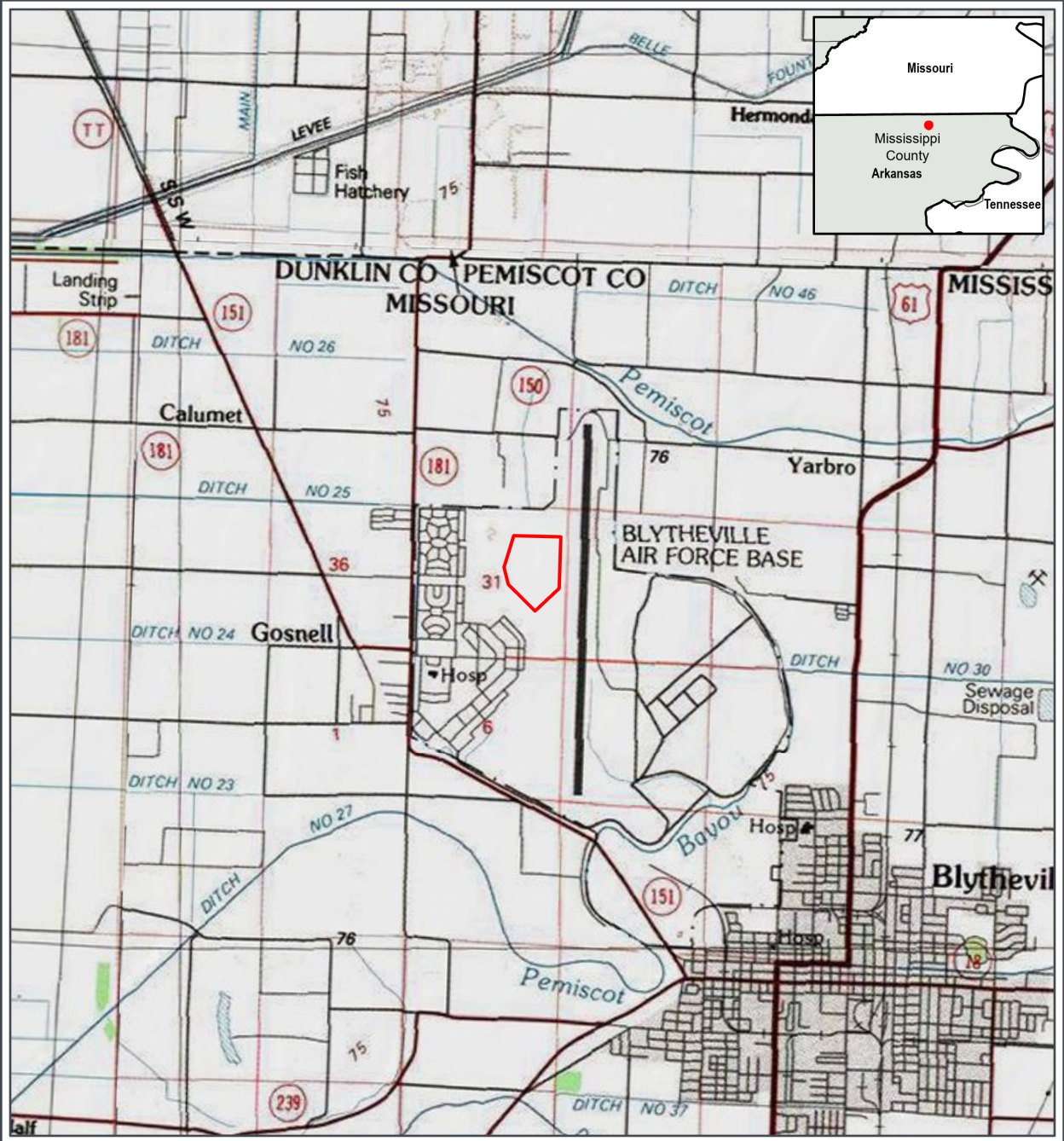
APPENDIX A

Project Maps



ARKANSAS AEROPLEX 1
ENVIRONMENTAL STUDIES

Figure 1. Site Vicinity Map

Mississippi County, AR
USGS 7.5' Quadrangle:
Blytheville, AR, 35089-H8
16N 11E Section 31

0 0.5 1 Miles
0 0.5 1 Kilometers

N

1:72,000

Base Map: ESRI ArcGIS Online, accessed January 2022
Updated: 1/28/2022
Project No. 67767
Layout: 67767 AR Aeroplex Project Location NR
Aprx: 67767_ArkansasAeroplex1

SWCA
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ARKANSAS AEROPLEX 1
ENVIRONMENTAL STUDIES

Figure 2. NHD, NWI, and Floodplain Map

- NHD River/Stream
- NWI Wetland
- Floodplain
- Project Area

Mississippi County, AR
USGS 7.5' Quadrangle:
Blytheville, AR, 35089-H8
16N 11E Section 31

0 700 Feet
0 100 200 Meters

N

1:8,000

Base Map: ESRI ArcGIS Online, accessed January 2022
Updated: 1/28/2022
Project No. 67767
Layout: 67767 AR Aeroplex NHD NWI Aprx: 67767_ArkansasAeroplex1

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ENVIRONMENTAL STUDIES

Figure 3. USDA Soils Map

Project Area

Soil Unit

Mississippi County, AR
USGS 7.5' Quadrangle:
Blytheville, AR, 35089-H8
16N 11E Section 31

0 800 Feet
0 100 200 Meters

N

1:9,000

Base Map: ESRI ArcGIS Online, accessed January 2022
Updated: 1/28/2022
Project No. 67767
Layout: 67767 AR Aeroplex Soils NR
Aprx: 67767_ArkansasAeroplex1

SWCA
ENVIRONMENTAL CONSULTANTS

ARKANSAS AEROPLEX 1
ENVIRONMENTAL STUDIES

Figure 4. Aquatic Delineation Map

- Data Point
- Culvert
- Ephemeral Swale
- Project Area

Mississippi County, AR
USGS 7.5' Quadrangle:
Blytheville, AR, 35089-H8
16N 11E Section 31

0 400 Feet
0 50 100 Meters

N

1:5,000

Base Map: ESRI ArcGIS Online, accessed January 2022
Updated: 1/28/2022
Project No. 67767
Layout: 67767 AR Aeroplex Aquatics Aprx: 67767_ArkansasAeroplex1

SWCA ENVIRONMENTAL CONSULTANTS

APPENDIX B

Field Datasheets

WETLAND DETERMINATION DATA FORM — Atlantic and Gulf Coastal Plain Region

Project/Site: Arkansas Aeroplex City/County: Mississippi Sampling Date: 11/30/2021

Applicant/Owner: Mississippi County Economic Development State: AR Sampling Point: DPA001_U

Investigator(s): C.VICKREY Section, Township, Range: Sec. 31 T16N R11E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-5

Subregion (LRR or MLRA): MLRA 131A , LRR O Lat: 35.9668 Long: -89.9483 Datum: NAD83

Soil Map Unit Name: Rd - Routon-Dundee-Crevasse complex NWI classification: No

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes:		No: X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** **X**
Hydric Soil Present?	Yes:		No: X	
Wetland Hydrology Present?	Yes:		No: X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one 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 along 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)
- ___ 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: No hydrologic indicators observed

VEGETATION (Five Strata) — Use scientific names of plants.

Sampling Point: DPA001_U

Tree Stratum: (Plot size: 15m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0	=Total Cover	
50% of total cover:		20% of total cover:	

Sapling Stratum: (Plot size: 15m)			
1.			
2.			
3.			
4.			
5.			
6.			
	0	=Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum: (Plot size: 15m)			
1.			
2.			
3.			
4.			
5.			
6.			
	0	=Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum: (Plot size: 2m)			
1. Lamium purpureum	80	Y	UPL
2. Glycine max	20	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	=Total Cover	
50% of total cover: 50		20% of total cover: 20	

Woody Vine Stratum: (Plot size: 5m)			
1.			
2.			
3.			
4.			
5.			
	0	=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Domant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A= 5.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree –Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

Remarks: (If observed, list morphological adaptations below). A prevalence of hydrophytic vegetation was NOT observed

SOIL

Sampling Point: DPA001_U

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture	Remarks
1-8	10YR 4/2	100		0	NA	NA	Silt Loam	
9-16	10YR 6/2	90	10YR 5/4	10	C	M	Silt Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (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, 150B)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(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 (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: No hydric soil indicators were observed

APPENDIX C

Photographic Log

Watercourses

Photo C-1. Agricultural field drainage WCA001 continuing north off outside of the AOD.

Photo C-2. Agricultural field drainage WCA001 north of the AOD (facing south).

Photo C-3. WCA001 culverted segment and woody vegetation located at discharge culvert.

Photo C-4. Discharge culvert located within agricultural field drainage WCA001 and overgrown woody vegetation.

Photo C-5. Agricultural field drainage WCA001 connects to southern culvert (facining northeast).

Photo C-6. Agricultural field drainage WCA001 continuing southeast.

Photo C-7. Agricultural field drainage WCA002 within AOD facing northwest

Photo C-8. Agricultural field drainage WCA002 facing southeast.

Land Use

Photo C-9. Agiricultural upland herbaceous vegetation and crop residue on the AOD.

Photo C-10. Active runway in southwest portion of AOD.

APPENDIX D

Soil Map Unit Description

Mississippi County, Arkansas

An—Amagon sandy loam

Map Unit Setting

National map unit symbol: ly7b
Elevation: 160 to 240 feet
Mean annual precipitation: 40 to 58 inches
Mean annual air temperature: 51 to 71 degrees F
Frost-free period: 230 to 290 days
Farmland classification: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

Map Unit Composition

Amagon and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Amagon

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

A - 0 to 8 inches: sandy loam
Eg - 8 to 15 inches: silt loam
Btg - 15 to 60 inches: silty clay loam
BC - 60 to 72 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Aqualfs

Percent of map unit: 5 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: Yes

Dundee

Percent of map unit: 5 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Mississippi County, Arkansas
Survey Area Data: Version 19, Sep 13, 2021

Mississippi County, Arkansas

Rd—Routon-Dundee-Crevasse complex

Map Unit Setting

National map unit symbol: ly7y
Elevation: 210 to 280 feet
Mean annual precipitation: 40 to 58 inches
Mean annual air temperature: 51 to 71 degrees F
Frost-free period: 230 to 290 days
Farmland classification: Prime farmland if protected from flooding or not frequently flooded during the growing season

Map Unit Composition

Routon and similar soils: 35 percent
Dundee and similar soils: 30 percent
Crevasse and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Routon

Setting

Landform: Alluvial flats
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

A - 0 to 13 inches: silt loam
Bt - 13 to 38 inches: silty clay loam
BC - 38 to 48 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Description of Dundee

Setting

Landform: Natural levees
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy alluvium

Typical profile

A - 0 to 7 inches: silt loam
Btg - 7 to 31 inches: silty clay loam
C - 31 to 72 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 18 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Crevasse

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium

Typical profile

A - 0 to 6 inches: loamy sand
C - 6 to 65 inches: sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 42 to 72 inches
Frequency of flooding: RareNone
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Crevasse, flooded, long

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Routon, flooded, long

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Aquents

Percent of map unit: 5 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Mississippi County, Arkansas
Survey Area Data: Version 19, Sep 13, 2021

Mississippi County, Arkansas

St—Steele and Tunica soils

Map Unit Setting

National map unit symbol: ly87
Elevation: 200 to 400 feet
Mean annual precipitation: 40 to 58 inches
Mean annual air temperature: 51 to 71 degrees F
Frost-free period: 230 to 290 days
Farmland classification: Prime farmland if protected from flooding or not frequently flooded during the growing season

Map Unit Composition

Steele and similar soils: 50 percent
Tunica and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Steele

Setting

Landform: Alluvial flats
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 6 inches: loamy sand
C1 - 6 to 20 inches: loamy sand
C2 - 20 to 23 inches: loam
C3 - 23 to 72 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: NoneRare
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A

Hydric soil rating: No

Description of Tunica

Setting

Landform: Backswamps
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Clayey alluvium

Typical profile

Ap - 0 to 8 inches: silty clay
Bg - 8 to 45 inches: clay
Cg - 45 to 72 inches: loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Sharkey

Percent of map unit: 10 percent
Landform: Backswamps
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: Yes

Tunica, flooded, long

Percent of map unit: 5 percent
Landform: Backswamps
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: Yes

Aquents

Percent of map unit: 5 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Convex

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Mississippi County, Arkansas
Survey Area Data: Version 19, Sep 13, 2021

Mississippi County, Arkansas

Sr—Steele silty clay loam

Map Unit Setting

National map unit symbol: ly85
Elevation: 200 to 400 feet
Mean annual precipitation: 40 to 58 inches
Mean annual air temperature: 51 to 71 degrees F
Frost-free period: 230 to 290 days
Farmland classification: Prime farmland if protected from flooding or not frequently flooded during the growing season

Map Unit Composition

Steele and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Steele

Setting

Landform: Alluvial flats
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 6 inches: fine sandy loam
C1 - 6 to 20 inches: loamy sand
C2 - 20 to 23 inches: loam
C3 - 23 to 72 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: RareNone
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Aquents
Percent of map unit: 10 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: Yes

Sharkey
Percent of map unit: 5 percent
Landform: Backswamps
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: Yes

Tunica, flooded, long
Percent of map unit: 5 percent
Landform: Backswamps
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Mississippi County, Arkansas
Survey Area Data: Version 19, Sep 13, 2021