Waters of the United States Delineation

Leake County EDD – Site 1 - Southwest

Carthage, Leake County, Mississippi

November 8, 2023 | Terracon Project No. EB237179

Prepared for:
Mississippi Department of Environmental Quality

Jackson, Mississippi

Prepared by:
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- Materials

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APPENDICES

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) was retained by Leake County Economic Development District (Leake County EDD, client) to perform a Waters of the U.S. (WOTUS) delineation on the Carthage #1 Site located in Carthage, Leake County, Mississippi hereafter referred to as the site. The site location is depicted in Appendix A; Exhibit 1. The WOTUS Delineation was performed in accordance with work order No: 1865-237149-2 issued by the Mississippi Department of Environmental Quality (MDEQ) dated August 24, 2023.

The delineation consisted of an approximately 37.16-acre site that contains mostly wooded pine forest except for the cleared area north of County Road 26. Photographs depicting the conditions on-site are provided in Appendix C.

The purpose of performing the preliminary WOTUS delineation was to characterize the existing site conditions, observe the site for the presence of WOTUS, including wetlands, and provide an opinion regarding whether or not WOTUS (if observed) would be considered jurisdictional by the United States Army Corps of Engineers (USACE).

2.0 SCOPE OF SERVICES

Terracon performed the following scope of work in accordance with our proposal:

- Preliminary Data Gathering and Analysis of readily available government documentation.
- Mobilized to the site to conduct the Field Delineation using consecutively numbered colored flagging to mark aquatic resource boundaries.
- Sub-meter Global Positioning Satellite (GPS) surveying of each delineation flag.
- Prepared a map showing approximate locations of delineated WOTUS, including wetland areas observed during the Field Delineation, if any.
- Completed a preliminary WOTUS Delineation Report that included site characterization information, a discussion of applicable data, and recommendations for the site.

3.0 PRELIMINARY DATA GATHERING AND ANALYSIS

Prior to visiting the site to conduct the field delineation, background research was conducted, consisting of locating and reviewing historic aerial photographs, historic topographic maps, U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps, U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) maps, soil data from the Natural Resources Conservation Service (NRCS), Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), publicly available elevation data such as light detection and ranging (LiDAR) data, and/or other related data based on availability. The preliminary data analysis assisted Terracon in identifying potential aquatic resources and jurisdictional features on the site. The data evaluated is described in the subsections below.

3.1 Topographic Maps and Aerial Photographs

Readily available USGS topographic maps and aerial photographs were reviewed to evaluate the potential presence of aquatic resources that may be considered WOTUS by USACE. Table 1 contains a brief description of applicable features identified during review of the topographic map.

- Topographic map: Conway and Carthage, Mississippi, 2020 – USGS Topographic Maps (1:24,000)
- Aerial Photograph: USDA, 2021 (1″=500′)

Table 1: Summary of Topographic Map

Direction	Description
Site	The site is illustrated as a mixture of wooded land with some open areas. An intermittent stream is observed intersecting the site from east to west along the northern portion of the site.
North	Open undeveloped land followed by Mississippi Highway 25
East	Open land followed by wooded land
South	A mixture of wooded and opened land encompassing the Carthage-Leake County Airport
West	A mixture of wooded and developed land with the intersection of North Pearl Street and County Road 26

Based on the review of the USGS topographic map, the site elevation ranges from approximately 390 to 430 feet above mean sea level. Topography is illustrated as a hilly area. An intermittent stream is mapped on the northern portion of the site traversing the site along an east to west trend, with a finger traversing along a northeast southwest trend. The topographic map is provided as Exhibit 2 in Appendix A.

3.2 National Wetlands Inventory and National Hydrography Dataset

The USFWS NWI map was reviewed to identify wetland areas on the site and in the immediate vicinity. The NWI map depicts suspect wetland areas and waterbodies based on stereoscopic analysis of high-altitude aerial photographs. The NHD is used to portray surface water. The NHD represents the drainage network with features such as rivers, streams, canals, lakes, ponds, coastline, dams, and stream gages. An NWI/NHD map is included as Exhibit 3 in Appendix A.

The review of the NWI map indicates the presence of one riverine feature intersecting the site on the northern portion with an east to west trend, and a finger of the riverine transecting along a northeast southwest trend.

3.3 Soil Data

Data from the USDA NRCS Web Soil Survey was reviewed to identify soil types, including hydric soils for the site. Soils containing hydric soil components are documented on the National List of Hydric Soils. Inclusion on the National List of Hydric Soils indicates that the soil series or one of its components contain characteristics that may be hydric and is not an indication of hydric soil for a specific location.

Hydric soils listed on the NRCS National List of Hydric Soils must meet one or more of the following NRCS hydric criteria codes:

1. All Histels except Folistels and Histosols except Folists; or
2. Map unit components in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, or Andic, Cumulic, Pachic, or Vitrandic subgroups that:
    a. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
    b. Show evidence that the soil meets the definition of a hydric soil;

3. Map unit components that are frequently ponded for long duration or very long duration during the growing season that:
    a. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
    b. Show evidence that the soil meets the definition of a hydric soil; or
4. Map unit components that are frequently flooded for long duration or very long duration during the growing season that:
    a. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
    b. Show evidence that the soils meet the definition of a hydric soil.

Table 2 is an excerpt from the NRCS Web Soil Survey Hydric Soil Rating.

Table 2: Excerpt from the NRCS Web Soil Survey

Summary by Map Unit — Leake County, Mississippi				
Map unit symbol	Map unit name	Rating*	Acres in AOI**	Percent of AOI
OrC	Ora Fine sandy loam, 5 to 8 percent slopes, eroded	0	2.1	5.6%
Rk	Rosebloom and Arkabutla soils, frequently flooded	100	6.1	16.3%
SaB	Savannah fine sandy loam, 2 to 5 percent slopes	5	10.3	27.6%
SmD2	Smithdale fine sandy loam, 8 to 15 percent slopes, eroded	10	18.8	50.5%
Totals for Area of Interest			37.2	100.0%

* This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform.

**Acreages are approximate only.

Based on a review of the NRCS soil data, a large portion of the site is made up of non-hydric soils with the exception of an area to the north and south of County Road 26 (See Appendix A Exhibit 4). The Rosebloom and Arkabutla soils (Rk) contain 100% hydric soils and these soils make up approximately 16% of the site. These soils are in the central portion of the site and are listed as frequently flooded.

3.4 FEMA FIRM Map

Terracon downloaded and reviewed Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel Number 28079C0143C (effective 9/16/2011). The site is in the Zone X area of the panel indicating the site is susceptible to minimal flood risk. The FEMA map is included as Exhibit 5 in Appendix A.

4.0 FIELD DELINEATION TECHNIQUES

Terracon personnel conducted a reconnaissance of the site in October 2023 to characterize the existing site conditions and identify the presence of potential jurisdictional wetlands and waters. Characteristics of potential jurisdictional wetlands and waters were assessed (when applicable) utilizing the criteria detailed in sections 4.1 and 4.2 of this report. The evaluation methods generally followed the routine on-site determination method referenced in the 1987 USACE Manual and the Atlantic and Gulf Coast Region Version 2.0 (Regional Supplement). Section 2.0 of this reports discusses features that were delineated for this report.

4.1 Wetland Observations

Wetlands generally have three essential characteristics: wetland hydrology, hydrophytic vegetation, and hydric soils. Vegetation and hydrology observations were performed throughout the site. Data regarding the three essential characteristics was gathered within observed suspect wetland areas as applicable to further delineate boundaries.

4.1.1 Plant Community Assessment

Areas were visually observed to determine the species, when possible, and absolute percentage of ground cover for five strata of plant community types within a thirty-foot radius of the observation location. The wetland indicator status for each species of vegetation observed was documented. The indicator status was determined using the USACE National Wetlands Plant List (2018 NWPL v3.4). Indicator status categories for vegetation are presented below:

- Obligate Wetland (OBL): occur almost always (estimated probability greater than 99%) under natural conditions in wetlands.
- Facultative Wetland (FACW): usually occur in wetlands (estimated probability 67%-99%) but occasionally found in non-wetlands.

- Facultative (FAC): equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).
- Facultative Upland (FACU): usually occur in non-wetlands (estimated probability 67%-99%) but occasionally found in wetlands.
- Upland (UPL): rarely occur in wetlands but occur almost always (estimated probability greater than 99%) under natural conditions in non-wetlands.

The percent cover of each stratum was determined, and dominance was evaluated. Dominant species were the most abundant species that accounted for more than 20 percent of the absolute percent coverage of the stratum. The number of dominant species with an indicator status of OBL, FACW, and/or FAC was compared to the total number of dominant species across all strata. Typically, when more than 50 percent of the dominant species had an indicator status of OBL, FACW, and/or FAC, hydrophytic vegetation was present. If the percentage of dominant species with an indicator status of OBL, FACW, and/or FAC was less than 50 percent, prevalence index and morphological adaptations may have been evaluated to confirm if hydrophytic vegetation was present or absent.

4.1.2 Hydric Soils Assessment

After Terracon evaluated wetland vegetation, subsurface soil samples were collected. The samples were collected to a depth of approximately 20 inches below ground surface and were visually compared to Munsell Soil Color Charts®, which aided in the evaluation of hydric soil characteristics. The soil samples were further examined for hydric soil indicators including, but not limited to, histosol, thick dark surface, sandy gleyed matrix, sandy redox, loamy gleyed matrix, redox dark surface, and/or redox depressions. If these or other hydric soil indicators were observed in the subsurface soil sample, the observation location was considered to have hydric soil.

4.1.3 Wetland Hydrology Assessment

Visual indicators of wetland hydrology were evaluated. Examples of primary wetland hydrology indicators include, but are not limited to, surface water, high water table, soil saturation, water marks, sediment deposits, drift deposits, iron deposits, inundation visible on aerial imagery, and water-stained leaves. Examples of secondary wetland hydrology indicators include, but are not limited to, surface soil cracks, drainage patterns, moss trim lines, and crayfish burrows. If at least one primary wetland hydrology indicator or two secondary wetland hydrology indicators were observed, the observation location was considered to have wetland hydrology.

4.2 Classification of Wetlands

Upon completion of the review of the three wetland criteria at each area, a wetland determination was made by a Terracon scientist. Under normal circumstances, if one or more of the wetland criteria were not identified, the area was not considered to be a wetland. If present, the wetland/upland boundaries were marked in the field using consecutively numbered flagging and each flag location was marked using submeter GPS technology. The Field Delineation included collection of hydrology, vegetation, and soil assessment data from discrete sample locations (Data Points) necessary to complete required USACE Wetland Determination Data Forms. The number of Data Points evaluated was determined based on professional judgement. The recorded Wetland Determination Data Forms for the project site can be found in Appendix B and Data Point locations are depicted on the Depiction of Aquatic Resources Map (Appendix A, Exhibit 7).

4.3 Surface Water and Drainage Feature Observations

Terracon also made observations of site features that may be considered jurisdictional waterbodies. If a waterbody was identified, observations regarding its characteristics were recorded. Potential jurisdictional waterbodies are typically evaluated based on the observation of the following characteristics:

- Flow Characteristics:
  - Perennial: contains water at all times except during extreme drought.
  - Intermittent: carries water a considerable portion of the time but ceases to flow occasionally or seasonally.
  - Ephemeral: carries water only during and immediately after periods of rainfall or snowmelt.
- Ordinary High Water Mark (OHWM): The limit line on the shore established by the fluctuation of the water surface. It is shown by such things as a clear line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, the presence of litter and debris or other features influenced by the surrounding area.
- Bank Shape Descriptions:
  - Undercut: banks that overhang the stream channel
  - Steep: bank slope of approximately greater than 30 degrees
  - Gradual: bank slope of approximately 30 degrees or less

- Aquatic Habitat Descriptions:
  - Pool: deeper portion of a stream where water flows slower than in neighboring, shallower portions, smooth surface, and finer substrate
  - Riffle: shallow area in a stream where water flows swiftly over gravel and rock or other coarse substrate resulting in a rough flow and a turbulent surface
  - Run: section of a stream with a low or high velocity and with little or no turbulence on the surface of the water.

During the Field Delineation, Terracon personnel marked the jurisdictional limits of aquatic resources using consecutively numbered flagging where possible. Each flag location was marked using submeter GPS technology. Linear aquatic resources located entirely within abutting wetland systems were evaluated for stream parameters and the approximate locations of the linear features were estimated and displayed on the Depiction of Aquatic Resources Map (Appendix A, Exhibit 7).

4.4 Depiction of Aquatic Resources

USACE requires a depiction of the Field Delineation results to serve as the basis for verification of aquatic resource locations. The Depiction of Aquatic Resources Map (Appendix A, Exhibit 7) was created by uploading the shapefile points collected using a Trimble TDC150 with Global Navigation Satellite System (GNSS) receiver at each flag location. The point shapefiles were geoprocessed into polygon shapefiles for each aquatic resource and exported to a map deliverable using ArcMap® software. The Depiction of Aquatic Resources Map contains a generalized boundary of the site based on best available data such as spatially referenced computer aided design and drafting (CADD) data (if available and provided by the client), county parcel data, and/or existing boundary surveys.

5.0 FIELD DELINEATION RESULTS

In October 2023, Terracon performed a Field Delineation on the site using the field techniques described in Section 4.0. The findings of the Field Delineation are illustrated on the Depiction of Aquatic Resources Map (Appendix A, Exhibit 7). The GIS data created using the GPS data was evaluated to determine the approximate size of each aquatic resource. Site photographs, included in Appendix C, provide an indication of the physical characteristics observed during the Field Delineation. Wetland and upland data determination forms for selected wetlands and upland locations representative of aquatic conditions on the site are provided in Appendix

B. Descriptions of the aquatic resource features observed on site are provided in the following sections.

5.1 Wetlands

During Terracon's wetland delineation field work, the site was observed to be a mixture of hardwoods and pine forest with open areas throughout. Data Points collected during the field delineation, particularly in the mapped hydric soil area (Rk) determined that the mapped hydric soils were not hydric, based on the soil color characterized (10YR 5/4) as well as the absence of inundated soils throughout the site. The observed canopy cover of the site was indicative of non-wetlands soils as well with the majority of canopy cover consisting of Loblolly Pine (*Pinus taeda*). Based on the above-mentioned observations it was determined that the site did not meet the three needed criteria to be considered a wetland.

5.2 Tributaries

Terracon observed no potentially jurisdictional tributaries on the site. Two ephemeral channels totaling approximately 510 Linear Feet (LF) were identified on the site. These channels were observed on the northern half of the site. No tributaries were observed in the southern portion of the site. These ephemeral channels were observed to be approximately two feet wide and approximately one foot deep or less and were found to have a non-continuous ordinary high-water mark, therefore making these channels not an intermittent stream. The riverine shown on the NWI map figure (Appendix A; Exhibit 3) in the northeast portion of the site was visited and was determined to be uplands. Data Point 4 was taken in the area of the mapped NWI riverine. Photo reference points were taken in these locations to document current site conditions (see Appendix C) and a map marking the locations these photos were taken are included in Appendix A, Exhibit 7. Table 4 contains a summary of the tributaries identified on site during the Field Delineation.

Table 3: Summary of Tributaries/Channels

Tributary	Length (LF)	Location	WOTUS	Jurisdictional Opinion	Approximate Width Across OHWM	Exhibit
ET-1	337	North	Ephemeral	Non-Jurisdictional	2 feet	7.0
ET-2	172	North	Ephemeral	Non-Jurisdictional	2 feet	7.0

The Mississippi Department of Environmental Development (MDEQ) and Leake County does not require any vegetative buffers or setback on aquatic features.

5.3 Other Aquatic Features

Terracon did not observe any other aquatic features on the site.

5.4 Upland Areas

Terracon sampled and assessed all areas that represented different vegetative communities throughout the project site to thoroughly review if these areas may exhibit the three wetland criteria (hydrophytic vegetation, hydric soils, and hydrology). All of the sample locations were found to be classified as uplands based on the three wetland criteria not being met in the different vegetative communities. The portions of the site not identified as containing aquatic resources are considered uplands. Upland data points were collected in representative locations throughout the site which are illustrated on Terracon's Wetland Delineation Map (Appendix A, Figure 7).

6.0 CONCLUSIONS

Terracon conducted a WOTUS Delineation of the approximately 37.16-acre site in October 2023. The site visit included locating and delineating all aquatic features on the site, and all potential jurisdictional and non-jurisdictional features have been delineated. A total of two potentially non-jurisdictional ephemeral channels totaling approximately 510 linear feet were identified on the site. These classifications are preliminary and only the USACE can make the final jurisdictional determination on the delineated features. The aquatic resources identified during Terracon's wetland delineation are illustrated on the Depiction of Aquatic Resources Map located in Appendix A, Exhibit 7.

7.0 GENERAL COMMENTS

The preliminary WOTUS delineation was performed in accordance with generally accepted practices of this profession undertaken in similar studies at the same time and in the same geographical area. A preliminary WOTUS delineation, such as the one performed at this site, is of limited scope, is noninvasive, and cannot eliminate the potential that WOTUS, including wetlands are present at the site beyond what is identified by the limited scope of this preliminary delineation. In conducting the limited scope of services described herein, certain sources of information and public records were not reviewed. No biological delineation can wholly eliminate uncertainty regarding the potential for concerns in connection with a project. The limitations of this preliminary delineation should be recognized.

This report has been prepared in accordance with generally accepted scientific and engineering evaluation practices. This report is for the exclusive use of the client and any relying government entities for the project being discussed. No warranties, either expressed or implied, are intended or made.

Conditions within WOTUS, including wetlands naturally change over time and can vary seasonally over short periods. Effects of man-made disturbances and/or temporal variations (e.g. rainfall, season, drought), and/or subjective regulatory interpretation of data and field conditions may preclude assessment in conformance with USACE requirements and sometimes significantly affect findings, conclusions, and recommendations.

APPENDIX A
Exhibits

Legend

Site 1 SW Study Area

N

Feet

0 1,000 2,000 4,000

DATA SOURCES: MSDEQ, © OpenStreetMap (and) contributors, CC-BY-SA, Maxar ESRI - Basemaps

Project No.:	EB237179
Date:	Sep 2023
Drawn By:	NRM
Reviewed By:	DB

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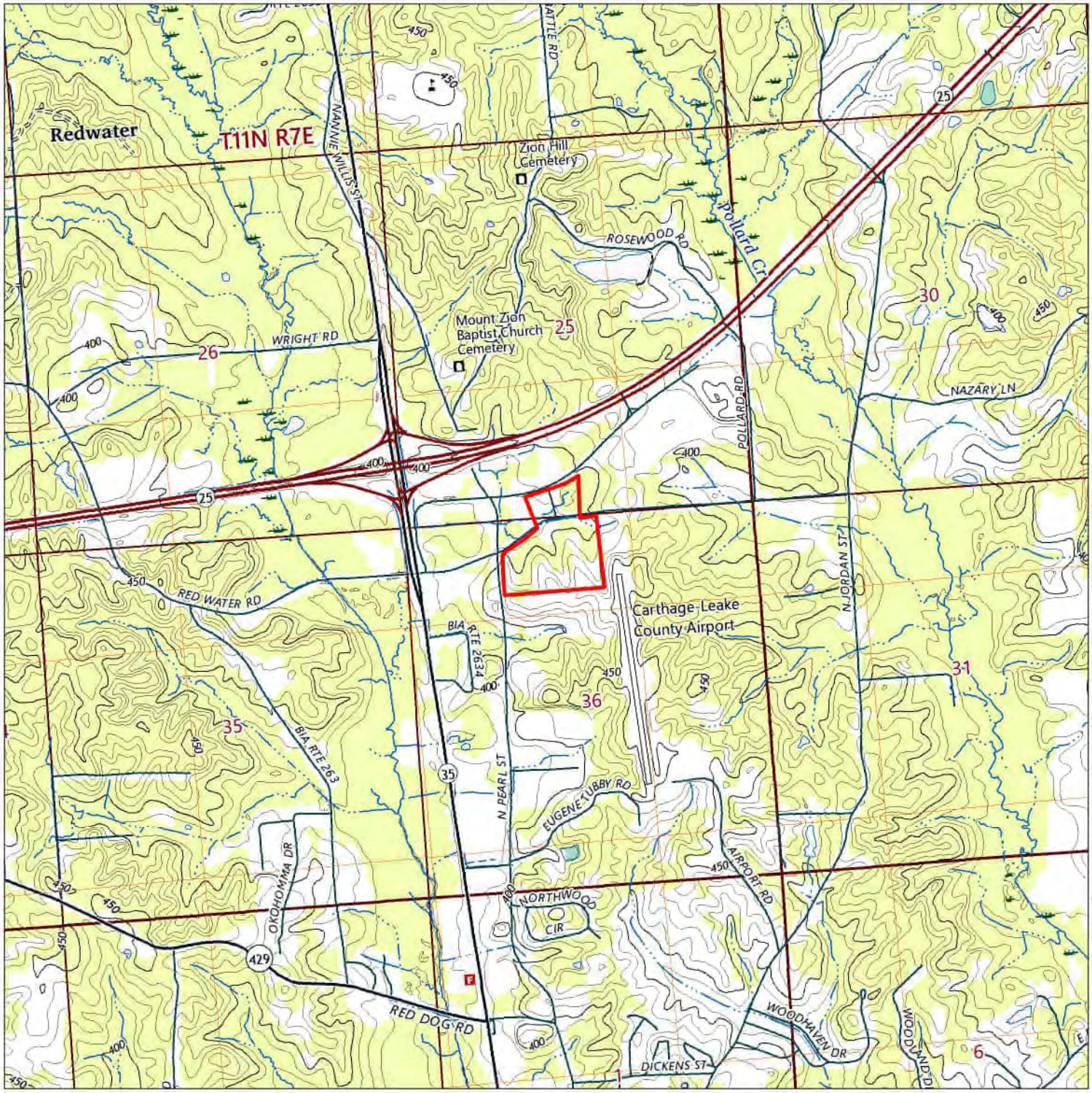
Vicinity Map

MS Department of Environmental Quality
Leake County EDD Site 1-NW
Carthage, Leake County, MS
89°32'56"W 32°44'29"N

Exhibit

1.0



Legend

Site 1 SW Study Area

N

Feet

0 1,000 2,000 4,000

DATA SOURCES: MSDEQ, USGS 2020 Topographic Map Carthage, MS Quadrangle © OpenStreetMap (and) contributors, CC-BY-SA
ESRI - Basemaps

Project No.:	EB237179
Date:	Sep 2023
Drawn By:	NRM
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USGS Topographic Map

MS Department of Environmental Quality
Leake County EDD Site 1-NW
Carthage, Leake County, MS
89°32'56"W 32°44'29"N

Exhibit

2.0

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Legend

- Site 1 SW Study Area
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

N

Feet

0 250 500 1,000

DATA SOURCES: MSDEQ, USFWS NWI© OpenStreetMap (and) contributors, CC-BY-SA, Maxar ESRI - Basemaps

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Date:	Sep 2023
Drawn By:	NRM
Reviewed By:	DB

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National Wetlands Inventory Map

MS Department of Environmental Quality
Leake County EDD Site 1-NW
Carthage, Leake County, MS
89°32'56"W 32°44'29"N

Exhibit

3.0

Legend

- Site 1 SW Study Area
- Soil Map Unit Symbol
- Hydric Soil Rating
- Water

N

Feet

0 250 500 1,000

DATA SOURCES: MSDEQ, USDA NRCS WSS© OpenStreetMap (and) contributors, CC-BY-SA, Maxar ESRI - Basemaps

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Date:	Sep 2023
Drawn By:	NRM
Reviewed By:	DB

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USDA Soil Survey Map

MS Department of Environmental Quality
Leake County EDD Site 1-NW
Carthage, Leake County, MS
89°32'56"W 32°44'29"N

Exhibit

4.0

Legend

- Site 1 SW Study Area
- Zone A: 100-Year Flood Zone
- Zone AE: 100-Year Flood Zone; Elevated
- Zone X: Minimal Flood Risk

N

Feet

0 500 1,000 2,000

DATA SOURCES: MSDEQ, FEMA NFHL 28079C effective September 16, 2011, © OpenStreetMap (and) contributors, CC-BY-SA, Maxar© OpenStreetMap (and) contributors, CC-BY-SA, Maxar
ESRI - Basemaps

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Date:	Sep 2023
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FEMA Flood Risk Map

MS Department of Environmental Quality
Leake County EDD Site 1-NW
Carthage, Leake County, MS
89°32'56"W 32°44'29"N

Exhibit

5.0

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Legend

Site 1 SW Study Area

N

Feet

0 1,000 2,000 4,000

DATA SOURCES: MSDEQ, tnmdv2,© OpenStreetMap (and) contributors, CC-BY-SA, Maxar ESRI - Basemaps

Project No.:	EB237179
Date:	Sep 2023
Drawn By:	NRM
Reviewed By:	DB

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2022 Aerial Imagery

MS Department of Environmental Quality
Leake County EDD Site 1-NW
Carthage, Leake County, MS
89°32'56"W 32°44'29"N

Exhibit

6.1

Legend

- Study Area
- Data Point
- Reference Photo Point
- Ephemeral Tributary

N

0 100 200 400 Feet

DATA SOURCES: MS DEQ
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	EB237179
Date:	Nov 2023
Drawn By:	REG
Reviewed By:	DB

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Delineation Map

MS Department of Environmental Quality
Leake County EDD Site 2 NE
Leake County, MS
Center 89.5338°W 32.7674°N

Exhibit

7.0

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APPENDIX B
Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Leake County EDD Site #1 City/County: Leake Sampling Date: 10/04/2023
Applicant/Owner: Leake County State: Mississippi Sampling Point: dp1
Investigator(s): David Brunet, Matthew Brunet Section, Township, Range:
Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): convex Slope (%): 25
Subregion (LRR or MLRA): LRR-O Lat: 32.76781276 Long: -89.5321647 Datum:
Soil Map Unit Name: RK Rosebloom and Arkabutla soils NWI classification: NW
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	
Hydric Soil Present?	Yes	No X	**Is the Sampled Area within a Wetland?** 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 inspection), if available:

Remarks:

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: dp1

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus taeda* / Loblolly pine	70	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	70	= Total Cover	
50% of total cover: 35	20% of total cover: 14		
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Prunus serotina* / Black cherry	25	Yes	FACU
2. *Callicarpa americana* / American beauty-berry	20	Yes	FACU
3. *Fraxinus pennsylvanica* / Green ash	5	No	FACW
4.			
5.			
6.			
7.			
8.			
	50	= Total Cover	
50% of total cover: 25	20% of total cover: 10		
Herb Stratum (Plot size: 5-ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover: 0		
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	70	x 3 =	210
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	120 (A)		400 (B)

Prevalence Index = B/A = 3.33

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index ≤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 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 vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (if observed, list morphological adaptions below).

SOIL

Sampling Point: dp1

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
0-18	10YR 5/4			100			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 present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

PHOTO(S)

Sampling Point: dp1

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Leake County EDD site #1 City/County: Leake Sampling Date: 10/4/23
Applicant/Owner: Leake County State: Mississippi Sampling Point: dp3
Investigator(s): David Brunet, Matthew Brunet Section, Township, Range:
Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): convex Slope (%): 25
Subregion (LRR or MLRA): LRR-O Lat: 32.76741164 Long: -89.53429348 Datum:
Soil Map Unit Name: SaB Savannah fine loam NWI classification:
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 X No	
Hydric Soil Present?	Yes No X	**Is the Sampled Area within a Wetland?** Yes No
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 inspection), if available:

Remarks:

VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point: dp3

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus taeda* / Loblolly pine	70	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	70	= Total Cover	
50% of total cover: 35	20% of total cover: 14		
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Quercus falcata* / Southern red oak	20	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	20	= Total Cover	
50% of total cover: 10	20% of total cover: 4		
Herb Stratum (Plot size: 5-ft)			
1. *Diospyros virginiana* / Common persimmon	35	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	35	= Total Cover	
50% of total cover: 17	20% of total cover: 7		
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover: 0		

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: 66.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	105	x 3 =	315
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	125 (A)		395 (B)

Prevalence Index = B/A = 3.16

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index ≤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 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 vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (if observed, list morphological adaptions below).

SOIL

Sampling Point: dp3

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
0-18	10YR 6/3	100					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 present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

PHOTO(S)

Sampling Point: dp3

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Leake County EDD site #1 City/County: Leake Sampling Date: 10/4/23

Applicant/Owner: Leake County State: Mississippi Sampling Point: dp4

Investigator(s): David Brunet, Matthew Brunet Section, Township, Range:

Landform (hillslope, terrace, etc): Hillslope Local relief (concave, convex, none): convex Slope (%): 25

Subregion (LRR or MLRA): LRR-O Lat: 32.76855554 Long: -89.53309312 Datum:

Soil Map Unit Name: OrC Ora fine sandy loam NWI classification: NW

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 X No	**Is the Sampled Area within a Wetland?** Yes No
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 inspection), if available:

Remarks:

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: dp4

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus taeda* / Loblolly pine	30	Yes	FAC
2. *Quercus nigra* / Water oak	25	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	55	= Total Cover	
50% of total cover: 27	20% of total cover: 11		

Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Ulmus alata* / Winged elm	40	Yes	FACU
2. *Ligustrum japonicum* / Japanese privet	25	Yes	FAC
3. *Quercus falcata* / Southern red oak	15	No	FACU
4.			
5.			
6.			
7.			
8.			
	80	= Total Cover	
50% of total cover: 40	20% of total cover: 16		

Herb Stratum (Plot size: 5-ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover: 0		

Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover: 0		

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: 75.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	80	x 3 =	240
FACU species	55	x 4 =	220
UPL species	0	x 5 =	0
Column Totals:	135 (A)		460 (B)

Prevalence Index = B/A = 3.41

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index ≤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 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 vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (if observed, list morphological adaptions below).

SOIL

Sampling Point: dp4

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
0-18	10YR 5/6	100					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 present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

PHOTO(S)

Sampling Point: dp4

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Leake County EDD site #1 City/County: Leake Sampling Date: 10/24/23

Applicant/Owner: Leake County State: Mississippi Sampling Point: dp2

Investigator(s): David Brunet, Matthew Brunet Section, Township, Range:

Landform (hillslope, terrace, etc): Hill slope Local relief (concave, convex, none): convex Slope (%): 25

Subregion (LRR or MLRA): LRRO Lat: Long: Datum:

Soil Map Unit Name: SaB Savannah fine sandy loam NWI classification: Nw

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	
Hydric Soil Present?	Yes No	**Is the Sampled Area within a Wetland?** Yes No
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 inspection), if available:

Remarks:

VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: dp2

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus taeda* / Loblolly pine	30	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	30	= Total Cover	
50% of total cover: 15	20% of total cover: 6		

Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Juniperus virginiana* / Eastern red-cedar	40	Yes	FACU
2. *Quercus velutina* / Black oak	25	Yes	NI
3. *Ilex vomitoria* / Yaupon	20	No	FAC
4. *Liquidambar styraciflua* / Sweetgum	40	Yes	FAC
5.			
6.			
7.			
8.			
	125	= Total Cover	
50% of total cover: 62	20% of total cover: 25		

Herb Stratum (Plot size: 5-ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover: 0		

Woody Vine Stratum (Plot size: 30-ft)			
1. *Thyrsanthella difformis* / Climbing-dogbane	30	Yes	FACW
2. *Smilax bona-nox* / Fringed greenbrier	20	Yes	FAC
3.			
4.			
5.			
	50	= Total Cover	
50% of total cover: 25	20% of total cover: 10		

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: 66.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	110	x 3 =	330
FACU species	40	x 4 =	160
UPL species	25	x 5 =	125
Column Totals:	205 (A)		675 (B)

Prevalence Index = B/A = 3.29

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index ≤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 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 vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ___

Remarks: (if observed, list morphological adaptions below).

SOIL

Sampling Point: dp2

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
0-18	10YR 5/6	100					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 present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

PHOTO(S)

Sampling Point: dp2

APPENDIX C
Site Photographs

Photo 1 View of the channel/tributary loacted on the northern portion of the property with the ordinary high water mark (Data Point 1).

Photo 2 General view of the channel/tributary located on the northern portion of the site (Data Point 4)

Photo 3 General view of the site in the southwest area.

Photo 4 General view of the site in the southeast area.

APPENDIX D
Common Acronyms

COMMON ACRONMYS

AJD	Approved Jurisdictional Determination
CWA	Clean Water Act
EPA	Environmental Protection Agency
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GPS	Global Positioning Systems
NRCS	Natural Resource Conservation Service
NWI	National Wetlands Inventory
OBL	Obligate Wetland
OHWM	Ordinary High Water Mark
PJD	Preliminary Jurisdictional Determination
UPL	Obligate Upland
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geologic Survey
WOTUS	Waters of the U.S.

APPENDIX H

THREATENED AND ENDANGERED (T&E) SPECIES ASSESSMENT REPORT