BIOLOGICAL HABITAT ASSESSMENT

MURRAY OAK GROVE COAL, LLC.

CONCORD PREP PLANT

SLURRY IMPOUNDMENT NO. 7

Prepared For:

MURRAY OAK GROVE COAL, LLC.

456 acres +/-
Sections 16, 17, 20, 21, 28 & 29, Township 18 South, Range 5 West

ALL IN
JEFFERSON COUNTY ALABAMA

July 15th, 2020

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Executive Summary

McGehee Engineering Corporation performed a biological habitat assessment for habitat and the possible presence of the species federally listed as endangered, threatened, or of concern in July of 2020. The study was conducted on the proposed Murray Oak Grove Coal, LLC. – Concord Prep Plant – Slurry Impoundment No. 7 project area. The proposed project area consists of approximately 456 acres at the project sites as located Sections 16, 17, 20, 21, 28 and 29, Township 18 South, Range 5 West all on the Concord, Alabama U.S.G.S Quadrangles as found in Jefferson County, Alabama. The proposed site location is shown on the attached 2000' scale project area maps attachment "A".

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The biological habitat assessment survey focused in on T & E species listed in Jefferson County, as can be found in Table 2.1 along with the Indiana Bat, Gray Bat, Northern Long-Eared Bat, Bald Eagle, Wood Stork and the Red Cockaded Woodpecker.

Portions of the proposed boundary are identified as potential summer roost habitat for the Indiana and Northern Long-Eared bat species. This potential habitat is located along the eastern boundary in areas of mixed mature species that have loose, exfoliating bark. There is no potential winter habitat. Habitat was not found for the other listed, threatened and endangered terrestrial species. No evidence was found or observed for the presence or possible presence of the other listed terrestrial species.

There is no habitat for the listed, threatened and endangered aquatic species. No evidence was found or observed for the presence or possible presence of these listed aquatic species. There are no perennial or intermittent streams located within the extents of the project boundary. Wetlands are small, low-quality and highly disturbed.

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Chapter 1. Proposed Project Review

1.1 Introduction

McGehee Engineering Corporation performed a biological habitat assessment for habitat and the possible presence of the species federally listed as endangered, threatened, or of concern in July of 2020. The study was conducted on the proposed Murray Oak Grove Coal, LLC. – Concord Prep Plant – Slurry Impoundment No. 7 project area. The proposed project area consists of approximately 456 acres at the project sites located in Sections 16, 17, 20, 21, 28 and 29, Township 18 South, Range 5 West all on the Concord, Alabama U.S.G.S Quadrangles as found in Jefferson County, Alabama. The proposed site location is shown on the attached 2000' scale project area maps attachment "A".

The project area consists of approximately 456 acres of previously disturbed and natural area. The area has been disturbed through previous gas well and access road activity and in silviculture practices. The boundary includes existing access roads, existing gas wells, powerline routes and areas that are dominated by non-native invasive plant species and area of planted pine stands. There is some natural area along the eastern boundary.

1.2 Project Location

Murray Oak Grove Coal, LLC. – Concord Prep Plant – Slurry Impoundment No. 7 project area consists of approximately 456 acres as located in Sections 16, 17, 20, 21, 28 and 29, Township 18 South, Range 5 West all on the Concord, Alabama U.S.G.S Quadrangles as found in Jefferson County, Alabama. The proposed site location is shown below on the attached project area map Figure 1.0 (Appendix "A").

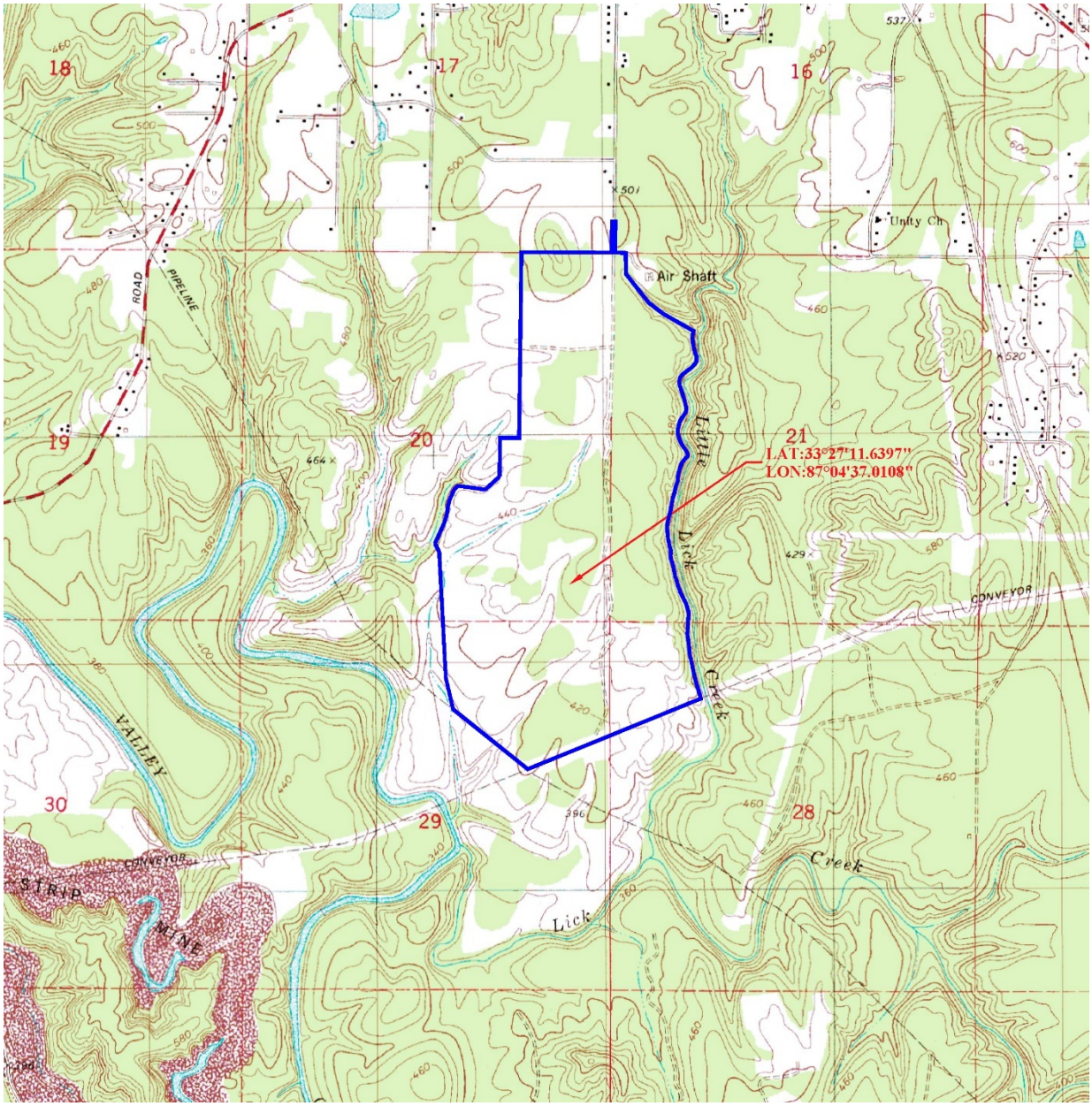

Figure 1.0 Project Area Map. *(not to scale)*

Chapter 2. Threatened & Endangered Species List

2.1 Species Identification

The U.S. Fish and Wildlife Service (USFWS) threatened, endangered, and candidate species list for Jefferson County was reviewed by a qualified biologist in order to determine species potentially occurring in the project vicinity (Table 2.1). In addition, the Alabama Natural Heritage Section Database that contains numerous records of sensitive species in Alabama was queried to provide a list of special status species and habitats that may have been documented as occurring within the project area and/or the project vicinity.

Table 2.1. List of Threatened, Endangered and Candidate Species for Jefferson County.

Common Name *Scientific Name*	**Status**	**General Habitat**
Bald eagle *Haliaeetus leucocephalus*	*BGEPA*	Large open bodies of water where adequate food exist and human disturbance is limited
Wood stork *Mycteria americana*	*E*	Freshwater and estuarine wetlands, primarily nesting in cypress or mangrove swamps. Narrow tidal creeks or flooded tidal pools where fish become concentrated
Red-cockaded woodpecker *Picoides borealis*	*E*	Open, mature and old growth (80 plus years) pine ecosystems with minimal hardwood overstory and midstory. The pines in which a cavity is excavate is usually infected with Heart Rot fungus.
Mitchell's Satyr Butterfly *Neonympha mitchellii mitchellii*	*E*	Fens – low acid, mainly groundwater fed peat wetlands with highly diversified plant and animal life, including grasses, sedges, rushes and wildflowers
Gray Bat *Myotis grisescens*	*E*	Live in caves year-round; Winter hibernation in deep vertical caves, Summer roost in caves along rivers
Indiana Bat *Myotis sodalis*	*E*	Varied summer roost habitat preferring mid-slope to upland closed canopy mixed conifer and deciduous forests of sloughing barked trees and mid decay snags using small forest openings and riparian zones for foraging. Winter roost is exclusive to large caves and abandoned mines with large open passages. Specifically caves that will have constant temperature, high humidity and no air current.
Northern Long Ear Bat *Myotis septentrionalis*	*T*	Varied summer roost habitat preferring cluttered mid-slope to upland closed canopy mixed conifer and deciduous forests of sloughing barked trees and mid decay snags using small forest openings and riparian zones for foraging. Winter roost is exclusive to large caves and abandoned mines with large open passages. Specifically caves that will have constant temperature, high humidity and no air current.
Fine-lined pocketbook mussel *Hamiota (=Lampsilis) altilis*	*T*	Large rivers to small creek habitats swift flowing riffles and gravel-cobble substrates

Ovate clubshell mussel *Pleurobema perovatum*	*E*	Sand and gravel bottom free flowing streams and rivers with good water quality and stable stream channels
Orange-nacre mucket mussel *Hamiota (=Lampsilis) perovalis*	*T*	Large rivers to small creek habitats swift flowing riffles and gravel-cobble substrates
Southern clubshell mussel *Pleurobema decisum*	*E*	Sand and gravel bottom free flowing streams and rivers with good water quality and stable stream channels
Alabama moccasinshell *Medionidus acutissimus*	*T*	Small to mid-sized streams with sandy-gravel and gravel substrates with moderate flow
Triangular kidneyshell mussel *Ptychobranchus greenii*	*E*	Sand and gravel bottom free drainage courses and rivers with good water quality and stable stream channels
Upland combshell mussel *Epioblasma metastriata*	*E*	Stable gravel and sand riffles of high water quality streams
Dark pigtoe mussel *Pluerobema furvum*	*E*	Sand/gravel/cobble shoals and rapids in small rivers and large streams; usually highly oxygenated water with moderate flow
Flattened musk turtle *Sternotherus depressus*	*T*	Free-flowing creek or small river with pools about 1 m deep or more, with rocks, abundant mollusks, low silt load and deposits, moderate temperature rock-bottomed to sandy substrate
Black Warrior waterdog *Necturus alabamensis*	*E*	Streams with deep pools 1 to 4 meters with reduced sedimentation and large leaf packs supporting mayfly and caddis fly larvae
White Fringeless orchid *Platanthera integrilabia*	*T*	Wet, flat, boggy areas at the head of streams or seepage slopes. The species is often found in association with Sphagnum species in acidic muck or sand, and in partially, but not fully shaded areas
Mohr's Barbara's buttons *Marshallia mohrii*	*T*	Moist sandy clay soils, along shale bed streams, road side right-of-ways, seasonally wet low swales around natural springs and seeps
Southern acornshell mussel *Epioblasma othcaloogensis*	*E*	Streams or rivers with fine gravel bottoms with moderate to strong currents and some shallows
Cahaba shiner *Notropis cahabae*	*E*	Quiet shallow, 1.6 feet or less, shoals below swift riffle areas and downstream of boulders in sandy patches or gravel beds in the main channel of the Cahaba river
Goldline darter *Percina aurolineata*	*T*	Moderate to swift current, and water depths 2 feet or more, with gravel or sand substrates interspersed among cobble and small boulders in big and little Cahaba rivers
Plicate rocksnail *Leptoxis plicate*	*E*	Shallow gravel and cobble shoals in the flowing waters of the bottom 1/3 (20 miles) of the Locust Fork of the Black Warrior River in Jefferson County
Cylindrical Lioplax *Lioplax cyclostomaformis*	*E*	Isolated mud deposits found under large rocks in the rapid flowing sections of stream and river shoals
Round rocksnail *Leptoxis ampla*	*T*	Cobble, gravel, or other hard substrates in the strong currents of riffles and shoals of high water quality streams and rivers
Southern pigtoe *Pleurobema georgianum*	*E*	Sand and gravel bottom riffles of free flowing streams and rivers with good water quality and stable stream channels
Coosa moccasinshell *Medionidus parvulus*	*E*	Typically occupies small perennial streams to large rivers with sand, gravel, or cobble substrates and swift flowing shoal areas.
Watercress darter *Etheostoma nuchale*	*E*	Slow moving spring fed tributaries to Black Warrior River, where suitable habitat exists, at mid-depths in dense aquatic vegetation with dense populations of aquatic insect larvae and microcrustaceans and association with watercress.

Vermilion darter *Etheostoma chermocki*	*E*	Swift currents in streams of alternating riffles and pools. Riffles with small limestone rubble and shale cobble. Clean bedrock, sometimes with sand, occurs in pools. Associated with water willow in larger riffles and shoals. Near springs, in swift runs and chutes adjacent to watercress and pondweed all in Turkey Creek where suitable habitat is present
Rush darter *Etheostoma phytophilum*	*T*	Lives in the reeds and rushes on the edges of small freshwater streams. It needs clear, cool, unpolluted water to survive.
Gentian Pinkroot *Spigelia gentianoides* Var. *alabamensis*	*E*	Glades, open, treeless area surrounded by woodlands, over rock formations of Ketona Dolomite. Soil is high in calcium & magnesium and low in phosphorus & potassium and pH ranges from 7.4 to 7.6. Soils will also be rock exposed to very thin; and they will be prone to drought.
Georgia Rock-cress *Arabis georgiana*	*E*	Rocky (limestone, shale, granite-gneiss) bluffs and slopes along watercourses; also along sandy, eroding riverbanks
Tennessee Yellow-eyed Grass *Xyris tennesseensis*	*E*	Gravelly open wet woodlands, with calcareous rock near the surface, seep margins and wet meadows along spring-fed headwater streams
Alabama leather flower *Clematis socialis*	*E*	Originally found only at two sites in Cherokee and St. Clair counties when. Since listing, it has also been found in Etowah County, Alabama and Floyd County, Georgia. Prefers wet silty-clay flats near creeks and streams, and is often surrounded by grasses, sedges and herbs.
Flat pebblesnail *Lepyrium showalteri*	*E*	Inhabits rivers, where it is typically found attached to clean, smooth stones in areas of rapid currents.

Key to codes on list:

- **E** – Endangered
- **T** - Threatened
- **BGEPA** - Bald & Golden Eagle
- **C** - Candidate Species
- **(P)** - Possible Occurrence
- **PE** – Proposed Endangered

Chapter 3. Methodology

3.1 Methodology

The subject property was surveyed by McGehee Engineering Corp. (MEC) for the occurrence and potential for occurrence for species protected or listed by the U.S. Fish and Wildlife Service (USFWS), based on known habitat preferences and geographical distribution. The principal surveyor for this site was Biologist Wes Lamon of McGehee Engineering Corp.

The study site was surveyed by completely traversing down the center of the linear project area. Survey conditions are described in Table 3.1. Prior to performing the field reconnaissance, MEC performed a review of aerial photographs of the project site and a pedestrian survey was conducted by MEC biologist to identify vegetation communities and land uses, perform general habitat assessment for plants and animals; assess the potential for nesting or roosting activity by birds and/or bats within the general study area. Focused surveys for sensitive aquatic species were not performed; however, the potential for habitat for these species was assessed during the field examination.

Plots are characterized using United States Forestry Department guidelines. Individual vegetation plots are assessed by taking random plots within similarly vegetated areas. These areas of similar vegetation are grouped together using aerial imagery and field assessment. Plot size is typically $1/20^{th}$ acre areas, but occasionally $1/50^{th}$ acre areas in very dense cover. Each tree of dominance is measured to attain an average DBH of dominant tree species. Special attention is given to trees with loose exfoliating bark, trees with cavities or crevices, and snags over 9 feet in height.

Table 3.1.1 Survey Conditions

Date: July 2nd, 2020

Temperature (°F)	Wind (MPH)	Sky Cover %
85°	5-10	70%

Date: July 7th, 2020

Temperature (°F)	Wind (MPH)	Sky Cover %
89°	7-15	70%

As part of the field reconnaissance, MEC also conducted a delineation of potentially jurisdictional wetlands and waters of the U.S. as it relates to Section 404 of the Clean Water Act in accordance to the 1987 *"Corps of Engineers Wetlands Delineation Manual":* Wetlands Research Program Technical Report Y-87-1. Additional Data sources other than mentioned within the report include the following:

USGS Quadrangle Map	Concord, AL Quad Revised 1979
National Wetlands Inventory Map	Concord, AL Quad Revised 1979
SCS Soil Survey	Jefferson County NRCS Web Survey
Aerial Photos	08-15-2019
Plant Database	United States Department of Agriculture / Natural Resources Conservation Services Web Database
FEMA Flood Map	Federal Emergency Mgt. DFIRM Database FIRMettes 01073C0500G Jefferson County

Chapter 4. Environmental Setting

4.1 General Habitat Description

The proposed Murray Oak Grove Coal, LLC. – Concord Prep Plant – Slurry Impoundment No.7 project area is located in rural Jefferson County. The project site of approximately 456 acres mostly consists of the following vegetation species:

Tree Stratum

American Beech *(Fagus grandifolia)*
Black Cherry *(Prunus serotina)*
Black Gum *(Nyssa sylvatica)*
Black Oak *(Quercus velutina)*
Black Willow *(Salix nigra)*
Blackjack Oak *(Quercus marilandica)*
Chestnut Oak *(Quercus prinus)*
Chinese Tallow Tree *(Triadica sebifera)*
Eastern Red Cedar *(Juniperus virginiana)*
Eastern Redbud *(Cercis canadensis)*
Loblolly Pine *(Pinus taeda)*
Mimosa *(Albizia julibrissen)*
Mockernut Hickory *(Carya tomentosa)*
Northern Red Oak *(Quercus rubra)*
Princess Tree *(Paulownia tomentosa)*
Red Maple *(Acer rubrum)*
Southern Red Oak *(Quercus falcata)*
Sugar Maple *(Acer saccharum)*
Sweet Gum *(Liquidambar styraciflua)*
Sycamore *(Platanus occidentalis)*
Virginia Pine *(Pinus virginiana)*
Water Oak *(Quercus nigra)*
White Oak *(Quercus alba)*
Yellow Poplar *(Liriodendron tulipifera)*

Sapling Stratum

American Beech *(Fagus grandifolia)*
Black Cherry *(Prunus serotina)*
Black Gum *(Nyssa sylvatica)*
Black Willow *(Salix nigra)*
Blackjack Oak *(Quercus marilandica)*
Chestnut Oak *(Quercus prinus)*
Chinese Tallow Tree *(Triadica sebifera)*
Eastern Red Cedar *(Juniperus virginiana)*
Eastern Redbud *(Cercis canadensis)*
Loblolly Pine *(Pinus taeda)*

Mimosa *(Albizia julibrissen)*
Mockernut Hickory *(Carya tomentosa)*
Northern Red Oak *(Quercus rubra)*
Princess Tree *(Paulownia tomentosa)*
Southern Red Oak *(Quercus falcata)*
Sugar Maple *(Acer saccharum)*
Sweet Gum *(Liquidambar styraciflua)*
Sycamore *(Platanus occidentalis)*
Virginia Pine *(Pinus virginiana)*
Water Oak *(Quercus nigra)*
White Oak *(Quercus alba)*
Yellow Poplar *(Liriodendron tulipifera)*

Shrub Stratum

American Beautyberry *(Callicarpa americana)*
Chinese Privet *(Ligustrum sinense*
Cutleaf Blackberry *(Rubus argutus)*
Groundsel tree *(Baccharis halimifolia)*
Southern Highbush Blueberry *(Vaccinium darrowii)*
Wax Myrtle *(Myrica cerifera)*
Winged Sumac *(Rhus glabra)*

Woody Vine Stratum

Greenbrier *(Smilax* spp.*)*
Japanese Honeysuckle *(Lonicera japonica)*
Muscadine *(Vitis rotundifolia)*
Poison Oak *(Toxicodendron quercifolia)*
Virginia creeper *(Parthenocissus quinquefolia)*

Herbaceous Stratum

Annual Ragweed *(Ambrosia artemisiifolia)*
Blackberry *(Rubus betulifolius)*
Bluestem Broom sedge *(Andropogon virginicus)*
Canadian Golden rod *(Solidago altissima)*
Crabgrass *(Digitaria ciliaris)*
Dog Fennel *(Eupatorium capillifolium)*
Horseweed *(Conyza canadensis)*
Korean Lespedeza *(Lespedeza cuneata)*
Meadow Fescue *(Festuca pratensis)*
Nepalese Browntop *(Microstegium vimineum)*
Showy Partridge Pea *(Chamaecrista fasciculata)*
Smartweed species *(Polygonum spp.)*
Soft Rush *(Juncus effusus)*
Tall Fescue *(Festuca arundinacea)*
Wool grass *(Scripus cyperinus)*

The project area consists of approximately 456 acres of previously disturbed and natural area. The area has been disturbed through previous gas well and access road activity and in silviculture practices. The boundary includes existing access roads, existing gas wells, powerline routes and areas that are dominated by non-native invasive plant species and area of planted pine stands. There is some natural area along the eastern boundary. Ephemeral drains and small low-quality wetlands exist within the project.

Chapter 5. Habitat Study Results

5.1 Terrestrial and Terrestrial Habitat Species

a. **Bald eagle** (*Haliaeetus leucocephalus)* – There was no potential nesting habitat for the Bald Eagles. There were no large trees near open water on or near this site.

b. **Red-cockaded woodpecker** (*Picoides borealis)* – There are no mature pines of the age (80 plus years) and required size in areas of open understory that would harbor the Red-cockaded woodpecker.

c. **Wood stork** *(Mycteria americana)* – There was no potential nesting habitat for the Wood stork. There were no large trees near open water on or near this site.

d. **Mitchell's Satyr Butterfly** *(Neonympha mitchellii mitchellii)* – There are no fens – low acid, mainly groundwater fed, highly diversified peat wetlands.

e. **Indiana Bat** *(Myotis sodalis)* – Potential summer roost habitat for this species exists within certain areas of the proposed boundary. There are some snags within areas of planted pine stands. The living pines are not potential habitat due to the compact and tight nature of the bark. No caves were found within or adjacent to the proposed project boundary for winter hibernation or mating.

f. **Northern Long- Eared Bat** *(Myotis septentrionalis)* – Potential summer roost habitat for this species exists within certain areas of the proposed boundary. There are some snags within areas of planted pine stands. The living pines are not potential habitat due to the compact and tight nature of the bark. No caves were found within or adjacent to the proposed project boundary for winter hibernation or mating.

g. **Gray Bat** *(Myotis grisescens)* – Habitat for this species does not exist. There are no caves located within or adjacent to the proposed project boundary.

h. **Mohr's Barbara's buttons** *(Marshallia mohrii)* – Habitat for this species does not exist. Onsite wetlands were created in association with previous access road installation and are therefore highly disturbed.

i. **White fringeless orchid** *(Platanthera integrilabia)* – Habitat for this species does not exist. Onsite wetlands were created in association with previous access road installation and are therefore highly disturbed.

j. **Gentian Pinkroot** *(Spigelia gentianoides* var. *alabamensis)* – Habitat for this species does not exist. There are no glades located within the project boundary.

k. **Georgia Rock-cress** *(Arabis georgiana)* -- Habitat for this species does not exist within the proposed boundary. There are no sandstone outcrops.

l. **Tennessee Yellow-eyed grass** *(Xyris tennesseensis)* – Habitat for this species does not exist. There are no groundwater seeps in the area with calcareous rock or required soils for this species to survive.

m. **Alabama leather flower** *(Clematis socialis)* – Habitat for this species does not exist. Onsite wetlands were created in association with previous access road installation and are therefore highly disturbed. This species generally only occurs in the higher regions of north east Alabama and north Georgia.

n. **Morefield's leather flower** *(Clematis morefieldii)* – Habitat for this species does not exist. There are no seeps under mixed hardwoods on rocky mountain slopes within the project boundary.

5.1.1 Summary

Portions of the proposed boundary are identified as potential summer roost habitat for the Indiana and Northern Long-Eared bat species. This potential habitat is located along the eastern boundary in areas of mixed mature species that have loose, exfoliating bark. There is no potential winter habitat. Habitat was not found for the other listed, threatened and endangered terrestrial species. No evidence was found or observed for the presence or possible presence of the other listed terrestrial species.

5.2 Aquatic and Aquatic Habitat Species

a. **Flattened musk turtle** *(Sternotherus depressus)* – Habitat does not exist in the project boundary. There are no continuously flowing streams.

b. **Black Warrior waterdog** *(Necturus alabamensis)* – Habitat does not exist in the project boundary. There are no continuously flowing streams.

c. **Fine-lined pocketbook mussel** *(Hamiota (=Lampsilis) altilis)* – Habitat does not exist in the project boundary. There are no continuously flowing streams.

d. **Ovate clubshell mussel** *(Pleurobema perovatum)* – Habitat does not exist in the project boundary. There are no continuously flowing streams.

e. **Triangular kidneyshell mussel** *(Ptychobranchus greenii)* – Habitat does not exist in the project boundary. There are no continuously flowing streams.

f. **Southern clubshell mussel** *(Pleurobema decisum)* – Habitat does not exist in the project boundary. There are no continuously flowing streams.

g. **Orange-nacre mucket mussel** *(Hamiota (=Lampsilis) perovalis)* -- Habitat does not exist in the project boundary. There are no continuously flowing streams.

h. **Alabama moccasinshell mussel** *(Medionidus acutissimus)* -- Habitat does not exist in the project boundary. There are no continuously flowing streams.

i. **Coosa moccasinshell mussel** *(Medionidus parvulus)* -- Habitat does not exist in the project boundary. There are no continuously flowing streams.

j. **Upland combshell mussel** *(Epioblasma metastriata)* - Habitat does not exist in the project boundary. There are no continuously flowing streams.

k. **Dark pigtoe mussel** *(Pleurobema perovatum)* -- Habitat does not exist in the project boundary. There are no continuously flowing streams.

l. **Southern acornshell Mussel** *(Epioblasma othcaloogensis)* -- Habitat does not exist in the project boundary. There are no continuously flowing streams.

m. **Southern pigtoe mussel** *(Pleurobema georgianum)* - Habitat does not exist in the project boundary. There are no continuously flowing streams.

n. **Goldline darter** *(Percina aurolineata)* -- Habitat does not exist in the project boundary. There are no continuously flowing streams. Also this species is only found in the cobble and small boulder area of the big and little Cahaba River where present.

o. **Cahaba shiner** *(Notropis cahabae)* -- Habitat does not exist in the project boundary. There are no continuously flowing streams. Also this species is only found in the main channel of the Cahaba River where present.

p. **Watercress darter** *(Etheostoma nuchale)* -- Habitat does not exist in the project boundary. There are no continuously flowing streams. Also they are associated with spring fed tributaries to the Black Warrior River.

q. **Vermilion darter** *(Etheostoma chermocki)* -- Habitat does not exist in the project boundary. There are no continuously flowing streams. Also they are associated with springs, specifically in Turkey Creek where present.

r. **Rush darter** *(Etheostoma phytophilum)* -- Habitat does not exist. There are no perennial or intermittent streams within the project boundary.

s. **Plicate rocksnail** *(Leptoxis plicate)* - Habitat does not exist in the project boundary. There are no continuously flowing streams.

t. **Cylindrical Lioplax** *(Lioplax cyclostomaformis*) – Habitat does not exist in the project boundary. There are no continuously flowing streams.

u. **Flat pebblesnail** *(Lepyrium showalteri*) – Habitat does not exist in the project boundary. There are no continuously flowing streams.

v. **Round Rocksnail (***Leptoxis ampla)* - Habitat does not exist in the project boundary. There are no continuously flowing streams.

5.2.1 Summary

There is no habitat for the listed, threatened and endangered aquatic species. No evidence was found or observed for the presence or possible presence of these listed aquatic species. There are no perennial or intermittent streams located within the extents of the project boundary. Wetlands are small, low-quality and highly disturbed.

5.3 Wetlands and Streams

5.3.1 Wetlands

The project areas were evaluated according to the 1987 *"Corps of Engineers Wetlands Delineation Manual"* and jurisdictional wetlands were identified. These wetlands are small, low-quality and highly disturbed.

5.3.2 Streams

The project area was evaluated for jurisdictional waters. There are no perennial or intermittent streams identified within the project boundary. Streams are identified using the North Carolina Method of Intermittent and Perennial Streams.

Chapter 6. References

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Chapter 7. Signatures of Preparers

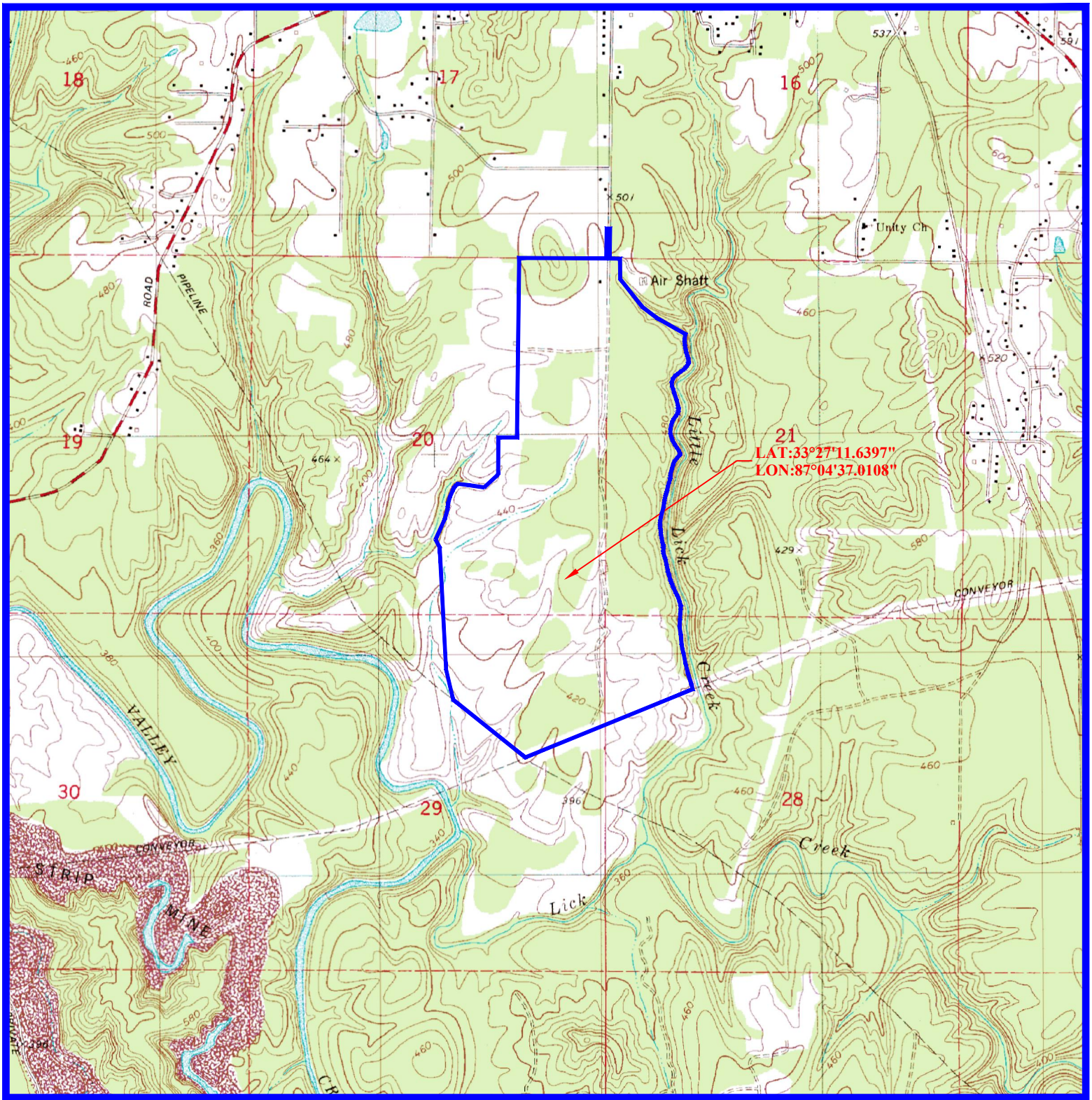
Prepared by:

Wes Lamon
Biologist

Reviewed by:

L. Stephen Blankenship
Environmental Engineering Manager

Appendix A — Project Area Map



SCALE: 1" = 2000'
July 9th, 2020
at 8 1/2" x 11"

MURRAY OAK GROVE COAL, LLC
CONCORD PREP PLANT
SLURRY IMPOUNDMENT NO. 7

(APPROXIMATELY 456 ACRES TOTAL)

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PROJECT AREA MAP

SECTIONS 16, 17, 20, 21, 28, & 29, TOWNSHIP 18 SOUTH, RANGE 5 WEST
ALL IN JEFFERSON COUNTY, ALABAMA
AS FOUND ON THE CONCORD, ALABAMA USGS QUAD (1979)

mcgehee engineering corp
post office box 3431
jasper, alabama 35502-3431
telephone: (205) 221-0686 fax: 221-7721
email: staff@mcgehee.org

PROJECT AREA BOUNDARY

Latitude: 33.4533° N
Longitude: -87.0769° W

Appendix B — Photographic Log

McGehee Engineering		Photographic Log
Client Name:	**Site Location:**	***Concord - Slurry Impoundment No. 7***
Murray Oak Grove Coal, LLC.		
Date:	***7-6-2020***	
Photo No.	***3781***	
Point No.	***001***	

Description:

Paved access road and powerline route.

Dominant Vegetation:

- *Festuca pratensis*
- *Pinus taeda*
- *Rhus glabra*
- *Rubus argutus*
- *Ligustrum sinense*

McGehee Engineering		Photographic Log
Client Name:	**Site Location:**	***Concord - Slurry Impoundment No. 7***
Murray Oak Grove Coal, LLC.		
Date:	***7-6-2020***	
Photo No.	***3785***	
Point No.	***002***	

Description:

Gas well pad in an immature densely planted pine stand that is approximately 10 to 15 years old.

Dominant Vegetation:

- *Festuca pratensis*
- *Pinus taeda*
- *Rhus glabra*
- *Rubus argutus*
- *Ligustrum sinense*
- *Lespedeza cuneata*
- *Andropogon virginicus*

McGehee Engineering		Photographic Log	
Client Name:		**Site Location:**	***Concord - Slurry Impoundment No. 7***
Murray Oak Grove Coal, LLC.			
Date:	***7-6-2020***		
Photo No.	***3787***		
Point No.	***003***		
Description: Wildlife opening in an immature, densely planted pine stand that is approximately 10 to 15 years old.			
Dominant Vegetation: • *Festuca pratensis* • *Pinus taeda* • *Liquidambar styraciflua* • *Rubus argutus* • *Ligustrum sinense* • *Andropogon virginicus*			

McGehee Engineering		Photographic Log	
Client Name:		**Site Location:**	***Concord - Slurry Impoundment No. 7***
Murray Oak Grove Coal, LLC.			
Date:	***7-6-2020***		
Photo No.	***3791***		
Point No.	***004***		
Description: Gas well pad in an immature densely planted pine stand that is approximately 5 to 10 years old.			
Dominant Vegetation: • *Festuca pratensis* • *Pinus taeda* • *Rhus glabra* • *Rubus argutus* • *Ligustrum sinense* • *Lespedeza cuneata* • *Andropogon virginicus*			

McGehee Engineering		Photographic Log
Client Name:	**Site Location:**	***Concord - Slurry Impoundment No. 7***
Murray Oak Grove Coal, LLC.		
Date:	***7-6-2020***	
Photo No.	***3794***	
Point No.	***005***	

Description:

Beginning of ephemeral drain in upland area.

Dominant Vegetation:

- *Smilax rotundifolia*
- *Pinus taeda*
- *Liquidambar styraciflua*
- *Rubus argutus*
- *Ligustrum sinense*
- *Acer rubrum*
- *Liriodendron tulipifera*

McGehee Engineering		Photographic Log
Client Name:	**Site Location:**	***Concord - Slurry Impoundment No. 7***
Murray Oak Grove Coal, LLC.		
Date:	***7-6-2020***	
Photo No.	***3796***	
Point No.	***006***	

Description:

Ephemeral drain leaving project boundary.

Dominant Vegetation:

- *Smilax rotundifolia*
- *Pinus taeda*
- *Liquidambar styraciflua*
- *Rubus argutus*
- *Ligustrum sinense*
- *Acer rubrum*
- *Liriodendron tulipifera*

McGehee Engineering		Photographic Log
Client Name:	**Site Location:**	***Concord - Slurry Impoundment No. 7***
Murray Oak Grove Coal, LLC.		
Date:	***7-6-2020***	
Photo No.	***3799***	
Point No.	***007***	

Description:

Gas well pad in an immature densely planted pine stand that is approximately 5 to 10 years old.

Dominant Vegetation:

- *Festuca pratensis*
- *Pinus taeda*
- *Rhus glabra*
- *Rubus argutus*
- *Ligustrum sinense*
- *Lespedeza cuneata*
- *Andropogon virginicus*

McGehee Engineering		Photographic Log
Client Name:	**Site Location:**	***Concord - Slurry Impoundment No. 7***
Murray Oak Grove Coal, LLC.		
Date:	***7-6-2020***	
Photo No.	***3803***	
Point No.	***008***	

Description:

Kudzu patch in an immature densely planted pine stand that is approximately 5 to 10 years old.

Dominant Vegetation:

- *Pueraria montana*
- *Pinus taeda*
- *Rhus glabra*
- *Rubus argutus*
- *Ligustrum sinense*
- *Lespedeza cuneata*
- *Andropogon virginicus*

McGehee Engineering		Photographic Log
Client Name:	**Site Location:**	***Concord - Slurry Impoundment No. 7***
Murray Oak Grove Coal, LLC.		
Date:	***7-6-2020***	
Photo No.	***3808***	
Point No.	***009***	

Description:

Small disturbed wetland above access road.

Dominant Vegetation:

- *Salix nigra*
- *Juncus effusus*
- *Acer rubrum*
- *Pinus taeda*
- *Rhus glabra*
- *Rubus argutus*
- *Ligustrum sinense*

McGehee Engineering		Photographic Log
Client Name:	**Site Location:**	***Concord - Slurry Impoundment No. 7***
Murray Oak Grove Coal, LLC.		
Date:	***7-6-2020***	
Photo No.	***3809***	
Point No.	***010***	

Description:

Small disturbed wetland below access road.

Dominant Vegetation:

- *Salix nigra*
- *Juncus effusus*
- *Acer rubrum*
- *Pinus taeda*
- *Sambucus nigra*
- *Rhus glabra*
- *Rubus argutus*
- *Ligustrum sinense*

McGehee Engineering		Photographic Log
Client Name:	**Site Location:**	***Concord - Slurry Impoundment No. 7***
Murray Oak Grove Coal, LLC.		
Date:	***7-6-2020***	
Photo No.	***3812***	
Point No.	***011***	

Description:

Ephemeral drain in upland area.

Dominant Vegetation:

- *Smilax rotundifolia*
- *Pinus taeda*
- *Liquidambar styraciflua*
- *Nyssa sylvatica*
- *Ligustrum sinense*
- *Acer rubrum*
- *Liriodendron tulipifera*

McGehee Engineering		Photographic Log
Client Name:	**Site Location:**	***Concord - Slurry Impoundment No. 7***
Murray Oak Grove Coal, LLC.		
Date:	***7-6-2020***	
Photo No.	***3818***	
Point No.	***012***	

Description:

Wetland at the edge of powerline route.

Dominant Vegetation:

- *Salix nigra*
- *Acer rubrum*
- *Pinus taeda*
- *Liquidambar styraciflua*
- *Ligustrum sinense*

McGehee Engineering		Photographic Log
Client Name:	**Site Location:**	***Concord - Slurry Impoundment No. 7***
Murray Oak Grove Coal, LLC.		
Date:	***7-6-2020***	
Photo No.	***3820***	
Point No.	***013***	

Description:

Overland conveyor beltline at powerline route.

Dominant Vegetation:

- *Pinus taeda*
- *Rubus argutus*
- *Ligustrum sinense*
- *Liriodendron tulipifera*
- *Liquidambar styraciflua*
- *Conyza canadensis*
- *Ambrosia artemisiifolia*
- *Eupatorium compostifolium*

McGehee Engineering		Photographic Log
Client Name:	**Site Location:**	***Concord - Slurry Impoundment No. 7***
Murray Oak Grove Coal, LLC.		
Date:	***7-6-2020***	
Photo No.	***3823***	
Point No.	***014***	

Description:

Gas well pad in an immature densely planted pine stand that is approximately 10 to 15 years old. Gas line and powerline route alongside

Dominant Vegetation:

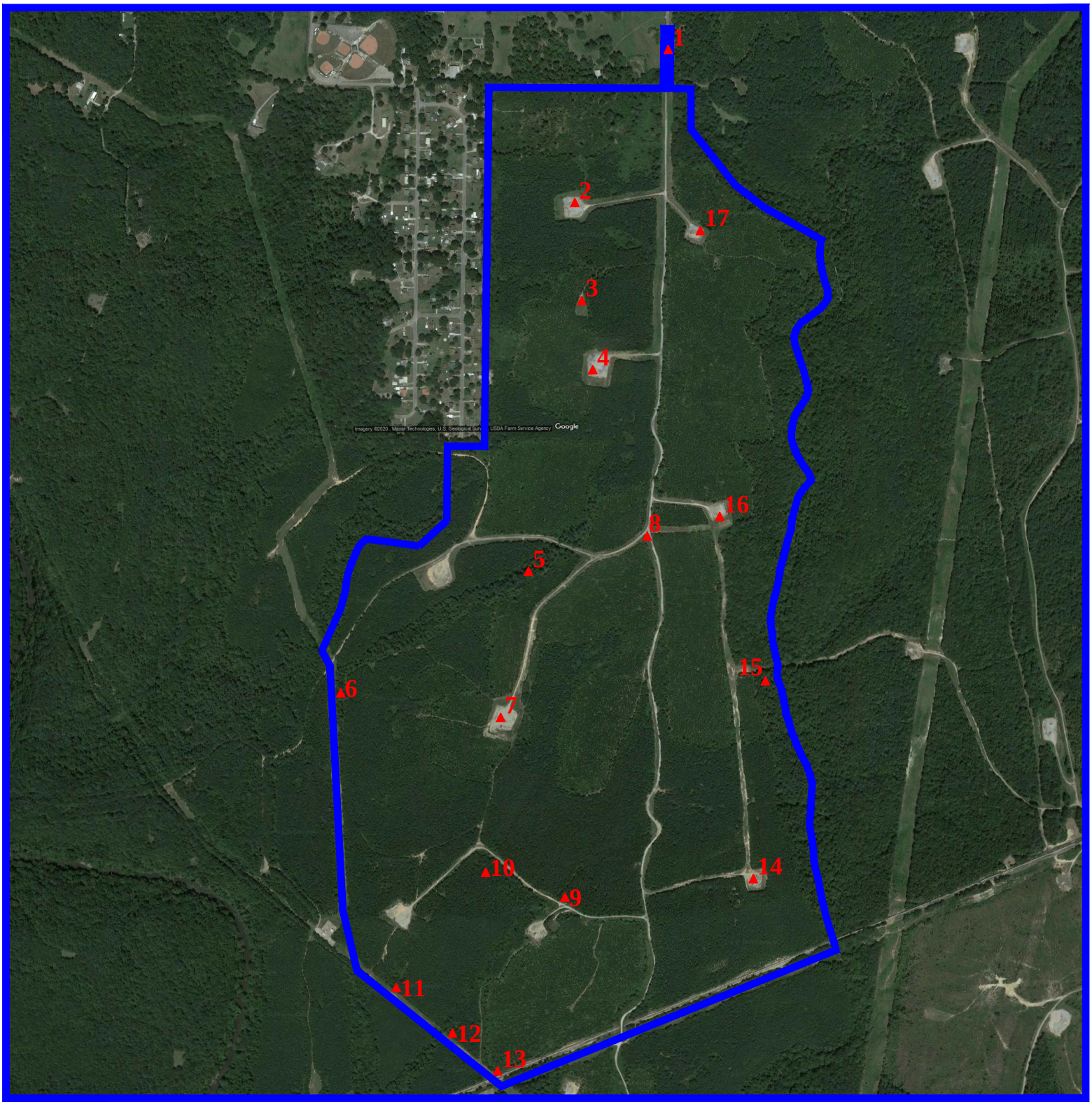
- *Pinus taeda*
- *Rhus glabra*
- *Rubus argutus*
- *Ligustrum sinense*
- *Lespedeza cuneata*
- *Andropogon virginicus*

McGehee Engineering		Photographic Log	
Client Name:		**Site Location:**	***Concord - Slurry Impoundment No. 7***
Murray Oak Grove Coal, LLC.			
Date:	***7-6-2020***		
Photo No.	***3825***		
Point No.	***015***		
Description: Mixed mature pine and deciduous stand.			
Dominant Vegetation: • *Pinus virginiana* • *Quercus alba* • *Fagus grandifolia* • *Quercus velutina* • *Carya tomentosa* • *Quercus falcata* • *Nyssa sylvatica* • *Prunus serotina*			

McGehee Engineering		Photographic Log	
Client Name:		**Site Location:**	***Concord - Slurry Impoundment No. 7***
Murray Oak Grove Coal, LLC.			
Date:	***7-6-2020***		
Photo No.	***3830***		
Point No.	***016***		
Description: Gas well pad along power and gas line route. Mixed mature stand to the west and 5 to 10 year planted pines to the east.			
Dominant Vegetation: • *Pinus virginiana* • *Quercus alba* • *Fagus grandifolia* • *Liriodendron tulipifera* • *Carya tomentosa* • *Quercus falcata* • *Andropogon virginicus* • *Pinus taeda*			

McGehee Engineering		Photographic Log	
Client Name:		**Site Location:**	***Concord - Slurry Impoundment No. 7***
Murray Oak Grove Coal, LLC.			
Date:	***7-6-2020***		
Photo No.	***3834***		
Point No.	***017***		
Description: Gas well pad in an immature densely planted pine stand that is approximately 5 to 10 years old.			
Dominant Vegetation: • *Pinus taeda* • *Pinus virginiana* • *Rhus glabra* • *Rubus argutus* • *Ligustrum sinense* • *Lespedeza cuneata* • *Andropogon virginicus*			

Appendix C — Photo Log Point Location Map



SCALE: 1" = 1000'
July 9th, 2020
at 8 1/2" x 11"

MURRAY OAK GROVE COAL, LLC
CONCORD PREP PLANT
SLURRY IMPOUNDMENT NO. 7
(APPROXIMATELY 456 ACRES TOTAL)

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PHOTO LOG POINT MAP

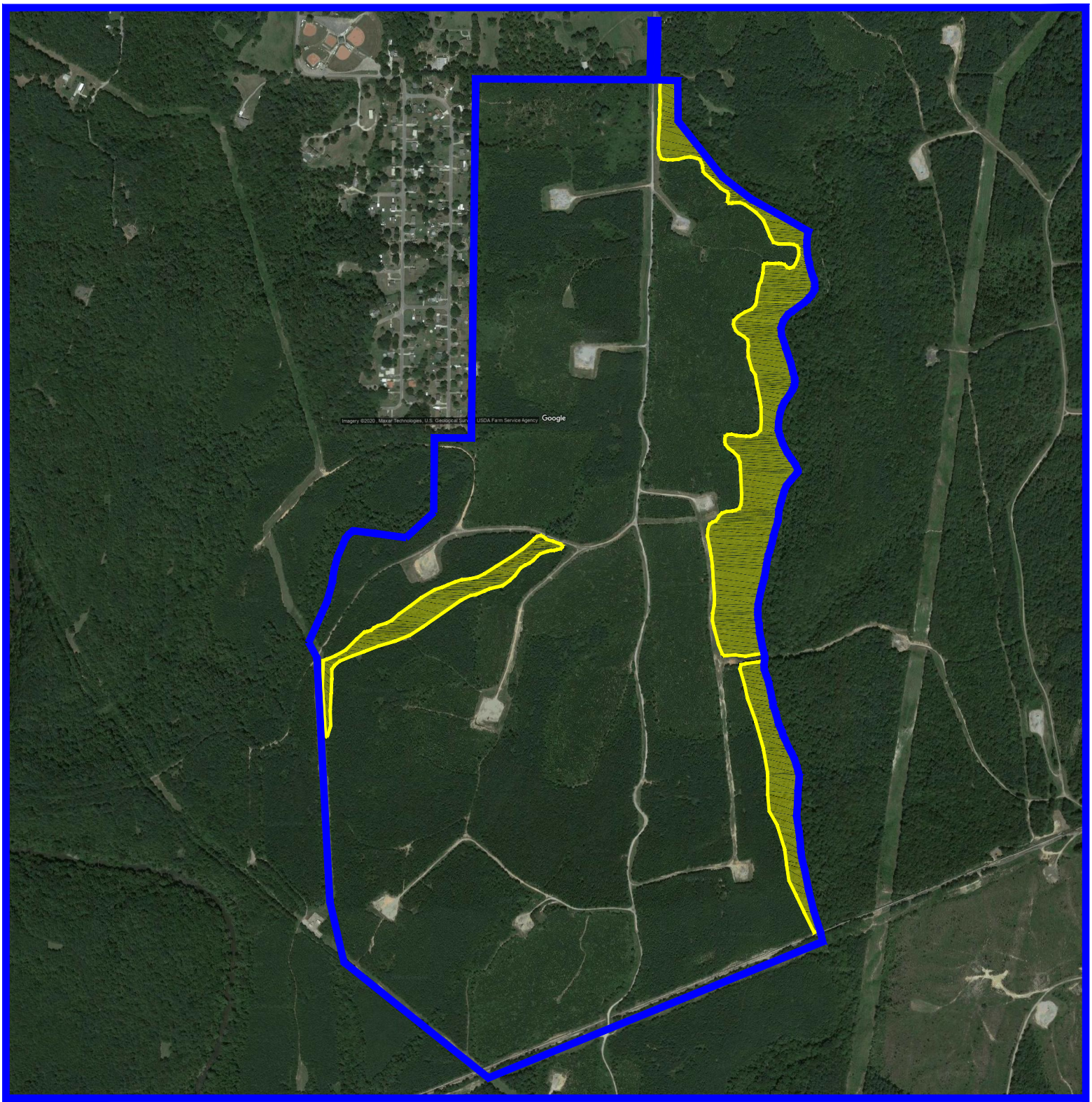
SECTIONS 16, 17, 20, 21, 28, & 29, TOWNSHIP 18 SOUTH, RANGE 5 WEST
ALL IN JEFFERSON COUNTY, ALABAMA
AS FOUND ON THE CONCORD, ALABAMA USGS QUAD (1979)

mcgehee engineering corp
post office box 3431
jasper, alabama 35502-3431
telephone: (205) 221-0686 fax: 221-7721
email: staff@mcgehee.org

PROJECT AREA BOUNDARY

Latitude: 33.4533° N
Longitude: -87.0769° W

Appendix D — Potential Bat Summer Roost Habitat Map



SCALE: 1" = 1000'
July 9th, 2020
at 8 1/2" x 11"

MURRAY OAK GROVE COAL, LLC
CONCORD SLURRY IMPOUNDMENT NO. 7

(APPROXIMATELY 456 ACRES TOTAL)

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POTENTIAL SUMMER ROOST HABITAT MAP

SECTIONS 16, 17, 20, 21, 28, & 29, TOWNSHIP 18 SOUTH, RANGE 5 WEST
ALL IN JEFFERSON COUNTY, ALABAMA
AS FOUND ON THE CONCORD, ALABAMA USGS QUAD (1979)

mcgehee engineering corp
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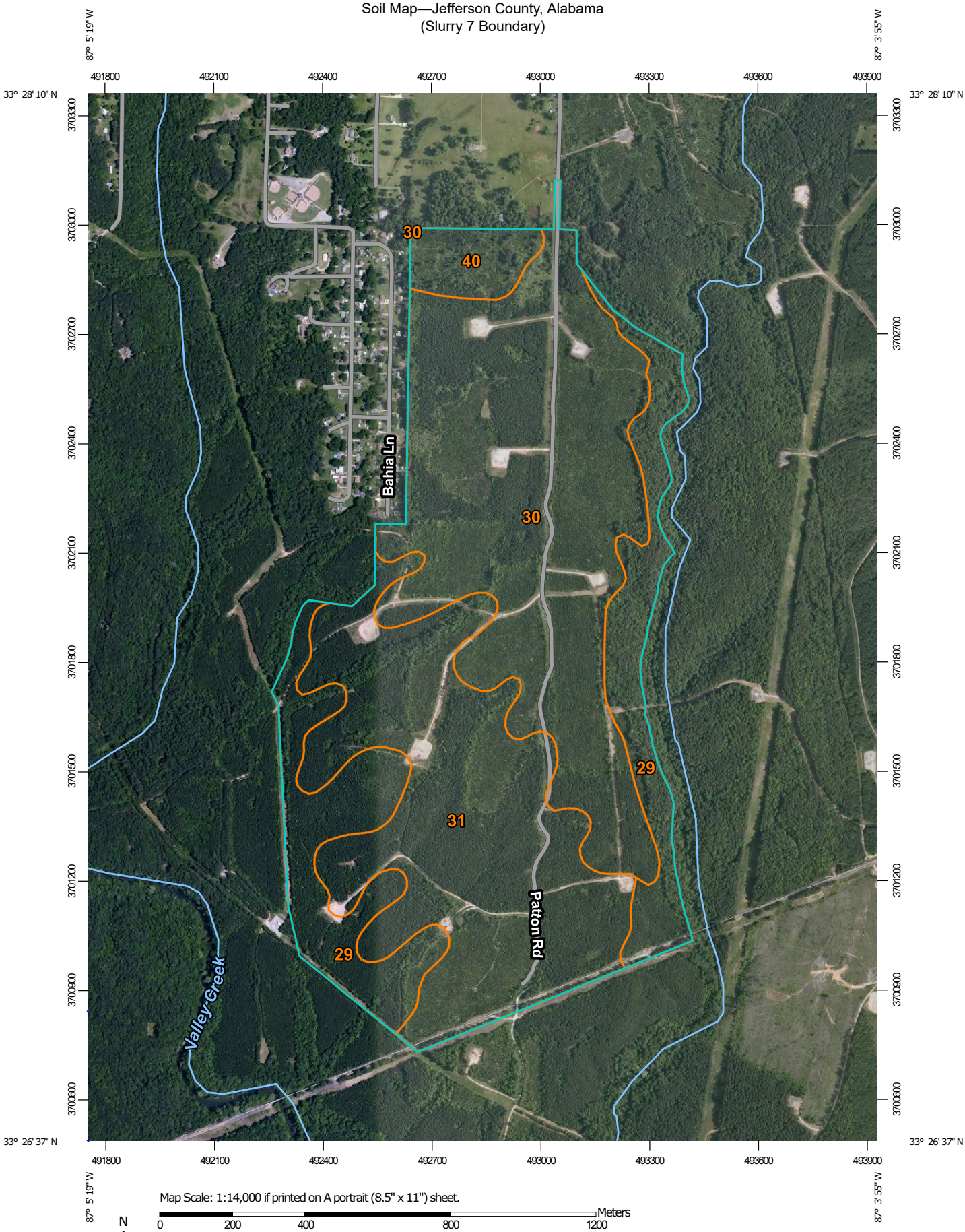
email: staff@mcgehee.org

PROJECT AREA BOUNDARY
POTENTIAL SUMMER ROOST HABITAT (Approx. 42 acres)

Latitude: 33.4533° N
Longitude: -87.0769° W

Appendix E — Soil Map

Soil Map—Jefferson County, Alabama
(Slurry 7 Boundary)



Map Scale: 1:14,000 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 200 400 800 1200

Feet
0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Jefferson County, Alabama
Survey Area Data: Version 13, May 28, 2020

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

Date(s) aerial images were photographed: May 7, 2019—Sep 11, 2019

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
29	Montevallo-Nauvoo association, 6 to 45 percent slopes	91.8	20.1%
30	Nauvoo fine sandy loam, 2 to 8 percent slopes	190.7	41.8%
31	Nauvoo fine sandy loam, 8 to 15 percent slopes	158.5	34.8%
40	Townley-Nauvoo complex, 8 to 15 percent slopes	15.1	3.3%
Totals for Area of Interest		**456.1**	**100.0%**