Environmental Report for the Paducah Laser Enrichment Facility

Enclosure 2c
Appendices L though P
(275 pages, 480 MB)

Global Laser Enrichment LLC
June 13, 2025

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Protected Species Report

Protected Species Report

Boston Government Services, LLC

GLE Paducah Laser Enrichment Facility Project

Project No. 170058

November 18, 2024

Protected Species Report

prepared for

Boston Government Services, LLC
GLE Paducah Laser Enrichment Facility Project
McCracken County, Kentucky

Project No. 170058

November 18, 2024

prepared by

Burns & McDonnell Engineering Company, Inc.

EXECUTIVE SUMMARY

Boston Government Services, LLC (BGS) contracted Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) to evaluate property identified for the GLE Paducah Laser Enrichment Facility Project (Project), in McCracken County, Kentucky. The property is an approximately 322-acre area centered at approximate coordinates latitude 37.093664, longitude -88.817256 (Project Area). The Project Area was evaluated for potential effects to species protected under the Endangered Species Act (ESA) of 1973, 16 U.S.C. § 1531 et seq.; Kentucky Department of Fish and Wildlife Resources (KDFWR) statutes and regulations; The Migratory Bird Treaty Act (MBTA) 50 CFR part 10.12; and the Bald and Golden Eagle Protection Act (BGEPA) 16 U.S.C. § 668.

Burns & McDonnell biologists identified the state and federally listed threatened or endangered species that should be considered in the Project's effects analysis. In addition, Burns & McDonnell evaluated the potential of the proposed Project to affect bald (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*). Based on the desktop literature review and onsite assessment performed July 15 thru July 19, 2024, it is Burns & McDonnell's professional opinion that development of the proposed Project may affect but is not likely to adversely affect state and federally listed bat species including Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), and tricolored bat (*Perimyotis subflavus*). Development of the proposed Project may affect and is likely to adversely affect listed species including hooded merganser (*Lophodytes cucullatus*), yellow-crowned night-heron (*Nyctanassa violacea*), cotton mouse (*Peromyscus gossypinus*), monarch butterfly (*Danaus Plexippus*), and compassplant (*Silphium laciniatum)*.

Acoustic bat survey results indicate the presence of tricolored bat. The bat species and cotton mouse have the potential to be found within the forested habitats within the Project Area. If tree clearing is required, if clearing can be conducted during the winter, non-roosting season when bats will not be present, listed bat species will not likely be adversely affected. The listed, yellow-crowned night-heron and hooded merganser have the potential to be found in forested waterbody habitats such as forested ponds which were observed on-site. Tree clearing could potentially have an adverse impact on the cotton mouse, yellow-crowned night-heron, and hooded merganser. Compassplant individuals were observed on site during the onsite assessment. If impacts to these species or their habitats are avoided, then no adverse effects to these species are expected and no need for further consultation will be required. Official determinations of effect can only be obtained through agency coordination. If the Project proposes impacts to listed species or critical habitat then further coordination under Section 7 of the ESA will be required to confirm if adverse effects to species would occur and if additional studies would be required.

The monarch butterfly may occur within the small sections of open field meadows or grasslands. The candidate monarch butterfly and the proposed endangered species tricolored bat are not currently afforded formal protection under the ESA but have been included in this analysis as they could be listed in the future while the project is in progress.

There was no other observed habitat for other protected species, therefore the Project is anticipated to have no effect on any other state or federally listed species. In addition, no bald or golden eagle species or nests were observed therefore it is anticipated the proposed Project would have no effect on either bald or golden eagles.

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LIST OF ABBREVIATIONS

Abbreviation	Term/Phrase/Name
BGEPA	Bald and Golden Eagle Protection Act
BGS	Boston Government Services, LLC
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
EPA	Environmental Protection Agency
ESA	Endangered Species Act
IPaC	Information for Planning and Conservation
KDFWR	Kentucky Department of Fish and Wildlife Resources
MBTA	Migratory Bird Treaty Act
OKNP	Office of Kentucky Nature Preserves
PGDP	Paducah Gaseous Diffusion Plant
PLEF	Paducah Laser Enrichment Facility
Project	GLE Paducah Laser Enrichment Facility Project
Project Area	Area encompassing footprint of Project development
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

BGS contracted Burns & McDonnell to evaluate the approximately 322-acre Project Area identified for the Paducah Laser Enrichment Facility (PLEF) Project, in McCracken County, Kentucky for potential effects to species protected under the ESA of 1973, Kentucky Department of Fish and Wildlife Resources (KDFWR) statutes and regulations, Migratory Bird Treaty Act (MBTA); and Bald and Golden Eagle Protection Act (BGEPA). This report provides information for the methods and results of the protected species background review and habitat assessment survey performed for the Project throughout the entire Project Area. These assessments were performed July 15 thru July 19, 2024, to identify the potential presence of protected species habitats within the Project Area, and to evaluate the potential for effects to protected species that could result from Project development.

1.1 Project Description

The Project Area is located in McCracken County, Kentucky. It is located south of the Paducah Gaseous Diffusion Plant (PGDP) and borders, in part, the road rights of way of Hobbs Road to the west, Dyke Road in part to the north, and Woodville Road to the south. It is located within the West Kentucky Wildlife Management Area. The site location primarily consists of active agricultural land, forested habitat, and smaller sections of managed grass. The Project Area contains several wetlands, streams, and open water ponds. See Figure 1 in Appendix A showing the Project location.

1.2 Project Activities

The Project involves the design, construction, and operation of a laser-based commercial uranium enrichment facility. Construction associated with development of the proposed Project may require survey, clearing, grading, site stabilization, construction, restoration, and revegetation. Necessary erosion and sedimentation control best management practices will be installed concurrent with clearing and grading activities to limit the amount of impact the Project has to the surrounding area.

1.3 Project Area and Setting

Level III Ecoregions as defined by the U.S. Environmental Protection Agency (EPA, 2024a) as areas where the type, quality, and quantity of environmental resources are generally similar. The proposed Project Area is within the Mississippi Valley Loess Plains Level III Ecoregion and the Loess Plains Level IV ecoregion. The Mississippi Valley Loess Plains was historically irregular plains, gently rolling hills, and, near the Mississippi River, bluffs. The Loess Plains are a productive agricultural area that has a mosaic of oak–hickory forest and bluestem prairie. Today, most of the original vegetation has now been replaced by cropland. Agricultural runoff has degraded surface water quality. Channelization, high turbidity, and siltation are common in the streams and rivers. Anthropogenic activities have led to the degradation of historic conditions within the ecoregion. (Woods et al., 2002)

The Project Area is within the Bayou Creek-Ohio River watershed, hydrologic unit code 051402060701. (EPA, 2024b). Little Bayou Creek runs through the eastern edge of the Project Area. There are no mapped FEMA floodways or floodplains located within the Project Area.

1.4 Protected Species Review and Habitat Assessment Methods

Prior to field investigations, Burns & McDonnell biologists reviewed the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) system to obtain a project-specific list of federally protected species or designated critical habitat that should be evaluated in the Project's effects analysis. In addition, the KDFWR's protected species list for McCracken County and the Office of Kentucky Nature Preserves (OKNP) Kentucky Biological Assessment Tool was reviewed to determine the potential for protected species or their habitat to occur within the Project Area.

Each species identified in the protected species lists was reviewed to gather pertinent information regarding species' distinct physical characteristics and various habitat needs. Habitat on site was assessed for each species on July 15 thru July 19, 2024, based on this information.

1.5 Potential Wildlife

The Project Area contains several different land uses and habitat types that could be used by a variety of species. Habitat functions in the Project Area include breeding/nesting, foraging, and cover. 518 species are listed to occur within McCracken County according to the KDFWR. Several species of terrestrial mammals, such as white-tailed deer (*Odocoileus virginianus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), eastern cottontail (*Sylvilagus floridanus*), eastern gray squirrel (*Sciurus carolinensis*), striped skunk (*Mephitis mephitis*), and many small rodents have potential to inhabit the Project Area based on the existing land use and habitats. Common bird species such as wild turkey (*Meleagris gallopavo*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), northern cardinal (*Cardinalis cardinalis*) and American robin (*Turdus migratorius*) along with resident and migratory non-game bird species and migratory waterfowl have the potential to be found in the Project Area based on the existing land use and habitats. Reptiles and amphibians including various species of snakes, turtles, and frogs could potentially be found adjacent to wetlands and other water sources present within the Project Area. Reptile and amphibian species that are common to this area include gartersnake (*Thamnophis sirtalis*), eastern box turtle (*Terrapene carolina*), southern leopard frog (*Lithobates sphenocephalus*), gray treefrog (*Dryophytes versicolor*), and American toad (*Anaxyrus* *americanus*). Species that can be found in McCracken County are listed in the county species list in Appendix B.

During the habitat assessment survey evidence of wildlife and actual individual species were observed across the site. Evidence of wildlife included tracks found of raccoons, coyote, and white-tailed deer. The Merlin Bird ID App by Cornell Lab (Cornell University, 2024) was used to identify local bird species by vocalizations across the site. Bird species detected by the App included northern cardinal, American crow, white-eyed vireo (*Vireo griseus*), acadian flycatcher (*Empidonax virescens*), common yellowthroat (*Geothlypis trichas*), indigo bunting (*Passerina cyanea*), yellow-billed cuckoo (*Coccyzus americanus*), field sparrow (*Spizella pusilla*), Carolina wren (*Thryothorus ludovicianus*), Carolina chickadee (*Poecile carolinensis*), American goldfinch (*Spinus tristis*), northern parula (*Setophaga americana*), eastern wood-pewee (*Contopus virens*), downy woodpecker (*Picoides pubescens*), tufted titmouse (*Baeolophus bicolor*), and red-bellied woodpecker (*Melanerpes carolinus*). Individual species were seen on site and documented of eastern box turtle, gray treefrog, American toad, upland chorus frog (*Pseudacris feriarum*), and Mississippi kite (*Ictinia mississippiensis).* The OKNP Kentucky Biological Assessment Tool (Appendix B) states that populations of compassplant and prairie milkweed have known occurrences in proximity to but not within the Project Area. The compassplant population was verified to be on site during the habitat assessment. The primary population occurred along the road right of way of Woodville Road with two individual species identified in the interior of the Project Area. Photos of the individual species can be found in Appendix C. Prairie milkweed was not observed during the surveys.

Some individual species were observed during the habitat assessment but were not able to be photo documented. These species included white-tailed deer, wild turkeys, and southern leopard frogs.

2.0 REGULATORY FRAMEWORK

2.1 Endangered Species Act

The ESA provides protection for plants and animals on the Secretary of the Interior's list of threatened or endangered species by prohibiting the take of the listed species (16 USC § 1531-1543). The ESA defines "take" as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct (16 USC § 1532)[1]. Section 7 of the ESA states that it is the responsibility of Federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence, or result in the destruction or adverse modification of habitat determined to be critical to the conservation of, any such species.

According to the USFWS, coordination under Section 7 of the ESA is required whenever there is a federal nexus for a project. If there is no federal nexus and after completing a threatened and endangered species review, it is determined that the proposed Project will not affect listed species or critical habitat (no negative impacts to listed species or critical habitat), no further consultation or contact with the USFWS is necessary (USFWS, 2024b). Official determinations of effect can only be obtained through agency coordination. If the Project proposes impacts to listed species or critical habitat then further coordination under Section 7 of the ESA will be required to confirm if adverse effects to species would occur and if additional studies would be required.

2.2 Bald and Golden Eagle Protection Act

The BGEPA provides protection of the bald eagle (*Haliaeetus leucocephalus*) and the golden eagle (*Aquila chrysaetos*) by prohibiting take of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16 USC § 668). The BGEPA, in 50 CFR part 22.6, defines take as to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb. Disturb is defined to mean: to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available:

- Injury to an eagle;
- A decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or
- Nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

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[1] See also 50 CFR § 17.3 for the regulatory definitions of "harass" and "harm" as used in the definition of "take".

2.3 Migratory Bird Treaty Act

The MBTA provides protection for migratory birds listed in 50 CFR part 10.13 by making it unlawful at any time, by any means or in any manner, to pursue; hunt; take; capture; kill; attempt to take, capture, or kill; possess; offer for sale; sell; offer to barter; barter; offer to purchase; purchase; deliver for shipment; ship; export; import; cause to be shipped, exported, or imported; deliver for transportation; transport or cause to be transported; carry or cause to be carried; or receive for shipment, transportation, carriage, or export; any migratory bird, any part, nest, or egg of any such bird, unless allowed by permit (16 USC § 703). The MBTA defines “take” as to pursue, hunt, shoot, wound, kill, trap, capture, collect or to attempt to pursue, hunt, shoot, wound, kill, trap, capture, collect. (50 CFR part 10.12).

2.4 Kentucky State Listed Species Protection

The KDFWR is granted authority from the state of Kentucky to protect state listed threatened or endangered species. Kentucky law (301 KAR 3:061) states that it is unlawful for any person to import, transport, possess, process, sell or offer for sale any endangered species of fish and wildlife, or parts thereof without a permit unless the possession was prior to 1973. Nor shall any article be made in whole or from any part or parts of any species of fish and wildlife designated as endangered by this administrative regulation.

3.0 PROTECTED SPECIES

3.1 Identification of Federal and State Protected Species

An endangered species is one that is in danger of extinction throughout all or a significant portion of its natural range. A threatened species is one likely to become endangered within the foreseeable future throughout all or a significant portion of its range. A candidate species is one that is currently in the assessment process to determine if listing is appropriate using the listing factors in Section 4 of the ESA.

The USFWS IPaC identified 12 endangered species, two threatened species, one proposed endangered species, one candidate species, and one experimental population of non-essential species which will be considered in the Project's effects analysis (Appendix B). Additionally, the KDFWR Species list and the OKNP Kentucky Biological Assessment Tool (Appendix B) identified state threatened and endangered species that have potential to be within McCracken County. Table 3-1 identifies the federal and state protected species with the potential to occur in or around the Project Area.

Table 3-1: Federal and State Protected Species with Potential to Occur in McCracken County, Kentucky

Common Name	Scientific Name	Federal Listing Status[a]	State Listing Status[b]
Reptiles			
Alligator Snapping Turtle	*Macrochelys temminckii*	Not Listed	Endangered
Birds			
Whooping Crane	*Grus americana*	Experimental, Non-essential	Not Listed
Brown Creeper	*Certhia americana*	Not Listed	Threatened
Great Egret	*Ardea alba*	Not Listed	Threatened
Northern Harrier	*Circus hudsonius*	Not Listed	Threatened
Peregrine Falcon	*Falco peregrinus*	Not Listed	Endangered
American Coot	*Fulica americana*	Not Listed	Endangered
Hooded Merganser	*Lophodytes cucullatus*	Not Listed	Threatened
Yellow-crowned Night-heron	*Nyctanassa violacea*	Not Listed	Threatened
Bachman's Sparrow	*Peucaea aestivalis*	Not Listed	Endangered
Pied-billed Grebe	*Podilymbus podiceps*	Not Listed	Endangered
Blue-winged Teal	*Spatula discors*	Not Listed	Threatened
Interior Least Tern	*Sternula antillarum athalassos*	Not Listed	Endangered
Golden-winged Warbler	*Vermivora chrysoptera*	Not Listed	Endangered
Mussels and Invertebrates			
Clubshell	*Pleuribema clava*	Endangered	Not Listed
Fanshell	*Cyprogenia stegaria*	Endangered	Not Listed
Fat Pocketbook	*Potamilus capax*	Endangered	Threatened
Northern Riffleshell	*Epioblasma rangiana*	Endangered	Not Listed
Orangefoot Pimpleback	*Plethobasus cooperianus*	Endangered	Endangered
Pink Mucket	*Lampsilis abrupta*	Endangered	Endangered
Rabbitsfoot	*Quadrula cylindrica cylindrica*	Threatened	Endangered
Ring Pink	*Obovaria retusa*	Endangered	Endangered
Rough Pigtoe	*Pleurobema plenum*	Endangered	Not Listed
Sheepnose Mussel	*Plethobasus cyphyus*	Endangered	Endangered
Spectaclecase	*Cumberlandia monodonta*	Endangered	Not Listed
Longsolid	*Fusconaia subrotunda*	Threatened	Threatened
Purple Lilliput	*Toxolasma lividum*	Not Listed	Endangered
Pocketbook	*Lampsilis ovata*	Not Listed	Endangered
Pyramid Pigtoe	*Pleurobema rubrum*	Not Listed	Endangered
Bleufer	*Potamilus purpuratus*	Not Listed	Endangered

Common Name	Scientific Name	Federal Listing Status[a]	State Listing Status[b]
Shrimp Crayfish	*Faxonius lancifer*	Not Listed	Endangered
Insects			
Monarch Butterfly	*Danaus Plexippus*	Candidate	Not Listed
Dukes' Skipper	*Euphyes dukesi*	Not Listed	Threatened
Mammals			
Gray Bat	*Myotis grisescens*	Endangered	Threatened
Indiana Bat	*Myotis sodalis*	Endangered	Endangered
Northern Long-eared Bat[d]	*Myotis septentrionalis*	Endangered	Endangered
Little Brown Bat	*Myotis lucifugus*	Not Listed	Threatened
Tricolored Bat	*Perimyotis subflavus*	Proposed Endangered	Threatened
Cotton Mouse	*Peromyscus gossypinus*	Not Listed	Threatened
Fish			
Lake Sturgeon	*Acipenser fulvescens*	Not Listed	Endangered
Alligator Gar	*Atractosteus spatula*	Not Listed	Endangered
Lake Chubsucker	*Erimyzon sucetta*	Not Listed	Threatened
Cypress Darter	*Etheostoma proeliare*	Not Listed	Threatened
Cypress Minnow	*Hybognathus hayi*	Not Listed	Endangered
Dollar Sunfish	*Lepomis marginatus*	Not Listed	Endangered
Redspotted Sunfish	*Lepomis miniatus*	Not Listed	Threatened
Mississippi Silverside	*Menidia audens*	Not Listed	Threatened
Taillight Shiner	*Notropis maculatus*	Not Listed	Threatened
Central Mudminnow	*Umbra limi*	Not Listed	Threatened
Plants[c]			
Compassplant	*Silphium laciniatum*	Not Listed	Threatened
Prairie Milkweed	*Asclepias hirtella*	Not Listed	Threatened

source: USFWS, 2024a; KDFWR, 2024; OKNP, 2024

(a) Federally listed species identified by USWFS with potential to occur within or near the Project Area (USFWS, 2024a)
(b) State listed species identified by KDFWR with potential to occur within McCracken County (KDFWR, 2024)
(c) State listed plant species identified by OKNP with potential to occur within or near the Project Area (OKNP, 2024)
(d) As of August 2024, the IPaC indicates Northern Long-eared Bat is no longer present within the Project Area or immediate surrounding area.

4.0 HABITAT ASSESSMENT

During onsite field investigations Burns & McDonnell identified nine vegetation communities within the Project Area, consisting of emergent wetland, scrub-shrub wetland, forested wetland, open water pond, urban, agricultural, old field, open field, and upland forest. These vegetation communities and the habitat that they provide were evaluated for the potential of listed threatened and endangered species to occur within the Project Area.

The wetland communities were classified using Cowardin Classification which is the approved national standard by the Federal Geographic Data Committee (2013). The emergent wetland community contains non-tidal wetlands dominated by palustrine emergent herbaceous vegetation. The scrub-shrub wetland community contains non-tidal wetlands dominated by palustrine scrub-shrub woody vegetation. The forested wetland community contains non-tidal wetlands dominated by palustrine forested woody vegetation. The pond community is a deep open water palustrine unconsolidated bottom pond that lacks vegetation.

The non-wetland communities were classified according to Anderson (1982). The urban community contains regularly maintained land such as residential or industrial areas with planted grasses that are impacted by mowing and other human activity. The agricultural community contains land used for producing crops or raising livestock. The open field community contains areas that are entirely herbaceous without woody vegetation and may refer to habitats such as prairies, meadows, or grasslands. The old field community contains areas that were formerly impacted by human activities and now are abandoned with an herbaceous community having less than half woody vegetation coverage. The upland forest community contains areas with a majority of upland woody vegetation or trees greater than twenty feet tall.

Refer to Table 4-1 for a summary of the dominant plant species observed within each vegetation community of the Project Area. Locations of each of the vegetation communities and habitats assessed can be seen on the figures located in Appendix A. Representative photographs of the vegetation communities, potential habitat, and observed species identified within the Project Area can be found in Appendix C.

Table 4-1: Dominant Vegetation Observed within the Project Area

Habitat	Acres	Stratum	Scientific Name	Common Name
Emergent Wetland	4	Herbaceous	*Persicaria sagittata*	Arrow-leaf Tearthumb
			Dichanthelium clandestinum	Deer-tongue Rosette Grass
			Boehmeria cylindrica	Small-spike False Nettle
			Microstegium vimineum	Japanese stilt grass
			Impatiens capensis	Spotted Touch-me-not
			Persicaria hydropiperoides	Swamp Smartweed
			Scirpus atrovirens	Dark-green Bulrush
			Rhexia marinia	Maryland Meadow-beauty
			Ludwigia palustrus	Marsh Primrose-willow
			Cyperus strigosus	Straw-color Flat Sedge
Scrub-Shrub Wetland	1	Shrub	*Cephalanthus occidentalis*	Buttonbush
			Salix nigra	Black Willow
			Fraxinus pennsylvanica	Green Ash
			Acer rubrum	Red Maple
Forested Wetland	19	Tree	*Acer rubrum*	Red Maple
			Quercus palustris	Pin Oak
			Diospyros virginiana	Common Persimmon
			Betula nigra	River Birch
			Fraxinus pennsylvanica	Green Ash
			Celtis laevigata	Sugarberry
			Quercus lyrata	Overcup Oak
		Shrub	*Salix nigra*	Black Willow
		Herbaceous	*Microstegium vimineum*	Japanese stilt grass
			Boehmeria cylindrica	Small-spike False Nettle
			Impatiens capensis	Spotted Touch-me-not
			Persicaria hydropiperoides	Swamp Smartweed
			Onoclea sensibilis	Sensitive Fern
Pond	4	N/A	N/A	N/A
Urban	2.5	Herbaceous	*Poa pratensis*	Kentucky Blue Grass
			Plantago lanceolata	Narrowleaf Plantain
			Trifolium repens	White Clover
			Microstegium vimineum	Japanese Stiltgrass
			Rubus argutus	Sawtooth Blackberry
Agricultural	78	Herbaceous	*Zea mays*	Corn
			Glycine max	Soybeans

Habitat	Acres	Stratum	Scientific Name	Common Name
Open Field	6.5	Herbaceous	*Dactylis glomerata*	Orchard Grass
			Trifolium repens	White Clover
			Solidago canadensis	Canada Goldenrod
			Schizachyrium scoparium	Little Bluestem
			Sorghastrum nutans	Indian Grass
Old Field	37	Herbaceous	*Daucus carota*	Queen Anne's Lace
			Solidago gigantea	Giant Goldenrod
			Sorghastrum nutans	Indian Grass
			Dichanthelium scoparium	Velvety Panicgrass
			Tripsacum dactyloides	Eastern Gamagrass
		Shrub	*Rhus typhina*	Staghorn Sumac
			Rhus copallinum	Winged Sumac
			Diospyros virginiana	Persimmon
Upland Forest	170	Tree	*Fraxinus pennsylvanica*	Green Ash
			Ulmus alata	Winged Elm
			Acer rubrum	Red Maple
			Sassafras albidum	Sassafras
			Liquidambar styraciflua	Sweetgum
			Acer saccharinum	Silver Maple
			Carya ovata	Shagbark Hickory
			Celtis laevigata	Sugar Berry
			Asimina triloba	Common Pawpaw
			Quercus alba	White Oak
		Shrub	*Rubus allegheniensis*	Common Blackberry
		Herbaceous	*Microstegium vimineum*	Japanese Stiltgrass
			Toxicodendron radicans	Poison ivy
			Phytolacca americana	Pokeweed

5.0 EFFECTS ANALYSIS AND DETERMINATION

Based on the life history of each species and the habitat data observed on site July 15 thru July 19, 2024, during the field investigations, Burns & McDonnell biologists evaluated the potential for each species to occur within the proposed Project Area. Locations for all the vegetation communities and photo points can be seen on the figures located in Appendix A with the corresponding photos in Appendix C. Based on the results of analysis, each species was assigned one of the categories below. Official determinations of effect can only be obtained through consultation with the USFWS and KDFWR.

- Known to occur – The species has been previously documented within the Project Area or was observed during field investigations.
- May occur – The Project Area is within the species' currently known range, and habitat type, soil, etc., resemble those known to be utilized by the species.
- Unlikely to occur – The Project Area is within the species' currently known range, but habitat type, soil, etc., do not resemble those known to be utilized by the species, or the Project Area is clearly outside the species' currently known range.
- Does not occur – The species does not occur within the Project Area due to absence of habitat.

Once each species' potential to occur within the Project Area was categorized, Burns & McDonnell biologists evaluated the proposed Project's potential to affect each species to establish a recommended determination of effect. These recommended determinations follow the effects determinations guidance as put forth by the USFWS (USFWS, 2024c) and include:

- No effect – The proposed action will not affect listed species or critical habitat.
- May affect, but is not likely to adversely affect – The proposed action may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial.
- May affect, is likely to adversely affect – Adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. Section 7 consultation is recommended to confirm if adverse effects to species would occur and if additional studies would be required.

In addition to the federally and state listed species; Burns & McDonnell biologists evaluated the proposed Project's potential to impact the bald eagle to establish a recommended determination of impact, as follows:

- May impact – Adverse impacts to protected species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions.
- No impact – The proposed action will not impact protected species or critical habitat.

Table 5-1 summarizes the list of federal and state protected species with potential to be affected by the proposed Project, their corresponding potential to occur within the Project Area, and Burns & McDonnell's recommended determination of effect.

Table 5-1: Protected Species Potential to Occur and Effects Determination within the Project Area

Protected Species Common Name[a]	Potential to Occur within the Project Area	Recommended Effects Determination[c]
Reptiles		
Alligator Snapping Turtle - SE[b]	Unlikely to occur. Project Area lacks deep water of rivers with vegetation and sufficient shelter. Open water ponds are isolated and have no way for large turtle species to enter besides unlikely extensive land travel.	No Effect
Birds		
Whooping Crane - Experimental	Unlikely to occur. No suitable wetland grassland habitat or experimental populations present within the Project Area.	No Effect
Brown Creeper - ST	Unlikely to occur. Mature evergreen or mixed evergreen-deciduous forests needed for breeding were not present.	No Effect
Great Egret - ST	Unlikely to occur. The Project Area is located within the species' migratory range; however, preferred habitat of wet prairies adjacent to inland marshes, lakes, open ponds, shallow bays, salt marsh and sand or tidal flats are not present within the Project Area.	No Effect
Northern Harrier - ST	Unlikely to occur. Could possibly be found hunting/foraging in agricultural fields, but unlikely due to the lack of wet grassland breeding habitat within or adjacent to the Project Area. Plenty of adjacent agricultural fields can be also used for hunting/foraging. Therefore, loss of agricultural land within the Project Area will not impact this species or its hunting/foraging.	No Effect
Peregrine Falcon - SE	Unlikely to occur. Requires open habitat with large cliffs or structures for nesting	No Effect
American Coot - SE	Unlikely to occur. Fairly shallow freshwater ponds are present, but the habitat lacks the needed marsh and emergent vegetation. Fringe emergent vegetation surrounding the open water ponds is insufficient to provide habitat or breeding area.	No Effect
Hooded Merganser - ST	May occur within the larger forested ponds in the Project Area and can nest in the adjacent hollow trees. If ponds and forested areas that may be used for habitat and nesting can be avoided direct impacts to hooded merganser can be avoided. If impacts are unavoidable further agency consultation is recommended.	May affect, is likely to adversely affect[d]

Protected Species Common Name[a]	Potential to Occur within the Project Area	Recommended Effects Determination[c]
Yellow-crowned Night-heron - ST	May occur within forested wetlands and ponds within the Project Area. If ponds and the forested areas that may be used for habitat and nesting can be avoided direct impacts to yellow-crowned night-heron can be avoided. If impacts are unavoidable further agency consultation is recommended.	May affect, is likely to adversely affect
Bachman's Sparrow - SE	Unlikely to occur. No suitable old growth pine forest habitat with developed herb layer.	No Effect
Pied-billed Grebe - ST	Unlikely to occur. Freshwater ponds are present, but the fringe emergent habitat lacks sufficient marsh vegetation for this species to use as habitat.	No Effect
Blue-winged Teal - ST	Unlikely to occur. Wetland marsh or mudflat habitat with open water and dense emergent vegetation is not present within the Project Area.	No Effect
Interior Least Tern - SE	Unlikely to occur. Does not contain necessary habitat of sandbars in large rivers.	No Effect
Golden-winged Warbler - SE	Unlikely to occur. The Project Area is not within breeding range for the golden-winged warbler. There is potential for the species to migrate through the project area, but open woodlands with patches of shrubs or thickets are not sufficient enough to provide habitat.	No Effect
Mussels and Invertebrates		
Clubshell - FE	Unlikely to occur. Streams on site did not have suitable substrate or flow to support mussel species.	No Effect
Fanshell - FE	Unlikely to occur. Streams on site did not have suitable substrate or flow to support mussel species.	No Effect
Fat Pocketbook - FE, ST	Unlikely to occur. Streams on site did not have suitable substrate or flow to support mussel species.	No Effect
Northern Riffleshell - FE	Unlikely to occur. Streams on site did not have suitable substrate or flow to support mussel species.	No Effect
Orangefoot Pimpleback - FE, SE	Unlikely to occur. Streams on site did not have suitable substrate or flow to support mussel species.	No Effect
Pink Mucket - FE, SE	Unlikely to occur. Streams on site did not have suitable substrate or flow to support mussel species.	No Effect
Rabbitsfoot - FT, SE	Unlikely to occur. Streams on site did not have suitable substrate or flow to support mussel species.	No Effect
Ring Pink - FE, SE	Unlikely to occur. Streams on site did not have suitable substrate or flow to support mussel species.	No Effect
Rough Pigtoe - FE	Unlikely to occur. Streams on site did not have suitable substrate or flow to support mussel species.	No Effect
Sheepnose Mussel - FE, SE	Unlikely to occur. Streams on site did not have suitable substrate or flow to support mussel species.	No Effect
Spectaclecase - FE	Unlikely to occur. Streams on site did not have suitable substrate or flow to support mussel species.	No Effect

Protected Species Common Name[a]	Potential to Occur within the Project Area	Recommended Effects Determination[c]
Longsolid - FT, ST	Unlikely to occur. Streams on site did not have suitable substrate or flow to support mussel species.	No Effect
Purple Lilliput - SE	Unlikely to occur. Streams on site did not have suitable substrate or flow to support mussel species.	No Effect
Pocketbook - SE	Unlikely to occur. Streams on site did not have suitable substrate or flow to support mussel species.	No Effect
Pyramid Pigtoe - SE	Unlikely to occur. Streams on site did not have suitable substrate or flow to support mussel species.	No Effect
Bleufer - SE	Unlikely to occur. Streams on site did not have suitable substrate or flow to support mussel species.	No Effect
Shrimp Crayfish - SE	Unlikely to occur. Streams are present but lack the necessary substrate and boulder hiding places.	No Effect
Insects		
Monarch Butterfly - Candidate	May occur within the open field meadows or grasslands. This is a candidate species and not currently afforded formal protection under the ESA.	May affect, but is not likely to adversely affect
Dukes' Skipper - ST	Unlikely to occur. Requires large patches of hairy sedge (*Carex lacustris*) or shoreline sedge (*Carex hyalinolepis*) and marsh vegetation within forested swamps which was not observed on site.	No Effect
Mammals		
Gray Bat - FE, ST	Unlikely to occur. No cave features were observed in or directly adjacent to the Project Area. Could potentially be present but is unlikely to be impacted by tree clearing as they currently have no tree clearing restrictions under USFWS guidelines.	No Effect
Indiana Bat - FE, SE	May occur within or adjacent to the Project Area. No results were found during the acoustic bat survey, but potential bat habitat is present within the Project Area. If all trees, including roost trees, can be avoided during construction or if any tree clearing can be conducted during the winter, non-roosting season, direct impacts to bats can be avoided. If tree clearing is unavoidable outside of the winter further agency consultation and mitigation through an in lieu fee program is required.	May affect, but is not likely to adversely affect
Northern Long-eared Bat - FE, SE[e]	May occur within or adjacent to the Project Area. No results were found during the acoustic bat survey, but potential bat habitat is present within the Project Area. If all trees, including roost trees, can be avoided during construction or if any tree clearing can be conducted during the winter, non-roosting season, direct impacts to bats can be avoided. If tree clearing is unavoidable outside of the winter further agency consultation and mitigation through an in lieu fee program is required.	May affect, but is not likely to adversely affect

Protected Species Common Name[a]	Potential to Occur within the Project Area	Recommended Effects Determination[c]
Little Brown Bat - ST	Unlikely to occur. Could potentially be present but is unlikely to be impacted by tree clearing as they currently have no tree clearing restrictions under USFWS guidelines.	No Effect
Tricolored Bat - Proposed Endangered, ST	Known to occur. Found in forested habitats where they roost in trees, primarily among leaves. Presence of tricolored bat was detected at three of the four acoustic bat survey sites. Forested areas are present within the Project Area. If all trees, including roost trees, can be avoided during construction or if any tree clearing can be conducted during the winter, non-roosting season, direct impacts to bats can be avoided. If tree clearing is unavoidable outside of the winter further agency consultation and mitigation through an in lieu fee program is required.	May affect, but is not likely to adversely affect
Cotton Mouse - ST	May occur within forested areas within hardwood forests, swamps, the margins of cleared fields, edges of dunes, and scrub shrub habitats. If all tree clearing can be avoided direct impacts to cotton mouse can be avoided. If tree clearing is unavoidable further agency consultation will be required.	May affect, is likely to adversely affect
Fish		
Lake Sturgeon - SE	Unlikely to occur. Large enough freshwater lakes or rivers are not present within the Project Area	No Effect
Alligator Gar - SE	Unlikely to occur. Large and slow-moving rivers, reservoirs, oxbow lakes, bayous, and bays are not present in the Project Area.	No Effect
Lake Chubsucker - ST	Unlikely to occur. Lowland streams and rivers, oxbow lakes, sloughs, and swamps are not present in the Project Area.	No Effect
Cypress Darter - ST	Unlikely to occur. Slow-moving water is present but lacks sufficient vegetation and habitat.	No Effect
Cypress Minnow - SE	Unlikely to occur. Large river habitat with riffles are not present in the Project Area.	No Effect
Dollar Sunfish - SE	Unlikely to occur. Lacks soft substrate in pools of creeks, swamps and lakes with aquatic vegetation.	No Effect
Redspotted Sunfish - ST	Unlikely to occur. Requires warm lowland swamps, oxbows, and sluggish backwaters of streams and rivers which are not present in the Project Area.	No Effect
Mississippi Silverside - ST	Unlikely to occur. Shallow, warm water lakes, and reservoirs are not present in the Project Area.	No Effect
Taillight Shiner - ST	Unlikely to occur. Project Area lacks Swamps, ponds, oxbow lakes and rivers with many aquatic plants.	No Effect
Central Mudminnow - ST	Unlikely to occur. Slow-moving riffles are not present around large ponds or streams.	No Effect

Protected Species Common Name[a]	Potential to Occur within the Project Area	Recommended Effects Determination[c]
Plants		
Compassplant - ST	Known to occur. Plant has a recorded occurrence by the OKNP and was documented on site during the habitat assessment. If this species can be avoided during construction, then no further consultation would be needed. If this species is proposed to be impacted further consultation is required.	May affect, is likely to adversely affect
Prairie Milkweed - ST	Unlikely to occur. Plant has a recorded occurrence by the OKNP but the occurrence is not within the Project Area and no species were observed during field evaluations.	No Effect
Other Federally Protected Species		
Bald eagle	Unlikely to occur. Although bald eagles may traverse the Project Area, suitable nesting habitat or food sources are not present within the Project Area. No nests were observed within or adjacent to the Project Area.	No Impact
Golden eagle	Unlikely to occur. Project Area lies outside of the general breeding range of the species. No nests were observed within or adjacent to the Project Area.	No Impact

(a) Federal and state listed species were identified by the USFWS, KDFWR, OKNP
(b) FE: Federally Endangered, FT: Federally Threatened, SE: State Endangered, ST: State Threatened
(c) Determinations based on U.S. Fish and Wildlife Service nomenclature (USFWS, 2024
(d) Section 7 consultation is recommended to confirm if adverse effects to species would occur and if additional studies would be required.
(e) As of August 2024, the IPaC indicates Northern Long-eared Bat is no longer present within the Project Area or immediate surrounding area.

6.0 ACOUSTIC BAT REPORT SUMMARY

Further assessment of the potential for bat species was done by conducting a presence/probable absence survey for this project using acoustic survey methods in accordance with the 2024 USFWS Rangewide Indiana Bat and Northern Long-eared Bat Survey Guidelines. Target species for the survey included Indiana bat, northern long-eared bat, and tricolored bat. Acoustic bat detectors were deployed at 4 locations within the Project Area for 9 nights. The survey results indicated presence of tricolored bat at three of the sites and probable absence of Indiana bat and northern long-eared bat from all sites. Gray bat and little brown bat were determined to potentially be present based on the automated identification software. These species were not manually reviewed because it is not recommended or required under USFWS guidelines and currently the guidelines have no tree clearing restrictions.

The listed tricolored bat species has the potential to be found within the forested habitats present within the Project Area where they roost in trees, primarily among leaves. If tree clearing can be avoided during construction or be conducted during the winter, non-roosting season, tricolored bat will not likely be adversely affected. These results and further discussion on the presence/probable absence of listed bat species can be reviewed in the complete Acoustic Bat Survey Report in Appendix O of the Environmental Report.

7.0 CONCLUSIONS

Based on desktop review and the results of the habitat assessments conducted July 15 thru July 19, 2024, it is Burns & McDonnell's professional opinion that that development of the proposed Project may affect but is not likely to adversely affect state and federally listed bat species including Indiana bat, northern long-eared bat, and tricolored bat. Development of the proposed Project may affect and is likely to adversely affect state listed species including hooded merganser, yellow-crowned night-heron, cotton mouse, monarch butterfly, and compassplant.

Acoustic bat survey results indicate the presence of tricolored bat. The bat species and cotton mouse have the potential to be found within the forested habitats within the Project Area. If tree clearing is required, but clearing can be conducted during the winter, non-roosting season when bats will not be present, listed bat species will not likely be adversely affected. The listed, yellow-crowned night-heron and hooded merganser have the potential to be found in forested waterbody habitats such as forested ponds which were observed on-site. Tree clearing could potentially have an adverse impact on the cotton mouse, yellow-crowned night-heron, and hooded merganser. Compassplant individuals were observed on site during the onsite assessment. If impacts to these species or their habitats are avoided, then no adverse effects to these species are expected and no need for further consultation will be required. Official determinations of effect can only be obtained through agency coordination. If the Project proposes impacts to listed species or critical habitat then further coordination under Section 7 of the ESA will be required to confirm if adverse effects to species would occur and if additional studies would be required.

The monarch butterfly may occur within the small sections of open field meadows or grasslands. The candidate monarch butterfly and the proposed endangered species tricolored bat are not currently afforded formal protection under the ESA but have been included in this analysis as they could be listed in the future while the Project is in progress.

There was no other observed habitat for other protected species, therefore the Project is anticipated to have no effect on any other state or federally listed species. In addition, no bald or golden eagle species or nests were observed therefore it is anticipated the proposed Project would have no effect on either bald or golden eagles.

The results and conclusions presented in the report are Burns & McDonnell's professional opinion based on the information available during the literature review, the onsite habitat assessment, the bat acoustic survey, and Burns & McDonnell's understanding and interpretation of the ESA, MBTA and BGEPA.

8.0 LITERATURE CITED

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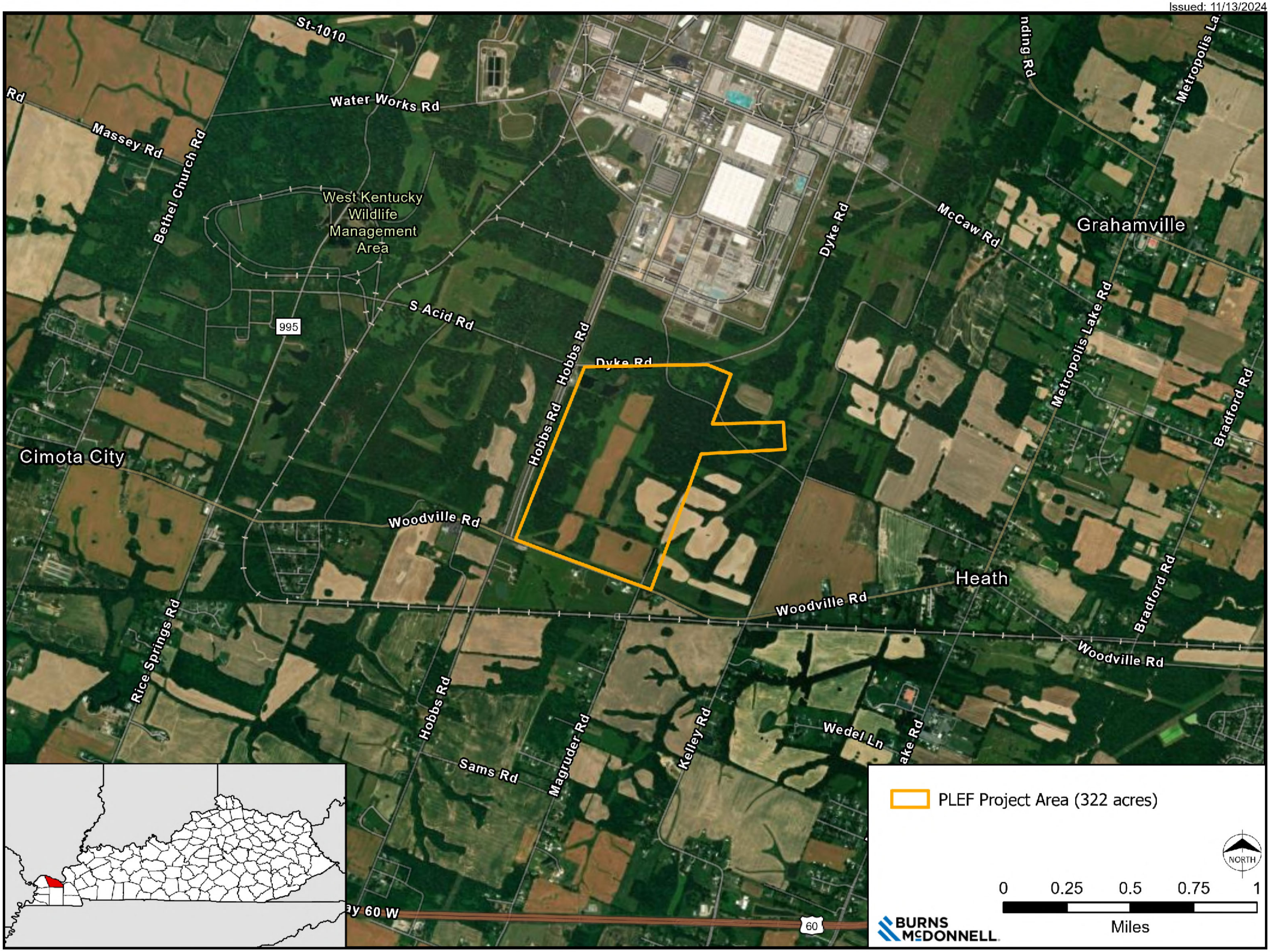
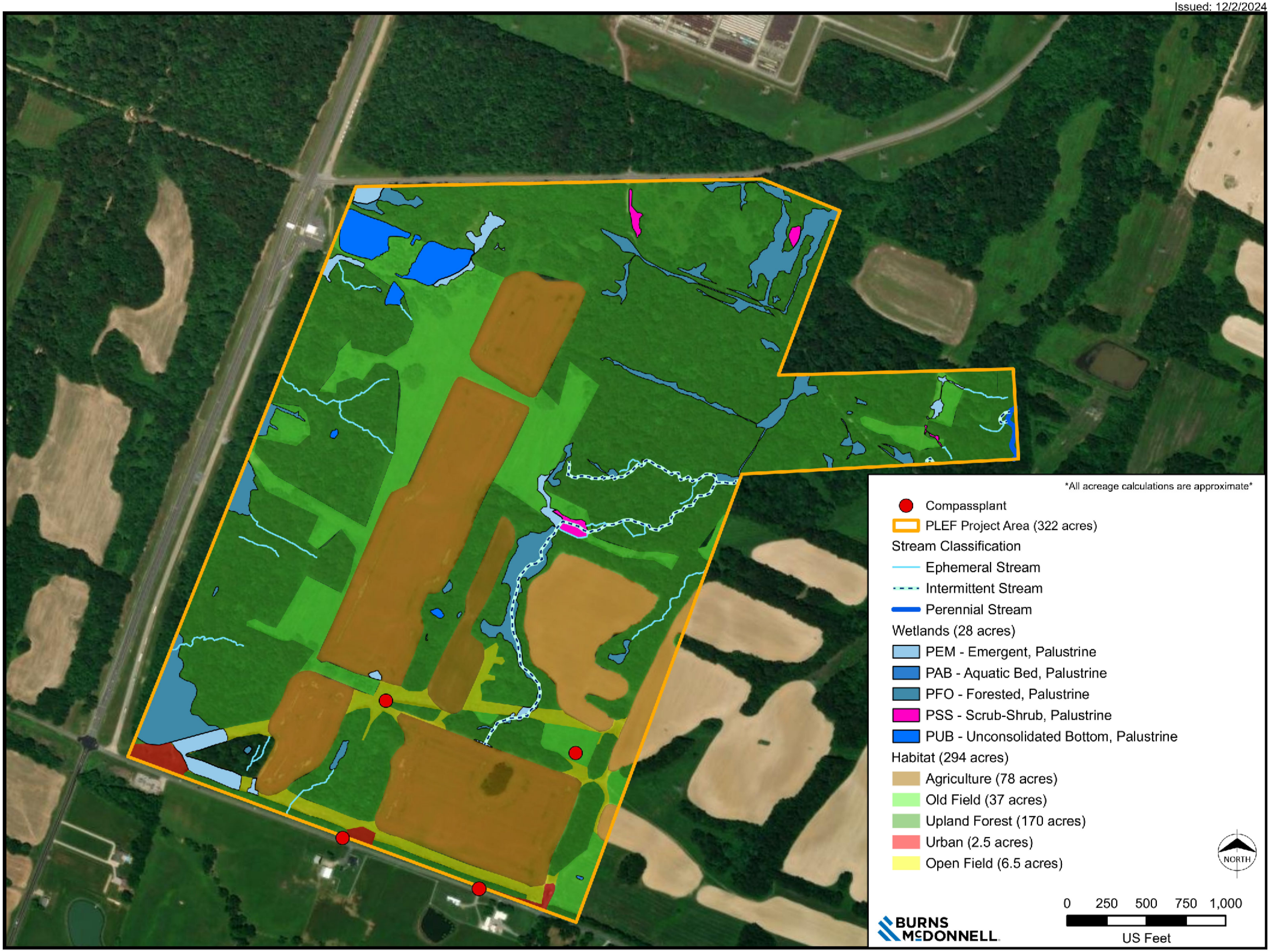
APPENDIX A – FIGURES

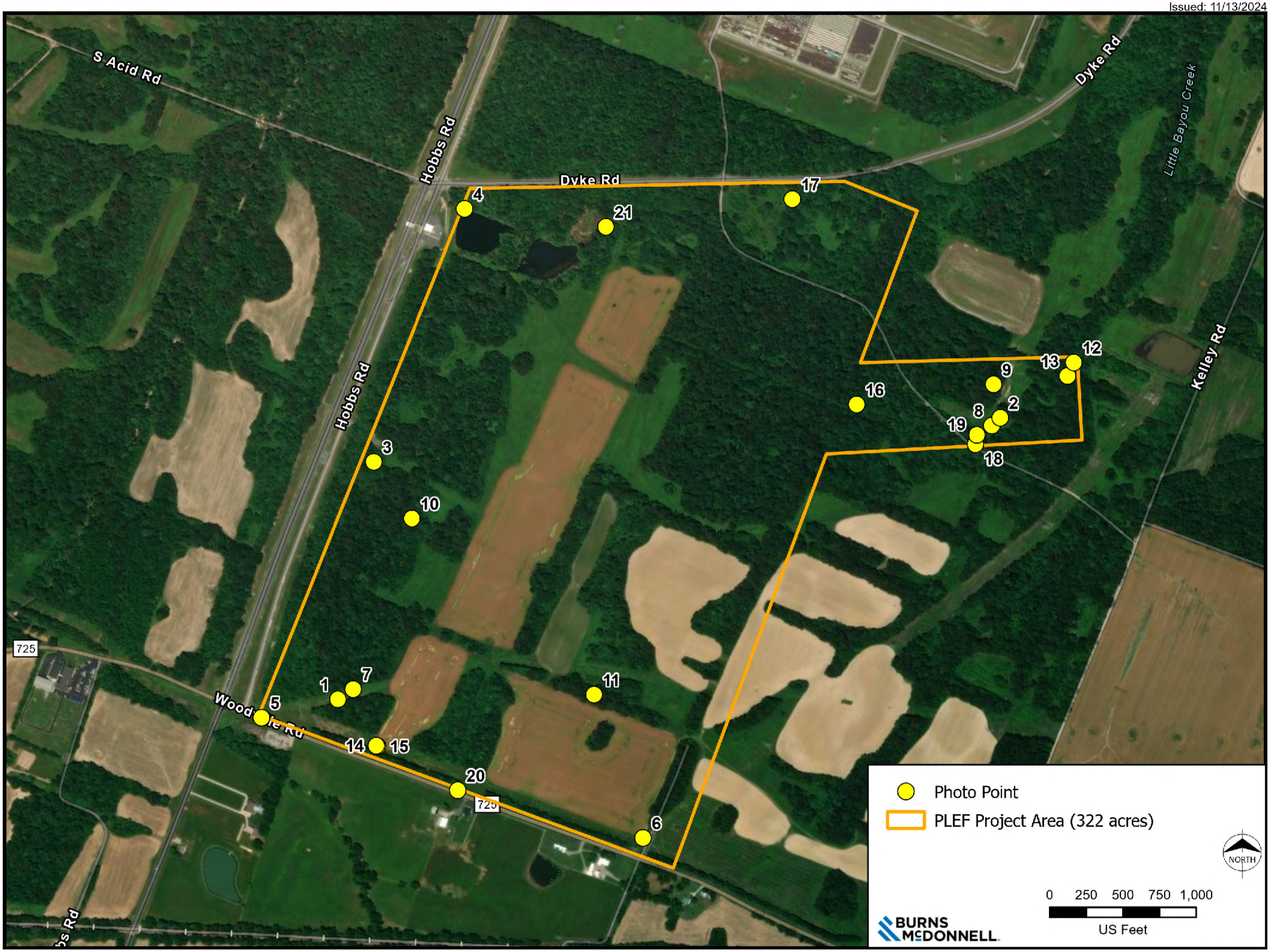
Issued: 11/13/2024


St-1010
Water Works Rd
Rd
Massey Rd
Bethel Church Rd
West Kentucky Wildlife Management Area
995
S Acid Rd
Hobbs Rd
Dyke Rd
Dyke Rd
McCaw Rd
nding Rd
Metropolis La
Grahamville
Metropolis Lake Rd
Bradford Rd
Cimota City
Woodville Rd
Heath
Woodville Rd
Woodville Rd
Bradford Rd
Rice Springs Rd
Hobbs Rd
Magruder Rd
Kelley Rd
Wedel Ln
ake Rd
Sams Rd
ay 60 W
60
PLEF Project Area (322 acres)
NORTH
0
0.25
0.5
0.75
1
Miles
BURNS McDONNELL

Issued: 12/2/2024


All acreage calculations are approximate
● Compassplant
PLEF Project Area (322 acres)
Stream Classification
Ephemeral Stream
Intermittent Stream
Perennial Stream
Wetlands (28 acres)
PEM - Emergent, Palustrine
PAB - Aquatic Bed, Palustrine
PFO - Forested, Palustrine
PSS - Scrub-Shrub, Palustrine
PUB - Unconsolidated Bottom, Palustrine
Habitat (294 acres)
Agriculture (78 acres)
Old Field (37 acres)
Upland Forest (170 acres)
Urban (2.5 acres)
Open Field (6.5 acres)
NORTH
0
250
500
750
1,000
US Feet
BURNS McDONNELL

Issued: 11/13/2024


S Acid Rd
Hobbs Rd
Dyke Rd
Dyke Rd
Little Bayou Creek
Kelley Rd
Hobbs Rd
725
Woodville Rd
725
bs Rd
4
21
17
12
13
9
16
2
8
19
18
3
10
7
1
5
11
14
15
20
6
● Photo Point
PLEF Project Area (322 acres)
NORTH
0 250 500 750 1,000
US Feet
BURNS McDONNELL

APPENDIX B – SPECIES LISTS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
J C Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601-8670
Phone: (502) 695-0467 Fax: (502) 695-1024
Email Address: kentuckyes@fws.gov

In Reply Refer To: 08/11/2024 17:07:30 UTC
Project Code: 2024-0128771
Project Name: BGS Paducah

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq*.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq*.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do..

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

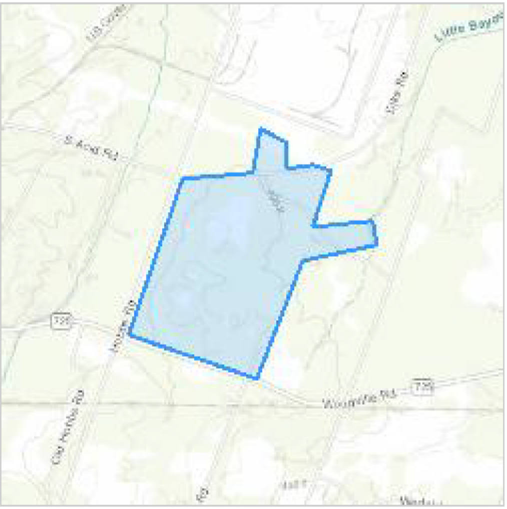
This species list is provided by:

Kentucky Ecological Services Field Office
J C Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601-8670
(502) 695-0467

PROJECT SUMMARY

Project Code: 2024-0128771
Project Name: BGS Paducah
Project Type: Commercial Development
Project Description: Environmental Survey for proposed construction near Paducah Plant
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.09365165,-88.81511021696393,14z



Counties: McCracken County, Kentucky

ENDANGERED SPECIES ACT SPECIES

There is a total of 17 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 6 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Gray Bat *Myotis grisescens* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ The project area includes potential gray bat habitat. Species profile: https://ecos.fws.gov/ecp/species/6329 General project design guidelines: https://ipac.ecosphere.fws.gov/project/AWGQZBO2GJH2DG6FLQZ5FMIQUM/documents/generated/6422.pdf	Endangered
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: ▪ The project area includes 'potential' habitat. All activities in this location should consider possible effects to this species. Species profile: https://ecos.fws.gov/ecp/species/5949 General project design guidelines: https://ipac.ecosphere.fws.gov/project/AWGQZBO2GJH2DG6FLQZ5FMIQUM/documents/generated/6422.pdf	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Whooping Crane *Grus americana* Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non-Essential

CLAMS

NAME	STATUS
Clubshell *Pleurobema clava* Population: Wherever found; Except where listed as Experimental Populations No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ The species may be affected by projects that significantly impact the Ohio River. Species profile: https://ecos.fws.gov/ecp/species/3789 General project design guidelines: https://ipac.ecosphere.fws.gov/project/AWGQZBO2GJH2DG6FLQZ5FMIQUM/documents/generated/5639.pdf	Endangered
Fanshell *Cyprogenia stegaria* No critical habitat has been designated for this species.	Endangered

NAME	STATUS
This species only needs to be considered under the following conditions: ▪ The species may be affected by projects that significantly impact the Ohio River. Species profile: https://ecos.fws.gov/ecp/species/4822 General project design guidelines: https://ipac.ecosphere.fws.gov/project/AWGQZBO2GJH2DG6FLQZ5FMIQUM/documents/generated/5639.pdf	
Fat Pocketbook *Potamilus capax* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ The species may be affected by projects that significantly impact, directly or indirectly, the following rivers: Clarks, Cumberland, Green, Mississippi, Ohio, Tradewater, or Tennessee. Species profile: https://ecos.fws.gov/ecp/species/2780 General project design guidelines: https://ipac.ecosphere.fws.gov/project/AWGQZBO2GJH2DG6FLQZ5FMIQUM/documents/generated/5639.pdf	Endangered
Longsolid *Fusconaia subrotunda* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9880	Threatened
Northern Riffleshell *Epioblasma rangiana* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ The species may be affected by projects that significantly impact, directly or indirectly, the following rivers: Green, Licking, or Ohio. Species profile: https://ecos.fws.gov/ecp/species/527 General project design guidelines: https://ipac.ecosphere.fws.gov/project/AWGQZBO2GJH2DG6FLQZ5FMIQUM/documents/generated/5639.pdf	Endangered
Orangefoot Pimpleback (pearlymussel) *Plethobasus cooperianus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1132 General project design guidelines: https://ipac.ecosphere.fws.gov/project/AWGQZBO2GJH2DG6FLQZ5FMIQUM/documents/generated/5639.pdf	Endangered
Pink Mucket (pearlymussel) *Lampsilis abrupta* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7829 General project design guidelines: https://ipac.ecosphere.fws.gov/project/AWGQZBO2GJH2DG6FLQZ5FMIQUM/documents/generated/5639.pdf	Endangered
Rabbitsfoot *Quadrula cylindrica cylindrica* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5165 General project design guidelines: https://ipac.ecosphere.fws.gov/project/AWGQZBO2GJH2DG6FLQZ5FMIQUM/documents/generated/5639.pdf	Threatened

NAME	STATUS
Ring Pink (mussel) *Obovaria retusa* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4128 General project design guidelines: https://ipac.ecosphere.fws.gov/project/AWGQZBO2GJH2DG6FLQZ5FMIQUM/documents/generated/5639.pdf	Endangered
Rough Pigtoe *Pleurobema plenum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6894 General project design guidelines: https://ipac.ecosphere.fws.gov/project/AWGQZBO2GJH2DG6FLQZ5FMIQUM/documents/generated/5639.pdf	Endangered
Sheepnose Mussel *Plethobasus cyphyus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6903 General project design guidelines: https://ipac.ecosphere.fws.gov/project/AWGQZBO2GJH2DG6FLQZ5FMIQUM/documents/generated/5639.pdf	Endangered
Spectaclecase (mussel) *Cumberlandia monodonta* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7867 General project design guidelines: https://ipac.ecosphere.fws.gov/project/AWGQZBO2GJH2DG6FLQZ5FMIQUM/documents/generated/5639.pdf	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

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Species Information

Species observations for selected counties

Linked life history provided courtesy of NatureServe Explorer .

Records may include both recent and historical observations.

US Status Definitions Kentucky Status Definitions

List Species observations in 1 selected county.
Selected county is: McCracken.

Scientific Name and Life History	Common Name and Pictures	Class	County	US Status	KY Status	WAP	Reference
Accipiter cooperii	Cooper's Hawk	Aves	McCracken	N	N		Reference
Accipiter striatus	Sharp-shinned Hawk	Aves	McCracken	N	S	Yes	Reference
Acipenser fulvescens	Lake Sturgeon	Actinopterygii	McCracken	N	E	Yes	Reference
Acris crepitans	Eastern Cricket Frog	Amphibia	McCracken	N	N		Reference
Actinonaias ligamentina	Mucket	Bivalvia	McCracken	N	N		Reference
Agelaius phoeniceus	Red-winged Blackbird	Aves	McCracken	N	N		Reference
Agkistrodon contortrix	Eastern Copperhead	Reptilia	McCracken	N	N		Reference
Aix sponsa	Wood Duck	Aves	McCracken	N	N		Reference
Alosa chrysochloris	Skipjack Herring	Actinopterygii	McCracken	N	N		Reference
Amblema plicata	Threeridge	Bivalvia	McCracken	N	N		Reference
Ambloplites rupestris	Rock Bass	Actinopterygii	McCracken	N	N		Reference
Ambystoma maculatum	Spotted Salamander	Amphibia	McCracken	N	N		Reference
Ambystoma opacum	Marbled Salamander	Amphibia	McCracken	N	N		Reference

Ambystoma talpoideum	Mole Salamander	Amphibia	McCracken	N	N	Yes	Reference
Ambystoma texanum	Small-mouthed Salamander	Amphibia	McCracken	N	N		Reference
Ambystoma tigrinum	Eastern Tiger Salamander	Amphibia	McCracken	N	N		Reference
Ameiurus melas	Black Bullhead	Actinopterygii	McCracken	N	N		Reference
Ameiurus natalis	Yellow Bullhead	Actinopterygii	McCracken	N	N		Reference
Ameiurus nebulosus	Brown Bullhead	Actinopterygii	McCracken	N	N		Reference
Amia calva	Bowfin	Actinopterygii	McCracken	N	N		Reference
Ammodramus savannarum	Grasshopper Sparrow	Aves	McCracken	N	N	Yes	Reference
Ammospiza leconteii	LeConte's Sparrow	Aves	McCracken	N	N		Reference
Anas acuta	Northern Pintail	Aves	McCracken	N	N		Reference
Anas crecca	Green-winged Teal	Aves	McCracken	N	N		Reference
Anas platyrhynchos	Mallard	Aves	McCracken	N	N		Reference
Anas rubripes	American Black Duck	Aves	McCracken	N	N	Yes	Reference
Anaxyrus americanus	American Toad	Amphibia	McCracken	N	N		Reference
Anaxyrus fowleri	Fowler's Toad	Amphibia	McCracken	N	N		Reference
Anguilla rostrata	American Eel	Actinopterygii	McCracken	N	N	Yes	Reference
Antrostomus carolinensis	Chuck-will's-widow	Aves	McCracken	N	N	Yes	Reference
Antrostomus vociferus	Whip-poor-will	Aves	McCracken	N	N	Yes	Reference
Apalone mutica mutica	Midland Smooth Softshell	Chelonia	McCracken	N	N	Yes	Reference
Apalone spinifera spinifera	Eastern Spiny Softshell	Chelonia	McCracken	N	N		Reference
Aphredoderus sayanus	Pirate Perch	Actinopterygii	McCracken	N	N		Reference

Aplodinotus grunniens	Freshwater Drum	Actinopterygii	McCracken	N	N		Reference
Archilochus alexandri	Black-chinned Hummingbird	Aves	McCracken	N	N		Reference
Archilochus colubris	Ruby-throated Hummingbird	Aves	McCracken	N	N		Reference
Arcidens confragosus	Rock Pocketbook	Bivalvia	McCracken	N	N		Reference
Ardea alba	Great Egret	Aves	McCracken	N	T	Yes	Reference
Ardea herodias	Great Blue Heron	Aves	McCracken	N	N		Reference
Aspidoscelis sexlineata	Six-lined Racerunner	Reptilia	McCracken	N	S	Yes	Reference
Atractosteus spatula	Alligator Gar	Actinopterygii	McCracken	N	E	Yes	Reference
Aythya affinis	Lesser Scaup	Aves	McCracken	N	N	Yes	Reference
Aythya collaris	Ring-necked Duck	Aves	McCracken	N	N		Reference
Aythya valisineria	Canvasback	Aves	McCracken	N	N		Reference
Baeolophus bicolor	Tufted Titmouse	Aves	McCracken	N	N		Reference
Bartramia longicauda	Upland Sandpiper	Aves	McCracken	N	H	Yes	Reference
Blarina brevicauda	Northern Short-tailed Shrew	Mammalia	McCracken	N	N		Reference
Blarina carolinensis	Southern Short-tailed Shrew	Mammalia	McCracken	N	N		Reference
Bombycilla cedrorum	Cedar Waxwing	Aves	McCracken	N	N		Reference
Branta canadensis	Canada Goose	Aves	McCracken	N	N		Reference
Bubo virginianus	Great Horned Owl	Aves	McCracken	N	N		Reference
Bucephala albeola	Bufflehead	Aves	McCracken	N	N		Reference
Buteo jamaicensis	Red-tailed Hawk	Aves	McCracken	N	N		Reference
Buteo lineatus	Red-shouldered Hawk	Aves	McCracken	N	N		Reference

Butorides virescens	Green Heron	Aves	McCracken	N	N	Yes	Reference
Campeloma decisum	Pointed Campeloma	Gastropoda	McCracken	N	N		Reference
Campostoma anomalum	Central Stoneroller	Actinopterygii	McCracken	N	N		Reference
Campostoma oligolepis	Largescale Stoneroller	Actinopterygii	McCracken	N	N		Reference
Campostoma pullum	Finescale Stoneroller	Actinopterygii	McCracken	N	S		Reference
Canis latrans	Coyote	Mammalia	McCracken	N	N		Reference
Carassius auratus	Goldfish	Actinopterygii	McCracken	N	N		Reference
Cardellina pusilla	Wilson's Warbler	Aves	McCracken	N	N		Reference
Cardinalis cardinalis	Northern Cardinal	Aves	McCracken	N	N		Reference
Carphophis amoenus	Common Wormsnake	Reptilia	McCracken	N	N		Reference
Carpiodes carpio	River Carpsucker	Actinopterygii	McCracken	N	N		Reference
Carpiodes cyprinus	Quillback	Actinopterygii	McCracken	N	N		Reference
Carpiodes velifer	Highfin Carpsucker	Actinopterygii	McCracken	N	N	Yes	Reference
Castor canadensis	American Beaver	Mammalia	McCracken	N	N		Reference
Cathartes aura	Turkey Vulture	Aves	McCracken	N	N		Reference
Catharus fuscescens	Veery	Aves	McCracken	N	N		Reference
Catharus guttatus	Hermit Thrush	Aves	McCracken	N	N		Reference
Catharus minimus	Gray-cheeked Thrush	Aves	McCracken	N	N		Reference
Catharus ustulatus	Swainson's Thrush	Aves	McCracken	N	N		Reference
Catostomus commersonii	White Sucker	Actinopterygii	McCracken	N	N		Reference

Centrarchus macropterus	Flier	Actinopterygii	McCracken	N	N		Reference
Centronyx henslowii	Henslow's Sparrow	Aves	McCracken	N	S	Yes	Reference
Certhia americana	Brown Creeper	Aves	McCracken	N	T		Reference
Chaetura pelagica	Chimney Swift	Aves	McCracken	N	N		Reference
Charadrius vociferus	Killdeer	Aves	McCracken	N	N		Reference
Chelydra serpentina	Snapping Turtle	Chelonia	McCracken	N	N		Reference
Chlidonias niger	Black Tern	Aves	McCracken	N	N	Yes	Reference
Chondestes grammacus	Lark Sparrow	Aves	McCracken	N	S		Reference
Chordeiles minor	Common Nighthawk	Aves	McCracken	N	N		Reference
Chrysemys dorsalis x picta	Southern Painted and Painted Turtle Hybrid	Chelonia	McCracken	N	N		Reference
Circus hudsonius	Northern Harrier	Aves	McCracken	N	T	Yes	Reference
Cistothorus palustris	Marsh Wren	Aves	McCracken	N	N		Reference
Cistothorus stellaris	Sedge Wren	Aves	McCracken	N	S	Yes	Reference
Coccyzus americanus	Yellow-billed Cuckoo	Aves	McCracken	N	N	Yes	Reference
Colaptes auratus	Northern Flicker	Aves	McCracken	N	N		Reference
Colinus virginianus	Northern Bobwhite	Aves	McCracken	N	N	Yes	Reference
Coluber constrictor	North American Racer	Reptilia	McCracken	N	N		Reference
Columba livia	Rock Pigeon	Aves	McCracken	N	N		Reference
Contopus virens	Eastern Wood-Pewee	Aves	McCracken	N	N		Reference
Coragyps atratus	Black Vulture	Aves	McCracken	N	N		Reference
Corbicula fluminea	Asiatic Clam	Bivalvia	McCracken	N	N		Reference

Corvus brachyrhynchos	American Crow	Aves	McCracken	N	N		Reference
Corvus ossifragus	Fish Crow	Aves	McCracken	N	S		Reference
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	Mammalia	McCracken	N	S	Yes	Reference
Creaserinus fodiens	Digger Crayfish	Malacostraca	McCracken	N	N	Yes	Reference
Cryptobranchus alleganiensis alleganiensis	Eastern Hellbender	Amphibia	McCracken	N	S	Yes	Reference
Cryptotis parva	Least Shrew	Mammalia	McCracken	N	N		Reference
Ctenopharyngodon idella	Grass Carp	Actinopterygii	McCracken	N	N		Reference
Cyanocitta cristata	Blue Jay	Aves	McCracken	N	N		Reference
Cycleptus elongatus	Blue Sucker	Actinopterygii	McCracken	N	N	Yes	Reference
Cyclonaias nodulata	Wartyback	Bivalvia	McCracken	N	N		Reference
Cyclonaias pustulosa	Pimpleback	Bivalvia	McCracken	N	N		Reference
Cyclonaias tuberculata	Purple Wartyback	Bivalvia	McCracken	N	N		Reference
Cygnus buccinator	Trumpeter Swan	Aves	McCracken	N	N	Yes	Reference
Cygnus columbianus	Tundra Swan	Aves	McCracken	N	N		Reference
Cygnus olor	Mute Swan	Aves	McCracken	N	N		Reference
Cyprinella lutrensis	Red Shiner	Actinopterygii	McCracken	N	N		Reference
Cyprinella spiloptera	Spotfin Shiner	Actinopterygii	McCracken	N	N		Reference
Cyprinella venusta	Blacktail Shiner	Actinopterygii	McCracken	N	S	Yes	Reference
Cyprinella whipplei	Steelcolor Shiner	Actinopterygii	McCracken	N	N		Reference
Cyprinus carpio	Common Carp	Actinopterygii	McCracken	N	N		Reference
Dasypus novemcinctus	Nine-banded Armadillo	Mammalia	McCracken	N	N		Reference
Deroceras laeve	Meadow Slug	Gastropoda	McCracken	N	N		Reference

Desmognathus conanti	Spotted Dusky Salamander	Amphibia	McCracken	N	N	Yes	Reference
Diadophis punctatus stictogenys	Mississippi Ringneck Snake	Reptilia	McCracken	N	N		Reference
Didelphis virginiana	Virginia Opossum	Mammalia	McCracken	N	N		Reference
Dolichonyx oryzivorus	Bobolink	Aves	McCracken	N	S	Yes	Reference
Dorosoma cepedianum	Gizzard Shad	Actinopterygii	McCracken	N	N		Reference
Dorosoma petenense	Threadfin Shad	Actinopterygii	McCracken	N	N		Reference
Dreissena polymorpha	Zebra Mussel	Bivalvia	McCracken	N	N		Reference
Dryobates pubescens	Downy Woodpecker	Aves	McCracken	N	N		Reference
Dryobates villosus	Hairy Woodpecker	Aves	McCracken	N	N		Reference
Dryocopus pileatus	Pileated Woodpecker	Aves	McCracken	N	N		Reference
Dumetella carolinensis	Gray Catbird	Aves	McCracken	N	N		Reference
Elassoma zonatum	Banded Pygmy Sunfish	Actinopterygii	McCracken	N	N		Reference
Ellipsaria lineolata	Butterfly	Bivalvia	McCracken	N	N	Yes	Reference
Elliptio crassidens	Elephantear	Bivalvia	McCracken	N	S	Yes	Reference
Empidonax traillii	Willow Flycatcher	Aves	McCracken	N	N	Yes	Reference
Empidonax virescens	Acadian Flycatcher	Aves	McCracken	N	N		Reference
Eptesicus fuscus	Big Brown Bat	Mammalia	McCracken	N	N		Reference
Eremophila alpestris	Horned Lark	Aves	McCracken	N	N		Reference
Erimyzon claviformis	Western Creek Chubsucker	Actinopterygii	McCracken	N	N		Reference

Erimyzon sucetta	Lake Chubsucker	Actinopterygii	McCracken	N	T	Yes	Reference
Esox americanus	Grass Pickerel	Actinopterygii	McCracken	N	N		Reference
Esox niger	Chain Pickerel	Actinopterygii	McCracken	N	S	Yes	Reference
Etheostoma asprigene	Mud Darter	Actinopterygii	McCracken	N	N		Reference
Etheostoma blennioides	Greenside Darter	Actinopterygii	McCracken	N	N		Reference
Etheostoma caeruleum	Rainbow Darter	Actinopterygii	McCracken	N	N		Reference
Etheostoma chlorosoma	Bluntnose Darter	Actinopterygii	McCracken	N	N		Reference
Etheostoma flabellare	Fantail Darter	Actinopterygii	McCracken	N	N		Reference
Etheostoma gracile	Slough Darter	Actinopterygii	McCracken	N	N		Reference
Etheostoma histrio	Harlequin Darter	Actinopterygii	McCracken	N	N		Reference
Etheostoma nigrum	Johnny Darter	Actinopterygii	McCracken	N	N		Reference
Etheostoma oophylax	Guardian Darter	Actinopterygii	McCracken	N	N		Reference
Etheostoma proeliare	Cypress Darter	Actinopterygii	McCracken	N	T	Yes	Reference
Etheostoma spectabile	Orangethroat Darter	Actinopterygii	McCracken	N	N		Reference
Etheostoma squamiceps	Spottail Darter	Actinopterygii	McCracken	N	N		Reference
Etheostoma stigmaeum	Speckled Darter	Actinopterygii	McCracken	N	N		Reference
Etheostoma zonale	Banded Darter	Actinopterygii	McCracken	N	N		Reference
Etheostoma zonistium	Bandfin Darter	Actinopterygii	McCracken	N	N		Reference
Euphagus carolinus	Rusty Blackbird	Aves	McCracken	N	N	Yes	Reference
Euphyes dukesi	Dukes' Skipper	Insecta	McCracken	N	T	Yes	Reference
Eurycea cirrigera	Southern Two-lined Salamander	Amphibia	McCracken	N	N		Reference
Eurycea longicauda	Long-tailed Salamander	Amphibia	McCracken	N	N		Reference

Eurycea lucifuga	Cave Salamander	Amphibia	McCracken	N	N		Reference
Eurynia dilatata	Spike	Bivalvia	McCracken	N	N		Reference
Falco peregrinus	Peregrine Falcon	Aves	McCracken	N	E	Yes	Reference
Falco sparverius	American Kestrel	Aves	McCracken	N	N	Yes	Reference
Farancia abacura reinwardtii	Western Mudsnake	Reptilia	McCracken	N	S	Yes	Reference
Faxonius lancifer	Shrimp Crayfish	Malacostraca	McCracken	N	E	Yes	Reference
Fulica americana	American Coot	Aves	McCracken	N	E		Reference
Fundulus notatus	Blackstripe Topminnow	Actinopterygii	McCracken	N	N		Reference
Fundulus olivaceus	Blackspotted Topminnow	Actinopterygii	McCracken	N	N		Reference
Fusconaia flava	Wabash Pigtoe	Bivalvia	McCracken	N	N		Reference
Fusconaia subrotunda	Longsolid	Bivalvia	McCracken	T	T	Yes	Reference
Gambusia affinis	Western Mosquitofish	Actinopterygii	McCracken	N	N		Reference
Gastrophryne carolinensis	Eastern Narrow-mouthed Toad	Amphibia	McCracken	N	N		Reference
Geothlypis formosa	Kentucky Warbler	Aves	McCracken	N	N	Yes	Reference
Geothlypis philadelphia	Mourning Warbler	Aves	McCracken	N	N		Reference
Geothlypis trichas	Common Yellowthroat	Aves	McCracken	N	N		Reference
Graptemys geographica	Northern Map Turtle	Chelonia	McCracken	N	N		Reference
Graptemys ouachitensis	Ouachita Map Turtle	Chelonia	McCracken	N	N		Reference
Graptemys pseudogeographica kohnii	Mississippi Map Turtle	Chelonia	McCracken	N	N	Yes	Reference

Graptemys pseudogeographica pseudogeographica	Northern False Map Turtle	Chelonia	McCracken	N	N	Yes	Reference
Haemorhous mexicanus	House Finch	Aves	McCracken	N	N		Reference
Haemorhous purpureus	Purple Finch	Aves	McCracken	N	N		Reference
Haliaeetus leucocephalus	Bald Eagle	Aves	McCracken	N	S	Yes	Reference
Hemidactylus turcicus	Mediterranean Gecko	Reptilia	McCracken	N	N		Reference
Heterodon platirhinos	Eastern Hog-nosed Snake	Reptilia	McCracken	N	N		Reference
Hiodon alosoides	Goldeye	Actinopterygii	McCracken	N	N		Reference
Hiodon tergisus	Mooneye	Actinopterygii	McCracken	N	N		Reference
Hirundo rustica	Barn Swallow	Aves	McCracken	N	N		Reference
Hyalella azteca	No Common Name (Hyalella azteca)	Malacostraca	McCracken	N	N		Reference
Hybognathus hayi	Cypress Minnow	Actinopterygii	McCracken	N	E	Yes	Reference
Hybognathus nuchalis	Mississippi Silvery Minnow	Actinopterygii	McCracken	N	N		Reference
Hyla chrysoscelis	Cope's Gray Treefrog	Amphibia	McCracken	N	N		Reference
Hyla cinerea	Green Treefrog	Amphibia	McCracken	N	N		Reference
Hylocichla mustelina	Wood Thrush	Aves	McCracken	N	N	Yes	Reference
Hypentelium nigricans	Northern Hog Sucker	Actinopterygii	McCracken	N	N		Reference
Hypophthalmichthys molitrix	Silver Carp	Actinopterygii	McCracken	N	N		Reference
Hypophthalmichthys nobilis	Bighead Carp	Actinopterygii	McCracken	N	N		Reference
Ichthyomyzon castaneus	Chestnut Lamprey	Petromyzontida	McCracken	N	S	Yes	Reference

Ichthyomyzon unicuspis	Silver Lamprey	Petromyzontida	McCracken	N	N		Reference
Ictalurus furcatus	Blue Catfish	Actinopterygii	McCracken	N	N		Reference
Ictalurus punctatus	Channel Catfish	Actinopterygii	McCracken	N	N		Reference
Icteria virens	Yellow-breasted Chat	Aves	McCracken	N	N		Reference
Icterus galbula	Baltimore Oriole	Aves	McCracken	N	N		Reference
Icterus spurius	Orchard Oriole	Aves	McCracken	N	N		Reference
Ictinia mississippiensis	Mississippi Kite	Aves	McCracken	N	S		Reference
Ictiobus bubalus	Smallmouth Buffalo	Actinopterygii	McCracken	N	N		Reference
Ictiobus cyprinellus	Bigmouth Buffalo	Actinopterygii	McCracken	N	N		Reference
Ictiobus niger	Black Buffalo	Actinopterygii	McCracken	N	S	Yes	Reference
Junco hyemalis	Dark-eyed Junco	Aves	McCracken	N	S		Reference
Kinosternon subrubrum	Eastern Mud Turtle	Chelonia	McCracken	N	N	Yes	Reference
Labidesthes sicculus	Brook Silverside	Actinopterygii	McCracken	N	N		Reference
Lacunicambarus chimera	Crawzilla Crawdad	Malacostraca	McCracken	N	S	Yes	Reference
Lacunicambarus polychromatus	Paintedhand Mudbug	Malacostraca	McCracken	N	N		Reference
Lampropeltis calligaster	Prairie Kingsnake	Reptilia	McCracken	N	N		Reference
Lampropeltis nigra	Eastern Black Kingsnake	Reptilia	McCracken	N	N		Reference
Lampropeltis triangulum	Eastern Milksnake	Reptilia	McCracken	N	N		Reference
Lampsilis abrupta	Pink Mucket	Bivalvia	McCracken	E	E	Yes	Reference
Lampsilis cardium	Plain Pocketbook	Bivalvia	McCracken	N	N		Reference

Lampsilis ovata	Pocketbook	Bivalvia	McCracken	N	E	Yes	Reference
Lampsilis teres	Yellow Sandshell	Bivalvia	McCracken	N	N		Reference
Lanius ludovicianus	Loggerhead Shrike	Aves	McCracken	N	S	Yes	Reference
Larus argentatus	Herring Gull	Aves	McCracken	N	N		Reference
Larus delawarensis	Ring-billed Gull	Aves	McCracken	N	N		Reference
Larus fuscus	Lesser Black-backed Gull	Aves	McCracken	N	N		Reference
Lasionycteris noctivagans	Silver-haired Bat	Mammalia	McCracken	N	N	Yes	Reference
Lasiurus borealis	Eastern Red Bat	Mammalia	McCracken	N	N		Reference
Lasmigona complanata	White Heelsplitter	Bivalvia	McCracken	N	N		Reference
Leiothlypis peregrina	Tennessee Warbler	Aves	McCracken	N	N		Reference
Leiothlypis ruficapilla	Nashville Warbler	Aves	McCracken	N	N		Reference
Lepisosteus oculatus	Spotted Gar	Actinopterygii	McCracken	N	N		Reference
Lepisosteus osseus	Longnose Gar	Actinopterygii	McCracken	N	N		Reference
Lepisosteus platostomus	Shortnose Gar	Actinopterygii	McCracken	N	N		Reference
Lepomis auritus	Redbreast Sunfish	Actinopterygii	McCracken	N	N		Reference
Lepomis cyanellus	Green Sunfish	Actinopterygii	McCracken	N	N		Reference
Lepomis gibbosus	Pumpkinseed	Actinopterygii	McCracken	N	N		Reference
Lepomis gulosus	Warmouth	Actinopterygii	McCracken	N	N		Reference
Lepomis humilis	Orangespotted Sunfish	Actinopterygii	McCracken	N	N		Reference
Lepomis macrochirus	Bluegill	Actinopterygii	McCracken	N	N		Reference
Lepomis marginatus	Dollar Sunfish	Actinopterygii	McCracken	N	E	Yes	Reference
Lepomis megalotis	Longear Sunfish	Actinopterygii	McCracken	N	N		Reference

Lepomis microlophus	Redear Sunfish	Actinopterygii	McCracken	N	N		Reference
Lepomis miniatus	Redspotted Sunfish	Actinopterygii	McCracken	N	T	Yes	Reference
Lepomis symmetricus	Bantam Sunfish	Actinopterygii	McCracken	N	N		Reference
Leptodea fragilis	Fragile Papershell	Bivalvia	McCracken	N	N		Reference
Leptoxis praerosa	Onyx Rocksnail	Gastropoda	McCracken	N	S	Yes	Reference
Ligumia recta	Black Sandshell	Bivalvia	McCracken	N	S	Yes	Reference
Lithasia geniculata	Ornate Rocksnail	Gastropoda	McCracken	N	S	Yes	Reference
Lithasia obovata	Shawnee Rocksnail	Gastropoda	McCracken	N	N		Reference
Lithasia verrucosa	Varicose Rocksnail	Gastropoda	McCracken	N	S	Yes	Reference
Lithobates areolatus circulosus	Northern Crawfish Frog	Amphibia	McCracken	N	S	Yes	Reference
Lithobates catesbeianus	American Bullfrog	Amphibia	McCracken	N	N		Reference
Lithobates clamitans	Green Frog	Amphibia	McCracken	N	N		Reference
Lithobates sphenocephalus	Southern Leopard Frog	Amphibia	McCracken	N	N		Reference
Lontra canadensis	Northern River Otter	Mammalia	McCracken	N	N		Reference
Lophodytes cucullatus	Hooded Merganser	Aves	McCracken	N	T	Yes	Reference
Lota lota	Burbot	Actinopterygii	McCracken	N	S	Yes	Reference
Luxilus chrysocephalus	Striped Shiner	Actinopterygii	McCracken	N	N		Reference
Lynx rufus	Bobcat	Mammalia	McCracken	N	N		Reference
Lythrurus fumeus	Ribbon Shiner	Actinopterygii	McCracken	N	N		Reference
Lythrurus umbratilis	Redfin Shiner	Actinopterygii	McCracken	N	N		Reference
Macrhybopsis hyostoma	Shoal Chub	Actinopterygii	McCracken	N	N	Yes	Reference

Macrhybopsis storeriana	Silver Chub	Actinopterygii	McCracken	N	N		Reference
Macrochelys temminckii	Alligator Snapping Turtle	Chelonia	McCracken	PT	E	Yes	Reference
Marmota monax	Woodchuck	Mammalia	McCracken	N	N		Reference
Megaceryle alcyon	Belted Kingfisher	Aves	McCracken	N	N		Reference
Megalonaias nervosa	Washboard	Bivalvia	McCracken	N	N		Reference
Megascops asio	Eastern Screech-Owl	Aves	McCracken	N	N		Reference
Melanerpes carolinus	Red-bellied Woodpecker	Aves	McCracken	N	N		Reference
Melanerpes erythrocephalus	Red-headed Woodpecker	Aves	McCracken	N	N	Yes	Reference
Meleagris gallopavo	Wild Turkey	Aves	McCracken	N	N		Reference
Melospiza georgiana	Swamp Sparrow	Aves	McCracken	N	N		Reference
Melospiza lincolnii	Lincoln's Sparrow	Aves	McCracken	N	N		Reference
Melospiza melodia	Song Sparrow	Aves	McCracken	N	N		Reference
Menidia audens	Mississippi Silverside	Actinopterygii	McCracken	N	T		Reference
Mephitis mephitis	Striped Skunk	Mammalia	McCracken	N	N		Reference
Mergus merganser	Common Merganser	Aves	McCracken	N	N		Reference
Micromenetus dilatatus	Bugle Sprite	Gastropoda	McCracken	N	N		Reference
Micropterus dolomieu	Smallmouth Bass	Actinopterygii	McCracken	N	N		Reference
Micropterus salmoides	Largemouth Bass	Actinopterygii	McCracken	N	N		Reference
Micropterus punctulatus	Spotted Bass	Actinopterygii	McCracken	N	N		Reference
Microtus ochrogaster	Prairie Vole	Mammalia	McCracken	N	N		Reference

Microtus pinetorum	Woodland Vole	Mammalia	McCracken	N	N		Reference
Mimus polyglottos	Northern Mockingbird	Aves	McCracken	N	N		Reference
Minytrema melanops	Spotted Sucker	Actinopterygii	McCracken	N	N		Reference
Mniotilta varia	Black-and-white Warbler	Aves	McCracken	N	N		Reference
Molothrus ater	Brown-headed Cowbird	Aves	McCracken	N	N		Reference
Morone americana	White Perch	Actinopterygii	McCracken	N	N		Reference
Morone chrysops	White Bass	Actinopterygii	McCracken	N	N		Reference
Morone mississippiensis	Yellow Bass	Actinopterygii	McCracken	N	N		Reference
Morone saxatilis	Striped Bass	Actinopterygii	McCracken	N	N		Reference
Moxostoma anisurum	Silver Redhorse	Actinopterygii	McCracken	N	N		Reference
Moxostoma breviceps	Smallmouth Redhorse	Actinopterygii	McCracken	N	N		Reference
Moxostoma carinatum	River Redhorse	Actinopterygii	McCracken	N	N		Reference
Moxostoma duquesnei	Black Redhorse	Actinopterygii	McCracken	N	N		Reference
Moxostoma erythrurum	Golden Redhorse	Actinopterygii	McCracken	N	N		Reference
Mugil cephalus	Striped Mullet	Actinopterygii	McCracken	N	N		Reference
Mycteria americana	Wood Stork	Aves	McCracken	T	N		Reference
Myiarchus crinitus	Great Crested Flycatcher	Aves	McCracken	N	N		Reference
Mylopharyngodon piceus	Black Carp	Actinopterygii	McCracken	N	N		Reference
Myotis austroriparius	Southeastern Myotis	Mammalia	McCracken	N	S	Yes	Reference
Myotis lucifugus	Little Brown Bat	Mammalia	McCracken	N	T	Yes	Reference
Myotis septentrionalis	Northern Long-Eared Bat	Mammalia	McCracken	E	E	Yes	Reference

Myotis sodalis	Indiana Bat	Mammalia	McCracken	E	E	Yes	Reference
Necturus maculosus	Mudpuppy	Amphibia	McCracken	N	N		Reference
Neovison vison	American Mink	Mammalia	McCracken	N	N		Reference
Nerodia erythrogaster	Plain-bellied Watersnake	Reptilia	McCracken	N	N		Reference
Nerodia rhombifer	Diamond-backed Watersnake	Reptilia	McCracken	N	N		Reference
Nerodia sipedon	Common Watersnake	Reptilia	McCracken	N	N		Reference
Nocomis micropogon	River Chub	Actinopterygii	McCracken	N	N		Reference
Notemigonus crysoleucas	Golden Shiner	Actinopterygii	McCracken	N	N		Reference
Nothonotus camurus	Bluebreast Darter	Actinopterygii	McCracken	N	N		Reference
Notophthalmus viridescens	Eastern Newt	Amphibia	McCracken	N	N		Reference
Notropis atherinoides	Emerald Shiner	Actinopterygii	McCracken	N	N		Reference
Notropis blennius	River Shiner	Actinopterygii	McCracken	N	N		Reference
Notropis boops	Bigeye Shiner	Actinopterygii	McCracken	N	N		Reference
Notropis buchanani	Ghost Shiner	Actinopterygii	McCracken	N	N	Yes	Reference
Notropis maculatus	Taillight Shiner	Actinopterygii	McCracken	N	T	Yes	Reference
Notropis photogenis	Silver Shiner	Actinopterygii	McCracken	N	N		Reference
Notropis rubellus	Rosyface Shiner	Actinopterygii	McCracken	N	N		Reference
Notropis shumardi	Silverband Shiner	Actinopterygii	McCracken	N	N	Yes	Reference
Notropis stramineus	Sand Shiner	Actinopterygii	McCracken	N	N		Reference
Notropis volucellus	Mimic Shiner	Actinopterygii	McCracken	N	N		Reference
Notropis wickliffi	Channel Shiner	Actinopterygii	McCracken	N	N		Reference
Noturus elegans	Elegant Madtom	Actinopterygii	McCracken	N	N		Reference
Noturus eleutherus	Mountain Madtom	Actinopterygii	McCracken	N	N		Reference

Noturus flavus	Stonecat	Actinopterygii	McCracken	N	N		Reference
Noturus gyrinus	Tadpole Madtom	Actinopterygii	McCracken	N	N		Reference
Noturus miurus	Brindled Madtom	Actinopterygii	McCracken	N	N		Reference
Noturus nocturnus	Freckled Madtom	Actinopterygii	McCracken	N	N		Reference
Noturus stigmosus	Northern Madtom	Actinopterygii	McCracken	N	S	Yes	Reference
Nyctanassa violacea	Yellow-crowned Night-heron	Aves	McCracken	N	T	Yes	Reference
Nycticeius humeralis	Evening Bat	Mammalia	McCracken	N	N		Reference
Obliquaria reflexa	Threehorn Wartyback	Bivalvia	McCracken	N	N		Reference
Obovaria olivaria	Hickorynut	Bivalvia	McCracken	N	N	Yes	Reference
Obovaria retusa	Ring Pink	Bivalvia	McCracken	E	E	Yes	Reference
Ochrotomys nuttalli	Golden Mouse	Mammalia	McCracken	N	N		Reference
Odocoileus virginianus	White-tailed Deer	Mammalia	McCracken	N	N		Reference
Ondatra zibethicus	Muskrat	Mammalia	McCracken	N	N	Yes	Reference
Onychoprion fuscatus	Sooty Tern	Aves	McCracken	N	N		Reference
Opheodrys aestivus	Rough Greensnake	Reptilia	McCracken	N	N		Reference
Opsopoeodus emiliae	Pugnose Minnow	Actinopterygii	McCracken	N	N	Yes	Reference
Oryzomys palustris	Marsh Rice Rat	Mammalia	McCracken	N	N	Yes	Reference
Oxyura jamaicensis	Ruddy Duck	Aves	McCracken	N	N		Reference
Palaemonetes kadiakensis	Mississippi Grass Shrimp	Malacostraca	McCracken	N	N		Reference
Pandion haliaetus	Osprey	Aves	McCracken	N	S	Yes	Reference
Pantherophis spiloides	Gray Ratsnake	Reptilia	McCracken	N	N		Reference

Parkesia motacilla	Louisiana Waterthrush	Aves	McCracken	N	N	Yes	Reference
Passer domesticus	House Sparrow	Aves	McCracken	N	N		Reference
Passer montanus	Eurasian Tree Sparrow	Aves	McCracken	N	N		Reference
Passerculus sandwichensis	Savannah Sparrow	Aves	McCracken	N	S	Yes	Reference
Passerella iliaca	Fox Sparrow	Aves	McCracken	N	N		Reference
Passerina caerulea	Blue Grosbeak	Aves	McCracken	N	N		Reference
Passerina cyanea	Indigo Bunting	Aves	McCracken	N	N		Reference
Patera appressa	Flat Bladetooth	Gastropoda	McCracken	N	N		Reference
Pelecanus erythrorhynchos	American White Pelican	Aves	McCracken	N	N		Reference
Perca flavescens	Yellow Perch	Actinopterygii	McCracken	N	N		Reference
Percina caprodes	Logperch	Actinopterygii	McCracken	N	N		Reference
Percina copelandi	Channel Darter	Actinopterygii	McCracken	N	N		Reference
Percina maculata	Blackside Darter	Actinopterygii	McCracken	N	N		Reference
Percina phoxocephala	Slenderhead Darter	Actinopterygii	McCracken	N	N		Reference
Percina sciera	Dusky Darter	Actinopterygii	McCracken	N	N		Reference
Percina shumardi	River Darter	Actinopterygii	McCracken	N	N		Reference
Percina vigil	Saddleback Darter	Actinopterygii	McCracken	N	N		Reference
Perimyotis subflavus	Tricolored Bat	Mammalia	McCracken	PE	T	Yes	Reference
Peromyscus gossypinus	Cotton Mouse	Mammalia	McCracken	N	T	Yes	Reference
Peromyscus leucopus	White-footed Mouse	Mammalia	McCracken	N	N		Reference
Peromyscus maniculatus bairdii	Prairie Deer Mouse	Mammalia	McCracken	N	N		Reference
Petrochelidon pyrrhonota	Cliff Swallow	Aves	McCracken	N	N		Reference

Peucaea aestivalis	Bachman's Sparrow	Aves	McCracken	N	E	Yes	Reference
Phalacrocorax auritus	Double-crested Cormorant	Aves	McCracken	N	S		Reference
Phenacobius mirabilis	Suckermouth Minnow	Actinopterygii	McCracken	N	N		Reference
Physa acuta	Pewter Physa	Gastropoda	McCracken	N	N		Reference
Pimephales notatus	Bluntnose Minnow	Actinopterygii	McCracken	N	N		Reference
Pimephales promelas	Fathead Minnow	Actinopterygii	McCracken	N	N		Reference
Pimephales vigilax	Bullhead Minnow	Actinopterygii	McCracken	N	N		Reference
Pipilo erythrophthalmus	Eastern Towhee	Aves	McCracken	N	N		Reference
Pipilo maculatus	Spotted Towhee	Aves	McCracken	N	N		Reference
Piranga olivacea	Scarlet Tanager	Aves	McCracken	N	N		Reference
Piranga rubra	Summer Tanager	Aves	McCracken	N	N		Reference
Planorbella trivolvis	Marsh Rams-horn	Gastropoda	McCracken	N	N		Reference
Plectomerus dombeyanus	Bankclimber	Bivalvia	McCracken	N	N		Reference
Plestiodon fasciatus	Common Five-lined Skink	Reptilia	McCracken	N	N		Reference
Plestiodon laticeps	Broad-headed Skink	Reptilia	McCracken	N	N		Reference
Plethobasus cooperianus	Orangefoot Pimpleback	Bivalvia	McCracken	E	E	Yes	Reference
Plethobasus cyphyus	Sheepnose	Bivalvia	McCracken	E	E	Yes	Reference
Plethodon dorsalis	Northern Zigzag Salamander	Amphibia	McCracken	N	N		Reference
Plethodon mississippi	Mississippi Slimy Salamander	Amphibia	McCracken	N	N	Yes	Reference

Pleurobema cordatum	Ohio Pigtoe	Bivalvia	McCracken	N	N	Yes	Reference
Pleurobema rubrum	Pyramid Pigtoe	Bivalvia	McCracken	PT	E	Yes	Reference
Pleurobema sintoxia	Round Pigtoe	Bivalvia	McCracken	N	N		Reference
Podiceps auritus	Horned Grebe	Aves	McCracken	N	N	Yes	Reference
Podilymbus podiceps	Pied-billed Grebe	Aves	McCracken	N	E	Yes	Reference
Poecile atricapillus	Black-capped Chickadee	Aves	McCracken	N	N		Reference
Poecile carolinensis	Carolina Chickadee	Aves	McCracken	N	N		Reference
Polioptila caerulea	Blue-gray Gnatcatcher	Aves	McCracken	N	N		Reference
Polyodon spathula	Paddlefish	Actinopterygii	McCracken	N	N	Yes	Reference
Pomoxis annularis	White Crappie	Actinopterygii	McCracken	N	N		Reference
Pomoxis nigromaculatus	Black Crappie	Actinopterygii	McCracken	N	N		Reference
Potamilus alatus	Pink Heelsplitter	Bivalvia	McCracken	N	N		Reference
Potamilus capax	Fat Pocketbook	Bivalvia	McCracken	E	T	Yes	Reference
Potamilus ohiensis	Pink Papershell	Bivalvia	McCracken	N	N		Reference
Potamilus purpuratus	Bleufer	Bivalvia	McCracken	N	E	Yes	Reference
Procambarus acutus	White River Crawfish	Malacostraca	McCracken	N	N		Reference
Procambarus clarkii	Red Swamp Crawfish	Malacostraca	McCracken	N	N		Reference
Procyon lotor	Northern Raccoon	Mammalia	McCracken	N	N		Reference
Progne subis	Purple Martin	Aves	McCracken	N	N		Reference
Protonotaria citrea	Prothonotary Warbler	Aves	McCracken	N	N	Yes	Reference
Pseudacris crucifer	Spring Peeper	Amphibia	McCracken	N	N		Reference
Pseudacris feriarum	Upland Chorus Frog	Amphibia	McCracken	N	N		Reference

Pseudacris triseriata	Western Chorus Frog	Amphibia	McCracken	N	N		Reference
Pseudemys concinna	River Cooter	Chelonia	McCracken	N	N		Reference
Ptychobranchus fasciolaris	Kidneyshell	Bivalvia	McCracken	N	N		Reference
Pyganodon grandis	Giant Floater	Bivalvia	McCracken	N	N		Reference
Pylodictis olivaris	Flathead Catfish	Actinopterygii	McCracken	N	N		Reference
Quadrula quadrula	Mapleleaf	Bivalvia	McCracken	N	N		Reference
Quiscalus quiscula	Common Grackle	Aves	McCracken	N	N		Reference
Reginaia ebenus	Ebonyshell	Bivalvia	McCracken	N	N		Reference
Regulus calendula	Ruby-crowned Kinglet	Aves	McCracken	N	N		Reference
Regulus satrapa	Golden-crowned Kinglet	Aves	McCracken	N	N		Reference
Reithrodontomys humulis	Eastern Harvest Mouse	Mammalia	McCracken	N	N		Reference
Rhinichthys obtusus	Western Blacknose Dace	Actinopterygii	McCracken	N	N		Reference
Riparia riparia	Bank Swallow	Aves	McCracken	N	S	Yes	Reference
Sagittunio subrostratus	Pondmussel	Bivalvia	McCracken	N	N	Yes	Reference
Satyrium favonius ontario	Northern Oak Hairstreak	Insecta	McCracken	N	S	Yes	Reference
Sayornis phoebe	Eastern Phoebe	Aves	McCracken	N	N		Reference
Sayornis saya	Say's Phoebe	Aves	McCracken	N	N		Reference
Scaphiopus holbrookii	Eastern Spadefoot	Amphibia	McCracken	N	N	Yes	Reference
Scaphirhynchus platorynchus	Shovelnose Sturgeon	Actinopterygii	McCracken	T(S/A)	N		Reference
Sceloporus undulatus	Eastern Fence Lizard	Reptilia	McCracken	N	N		Reference

Scincella lateralis	Little Brown Skink	Reptilia	McCracken	N	N		Reference
Sciurus carolinensis	Eastern Gray Squirrel	Mammalia	McCracken	N	N		Reference
Sciurus niger	Eastern Fox Squirrel	Mammalia	McCracken	N	N		Reference
Scolopax minor	American Woodcock	Aves	McCracken	N	N	Yes	Reference
Seiurus aurocapilla	Ovenbird	Aves	McCracken	N	N		Reference
Selasphorus rufus	Rufous Hummingbird	Aves	McCracken	N	N		Reference
Semotilus atromaculatus	Creek Chub	Actinopterygii	McCracken	N	N		Reference
Setophaga americana	Northern Parula	Aves	McCracken	N	N		Reference
Setophaga castanea	Bay-breasted Warbler	Aves	McCracken	N	N		Reference
Setophaga cerulea	Cerulean Warbler	Aves	McCracken	N	N	Yes	Reference
Setophaga coronata	Yellow-rumped Warbler	Aves	McCracken	N	N		Reference
Setophaga discolor	Prairie Warbler	Aves	McCracken	N	N	Yes	Reference
Setophaga dominica	Yellow-throated Warbler	Aves	McCracken	N	N		Reference
Setophaga magnolia	Magnolia Warbler	Aves	McCracken	N	N		Reference
Setophaga palmarum	Palm Warbler	Aves	McCracken	N	N		Reference
Setophaga pensylvanica	Chestnut-sided Warbler	Aves	McCracken	N	N		Reference
Setophaga petechia	Yellow Warbler	Aves	McCracken	N	N		Reference
Setophaga ruticilla	American Redstart	Aves	McCracken	N	N		Reference
Setophaga virens	Black-throated Green Warbler	Aves	McCracken	N	N	Yes	Reference

Sialia sialis	Eastern Bluebird	Aves	McCracken	N	N		Reference
Sigmodon hispidus	Hispid Cotton Rat	Mammalia	McCracken	N	N		Reference
Siren intermedia	Lesser Siren	Amphibia	McCracken	N	N	Yes	Reference
Sitta carolinensis	White-breasted Nuthatch	Aves	McCracken	N	N		Reference
Sorex longirostris	Southeastern Shrew	Mammalia	McCracken	N	N	Yes	Reference
Spatula discors	Blue-winged Teal	Aves	McCracken	N	T		Reference
Sphyrapicus varius	Yellow-bellied Sapsucker	Aves	McCracken	N	N		Reference
Spinus pinus	Pine Siskin	Aves	McCracken	N	N		Reference
Spinus tristis	American Goldfinch	Aves	McCracken	N	N		Reference
Spiza americana	Dickcissel	Aves	McCracken	N	N	Yes	Reference
Spizella passerina	Chipping Sparrow	Aves	McCracken	N	N		Reference
Spizella pusilla	Field Sparrow	Aves	McCracken	N	N	Yes	Reference
Spizelloides arborea	American Tree Sparrow	Aves	McCracken	N	N		Reference
Stelgidopteryx serripennis	Northern Rough-winged Swallow	Aves	McCracken	N	N		Reference
Sternotherus odoratus	Eastern Musk Turtle	Chelonia	McCracken	N	N		Reference
Sternula antillarum athalassos	Interior Least Tern	Aves	McCracken	N	E	Yes	Reference
Sander canadensis	Sauger	Actinopterygii	McCracken	N	N		Reference
Sander vitreus	Walleye	Actinopterygii	McCracken	N	N		Reference
Storeria dekayi	Dekay's Brownsnake	Reptilia	McCracken	N	N		Reference
Streptopelia decaocto	Eurasian Collared-dove	Aves	McCracken	N	N		Reference

Strix varia	Barred Owl	Aves	McCracken	N	N		Reference
Strongylura marina	Atlantic Needlefish	Actinopterygii	McCracken	N	N		Reference
Sturnella magna	Eastern Meadowlark	Aves	McCracken	N	N	Yes	Reference
Sturnus vulgaris	European Starling	Aves	McCracken	N	N		Reference
Sylvilagus floridanus	Eastern Cottontail	Mammalia	McCracken	N	N		Reference
Tachycineta bicolor	Tree Swallow	Aves	McCracken	N	N		Reference
Tamias striatus	Eastern Chipmunk	Mammalia	McCracken	N	N		Reference
Terrapene carolina	Eastern Box Turtle	Chelonia	McCracken	N	N		Reference
Thamnophis saurita saurita	Eastern Ribbonsnake	Reptilia	McCracken	N	S	Yes	Reference
Thamnophis sirtalis	Common Gartersnake	Reptilia	McCracken	N	N		Reference
Theliderma cylindrica	Rabbitsfoot	Bivalvia	McCracken	T	E	Yes	Reference
Theliderma metanevra	Monkeyface	Bivalvia	McCracken	N	N		Reference
Thryothorus ludovicianus	Carolina Wren	Aves	McCracken	N	N		Reference
Toxolasma lividum	Purple Lilliput	Bivalvia	McCracken	N	E	Yes	Reference
Toxolasma parvum	Lilliput	Bivalvia	McCracken	N	N		Reference
Toxostoma rufum	Brown Thrasher	Aves	McCracken	N	N		Reference
Trachemys scripta elegans	Red-eared Slider	Chelonia	McCracken	N	N		Reference
Tringa melanoleuca	Greater Yellowlegs	Aves	McCracken	N	N		Reference
Tringa solitaria	Solitary Sandpiper	Aves	McCracken	N	N	Yes	Reference
Quadrula nobilis	Gulf Mapleleaf	Bivalvia	McCracken	N	N	Yes	Reference

Tritogonia verrucosa	Pistolgrip	Bivalvia	McCracken	N	N		Reference
Troglodytes aedon	House Wren	Aves	McCracken	N	N		Reference
Troglodytes hiemalis	Winter Wren	Aves	McCracken	N	N		Reference
Truncilla donaciformis	Fawnsfoot	Bivalvia	McCracken	N	N		Reference
Truncilla truncata	Deertoe	Bivalvia	McCracken	N	N		Reference
Turdus migratorius	American Robin	Aves	McCracken	N	N		Reference
Tyrannus tyrannus	Eastern Kingbird	Aves	McCracken	N	N		Reference
Tyto alba	Barn Owl	Aves	McCracken	N	S	Yes	Reference
Umbra limi	Central Mudminnow	Actinopterygii	McCracken	N	T	Yes	Reference
Uniomerus tetralasmus	Pondhorn	Bivalvia	McCracken	N	N	Yes	Reference
Urocyon cinereoargenteus	Gray Fox	Mammalia	McCracken	N	N	Yes	Reference
Utterbackia imbecillis	Paper Pondshell	Bivalvia	McCracken	N	N		Reference
Utterbackiana suborbiculata	Flat Floater	Bivalvia	McCracken	N	N		Reference
Vermivora chrysoptera	Golden-winged Warbler	Aves	McCracken	N	E	Yes	Reference
Vermivora cyanoptera	Blue-winged Warbler	Aves	McCracken	N	N	Yes	Reference
Vireo bellii	Bell's Vireo	Aves	McCracken	N	S	Yes	Reference
Vireo flavifrons	Yellow-throated Vireo	Aves	McCracken	N	N		Reference
Vireo gilvus	Warbling Vireo	Aves	McCracken	N	N		Reference
Vireo griseus	White-eyed Vireo	Aves	McCracken	N	N		Reference
Vireo olivaceus	Red-eyed Vireo	Aves	McCracken	N	N		Reference
Vireo philadelphicus	Philadelphia Vireo	Aves	McCracken	N	N		Reference
Vireo solitarius	Blue-headed Vireo	Aves	McCracken	N	N		Reference

Virginia valeriae elegans	Western Earth Snake	Reptilia	McCracken	N	N		Reference
Viviparus subpurpureus	Olive Mysterysnail	Gastropoda	McCracken	N	N		Reference
Vulpes vulpes	Red Fox	Mammalia	McCracken	N	N		Reference
Xema sabini	Sabine's Gull	Aves	McCracken	N	N		Reference
Xolotrema fosteri	Bladetooth Wedge	Gastropoda	McCracken	N	N		Reference
Zapus hudsonius	Meadow Jumping Mouse	Mammalia	McCracken	N	N		Reference
Zenaida macroura	Mourning Dove	Aves	McCracken	N	N		Reference
Zonotrichia albicollis	White-throated Sparrow	Aves	McCracken	N	N		Reference
Zonotrichia leucophrys	White-crowned Sparrow	Aves	McCracken	N	N		Reference

518 species are listed

Andy Beshear
Governor

Energy and Environment Cabinet
Office of Kentucky Nature Preserves
300 Sower Boulevard
Frankfort, Kentucky 40601
Telephone: 502-782-7828
EEC.KYBAT@ky.gov

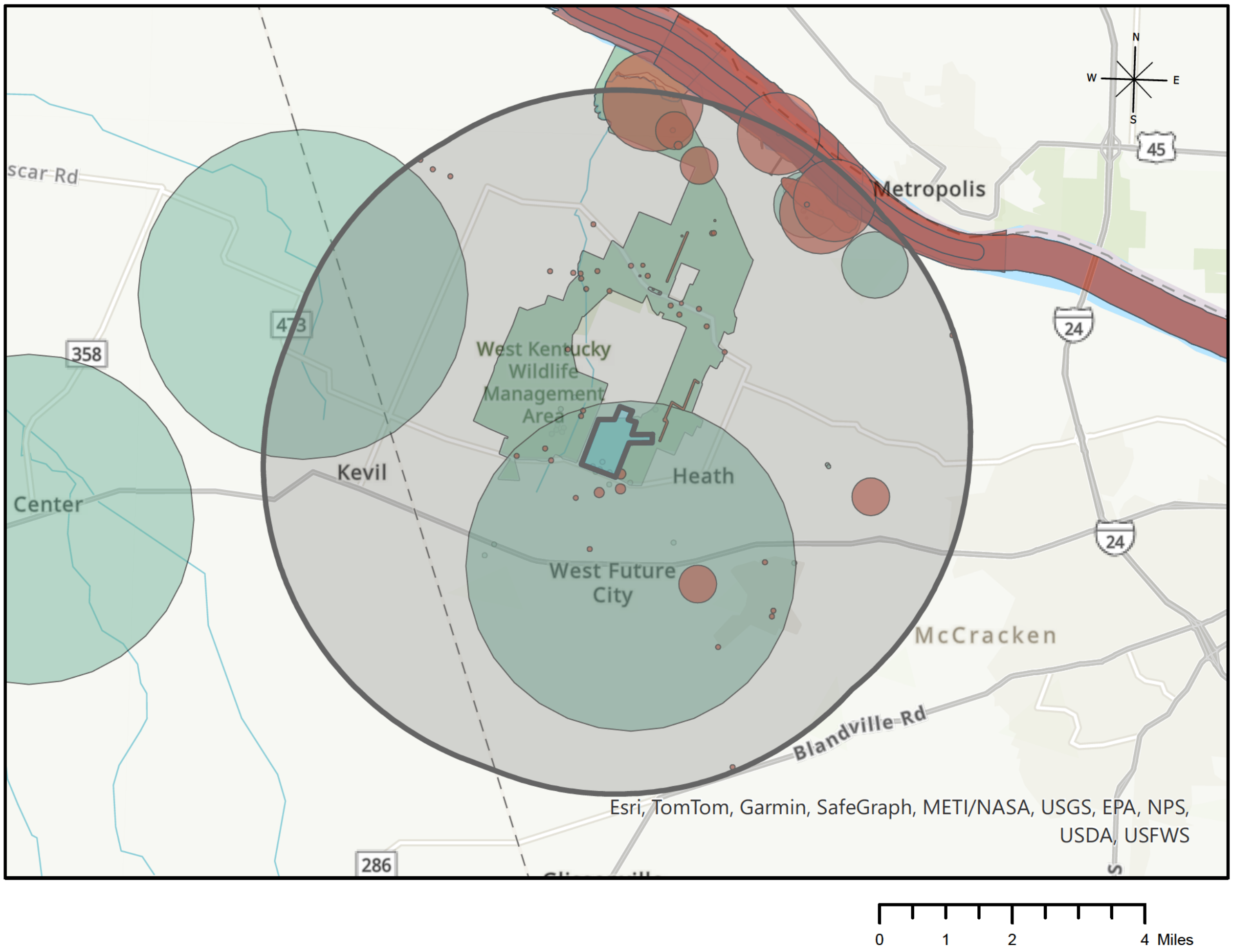
Rebecca W. Goodman
Secretary

Sunni Carr
Executive Director

Requested on Friday, July 12, 2024 by *Ben Salupo, Burns and McDonnell*

Re: Kentucky Biological Assessment Data Request 240712B01
BGS - Paduca Environmental Survey
Development (Outside Municipalities), 6 mile buffer.
MCCRACKEN County, Kentucky

This letter is in response to your data request for the project referenced above. We have reviewed our Natural Heritage Program Database to determine if any of the endangered, threatened, or special concern plants, animals, features or exemplary natural communities monitored by the Office of Kentucky Nature Preserves are noted within your submitted project area.


N
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scar Rd
45
Metropolis
24
358
473
West Kentucky
Wildlife
Management
Area
Center
Kevil
Heath
24
West Future
City
McCracken
Blandville Rd
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4 Miles

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This report includes the following items:
A - A report for occurrences which intersect the project area
B - A report for occurrences which intersect the buffer around the project area
C - A list of best management practices relevant to occurrences near to or within the project area
D - A list of best management practices relevant to the chosen project type

Thank you for using Office of Kentucky Nature Preserves' Biological Assessment Tool.

We would like to take this opportunity to remind you of the terms of the data request license, which you agreed upon in order to submit your request. The license agreement states "Data and data products received from the Office of Kentucky Nature Preserves, including any portion thereof, may not be reproduced in any form or by any means without the express written authorization of the Office of Kentucky Nature Preserves." The exact location of plants, animals, and natural communities, if released by the Office of Kentucky Nature Preserves, may not be released in any document or correspondence. These products are provided on a temporary basis for the express project (described above) of the requester, and may not be redistributed, resold or copied without the written permission of the Office of Kentucky Nature Preserves Biological Assessment Branch (300 Sower Blvd - 4th Floor, Frankfort, KY, 40601. Phone: 502-782-7828).

Please note that the quantity and quality of data collected by the Kentucky Natural Heritage Program are dependent on the research and observations of many individuals and organizations. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in Kentucky have never been thoroughly surveyed and new plants and animals are still being discovered. For these reasons, the Kentucky Natural Heritage Program cannot provide a definitive statement on the presence, absence, or condition of biological elements in any part of Kentucky. Heritage reports summarize the existing information known to the Kentucky Natural Heritage Program at the time of the request regarding the biological elements or locations in question. They should never be regarded as final statements on the occurrences being considered, nor should they be substituted for on-site surveys required for environmental assessments. We would greatly appreciate receiving any pertinent information obtained as a result of on-site surveys.

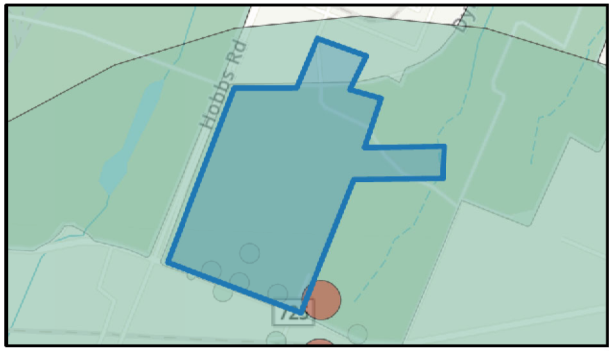
If you have any questions, or if we can be of further assistance, please do not hesitate to contact our office by email at EEC.KYBAT@ky.gov or by phone at 502-782-7828.

Sincerely,

Alexis R. Schoenlaub
Geoprocessing Specialist
Office of Kentucky Nature Preserves

A.1. Project Area - Occurrence Report

The following table outlines occurrences found within your project footprint (if any). You can find more information about global and state rank status definitions on our Standard Occurrence Report Key . Please note that certain sensitive occurrences found within the buffer area may be listed in this table but are not represented on the map. Please contact the appropriate source as outlined in the "Directions" column should you have further questions related to sensitive occurrences found within the project area.



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Zoological 🟥

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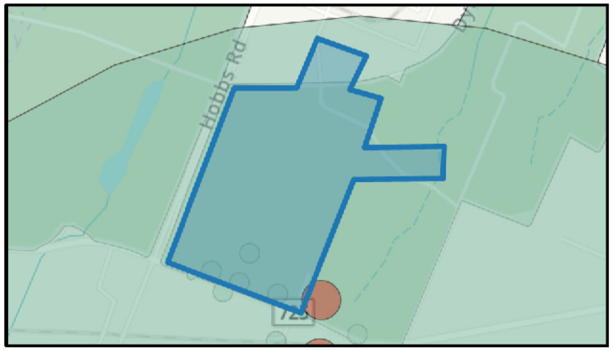
EO ID	Scientific Name	Common Name	G Rank	S Rank	Fed. Status	State Status	SWAP	Precision	Last Obs. Date
14297	*Asclepias hirtella*	*Prairie milkweed*	*G5*	*S2*	*None*	*T*	*Y*	*G*	*2022-07-14*
15952	*Lanius ludovicianus*	*Loggerhead Shrike*	*G4*	*S3S4B,S4N*	*None*	*S*	*Y*	*Q*	*1988*
3488	*Lithobates areolatus circulosus*	*Northern Crawfish Frog*	*G4T4*	*S3*	*None*	*S*		*S*	*1991-03-20*
16692	*Silphium integrifolium*	*Rosinweed*	*G5*	*S3S4*	*None*	*N*		*M*	*1986-07-19*
6935	*Silphium laciniatum*	*Compassplant*	*G5*	*S2*	*None*	*T*		*S*	*2022-07-14*

A.2. Project Area – Occurrence Habitat and Location



The following table provides supplemental occurrence information found within your project footprint (if any). You can find more information about global and state rank status definitions on our Standard Occurrence Report Key . Please note that certain sensitive occurrences found within the buffer area may be listed in this table but are not represented on the map. Please contact the appropriate source as outlined in the "Directions" column should you have further questions related to sensitive occurrences found within the

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Botanical	🟩
Ecological	🟩
Zoological	🟥

EOID	Scientific Name	Habitat	Location
3488	*Lithobates areolatus circulosus*	*Breeds in ponds in farmland and edge. Remains underground throughout most of the year, using crayfish burrows in moist grasslands and meadows.*	*Circa 0.2 air mi E of KY 1154, ca 1.2 rd mi N of its jct w/*
15952	*Lanius ludovicianus*		*CW block of quadrangle.*
14297	*Asclepias hirtella*	*Fields, barrens and roadsides.*	*West KY. WMA (Best Source). Intersection of Ogden Landing Rd*
6935	*Silphium laciniatum*	*Prairies and barrens.*	*West Kentucky Wildlife Management Area, N of KY 725 between*
16692	*Silphium integrifolium*		*From downtown Paducah, KY take KY60 west for 11 miles. Popul*

B. Buffer Area - Occurrence Report (1 of 3)

The following table outlines occurrences found within your buffered project footprint (if any). You can find more information about global and state rank status definitions on our Standard Occurrence Report Key. Please note that certain sensitive occurrences found within the buffer area may be listed in this table but are not represented on the map. Please contact the appropriate source as outlined in the "Directions" column should you have further questions related to sensitive occurrences found within the project area.

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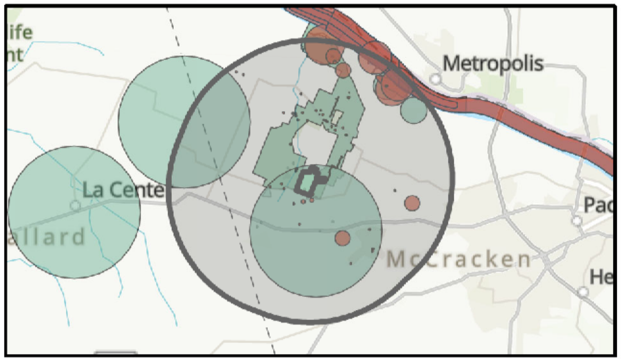
Zoological 🟥



EO ID	Scientific Name	Common Name	G Rank	S Rank	Fed. Status	State Status	SWAP	Precision	Last Obs. Date
25876	Haliaeetus leucocephalus	Bald Eagle	G5	S3B,S3S4N	Delisted	S	Y	S	2019-03-21
5561	Epioblasma obliquata	Catspaw	G1	S1	LE	E	Y	G	1978-Pre
21974	Myotis septentrionalis	Northern Long-Eared Bat	G2G3	S1	LE	E	Y	S	2005-06-09
1307	Plethobasus cyphyus	Sheepnose	G2G3	S1	LE	E	Y	G	1954-06-30
537	Theliderma cylindrica	Rabbitsfoot	G3	S2	LT	E	Y	G	1967-Pre
2041	Theliderma cylindrica	Rabbitsfoot	G3	S2	LT	E	Y	S	1987-05-21
1560	Apalone mutica mutica	Midland Smooth Softshell	G5T5	S3	None	N		G	1986-07-16
14297	Asclepias hirtella	Prairie milkweed	G5	S2	None	T	Y	G	2022-07-14
24440	Asclepias hirtella	Prairie milkweed	G5	S2	None	T	Y	S	2022-07-15
9502	Atractosteus spatula	Alligator Gar	G3G4	S1	None	E	Y	M	1975-06-27
9354	Baptisia leucophaea var. leucophaea	Cream Wild Indigo	G4G5T4T5	S2	None	T		S	1997-05-11
13246	Bottomland lake		GNR	S2S3	None	S		S	2010-09-14
1193	Bottomland ridge/terrace forest		G2	S1	None	E		S	1991-06
24153	Buellia schaereri	Schaerer's Disc Lichen	GNR	S3?	None	N		S	2018-07-23
24188	Canoparmelia texana	Texas Cloud Lichen	G3G5	S3?	None	N		S	2018-07-23
6658	Carya aquatica	Water Hickory	G5	S2S3	None	T		M	1997
13071	Carya aquatica	Water Hickory	G5	S2S3	None	T		S	2008-06-17
11336	Celithemis verna	Double-ringed Pennant	G5	S1	None	E	Y	C	2005-Pre
13070	Coreopsis pubescens var. pubescens	Star Tickseed	G5?T4T5	S2S3	None	S		S	2008-06-17
4059	Corvus ossifragus	Fish Crow	G5	S3B	None	S		M	1980-06-27
23999	Dicliptera brachiata	Wild Mudwort	G5	S2S3	None	S		S	2022-07-14
2524	Erimyzon sucetta	Lake Chubsucker	G5	S2	None	T	Y	M	1979-pre
1076	Esox niger	Chain Pickerel	G5	S3	None	S	Y	M	1972-05-28
1623	Esox niger	Chain Pickerel	G5	S3	None	S	Y	G	1970
14221	Euphyes dukesi	Dukes' Skipper	G3G4	S2	None	T	Y	M	2016-08-28
4597	Farancia abacura reinwardtii	Western Mudsnake	G5T5	S3	None	S	Y	M	2000-07-03
9295	Faxonius lancifer	Shrimp Crayfish	G5	S1	None	E		S	1975-04-26
222	Halesia tetraptera	Common Silverbell	G5	S3	None	S		S	2024-04-08
7024	Hybognathus hayi	Cypress Minnow	G4G5	S1	None	E	Y	S	1993-07-21
7171	Hybognathus hayi	Cypress Minnow	G4G5	S1	None	E	Y	G	1970
5015	Hypericum lobocarpum	Five-lobe St. John's Wort	G4Q	S3?	None	N		C	No Date
9856	Ichthyomyzon castaneus	Chestnut Lamprey	G4	S2	None	S	Y	S	2006-06-13
3392	Ictiobus niger	Black Buffalo	G5	S3	None	S		S	1996-07
7041	Ictiobus niger	Black Buffalo	G5	S3	None	S		S	1997-03
6242	Ictiobus niger	Black Buffalo	G5	S3	None	S		S	1996-04

B. Buffer Area - Occurrence Report (2 of 3)

The following table outlines occurrences found within your buffered project footprint (if any). You can find more information about global and state rank status definitions on our Standard Occurrence Report Key. Please note that certain sensitive occurrences found within the buffer area may be listed in this table but are not represented on the map. Please contact the appropriate source as outlined in the "Directions" column should you have further questions related to sensitive occurrences found within the project area.

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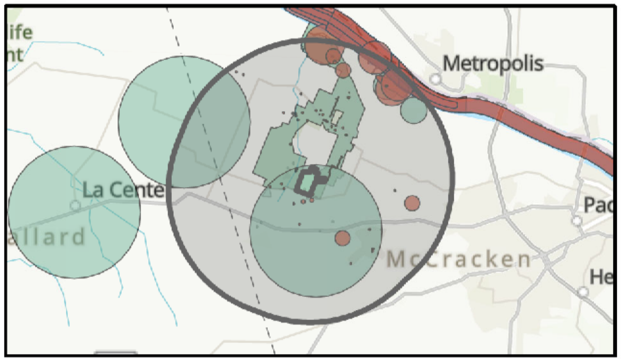

EO ID	Scientific Name	Common Name	G Rank	S Rank	Fed. Status	State Status	SWAP	Precision	Last Obs. Date
4729	*Ictiobus niger*	*Black Buffalo*	*G5*	*S3*	*None*	*S*		*M*	*1997-09-30*
15951	*Lanius ludovicianus*	*Loggerhead Shrike*	*G4*	*S3S4B,S4N*	*None*	*S*	*Y*	*Q*	*1985*
15952	*Lanius ludovicianus*	*Loggerhead Shrike*	*G4*	*S3S4B,S4N*	*None*	*S*	*Y*	*Q*	*1988*
15953	*Lanius ludovicianus*	*Loggerhead Shrike*	*G4*	*S3S4B,S4N*	*None*	*S*	*Y*	*Q*	*1988*
15958	*Lanius ludovicianus*	*Loggerhead Shrike*	*G4*	*S3S4B,S4N*	*None*	*S*	*Y*	*Q*	*1991-08-17*
15959	*Lanius ludovicianus*	*Loggerhead Shrike*	*G4*	*S3S4B,S4N*	*None*	*S*	*Y*	*Q*	*1990*
715	*Lepomis miniatus*	*Redspotted Sunfish*	*G5*	*S2*	*None*	*T*	*Y*	*S*	*1997-03*
4933	*Lepomis miniatus*	*Redspotted Sunfish*	*G5*	*S2*	*None*	*T*	*Y*	*S*	*1998-04-02*
9945	*Lepomis miniatus*	*Redspotted Sunfish*	*G5*	*S2*	*None*	*T*	*Y*	*S*	*1996-04*
12049	*Lepomis miniatus*	*Redspotted Sunfish*	*G5*	*S2*	*None*	*T*	*Y*	*S*	*2004-08-04*
24054	*Lilium superbum*	*Turk's Cap Lily*	*G5*	*S1S2*	*None*	*T*		*S*	*2022-10-14*
1012	*Lithobates areolatus circulosus*	*Northern Crawfish Frog*	*G4T4*	*S3*	*None*	*S*		*S*	*1991-03-22*
3488	*Lithobates areolatus circulosus*	*Northern Crawfish Frog*	*G4T4*	*S3*	*None*	*S*		*S*	*1991-03-20*
4065	*Lithobates areolatus circulosus*	*Northern Crawfish Frog*	*G4T4*	*S3*	*None*	*S*		*S*	*1991-03-18*
5308	*Lithobates areolatus circulosus*	*Northern Crawfish Frog*	*G4T4*	*S3*	*None*	*S*		*M*	*1964-03-13*
5676	*Lithobates areolatus circulosus*	*Northern Crawfish Frog*	*G4T4*	*S3*	*None*	*S*		*S*	*1991-03-18*
7330	*Lithobates areolatus circulosus*	*Northern Crawfish Frog*	*G4T4*	*S3*	*None*	*S*		*S*	*1991-03-18*
8345	*Lithobates areolatus circulosus*	*Northern Crawfish Frog*	*G4T4*	*S3*	*None*	*S*		*S*	*1991-03-20*
9830	*Lithobates areolatus circulosus*	*Northern Crawfish Frog*	*G4T4*	*S3*	*None*	*S*		*S*	*1991-03-18*
9859	*Lithobates areolatus circulosus*	*Northern Crawfish Frog*	*G4T4*	*S3*	*None*	*S*		*M*	*1964-03-13*
13294	*Lithobates areolatus circulosus*	*Northern Crawfish Frog*	*G4T4*	*S3*	*None*	*S*		*S*	*2007-03-14*
12576	*Lithobates areolatus circulosus*	*Northern Crawfish Frog*	*G4T4*	*S3*	*None*	*S*		*S*	*2007-03-14*
3058	*Lithobates areolatus circulosus*	*Northern Crawfish Frog*	*G4T4*	*S3*	*None*	*S*		*S*	*2003-03-21*
502	*Lithobates areolatus circulosus*	*Northern Crawfish Frog*	*G4T4*	*S3*	*None*	*S*		*S*	*2003-03-21*
6268	*Lithobates areolatus circulosus*	*Northern Crawfish Frog*	*G4T4*	*S3*	*None*	*S*		*S*	*2007-03-14*
7539	*Lithobates areolatus circulosus*	*Northern Crawfish Frog*	*G4T4*	*S3*	*None*	*S*		*S*	*1991-03-22*
5680	*Lithobates areolatus circulosus*	*Northern Crawfish Frog*	*G4T4*	*S3*	*None*	*S*		*S*	*2007-03-14*
2013	*Lithobates areolatus circulosus*	*Northern Crawfish Frog*	*G4T4*	*S3*	*None*	*S*		*S*	*1991-03-21*
10086	*Lophodytes cucullatus*	*Hooded Merganser*	*G5*	*S2B,S3S4N*	*None*	*T*	*Y*	*S*	*1980-05-08*
2251	*Melanthera nivea*	*Snow Squarestem*	*G5*	*S3?*	*None*	*S*		*S*	*2022-08-22*
8650	*Menidia audens*	*Mississippi Silverside*	*G5*	*S2*	*None*	*T*		*S*	*1993-07-21*
10684	*Menidia audens*	*Mississippi Silverside*	*G5*	*S2*	*None*	*T*		*M*	*1992-09-25*
3631	*Muhlenbergia glabrifloris*	*Hair Grass*	*G4?*	*S3*	*None*	*S*		*M*	*1977-09-21*
1398	*Myotis austroriparius*	*Southeastern Myotis*	*G4*	*S3*	*None*	*S*	*Y*	*S*	*1999-07-14*
15462	*Myotis lucifugus*	*Little Brown Bat*	*G3G4*	*S2*	*None*	*T*	*Y*	*S*	*1999-07-28*

B. Buffer Area - Occurrence Report (3 of 3)

The following table outlines occurrences found within your buffered project footprint (if any). You can find more information about global and state rank status definitions on our Standard Occurrence Report Key. Please note that certain sensitive occurrences found within the buffer area may be listed in this table but are not represented on the map. Please contact the appropriate source as outlined in the "Directions" column should you have further questions related to sensitive occurrences found within the project area.

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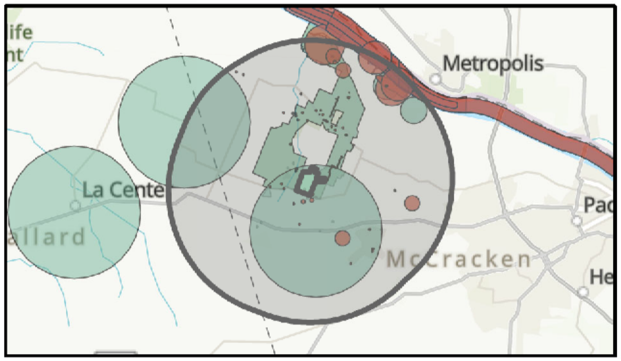

EO ID	Scientific Name	Common Name	G Rank	S Rank	Fed. Status	State Status	SWAP	Precision	Last Obs. Date
15466	*Myotis lucifugus*	*Little Brown Bat*	*G3G4*	*S2*	*None*	*T*	*Y*	*S*	*1999-07-21*
15465	*Myotis lucifugus*	*Little Brown Bat*	*G3G4*	*S2*	*None*	*T*	*Y*	*S*	*1999-08-02*
8868	*Notropis maculatus*	*Taillight Shiner*	*G5*	*S2S3*	*None*	*T*	*Y*	*S*	*1998-04-02*
7923	*Noturus stigmosus*	*Northern Madtom*	*G3*	*S2S3*	*None*	*S*	*Y*	*G*	*1979-pre*
9706	*Nycticeius humeralis*	*Evening Bat*	*G5*	*S4*	*None*	*N*		*S*	*1999-08-02*
8314	*Rudbeckia subtomentosa*	*Sweet Coneflower*	*G5*	*S1*	*None*	*E*		*S*	*1991-08-22*
13591	*Rudbeckia subtomentosa*	*Sweet Coneflower*	*G5*	*S1*	*None*	*E*		*C*	*1947-06*
24422	*Silphium integrifolium*	*Rosinweed*	*G5*	*S3S4*	*None*	*N*		*S*	*2022-07-14*
16692	*Silphium integrifolium*	*Rosinweed*	*G5*	*S3S4*	*None*	*N*		*M*	*1986-07-19*
16688	*Silphium integrifolium*	*Rosinweed*	*G5*	*S3S4*	*None*	*N*		*M*	*1986-07-19*
7779	*Silphium laciniatum*	*Compassplant*	*G5*	*S2*	*None*	*T*		*S*	*1993-07*
7092	*Silphium laciniatum*	*Compassplant*	*G5*	*S2*	*None*	*T*		*S*	*1993-07*
8321	*Silphium laciniatum*	*Compassplant*	*G5*	*S2*	*None*	*T*		*S*	*2002-07-24*
9180	*Silphium laciniatum*	*Compassplant*	*G5*	*S2*	*None*	*T*		*S*	*2022-07-15*
9275	*Silphium laciniatum*	*Compassplant*	*G5*	*S2*	*None*	*T*		*C*	*1947-06*
6935	*Silphium laciniatum*	*Compassplant*	*G5*	*S2*	*None*	*T*		*S*	*2022-07-14*
24444	*Silphium laciniatum*	*Compassplant*	*G5*	*S2*	*None*	*T*		*S*	*2022-07-14*
22479	*Solidago buckleyi*	*Buckley's Goldenrod*	*G4*	*S3*	*None*	*S*		*S*	*2020-10-14*
11553	*Trepocarpus aethusae*	*Trepocarpus*	*G4G5*	*S3S4*	*None*	*N*		*S*	*2023-05-21*
11760	*Trepocarpus aethusae*	*Trepocarpus*	*G4G5*	*S3S4*	*None*	*N*		*S*	*2023-05-10*
515	*Vireo bellii*	*Bell's Vireo*	*G5*	*S2S3B*	*None*	*S*	*Y*	*M*	*1980-06-27*
7044	*Vireo bellii*	*Bell's Vireo*	*G5*	*S2S3B*	*None*	*S*	*Y*	*S*	*1994-05-05*

C. Occurrence References and Recommendations (1 of 3)

OKNP references the following references and recommendations regarding this project's potential impacts to natural resources within or surrounding the project area. Please contact the applicable office should you have further questions with regard to these references and recommendations related to the project area.

TEAM KENTUCKY
ENERGY AND ENVIRONMENT CABINET
OFFICE OF KENTUCKY NATURE PRESERVES

Map Credits: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

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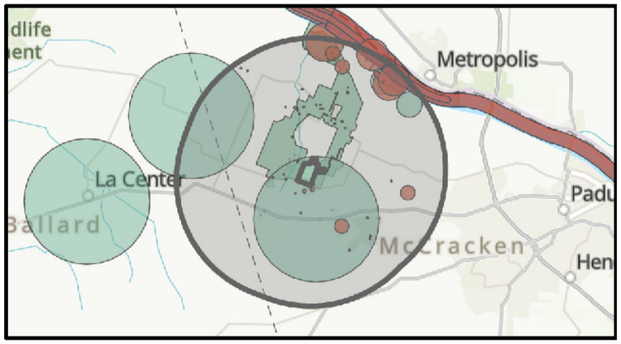
Ecological 🟩
Zoological 🟥



C. Occurrence References and Recommendations (2 of 3)

OKNP references the following references and recommendations regarding this project's potential impacts to natural resources within or surrounding the project area. Please contact the applicable office should you have further questions with regard to these references and recommendations related to the project area.

TEAM KENTUCKY
ENERGY AND ENVIRONMENT CABINET
OFFICE OF KENTUCKY NATURE PRESERVES

Map Credits: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

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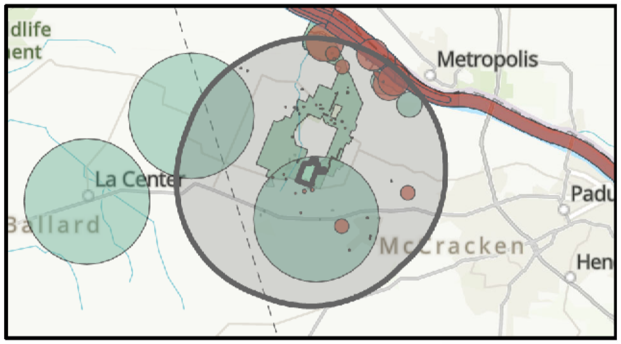


Per the U.S. Fish and Wildlife Service's recommendations: In-channel activities in the rivers near this project may potentially directly or indirectly affect one or more species of mussels. Projects that do not involve in-channel activities have the potential to indirectly impact listed mussel species and their habitats. Upland disturbance in watersheds containing federally listed mussel species can degrade streams and rivers by increasing siltation/sedimentation or introducing pollutants.

When practicable, we recommend siting projects to avoid impacting streams and rivers that contain federally listed mussel species and utilizing methods, such as horizontal directional drilling and clear span bridges, to avoid direct impacts to the species and their habitats. The following are some general recommendations to minimize indirect impacts to streams and rivers and reduce impacts to federally listed mussels:

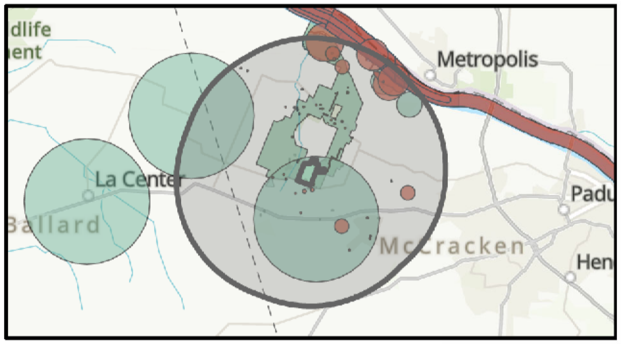
- Utilize Best Management Practices to minimize erosion from work areas;
- Limit vegetation removal to minimize impacts in riparian areas;
- Revegetate disturbed areas with native vegetation;
- Use bioengineering techniques to restore disturbance to stream banks;
- Install upland sediment basins, where appropriate, to minimize sediment input into streams and rivers;
- Install detention structures to manage stormwater runoff into streams and river; and
- Minimize the addition of impervious surfaces in the watershed.

C. Occurrence References and Recommendations (3 of 3)

OKNP references the following references and recommendations regarding this project's potential impacts to natural resources within or surrounding the project area. Please contact the applicable office should you have further questions with regard to these references and recommendations related to the project area.

TEAM KENTUCKY
ENERGY AND ENVIRONMENT CABINET
OFFICE OF KENTUCKY NATURE PRESERVES

Map Credits: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS



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Per the U.S. Fish and Wildlife Service's recommendations: Birds covered under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) should be considered during project reviews. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish & Wildlife Service (50 C.F.R. § 10.12 and 16 U.S.C. § 668(a)). For more information regarding these acts go to: http://www.fws.gov/migratorybirds/RegulationsandPolicies.html.

The MBTA currently has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within a NEPA document (if there is a federal nexus), a Bird- or Eagle-specific Conservation Plan, or both. Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds to the project-related stressors; proponents should also implement a rigorous plan to monitor the effectiveness of conservation measure. For more information on avian stressors and recommended conservation measures go to: http://www.fws.gov/migratorybirds/ CurrentBirdIssues/Hazards/BirdHazards.html.

In addition to MBTA and BGEPA, Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit http://www.fws.gov/migratorybirds/AboutUS.html.

D. Project References and Recommendations (1 of 1)

OKNP references the following references and recommendations regarding this project's potential impacts to natural resources within or surrounding the project area. Please contact the applicable office should you have further questions with regard to these references and recommendations related to the project area.

TEAM KENTUCKY
ENERGY AND ENVIRONMENT CABINET
OFFICE OF KENTUCKY NATURE PRESERVES

Map Credits: Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

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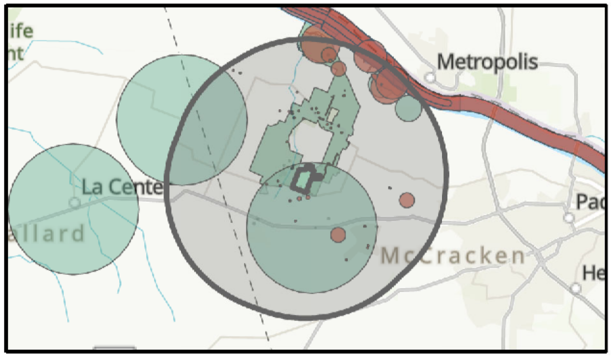


There are protected areas within your project and buffer footprint.
There are areas of significant biodiversity within your project and buffer footprint.

TEAM KENTUCKY

ENERGY AND ENVIRONMENT CABINET
OFFICE OF KENTUCKY NATURE PRESERVES

Thank you for using the Office of Kentucky Nature Preserves Biological Assessment Tool.

OKNP's species dataset relies on continuous monitoring and surveying for species of concern throughout the state. Any records of species of concern found within this project area would greatly benefit the quality and comprehensiveness of the statewide dataset for rare, threatened and endangered species. If you would like to contribute any additional species information, please do not hesitate to contact our office by email at EEC.KYBAT@ky.gov or by phone at 502-782-7828.

APPENDIX C – PHOTOGRAPH LOG

Photo 1: View of representative emergent wetland community, facing north.

Photo 2: View of representative scrub shrub wetland community, facing east.

Photo 3: View of representative forested wetland community, facing west.

Photo 4: View of representative unconsolidated bottom pond community, facing south.

Photo 5: View of representative urban community, facing north.

Photo 6: View of representative agricultural community, facing north.

Photo 7: View of representative open field community, facing east.

Photo 8: View of representative old field community, facing east.

Photo 9: View of representative upland forest community, facing west.

Photo 10: View of representative ephemeral stream, facing west.

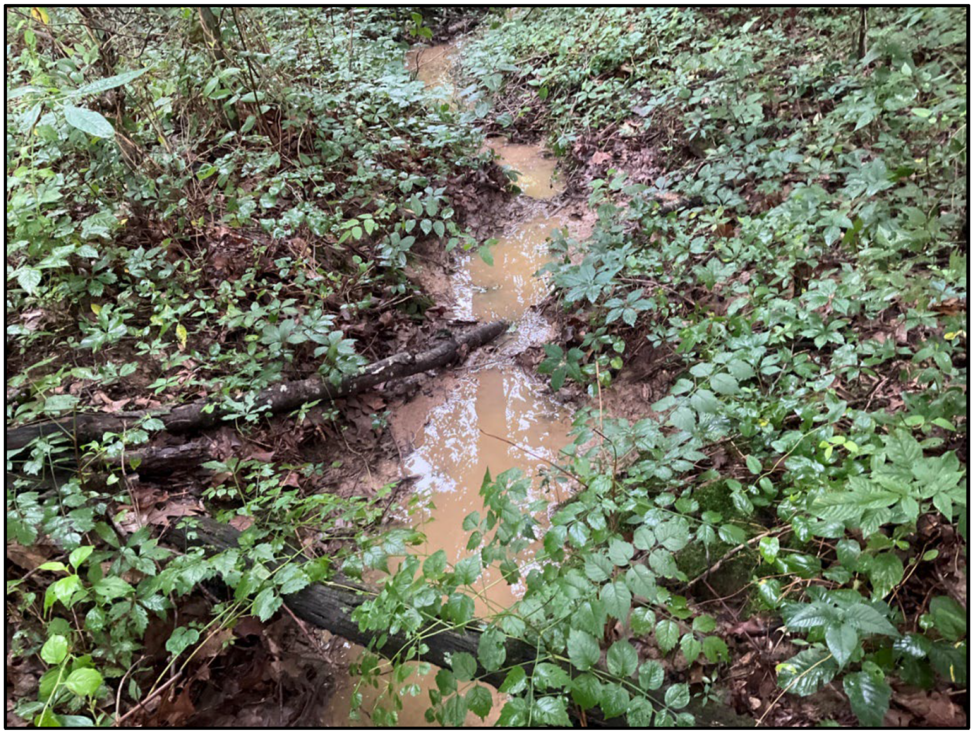


Photo 11: View of representative intermittent stream, facing north.

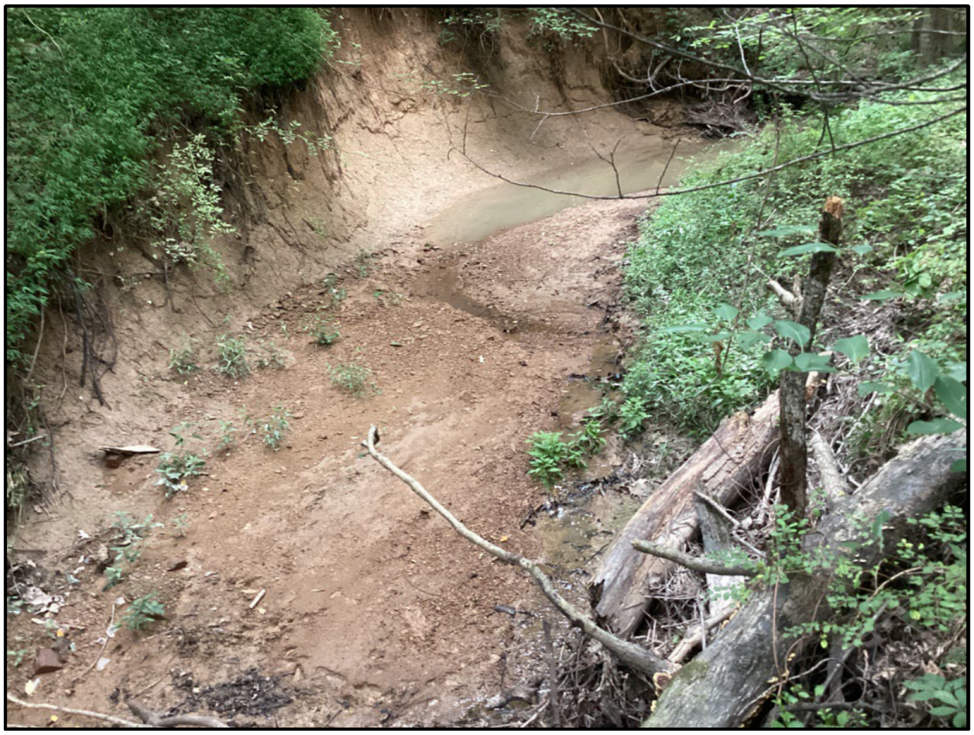


Photo 12: View of representative perennial stream, facing south.

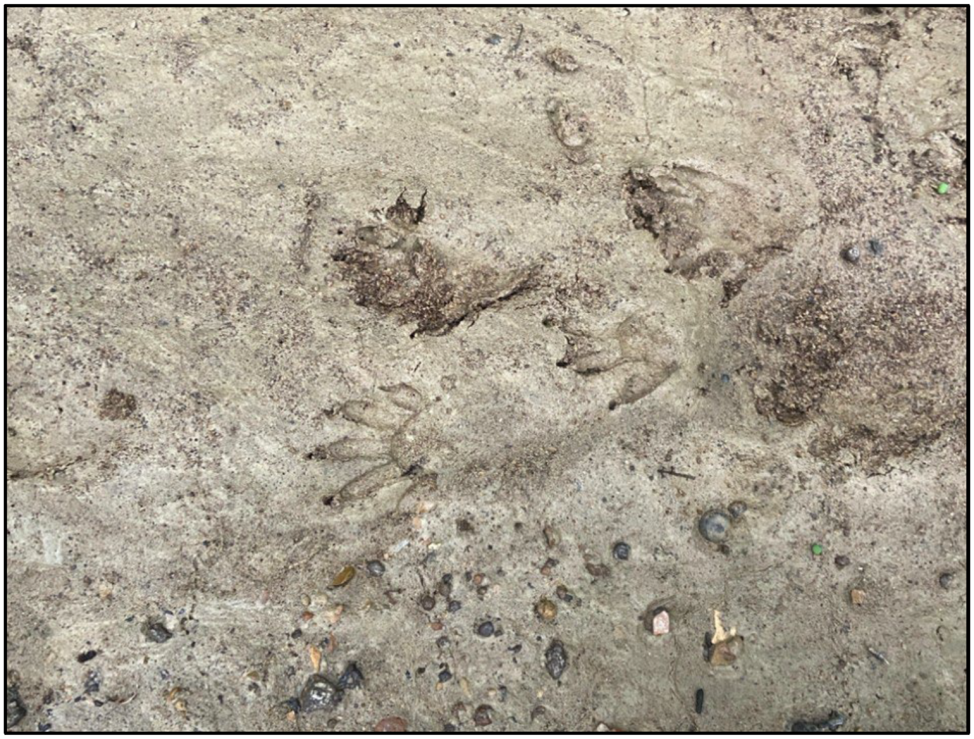


Photo 13: View of potential wildlife evidence of raccoon (*Procyon lotor*) tracks, facing down.

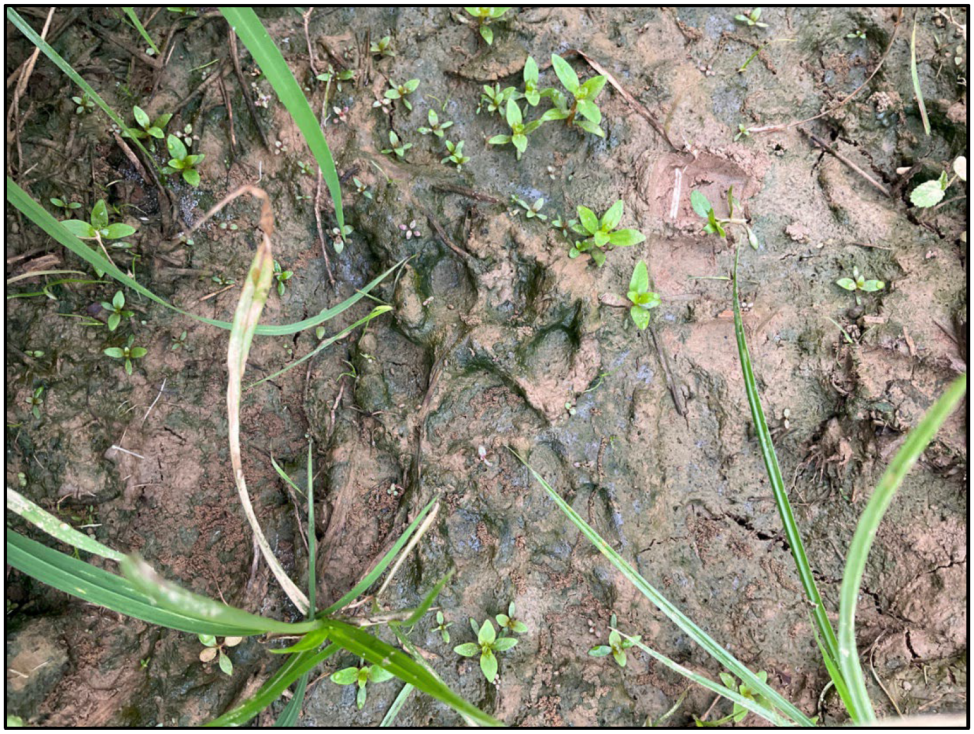


Photo 14: View of potential wildlife evidence of coyote (*Canis latrans*) tracks, facing down.

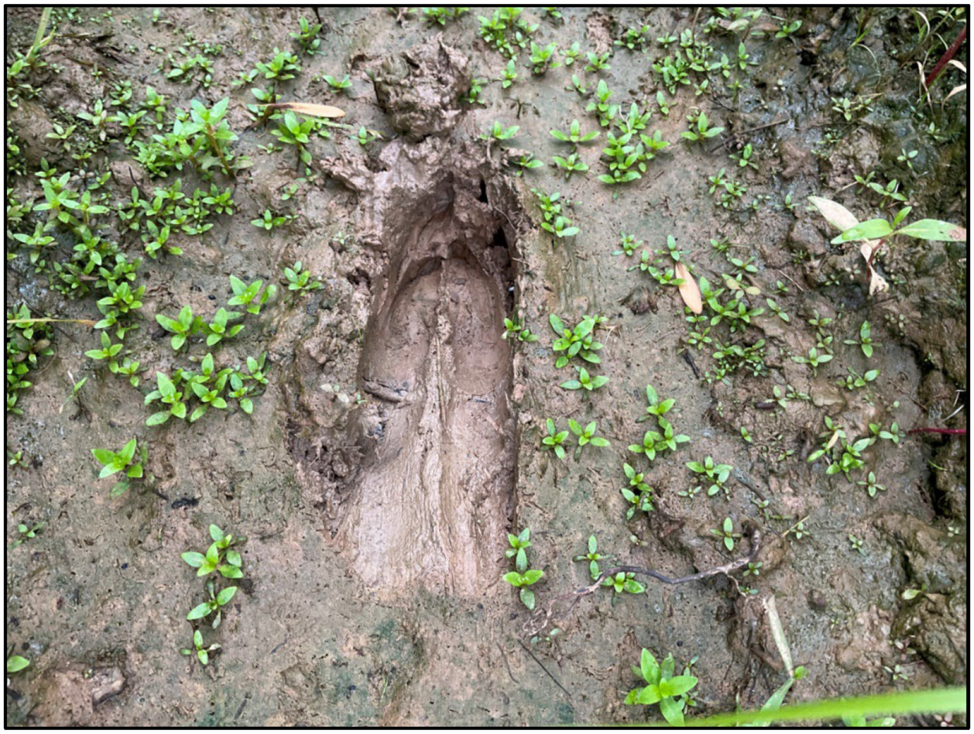


Photo 15: View of potential wildlife evidence of white-tailed deer (*Odocoileus virginianus*) tracks, facing down.

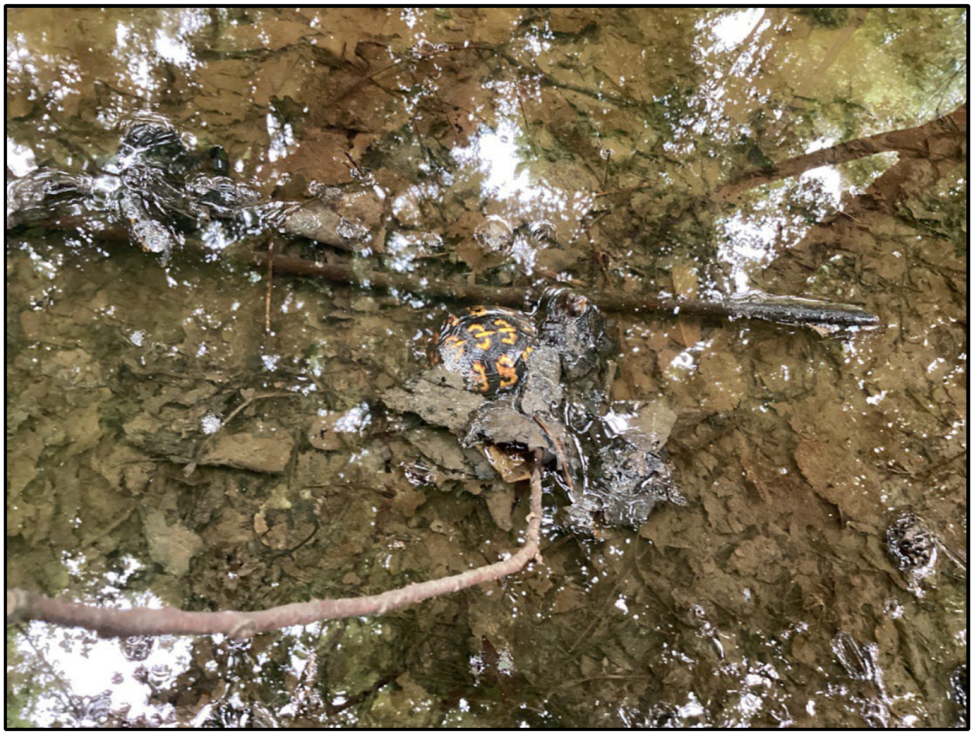


Photo 16: View of eastern box turtle (*Terrapene carolina*) individual, facing down.

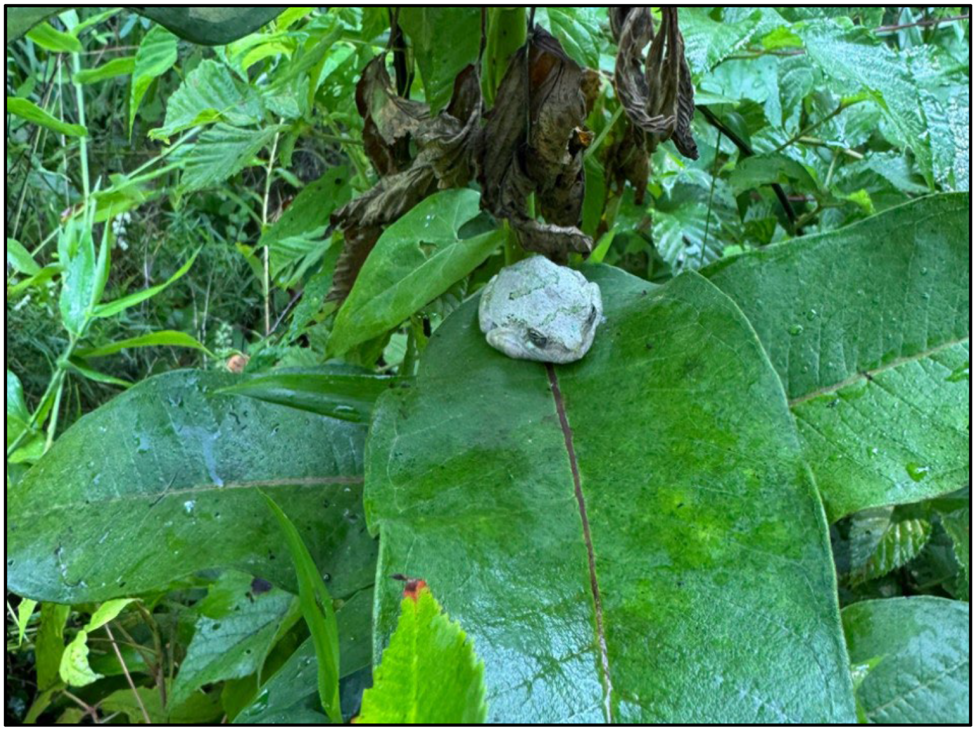


Photo 17: View of gray treefrog (*Dryophytes versicolor*) individual, facing down.

Photo 18: View of American toad (*Anaxyrus americanus*) individual, facing down.

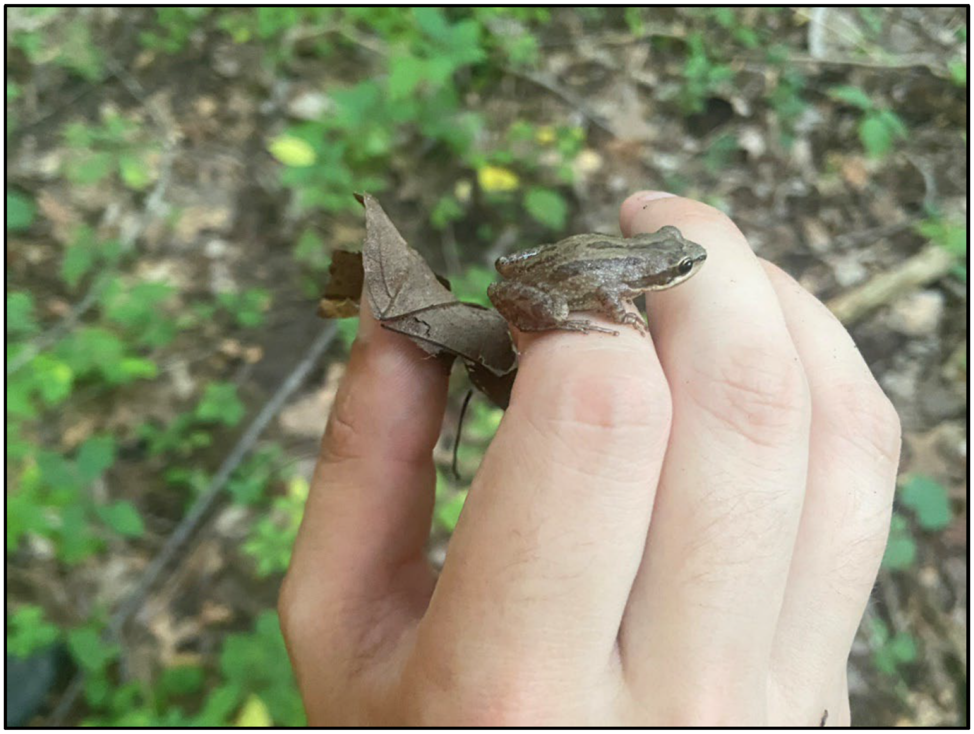


Photo 19: View of upland chorus frog (*Pseudacris feriarum*) individual, facing down.

Photo 20: View of compassplant (*Silphium laciniatum*) population, facing north.

Photo 21: View of Mississippi Kite (*Ictinia mississippiensis*) individual, facing up.

BURNS McDONNELL℠

CREATE AMAZING.

Appendix M

Regulatory Correspondence

Regulatory Correspondence

- Kentucky Office of State Archaeology Request Coversheet with registration number and background data, dated May 20, 2024
- Letter to Kentucky Heritage Council/State Historic Preservation Office with Section 106 APE consultation request, dated July 18, 2024
- Application for Kentucky Antiquities Act Permit submitted by Burns & McDonnell on July 23, 2024
- Kentucky Office of State Archaeology Permit for Archaeological Investigations, dated August 1, 2024
- Letter from Kentucky Heritage Council/State Historic Preservation Office with APE recommendations, dated August 13, 2024
- Email to U.S. Fish and Wildlife Service with Acoustic Bat Study Plan, dated July 11, 2024
- Email from U.S. Fish and Wildlife Service approving Acoustic Bat Study Plan, dated July 11, 2024
- Email to U.S. Fish and Wildlife Service with Acoustic Bat Study Report, dated November 18, 2024
- Email to U.S. Army Corps of Engineers, Louisville District including the Wetland Delineation Report and a request for an approved jurisdictional determination, dated December 3, 2024
- Application for Kentucky Antiquities Act Permit submitted by CRA on August 28, 2024
- Kentucky Office of State Archaeology Permit for Archaeological Investigations, dated September 30, 2024
- Email from the Kentucky Office of State Archaeology confirming that request for GIS site and survey data was received, dated August 29, 2024
- Email correspondence with Kentucky Heritage Council regarding Survey Number Request form submitted by BFW, phone discussion recaps, and Section 106 concurrence, dated between September 25, 2024, and April 25, 2025

Kentucky Office of State Archaeology

University of Kentucky, 1020A Export Street, Lexington, KY 40506
Phone:859-257-1944 Fax:859-323-9866 email:ky-osa@uky.edu
Confidential Information
Not for Public Release

Request Coversheet

Date Request Processed: 5/20/2024

Project Registration Number: FY24-12826

Paid via: ☐ Check (Check No.:)

☒ Credit Card (Transaction ID: 212089320)

If you have any questions, please contact KyOSA at (859)257-1944 or ky-osa@uky.edu.

BURNS McDONNELL

July 18, 2024

Craig Potts
Director/State Historic Preservation Officer
Kentucky Heritage Council
The Barstow House
410 High Street
Frankfort, KY 40601

Re: GLS Paducah Laser Enrichment Facility (PLEF)

Dear Mr. Potts:

Burns & McDonnell Engineering, Inc., (Burns & McDonnell) is assisting Boston Government Services, LLC (BGS) in the preparation of environmental documents for proposed construction and operation of a uranium enrichment facility in McCracken County, Kentucky (Project) (Figures 1 and 2). The proposed Physical Area of Potential Effect (APE) covers 343 acres. In anticipation of U.S. Nuclear Regulatory Commission (NRC) regulatory oversight and project compliance with Section 106 of the National Historic Preservation Act (NHPA) and the National Environmental Policy Act (NEPA), Burns & McDonnell is requesting Project review and comment from the Kentucky State Historic Preservation Office.

The NRC has not yet formally established the APE, but instead has a proposed Physical APE (Figures 1 and 2). The tallest proposed element of the Project is currently expected to be a 70-foot-tall building. The proposed Non-Physical APE for consideration of visual effects to historic properties is 0.25 mile around the Physical APE (Figures 1 and 2).

CULTURAL RECORDS REVIEW

Burns & McDonnell examined data from the Kentucky Office of State Archaeology (KY OSA) and the Kentucky Heritage Council (KHC) to identify previously recorded resources and surveys within 2 kilometers of the Project (Study Area). Burns & McDonnell reviewed the KHC Cultural Resource Site Check Web Portal and geospatial data obtained from the KY OSA in June 2024.

Three known archaeological sites (Table 1; Figures 1 and 2) and seven previous archaeological surveys (Table 2) are within the Study Area. One of the surveys intersects the Physical APE. The survey was conducted by Cultural Resource Consultant Services Inc. in 1994 and is titled Paducah Gaseous Diffusion Plant for the Department of Energy. This undertaking identified two archaeological sites (15McN94 and 15McN103) east of the Project.

Table 1: Previously Recorded Archaeological Sites within 2 km of Project

Site Number	Time Period and Cultural Affiliation	Site Type	NRHP* Status

15McN9	Indeterminate Prehistoric	Open habitation without mounds	Unevaluated
15McN94	Historic Euro-American	Historic farm/ residence	Unevaluated
15McN103	Late Archaic	Open habitation without mounds	Not eligible

Source: KY OSA 2024
*NRHP = National Register of Historic Places

Table 2: Previously Recorded Archaeological Survey within 2 km of Project

SHPO ID	Survey title	Date	Author	Agency/ Client
73-094	Environmental Investigations at the Paducah Gaseous Diffusion Plant and Surrounding Area, McCracken County, Kentucky, Volume IV Cultural Resources Investigation, Part A and Part B	1994	Frederick Briuer	Department of Energy
073-035	Phase I Archaeological Survey of Section 1-290.01 on the US 60 Relocation Project, McCracken County, Kentucky	1996	Betty J. McGraw	Department of Transportation
073-054	A Phase I Archaeological Survey of a 100 x 100' Cell Tower Site Near Heath (McCracken County), Kentucky	2005	Kenneth C. Carstaires	Federal Communications Commission
073-082	Archaeological Survey of Selected Project Areas in the Western Kentucky Wildlife Management Area, McCracken County Kentucky	2007	Matt R. Byron	Kentucky Department of Fish & Wildlife Resources

SHPO ID	Survey title	Date	Author	Agency/ Client
073-085	Phase I Cultural Resources Survey and Assessment of the Grahamville-DOE 161kV Electric Transmission Line Construction Corridor, McCracken County, Kentucky	2011	Bob Sadler, Cally Lence, Steve Titus	Department of Energy
073-105	Phase I Archaeological Survey, TVA Shawnee Reconfiguration, McCracken County, Kentucky	2015	John A. Hunter	Tennessee Valley Authority
073-130	Phase I Archaeological Survey for Tennessee Valley Authority Paducah Gaseous Diffusion Planet, McCracken County, Kentucky	2019	John A. Hunter	Tennessee Valley Authority

Source: KY OSA 2024

In addition to archaeological resources, Burns & McDonnell cultural resources specialists reviewed the Study Area for previously recorded historic-age aboveground resources. The review identified the Paducah Gaseous Diffusion Plant (PGDP) historic district, which comprises 158 previously recorded historic-age architectural resources (CDM Federal Services Inc. 2004). Of these, 121 are located within the Study Area (Table 3; Figures 1 and 2). The PGDP is located directly north of the Project. The plant was surveyed in 2004 and was determined to constitute a NRHP district eligible under Criterion A due to its military significance during the Cold War.

Outside of the PGDP, there are five previously recorded historic-age resources and one cemetery located within the Study Area. None of the previously recorded resources intersect the proposed Physical APE. One unevaluated coded property is within the proposed Non-Physical APE.

Table 3: Previously Recorded Historic Resources within 2 km of Project

Resource Number/ID	Address	Name and Type	Age	NRHP Status	Notes
Multiple	Paducah Gaseous Diffusion Plant, West Paducah, KY 42086	Paducah Gaseous Diffusion Plant Industrial complex	1950-1974 1975-2000	Eligible	Includes 121 resources in 2 km boundary
	11205 Woodville Rd, Kevil, KY 42053	Spring Bayou Cemetery	Unknown	Unevaluated	
MCN-387	9775 McCaw Rd, West Paducah, KY 42086	Dwelling	Unknown	Unevaluated	
N/A	9770 Woodville Rd, Kevil, KY 42053	Dwelling	Unknown	Unevaluated	
N/A	N/A	Unknown	Unknown	Unevaluated	
N/A	N/A	Unknown	Unknown	Unevaluated	
N/A	10800 Woodville Rd, Kevil, KY 42053	Dwelling	Unknown	Unevaluated	

Source: KHC Cultural Resource Site Check Web Portal.

RESOURCE SUMMARY

While there are no known archaeological sites that intersect the proposed Physical APE, the site potential is moderate to high based on topography, soils, proximity to the Ohio River, and the sites identified nearby.

There are no previously recorded historic-age resources within the proposed Physical APE and one historic-age resource within with proposed Non-Physical APE. However, it appears much of the APE has not been surveyed in the recent past and there is potential for additional historic-age resources within the proposed Non-Physical APE.

Your review of and comment on the Project with respect to the proposed APEs and the scope of work for cultural resources investigations is appreciated. If you have any questions, please contact me at jrtopi@burnsmcd.com or (816) 885-7969.

Sincerely,

John R. Topi

John R. Topi, MA, RPA
Staff Cultural Resources Specialist

Shelby Stahlhood

Shelby Stahlhood
Assistant Cultural Resources Specialist

Attachment 1: Figures

cc: Daniel Jelinek, Erika Grace, Burns & McDonnell

KENTUCKY HERITAGE COUNCIL COVER SHEET FOR SECTION 106 SUBMISSIONS

We want to help you with your project as early in the process as possible. Our reviewers need up to 30 days to review and provide comments to you for your proposal. If you are using federal funds or permits, you definitely need us. If you are working through the e-Clearing House (KHC does not use e-Clearinghouse), or need environmental review, you'll likely need us. DON'T WAIT! We're here to help. Email your submissions in a single attachment to, and only to ***khc.section106@ky.gov.*** *If you have questions, visit our webpage, or email Nicole.Konkol@ky.gov.*

SECTION 1: APPLICANT INFORMATION

Project Applicant: Burns & McDonnell Engineering, Inc.

Contact Person (name & position)**:** John Topi, Staff Cultural Resources Specialist

Return Address: 9400 Ward Pkwy Kansas City, MO 64114

Telephone: **E-mail:** jrtopi@burnsmcd.com

Project Title: GLS Paducah Laser Enrichment Facility (PLEF)

SECTION 2: AGENCY INFORMATION

Funding/Permitting Agency: Nuclear Regulatory Commission

Agency Contact Person (name & position)**:** Matt Bartlett

Telephone: **E-mail:** matthew.bartlett@nrc.gov

SECTION 3: PROJECT LOCATION

Street Address (or other location)**:** ST-1030

City: Kevil	**County:** McCracken
Lat (Dec/Deg): 37.093242	**Long (Dec/Deg):** -88.817672

SECTION 4: PROJECT TYPE (please check all that apply)

Proposed Activity: ☐ Demolition ☐ Rehabilitation ☐ Structural Relocation ☐ Trails

☒ New Construction ☐ Land and/or Building Acquisition ☐ Sewer/Water Lines ☐ Roads/Bridges

☐ Non-Construction Planning/Refinancing ☐ Other (describe):

SECTION 5: IDENTIFICATION OF KNOWN HISTORIC PROPERTIES

OSA Preliminary Site Check #: FY24-12826

Provide a detailed description of your project. If necessary, include it in your pdf attachments.

The Project will involve construction and operation of a uranium enrichment facility south of the Paducah Gaseous Diffusion Plant.

Is there anything over 50 years of age in or visible from the project location? ☒ **Yes** ☐ **No**

SECTION 6: ATTACHMENTS - Attach All.

All documentation should be labeled with the project name or site address.

- ☐ Clear, current photographs of the project site and anything over 50 years of age in or visible from it.
- ☒ Site map/plan indicating the exact location and boundaries of the project area.
- ☐ Detailed description of the project (may include plans, scope of work, and other available information.)
- ☐ Documentation of prior ground disturbance (e.g. maps, photographs, underground utility plans, etc.)
- ☐ Any known information about the history/use of the property and local significance.
- ☑ Results of your Preliminary Records Review from the Site Identification web portal.

Submit all information in a single email to khc.section106@ky.gov. Submission of initial Section 106 documentation to any individual reviewer will delay distribution and review.

Source: ESRI, Kentucky State Historic Preservation Office

Issued: 7/2/2024

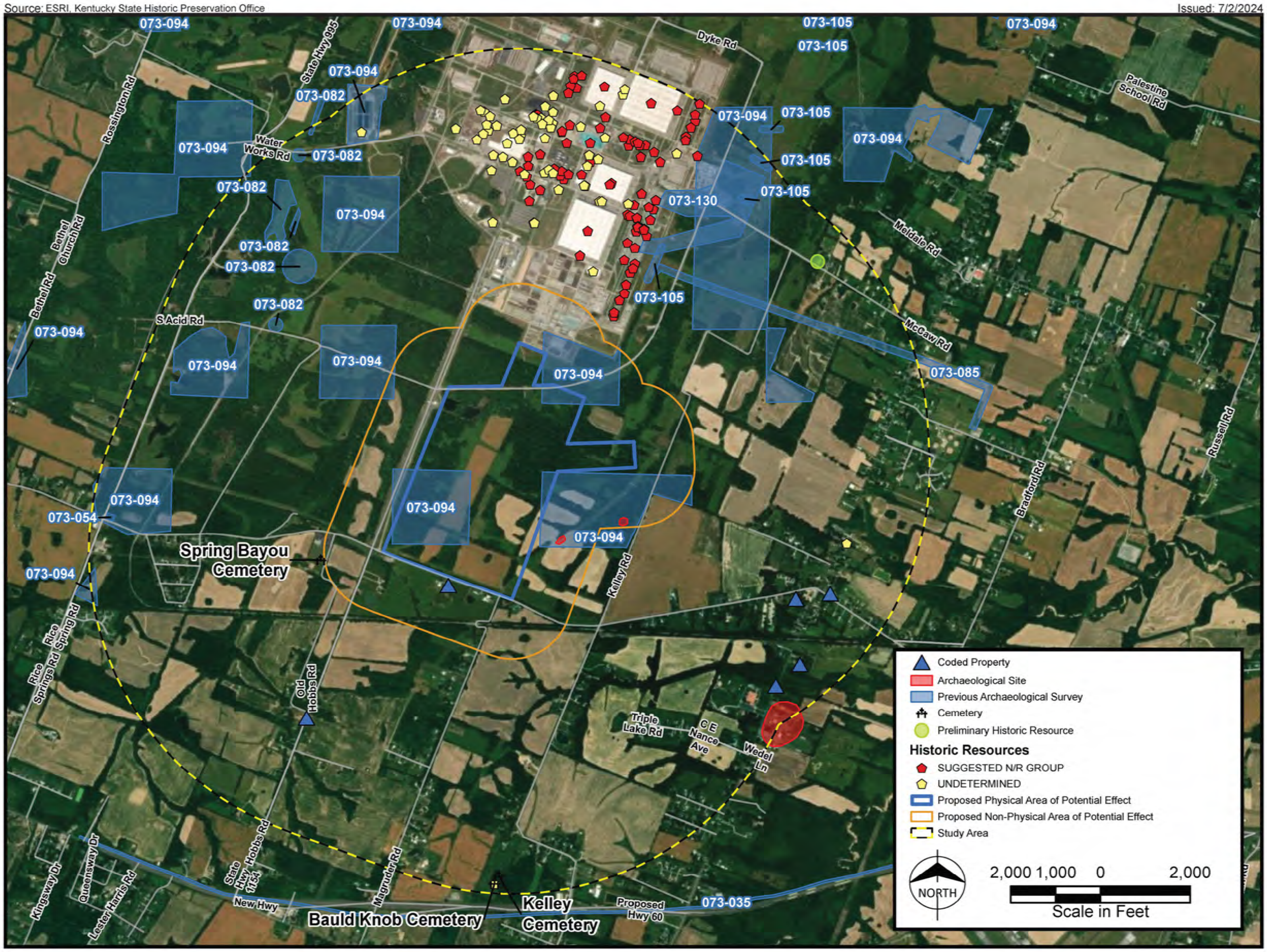

073-094
073-105
073-082
073-130
073-085
073-054
073-035
Dyke Rd
State Hwy 995
Rossington Rd
Water Works Rd
Bethel Church Rd
Bethel Rd
S Acid Rd
Palestine School Rd
Maidale Rd
McCaw Rd
Kelley Rd
Bradford Rd
Russell Rd
Spring Bayou Cemetery
Rice Springs Rd
Old Hobbs Rd
Triple Lake Rd
C E Nance Ave
Wedel Ln
Kingsway Dr
Queensway Dr
Lester Harris Rd
State Hwy Hobbs Rd 1154
Magruder Rd
New Hwy
Bauld Knob Cemetery
Kelley Cemetery
Proposed Hwy 60
Coded Property
Archaeological Site
Previous Archaeological Survey
Cemetery
Preliminary Historic Resource
Historic Resources
SUGGESTED N/R GROUP
UNDETERMINED
Proposed Physical Area of Potential Effect
Proposed Non-Physical Area of Potential Effect
Study Area
NORTH
2,000 1,000 0 2,000
Scale in Feet

Figure 1: Cultural Features

Source: ESRI, Kentucky State Historic Preservation Office

Issued: 7/2/2024

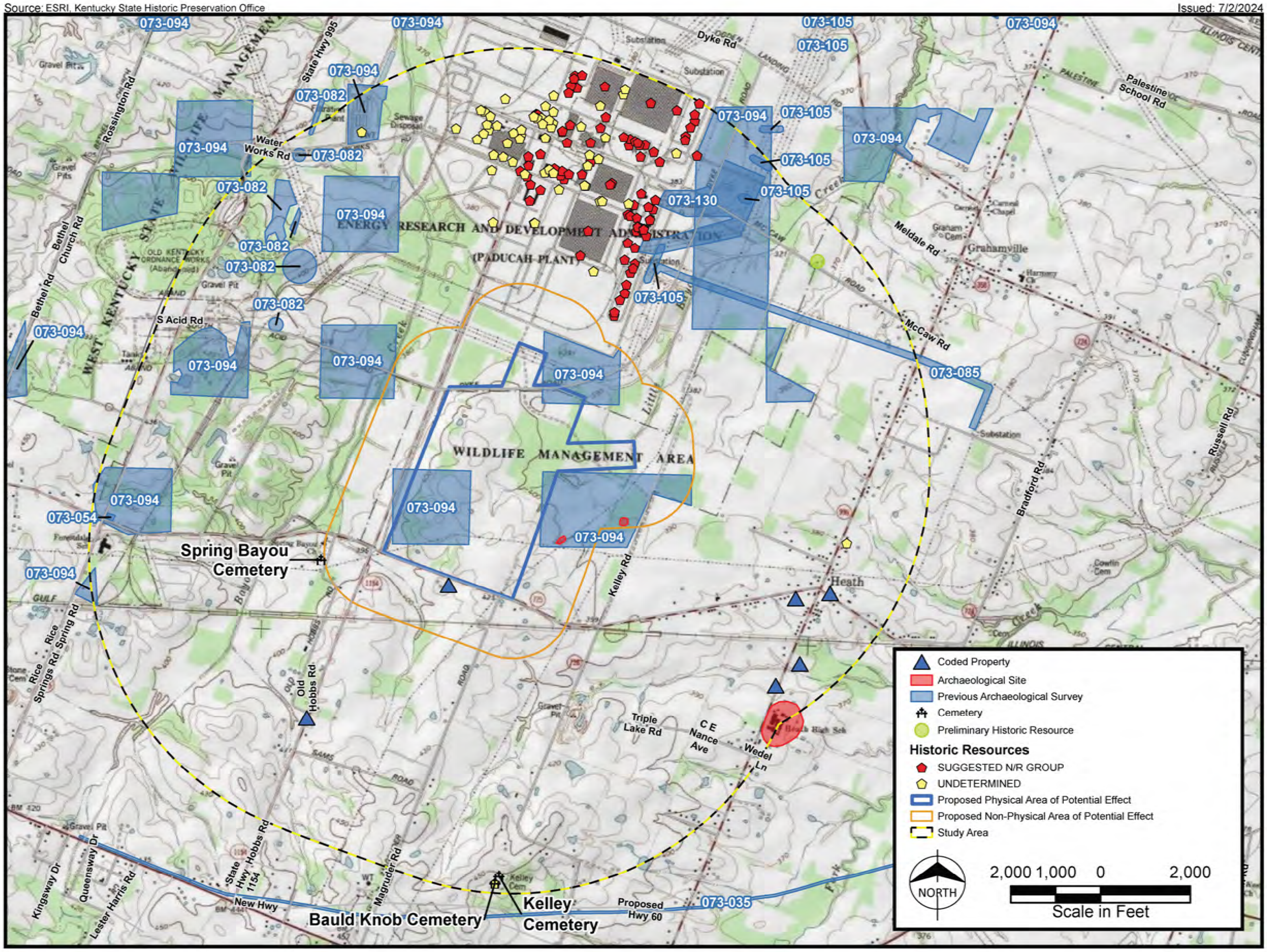

073-094
073-105
073-082
073-054
073-130
073-085
073-035
Water Works Rd
Dyke Rd
State Hwy 995
Rossington Rd
Bethel Church Rd
Bethel Rd
S Acid Rd
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
(PADUCAH PLANT)
WEST KENTUCKY STATE WILDLIFE MANAGEMENT
WILDLIFE MANAGEMENT AREA
Palestine School Rd
Meldale Rd
Grahamville
McCaw Rd
Bradford Rd
Russell Rd
Kelley Rd
Heath
Spring Bayou Cemetery
Rice Springs Rd
Old Hobbs Rd
Triple Lake Rd
C E Nance Ave
Wedel Ln
Kingsway Dr
Queensway Dr
Lester Harris Rd
State Hwy Hobbs Rd 1154
Magruder Rd
New Hwy
Proposed Hwy 60
Bauld Knob Cemetery
Kelley Cemetery
Coded Property
Archaeological Site
Previous Archaeological Survey
Cemetery
Preliminary Historic Resource
Historic Resources
SUGGESTED N/R GROUP
UNDETERMINED
Proposed Physical Area of Potential Effect
Proposed Non-Physical Area of Potential Effect
Study Area
NORTH
2,000 1,000 0 2,000
Scale in Feet

Figure 2: Cultural Features

KENTUCKY OFFICE OF STATE ARCHAEOLOGY

University of Kentucky, 1020A Export Street, Lexington, KY 40506-9854
859-257-1944 • fax: 859-323-9866 • email: ky-osa@uky.edu

Application for Kentucky Antiquities Act Permit

Principal Investigator: John Topi
Field/Project Director: John Topi, Douglas Shaver, Michael Davis
Affiliation: Burns & McDonnell Engineering, Inc.
Address: 9400 Ward Pkwy

City, State, Zip: Kansas City, MO 64114
Telephone: 816-885-7969
E-mail: jrtopi@burnsmcd.com

Title/description of project: GLE Paducah Laser Enrichment Facility (PLEF); the Project will involve construction and operation of a uranium enrichment facility south of the Paducah Gaseous Diffusion Plant. The land is part of the West Kentucky Wildlife Management Area, under the Kentucky Department of Fish & Wildlife Resources. There is an agreement in place to transfer the land once the Project is approved and permitted.

Anticipated dates of fieldwork: 8/19/2024 through 9/20/2024
Lead State, County, or Municipal Agency: Nuclear Regulatory Commission
Contact Information (name, phone): Matt Bartlett, matthew.bartlett@nrc.gov
Location: **County(s):** McCracken
USGS Quadrangle(s): Heath
Designated Curation Facility: Univ. of Louisville, Program of Archaeology

A copy of the appropriate section of the USGS 7.5" topographic map showing the location of the project area must be attached to this application.

Fieldwork is to be conducted in accordance with "Section IV. Fieldwork for Archaeological Investigations" as outlined in the *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports* issued by the Kentucky State Historic Preservation Office (SHPO) of the Kentucky Heritage Council.

A report describing the project and results is to be submitted to the Office of State Archaeology no later than 30 days after the expiration of the permit, and should be completed in accordance with the SHPO's guidelines as outlined in the *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports.*

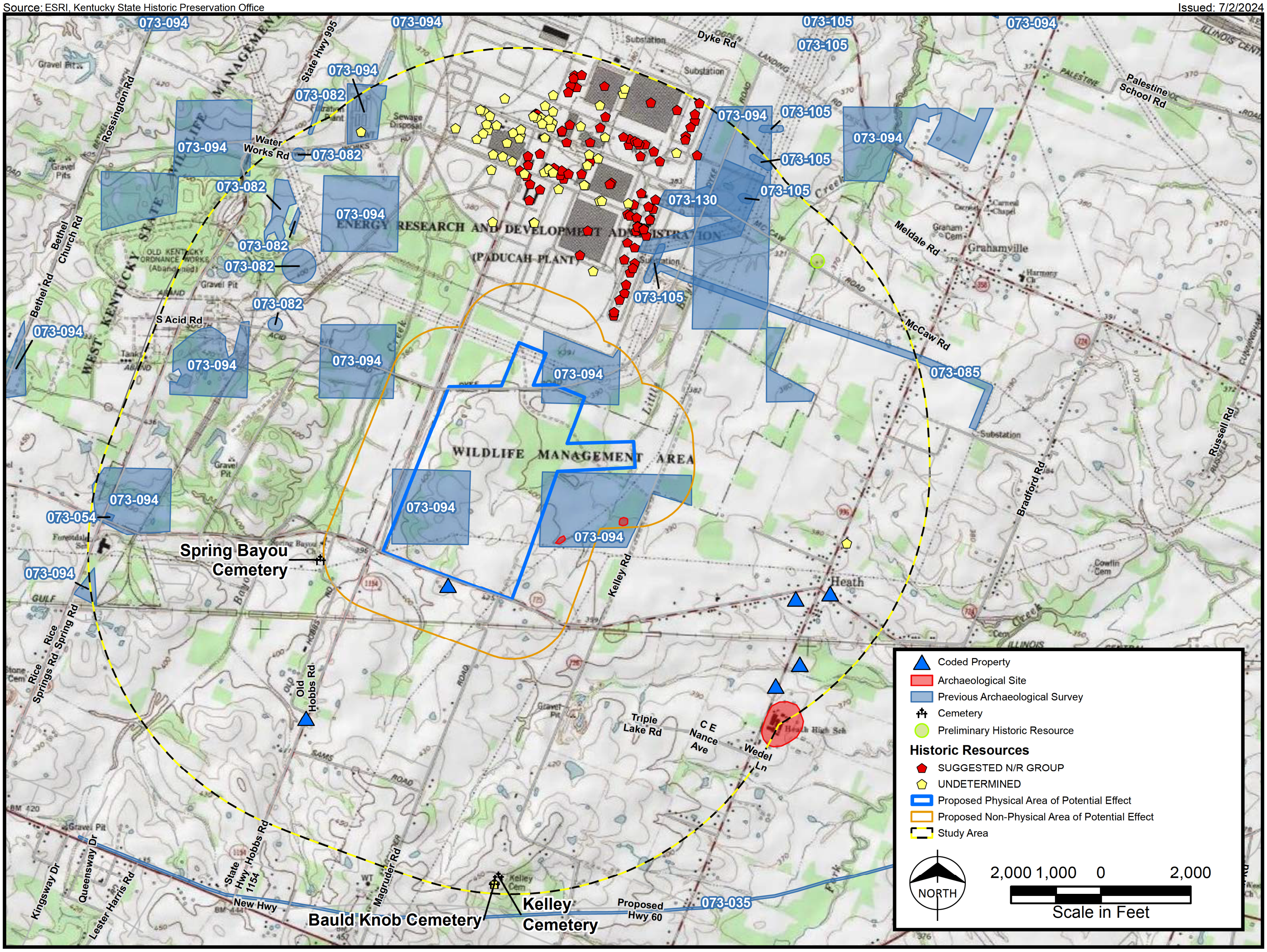
All official notes, records, and artifacts are property of the Commonwealth and are to be retained permanently for future study and curated with an appropriate institution.

I certify that I have read and understand Kentucky Revised Statute (KRS) 164.705-735 and KRS 164.990 Kentucky Antiquities Act. I further certify that all information contained in this application is correct to the best of my knowledge.

7/23/2024

Source: ESRI, Kentucky State Historic Preservation Office

Issued: 7/2/2024


Coded Property
Archaeological Site
Previous Archaeological Survey
Cemetery
Preliminary Historic Resource
Historic Resources
SUGGESTED N/R GROUP
UNDETERMINED
Proposed Physical Area of Potential Effect
Proposed Non-Physical Area of Potential Effect
Study Area
NORTH
2,000 1,000 0 2,000
Scale in Feet
073-094
073-105
073-082
073-130
073-085
073-054
073-035
Spring Bayou Cemetery
Bauld Knob Cemetery
Kelley Cemetery
Water Works Rd
S Acid Rd
Dyke Rd
Meldale Rd
McCaw Rd
Palestine School Rd
Bradford Rd
Russell Rd
Kelley Rd
Triple Lake Rd
C E Nance Ave
Wedel Ln
Old Hobbs Rd
Magruder Rd
State Hwy 995
State Hwy Hobbs Rd 1154
New Hwy
Proposed Hwy 60
Rice Springs Rd
Rice Spring Rd
Bethel Rd
Bethel Church Rd
Rossington Rd
Kingsway Dr
Queensway Dr
Lester Harris Rd
Heath
Grahamville
WEST KENTUCKY WILDLIFE MANAGEMENT
WILDLIFE MANAGEMENT AREA
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
(PADUCAH PLANT)

Cultural Data

KENTUCKY OFFICE OF STATE ARCHAEOLOGY

University of Kentucky, 1020A Export Street, Lexington, KY 40506-9854
859-257-1944 • fax: 859-323-9866 • email: ky-osa@uky.edu

Permit for Archaeological Investigations on State, County, or Municipal Lands Pursuant to KRS 164.720. Permit required to excavate.	**PERMIT NUMBER 2024-48** **COUNTY OF McCracken** **Expiration Date: December 31, 2024**

This permit authorizes:

	Name:	John Topi
	Affiliation:	Burns & McDonnell Engineering, Inc.
	Address:	9400 Ward Pkwy Kansas City, MO 64114

and qualified individuals working under the direct supervision of the permittee to explore, excavate, appropriate, or remove from land owned or leased by the Commonwealth or any state agency or any political subdivision or municipal corporation of the commonwealth, any archaeological site or object of antiquity in accordance with the following described project:

GLE Paducah Laser Enrichment Facility (PLEF)

Purpose of Collection: Archaeological Survey

Disposition of Collection and Special Conditions: All official notes, records, and artifacts are property of the Commonwealth and are to be retained permanently for future study and stored with an appropriate institution. This permit does not authorize the collection of any items or objects of antiquity for personal use.

This permit is issued on August 1, 2024, by:

Philip Mink

Philip B. Mink, II
Assistant Director, Office of State Archaeology

Andy Beshear
Governor

Jacqueline Coleman
Lt. Governor

TOURISM, ARTS AND HERITAGE CABINET
KENTUCKY HERITAGE COUNCIL
THE STATE HISTORIC PRESERVATION OFFICE
410 High Street
Frankfort, Kentucky 40601
(502) 564-7005
www.heritage.ky.gov

Lindy Casebier
Secretary

Craig A. Potts
Executive Director &
State Historic Preservation Officer

August 13, 2024

John Topi
Staff Cultural Resources Specialist
Burns & McDonnell
9400 Ward Parkway
Kansas City, MO 64114
jrtopi@burnsmcd.com

RE: NRC, GLE Paducah Laser Enrichment Facility
Off ST-1030, Kevil, McCracken County, Kentucky

Dear Mr. Topi:

Thank you for your submittal of Area of Potential Effect (APE) consultation for the above-referenced undertaking. We understand your client, Boston Government Services, is proposing to construct a uranium enrichment facility in Kevil, Kentucky.

We recommend archaeological survey of the Physical APE depicted in the submission. These investigations should be conducted by an SOI-qualified archaeologist. A portion of the APE was surveyed for archaeological resources in 1994. This area should be resurveyed as needed to meet our current Specifications.

Our office concurs with the above-ground APE and level of effort. Any parcels that overlap the APE should be captured in a Cultural Historic Report, and this report should also include effects to the Paducah Gaseous Diffusion Plant Industrial Complex Historic District, which partially overlaps the APE. The survey should be completed by a Secretary of the Interior (SOI)-qualified Historian or Architectural Historian, meet our report and survey form specifications, and include completed survey forms for each property.

Upon completion, the archaeology report, Cultural Historic, and any applicable survey forms should be submitted as separate PDF files khc.section106@ky.gov.

We look forward to continued consultation on this undertaking. Should you have any questions, please contact Gabrielle Fernandez or Patti Hutchins of my staff at Gabrielle.Fernandez@ky.gov or Patricia.Hutchins@ky.gov.

Sincerely,

Craig A. Potts,
Executive Director and
State Historic Preservation Officer

CP: gf, peh
KHC # 241837

Outlook

Acoustic Bat Study Plan - BGS Paducah Site

From Maine, Josiah J <jjmaine@burnsmcd.com>
Date Thu 7/11/2024 1:23 PM
To KentuckyES, FW4 <Kentuckyes@fws.gov>
Cc Grace, Erika A <eagrace@burnsmcd.com>; Jelinek, Daniel <djelinek@burnsmcd.com>

3 attachments (3 MB)
rangewide-survey-guidance-fillable-study-plan-form_v-2.1_BGSPaducah.pdf; PLEF Survey Area.kmz; Potential Acoustic Sites.kmz;

Hello,
We are planning to conduct an acoustic presence/absence survey for Indiana bat, northern long-eared bat, and tricolored bat on the BGS Paducah Site near Paducah, Kentucky. Please see the attached study plan form and KMZ files for your review and approval. If you have any questions or concerns, please let me know.
Thanks,

Josiah Maine
Burns & McDonnell
Senior Environmental Scientist
O 816-448-7519 \ **M** 785-317-1595
jjmaine@burnsmcd.com \ burnsmcd.com
9400 Ward Parkway \ Kansas City, MO 64114

Outlook

Re: [EXTERNAL] Acoustic Bat Study Plan - BGS Paducah Site

From Armstrong, Mike <mike_armstrong@fws.gov>
Date Thu 7/11/2024 2:21 PM
To KentuckyES, FW4 <kentuckyes@fws.gov>; Maine, Josiah J <jjmaine@burnsmcd.com>

Afternoon Josiah.

I have reviewed and approve the subject study plan. Feel free to reach out with any questions during the survey.

Thanks,
Mike

Mike Armstrong
Southeast Region Bat Recovery Biologist
U.S. Fish & Wildlife Service
Kentucky Field Office
330 W. Broadway, Room 265
Frankfort, KY 40601
Cell: 502-229-4632
Office/Teams: 502-653-0498

**Check us out at https://www.fws.gov/office/kentucky-ecological-services

NOTE: This email correspondence and any attachments to and from this sender is subject to the Freedom of Information Act (FOIA) and may be disclosed to third parties.

From: KentuckyES, FW4 <kentuckyes@fws.gov>
Sent: Thursday, July 11, 2024 2:27 PM
To: Armstrong, Mike <mike_armstrong@fws.gov>
Subject: Fw: [EXTERNAL] Acoustic Bat Study Plan - BGS Paducah Site

Sir,

Please see attached and below email for an Acoustic Bat Study Plan request.

From: Maine, Josiah J <jjmaine@burnsmcd.com>
Sent: Thursday, July 11, 2024 2:23 PM
To: KentuckyES, FW4 <kentuckyes@fws.gov>
Cc: Grace, Erika A <eagrace@burnsmcd.com>; Jelinek, Daniel <djelinek@burnsmcd.com>
Subject: [EXTERNAL] Acoustic Bat Study Plan - BGS Paducah Site

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Hello,
We are planning to conduct an acoustic presence/absence survey for Indiana bat, northern long-eared bat, and tricolored bat on the BGS Paducah Site near Paducah, Kentucky. Please see the attached study plan form and KMZ files for your review and approval. If you have any questions or concerns, please let me know.
Thanks,

Josiah Maine
Burns & McDonnell
Senior Environmental Scientist
O 816-448-7519 \ **M** 785-317-1595
jjmaine@burnsmcd.com \ burnsmcd.com
9400 Ward Parkway \ Kansas City, MO 64114

Outlook

Acoustic Bat Survey Report - GLE Paducah

From Maine, Josiah J <jjmaine@burnsmcd.com>
Date Mon 11/18/2024 7:52 AM
To KentuckyES, FW4 <Kentuckyes@fws.gov>
Cc Jelinek, Daniel <djelinek@burnsmcd.com>; Grace, Erika A <eagrace@burnsmcd.com>; Jelke, Brian E <bejelke@burnsmcd.com>; Tremante, Vincent J (Vinnie) <vjtremante@burnsmcd.com>; Timothy.Knowles@gle-us.com <Timothy.Knowles@gle-us.com>; morgan.murphy@gle-us.com <morgan.murphy@gle-us.com>; scott.steuer@gle-us.com <scott.steuer@gle-us.com>; CDean@DeMase-Tech.com <CDean@DeMase-Tech.com>; pmolitor@bgs-llc.com <pmolitor@bgs-llc.com>

1 attachment (7 MB)
GLE Paducah Acoustic Bat Survey Report.pdf;

Hello,

Burns & McDonnell completed an acoustic bat presence/absence survey for the proposed GLE Paducah Laser Enrichment Facility Project in McCracken County, Kentucky. Please see the attached acoustic bat survey report for your review. If you have any questions or concerns, please let me know.

Thank you,
Josiah Maine
Burns & McDonnell
Senior Environmental Scientist
O 816-448-7519 \ **M** 785-317-1595
jjmaine@burnsmcd.com \ burnsmcd.com
9400 Ward Parkway \ Kansas City, MO 64114

From:	Tremante, Vincent J (Vinnie)
Sent:	Tuesday, December 3, 2024 5:22 PM
To:	CELRL.Door.To.The.Corps@usace.army.mil
Cc:	Jelinek, Daniel; Timothy.Knowles@gle-us.com; scott.steuer@gle-us.com; pmolitor@bgs-llc.com; CDean@DeMase-Tech.com
Subject:	AJD Request - Paducah Laser Enrichment Facility
Attachments:	2024-11-11_BGS-PLEF_Wetland Delineation Report_reduced.pdf; GLE_USACOE_Wetland_AJD_Transmittal Letter_20241203.pdf; GLE_USACOE_JD_request_20241120_ExecutionCopy.pdf

Dear Sir or Madam,
On behalf of Global Laser Enrichment LLC (GLE), please find attached a transmittal letter, a request form for an approved jurisdictional determination, and a wetland delineation report for property owned by GLE and within the West Kentucky Management Area in Paducah, McCraken County, Kentucky. Should you have any questions about the information submitted please contact me or Tim Knowles, GLE (Timothy.Knowles@gle-us.com).

Kindest regards,

Vinnie Tremante, PWS

Vinnie Tremante, PWS \ Burns & McDonnell
Senior Environmental Scientist \ Environmental Services
O 614-453-7804 **M** 614-403-2699
vjtremante@burnsmcd.com\ burnsmcd.com
530 W. Spring St, Suite 100, Columbus, OH 43215

Click here to join our Talent Community

KENTUCKY OFFICE OF STATE ARCHAEOLOGY

University of Kentucky, 1020A Export Street, Lexington, KY 40506-9854
859-257-1944 • fax: 859-323-1968 • email: ky-osa@lsv.uky.edu

Application for Kentucky Antiquities Act Permit

Principal Investigator: Andrew V. Martin, RPA
Field/Project Director: Michael Curran and Ashley Lawhorn, MA
Affiliation: Cultural Resource Analysts, Inc.
Address: 201 NW 4th Street
Suite 204
City, State, Zip: Evansville, IN 47708
Telephone: (812) 253-3009
E-mail: amartin@crai-ky.com

Title/description of project: Global Laser Enrichment (GLE) Paducah Laser Enrichment Facility (PLEF)
Anticipated dates of fieldwork: September and October 2024
Lead State, County, or Municipal Agency: Kentucky Department of Fish and Wildlife
Contact Information (name, phone): GLE contact: Scott Steuer, (513) 218-5311
Location: **County(s):** McCracken
USGS Quadrangle(s): Heath
Designated Curation Facility: Univ. of Louisville, Program of Archaeology

A copy of the appropriate section of the USGS 7.5" topographic map showing the location of the project area must be attached to this application.

Fieldwork is to be conducted in accordance with "Section IV. Fieldwork for Archaeological Investigations" as outlined in the *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports* issued by the Kentucky State Historic Preservation Office (SHPO) of the Kentucky Heritage Council.

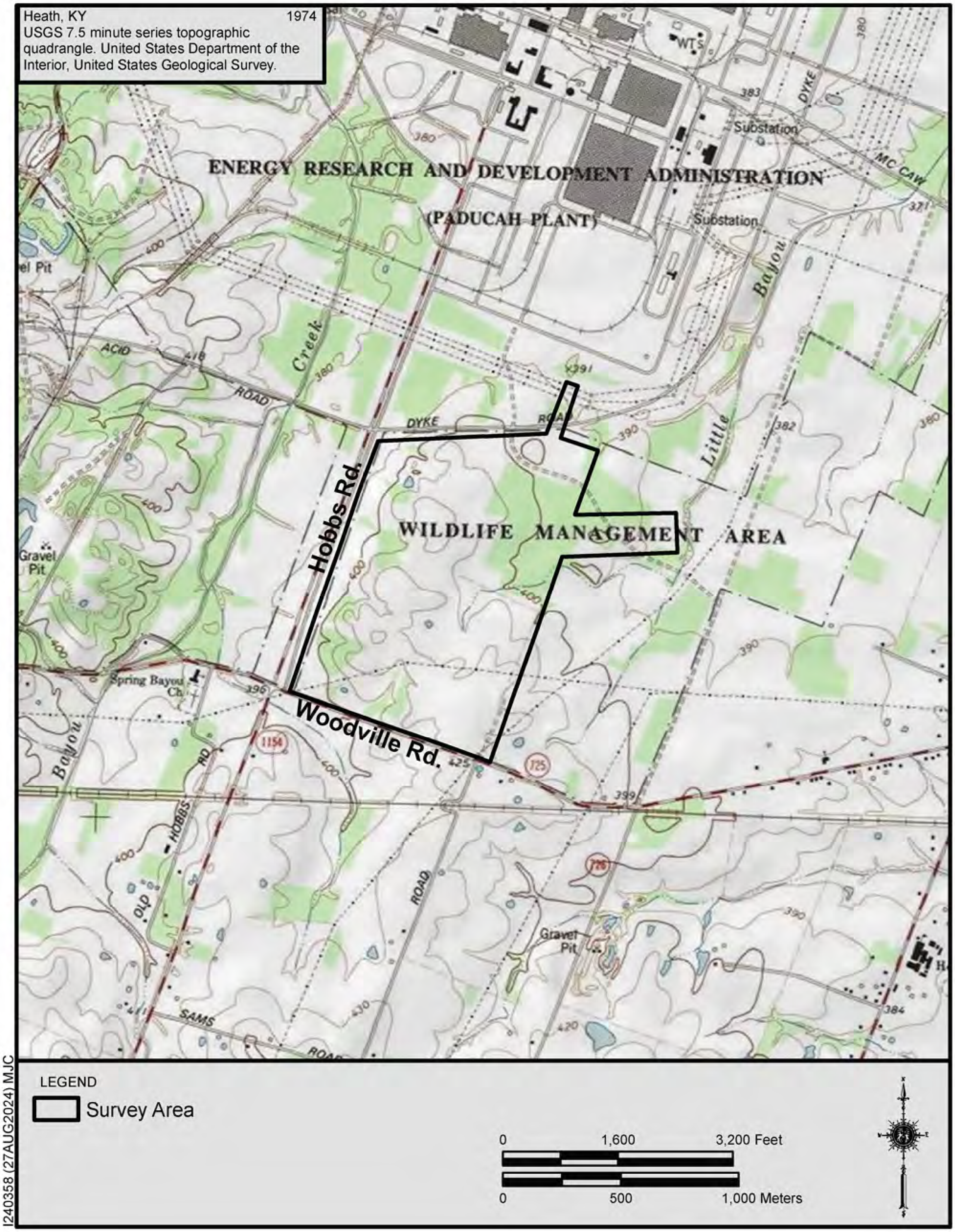
A report describing the project and results is to be submitted to the Office of State Archaeology no later than 30 days after the expiration of the permit, and should be completed in accordance with the SHPO's guidelines as outlined in the *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports.*

All official notes, records, and artifacts are property of the Commonwealth and are to be retained permanently for future study and curated with an appropriate institution.

I certify that I have read and understand Kentucky Revised Statute (KRS) 164.705-735 and KRS 164.990 Kentucky Antiquities Act. I further certify that all information contained in this application is correct to the best of my knowledge.

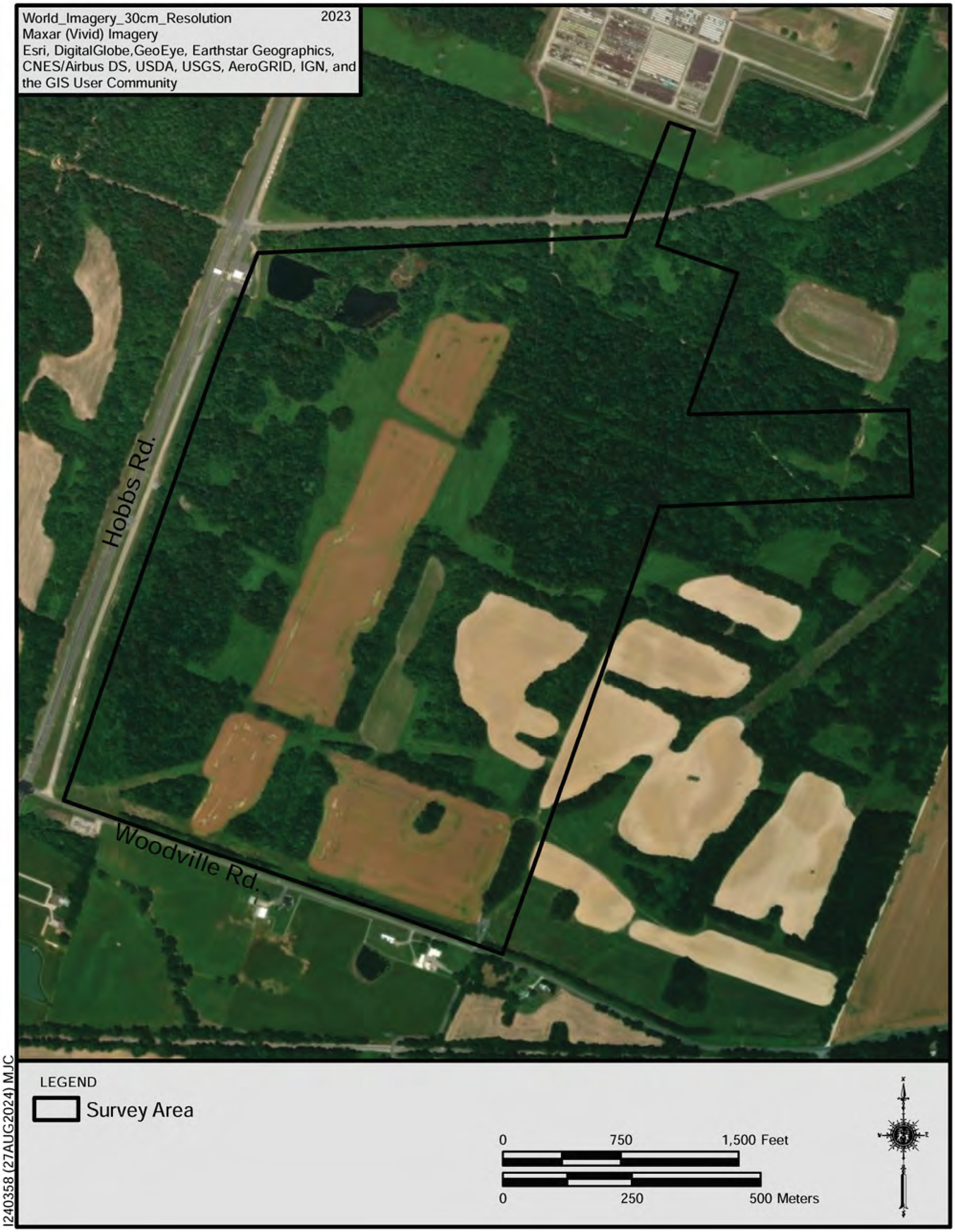
Signature

Date 8/29/2024


ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
(PADUCAH PLANT)
WILDLIFE MANAGEMENT AREA
Hobbs Rd.
Woodville Rd.
ACID ROAD
DYKE ROAD
DYKE
MC CAW
Creek
Little Bayou
Bayou
Substation
Substation
WTS
Spring Bayou Ch
Gravel Pit
Gravel Pit
el Pit
HOBBS RD
OLD HOBBS
ROAD
SAMS ROAD
1154
725
726
380
383
371
400
418
391
390
382
396
425
399
430
420
384
LEGEND
Survey Area
0
1,600
3,200 Feet
0
500
1,000 Meters

Heath, KY 1974
USGS 7.5 minute series topographic quadrangle. United States Department of the Interior, United States Geological Survey.

I240358 (27AUG2024) MJC


Hobbs Rd.
Woodville Rd.
LEGEND
Survey Area
0
750
1,500 Feet
0
250
500 Meters

World_Imagery_30cm_Resolution 2023
Maxar (Vivid) Imagery
Esri, DigitalGlobe,GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

I240358 (27AUG2024) MJC

KENTUCKY OFFICE OF STATE ARCHAEOLOGY

University of Kentucky, 1020A Export Street, Lexington, KY 40506-9854
859-257-1944 • fax: 859-323-9866 • email: ky-osa@uky.edu

Permit for Archaeological Investigations on State, County, or Municipal Lands Pursuant to KRS 164.720. Permit required to excavate.

PERMIT NUMBER 2024-56
COUNTY OF McCracken
Expiration Date: December 31, 2024

This permit authorizes:	Name:	Andrew V. Martin
	Affiliation:	Cultural Resources Analysts, Inc.
	Address:	201 NW 4th Street, Suite 204 Evansville, IN 47708

and qualified individuals working under the direct supervision of the permittee to explore, excavate, appropriate, or remove from land owned or leased by the Commonwealth or any state agency or any political subdivision or municipal corporation of the commonwealth, any archaeological site or object of antiquity in accordance with the following described project:

Global Laser Enrichment (GLE) Paducah Laser Enrichment Facility (PLEF)

Purpose of Collection: Archaeological Survey

Disposition of Collection and Special Conditions: All official notes, records, and artifacts are property of the Commonwealth and are to be retained permanently for future study and stored with an appropriate institution. This permit does not authorize the collection of any items or objects of antiquity for personal use.

This permit is issued September 30, 2024, by:

Philip Mink

Philip B. Mink, II
Director, Office of State Archaeology

From: University of Kentucky LISTSERV Server (17.0)
To: amartin@CRAI-KY.COM
Subject: OSA Request
Date: Thursday, August 29, 2024 11:16:20 AM

Your request for GIS site and survey data has been received by the Kentucky Office of State Archaeology. Requests are filled in the order they are received, usually within 7-10 business days (a longer time may be required for large or complicated requests). If you have not received a report in 10 business days, or if you have other questions about your request, please contact Ms. Christina Pappas, Mr. Philip Mink, or Dr. George Crothers (859-257-1944). To make an appointment to view our paper records, please contact Ms. Nancy O'Malley (859)257-1944.

From: McCartt-Jackson, Sarah (Heritage Council)
To: Melinda Winchester
Cc: Hutchins, Patricia (Heritage Council)
Subject: RE: NRC, GLE Paducah Laser Enrichment Facility, McCracken County
Date: Friday, April 25, 2025 7:33:49 AM
Attachments: Outlook-vtrpsnoz.png
250589_NRC_GLE Paducah Laser Enrichment Facility (S).pdf

WARNING: External sender. Do not click links or attachments unless you recognize the sender and know the content is safe.

Ms. Winchester,

Please find attached a transmittal letter regarding the above-referenced undertaking.

Thank you,
Sarah

Sarah Jackson
Historic Preservation Coordinator
Kentucky Heritage Council
410 High Street
Frankfort, Kentucky 40601

Moving forward please submit all Section 106 documentation to our online portal, INHERIT that is live on our webpage now. **Beginning February 1, 2025, the KHC.Section106@ky.gov email address will no longer be monitored.**

Useful links for preliminary records reviews are provided below:
Preliminary Records Review for Above Ground Resources: https://heritage.ky.gov/historic-places/resources-survey/prelim/Pages/default.aspx

Preliminary Records Review for Archaeological Resources:
https://anthropology.as.uky.edu/recorded-archaeological-sites

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GOVERNOR

JACQUELINE COLEMAN
LT. GOVERNOR

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KENTUCKY HERITAGE COUNCIL
THE STATE HISTORIC PRESERVATION OFFICE
410 HIGH STREET
FRANKFORT, KENTUCKY 40601
(502) 564-7005
www.heritage.ky.gov

LINDY CASEBIER
SECRETARY

CRAIG A. POTTS
EXECUTIVE DIRECTOR &
STATE HISTORIC PRESERVATION OFFICER

April 22, 2025

Melinda Winchester
Grants Coordinator/Historic Preservation Specialist
2301 McCracken Blvd.
Paducah, KY 42001
Via email: mwinchester@bfwengineers.com

RE: NRC, GLE Paducah Laser Enrichment Facility, McCracken County

Determination of Affect, Cultural Historic, 3 Survey Forms, and

A Phase I Archaeological Reconnaissance for the Proposed Paducah Global Laser Enrichment Facility, McCracken County, Kentucky by Michael J. Curran

Dear Ms. Winchester,

Thank you for your submittal of the cultural resource report, three survey forms, and archaeology report regarding the above-referenced undertaking. We understand the project proposes to construct a uranium enrichment facility in Kevil, Kentucky.

Cultural Resource Analysts, Inc. (CRA) conducted an archaeological survey of the 130.1-acre area of potential effect (APE) between September and December of 2024. We understand methods included pedestrian survey and shovel testing. Three new archaeological sites (15McN253, 15McN254, and 15McN255) and one isolated find were documented as a result of this survey.

CRA recommends that Sites 15McN253, 15McN254, and 15McN255 are each not eligible for listing in the National Register of Historic Places (NRHP). We concur with these recommendations.

We accept the archaeology report without revision.

The Cultural Resource Assessment identified and evaluated all above-ground resources within a 0.25-mile radius around the Area of Potential Effect (APE) of the project footprint. Six resources were identified as part of the survey. Our office concurs with the following eligibility recommendations:

- MCN 443 and MCN 444, both residential structures, are Ineligible for the National Register of Historic Places (NRHP)
- MCN 444.001 and MCN 444.002, both outbuildings, are Ineligible for the NRHP
- MCN 445 and MCN 445.001 are Eligible for the NRHP

We accept this report and survey forms without revision. The proposed project is not expected to adversely impact any of the resources. Therefore, our office would concur with a finding of **No Adverse Effect** for this undertaking.

Should you have any questions or concerns, please contact Patti Hutchins or Sarah Jackson of my staff at Patricia.Hutchins@ky.gov or Sarah.McCarttJackson@ky.gov.

Sincerely,

Craig Potts
Executive Director and
State Historic Preservation Officer

KHC# 250589
CP: peh, smj

From: Konkol, Nicole N (Heritage Council)
To: Melinda Winchester
Subject: RE: GLE Facility Project- West Paducah, KY
Date: Tuesday, March 25, 2025 7:39:25 AM
Attachments: image004.png
image005.png

WARNING: External sender. Do not click links or attachments unless you recognize the sender and know the content is safe.

There is a project folder in INHERIT now. Thanks.

Sincerely,

N. Nicole Konkol
Site Protection Program Administrator
Kentucky Heritage Council
410 High Street
Frankfort, Kentucky 40601

Moving forward please submit all Section 106 documentation to our online portal, INHERIT that is live on our webpage now. **Beginning February 1, 2025, the KHC.Section106@ky.gov email address will no longer be monitored.**

Useful links for preliminary records reviews are provided below:
Preliminary Records Review for Above Ground Resources: https://heritage.ky.gov/historic-places/resources-survey/prelim/Pages/default.aspx

Preliminary Records Review for Archaeological Resources: https://anthropology.as.uky.edu/recorded-archaeological-sites

-
Please note that we are short staffed and some reviews may take longer than 30 days.

From: Melinda Winchester <mwinchester@bfwengineers.com>
Sent: Tuesday, March 25, 2025 8:35 AM
To: Konkol, Nicole N (Heritage Council) <nicole.konkol@ky.gov>
Subject: RE: GLE Facility Project- West Paducah, KY

I uploaded both the above ground and archaeology reports. Thank you.

Melinda Winchester, M.S.,B.S.
Grants Coordinator/Historic Preservation Specialist
270-443-1995 | m: 270-210-2553
2301 McCracken Blvd., Paducah, KY 42001
BFWengineers.com

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From: Melinda Winchester
Sent: Tuesday, March 25, 2025 7:25 AM
To: Konkol, Nicole N (Heritage Council) <nicole.konkol@ky.gov>
Subject: RE: GLE Facility Project- West Paducah, KY

Ok. Thank you.

Melinda Winchester, M.S.,B.S.
Grants Coordinator/Historic Preservation Specialist
270-443-1995 | m: 270-210-2553
2301 McCracken Blvd., Paducah, KY 42001
BFWengineers.com

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this email in error please notify the system manager. This message contains confidential information and is intended only for the individual named. If you are not the named addressee you should not disseminate, distribute or copy this email. Please notify the sender immediately by email if you have received this email by mistake and delete this email from your system. If you are not the intended recipient you are notified that disclosing, copying, distributing or taking any action in reliance on the contents of this information is strictly prohibited.

From: Konkol, Nicole N (Heritage Council) <nicole.konkol@ky.gov>
Sent: Tuesday, March 25, 2025 7:24 AM
To: Melinda Winchester <mwinchester@bfwengineers.com>
Subject: RE: GLE Facility Project- West Paducah, KY

WARNING: External sender. Do not click links or attachments unless you recognize the sender and know the content is safe.

We have nothing with that project title.

Sincerely,

N. Nicole Konkol
Site Protection Program Administrator
Kentucky Heritage Council
410 High Street
Frankfort, Kentucky 40601

Moving forward please submit all Section 106 documentation to our online portal, INHERIT that is live on our webpage now. **Beginning February 1, 2025, the KHC.Section106@ky.gov email address will no longer be monitored.**

Useful links for preliminary records reviews are provided below:
Preliminary Records Review for Above Ground Resources: https://heritage.ky.gov/historic-places/resources-survey/prelim/Pages/default.aspx

Preliminary Records Review for Archaeological Resources: https://anthropology.as.uky.edu/recorded-archaeological-sites

-
Please note that we are short staffed and some reviews may take longer than 30 days.

From: Melinda Winchester <mwinchester@bfwengineers.com>
Sent: Tuesday, March 25, 2025 8:22 AM
To: Konkol, Nicole N (Heritage Council) <nicole.konkol@ky.gov>
Subject: RE: GLE Facility Project- West Paducah, KY

Ok, so you didn't receive the archaeology report either?

Melinda Winchester, M.S.,B.S.
Grants Coordinator/Historic Preservation Specialist
270-443-1995 | m: 270-210-2553
2301 McCracken Blvd., Paducah, KY 42001
BFWengineers.com

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From: Konkol, Nicole N (Heritage Council) <nicole.konkol@ky.gov>
Sent: Tuesday, March 25, 2025 7:21 AM
To: Melinda Winchester <mwinchester@bfwengineers.com>
Subject: RE: GLE Facility Project- West Paducah, KY

WARNING: External sender. Do not click links or attachments unless you recognize the sender and know the content is safe.

I have checked. Unless you saved the files you uploaded under a different project title, it is not there.

Sincerely,

N. Nicole Konkol
Site Protection Program Administrator
Kentucky Heritage Council
410 High Street
Frankfort, Kentucky 40601

Moving forward please submit all Section 106 documentation to our online portal, INHERIT that is live on our webpage now. **Beginning February 1, 2025, the KHC.Section106@ky.gov email address will no longer be monitored.**

Useful links for preliminary records reviews are provided below:
Preliminary Records Review for Above Ground Resources: https://heritage.ky.gov/historic-places/resources-survey/prelim/Pages/default.aspx

Preliminary Records Review for Archaeological Resources: https://anthropology.as.uky.edu/recorded-archaeological-sites

-
Please note that we are short staffed and some reviews may take longer than 30 days.

TEAM KENTUCKY | New Kentucky Home

From: Melinda Winchester <mwinchester@bfwengineers.com>
Sent: Tuesday, March 25, 2025 8:19 AM
To: Konkol, Nicole N (Heritage Council) <nicole.konkol@ky.gov>
Subject: RE: GLE Facility Project- West Paducah, KY

Is there a way I can check to see if I uploaded to INHERIT? Would I have received a confirmation email back?

Melinda Winchester, M.S.,B.S.
Grants Coordinator/Historic Preservation Specialist
270-443-1995 | m: 270-210-2553
2301 McCracken Blvd., Paducah, KY 42001
BFWengineers.com

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From: Konkol, Nicole N (Heritage Council) <nicole.konkol@ky.gov>
Sent: Tuesday, March 25, 2025 7:16 AM
To: Melinda Winchester <mwinchester@bfwengineers.com>
Subject: RE: GLE Facility Project- West Paducah, KY

WARNING: External sender. Do not click links or attachments unless you recognize the sender and know the content is safe.

Hi Melissa. Did we get an updated submission after our last discussions in December? I'm not seeing it in the Section 106 email or INHERIT.

Sincerely,

N. Nicole Konkol
Site Protection Program Administrator
Kentucky Heritage Council
410 High Street
Frankfort, Kentucky 40601

Moving forward please submit all Section 106 documentation to our online portal, INHERIT that is live on our webpage now. **Beginning February 1, 2025, the KHC.Section106@ky.gov email address will no longer be monitored.**

Useful links for preliminary records reviews are provided below:
Preliminary Records Review for Above Ground Resources: https://heritage.ky.gov/historic-places/resources-survey/prelim/Pages/default.aspx

Preliminary Records Review for Archaeological Resources: https://anthropology.as.uky.edu/recorded-archaeological-sites

-
Please note that we are short staffed and some reviews may take longer than 30 days.

TEAM KENTUCKY | New Kentucky Home

From: Melinda Winchester <mwinchester@bfwengineers.com>
Sent: Tuesday, March 25, 2025 8:03 AM
To: Konkol, Nicole N (Heritage Council) <nicole.konkol@ky.gov>
Subject: RE: GLE Facility Project- West Paducah, KY

Nicole,

Were you able to complete the Section 106 review on this project? I do not have a final determination letter in my file.

Melinda Winchester, M.S.,B.S.
Grants Coordinator/Historic Preservation Specialist
270-443-1995 | m: 270-210-2553
2301 McCracken Blvd., Paducah, KY 42001
BFWengineers.com

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From: Melinda Winchester
Sent: Thursday, December 5, 2024 10:56 AM
To: Konkol, Nicole N (Heritage Council) <nicole.konkol@ky.gov>
Subject: RE: GLE Facility Project- West Paducah, KY

Thank you.

Melinda Winchester
Grants Coordinator/Historic Preservation Specialist
270-443-1995 | m: 270-210-2553
2301 McCracken Blvd., Paducah, KY 42001
BFWengineers.com

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From: Konkol, Nicole N (Heritage Council) <nicole.konkol@ky.gov>
Sent: Thursday, December 5, 2024 10:13 AM
To: Melinda Winchester <mwinchester@bfwengineers.com>
Cc: Susannah Campbell <scampbell@bfwengineers.com>
Subject: RE: GLE Facility Project- West Paducah, KY

WARNING: External sender. Do not click links or attachments unless you recognize the sender and know the content is safe.

It was nice speaking with you.

Yes on the first item.

On #2, remove table listing resources that fall outside the APE. There will be no landscape changes proposed for this project that will modify the viewshed.

Thanks.

Sincerely,

N. Nicole Konkol
Site Protection Program Administrator
Kentucky Heritage Council
410 High Street
Frankfort, Kentucky 40601

Important Note about Section 106 Submissions:

In order for your Section 106 submission to be accepted, distributed, and reviewed all documents must be sent via email to our dedicated address: khc.section106@ky.gov.

Results of a preliminary records review for an above ground property can be obtained by visiting: https://heritage.ky.gov/historic-places/resources-survey/prelim/Pages/default.aspx

For additional information on how and what to submit for Section 106 review, please visit our webpage:
https://heritage.ky.gov/compliance/Pages/overview.aspx

TEAM
KENTUCKY

From: Melinda Winchester <mwinchester@bfwengineers.com>
Sent: Thursday, December 5, 2024 11:08 AM
To: Konkol, Nicole N (Heritage Council) <nicole.konkol@ky.gov>
Cc: Susannah Campbell <scampbell@bfwengineers.com>
Subject: GLE Facility Project- West Paducah, KY

Nicole,

Thank you for speaking with me this morning regarding the above project. Below is a recap of our conversation just for clarification.

1. Mention the previous identified survey and the resources in the report as part of the archival records investigation.
2. Remove the table of all the resources out of the report and make comment that the plant is not visible from the Visual APE of the .25-mile buffer since there is no tree removal or ground disturbance north of Dyke Road. Provide photos (which I have in report)

Please confirm this is accurate.

Thank you,

Melinda Winchester
Grants Coordinator/Historic Preservation Specialist
270-443-1995 | m: 270-210-2553
2301 McCracken Blvd., Paducah, KY 42001
BFWengineers.com

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Melinda Winchester

From: Konkol, Nicole N (Heritage Council) <nicole.konkol@ky.gov>
Sent: Thursday, December 5, 2024 10:13 AM
To: Melinda Winchester
Cc: Susannah Campbell
Subject: RE: GLE Facility Project- West Paducah, KY

WARNING: External sender. Do not click links or attachments unless you recognize the sender and know the content is safe.

It was nice speaking with you.

Yes on the first item.

On #2, remove table listing resources that fall outside the APE. There will be no landscape changes proposed for this project that will modify the viewshed.

Thanks.

Sincerely,

N. Nicole Konkol
Site Protection Program Administrator
Kentucky Heritage Council
410 High Street
Frankfort, Kentucky 40601

Important Note about Section 106 Submissions:
In order for your Section 106 submission to be accepted, distributed, and reviewed all documents must be sent via email to our dedicated address: khc.section106@ky.gov.

Results of a preliminary records review for an above ground property can be obtained by visiting:
https://heritage.ky.gov/historic-places/resources-survey/prelim/Pages/default.aspx

For additional information on how and what to submit for Section 106 review, please visit our webpage:
https://heritage.ky.gov/compliance/Pages/overview.aspx

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From: Perry, Marty M (Heritage Council) <marty.perry@ky.gov>
Sent: Tuesday, November 26, 2024 11:18 AM
To: Melinda Winchester <mwinchester@bfwengineers.com>
Cc: Stevens, Karen (Heritage Council) <karen.stevens@ky.gov>; Roth, Nicole (Heritage Council) <nicole.roth@ky.gov>
Subject: RE: Spring Bayou Baptist Church and Cemetery McCracken County

WARNING: External sender. Do not click links or attachments unless you recognize the sender and know the content is safe.

Karen: Melinda Winchester sounds like she needs a McCracken County survey number (MCN-), it sounds like for a Section 106 project. Can she communicate with you directly to request that number?

Marty Perry
National Register Coordinator
KY Heritage Council
410 High Street
Frankfort, KY 40601

Phone: 502.892-3609
Fax: 502.564.5820

From: Melinda Winchester <mwinchester@bfwengineers.com>
Sent: Tuesday, November 26, 2024 10:24 AM
To: Perry, Marty M (Heritage Council) <marty.perry@ky.gov>
Subject: RE: Spring Bayou Baptist Church and Cemetery McCracken County

That is correct. The recently surveyed sites are mine that I am working on but the APE boundary has now been extended so I need to include the church. I will submit for another MCNP number from Nicole.

Melinda Winchester

From: Stevens, Karen (Heritage Council) <karen.stevens@ky.gov>
Sent: Tuesday, November 26, 2024 3:48 PM
To: Melinda Winchester
Cc: KHC Sitedata
Subject: RE: Spring Bayou Baptist Church and Cemetery McCracken County
Attachments: MCN 445.xlsx

WARNING: External sender. Do not click links or attachments unless you recognize the sender and know the content is safe.

Ok, great! Your number is attached.

Karen Stevens | she/her/hers
Heritage Database Coordinator | Public Archaeologist
Kentucky Heritage Council | 410 High Street, Frankfort, KY
karen.stevens@ky.gov (General Inquires)
khc-sitedata@ky.gov (Survey # and Data Requests)

TAH.KY.GOV TEAM KENTUCKY An Equal Opportunity Employer M/F/D

From: Melinda Winchester <mwinchester@bfwengineers.com>
Sent: November 26, 2024 4:43 PM
To: Stevens, Karen (Heritage Council) <karen.stevens@ky.gov>
Cc: KHC Sitedata <KHC-sitedata@ky.gov>
Subject: Re: Spring Bayou Baptist Church and Cemetery McCracken County

No I think that was the example. I only need church and cemetery

Get Outlook for iOS

From: Stevens, Karen (Heritage Council) <karen.stevens@ky.gov>
Sent: Tuesday, November 26, 2024 3:42:23 PM
To: Melinda Winchester <mwinchester@bfwengineers.com>

Name	Melinda Winchester	**Affiliation**	BFW Engineering
County	McCracken	**Date of Field Work**	11/26/2024
KHC Project Registration #		**KMZ or shapefile included?**	yes
Project Type (Section 106, NRHP listing, CLG Grant, etc.)		Section 106	

Field Site #	Address	Street Name	City/Township	Name/Resource Type	KHC Survey #
Example: FS-1	410	High Street	Frankfort	House	(To be completed by the SHPO)
	11205	Woodville Road	West Paducah	Spring Bayou Church	MCN 445
	11206	Woodville Road	West Paducah	Spring Bayou Cemetery	MCN 445.001

Instructions:

* For Projects within multiple counties, complete one request form for each county
* For resources without a 911 address, please include a location description and coordinates (if a KMZ/shapefile is not provided)
* While KMZ and shapefiles are not required, providing this mapping data with requests will allow for a quicker response from our office. Please make sure that pins are placed accurately on the main resource for your request.

Please send completed Survey Number Request Forms along with a KMZ or shapefile indicating your Field Site locations to:
khc-sitedata@ky.gov and copy karen.stevens@ky.gov & nicole.roth@ky.gov

Melinda Winchester

From: Konkol, Nicole N (Heritage Council) <nicole.konkol@ky.gov>
Sent: Monday, November 18, 2024 8:25 AM
To: Melinda Winchester
Cc: Susannah Campbell
Subject: RE: GLE Site

WARNING: External sender. Do not click links or attachments unless you recognize the sender and know the content is safe.

Hi Melinda. This looks like Gabby was able to review this before she left us. Sorry I didn't know we'd commented on this earlier.

Since we had a qualified cultural historian and an archaeologist on this review already, we should stick with the APE previously agreed to, as well as any other guidance or recommendations made by these experts.

Sincerely,

N. Nicole Konkol
Site Protection Program Administrator
Kentucky Heritage Council
410 High Street
Frankfort, Kentucky 40601

Important Note about Section 106 Submissions:
In order for your Section 106 submission to be accepted, distributed, and reviewed all documents must be sent via email to our dedicated address: khc.section106@ky.gov.

Results of a preliminary records review for an above ground property can be obtained by visiting:
https://heritage.ky.gov/historic-places/resources-survey/prelim/Pages/default.aspx

For additional information on how and what to submit for Section 106 review, please visit our webpage:
https://heritage.ky.gov/compliance/Pages/overview.aspx

TEAM
KENTUCKY

From: Melinda Winchester <mwinchester@bfwengineers.com>
Sent: Friday, November 15, 2024 1:55 PM
To: Konkol, Nicole N (Heritage Council) <nicole.konkol@ky.gov>
Cc: Susannah Campbell <scampbell@bfwengineers.com>
Subject: FW: GLE Site

****CAUTION** PDF attachments may contain links to malicious sites. Please contact the COT Service Desk ServiceCorrespondence@ky.gov for any assistance.**

Nicole,

This is the information we just received from Burns and McDonald. Can you take a look at and let me know when we can discuss briefly. I had a much smaller APE initially but am happy to expand to the .25 mile for built environment but still need to discuss the PGDP resources with you.

Thank you,

Melinda Winchester
Grants Coordinator/Historic Preservation Specialist
270-443-1995 | m: 270-210-2553
2301 McCracken Blvd. Paducah, KY 42001
BFWengineers.com

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Melinda Winchester

From:	KHC Sitedata <KHC-sitedata@ky.gov>
Sent:	Friday, September 27, 2024 7:00 AM
To:	Melinda Winchester; KHC Sitedata
Cc:	Stevens, Karen (Heritage Council)
Subject:	RE: Survey Number Request
Attachments:	MCN 443 to 444.xlsx

WARNING: External sender. Do not click links or attachments unless you recognize the sender and know the content is safe.

Hi Melinda –

Please see that attached.

Thanks!

Nicole M. Roth, Ph.D.
Site Identification Program Administrator
Certified Local Government Program and Planning
Kentucky Heritage Council
410 High Street
Frankfort, KY 40601
(502) 892-3606

From: Melinda Winchester <mwinchester@bfwengineers.com>
Sent: Thursday, September 26, 2024 9:14 AM
To: KHC Sitedata <KHC-sitedata@ky.gov>
Cc: Stevens, Karen (Heritage Council) <karen.stevens@ky.gov>
Subject: RE: Survey Number Request

Thank you so much. That is just fine.

Melinda Winchester
Grants Coordinator/Historic Preservation Specialist
270-443-1995 | m: 270-210-2553

Melinda Winchester

From: KHC Sitedata <KHC-sitedata@ky.gov>
Sent: Thursday, September 26, 2024 8:13 AM
To: Melinda Winchester
Cc: Stevens, Karen (Heritage Council)
Subject: RE: Survey Number Request

WARNING: External sender. Do not click links or attachments unless you recognize the sender and know the content is safe.
Hi Melinda –

Thank you for your email. I am on a site visit today and will fulfill your site number request first thing tomorrow morning.

Let me know if you have any questions and thank you for your patience.

Nicole M. Roth, Ph.D.
Site Identification Program Administrator
Certified Local Government Program and Planning
Kentucky Heritage Council
410 High Street
Frankfort, KY 40601
(502) 892-3606

From: Melinda Winchester <mwinchester@bfwengineers.com>
Sent: Wednesday, September 25, 2024 4:33 PM
To: KHC Sitedata <KHC-sitedata@ky.gov>
Subject: Survey Number Request

Please see attached request for Survey numbers.

Thank you,

Melinda Winchester
Grants Coordinator/Historic Preservation Specialist
270-443-1995 | m: 270-210-2553

Melinda Winchester

From:	Melinda Winchester
Sent:	Wednesday, September 25, 2024 3:33 PM
To:	KHC-sitedata
Subject:	Survey Number Request
Attachments:	10860 Woodville Road, West Paducah.kmz; 10860 Woodville Road, West Paducah-2.kmz; 10620 Woodville Road, West Paducah.kmz; KHC Survey Number Request Form.xlsx

Please see attached request for Survey numbers.

Thank you,

Melinda Winchester
Grants Coordinator/Historic Preservation Specialist
270-443-1995 | m: 270-210-2553
2301 McCracken Blvd., Paducah, KY 42001
BFWengineers.com

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Survey Number Request Form Kentucky Heritage Council khc-sitedata@ky.gov

Name	Melinda Winchester	**Affiliation**	BFW Engineering
County	McCracken	**Date of Field Work**	9/10/2024
KHC Project Registration #		**KMZ or shapefile included?**	yes
Project Type (Section 106, NRHP listing, CLG Grant, etc.)		Section 106	

Field Site #	**Address**	**Street Name**	**City/Township**	**Name/Resource Type**	**KHC Survey #**
Example: FS-1	410	High Street	Frankfort	House	(To be completed by the SHPO)
	10620	Woodville Road	West Paducah	House	
	10860	Woodville Road	West Paducah	House	
	10860	Woodville Road	West Paducah	Barn	

Instructions:

- For Projects within multiple counties, complete one request form for each county
- For resources without a 911 address, please include a location description and coordinates (if a KMZ/shapefile is not provided)
- While KMZ and shapefiles are not required, providing this mapping data with requests will allow for a quicker response from our office. Please make sure that pins are placed accurately on the main resource for your request.

Please send completed Survey Number Request Forms along with a KMZ or shapefile indicating your Field Site locations to:

khc-sitedata@ky.gov and copy karen.stevens@ky.gov & nicole.roth@ky.gov

Appendix N

Findings of Cultural Resources Investigation at the PLEF Site

Global Laser Enrichment, LLC
Paducah Laser Enrichment Facility

Woodville Road, Kevil, Kentucky 42053

Cultural Resource Assessment

Submitted to:

Mr. Scott Steuer
Global Laser Enrichment, LLC
3901 Castle Hayne Road
Castle Hayne, NC 28429

Submittal Date:

December 6, 2024

October 2024
BFW Ref. #24216

BFW℠

December 6, 2024

Mr. Scott Steuer
Global Laser Enrichment, LLC
3901 Castle Hayne Road
Castle Hayne, NC 28429

Re: Cultural Resource Assessment
Woodville Road, Kevil, KY 42053

Dear Mr. Steuer:

Bacon Farmer Workman Engineering & Testing, Inc. (BFW) is pleased to submit our report describing the findings of the Cultural Resource Assessment of the property located at Woodville Road, Kevil, KY 42053.

This assessment was prepared in general accordance with current Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports issued by the Kentucky State Historic Preservation Office (KHC) and the Advisory Council on Historic Preservation (ACHP).

The purpose of the Cultural Resource Site Assessment was to gather sufficient information to render an independent professional opinion of the built environment of any known historic properties or potential NRHP eligible resources that may have the potential to be impacted by the project on the proposed subject property. The assessment included a site reconnaissance and document review of publicly available information.

We appreciate the opportunity to serve you and look forward to future association with you on this and other projects. If you have questions concerning this report or require further clarification of the report's findings, please call our office at (270) 443-1995.

Sincerely,

Melinda Winchester

Historic Preservation Specialist

BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.

CULTURAL RESOURCE ASSEMENT FOR GLOBAL LASER ENRICHMENT FACILITY

WOODVILLE ROAD

KEVIL, MCCRACKEN COUNTY, KENTUCKY

Prepared For:

Global Laser Enrichment, LLC
Mr. Scott Steuer

Prepared By:

Melinda Winchester
Bacon Farmer Workman Engineering & Testing, Inc.
2301 McCracken Blvd.
Paducah, Kentucky 42001
Phone (270) 443-1995
FAX (270)
mwinchester@bfwengineers.com

Melinda Winchester

Melinda Winchester Principal Investigator

December 6, 2024

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ACRONYMS

APE	Area of Potential Effects
BFW	Bacon Farmer Workman Engineering & Testing, Inc.
CDP	Census Designated Places
CFR	Code of Federal Regulations
CRA	Cultura Resource Assessment
DOE	Department of Energy
EM	Environmental Management
GIS	Geographic Information Systems
GLE	Global Laser Enrichment, LLC
KHC	Kentucky Heritage Council
KOW	Kentucky Ordinance Works
KYTC	Kentucky Transportation Cabinet
NDA	non-disclosure agreement
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
P&L	Paducah & Louisville Railway, Inc.
PGDP	Paducah Gaseous Diffusion Plant
PI	Principal Investigator
PVA	Property Value Administration
SHPO	State Historic Preservation Office
TNT	trinitrotoluene
TVA	Tennessee Valley Authority
USGS	United States Geological Survey

ABSTRACT

Bacon Farmer Workman Engineering & Testing, Inc. (BFW), was retained by Mr. Scott Steuer of Global Laser Enrichment, LLC (GLE) to conduct a Cultural Resource Assessment (CRA) of the property located at Woodville Road, Kevil, KY 42053 (subject property). The architectural survey was conducted in accordance with current Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports issued by the Kentucky State Historic Preservation Office (KHC) and the Advisory Council on Historic Preservation (ACHP).

In September 2024, BFW personnel conducted a reconnaissance-level survey of the proposed GLE project area in McCracken County, Kentucky. The survey was conducted at the request of the client to perform due diligence in anticipation to meet federal compliance requirements for Section 106 in accordance with the National Historic Preservation Act (NHPA) and its implementing regulations, 36 CFR Part 800.

A records check with the KHC resulted in the identification of one previously coded property #0700043 (MCN 443) within the likely Area of Potential Effect (APE). The site check also identified one Cultural Resource survey for the Paducah Gaseous Diffusion Plant which was in close proximity to the project boundary but not within the APE. Five newly unidentified resources (MCN 444, MCN 444.001,MCN 444.002, MCN 445, and MCN 445.001) were identified during the field reconnaissance survey. The dates of construction were verified using Property Value Administration (PVA) records and historic topographic maps. **Table 1** below presents this list of resources. The resources documented are rural residential, agricultural buildings, a church and cemetery. All new resources were recorded and evaluated. None of the resources were recommended for National Register of Historic Places (NRHP) eligibility.

Table 1 – Documented Resources

KHC SITE #	ADDRESS	TYPE OF RESOURCE	NRHP DETERMINATION
MCN 443	10620 Woodville Road	Residence	Ineligible
MCN 444	10860 Woodville Road	Residence	Ineligible
MCN 444.001	10860 Woodville Road	Barn	Ineligible
MCN 444.002	10860 Woodville Road	Barn	Ineligible
MCN 445	11205 Woodville Road	Spring Bayou Baptist Church	Eligible
MCN 445.001	11206 Woodville Road	Spring Bayou Cemetery	Eligible

INTRODUCTION

In September 2024, Bacon Farmer Workman Engineering and Testing, Inc. (BFW) personnel conducted a reconnaissance-level architectural survey of the proposed Global Laser Enrichment, LLC (GLE) project location, in West Paducah, McCracken County, Kentucky (**Figure 1**). The survey was conducted on behalf of GLE to perform a Cultural Resource Site Assessment to gather sufficient information to render an independent professional opinion of the built environment of any known historic properties or potential National Register of Historic Places (NRHP) eligible resources that may have the potential to be impacted by the project on the proposed subject property

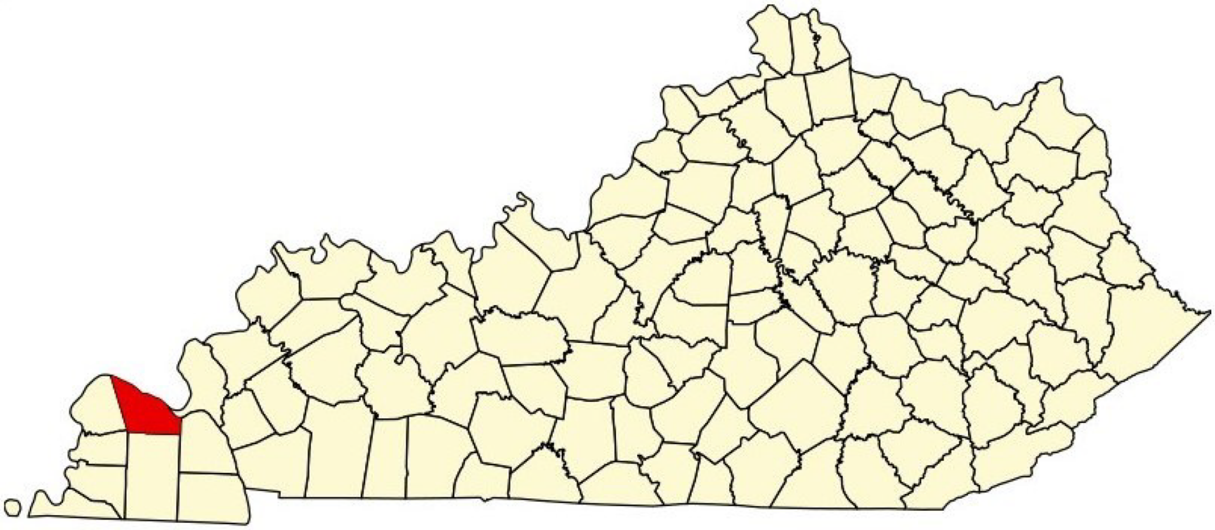


Figure 1 – Location of McCracken County, Kentucky

Purpose of Study

The purpose of this cultural resource architectural assessment of the built environment was to locate, describe, evaluate, and make appropriate recommendations of any known historic properties or potential NRHP eligible resources that may have the potential to be impacted by the proposed project. A reconnaissance-level survey of the proposed project area in accordance with the Kentucky Heritage and Advisory Council on Historic Preservation implementing regulations was conducted to assess historic-age architectural resources, including buildings, structures, objects, and districts. For the purposes of this survey, the historic age is defined as constructed on or before 1974 per the 50-year NRHP age criterion.

Project Description

Global Laser Enrichment (GLE) proposes to design, construct, and operate a laser-based commercial uranium enrichment facility on land adjacent to the existing DOE Paducah Gaseous Diffusion Plant (PGDP) site in Paducah, KY. The GLE facility – referred to as the Paducah Laser Enrichment Facility (PLEF) – will re-enrich depleted uranium hexafluoride tailings (DUF_6) from DOE inventories to produce “natural” uranium hexafluoride (UF_6) as product, as well as accept natural UF_6 from utility clients to produce low-enriched UF_6 (LEU) for use in commercial nuclear fuel fabrication.

The cultural historic assessment described herein entailed the following tasks:

- Conduct archival research at local and regional facilities as appropriate.
- Review contextual and cartographic evidence of historic occupation within the project

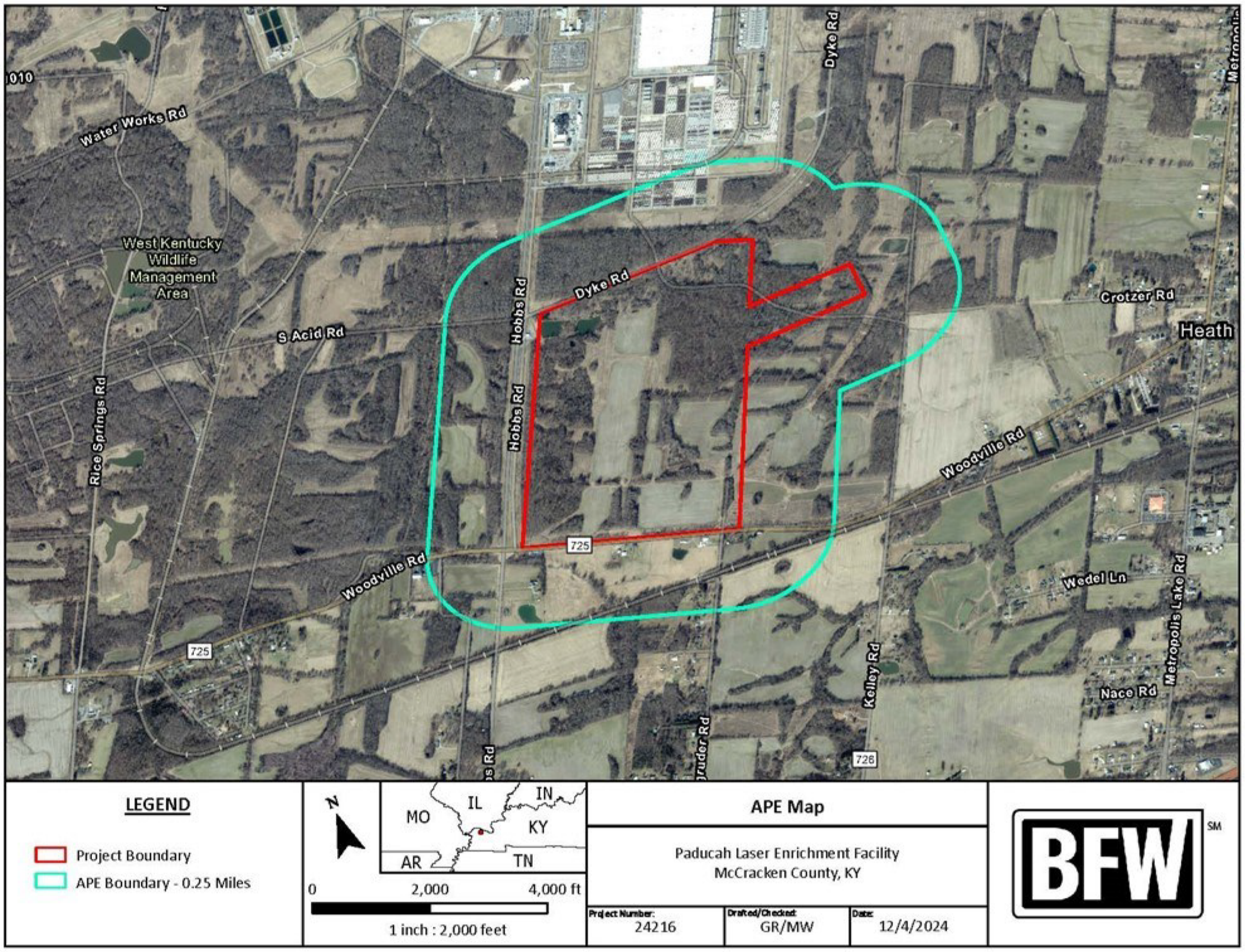
Area of Potential Effects (APE) and develop a brief local historic context.

- Identify and document cultural historic properties 50 years of age or older within the project APE.
- Evaluate eligibility of documented properties for listing in the NRHP.
- Complete KHC inventory forms, including photographic documentation, mapping, and site plan as appropriate, in accordance with KHC guidance entitled *Instructions for Completing the Individual Buildings Survey Form (KHC 2017-1)*; and
- Prepare a technical report of findings, in accordance with SHPO/KHC guidelines.

AREA OF POTENTIAL EFFECTS

For each cultural resource survey an APE is established which includes the geographic area(s) within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE of this project should take into consideration all areas subject to potential direct impacts from the proposed undertaking, including potential temporary easements, staging, existing right of way and new right of way (if applicable). Consideration was also given to an existing gravel road located at the north boundary of the project footprint located on property owned by the PGDP. This road will be widened to accommodate truck traffic from the PGDP site to the new GLE facility.

For this survey, an assessment of existing resources over 50-years-of-age within 0.25-mile radius around the physical APE of the project footprint was established for the proposed non-physical APE for consideration of visual effects to historic properties. The Kentucky Heritage Council concurred with this determination on July 18, 2024, and on November 11, 2024.


1010
Water Works Rd
Dyke Rd
Metropolis
West Kentucky Wildlife Management Area
S Acid Rd
Hobbs Rd
Dyke Rd
Crotzer Rd
Heath
Rice Springs Rd
Hobbs Rd
Woodville Rd
725
Woodville Rd
Wedel Ln
725
Metropolis Lake Rd
Kelley Rd
Nace Rd
s Rd
ruder Rd
726
LEGEND
Project Boundary
APE Boundary - 0.25 Miles
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MO
IL
IN
KY
AR
TN
0
2,000
4,000 ft
1 inch : 2,000 feet
APE Map
Paducah Laser Enrichment Facility
McCracken County, KY
Project Number:
24216
Drafted/Checked:
GR/MW
Date:
12/4/2024
BFW
SM

Figure 2 – Project APE

Figures 3-21 illustrate the project area, site and surrounding landscapes.

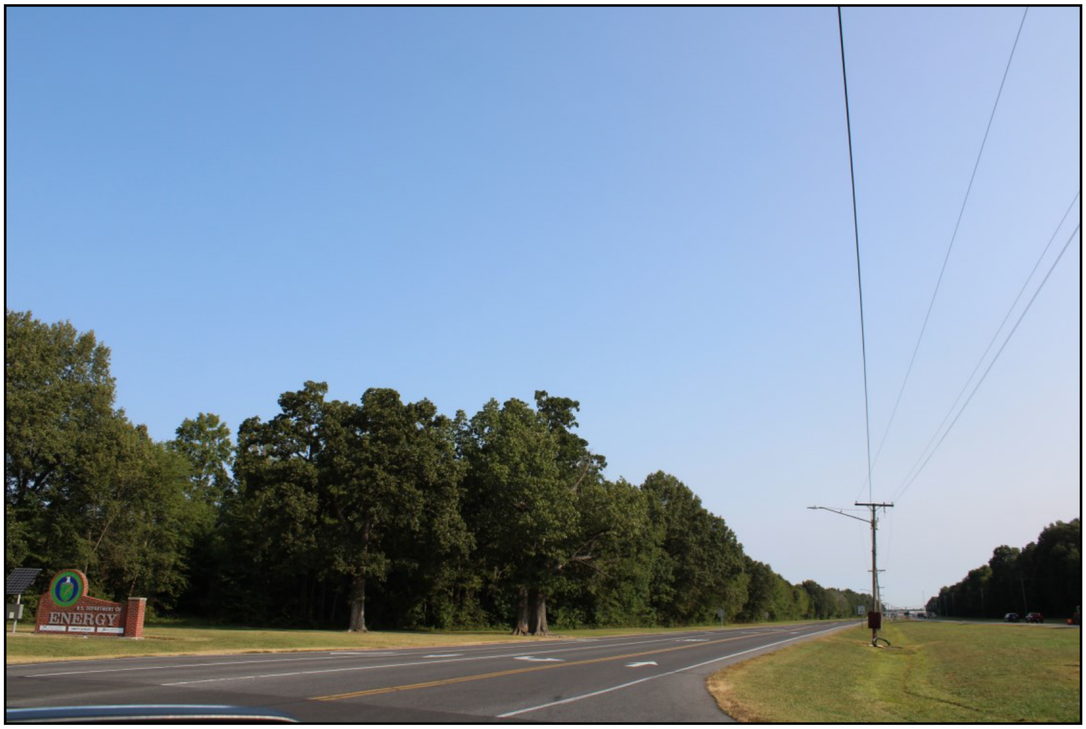

U.S. DEPARTMENT OF
ENERGY

Figure 3 – Streetview at Woodville Road and Hobbs Road – facing north

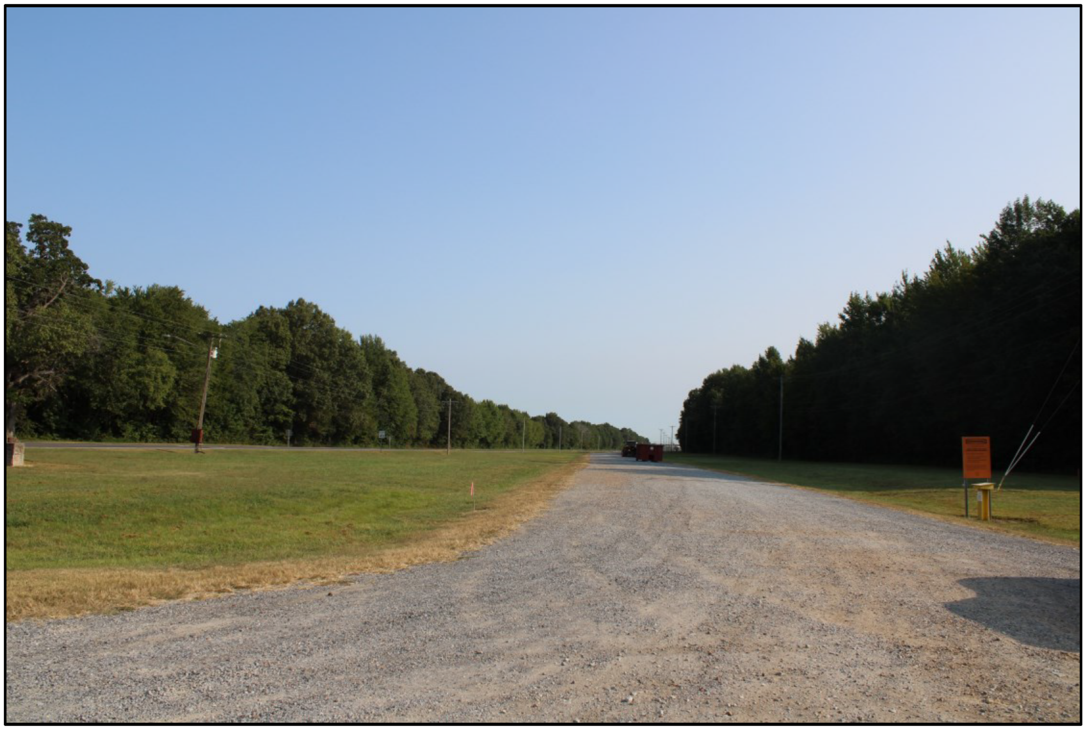


Figure 4 – View of west boundary of project parcel, facing north

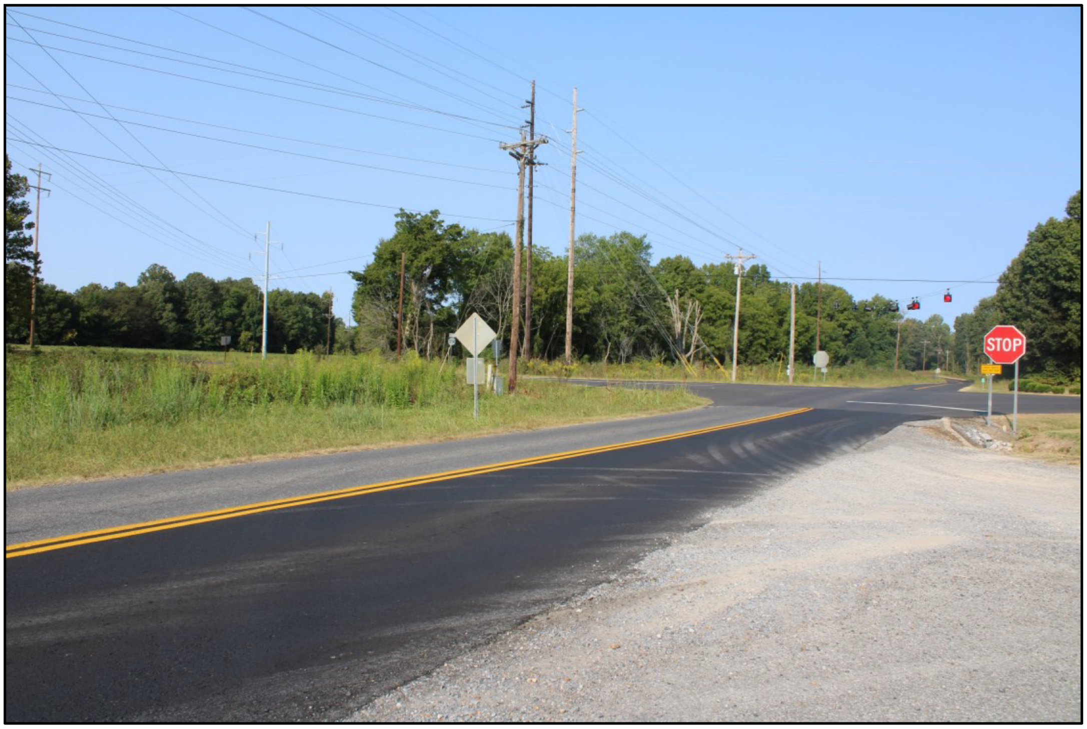


Figure 5 – Intersection of Woodville Road and Hobbs Road, facing west

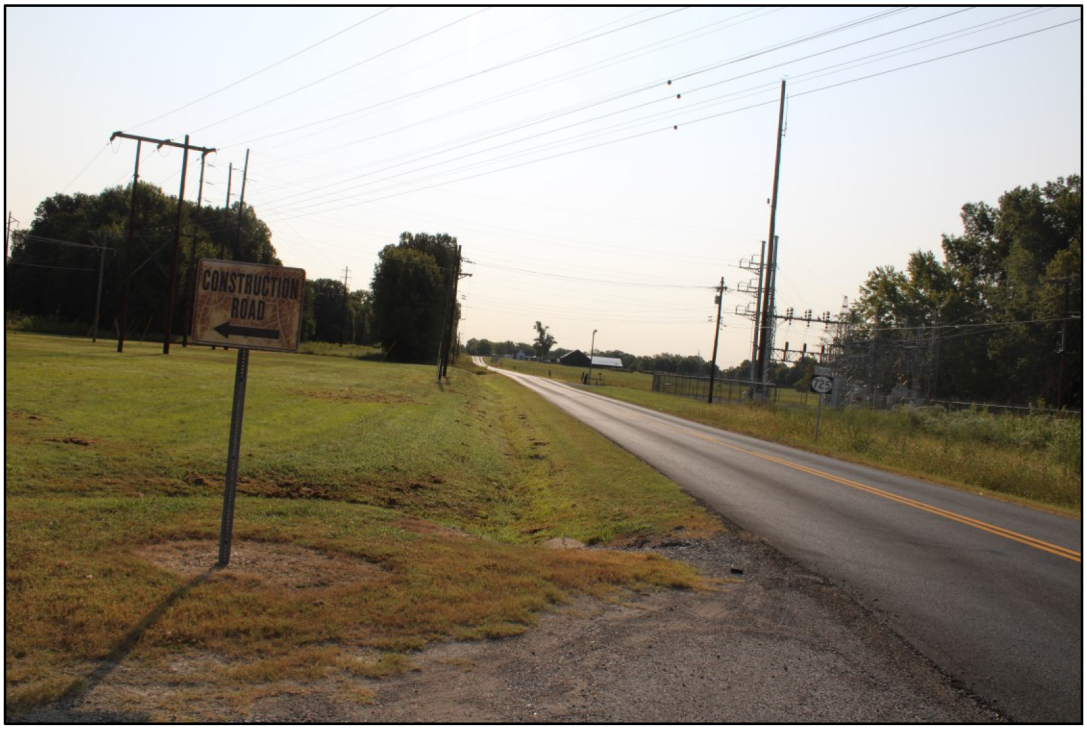

CONSTRUCTION
ROAD
725

Figure 6 – Woodville Road, facing east

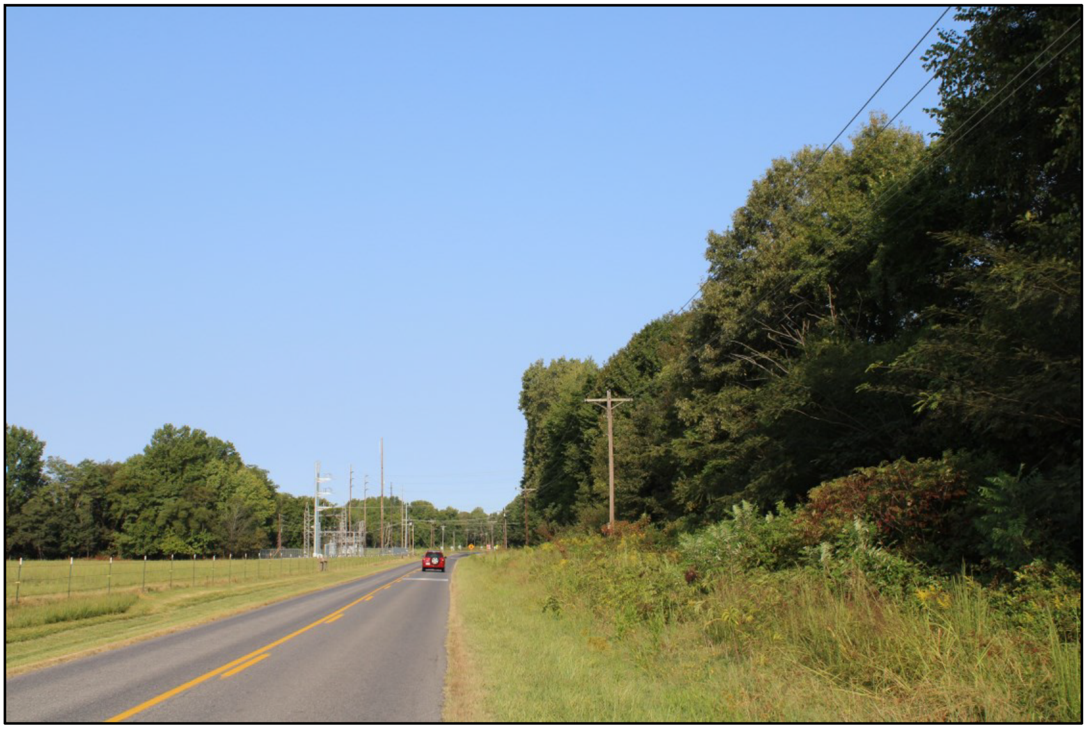


Figure 7 – Woodville Road, facing west

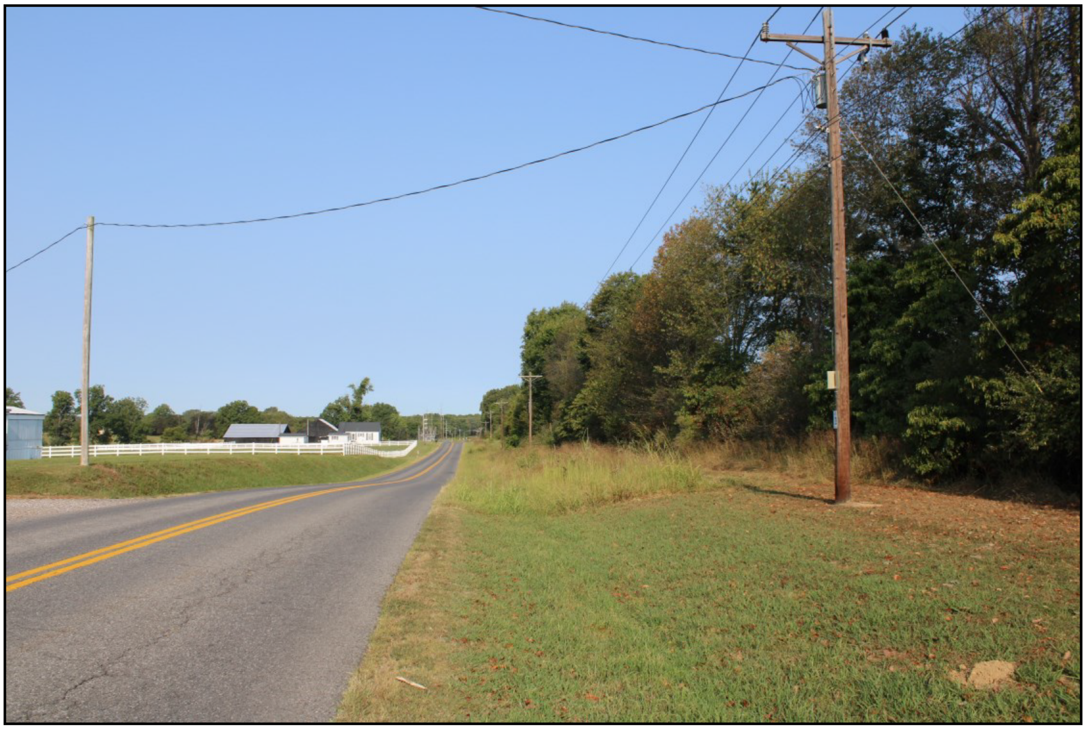


Figure 8 – Woodville Road, facing west

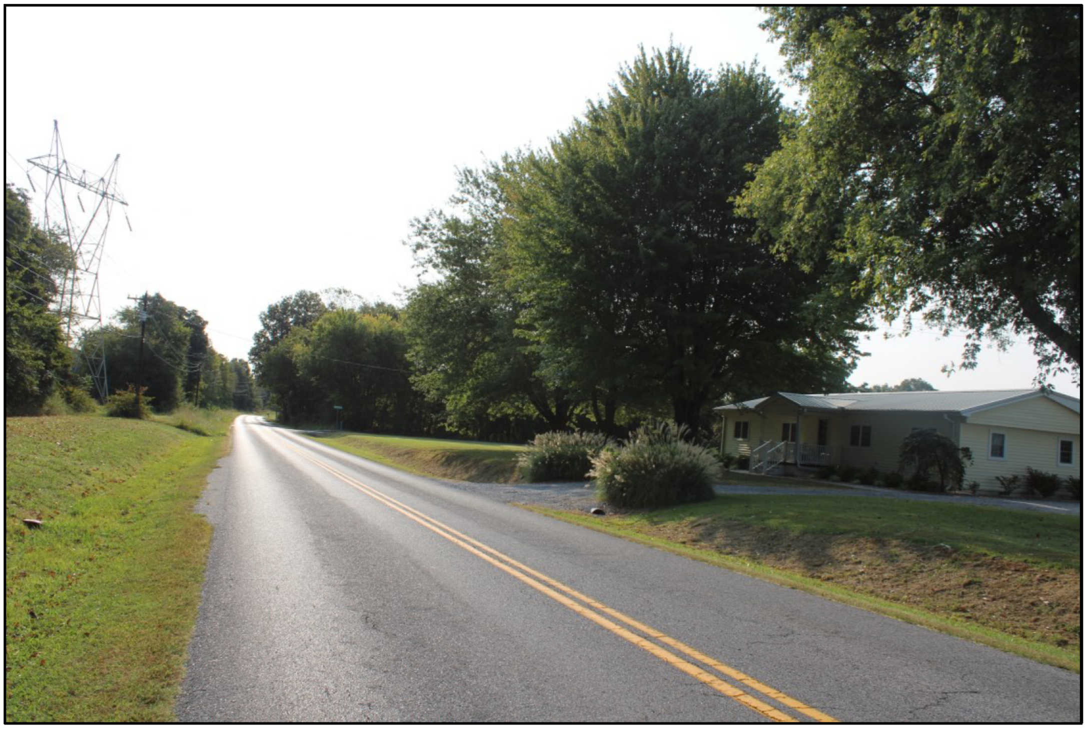


Figure 9 – Woodville Road, facing east

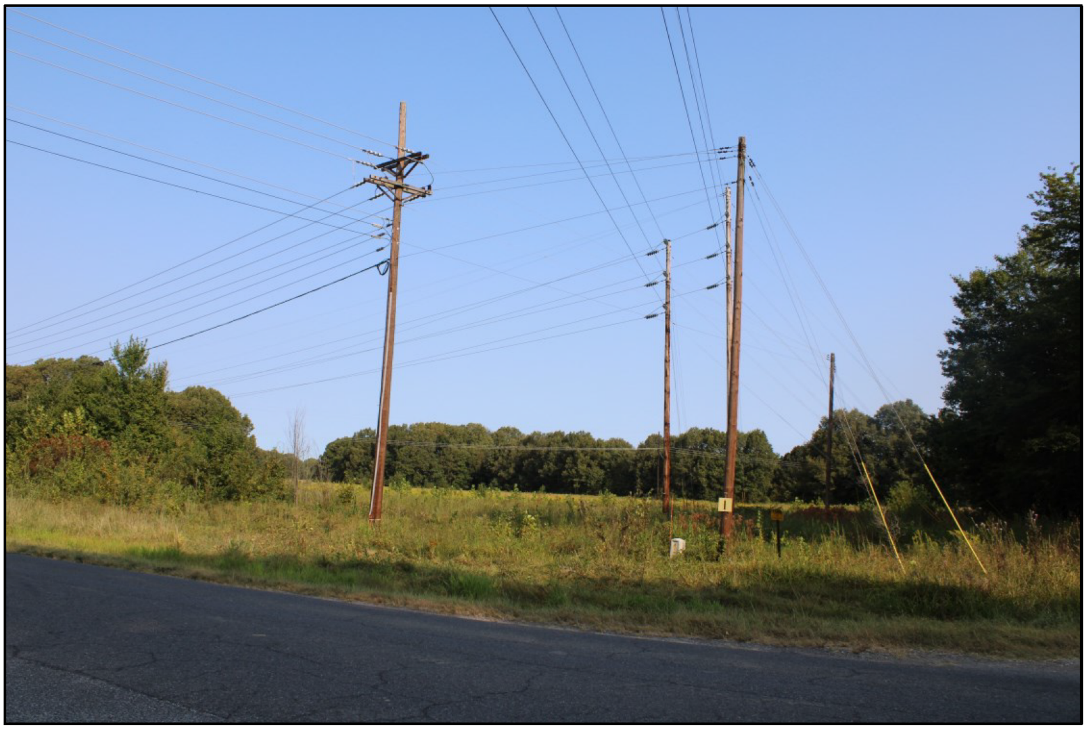


Figure 10 – Project Site, facing north from Woodville Road

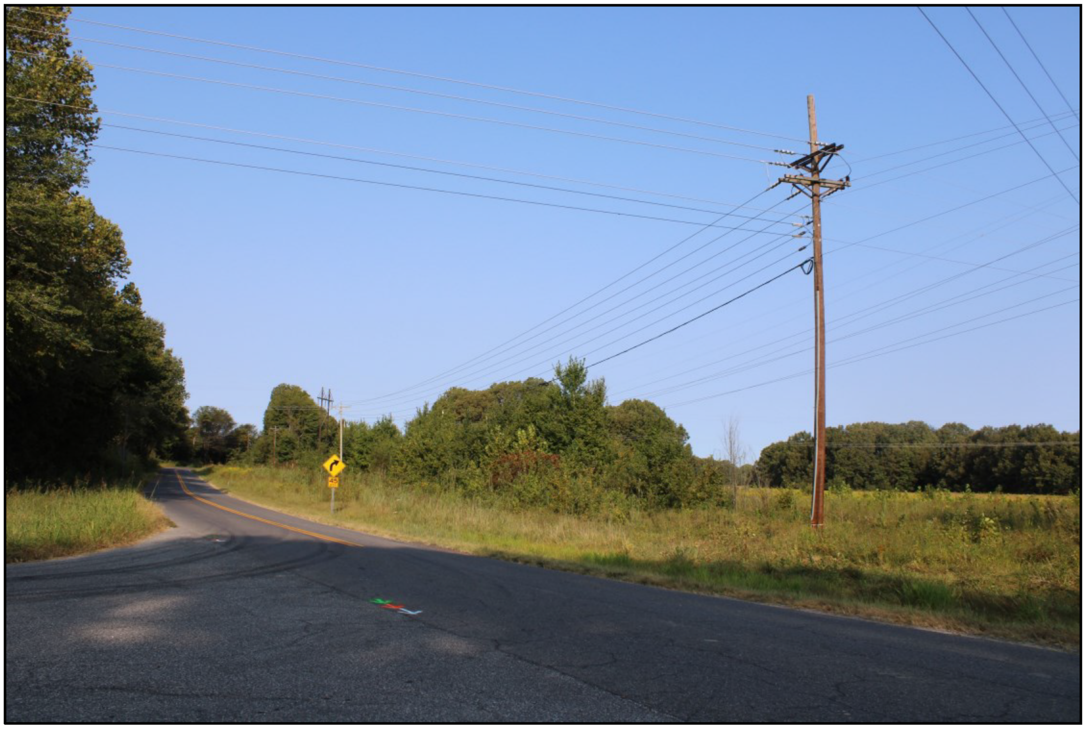


Figure 11 – Project Site, facing northwest from Woodville Road

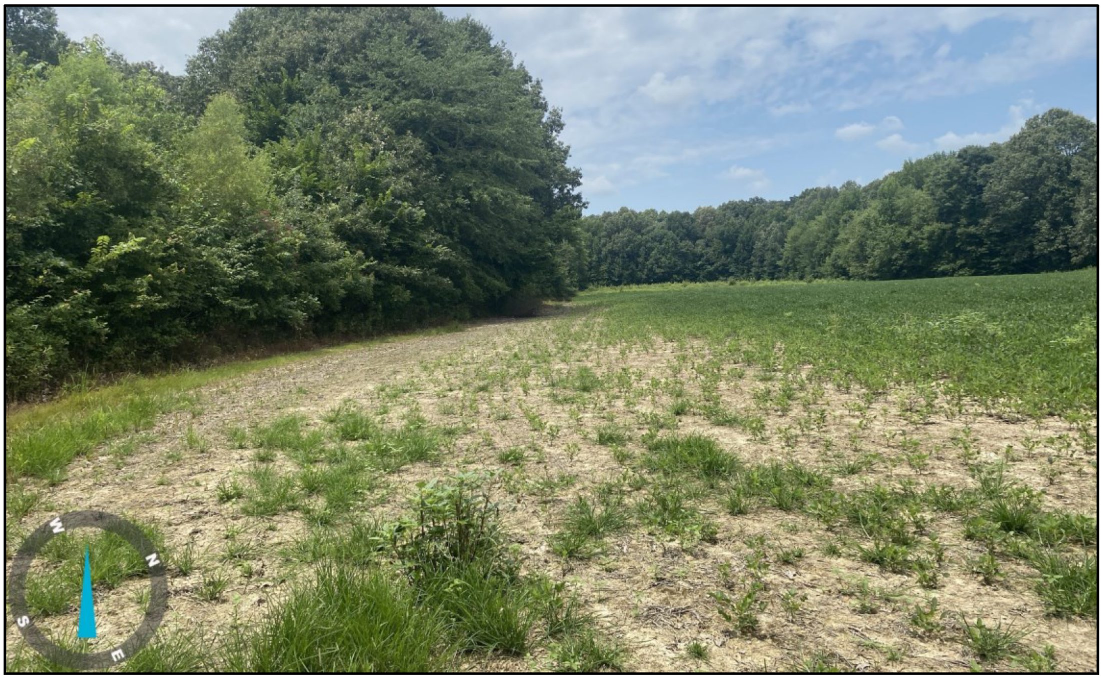


Figure 12 – Project Site, facing northwest

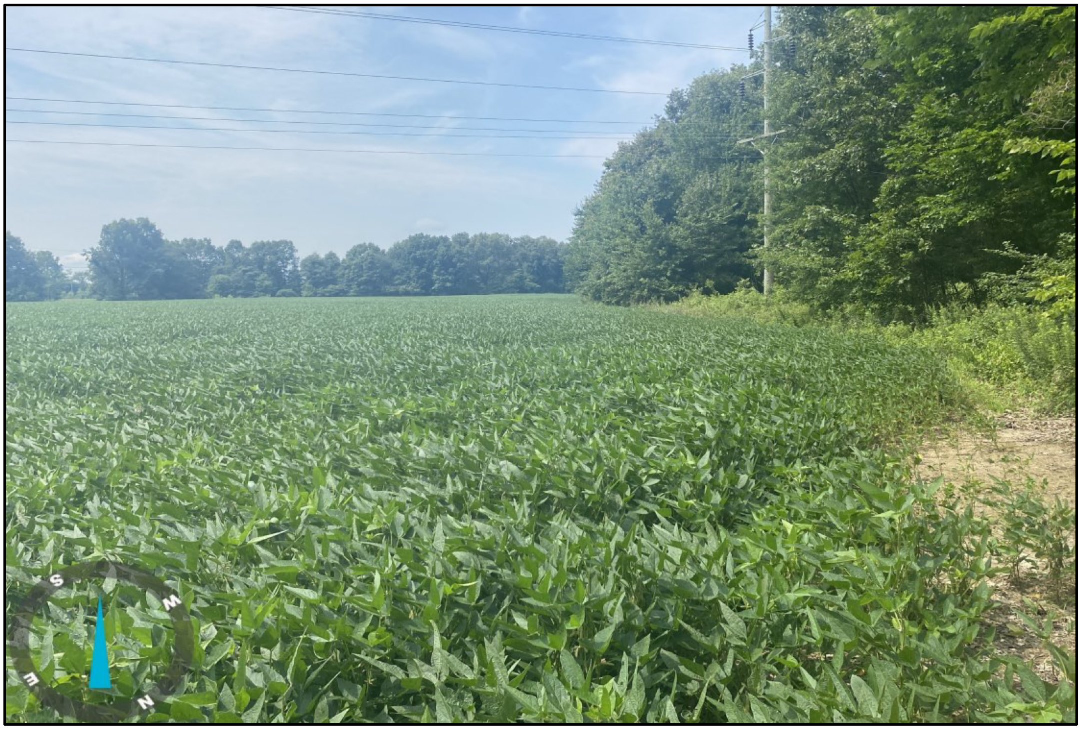


Figure 13 – Project Site, facing south

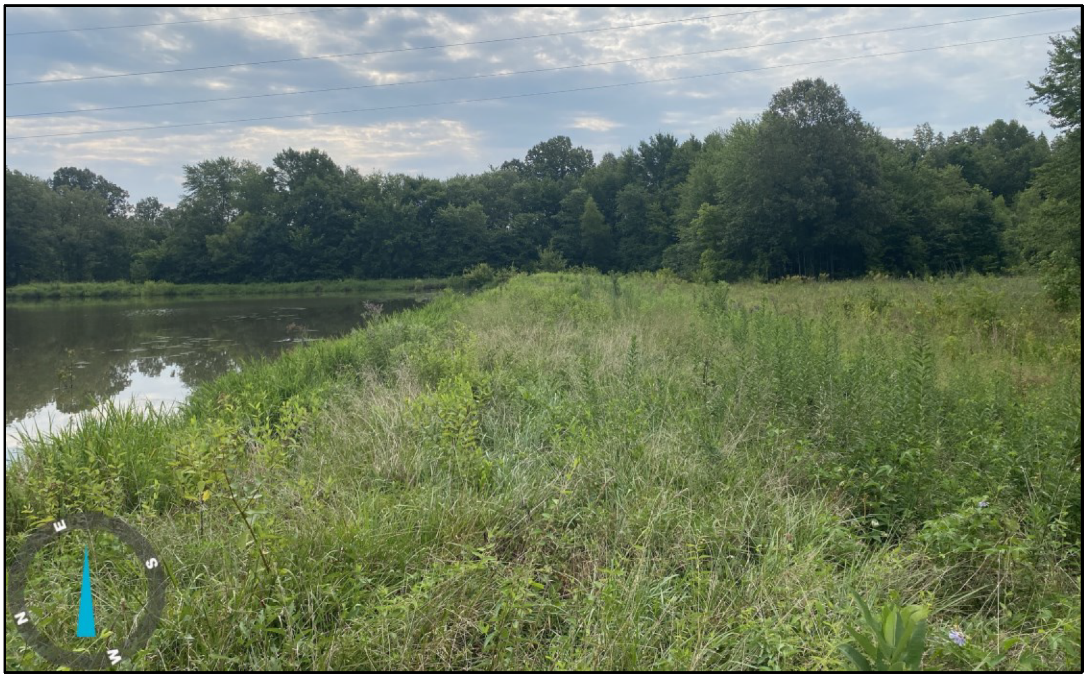


Figure 14 – Project Site, facing east

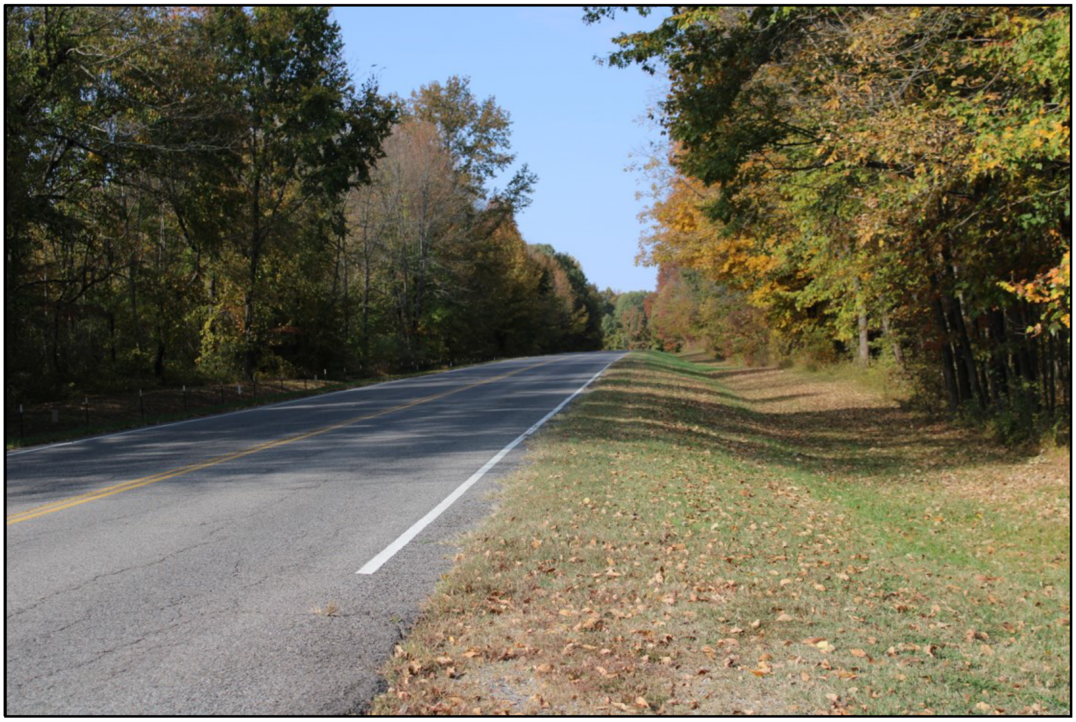


Figure 15 - Dyke Road and Hobbs Road, facing east

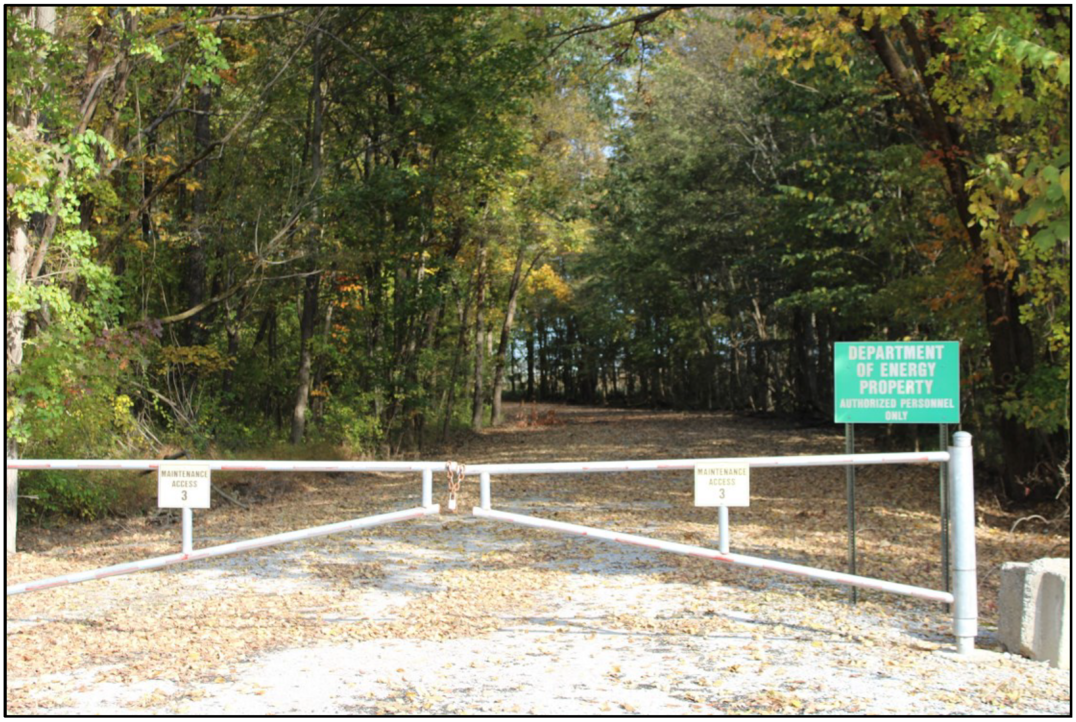

MAINTENANCE ACCESS 3
MAINTENANCE ACCESS 3
DEPARTMENT OF ENERGY PROPERTY
AUTHORIZED PERSONNEL ONLY

Figure 16 – Access Road and Dyke Road, facing north

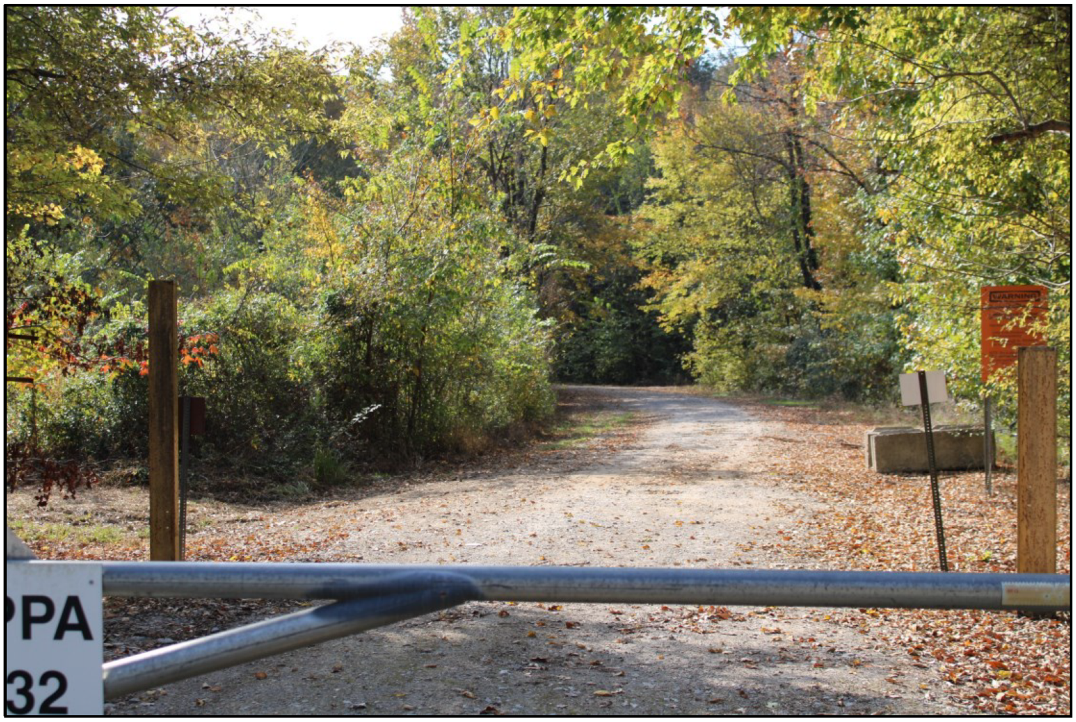


Figure 17 – Access Road and Dyke Road, facing south

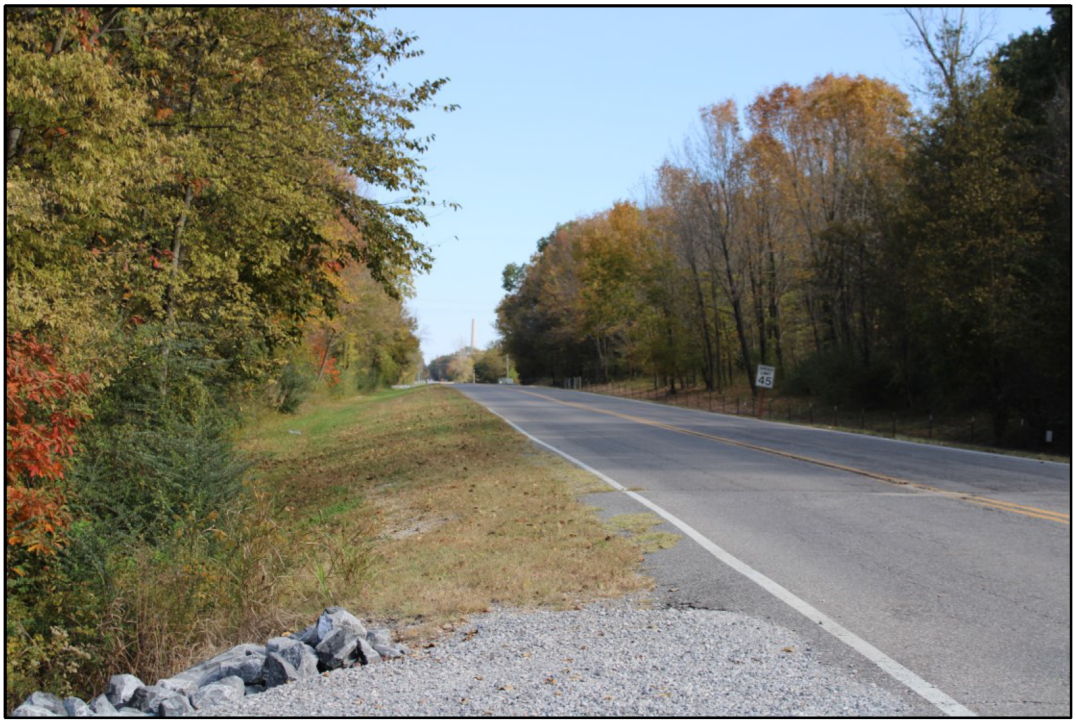


Figure 18 – Dyke Road, facing west

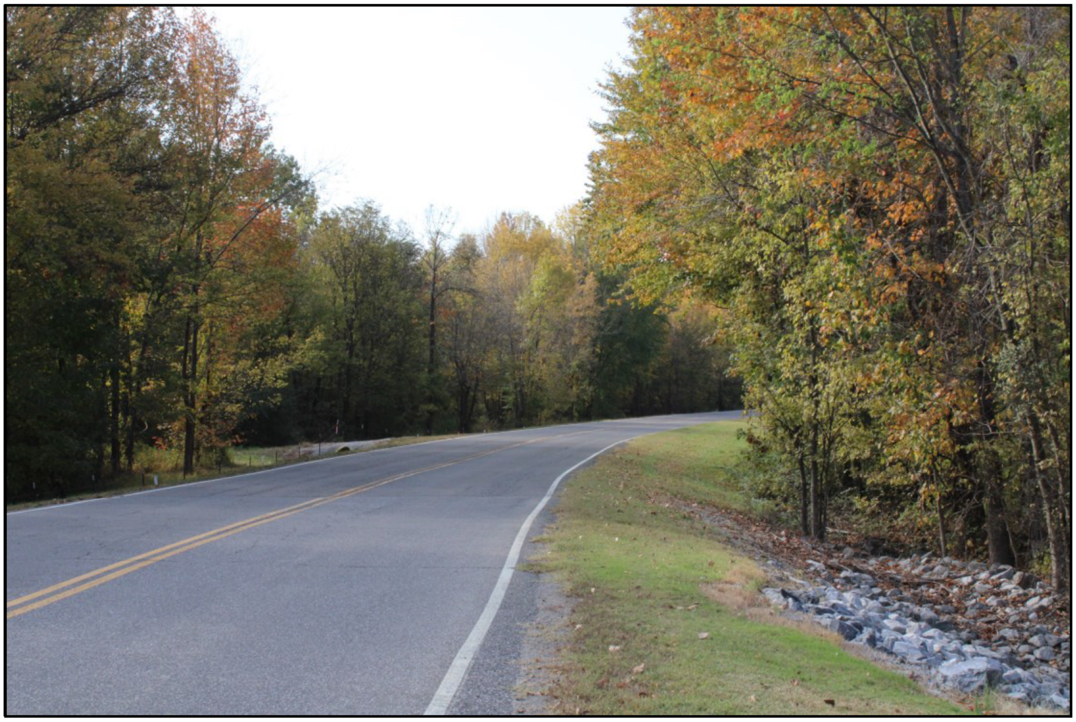


Figure 19 – Dyke Road, facing south

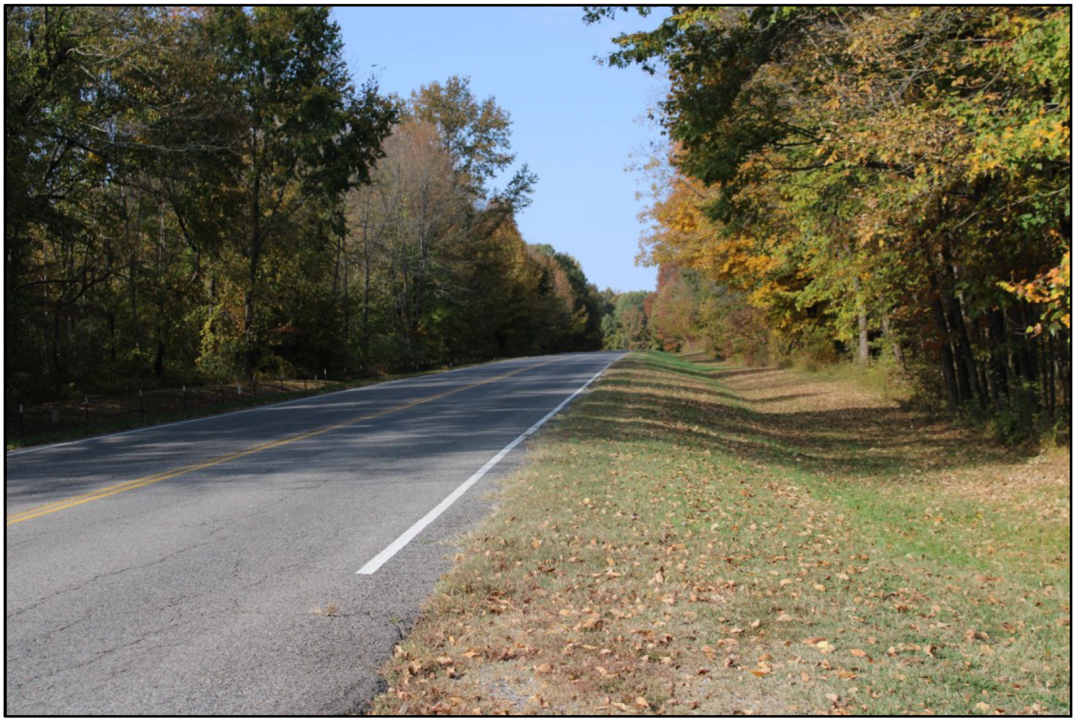


Figure 20 – Dyke Road, facing east

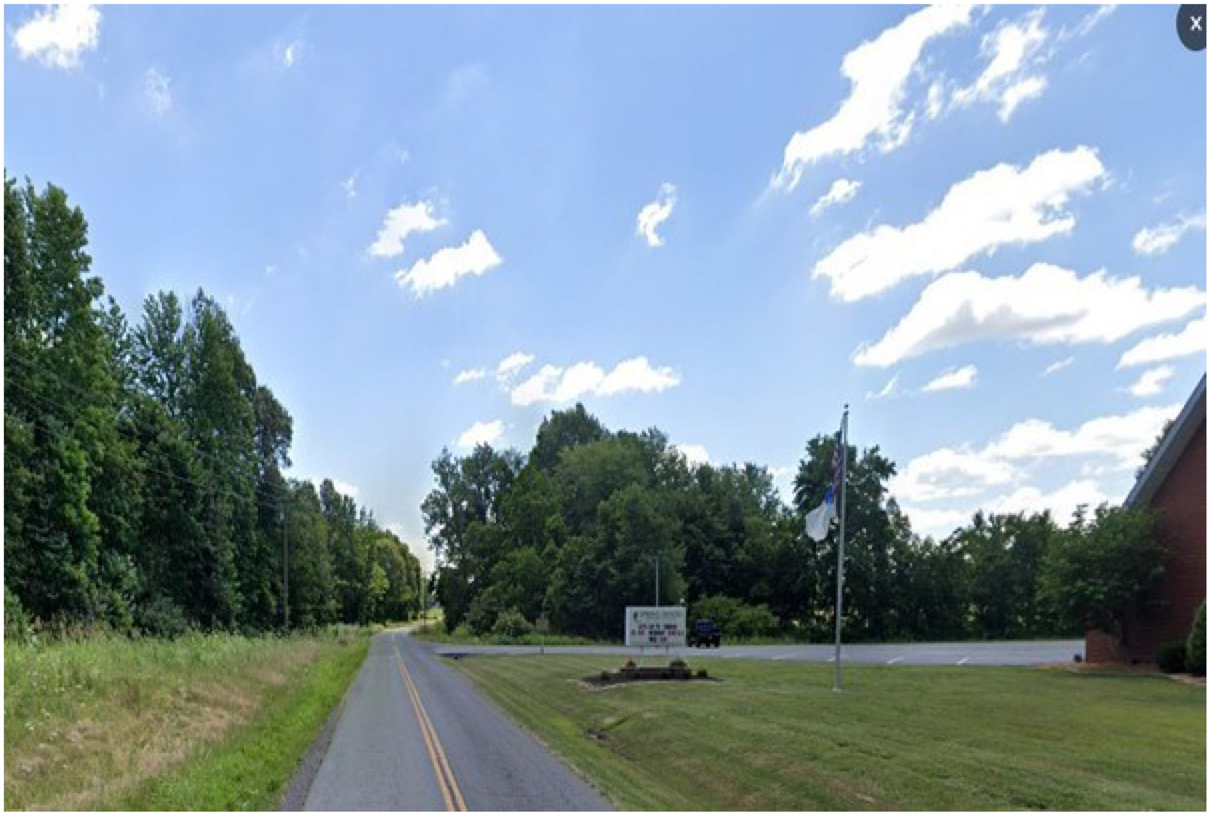


Figure 21 – Woodville Road in front of Spring Bayou Church, facing east

BUILT ENVIRONMENT SURVEY METHODS

The investigation was completed using guidelines as outlined in the KHC *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports (Sanders, 2017)*. The Principal Investigator (PI), Melinda Winchester, meets the requirements for professional architectural historians and historians as detailed in the Secretary of the Interior standards. The investigation included a records check, a review of maps and literature, and a survey. BFW performed a records and literature review with the KHC online database on September 6, 2024, to determine the number, nature, and locations of known cultural resources in the GLE project vicinity. Staff also reviewed historic-period aerial photographs and topographic maps.

Parcels within the project boundary were identified utilizing the McCracken County PVA, ESRI Geographic Information Systems (GIS) mapping tool, historic aerials, and topographic maps. The survey includes photographic documentation of buildings, structures, and objects 50 years of age or older within the APE. The field survey and photographs were conducted from public right-of-way (ROW) in September 2024. The field data was used to evaluate the current NRHP-listed resources and to evaluate the eligibility of newly recorded resources for NRHP inclusion, assess the current condition of existing NRHP-listed resources, and assess potential project effects on significant properties, where applicable. KHC inventory forms, photographs, and mapping were prepared using guidelines set forth by the KHC in *Instructions for Completing the Individual Buildings Survey Form (KHC 2017-1)*.

Analysis Procedures

Standing resources are considered eligible for the NRHP if they possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet Criteria A, B, or C on the local, state, or national level.

- **Criterion A:** associated with events that have made a significant contribution to the broad patterns of our history.
- **Criterion B:** associated with the lives of persons significant in our past.
- **Criterion C:** embodies distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction.

Criteria Considerations

Ordinarily, cemeteries, birthplaces, graves of historical figures, and properties owned by religious institutions or used for religious purposes, shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

- Criteria Consideration A- A religious property deriving primary significance from architectural or artistic distinction or historical importance; or

- Criteria Consideration C- A cemetery that derives its primary importance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or

To properly assess integrity, a series of steps must be followed. First the physical features must be defined and determined to be visible enough to convey historic significance. Second, it must be determined if the property is the lone example of its kind or if it needs to be compared with other, similar properties. Finally, the aspects of integrity must be identified and established as essential to a property's historic significance.

ENVIRONMENTAL AND HISTORIC CONTEXTS

Environmental Context

McCracken County lies within the Mississippi Embayment, a geologically distinct section of the larger Gulf Coastal Plain, characterized by flat lowlands, river floodplains, and gently rolling hills. The county's landscape is shaped by several important physiographic features, with the Ohio and Tennessee Rivers playing a crucial role. The terrain varies from low-lying floodplains to slightly elevated ridges and uplands, creating a varied topography across the county (US Geological Survey, 2024).

The Ohio River forms the northern boundary of McCracken County, providing a natural border and contributing significantly to the area's topography and economic development. The floodplains of the Ohio and Tennessee Rivers have produced fertile soil deposits, suitable for agriculture and contributing to the region's rich farmlands. West Paducah, as part of McCracken County, shares these geographical features, with its landscape including flat croplands and areas of gently undulating hills.

Rivers have shaped both the geography and the development of McCracken County. The Ohio River, which runs along the northern edge of the county, is one of the most significant waterways in the region. It has historically been a major transportation route for trade and travel, serving as a gateway between the southeastern United States and the Mississippi River, which ultimately flows to the Gulf of Mexico (Kebler, 1992).

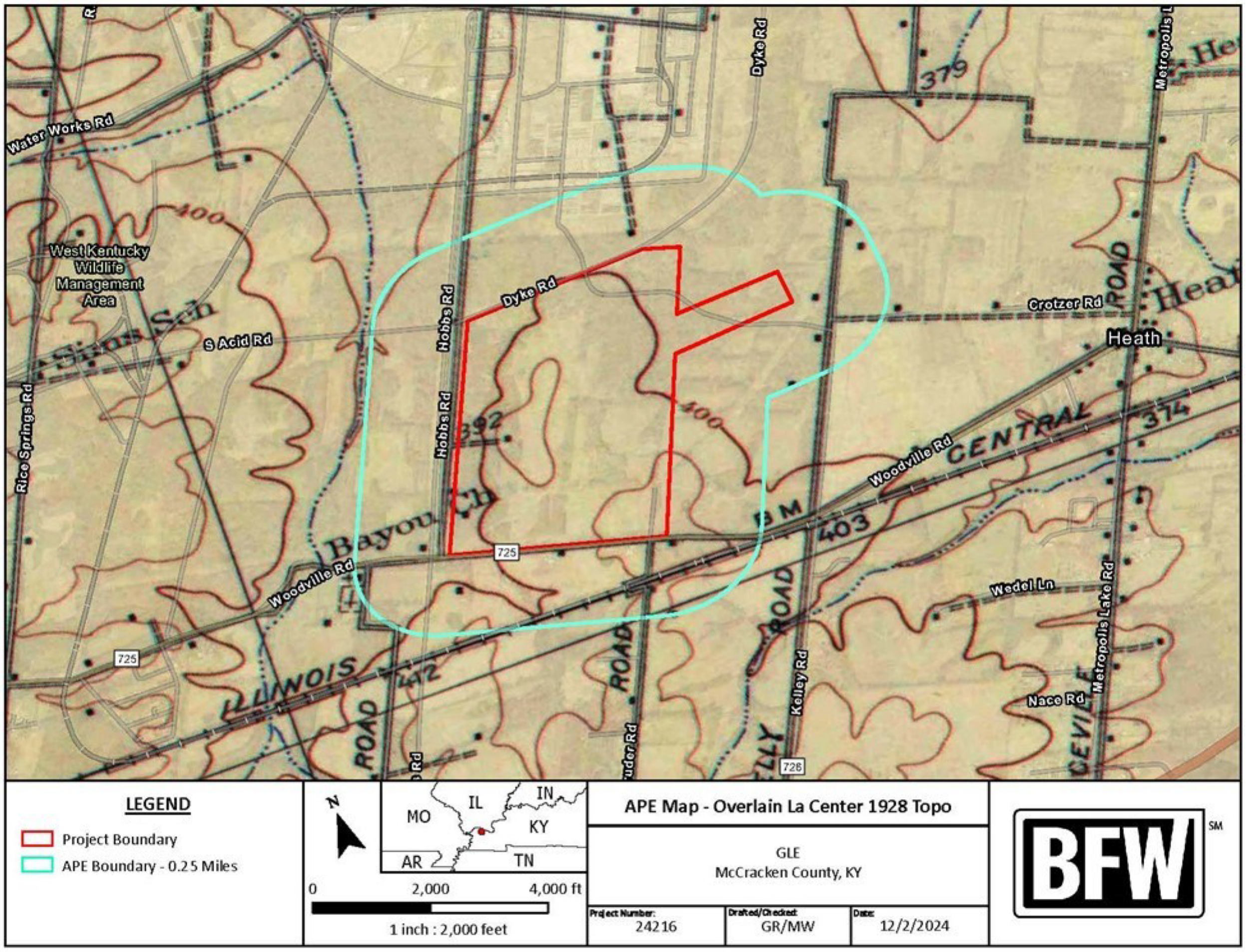
Elevations in McCracken County range from about 300 feet above sea level near the river floodplains to approximately 500 feet in the county's more elevated regions. The overall relief is moderate, with a gentle slope from the uplands toward the Ohio and Tennessee Rivers. The landscape includes rolling hills and flat river-bottom areas, with the latter making up a significant portion of the county's agricultural land. The county's natural levees and floodplain regions are a result of centuries of river activity, contributing to the current shape and use of the land (US Geological Survey, 2024).

In West Paducah, the terrain is primarily flat or gently sloping, reflecting its location within the wider floodplain of the Ohio River. The community is surrounded by agricultural fields, wooded areas, and residential properties, creating a rural atmosphere that contrasts with the more urbanized area of Paducah to the east.

Historic Context

McCracken County, Kentucky was founded in 1825 and is made up of one (1) municipality, Paducah the County Seat, four (4) Census Designated Places (CDP) which are defined by census.gov as statistical geography representing closely settled, unincorporated communities that are locally recognized and identified by name, and 19 unincorporated communities which are regions that are not governed by a local municipal corporation. The proposed project parcel is located in West Paducah, which is considered an unincorporated community. The closest CDPs to the project parcel are Grahamville and Heath approximately three (3) miles to the east (U.S. Census Bureau, retrieved October 2, 2024).

The project parcel is bounded on the south by Woodville Road and the Paducah & Louisville Railroad (P&L), the east by Kelley Road, the west by Hobbs Road, and to the north by Dyke Road and the PGDP. Historically, this area has been rural in nature with woodlands, agricultural land, and associated farmsteads and residences. The 1928 Topographic map (**Figure 22**) indicated the presence of residential or agricultural development around the perimeter of the project parcel and adjacent to it along Woodville Road and Hobbs Road. At the northern boundary there was an unimproved roadway that extended to the northern edge of the proposed project boundary. It was terminated as a dead end with a few structures built along the roadway.


Water Works Rd
West Kentucky Wildlife Management Area
S Acid Rd
Rice Springs Rd
Hobbs Rd
Dyke Rd
379
Metropolis L
Crotzer Rd
Heath
Woodville Rd
CENTRAL
374
403
Bayou Ch
725
Wedel Ln
ILLINOIS
ROAD
Kelley Rd
Metropolis Lake Rd
Nace Rd
726
400
392
LEGEND
Project Boundary
APE Boundary - 0.25 Miles
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KY
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1 inch : 2,000 feet
APE Map - Overlain La Center 1928 Topo
GLE
McCracken County, KY
Project Number: 24216
Drafted/Checked: GR/MW
Date: 12/2/2024
BFW

Figure 22 – Project APE on 1928 LaCenter, KY (USGS 7.5-minute series topographic quadrangle)

In February of 1942, the bombing of Pearl Harbor by Japan during WWII required the need to construct munitions factories in the United States to produce trinitrotoluene (TNT) for the war effort. Within months of the United States entering the war, residents of West Paducah became aware of the government's intention to build a munitions plant in their community. In April of that year, a Federal Court granted the U.S. Department of Defense permission to acquire a 16,100-acre tract of land in McCracken County. The subject parcel was part of this purchase. Construction began on the explosives-manufacturing facility in 1942 which sat directly west of Hobbs Road and the project parcel and was referred to as Kentucky Ordinance Works (KOW). The plant operated until 1945 when the War ended. The federal government retained 4,000 acres of the original KOW land and the remaining portions of the land were sold to the Tennessee Valley Authority (TVA) and the Commonwealth of Kentucky- West Kentucky Wildlife Management (Swift & Staley, n.d.).

In the summer of 1950, due to world tensions across the globe and in Korea, President Harry Truman initiated an expansion of the development of nuclear weapons in the United States to meet the anticipated national security needs. Paducah was selected as one of these sites and the federally owned abandoned KOW site was a prime location. In 1951, the federal government began construction of the PGDP and all of the associated KOW buildings were demolished at this time. By 1954, all of the structures on the proposed project parcel had also been removed and the project parcel was acquired by DOE. **Figure 23** shows the construction of the entrance road into the plant in 1951 and the proposed project site.

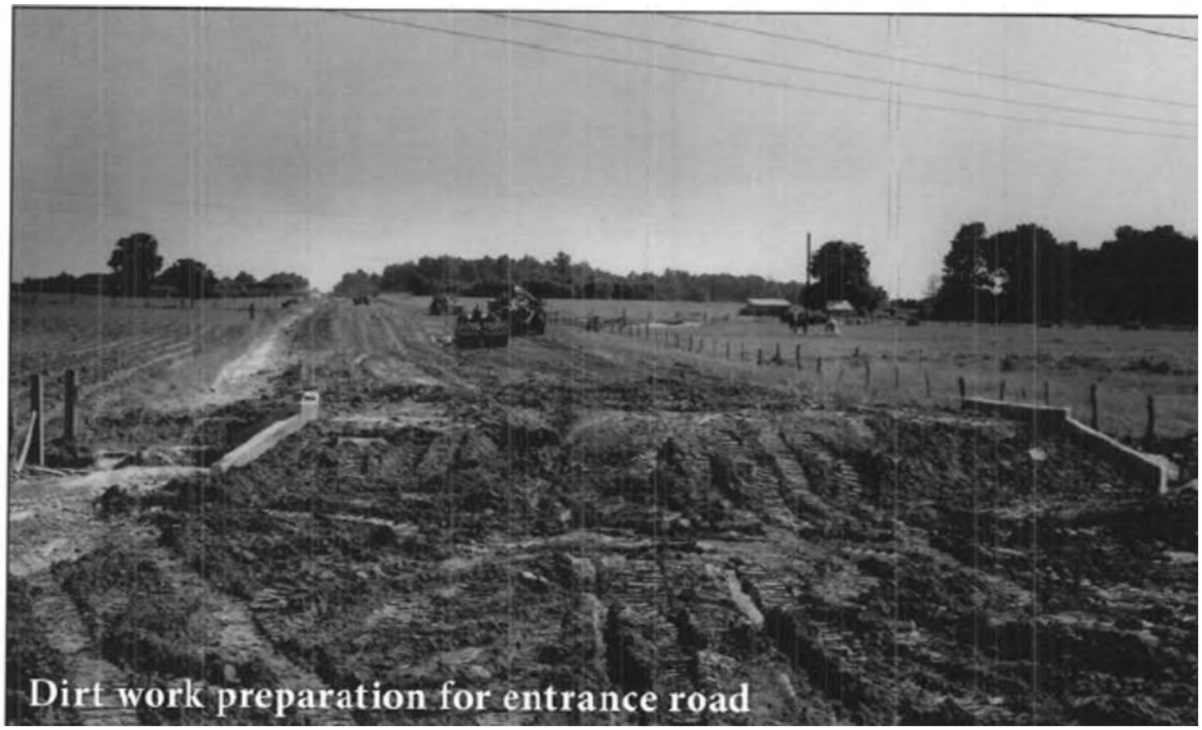

Figure 23 – 1951 Photo of entrance construction of PGDP Plant

Photo Courtesy of Swift & Staley - The Story of Paducah Gaseous Diffusion Plant from Megawatts to Megatons

The PGDP plant produced enriched uranium for the production of nuclear weapons until 1964 for the nation's nuclear weapons program. At that time, it transitioned to the production of nuclear fuel for commercial power plants and continued commercial enrichment under a lease agreement from 1993 until 2013 when operations ceased. The gaseous diffusion facilities were returned to the DOE Environmental Management (EM) program who had conducted extensive cleanup activities at the site and was currently deactivating the plant.

In 2004, DOE contracted Bechtel Jacobs Company, L.L.C. and Thomason & Associates to complete a Cultural Resources Survey of the PGDP facility. The survey identified a National Register-eligible historic district significant under National Register Criterion A and Criterion G for its military significance during the Cold War and for its role in America's commercial nuclear power development. The PGDP was one of three U.S. facilities in operation during the Cold War that enriched uranium for nuclear weapons. The main components of this district are the plant's four main production buildings, which contained the cascade system critical to the uranium enrichment process. (Swift & Staley, n.d.). **Figure 24** depicts the surveyed resources with their KHC Survey numbers in relation to the proposed project site. The APE boundary overlaps with the southern portion of the PGDP property line since this area includes the widening of an existing access road to provide access to the proposed GLE site. This road widening will not have an impact on any of the identified NRHP resources at the PGDP, since the APE buffer zone is over .34 miles from the closest resource MCN214.

FINDINGS

Previous Cultural Resource Studies

The Cultural Resource review found no resources previously listed on the NRHP within the physical or non-physical APE. There are also no previously listed historic districts on the NRHP found within Project APE. The review did identify a survey completed for the Paducah Gaseous Diffusion Plant (PGDP) referenced as The *Cultural Resources Survey for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*, (BJC/PAD-688/R1), March 2006, which identified a NRHP-eligible historic district at the facility. The PGDP Historic District contains 101 contributing properties and is eligible for the NRHP under National Register Criterion A for its military significance during the Cold War, and for its role in commercial nuclear power development. The PGDP facility is located north of the project site. There will be no landscape changes proposed for this project that will modify the viewshed.

Current Survey Results

One previously coded property and five unevaluated resources were identified during the field reconnaissance survey within the proposed non-physical APE. The previously coded property (0700043) was evaluated, recorded and given the KHC Survey #MCN 443. Five unevaluated resources (MCN 444, MCN 444.001,MCN 444.002, MCN 445, and MCN 445.001) were verified using PVA records and historic topographic maps. **Table 2** below presents this list of resources. The resources documented are rural residential, agricultural buildings, one church and one cemetery. All resources were recorded and evaluated and assigned survey numbers by the KHC on October 10, 2024, and November 26, 2024.

Figure 23 illustrates the locations of the resources identified in the subsequent table.

Table 2 – Newly Recorded Resources within the APE

KHC SITE NUMBER	ADDRESS	NAME/TYPE OF RESOURCE	NRHP STATUS
MCN 443	10620 Woodville Road	Residence	Ineligible
MCN 444	10860 Woodville Road	Residence	Ineligible
MCN 444.001	10860 Woodville Road	Barn	Ineligible
MCN 444.002	10860 Woodville Road	Barn	Ineligible
MCN 445	11205 Woodville Road	Spring Bayou Baptist Church	Eligible
MCN 445.001	11206 Woodville Road	Spring Bayou Cemetery	Eligible

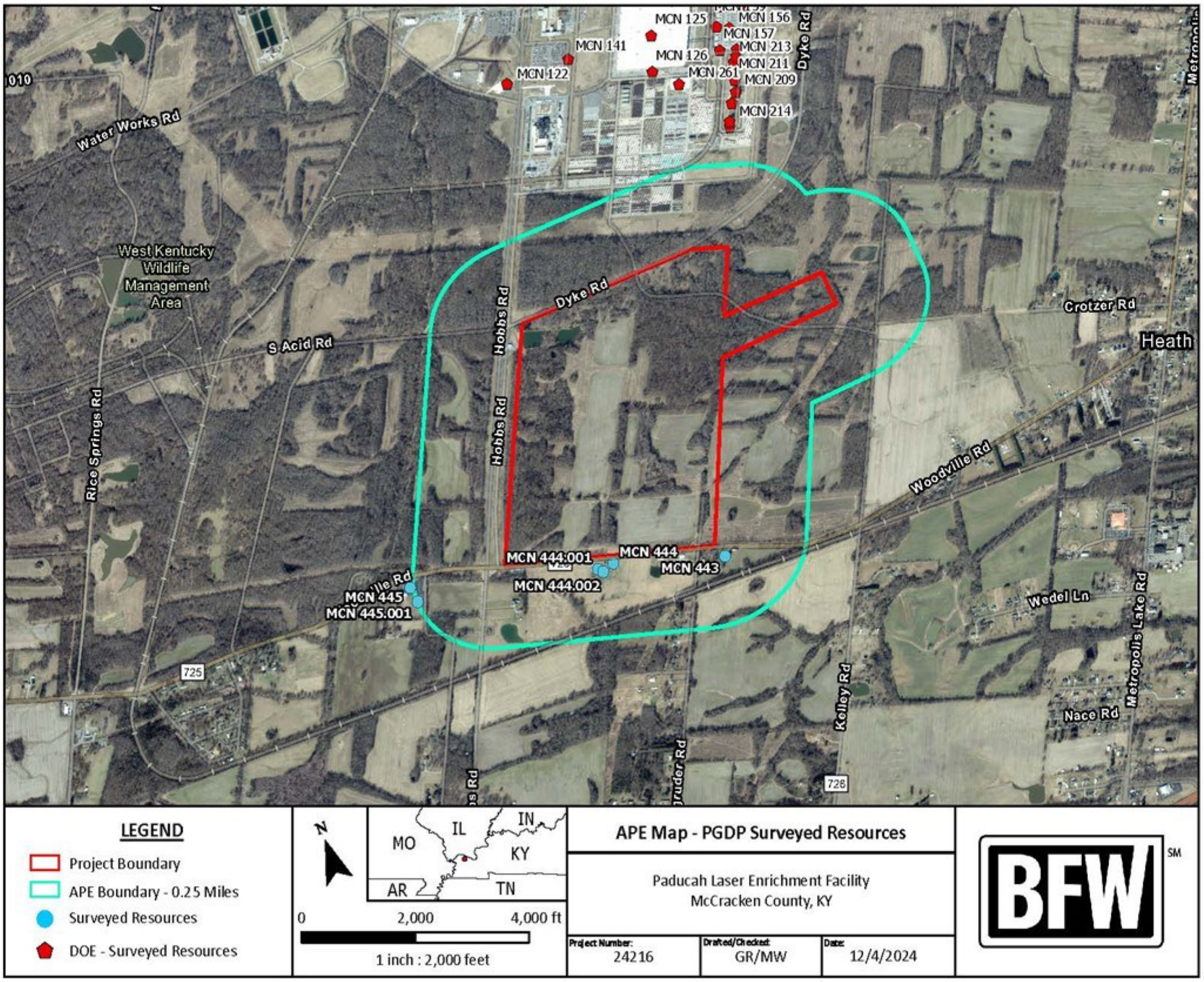
MCN 125
MCN 156
MCN 157
MCN 141
MCN 213
MCN 126
MCN 211
MCN 122
MCN 261
MCN 209
MCN 214
Dyke Rd
Water Works Rd
West Kentucky Wildlife Management Area
Dyke Rd
Hobbs Rd
S Acid Rd
Crotzer Rd
Heath
Rice Springs Rd
Hobbs Rd
Woodville Rd
MCN 444.001
MCN 444
MCN 443
MCN 444.002
MCN 445
MCN 445.001
Wedel Ln
Metropolis Lake Rd
Kelley Rd
Nace Rd
725
728
LEGEND
Project Boundary
APE Boundary - 0.25 Miles
Surveyed Resources
DOE - Surveyed Resources
N
MO
IL
IN
KY
AR
TN
0
2,000
4,000 ft
1 inch : 2,000 feet
APE Map - PGDP Surveyed Resources
Paducah Laser Enrichment Facility
McCracken County, KY
Project Number:
24216
Drafted/Checked:
GR/MW
Date:
12/4/2024
BFW

Figure 24 – Aerial Map of newly identified resources within the APE

Site Descriptions

The descriptions for the historic resources documented for this project are provided in subsequent sections.

MCN 443

Name:	**Residence**
Address:	**10620 Woodville Road, West Paducah, KY**
Date:	**1921**
Location:	**37.0851602°, -88.814215°**

Description:

Constructed in 1921, the residence located at 10620 Woodville Road is a one and half story Craftsman Design featuring a side-gabled metal roof with a prominent centered gable dormer and full width porch. The main entry features a solid wood door in addition to a glass and metal storm door which is slightly off-center flanked by sets of one-over-one vinyl windows. The gabled dormer has a triple set of one-over-one vinyl windows. The exterior has been cladded in vinyl siding and there is a one-car metal garage located to the east of the house and a small woodshed located to the west.

NRHP Evaluation: *Ineligible*

The residence at 10620 Woodville Road does represent the Craftsman Style in design and period but due to the unsympathetic use of non-historic material to the exterior of the house, it lacks enough integrity to be listed individually on the NRHP. In addition, there are no apparent associations with historical events or people to make it eligible for listing under Criterion A, nor does the area warrant the development of a historic district.

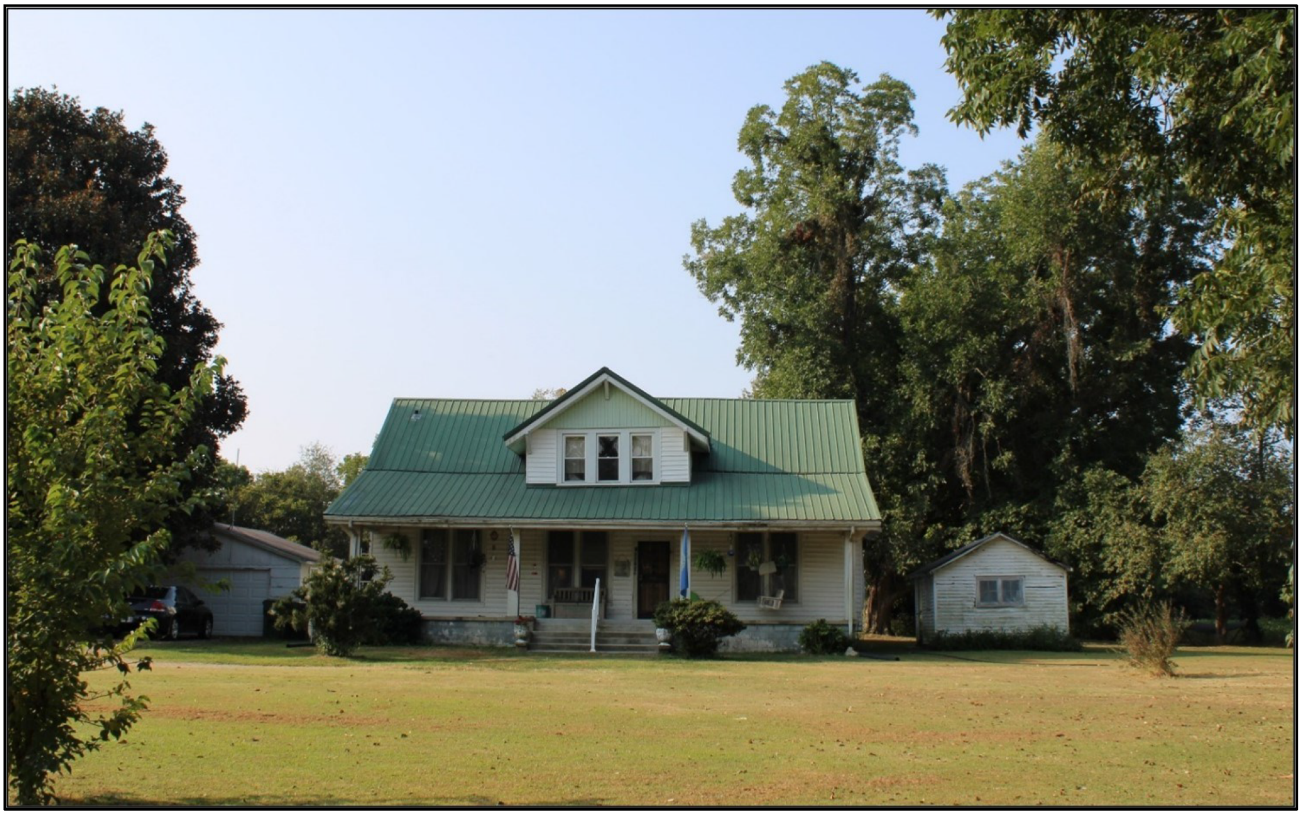

Figure 25 – MCN 443 – 10620 Woodville Road, West Paducah, KY

MCN 444

Name: **Residence**
Address: **10860 Woodville Road, West Paducah, KY**
Date: **1927**
Location: **37.086588°, -88.819409°**

Description:

Constructed in 1927, the residence located at 10860 Woodville Road is a one-story compound Gable Front-And-Wing form with a shed-roofed porch placed within the L. A one-story shed-roofed addition is attached at the southeast corner of the home. The primary entry is located within the L of the two wings with a single panel door. It is flanked on the west side by two one-over-one vinyl windows with faux shutters. Each gable end also contains a single window of the same material and fenestration. The steeply pitched cross gabled roof has corrugated metal panels with the exterior walls clad in vinyl. A shed roof metal carport is attached to the house at the southwest corner and an unattached vinyl-clad one-car garage is located to the southwest of the home.

NRHP Evaluation: *Ineligible*

The residence at 10860 Woodville Road does represent the Gable Front-and-Wing form but due to the unsympathetic application of non-historic material to the exterior of the house and the additions, it lacks enough integrity to be listed individually on the NRHP. In addition, there are no apparent associations with historical events or people to make it eligible for listing under Criterion A, nor does the area warrant the development of a historic district.

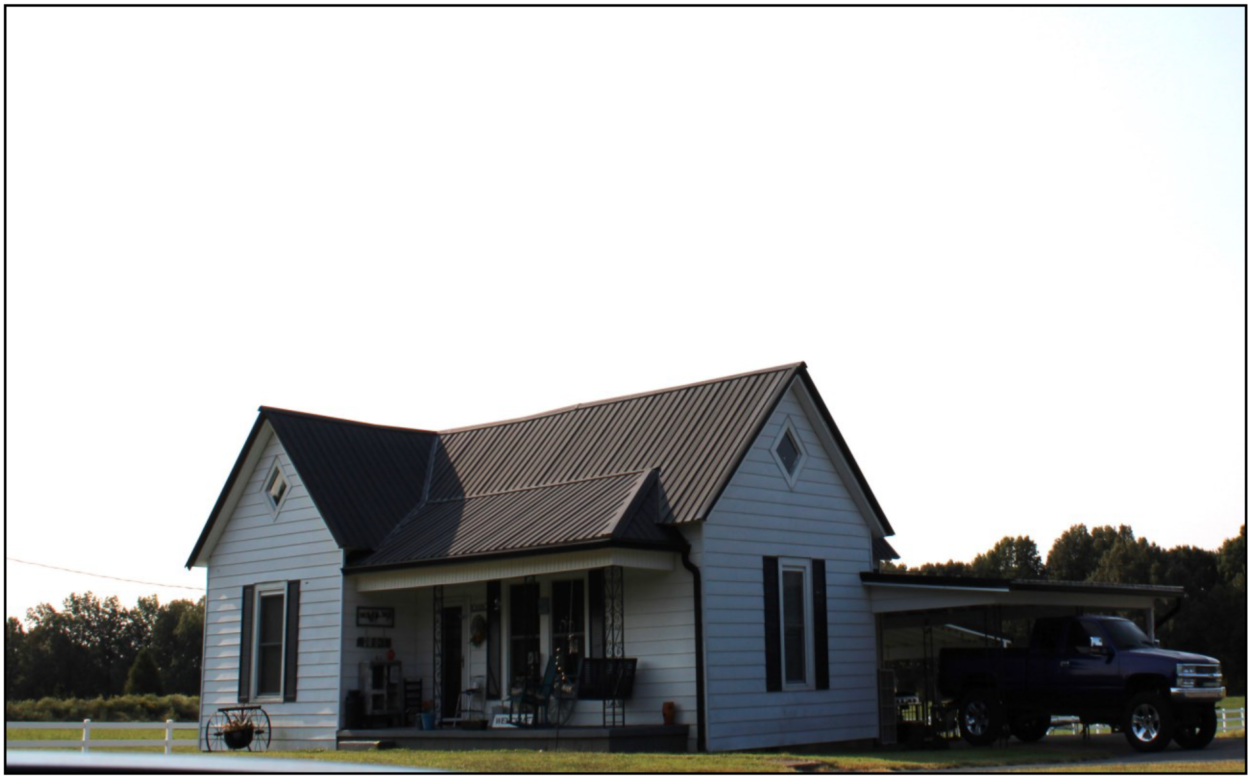

Figure 26 – MCN 444 – 10860 Woodville Road, West Paducah, KY

MCN 444.001

Name:	**Barn**
Address:	**10860 Woodville Road, West Paducah, KY**
Date:	**1962**
Location:	**37.086605°, -88.820128°**

Description:

Constructed in 1962, this agricultural outbuilding is a 48' x 32' x 14' wood pole barn with vertical wood siding and a metal roof.

NRHP Evaluation: *Ineligible*

The barn (MCN 444.002) at 10860 Woodville Road is a common agricultural form found in McCracken County and the Midwest. This example lacks architectural or historical distinction and therefore, it is ineligible for individual listing or contributing to a district on the NRHP.

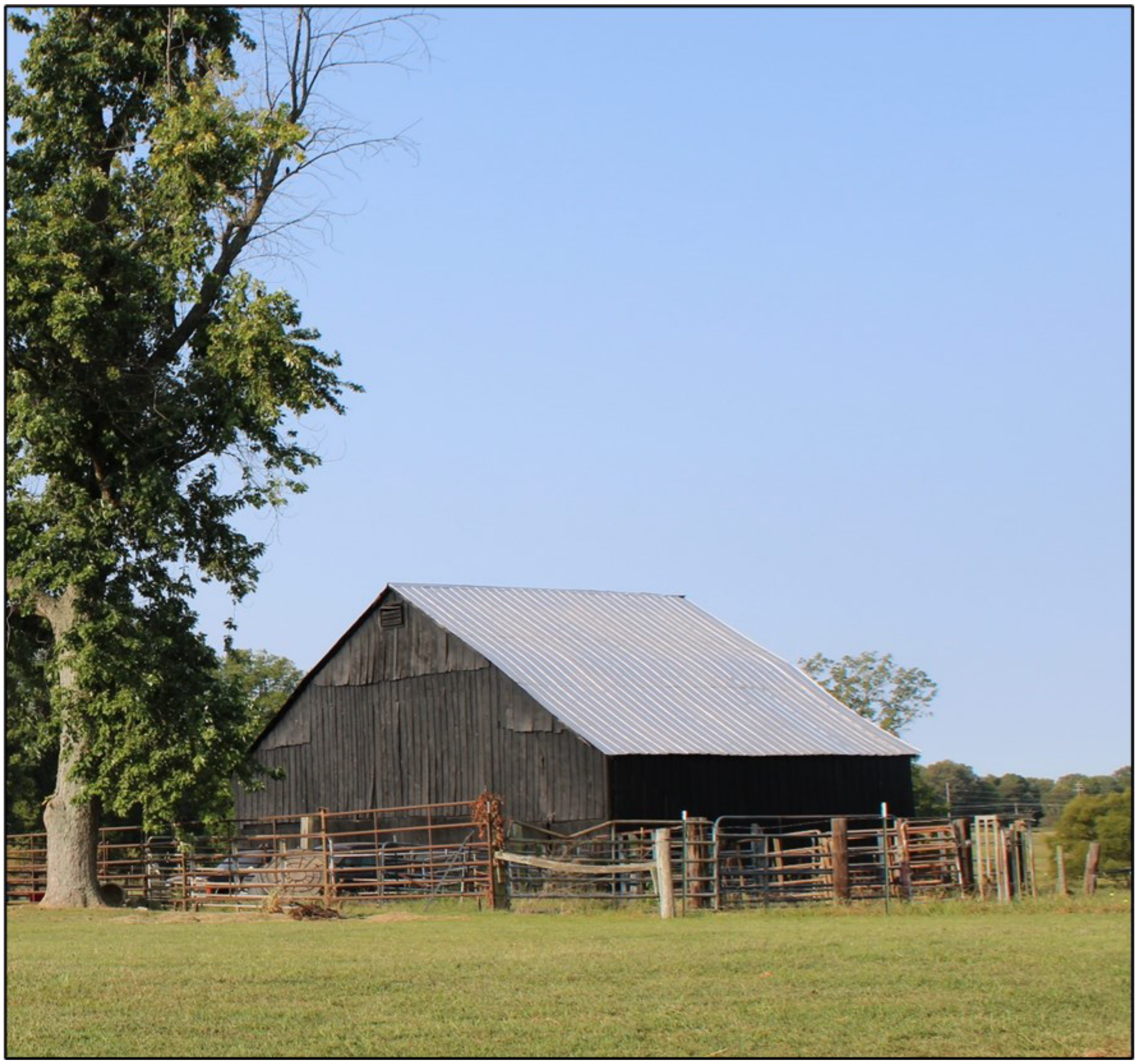

Figure 27 – MCN 444.001 – 10860 Woodville Road, West Paducah, KY

MCN 444.002

Name:	**Barn**
Address:	**10860 Woodville Road, West Paducah, KY**
Date:	**1962**
Location:	**37.086400°, -88.819934°**

Description:

Constructed in 1962, this agricultural outbuilding is a 46' x 60' x 12' wood pole barn with vertical wood siding and a metal roof. There is a sliding door on the north elevation and small shed addition on the northwest corner.

NRHP Evaluation: *Ineligible*

The barn (MCN 444.001) located at 10860 Woodville Road is a common agricultural form found in McCracken County and the Midwest. This example lacks architectural or historical distinction and therefore is ineligible for individual listing or as a contributing resource to a district on the NRHP.

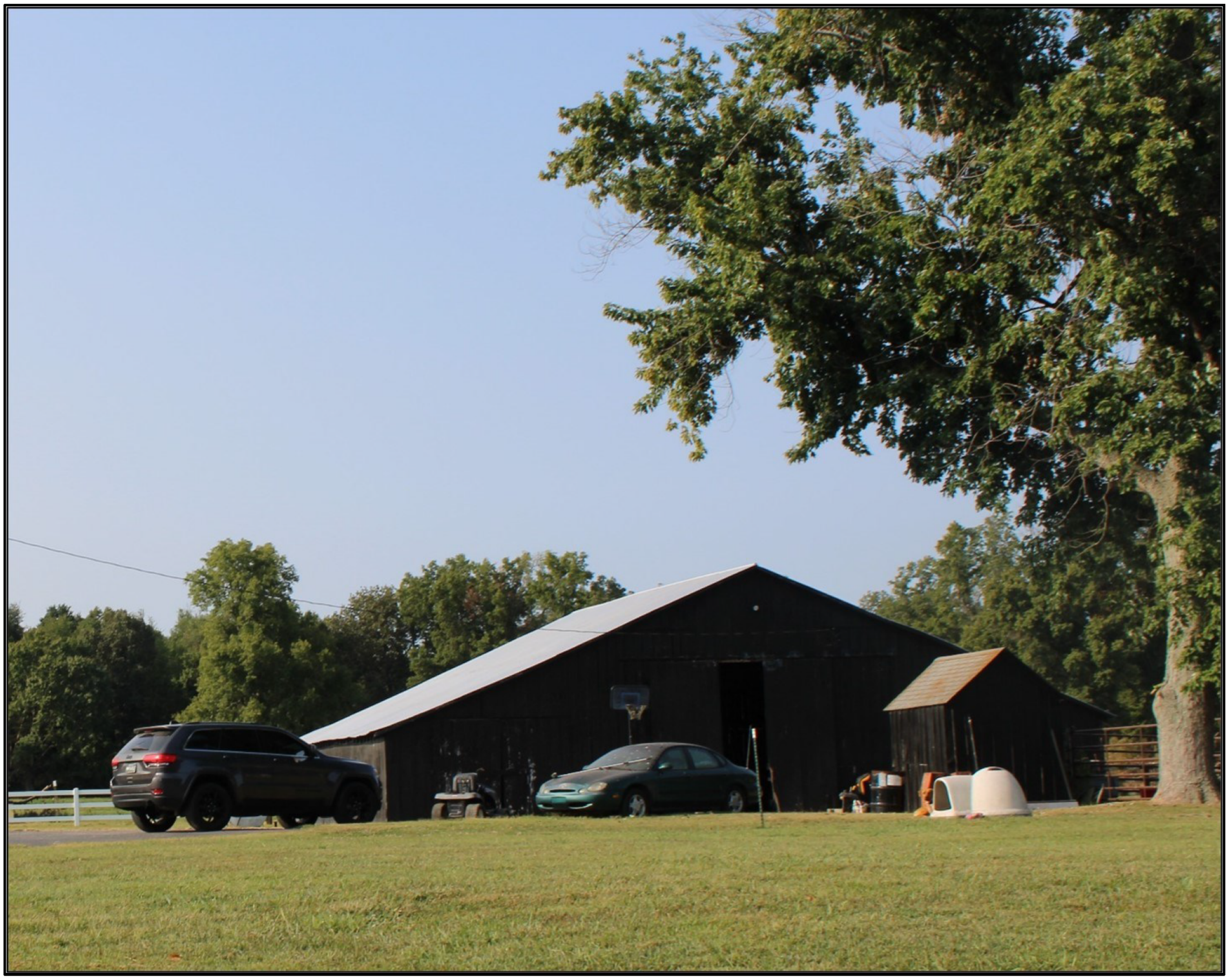

Figure 28 – MCN 444.002 – 10860 Woodville Road, West Paducah, KY

MCN 445

Name:	**Spring Bayou Baptist Church**
Address:	**11205 Woodville Road, West Paducah, KY 42086**
Date:	**1968**
Location:	**37° 5.355′ N, 88° 49.702′ W**

Description:

Constructed in 1968, the current church building is the third church constructed on this site representing the Newton Creek Community. The church was organized on Jan. 14, 1843, as Newton's Creek Church with 15 charter members. Elder Henry Richardson was the first pastor and served from 1843-46. The present name, Spring Bayou Baptist Church was given to the congregation in 1847 after the site for the second house of worship, a small frame building was chosen along Spring Bayou Creek. In 1859, an adjacent piece of land was donated to the church by Shelby Bradshaw (church member) to construct the third structure. Completion was delayed until 1870, due to the Civil War. The arrival of the Atomic Energy Plant in the 1950s resulted in the church congregation growing at an unprecedented rate. Church records show attendance in May of 1957 as 284 enrolled, 18 Sunday School Classes, and six departments. The need quickly arose for new facilities to accommodate the parishioners. In 1958, the first phase of the building program began with the construction of a new educational building wing. It was dedicated on October 20, 1963. In February of 1966, the church began construction of the present sanctuary building which was connected to the education wing with the construction of new classrooms. The new sanctuary was completed in December of 1966 with a dedication ceremony on August 20, 1967. The church has been a significant part of the societal fabric since its inception, serving the rural community for over 180 years.

NRHP Evaluation: *Eligible*

Ordinarily, cemeteries and properties owned by religious institutions or used for religious purposes, shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria. The Spring Bayou Baptist Church and Cemetery are locally significant in the area of Social History related to the development of the rural community at Spring Bayou Creek in West Paducah, Kentucky. In addition, the church is a local example of the late Gothic Revival style Post-1950, which is uncommon in West Paducah, McCracken County. This property has been evaluated under these Criteria and addresses the requirements of Criterion Consideration A and Criterion Consideration D as a religious-owned property and a cemetery.

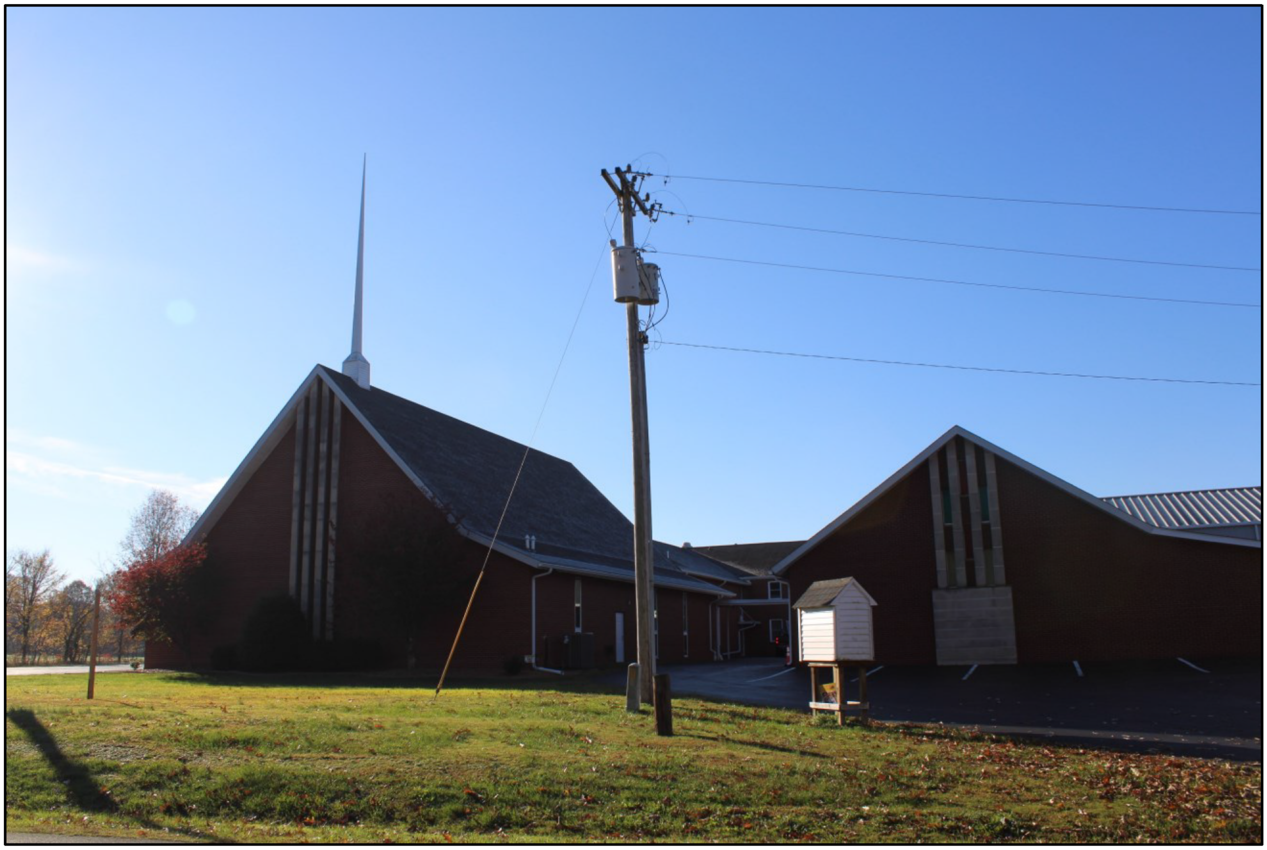

Figure 29 – MCN 445 – 11205 Woodville Road, West Paducah, KY

MCN 445.001

Name:	**Spring Bayou Cemetery**
Address:	**11206 Woodville Road, West Paducah, KY 42086**
Date:	**ca. 1895**
Location:	**37.0882083, -88.8287949**

Description:

The Spring Bayou Cemetery parcel is located adjacent to the Spring Bayou Baptist Church property on the south side. The land for the cemetery was donated to Spring Bayou Baptist Church in 1895. Currently, there are 491 gravesites and one unmarked/unknown grave in the cemetery. An illegible metal marker is placed in the general area of the unmarked/unknown grave.

NRHP Evaluation: *Eligible*

The Spring Bayou Cemetery is locally significant as a contributing site associated with the Spring Bayou Baptist Church. The cemetery is locally significant under Criterion A in the area of Exploration and Settlement related to the development of the rural community at Spring Bayou Creek in West Paducah, Kentucky. The internments range in date from 1895 to 2006 with a variety of funerary iconography. It also addresses the requirements of Criterion Consideration A and Criterion Consideration D as a religious-owned property and cemetery primarily significant for its association with early settlement and community development in McCracken County rather than its religious or memorial purpose. The Spring Bayou Cemetery is potentially eligible as a contributing resource to a district with the Spring Bayou Baptist Church (MCN 445).

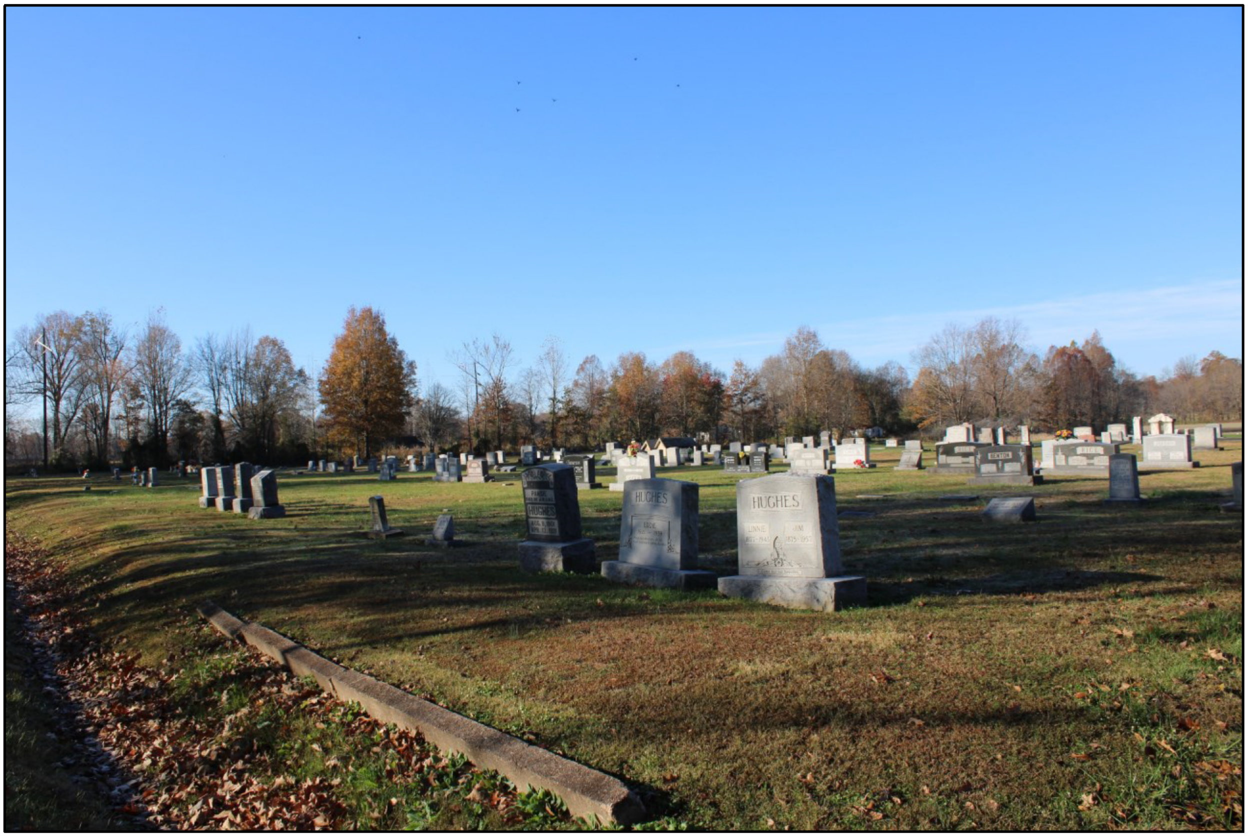

Figure 30 – MCN 445.001 – 11206 Woodville Road, West Paducah, KY

SUMMARY AND RECOMMENDATIONS

An architectural survey was conducted of the built environment to assess any previously recorded properties and identify any previously unrecorded historic resources. One previously coded property and five unevaluated resources were identified during the field reconnaissance survey within the proposed non-physical APE. The previously coded property (0700043) was evaluated, recorded, and given the KHC Survey #MCN 443. Five unevaluated resources (MCN 444, MCN 444.001, MCN 444.002, MCN 445, and MCN 445.001) were verified using PVA records and historic topographic maps. The resources documented are rural residential, agricultural buildings, one church, and one cemetery. All resources were recorded and evaluated and assigned survey numbers by the KHC on October 10, 2024 and November 26, 2024.

The residential and agricultural resources surveyed (MCN 443, MCN 444, MCN 444.001, and MCN 444.002) are recommended as not individually eligible for listing on the NRHP. The residential examples of Craftsman and Gable Front-And-Wing are very common architectural types, and the examples surveyed do not represent the works of a master and do not possess high artistic value. They also do not retain sufficient historical integrity to embody the distinct characteristics of a type, period, and method of construction to make them eligible for listing on the NRHP under Criterion C. In addition, there are no apparent associations with historical events or persons to make them eligible for listing under Criteria A or B. Nor do they retain sufficient integrity or a cohesive landscape to be recommended as a district to make them eligible for listing on the NRHP.

The Spring Bayou Baptist Church (MCN 445) and the Spring Bayou Cemetery (MCN 445.001) are recommended as potentially eligible for NRHP Listing as a district locally significant in the area of Social History, Early Settlement, and Architecture related to the development of the rural community at Spring Bayou Creek in West Paducah, Kentucky. These resources have been evaluated under these Criteria and address the requirements of Criterion Consideration A and Criterion Consideration D as a religious-owned property and a cemetery. Both of these resources are located approximately 0.215 miles from the physical APE and fall within the non-physical APE. Due to the topography of the road and the landscape, the project site is not within the viewshed of these resources and there will be no landscape changes proposed for this project that will modify the viewshed (See **Figure 21)**. In addition, there will be no adverse effect on the existing NRHP-eligible resources located at the PGDP plant. There will be no landscape changes proposed for this project that will modify the viewshed. See **Figures 16-20** that depict the viewshed north of the project site.

The project as proposed will not adversely affect any of the identified potentially eligible historic properties. As no historic properties will be affected by this project as proposed, BFW recommends a finding of “No Historic Properties Affected” pursuant to 36 CFR 800.4(d)(1).

KHC SITE #	ADDRESS	RECOMMENDED EVALUATION	EFFECTS DETERMINATION
MCN 443	10620 Woodville Road	Ineligible	No Adverse Effect
MCN 444	10860 Woodville Road	Ineligible	No Adverse Effect
MCN 444.001	10860 Woodville Road	Ineligible	No Adverse Effect
MCN 444.002	10860 Woodville Road	Eligible, individually	No Adverse Effect
MCN 445/MCN 445.001	11205 Woodville Road	Eligible, individually	No Adverse Effect

REFERENCES CITED

McCracken County Property Value Assessors

Accessed various dates. Parcel Data and GIS map. Mayfield, Graves County. https://qpublic.schneidercorp.com/Application.aspx?AppID=808&LayerID=13838 &Page Type ID=1&PageID=0

Kebler, John E. (editor)

1992 The Kentucky Encyclopedia, Lexington, University Press of Kentucky.

Kentucky Heritage Council Site Check Web Service

Accessed various dates. Survey and Historic Site Documentation. McCracken County. Available online at https://kyshpo.maps.arcgis.com/

KHC guidance entitled Instructions for Completing the Individual Buildings Survey Form (KHC 2017-1)

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Sanders, Thomas N. (editor)

2017 Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports. Edition 2.5, minor revisions. Kentucky State Heritage Council, Frankfort

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(n.d.) *Publication: The Story of the Paducah Gaseous Diffusion Plant-Megawatts to Megatons*

U.S. Census Bureau

(n.d.) Programs-Surveys- Census Designated Place. Retrieved September 27, 2024, from https://data.census.gov.

U.S. Geological Survey

1928 United States Geological Survey. La Center, Kentucky-Illinois, 15-minute series Topographic quadrangle. United States Department of Interior, Washington, D.C.

1932 United States Geological Survey. La Center, Kentucky-Illinois, 15-minute series topographic quadrangle. United States Department of Interior, Washington, D.C.

1954 United States Geological Survey. 1954. Heath, Kentucky, 7.5-minute series topographic quadrangle. United States Department of Interior, Washington, D.C.

Appendix O

Acoustic Bat Survey Report

BURNS McDONNELL

August 19, 2024

Lee Andrews
Field Supervisor
U.S. Fish & Wildlife Service
J.C. Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601

Re: Acoustic Bat Survey Report
Prepared for the Boston Government Services, LLC.
GLE Paducah Laser Enrichment Facility Project
McCracken County, Kentucky

Dear Mr. Andrews:

Boston Government Services, LLC (BGS) contracted Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) to evaluate property identified for the GLE Paducah Laser Enrichment Facility Project (Project), in McCracken County, Kentucky (Figure 1 in Attachment 1). The property is an approximately 329-acre area centered at coordinates latitude 37.093664, longitude -88.817256 (Project Area).

The initial review of protected species information for the Project indicated that potential habitat for Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), and tricolored bat (*Perimyotis subflavus*) may be impacted by the tree clearing activities. Gray bat (*Myotis grisescens*) is federally listed as endangered and state-listed as threatened, but uses caves year-round and is unlikely to be impacted by tree clearing activities. There were no caves observed on site. Little brown bat (*Myotis lucifugus*) is federally under review for listing and is state-listed as threatened. The U.S. Fish & Wildlife Service (USFWS) and Kentucky Department of Fish & Wildlife Resources (KDFWR) have not established survey guidelines or tree clearing restrictions for gray bat or little brown bat. Accordingly, Burns & McDonnell conducted presence/probable absence surveys for Indiana bat, northern long-eared bat, and tricolored bat using acoustic methods.

Methods

The following methods were included in a survey plan submitted to the Kentucky field office of the U.S. Fish & Wildlife Service (USFWS) on July 11, 2024 and approved on July 11, 2024 (Attachment 2). The survey protocol followed the 2024 USFWS *Rangewide Indiana Bat and Northern Long-eared Bat Survey Guidelines* (Guidelines).

The level of effort specified in the Guidelines on non-linear projects is 14 detector-nights per 123 acres of suitable habitat. Based on approximately 200 acres of forest clearing, the required level of survey effort was 28 detector-nights.

Burns & McDonnell biologist Josiah Maine deployed detectors at four locations on July 16, 2024. The detectors were retrieved on July 25, after nine nights. The locations of the deployed detectors were determined in the field and based on site conditions described in Table 1 below. Detector locations are shown in Figure 2 in Attachment 1.

Detector models included Wildlife Acoustics SM Mini Bat units with the integrated omnidirectional microphone. Locations and habitat descriptions are shown in Table 1. Detector photographs are shown in Attachment 3. The microphones were elevated 2-3 meters above ground level, at least 3 meters from obstructions and with minimal clutter within 10 meters. The detectors were set to record from 30 minutes before sunset to 30 minutes after sunrise. Recordings were made in full spectrum, with settings optimized for detection of Indiana bat and northern long-eared bat (Table 2). Settings were carefully assessed in the field to determine that the detectors would be operating properly. Log files and acoustic data were also reviewed following data retrieval to confirm that the detectors were operating as planned.

Table 1: Acoustic Survey Site Coordinates and Habitat.

Site	Lat	Long	Microphone Orientation	Habitat
1	37.097787	-88.813467	Southeast	Forest opening with silver maple
2	37.094416	-88.807609	East	Forest opening with sweet gum and honey locust
3	37.089341	-88.819114	East	Transmission line ROW through black cherry and silver maple forest
4	37.097802	-88.816560	West	Wetland and pond with surrounding forest

Table 2: Key Settings for the Acoustic Detectors

Setting Type	Setting[a]
Detector model	Wildlife Acoustics SM Mini Bat
Nightly recording time	0.5 hours before sunset to 0.5 hours after sunrise
Recording format	Full-spectrum .wav
Sample frequency	256 kHz
Minimum trigger frequency	16 kHz
Trigger level	12 dB

a - Settings used for all acoustic bat surveys. All other settings used default values for recording bats.

Bat calls were classified to species using Kaleidoscope Pro version 5.6.8 with the Bats of North America classifier version 5.4.0 with a -1 (more sensitive) setting. If Kaleidoscope indicated likely presence (Maximum Likelihood Estimator [MLE] < 0.05) of Indiana bat, northern long-eared bat, or tricolored bat, all bat calls from that site and night would be reviewed manually by Josiah Maine. Call characteristics would be compared to known representative calls and known call parameters to determine species.

Results

Detectors were placed at all sites on July 16, 2024 and were retrieved after nine nights on July 25, 2024. Weather during the survey period included temperatures ranging from 64 degrees Fahrenheit to 83 degrees Fahrenheit, and wind speeds of 0 to 8 miles per hour. Temperatures did not drop below 50 degrees Fahrenheit and winds did not exceed 9 miles per hour during the first 5 hours of sampling. Rain occurred for more than 30 minutes during the first 5 hours of sampling the night of July 24, 2024; however, the required level of survey effort had already been met before the night of July 24. The detector at Site 4 did not record the night of July 24, likely due to a dead battery; however, the required level of survey effort had already been met through 8 nights at the 4 sites.

Across the 4 sites, 11 species were determined to be potentially present by the Kaleidoscope Pro classifier: Rafinesque's big-eared bat (*Corynorhinus rafinesquii*), big brown bat (*Eptesicus fuscus*), eastern red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinereus*), silver-haired bat (*Lasionycteris noctivagans*), gray bat, southeastern bat (*Myotis austroriparius*), little brown bat, northern long-eared bat, evening bat (*Nycticeius humeralis*), and tricolored bat. The classifier indicated likely presence of tricolored bat at Site 1 on nights 5 and 6, Site 2 on night 9, and Site 4 on nights 1 through 8. The classifier indicated likely presence of northern long-eared bat at Site 4 on nights 4, 5, and 6. Therefore, qualitative analysis (manual review) was conducted for all calls from those sites/nights. The manual review indicated presence of tricolored bats at Site 1, Site 2, and Site 4 (Table 4-5 in Attachment 4). Calls classified as northern long-eared bats by Kaleidoscope were insect noise. Therefore, northern long-eared bat was determined to be likely absent. Details regarding manual vetting changes from automated identification are included in Table 4-6 in Attachment 4.

Based on the manual review, tricolored bat was determined to be present, while Indiana bat and northern long-eared bat were determined to be likely absent from the Project area (Table 3). Data tables with detailed analysis results for each site and night are included in Attachment 4.

Table 3: Presence/Probable Absence Results for the Acoustic Sites

Common Name	Scientific Name	Status[a]	Site 1[b]	Site 2[b]	Site 3[b]	Site 4[b]
Rafinesque's big-eared bat	*Corynorhinus rafinesquii*	N/A	A	P	A	A
Big brown bat	*Eptesicus fuscus*	N/A	A	A	A	A
Eastern red bat	*Lasiurus borealis*	N/A	P	P	P	P
Hoary bat	*Lasiurus cinereus*	N/A	P	P	P	A
Silver-haired bat	*Lasionycteris noctivagans*	N/A	A	P	P	A
Southeastern bat	*Myotis austroriparius*	N/A	A	P	P	A
Gray bat	*Myotis grisescens*	FE; ST	P	P	P	A
Eastern small-footed bat	*Myotis leibii*	ST	A	A	A	A
Little brown bat	*Myotis lucifugus*	FR; ST	P	A	A	A
Northern long-eared bat	*Myotis septentrionalis*	FE; SE	A	A	A	A
Indiana bat	*Myotis sodalis*	FE; SE	A	A	A	A
Evening bat	*Nycticeius humeralis*	N/A	P	P	A	P
Tricolored bat	*Permyotis subflavus*	FPE; ST	P	P	A	P

a – FE: Federally Endangered, FPE: Federally Proposed Endangered; FR: Federally Under Review; FT: Federally Threatened, SE: State Endangered, ST: State Threatened,

b – P: Presence; A: Probable Absence. Presence determined by Kaleidoscope Pro, as indicated by Maximum Likelihood Estimator less than 0.05, or by manual review as applicable.

Gray bat (federally endangered) and little brown bat (under review for federal listing) were determined to potentially be present based on the automated identification software, but manual review was not specifically conducted for these species because the USFWS and KDFWR have not established survey guidelines or tree clearing restrictions for gray bat or little brown bat. Note that for the sites/nights for which manual review was conducted, all the calls identified by Kaleidoscope as gray bat or little brown bat were reclassified as other species through manual review or determined to not be of sufficient quality for identification.

Conclusion

Acoustic surveys were conducted at four sites for the Project, in accordance with USFWS Guidelines. Tricolored bat (federally proposed endangered and state threatened) was determined to be present, while Indiana bat (federally and state endangered), and northern long-eared bat (federally and state endangered) were determined to be likely absent based on automated identification results and subsequent manual review. Gray bat (federally endangered and state threatened) and little brown bat (federally under review and state threatened) were determined to be present, while eastern small-footed bat (state threatened) was determined to be absent based on automated identification results, although these identifications have not been verified through manual review.

If you have any questions or comments regarding this report, please contact me by phone at 816-448-7519 or by email at jjmaine@burnsmcd.com.

Sincerely,

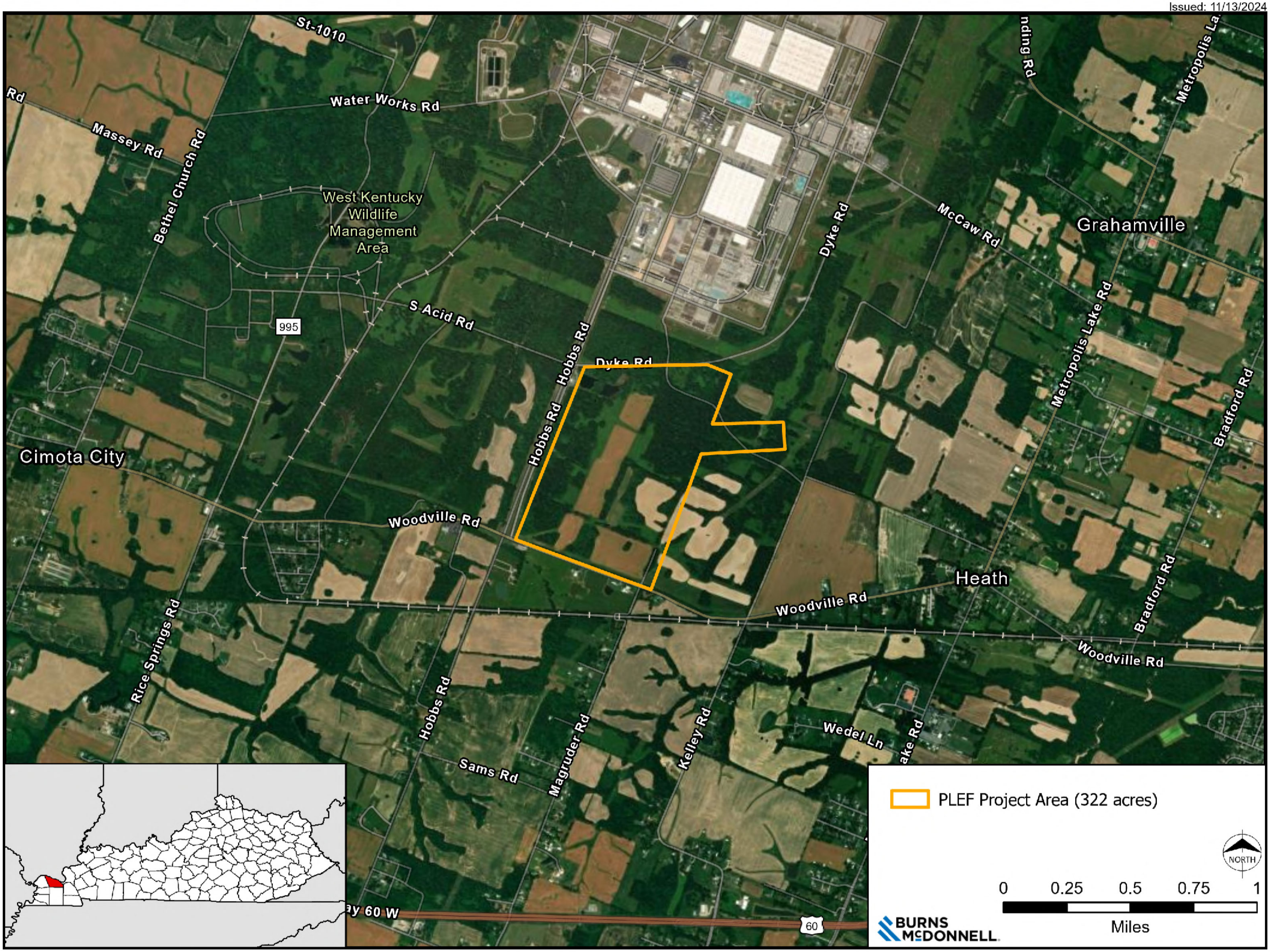
Josiah Maine
Senior Environmental Scientist
Burns & McDonnell Engineering Company, Inc.

Attachments:

Attachment 1 –	Figures
Attachment 2 -	Study Plan
Attachment 3 -	Photographs
Attachment 4 –	Data Tables

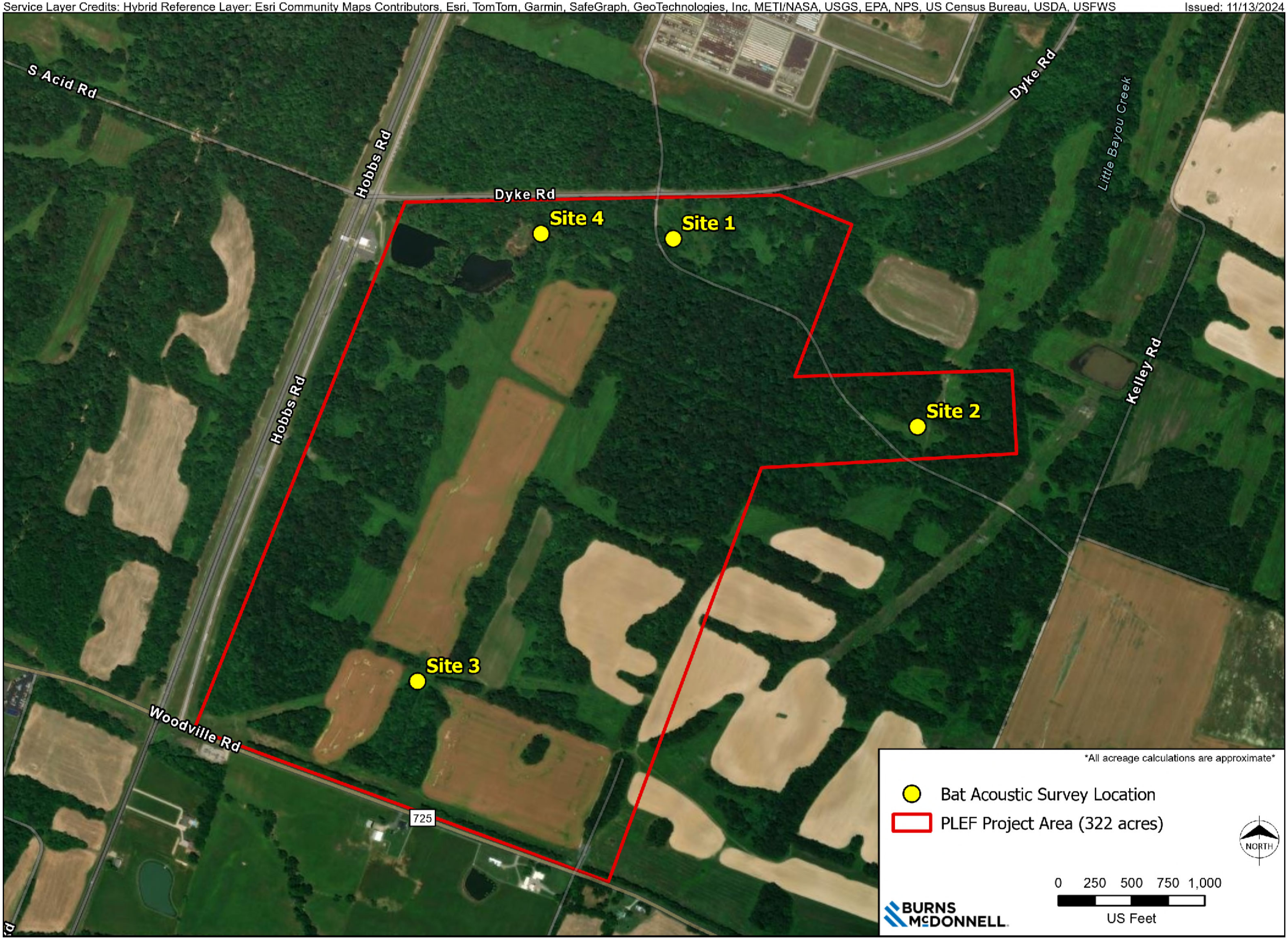
ATTACHMENT 1 – FIGURES

Issued: 11/13/2024


St-1010
Water Works Rd
Rd
Massey Rd
Bethel Church Rd
West Kentucky Wildlife Management Area
995
S Acid Rd
Hobbs Rd
Dyke Rd
Hobbs Rd
Cimota City
Woodville Rd
Woodville Rd
Woodville Rd
Dyke Rd
McCaw Rd
nding Rd
Metropolis La
Grahamville
Metropolis Lake Rd
Bradford Rd
Bradford Rd
Heath
Rice Springs Rd
Hobbs Rd
Sams Rd
Magruder Rd
Kelley Rd
Wedel Ln
ake Rd
ay 60 W
60
PLEF Project Area (322 acres)
NORTH
0
0.25
0.5
0.75
1
Miles
BURNS McDONNELL

Service Layer Credits: Hybrid Reference Layer: Esri Community Maps Contributors, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

Issued: 11/13/2024


S Acid Rd
Hobbs Rd
Dyke Rd
Dyke Rd
Little Bayou Creek
Kelley Rd
Hobbs Rd
Woodville Rd
725
Site 4
Site 1
Site 2
Site 3
NORTH
0 250 500 750 1,000
US Feet
BURNS McDONNELL

All acreage calculations are approximate

● Bat Acoustic Survey Location

▭ PLEF Project Area (322 acres)

ATTACHMENT 2 - STUDY PLAN

Re: [EXTERNAL] Acoustic Bat Study Plan - BGS Paducah Site

Armstrong, Mike <mike_armstrong@fws.gov>
Thu 7/11/2024 2:21 PM
To:KentuckyES, FW4 <kentuckyes@fws.gov>;Maine, Josiah J <jjmaine@burnsmcd.com>

Afternoon Josiah.

I have reviewed and approve the subject study plan. Feel free to reach out with any questions during the survey.

Thanks,
Mike

Mike Armstrong
Southeast Region Bat Recovery Biologist
U.S. Fish & Wildlife Service
Kentucky Field Office
330 W. Broadway, Room 265
Frankfort, KY 40601
Cell: 502-229-4632
Office/Teams: 502-653-0498

**Check us out at https://www.fws.gov/office/kentucky-ecological-services

NOTE: This email correspondence and any attachments to and from this sender is subject to the Freedom of Information Act (FOIA) and may be disclosed to third parties.

From: KentuckyES, FW4 <kentuckyes@fws.gov>
Sent: Thursday, July 11, 2024 2:27 PM
To: Armstrong, Mike <mike_armstrong@fws.gov>
Subject: Fw: [EXTERNAL] Acoustic Bat Study Plan - BGS Paducah Site

Sir,

Please see attached and below email for an Acoustic Bat Study Plan request.

From: Maine, Josiah J <jjmaine@burnsmcd.com>
Sent: Thursday, July 11, 2024 2:23 PM
To: KentuckyES, FW4 <kentuckyes@fws.gov>
Cc: Grace, Erika A <eagrace@burnsmcd.com>; Jelinek, Daniel <djelinek@burnsmcd.com>
Subject: [EXTERNAL] Acoustic Bat Study Plan - BGS Paducah Site

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Hello,

We are planning to conduct an acoustic presence/absence survey for Indiana bat, northern long-eared bat, and tricolored bat on the BGS Paducah Site near Paducah, Kentucky. Please see the attached study plan form and KMZ files for your review and approval. If you have any questions or concerns, please let me know.

Thanks,

Josiah Maine
Burns & McDonnell
Senior Environmental Scientist
O 816-448-7519 \ **M** 785-317-1595
jjmaine@burnsmcd.com \ burnsmcd.com
9400 Ward Parkway \ Kansas City, MO 64114

U.S. Fish and Wildlife Service

Study Plan Form for Bat Surveys and Monitoring (v. 2.1)[1]

PROJECT & SURVEY INFORMATION

Project Name: GLE Paducah Site

Proposed Survey Start Date: 7/15/2024

Project Proponent's Name (e.g., client/company/institution): Boston Government Services

Project Location: State(s): KY

County(s): McCracken County

Latitude: 37.093710

Longitude: -88.815872

REQUIRED: Attach or provide links to Google Earth® KMZ files (preferred) and/or shapefiles (mapping must show project boundaries, impacted forest habitat (if known) and all proposed survey sites)
Files are attached: Yes ☑ No ☐
File Links: ____

Project Summary. In the space provided below, please provide a description of the proposed action, including any activities that will permanently or temporarily alter the current environment and existing habitat features.

The project includes construction of a laser-based commercial uranium enrichment facility on land adjacent to the existing DOE Paducah Gaseous Diffusion Enrichment Facility.

CONTACT INFORMATION

Project Manager/Primary Point of Contact (POC): Daniel Jelinek

Phone: 513-563-3532

Field Survey Crew Leader (if different from POC): Josiah Maine

Cell Phone: 785-317-1595

Institution/Company Name: Burns & McDonnell

Mailing Address: 9450 Ward Pkwy

POC Email Address: djelinek@burnsmcd.com

USFWS Sec. 10(a)(1)(A) Permit No.(s) (if applicable): ____

State Permit No.(s) (if applicable): ____

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[1] Unless otherwise directed by the Service, surveyors may complete this fillable form, in lieu of a traditional narrative format, and submit it (and supporting files) to the Ecological Services Field Office in the state(s) where the work is to be completed (https://www.fws.gov/our-facilities). Use of this form is not a requirement at this time. Our goal is to improve pre-survey coordination and to expedite the Field Office review and approval process. Please submit your study plan at least 15 working days in advance of your proposed survey start date. Suggestions for improving this document may be sent to R4_Bat_Survey_Guidance@fws.gov.

Have project proponents been informed that abiding by protective time-of-year restrictions (where available) may be sufficient to avoid take of federally listed bats and (in some cases) may negate the need for a bat survey? Yes☑ No☐

Have project proponents been informed that the Service does not require presence/probable absence surveys for federally listed species and that presence can be assumed in a project area containing suitable habitat? Yes☑ No☐

Will this survey be conducted on private or public lands? *(Check both if applicable)*: Private☐ Public☑

Has permission of all necessary landowners/managing agencies been obtained? Yes☑ No☐

If no, explain: ____________________

Does this project have a federal nexus[2]? Yes☑ No☐ Unsure☐

If yes, explain: Nuclear Regulatory Commission

IPaC[3] Consultation Code (if applicable): ____________________

Purpose of Survey: Official P/A Survey ☑ Research☐ Monitoring☐
Educational Outreach/Training Other: ____________________

Survey Target Species: Indiana bat (IBAT) ☑ Northern long-eared bat (NLEB) ☑
Tricolored bat (TCB) ☑ Other: ____________________

Has a Phase-1 Habitat Assessment* of the project area been conducted? Yes☑ No☐
If yes, how was the habitat assessment conducted? Field☐ Desktop☑ Combo☐
*(*if available, attach a written report)*

Is suitable habitat[4] present (or assumed present) for all "target" species? Yes☑ No☐

If no, explain: ____________________

Does this project fall within the outer-tier[5] of any "target" species known home range? Yes☐ No☐ Unsure☑

If yes, which species: ____________________

Project Configuration

Is this project **linear** (>1 km in total length)? Yes☐ No☑ Combo☐ Unsure☐

If yes, how many 1-km sections containing suitable IBAT/NLEB habitat will be impacted? __________

Is this project **non-linear**? Yes☑ No☐ Combo☐ Unsure☐

If yes, how many acres of suitable IBAT/NLEB habitat is in the overall project area? 200

If yes, how many acres of suitable IBAT/NLEB habitat will be directly impacted/cleared? 200

PROPOSED METHODS & SURVEY LEVEL OF EFFORT[6]

ACOUSTICS

Total number of detector sites proposed to be surveyed: 4 Number of detector nights/site: 7

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[2] A project or action that is carried out, authorized, funded, and/or permitted by a federal agency.

[3] https://ipac.ecosphere.fws.gov/

[4] See Appendix A of the Guidelines regarding suitable habitat definitions.

[5] See Appendix G of the Guidelines if you are unclear what the out-tier of a known range includes.

[6] Survey level of effort (acoustic or netting) must be spread over at least two calendar nights/survey site.

Total number of detector nights for entire survey: 28

Total proposed number of calendar nights to complete the entire survey: 7

Detector(s) (Brand, Model): Wildlife Acoustics SM4FS or SM Mini Microphone(s): directional ☐ omnidirectional ☑

Recording Format: Full Spectrum ☑ Zero-Crossing ☐

FWS-Approved[7] Acoustic Bat ID Software: KPro vers. 5.4.7 KPro Classifier, NA vers. 5.4.0 BCID vers.____
Other Candidate Programs (e.g., Sonobat) vers.: ____________

Species to be included for automatic software ID classification analysis:

EPFU ☑ CORA ☑ COTO ☐ LABO ☑ LACI ☑ LANO ☑ LASE ☐ TABR ☐ MYCI ☐ MYEV ☐ MYGR ☐ MYLU ☑
MYLE ☑ MYSE ☑ MYSO ☑ MYTH ☐ MYVO ☐ NYHU ☑ PESU ☑ Others: MYAU

Will qualitative analysis (i.e., manual vetting) be used? Yes ☑ No ☐ Unsure ☐

Name(s) of qualified biologist(s) conducting qualitative/manual identifications (attach resume or link with qualifications):
Josiah Maine

MIST-NETTING

Total number of net sites to be surveyed: ____________ Total number of net nights/site: __________

Total number of net nights for entire survey (No. of sites X No. of net nights/site): ____________________

Total proposed number of calendar nights to complete the entire survey: ____________________

A) Maximum number of net set-ups that will be operated/checked (10-min interval) on a given calendar night at a given survey site: ____________
B) Minimum Number of personnel present to operate/check X (see A) net set-ups on a given site: ____________
C) Proposed Staffing Rate (A divided by B): ____________________

Staffing Rate

Number of Section 10-permitted biologists per net site (or state-permitted in USFWS R5): ____________________

Do you propose to band bats? Yes ☐ No ☐

If yes, please answer the following:

What species will be banded? COTO ☐ MYGR ☐ MYLU ☑ MYSE ☑ MYSO ☑ PESU ☑
Others: ____________________ All captured bats:
If banding *Myotis* sp. or PESU, specify band size: ____________________
Describe your proposed bands (color and letter-numbers) and banding scheme: ____________________
Will banding pliers be used? Yes ☐ No ☐

Will any biological samples be collected from captured bats (e.g., guano, hair, swab, wing punch)? Yes ☐ No ☐

If yes, explain: ____

Name of institution or facility to conduct DNA analysis: ____

RADIO-TRACKING

Will any bats be radio-tagged and tracked? Yes ☐ No ☐

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[7] https://www.fws.gov/media/automated-acoustic-bat-id-software-programs

If yes, please answer following:

Which species will be radio-tagged? ____________________

Name of USFWS Section 10 permitted biologist(s) who will apply transmitter(s): ______________________

Make/model and approximate weight of transmitter(s) to be used: ____________________

Manufacturer date and estimated life-span of transmitters to be used: ____________________

Frequency range (MHz) of transmitters (e.g., 150.xxx or 172.xxx): ____________________

If radio-tracking multiple targeted bats/species, what criteria will be used in selecting which bats will be tracked?

____

Will all radio-tagged bats be tracked (min. of 4-hrs. search effort/day) to their diurnal roosts for the minimum recommended period of 7 days? Yes☐ No☐

If no, explain: ____

Will night-time foraging data/telemetry be collected? Yes☐ No☐

Glue used for attaching transmitters: Type: Silicone-based Surgical Adhesive Name: Uro-Bond III 5000

Manufacturer: 3M Other: ________________________

EMERGENCE SURVEYS

After diurnal roost sites of radio-tagged bats are identified, will emergence surveys be conducted at each identified roost (assuming landowner permission is obtained)? Yes☐ No☐

If yes, how many emergence surveys/roost? ____________

Have you identified a small number (e.g., ≤10) of potentially suitable roost trees* that you propose to conduct emergence surveys for? Yes☐ No☐

*(*If yes, provide photographs of each tree documenting that all of the tree can be observed by the surveyor along with coordinates (lat/long and/or KML/shapefile) of all trees to be surveyed.)*

POTENTIAL HIBERNACULA SURVEYS

Are you aware of any known hibernacula used by the target species within the project area itself or nearby?

Yes☐ No☑ Unknown☐

If yes or unknown, list sites or explain: ____

Has your desktop analysis identified any natural or man-made features that could be used as a hibernaculum by any of the target bat species? Yes☐ No☑ Unknown☐

If yes, underground features (e.g., caves, mines, tunnels, bunkers, cisterns) present: Yes☐ No☐

If yes, above-ground features* (e.g., crawl spaces) present: Yes☐ No☐

If unknown, explain: ____

Are you requesting approval of a field survey for potential hibernacula at this time? Yes*☐ No☑

*(*If yes, attach a separate narrative explaining how the project area(s) will be surveyed for potential hibernacula.)*

Are you submitting the results of a Phase 1 Habitat Assessment of potentially suitable hibernacula identified from field surveys? Yes*☐ No☑

*(*If yes, provide a Phase 1 Habitat Assessment Data Sheet for each potential hibernaculum/portal(s)[8] identified to be surveyed.)*

BRIDGE & CULVERT ASSESSMENTS

Will any bridges or culverts be surveyed for bat presence? Yes☐ No☑

If yes, please answer the following:

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[8] If multiple cave entrances/portals, please list all locations.

Structure type(s) (check all that apply): Bridge☐ Culvert☐ Other☐

If "other", explain: ______

Survey methodology for structure(s) (check all that apply):

Visual inspection☐ Guano collection☐ Emergence survey☐ Acoustics*☐

Mist-net*☐ Harp-trap*☐ Other ______

*(*Due to site-specific conditions of structures, coordination with the local USFWS Field Office and appropriate state agency(ies) is necessary before proceeding with these survey methodologies)*

Will guano be collected and analyzed to confirm species ID? Yes☐ No☐

If "yes", name of institution/entity performing analysis: ______

ADDITIONAL SURVEY INFORMATION[9]

Will the proposed bat survey deviate from the current version of the USFWS Survey Guidelines?[10] Yes☐ No☑

If yes, provide justification for any departures or modifications to the guidelines (if applicable) below:

I hereby acknowledge that the information being provided to the Service is accurate and complete as of today's date.

Signature: ______ Date: 7/11/2024

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[9] Attach additional pages to this form, if needed.

[10] Proposed surveys deviating from the current Range-wide IBAT & NLEB Survey Guidelines will only be accepted with a thoroughly described justification. Coordinate with your local USFWS Field Office (https://www.fws.gov/our-facilities) for acceptable modifications.

********FOR U.S. FISH AND WILDLIFE SERVICE USE ONLY**********

United States Department of the Interior
Fish and Wildlife Service

Generic ES Field Office

Street Address
General Office Phone:

SITE-SPECIFIC AUTHORIZATION - BAT WORK

Our Field Office has reviewed your study plan and found it to contain sufficient information for our approval. When signed, this statement serves as your site-specific authorization to conduct the proposed activities at the specified locations included in the attached Study Plan Form and supporting files and must be carried with your federal permit when conducting work for this project. All activities must be carried out with strict adherence to permit conditions and authorizations specified in your federal permit as well as your state permit(s) (if needed). The section 10(a)(1)(A) permit authorizing the activities must remain with the surveyor at all times. This authorization is not valid if you have not obtained permission from the owner of the lands where activities will occur.

For federal permit reporting purposes, please use the appropriate USFWS bat survey data spreadsheet, available on the IBAT and NLEB Summer Survey Guidance website[1]. To mitigate the risk of humans transmitting viruses (e.g., SARS-CoV-2) to bats or viral transmission from bats to humans, the U.S. Fish and Wildlife Service requests anyone directly handling or working in close proximity to bats follow current guidelines prepared by the CDC[2] and IUCN Bat Specialist Group[3] in addition to the following the standard WNS decontamination protocols[4].

If the work expands beyond the scope of your original study plan or if there are adverse effects to bats that were not anticipated, cease all survey and/or research activities, and contact this office prior to continuing. Additionally, if a federally listed bat is captured, this USFWS Field Office must be notified within 48 hours with information regarding species, sex, age, and whether or not the bat has a transmitter attached.

Field Office POC: ____

email: ____ phone:____________________________

☐ **Authorized as Proposed**

☐ **Authorized with Conditions** (see below)

You are authorized to proceed provided that the following adjustment(s) and/or conditions are met.

☐ **Not Authorized.**

Comments:

Signature & Date:

NOTE: Please check the appropriate box above before signing/locking the document.

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[1] https://www.fws.gov/library/collections/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines

[2] https://www.cdc.gov/healthypets/covid-19/wildlife.html

[3] https://www.iucnbsg.org/uploads/6/5/0/9/6509077/amp_recommendations_for_researchers_final.pdf

[4] https://www.whitenosesyndrome.org/mmedia-education/national-wns-decontamination-protocol-u-s

ATTACHMENT 3 - PHOTOGRAPHS

Photograph 1: View of acoustic detector at Site 1, facing southeast.

Photograph 2: View of acoustic detector at Site 1, facing northwest.

GLE Paducah Laser Enrichment Facility BGS, LLC.	BURNS McDONNELL	Bat Acoustic Survey Photographs July 16, 2024 McCracken County, Kentucky

Photograph 3: View of acoustic detector at Site 2, facing east.

Photograph 4: View of acoustic detector at Site 2, facing west.

GLE Paducah Laser Enrichment Facility BGS, LLC.	BURNS McDONNELL	Bat Acoustic Survey Photographs July 16, 2024 McCracken County, Kentucky

Photograph 5: View of acoustic detector at Site 3, facing south.

Photograph 6: View of acoustic detector at Site 3, facing east.

Photograph 7: View of acoustic detector at Site 4, facing west.

Photograph 8: View of acoustic detector at Site 4, facing north.

ATTACHMENT 4 – DATA TABLES

Attachment 4: Data Tables

Table 4-1: Automated Classification Results of Acoustic Bat Data Collected at Site 1 The Nights of July 16 Through July 24, 2024.

Species[a]	Night 1		Night 2		Night 3		Night 4		Night 5		Night 6		Night 7		Night 8		Night 9	
	Files	MLE[b]	Files	MLE[b]	Files	MLE[b]	Files	MLE[b]	Files	MLE[b]	Files	MLE[b]	Files	MLE[b]	Files	MLE[b]	Files	MLE[b]
CORA		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00
EPFU		1.00		1.00	1	0.51		1.00	1	1.00		1.00		1.00		1.00		1.00
LABO	20	0.00	38	0.00	25	0.00	40	0.00	54	0.00	68	0.00	78	0.00	19	0.00	68	0.00
LACI		1.00		1.00		1.00	1	0.17	24	0.00	1	0.17	1	0.09		1.00		1.00
LANO		1.00	1	0.21	1	0.60	1	0.61	1	1.00	1	0.61	1	0.61		1.00		1.00
MYAU		1.00	9	0.09	2	1.00	12	0.15		1.00	4	0.56	5	0.72	1	0.59	1	1.00
MYGR	2	0.88	25	0.00	34	0.00	67	0.00	30	0.00	20	0.00	33	0.00		1.00	8	0.43
MYLE		1.00	2	0.38		1.00		1.00		1.00		1.00	1	0.90		1.00	1	0.71
MYLU	7	0.98	31	0.00	27	0.00	39	0.00	34	0.02	42	0.00	44	0.00	13	0.00	30	0.06
MYSE		1.00	1	1.00	1	1.00	1	1.00		1.00		1.00	1	1.00		1.00		1.00
MYSO		1.00	1	1.00	3	1.00	4	1.00		1.00	3	1.00	2	1.00		1.00	1	1.00
NYHU	46	0.00	27	1.00	6	1.00	20	1.00	57	0.48	50	1.00	59	1.00	4	1.00	65	0.56
PESU	17	0.06	15	0.85	7	0.96	10	1.00	44	0.00	43	0.00	36	0.29	1	1.00	21	1.00
UNKN	16		13		12		3		11		4		16		0		12	
Noise	745		1537		1215		1462		1460		1455		1087		2		1318	
Total Bat Files	108		163		119		198		256		236		277		38		207	

[a] CORA: Rafinesque's big-eared bat (*Corynorhinus rafinesquii*); EPFU: Big brown bat (*Eptesicus fuscus*); LABO: Eastern red bat (*Lasiurus borealis*); LACI: Hoary bat (*Lasiurus cinereus*); LANO: Silver-haired bat (*Lasionycteris noctivagans*); MYAU: Southeastern bat (*Myotis austroriparius*); MYGR: Gray bat (*Myotis grisescens*); MYLE: Eastern small-footed bat (*Myotis leibii*); MYLU: Little brown bat (*Myotis lucifugus*); MYSE: Northern long-eared bat (*Myotis septentrionalis*); MYSO: Indiana bat (*Myotis sodalis*); NYHU: Evening bat (*Nycticeius humeralis*); PESU: Tricolored bat (*Perimyotis subflavus*); UNKN: Unknown bat.

[b] Maximum Likelihood Estimator: values less than 0.05 indicate "likely presence" as determined by Kaleidoscope Pro. Final determination of presence/absence may differ due to manual vetting.

Attachment 4: Data Tables

Table 4-2: Automated Classification Results of Acoustic Bat Data Collected at Site 2 The Nights of July 16 Through July 24, 2024.

Species[a]	Night 1		Night 2		Night 3		Night 4		Night 5		Night 6		Night 7		Night 8		Night 9	
	Files	MLE[b]	Files	MLE[b]	Files	MLE[b]	Files	MLE[b]	Files	MLE[2]	Files	MLE[b]	Files	MLE[b]	Files	MLE[b]	Files	MLE[b]
CORA		1.00		1.00		1.00	1	0.01		1.00	1	0.02		1.00		1.00		1.00
EPFU	1	0.96		1.00		1.00		1.00		1.00		1.00		1.00		1.00	1	1.00
LABO	55	0.00	133	0.00	57	0.00	128	0.00	248	0.00	282	0.00	150	0.00	16	0.00	78	0.00
LACI		1.00	2	0.08	1	0.28	3	0.00		1.00	1	0.18	4	0.00	1	0.08	9	0.00
LANO	4	0.01	4	0.04	2	0.20		1.00	3	0.01	2	0.06	1	1.00		1.00	4	0.52
MYAU	9	0.00	3	0.85	2	1.00	7	0.58	15	0.30	16	0.00	8	0.02		1.00	3	0.52
MYGR	12	0.01	29	0.00	27	0.00	58	0.00	113	0.00	57	0.00	27	0.00		1.00	13	0.01
MYLE		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	1	0.69
MYLU	15	0.86	19	1.00	6	1.00	18	1.00	44	1.00	67	1.00	35	1.00		1.00	7	1.00
MYSE	3	0.89	1	1.00	1	0.93	1	1.00		1.00	2	1.00		1.00		1.00	2	0.89
MYSO	3	0.91	3	1.00	3	0.56		1.00	1	1.00	4	1.00		1.00		1.00		1.00
NYHU	79	0.00	179	0.00	30	1.00	72	1.00	220	0.10	210	1.00	153	0.01	4	1.00	89	0.01
PESU	22	0.95	56	0.51	23	0.38	43	0.75	71	1.00	53	1.00	33	1.00	4	0.98	80	0.00
UNKN	23		33		16		24		52		55		36		6		28	
Noise	681		1422		991		1823		1787		1721		1952		660		2104	
Total Bat Files	226		462		168		355		767		750		447		31		315	

[a] CORA: Rafinesque's big-eared bat (*Corynorhinus rafinesquii*); EPFU: Big brown bat (*Eptesicus fuscus*); LABO: Eastern red bat (*Lasiurus borealis*); LACI: Hoary bat (*Lasiurus cinereus*); LANO: Silver-haired bat (*Lasionycteris noctivagans*); MYAU: Southeastern bat (*Myotis austroriparius*); MYGR: Gray bat (*Myotis grisescens*); MYLE: Eastern small-footed bat (*Myotis leibii*); MYLU: Little brown bat (*Myotis lucifugus*); MYSE: Northern long-eared bat (*Myotis septentrionalis*); MYSO: Indiana bat (*Myotis sodalis*); NYHU: Evening bat (*Nycticeius humeralis*); PESU: Tricolored bat (*Perimyotis subflavus*); UNKN: Unknown bat.

[b] Maximum Likelihood Estimator: values less than 0.05 indicate "likely presence" as determined by Kaleidoscope Pro. Final determination of presence/absence may differ due to manual vetting.

Table 4-3: Automated Classification Results of Acoustic Bat Data Collected at Site 3 The Nights of July 16 Through July 24, 2024.

Species[a]	Night 1		Night 2		Night 3		Night 4		Night 5		Night 6		Night 7		Night 8		Night 9	
	Files	MLE[b]	Files	MLE[b]	Files	MLE[b]	Files	MLE[b]	Files	MLE[2]	Files	MLE[b]	Files	MLE[b]	Files	MLE[b]	Files	MLE[b]
CORA		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00
EPFU		1.00		1.00	1	1.00		1.00	1	1.00		1.00		1.00		1.00		1.00
LABO	91	0.00	371	0.00	221	0.00	372	0.00	596	0.00	449	0.00	623	0.00	26	0.00	126	0.00
LACI	2	0.01	4	0.00	10	0.00	17	0.00	6	0.00	6	0.00	3	0.00		1.00		1.00
LANO	1	0.84	6	0.02		1.00	6	0.70	3	0.54	5	0.14	2	0.55	1	0.22	5	0.00
MYAU		1.00	1	1.00	1	0.99	7	0.01		1.00	3	0.42	3	0.69		1.00	1	1.00
MYGR	15	0.01	13	1.00	13	0.65	17	0.91	10	1.00	7	1.00	27	0.70		1.00	18	0.00
MYLE		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00
MYLU	4	1.00	39	1.00	9	1.00	12	1.00	14	1.00	12	1.00	5	1.00	2	1.00	2	1.00
MYSE		1.00		1.00		1.00		1.00	1	1.00		1.00	1	1.00		1.00	3	0.45
MYSO		1.00		1.00	1	1.00		1.00	1	1.00	3	1.00		1.00		1.00		1.00
NYHU	72	0.61	101	1.00	72	1.00	95	1.00	166	1.00	193	1.00	104	1.00	12	1.00	79	0.98
PESU	32	0.84	39	1.00	38	1.00	38	1.00	157	0.35	79	1.00	38	1.00	3	1.00	21	1.00
UNKN	4		7		6		19		18		12		6		0		7	
Noise	124		269		436		670		679		758		81		0		284	
Total Bat Files	221		581		372		583		973		769		812		44		262	

[a] CORA: Rafinesque's big-eared bat (*Corynorhinus rafinesquii*); EPFU: Big brown bat (*Eptesicus fuscus*); LABO: Eastern red bat (*Lasiurus borealis*); LACI: Hoary bat (*Lasiurus cinereus*); LANO: Silver-haired bat (*Lasionycteris noctivagans*); MYAU: Southeastern bat (*Myotis austroriparius*); MYGR: Gray bat (*Myotis grisescens*); MYLE: Eastern small-footed bat (*Myotis leibii*); MYLU: Little brown bat (*Myotis lucifugus*); MYSE: Northern long-eared bat (*Myotis septentrionalis*); MYSO: Indiana bat (*Myotis sodalis*); NYHU: Evening bat (*Nycticeius humeralis*); PESU: Tricolored bat (*Perimyotis subflavus*); UNKN: Unknown bat.

[b] Maximum Likelihood Estimator: values less than 0.05 indicate "likely presence" as determined by Kaleidoscope Pro. Final determination of presence/absence may differ due to manual vetting.

Attachment 4: Data Tables

Table 4-4: Automated Classification Results of Acoustic Bat Data Collected at Site 4 The Nights of July 16 Through July 23, 2024.

Species[a]	Night 1		Night 2		Night 3		Night 4		Night 5		Night 6		Night 7		Night 8	
	Files	**MLE[b]**	**Files**	**MLE[b]**	**Files**	**MLE[b]**	**Files**	**MLE[b]**	**Files**	**MLE[2]**	**Files**	**MLE[b]**	**Files**	**MLE[b]**	**Files**	**MLE[b]**
CORA	2	0.00	2	0.01		1.00	10	0.00	11	0.00	23	0.00		1.00		1.00
EPFU	1	0.18	4	0.00		1.00	19	0.00		1.00	3	0.01		1.00		1.00
LABO	5	0.02	26	0.00	16	0.00	38	0.00	67	0.00	31	0.00	33	0.00	12	0.00
LACI		1.00		1.00	2	0.01	1	1.00	1	0.05	1	0.55	1	0.17		1.00
LANO		1.00		1.00		1.00		1.00	1	0.47		1.00	1	0.61		1.00
MYAU	1	1.00	2	1.00		1.00	2	1.00	1	1.00	1	1.00		1.00		1.00
MYGR	18	0.00	31	0.00	30	0.00	52	0.00	33	0.00	63	0.00	46	0.00	27	0.00
MYLE		1.00		1.00		1.00	4	0.47	3	1.00	1	1.00		1.00		1.00
MYLU	5	0.89	20	1.00	11	0.74	37	0.00	14	1.00	12	1.00	17	0.82	6	1.00
MYSE		1.00	1	1.00		1.00	39	0.00	52	0.00	56	0.00	3	0.34		1.00
MYSO		1.00		1.00		1.00	2	1.00	5	1.00		1.00		1.00		1.00
NYHU	5	1.00	52	0.01	22	0.41	36	0.88	108	0.00	45	0.06	58	0.00	18	0.32
PESU	31	0.00	241	0.00	48	0.00	44	0.00	98	0.00	96	0.00	83	0.00	29	0.00
UNKN	3		6		5		29		15		10		8		1	
Noise	693		1199		835		709		1073		869		937		584	
Total Bat Files	71		385		134		313		409		342		250		93	

[a] CORA: Rafinesque's big-eared bat (*Corynorhinus rafinesquii*); EPFU: Big brown bat (*Eptesicus fuscus*); LABO: Eastern red bat (*Lasiurus borealis*); LACI: Hoary bat (*Lasiurus cinereus*); LANO: Silver-haired bat (*Lasionycteris noctivagans*); MYAU: Southeastern bat (*Myotis austroriparius*); MYGR: Gray bat (*Myotis grisescens*); MYLE: Eastern small-footed bat (*Myotis leibii*); MYLU: Little brown bat (*Myotis lucifugus*); MYSE: Northern long-eared bat (*Myotis septentrionalis*); MYSO: Indiana bat (*Myotis sodalis*); NYHU: Evening bat (*Nycticeius humeralis*); PESU: Tricolored bat (*Perimyotis subflavus*); UNKN: Unknown bat.

[b] Maximum Likelihood Estimator: values less than 0.05 indicate "likely presence" as determined by Kaleidoscope Pro. Final determination of presence/absence may differ due to manual vetting.

Table 4-5: Manual Vetting Results for Sites and Nights with MLE < 0.05 For Tricolored Bat.

Species[a]	Site 1 – Night 5	Site 1 – Night 6	Site 2 – Night 9	Site 4 – Night 1	Site 4 – Night 2	Site 4 – Night 3	Site 4 – Night 4	Site 4 – Night 5	Site 4 – Night 6	Site 4 – Night 7	Site 4 – Night 8
EPFU/LANO			2								
LABO	130	165	107	10	41	56	58	89	57	73	33
LABO/NYHU	26	32	79	4	28	13	22	75	24	49	8
LACI	1					1				2	
NYHU	15	6	6	2	16	8	18	19	13	7	2
PESU	11	4	27	43	207	40	59	73	121	79	39
UNKN	47	27	78	3	56	10	13	45	27	28	10
Noise	1486	1457	2120	702	1236	841	852	1181	969	949	585
Total Bat Files	256	236	299	62	348	128	170	301	242	238	92

[a] EPFU: Big brown bat (*Eptesicus fuscus*); LABO: Eastern red bat (*Lasiurus borealis*); LACI: Hoary bat (*Lasiurus cinereus*); LANO: Silver-haired bat (*Lasionycteris noctivagans*); NYHU: Evening bat (*Nycticeius humeralis*); PESU: Tricolored bat (*Perimyotis subflavus*); UNKN: Unknown bat

Table 4-6: File-level Manual Vetting Disagreements

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU13425_20240722_015121.wav	Site 1	7/22/2024	1:51:21	MYAU	LABO	Bouncing Fmin
SMU13425_20240722_042913.wav	Site 1	7/22/2024	4:29:13	MYAU	LABO	Bouncing Fmin
SMU13425_20240722_045209.wav	Site 1	7/22/2024	4:52:09	MYAU	LABO	Bouncing Fmin
SMU13425_20240720_232255.wav	Site 1	7/20/2024	23:22:55	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_015807.wav	Site 1	7/21/2024	1:58:07	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_015909.wav	Site 1	7/21/2024	1:59:09	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_011311.wav	Site 1	7/21/2024	1:13:11	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_011300.wav	Site 1	7/21/2024	1:13:00	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_031928.wav	Site 1	7/21/2024	3:19:28	MYGR	LABO	Bouncing Fmin
SMU13425_20240720_232427.wav	Site 1	7/20/2024	23:24:27	MYGR	LABO	Bouncing Fmin
SMU13425_20240720_232341.wav	Site 1	7/20/2024	23:23:41	MYGR	LABO	Bouncing Fmin
SMU13425_20240720_232457.wav	Site 1	7/20/2024	23:24:57	MYGR	LABO	Bouncing Fmin
SMU13425_20240720_232225.wav	Site 1	7/20/2024	23:22:25	MYGR	LABO	Bouncing Fmin
SMU13425_20240720_232518.wav	Site 1	7/20/2024	23:25:18	MYGR	LABO	Bouncing Fmin
SMU13425_20240720_232549.wav	Site 1	7/20/2024	23:25:49	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_014543.wav	Site 1	7/21/2024	1:45:43	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_041428.wav	Site 1	7/21/2024	4:14:28	MYGR	LABO	Bouncing Fmin
SMU13425_20240720_232124.wav	Site 1	7/20/2024	23:21:24	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_011326.wav	Site 1	7/21/2024	1:13:26	MYGR	LABO	Bouncing Fmin
SMU13425_20240720_232112.wav	Site 1	7/20/2024	23:21:12	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_041440.wav	Site 1	7/21/2024	4:14:40	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_035124.wav	Site 1	7/21/2024	3:51:24	MYGR	LABO	Bouncing Fmin
SMU13425_20240720_221110.wav	Site 1	7/20/2024	22:11:10	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_014457.wav	Site 1	7/21/2024	1:44:57	MYGR	LABO	Bouncing Fmin
SMU13425_20240720_231911.wav	Site 1	7/20/2024	23:19:11	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_013314.wav	Site 1	7/21/2024	1:33:14	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_031956.wav	Site 1	7/21/2024	3:19:56	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_041421.wav	Site 1	7/21/2024	4:14:21	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_020505.wav	Site 1	7/21/2024	2:05:05	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_212242.wav	Site 1	7/21/2024	21:22:42	MYGR	LABO	Bouncing Fmin
SMU13425_20240722_012448.wav	Site 1	7/22/2024	1:24:48	MYGR	LABO	Bouncing Fmin
SMU13425_20240722_012752.wav	Site 1	7/22/2024	1:27:52	MYGR	LABO	Bouncing Fmin
SMU13425_20240722_020825.wav	Site 1	7/22/2024	2:08:25	MYGR	LABO	Bouncing Fmin
SMU13425_20240722_042202.wav	Site 1	7/22/2024	4:22:02	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_220203.wav	Site 1	7/21/2024	22:02:03	MYGR	LABO	Bouncing Fmin
SMU13425_20240722_011943.wav	Site 1	7/22/2024	1:19:43	MYGR	LABO	Bouncing Fmin
SMU13425_20240722_041715.wav	Site 1	7/22/2024	4:17:15	MYGR	LABO	Bouncing Fmin
SMU13425_20240722_041056.wav	Site 1	7/22/2024	4:10:56	MYGR	LABO	Bouncing Fmin
SMU13425_20240722_050105.wav	Site 1	7/22/2024	5:01:05	MYGR	LABO	Bouncing Fmin
SMU13425_20240722_012807.wav	Site 1	7/22/2024	1:28:07	MYGR	LABO	Bouncing Fmin
SMU13425_20240722_034503.wav	Site 1	7/22/2024	3:45:03	MYGR	LABO	Bouncing Fmin
SMU13425_20240722_035212.wav	Site 1	7/22/2024	3:52:12	MYGR	LABO	Bouncing Fmin
SMU13425_20240722_044541.wav	Site 1	7/22/2024	4:45:41	MYGR	LABO	Bouncing Fmin
SMU13425_20240722_042710.wav	Site 1	7/22/2024	4:27:10	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_213723.wav	Site 1	7/21/2024	21:37:23	MYGR	LABO	Bouncing Fmin
SMU13425_20240722_035958.wav	Site 1	7/22/2024	3:59:58	MYGR	LABO	Bouncing Fmin

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU13425_20240722_015540.wav	Site 1	7/22/2024	1:55:40	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_233606.wav	Site 1	7/21/2024	23:36:06	MYGR	LABO	Bouncing Fmin
SMU13425_20240722_041033.wav	Site 1	7/22/2024	4:10:33	MYGR	LABO	Bouncing Fmin
SMU13425_20240721_012219.wav	Site 1	7/21/2024	1:22:19	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_012122.wav	Site 1	7/21/2024	1:21:22	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_011638.wav	Site 1	7/21/2024	1:16:38	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_011710.wav	Site 1	7/21/2024	1:17:10	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_012340.wav	Site 1	7/21/2024	1:23:40	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_011213.wav	Site 1	7/21/2024	1:12:13	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_011939.wav	Site 1	7/21/2024	1:19:39	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_012650.wav	Site 1	7/21/2024	1:26:50	MYLU	LABO	Bouncing Fmin
SMU13425_20240720_203736.wav	Site 1	7/20/2024	20:37:36	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_011755.wav	Site 1	7/21/2024	1:17:55	MYLU	LABO	Bouncing Fmin
SMU13425_20240720_203638.wav	Site 1	7/20/2024	20:36:38	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_012009.wav	Site 1	7/21/2024	1:20:09	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_012355.wav	Site 1	7/21/2024	1:23:55	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_011811.wav	Site 1	7/21/2024	1:18:11	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_011725.wav	Site 1	7/21/2024	1:17:25	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_011357.wav	Site 1	7/21/2024	1:13:57	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_032604.wav	Site 1	7/21/2024	3:26:04	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_021320.wav	Site 1	7/21/2024	2:13:20	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_011924.wav	Site 1	7/21/2024	1:19:24	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_012705.wav	Site 1	7/21/2024	1:27:05	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_011414.wav	Site 1	7/21/2024	1:14:14	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_020608.wav	Site 1	7/21/2024	2:06:08	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_012137.wav	Site 1	7/21/2024	1:21:37	MYLU	LABO	Bouncing Fmin
SMU13425_20240720_203623.wav	Site 1	7/20/2024	20:36:23	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_052120.wav	Site 1	7/21/2024	5:21:20	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_010544.wav	Site 1	7/21/2024	1:05:44	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_024338.wav	Site 1	7/21/2024	2:43:38	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_025240.wav	Site 1	7/21/2024	2:52:40	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_021335.wav	Site 1	7/21/2024	2:13:35	MYLU	LABO	Bouncing Fmin
SMU13425_20240720_215952.wav	Site 1	7/20/2024	21:59:52	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_035718.wav	Site 1	7/21/2024	3:57:18	MYLU	LABO	Bouncing Fmin
SMU13425_20240720_232442.wav	Site 1	7/20/2024	23:24:42	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_020145.wav	Site 1	7/21/2024	2:01:45	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_051114.wav	Site 1	7/22/2024	5:11:14	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_051028.wav	Site 1	7/22/2024	5:10:28	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_051918.wav	Site 1	7/22/2024	5:19:18	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_220451.wav	Site 1	7/21/2024	22:04:51	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_012246.wav	Site 1	7/22/2024	1:22:46	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_035800.wav	Site 1	7/22/2024	3:58:00	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_042243.wav	Site 1	7/22/2024	4:22:43	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_012145.wav	Site 1	7/22/2024	1:21:45	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_012301.wav	Site 1	7/22/2024	1:23:01	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_051932.wav	Site 1	7/22/2024	5:19:32	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_050026.wav	Site 1	7/22/2024	5:00:26	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_214334.wav	Site 1	7/21/2024	21:43:34	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_050045.wav	Site 1	7/22/2024	5:00:45	MYLU	LABO	Bouncing Fmin

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU13425_20240722_022052.wav	Site 1	7/22/2024	2:20:52	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_040014.wav	Site 1	7/22/2024	4:00:14	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_050313.wav	Site 1	7/22/2024	5:03:13	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_004015.wav	Site 1	7/22/2024	0:40:15	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_040530.wav	Site 1	7/22/2024	4:05:30	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_213357.wav	Site 1	7/21/2024	21:33:57	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_215216.wav	Site 1	7/21/2024	21:52:16	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_214724.wav	Site 1	7/21/2024	21:47:24	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_020255.wav	Site 1	7/22/2024	2:02:55	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_213255.wav	Site 1	7/21/2024	21:32:55	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_020621.wav	Site 1	7/22/2024	2:06:21	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_042720.wav	Site 1	7/22/2024	4:27:20	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_004451.wav	Site 1	7/22/2024	0:44:51	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_214653.wav	Site 1	7/21/2024	21:46:53	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_013031.wav	Site 1	7/22/2024	1:30:31	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_225416.wav	Site 1	7/21/2024	22:54:16	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_000246.wav	Site 1	7/22/2024	0:02:46	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_214148.wav	Site 1	7/21/2024	21:41:48	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_015921.wav	Site 1	7/22/2024	1:59:21	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_035930.wav	Site 1	7/22/2024	3:59:30	MYLU	LABO	Bouncing Fmin
SMU13425_20240721_223402.wav	Site 1	7/21/2024	22:34:02	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_005732.wav	Site 1	7/22/2024	0:57:32	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_012332.wav	Site 1	7/22/2024	1:23:32	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_015729.wav	Site 1	7/22/2024	1:57:29	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_035757.wav	Site 1	7/22/2024	3:57:57	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_042808.wav	Site 1	7/22/2024	4:28:08	MYLU	LABO	Bouncing Fmin
SMU13425_20240722_015748.wav	Site 1	7/22/2024	1:57:48	MYSO	LABO	Bouncing Fmin
SMU13425_20240722_020724.wav	Site 1	7/22/2024	2:07:24	MYSO	LABO	Bouncing Fmin
SMU13425_20240722_005747.wav	Site 1	7/22/2024	0:57:47	MYSO	LABO	Bouncing Fmin
SMU13425_20240721_014512.wav	Site 1	7/21/2024	1:45:12	UNKN	LABO	Bouncing Fmin
SMU13425_20240722_010144.wav	Site 1	7/22/2024	1:01:44	UNKN	LABO	Bouncing Fmin
SMU13425_20240722_012231.wav	Site 1	7/22/2024	1:22:31	UNKN	LABO	Bouncing Fmin
SMU13425_20240722_040548.wav	Site 1	7/22/2024	4:05:48	UNKN	LABO	Bouncing Fmin
SMU13425_20240721_051213.wav	Site 1	7/21/2024	5:12:13	NYHU	LABO	Bouncing Fmin
SMU13425_20240721_203305.wav	Site 1	7/21/2024	20:33:05	NYHU	LABO	Bouncing Fmin
SMU13425_20240721_203336.wav	Site 1	7/21/2024	20:33:36	NYHU	LABO	Bouncing Fmin
SMU13425_20240721_203554.wav	Site 1	7/21/2024	20:35:54	NYHU	LABO	Bouncing Fmin
SMU13425_20240721_204203.wav	Site 1	7/21/2024	20:42:03	NYHU	LABO	Bouncing Fmin
SMU13425_20240722_045816.wav	Site 1	7/22/2024	4:58:16	NYHU	LABO	Bouncing Fmin
SMU13425_20240721_203322.wav	Site 1	7/21/2024	20:33:22	NYHU	LABO	Bouncing Fmin
SMU13425_20240721_204117.wav	Site 1	7/21/2024	20:41:17	NYHU	LABO	Bouncing Fmin
SMU13425_20240721_232412.wav	Site 1	7/21/2024	23:24:12	NYHU	LABO	Bouncing Fmin
SMU13425_20240722_051213.wav	Site 1	7/22/2024	5:12:13	NYHU	LABO	Bouncing Fmin
SMU13425_20240721_203526.wav	Site 1	7/21/2024	20:35:26	NYHU	LABO	Bouncing Fmin
SMU13425_20240721_224857.wav	Site 1	7/21/2024	22:48:57	NYHU	LABO	Bouncing Fmin
SMU13425_20240722_020036.wav	Site 1	7/22/2024	2:00:36	NYHU	LABO	Bouncing Fmin
SMU13425_20240722_043448.wav	Site 1	7/22/2024	4:34:48	NYHU	LABO	Bouncing Fmin
SMU13425_20240721_231116.wav	Site 1	7/21/2024	23:11:16	NYHU	LABO	Bouncing Fmin
SMU13425_20240721_051547.wav	Site 1	7/21/2024	5:15:47	PESU	LABO	Bouncing Fmin

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU13425_20240721_051014.wav	Site 1	7/21/2024	5:10:14	PESU	LABO	Bouncing Fmin
SMU13425_20240721_051408.wav	Site 1	7/21/2024	5:14:08	PESU	LABO	Bouncing Fmin
SMU13425_20240721_051347.wav	Site 1	7/21/2024	5:13:47	PESU	LABO	Bouncing Fmin
SMU13425_20240721_051152.wav	Site 1	7/21/2024	5:11:52	PESU	LABO	Bouncing Fmin
SMU13425_20240721_051648.wav	Site 1	7/21/2024	5:16:48	PESU	LABO	Bouncing Fmin
SMU13425_20240721_051602.wav	Site 1	7/21/2024	5:16:02	PESU	LABO	Bouncing Fmin
SMU13425_20240720_203807.wav	Site 1	7/20/2024	20:38:07	PESU	LABO	Bouncing Fmin
SMU13425_20240720_232356.wav	Site 1	7/20/2024	23:23:56	PESU	LABO	Bouncing Fmin
SMU13425_20240720_230820.wav	Site 1	7/20/2024	23:08:20	PESU	LABO	Bouncing Fmin
SMU13425_20240720_221552.wav	Site 1	7/20/2024	22:15:52	PESU	LABO	Bouncing Fmin
SMU13425_20240720_235026.wav	Site 1	7/20/2024	23:50:26	PESU	LABO	Bouncing Fmin
SMU13425_20240720_214304.wav	Site 1	7/20/2024	21:43:04	PESU	LABO	Bouncing Fmin
SMU13425_20240721_000744.wav	Site 1	7/21/2024	0:07:44	PESU	LABO	Bouncing Fmin
SMU13425_20240720_224233.wav	Site 1	7/20/2024	22:42:33	PESU	LABO	Bouncing Fmin
SMU13425_20240721_040059.wav	Site 1	7/21/2024	4:00:59	PESU	LABO	Bouncing Fmin
SMU13425_20240720_214350.wav	Site 1	7/20/2024	21:43:50	PESU	LABO	Bouncing Fmin
SMU13425_20240720_213735.wav	Site 1	7/20/2024	21:37:35	PESU	LABO	Bouncing Fmin
SMU13425_20240720_220225.wav	Site 1	7/20/2024	22:02:25	PESU	LABO	Bouncing Fmin
SMU13425_20240721_003210.wav	Site 1	7/21/2024	0:32:10	PESU	LABO	Bouncing Fmin
SMU13425_20240720_232042.wav	Site 1	7/20/2024	23:20:42	PESU	LABO	Bouncing Fmin
SMU13425_20240720_213027.wav	Site 1	7/20/2024	21:30:27	PESU	LABO	Bouncing Fmin
SMU13425_20240721_003651.wav	Site 1	7/21/2024	0:36:51	PESU	LABO	Bouncing Fmin
SMU13425_20240721_044910.wav	Site 1	7/21/2024	4:49:10	PESU	LABO	Bouncing Fmin
SMU13425_20240720_210326.wav	Site 1	7/20/2024	21:03:26	PESU	LABO	Bouncing Fmin
SMU13425_20240721_015137.wav	Site 1	7/21/2024	1:51:37	PESU	LABO	Bouncing Fmin
SMU13425_20240720_223030.wav	Site 1	7/20/2024	22:30:30	PESU	LABO	Bouncing Fmin
SMU13425_20240720_205906.wav	Site 1	7/20/2024	20:59:06	PESU	LABO	Bouncing Fmin
SMU13425_20240720_211309.wav	Site 1	7/20/2024	21:13:09	PESU	LABO	Bouncing Fmin
SMU13425_20240721_204233.wav	Site 1	7/21/2024	20:42:33	PESU	LABO	Bouncing Fmin
SMU13425_20240721_203612.wav	Site 1	7/21/2024	20:36:12	PESU	LABO	Bouncing Fmin
SMU13425_20240721_223956.wav	Site 1	7/21/2024	22:39:56	PESU	LABO	Bouncing Fmin
SMU13425_20240722_051300.wav	Site 1	7/22/2024	5:13:00	PESU	LABO	Bouncing Fmin
SMU13425_20240721_214248.wav	Site 1	7/21/2024	21:42:48	PESU	LABO	Bouncing Fmin
SMU13425_20240722_000813.wav	Site 1	7/22/2024	0:08:13	PESU	LABO	Bouncing Fmin
SMU13425_20240721_214233.wav	Site 1	7/21/2024	21:42:33	PESU	LABO	Bouncing Fmin
SMU13425_20240722_045842.wav	Site 1	7/22/2024	4:58:42	PESU	LABO	Bouncing Fmin
SMU13425_20240722_010026.wav	Site 1	7/22/2024	1:00:26	PESU	LABO	Bouncing Fmin
SMU13425_20240721_205431.wav	Site 1	7/21/2024	20:54:31	PESU	LABO	Bouncing Fmin
SMU13425_20240721_211608.wav	Site 1	7/21/2024	21:16:08	PESU	LABO	Bouncing Fmin
SMU13425_20240722_051240.wav	Site 1	7/22/2024	5:12:40	PESU	LABO	Bouncing Fmin
SMU13425_20240721_233551.wav	Site 1	7/21/2024	23:35:51	PESU	LABO	Bouncing Fmin
SMU13425_20240722_045945.wav	Site 1	7/22/2024	4:59:45	PESU	LABO	Bouncing Fmin
SMU13425_20240721_223809.wav	Site 1	7/21/2024	22:38:09	PESU	LABO	Bouncing Fmin
SMU13425_20240722_011249.wav	Site 1	7/22/2024	1:12:49	PESU	LABO	Bouncing Fmin
SMU13425_20240721_205533.wav	Site 1	7/21/2024	20:55:33	PESU	LABO	Bouncing Fmin
SMU13425_20240722_050455.wav	Site 1	7/22/2024	5:04:55	PESU	LABO	Bouncing Fmin
SMU13425_20240722_050605.wav	Site 1	7/22/2024	5:06:05	PESU	LABO	Bouncing Fmin
SMU13425_20240721_205344.wav	Site 1	7/21/2024	20:53:44	PESU	LABO	Bouncing Fmin
SMU13425_20240722_021214.wav	Site 1	7/22/2024	2:12:14	PESU	LABO	Bouncing Fmin

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU13425_20240722_015512.wav	Site 1	7/22/2024	1:55:12	PESU	LABO	Bouncing Fmin
SMU13425_20240721_213708.wav	Site 1	7/21/2024	21:37:08	PESU	LABO	Bouncing Fmin
SMU13425_20240722_003241.wav	Site 1	7/22/2024	0:32:41	PESU	LABO	Bouncing Fmin
SMU13425_20240722_012823.wav	Site 1	7/22/2024	1:28:23	PESU	LABO	Bouncing Fmin
SMU13425_20240722_023846.wav	Site 1	7/22/2024	2:38:46	PESU	LABO	Bouncing Fmin
SMU13425_20240720_204649.wav	Site 1	7/20/2024	20:46:49	LABO	LABO/NYHU	Bouncing Fmin
SMU13425_20240720_214526.wav	Site 1	7/20/2024	21:45:26	LABO	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_202734.wav	Site 1	7/21/2024	20:27:34	LABO	LABO/NYHU	Bouncing Fmin
SMU13425_20240722_050840.wav	Site 1	7/22/2024	5:08:40	LABO	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_203444.wav	Site 1	7/21/2024	20:34:44	LABO	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_221717.wav	Site 1	7/21/2024	22:17:17	LABO	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_221327.wav	Site 1	7/21/2024	22:13:27	LABO	LABO/NYHU	Bouncing Fmin
SMU13425_20240720_230936.wav	Site 1	7/20/2024	23:09:36	UNKN	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_225200.wav	Site 1	7/21/2024	22:52:00	UNKN	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_053905.wav	Site 1	7/21/2024	5:39:05	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_051703.wav	Site 1	7/21/2024	5:17:03	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_040214.wav	Site 1	7/21/2024	4:02:14	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240720_235337.wav	Site 1	7/20/2024	23:53:37	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_021449.wav	Site 1	7/21/2024	2:14:49	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_014202.wav	Site 1	7/21/2024	1:42:02	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_004210.wav	Site 1	7/21/2024	0:42:10	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_053222.wav	Site 1	7/21/2024	5:32:22	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240720_210152.wav	Site 1	7/20/2024	21:01:52	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240720_214758.wav	Site 1	7/20/2024	21:47:58	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240720_210256.wav	Site 1	7/20/2024	21:02:56	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240720_213852.wav	Site 1	7/20/2024	21:38:52	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240720_214133.wav	Site 1	7/20/2024	21:41:33	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240720_205158.wav	Site 1	7/20/2024	20:51:58	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_010301.wav	Site 1	7/21/2024	1:03:01	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240720_204634.wav	Site 1	7/20/2024	20:46:34	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240720_205333.wav	Site 1	7/20/2024	20:53:33	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240720_210757.wav	Site 1	7/20/2024	21:07:57	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240720_233117.wav	Site 1	7/20/2024	23:31:17	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_021433.wav	Site 1	7/21/2024	2:14:33	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240720_213930.wav	Site 1	7/20/2024	21:39:30	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240720_222758.wav	Site 1	7/20/2024	22:27:58	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240720_211355.wav	Site 1	7/20/2024	21:13:55	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_235911.wav	Site 1	7/21/2024	23:59:11	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_215519.wav	Site 1	7/21/2024	21:55:19	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240722_050754.wav	Site 1	7/22/2024	5:07:54	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_235031.wav	Site 1	7/21/2024	23:50:31	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240722_013451.wav	Site 1	7/22/2024	1:34:51	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240722_005520.wav	Site 1	7/22/2024	0:55:20	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_204458.wav	Site 1	7/21/2024	20:44:58	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240722_015823.wav	Site 1	7/22/2024	1:58:23	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_204331.wav	Site 1	7/21/2024	20:43:31	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_205313.wav	Site 1	7/21/2024	20:53:13	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_205620.wav	Site 1	7/21/2024	20:56:20	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_211623.wav	Site 1	7/21/2024	21:16:23	NYHU	LABO/NYHU	Bouncing Fmin

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU13425_20240722_021159.wav	Site 1	7/22/2024	2:11:59	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240722_051501.wav	Site 1	7/22/2024	5:15:01	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_233404.wav	Site 1	7/21/2024	23:34:04	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_211420.wav	Site 1	7/21/2024	21:14:20	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_214042.wav	Site 1	7/21/2024	21:40:42	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_210531.wav	Site 1	7/21/2024	21:05:31	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_204825.wav	Site 1	7/21/2024	20:48:25	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240722_023046.wav	Site 1	7/22/2024	2:30:46	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_221357.wav	Site 1	7/21/2024	22:13:57	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240722_045903.wav	Site 1	7/22/2024	4:59:03	NYHU	LABO/NYHU	Bouncing Fmin
SMU13425_20240722_013436.wav	Site 1	7/22/2024	1:34:36	PESU	LABO/NYHU	Bouncing Fmin
SMU13425_20240722_051018.wav	Site 1	7/22/2024	5:10:18	PESU	LABO/NYHU	Bouncing Fmin
SMU13425_20240722_051622.wav	Site 1	7/22/2024	5:16:22	PESU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_204102.wav	Site 1	7/21/2024	20:41:02	PESU	LABO/NYHU	Bouncing Fmin
SMU13425_20240721_004225.wav	Site 1	7/21/2024	0:42:25	LANO	LACI	Bouncing Fmin
SMU07304_20240724_225100.wav	Site 2	7/24/2024	22:51:00	EPFU	EPFU/LANO	Fmax <55 kHz, no harmonics
SMU07304_20240725_053449.wav	Site 2	7/25/2024	5:34:49	LABO	UNKN	Poor quality recording
SMU07304_20240724_210550.wav	Site 2	7/24/2024	21:05:50	LABO	UNKN	Poor quality recording
SMU07304_20240724_214149.wav	Site 2	7/24/2024	21:41:49	LABO	UNKN	Poor quality recording
SMU07304_20240724_215912.wav	Site 2	7/24/2024	21:59:12	LABO	UNKN	Poor quality recording
SMU07304_20240725_005054.wav	Site 2	7/25/2024	0:50:54	LABO	Noise	Poor quality recording
SMU07304_20240725_011118.wav	Site 2	7/25/2024	1:11:18	LABO	UNKN	Poor quality recording
SMU07304_20240724_205834.wav	Site 2	7/24/2024	20:58:34	LABO	UNKN	Poor quality recording
SMU07304_20240724_212853.wav	Site 2	7/24/2024	21:28:53	LABO	UNKN	Poor quality recording
SMU07304_20240725_011002.wav	Site 2	7/25/2024	1:10:02	LABO	Noise	Poor quality recording
SMU07304_20240725_053021.wav	Site 2	7/25/2024	5:30:21	LACI	Noise	Poor quality recording
SMU07304_20240725_053653.wav	Site 2	7/25/2024	5:36:53	LACI	Noise	Poor quality recording
SMU07304_20240725_053223.wav	Site 2	7/25/2024	5:32:23	LACI	Noise	Poor quality recording
SMU07304_20240725_053337.wav	Site 2	7/25/2024	5:33:37	LACI	Noise	Poor quality recording
SMU07304_20240725_053420.wav	Site 2	7/25/2024	5:34:20	LACI	Noise	Poor quality recording
SMU07304_20240725_053512.wav	Site 2	7/25/2024	5:35:12	LACI	Noise	Poor quality recording
SMU07304_20240725_053342.wav	Site 2	7/25/2024	5:33:42	LACI	Noise	Poor quality recording
SMU07304_20240725_003058.wav	Site 2	7/25/2024	0:30:58	LACI	Noise	Poor quality recording
SMU07304_20240725_002638.wav	Site 2	7/25/2024	0:26:38	LACI	Noise	Poor quality recording
SMU07304_20240725_053735.wav	Site 2	7/25/2024	5:37:35	LANO	Noise	Poor quality recording
SMU07304_20240724_225045.wav	Site 2	7/24/2024	22:50:45	LANO	EPFU/LANO	Fmax <55 kHz, no harmonics
SMU07304_20240725_053603.wav	Site 2	7/25/2024	5:36:03	LANO	Noise	Poor quality recording
SMU07304_20240724_215710.wav	Site 2	7/24/2024	21:57:10	LANO	Noise	Poor quality recording
SMU07304_20240725_025059.wav	Site 2	7/25/2024	2:50:59	MYAU	LABO	Bouncing Fmin
SMU07304_20240725_020917.wav	Site 2	7/25/2024	2:09:17	MYAU	LABO	Bouncing Fmin
SMU07304_20240725_015913.wav	Site 2	7/25/2024	1:59:13	MYAU	UNKN	Poor quality recording
SMU07304_20240725_045058.wav	Site 2	7/25/2024	4:50:58	MYGR	PESU	Lack of tails
SMU07304_20240725_033728.wav	Site 2	7/25/2024	3:37:28	MYGR	LABO	Bouncing Fmin
SMU07304_20240724_204823.wav	Site 2	7/24/2024	20:48:23	MYGR	LABO	Bouncing Fmin
SMU07304_20240725_042351.wav	Site 2	7/25/2024	4:23:51	MYGR	LABO	Bouncing Fmin
SMU07304_20240725_045407.wav	Site 2	7/25/2024	4:54:07	MYGR	LABO	Bouncing Fmin
SMU07304_20240725_045114.wav	Site 2	7/25/2024	4:51:14	MYGR	PESU	Lack of tails
SMU07304_20240725_020520.wav	Site 2	7/25/2024	2:05:20	MYGR	LABO	Bouncing Fmin
SMU07304_20240725_050104.wav	Site 2	7/25/2024	5:01:04	MYGR	LABO	Bouncing Fmin

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU07304_20240725_034354.wav	Site 2	7/25/2024	3:43:54	MYGR	LABO	Bouncing Fmin
SMU07304_20240725_021030.wav	Site 2	7/25/2024	2:10:30	MYGR	UNKN	Poor quality recording
SMU07304_20240725_034456.wav	Site 2	7/25/2024	3:44:56	MYGR	UNKN	Poor quality recording
SMU07304_20240724_205026.wav	Site 2	7/24/2024	20:50:26	MYGR	UNKN	Poor quality recording
SMU07304_20240724_215422.wav	Site 2	7/24/2024	21:54:22	MYGR	UNKN	Poor quality recording
SMU07304_20240725_043526.wav	Site 2	7/25/2024	4:35:26	MYLE	UNKN	Poor quality recording
SMU07304_20240725_051037.wav	Site 2	7/25/2024	5:10:37	MYLU	LABO	Bouncing Fmin
SMU07304_20240724_234711.wav	Site 2	7/24/2024	23:47:11	MYLU	UNKN	Poor quality recording
SMU07304_20240724_212908.wav	Site 2	7/24/2024	21:29:08	MYLU	LABO	Bouncing Fmin
SMU07304_20240725_043503.wav	Site 2	7/25/2024	4:35:03	MYLU	LABO	Bouncing Fmin
SMU07304_20240725_034338.wav	Site 2	7/25/2024	3:43:38	MYLU	LABO	Bouncing Fmin
SMU07304_20240724_233435.wav	Site 2	7/24/2024	23:34:35	MYLU	UNKN	Poor quality recording
SMU07304_20240725_040547.wav	Site 2	7/25/2024	4:05:47	MYLU	UNKN	Poor quality recording
SMU07304_20240725_034702.wav	Site 2	7/25/2024	3:47:02	MYSE	UNKN	Poor quality recording
SMU07304_20240725_023912.wav	Site 2	7/25/2024	2:39:12	MYSE	UNKN	Poor quality recording
SMU07304_20240725_053532.wav	Site 2	7/25/2024	5:35:32	NYHU	LABO	Bouncing Fmin
SMU07304_20240725_054011.wav	Site 2	7/25/2024	5:40:11	NYHU	LABO	Bouncing Fmin
SMU07304_20240725_052500.wav	Site 2	7/25/2024	5:25:00	NYHU	LABO	Bouncing Fmin
SMU07304_20240725_052048.wav	Site 2	7/25/2024	5:20:48	NYHU	LABO	Bouncing Fmin
SMU07304_20240725_012658.wav	Site 2	7/25/2024	1:26:58	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_203000.wav	Site 2	7/24/2024	20:30:00	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_051937.wav	Site 2	7/25/2024	5:19:37	NYHU	LABO	Bouncing Fmin
SMU07304_20240725_000159.wav	Site 2	7/25/2024	0:01:59	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_033904.wav	Site 2	7/25/2024	3:39:04	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_203911.wav	Site 2	7/24/2024	20:39:11	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_220145.wav	Site 2	7/24/2024	22:01:45	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_204032.wav	Site 2	7/24/2024	20:40:32	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_203107.wav	Site 2	7/24/2024	20:31:07	NYHU	LABO	Bouncing Fmin
SMU07304_20240725_051413.wav	Site 2	7/25/2024	5:14:13	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_204345.wav	Site 2	7/24/2024	20:43:45	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_031537.wav	Site 2	7/25/2024	3:15:37	NYHU	LABO	Bouncing Fmin
SMU07304_20240724_212441.wav	Site 2	7/24/2024	21:24:41	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_205709.wav	Site 2	7/24/2024	20:57:09	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_234031.wav	Site 2	7/24/2024	23:40:31	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_204011.wav	Site 2	7/24/2024	20:40:11	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_202657.wav	Site 2	7/24/2024	20:26:57	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_225130.wav	Site 2	7/24/2024	22:51:30	NYHU	LABO	Bouncing Fmin
SMU07304_20240724_204059.wav	Site 2	7/24/2024	20:40:59	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_052515.wav	Site 2	7/25/2024	5:25:15	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_054109.wav	Site 2	7/25/2024	5:41:09	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_051744.wav	Site 2	7/25/2024	5:17:44	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_212426.wav	Site 2	7/24/2024	21:24:26	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_202935.wav	Site 2	7/24/2024	20:29:35	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_205546.wav	Site 2	7/24/2024	20:55:46	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_234218.wav	Site 2	7/24/2024	23:42:18	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_052237.wav	Site 2	7/25/2024	5:22:37	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_233723.wav	Site 2	7/24/2024	23:37:23	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_014425.wav	Site 2	7/25/2024	1:44:25	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_053638.wav	Site 2	7/25/2024	5:36:38	NYHU	LABO/NYHU	Bouncing Fmin

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU07304_20240724_203730.wav	Site 2	7/24/2024	20:37:30	NYHU	LABO	Bouncing Fmin
SMU07304_20240724_212511.wav	Site 2	7/24/2024	21:25:11	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_205531.wav	Site 2	7/24/2024	20:55:31	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_210504.wav	Site 2	7/24/2024	21:05:04	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_213629.wav	Site 2	7/24/2024	21:36:29	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_230339.wav	Site 2	7/24/2024	23:03:39	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_022157.wav	Site 2	7/25/2024	2:21:57	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_211006.wav	Site 2	7/24/2024	21:10:06	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_220839.wav	Site 2	7/24/2024	22:08:39	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_222239.wav	Site 2	7/24/2024	22:22:39	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_204922.wav	Site 2	7/24/2024	20:49:22	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_205317.wav	Site 2	7/24/2024	20:53:17	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_223018.wav	Site 2	7/24/2024	22:30:18	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_051545.wav	Site 2	7/25/2024	5:15:45	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_051314.wav	Site 2	7/25/2024	5:13:14	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_054116.wav	Site 2	7/25/2024	5:41:16	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_204439.wav	Site 2	7/24/2024	20:44:39	NYHU	UNKN	Poor quality recording
SMU07304_20240724_211609.wav	Site 2	7/24/2024	21:16:09	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_211324.wav	Site 2	7/24/2024	21:13:24	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_214103.wav	Site 2	7/24/2024	21:41:03	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_214238.wav	Site 2	7/24/2024	21:42:38	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_214619.wav	Site 2	7/24/2024	21:46:19	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_214604.wav	Site 2	7/24/2024	21:46:04	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_214807.wav	Site 2	7/24/2024	21:48:07	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_214736.wav	Site 2	7/24/2024	21:47:36	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_230722.wav	Site 2	7/24/2024	23:07:22	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_020201.wav	Site 2	7/25/2024	2:02:01	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_051019.wav	Site 2	7/25/2024	5:10:19	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_203240.wav	Site 2	7/24/2024	20:32:40	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_210448.wav	Site 2	7/24/2024	21:04:48	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_210851.wav	Site 2	7/24/2024	21:08:51	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_213330.wav	Site 2	7/24/2024	21:33:30	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_220417.wav	Site 2	7/24/2024	22:04:17	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_223425.wav	Site 2	7/24/2024	22:34:25	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_001214.wav	Site 2	7/25/2024	0:12:14	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_045745.wav	Site 2	7/25/2024	4:57:45	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_054523.wav	Site 2	7/25/2024	5:45:23	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_203923.wav	Site 2	7/24/2024	20:39:23	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_204305.wav	Site 2	7/24/2024	20:43:05	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_205818.wav	Site 2	7/24/2024	20:58:18	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_215826.wav	Site 2	7/24/2024	21:58:26	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_222037.wav	Site 2	7/24/2024	22:20:37	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_233552.wav	Site 2	7/24/2024	23:35:52	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_003933.wav	Site 2	7/25/2024	0:39:33	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_204228.wav	Site 2	7/24/2024	20:42:28	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_221512.wav	Site 2	7/24/2024	22:15:12	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_205447.wav	Site 2	7/24/2024	20:54:47	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240725_051915.wav	Site 2	7/25/2024	5:19:15	NYHU	LABO/NYHU	Bouncing Fmin
SMU07304_20240724_210951.wav	Site 2	7/24/2024	21:09:51	NYHU	LABO/NYHU	Bouncing Fmin

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU07304_20240724_225934.wav	Site 2	7/24/2024	22:59:34	PESU	LABO	Bouncing Fmin
SMU07304_20240725_050618.wav	Site 2	7/25/2024	5:06:18	PESU	LABO	Bouncing Fmin
SMU07304_20240725_050607.wav	Site 2	7/25/2024	5:06:07	PESU	UNKN	Poor quality recording
SMU07304_20240725_050458.wav	Site 2	7/25/2024	5:04:58	PESU	UNKN	Poor quality recording
SMU07304_20240725_050440.wav	Site 2	7/25/2024	5:04:40	PESU	UNKN	Poor quality recording
SMU07304_20240724_210317.wav	Site 2	7/24/2024	21:03:17	PESU	LABO	Bouncing Fmin
SMU07304_20240724_215841.wav	Site 2	7/24/2024	21:58:41	PESU	LABO	Bouncing Fmin
SMU07304_20240724_211943.wav	Site 2	7/24/2024	21:19:43	PESU	LABO	Bouncing Fmin
SMU07304_20240725_015424.wav	Site 2	7/25/2024	1:54:24	PESU	UNKN	Poor quality recording
SMU07304_20240724_215655.wav	Site 2	7/24/2024	21:56:55	PESU	UNKN	Poor quality recording
SMU07304_20240725_045123.wav	Site 2	7/25/2024	4:51:23	PESU	UNKN	Poor quality recording
SMU07304_20240724_202711.wav	Site 2	7/24/2024	20:27:11	PESU	LABO	Bouncing Fmin
SMU07304_20240724_203417.wav	Site 2	7/24/2024	20:34:17	PESU	LABO	Bouncing Fmin
SMU07304_20240725_003144.wav	Site 2	7/25/2024	0:31:44	PESU	UNKN	Poor quality recording
SMU07304_20240725_050235.wav	Site 2	7/25/2024	5:02:35	PESU	UNKN	Poor quality recording
SMU07304_20240724_205724.wav	Site 2	7/24/2024	20:57:24	PESU	LABO	Bouncing Fmin
SMU07304_20240725_050601.wav	Site 2	7/25/2024	5:06:01	PESU	UNKN	Poor quality recording
SMU07304_20240724_205136.wav	Site 2	7/24/2024	20:51:36	PESU	LABO	Bouncing Fmin
SMU07304_20240725_053403.wav	Site 2	7/25/2024	5:34:03	PESU	UNKN	Poor quality recording
SMU07304_20240724_205617.wav	Site 2	7/24/2024	20:56:17	PESU	UNKN	Poor quality recording
SMU07304_20240725_011647.wav	Site 2	7/25/2024	1:16:47	PESU	UNKN	Poor quality recording
SMU07304_20240724_205201.wav	Site 2	7/24/2024	20:52:01	PESU	UNKN	Poor quality recording
SMU07304_20240724_210803.wav	Site 2	7/24/2024	21:08:03	PESU	UNKN	Poor quality recording
SMU07304_20240725_003027.wav	Site 2	7/25/2024	0:30:27	PESU	UNKN	Poor quality recording
SMU07304_20240725_051535.wav	Site 2	7/25/2024	5:15:35	PESU	UNKN	Poor quality recording
SMU07304_20240724_204335.wav	Site 2	7/24/2024	20:43:35	PESU	UNKN	Poor quality recording
SMU07304_20240725_045011.wav	Site 2	7/25/2024	4:50:11	PESU	UNKN	Poor quality recording
SMU07304_20240724_214118.wav	Site 2	7/24/2024	21:41:18	PESU	LABO	Bouncing Fmin
SMU07304_20240724_205250.wav	Site 2	7/24/2024	20:52:50	PESU	UNKN	Poor quality recording
SMU07304_20240724_211253.wav	Site 2	7/24/2024	21:12:53	PESU	UNKN	Poor quality recording
SMU07304_20240724_211532.wav	Site 2	7/24/2024	21:15:32	PESU	UNKN	Poor quality recording
SMU07304_20240724_222356.wav	Site 2	7/24/2024	22:23:56	PESU	UNKN	Poor quality recording
SMU07304_20240724_231640.wav	Site 2	7/24/2024	23:16:40	PESU	UNKN	Poor quality recording
SMU07304_20240724_232643.wav	Site 2	7/24/2024	23:26:43	PESU	UNKN	Poor quality recording
SMU07304_20240724_232441.wav	Site 2	7/24/2024	23:24:41	PESU	UNKN	Poor quality recording
SMU07304_20240725_033038.wav	Site 2	7/25/2024	3:30:38	PESU	UNKN	Poor quality recording
SMU07304_20240725_050243.wav	Site 2	7/25/2024	5:02:43	PESU	UNKN	Poor quality recording
SMU07304_20240724_205951.wav	Site 2	7/24/2024	20:59:51	PESU	UNKN	Poor quality recording
SMU07304_20240724_214721.wav	Site 2	7/24/2024	21:47:21	PESU	UNKN	Poor quality recording
SMU07304_20240724_203251.wav	Site 2	7/24/2024	20:32:51	PESU	UNKN	Poor quality recording
SMU07304_20240724_204409.wav	Site 2	7/24/2024	20:44:09	PESU	UNKN	Poor quality recording
SMU07304_20240724_222715.wav	Site 2	7/24/2024	22:27:15	PESU	UNKN	Poor quality recording
SMU07304_20240724_205417.wav	Site 2	7/24/2024	20:54:17	PESU	UNKN	Poor quality recording
SMU07304_20240724_212123.wav	Site 2	7/24/2024	21:21:23	PESU	LABO	Bouncing Fmin
SMU07304_20240725_031912.wav	Site 2	7/25/2024	3:19:12	PESU	UNKN	Poor quality recording
SMU07304_20240724_205041.wav	Site 2	7/24/2024	20:50:41	PESU	UNKN	Poor quality recording
SMU07304_20240724_205403.wav	Site 2	7/24/2024	20:54:03	PESU	UNKN	Poor quality recording
SMU07304_20240724_210819.wav	Site 2	7/24/2024	21:08:19	PESU	UNKN	Poor quality recording
SMU07304_20240724_212939.wav	Site 2	7/24/2024	21:29:39	PESU	UNKN	Poor quality recording

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU07304_20240724_213315.wav	Site 2	7/24/2024	21:33:15	PESU	UNKN	Poor quality recording
SMU07304_20240724_214853.wav	Site 2	7/24/2024	21:48:53	PESU	UNKN	Poor quality recording
SMU07304_20240725_050319.wav	Site 2	7/25/2024	5:03:19	PESU	UNKN	Poor quality recording
SMU07304_20240724_213157.wav	Site 2	7/24/2024	21:31:57	PESU	UNKN	Poor quality recording
SMU07304_20240725_034039.wav	Site 2	7/25/2024	3:40:39	PESU	LABO	Bouncing Fmin
SMU07304_20240724_213932.wav	Site 2	7/24/2024	21:39:32	PESU	UNKN	Poor quality recording
SMU06498_20240722_003436.wav	Site 4	7/22/2024	0:34:36	CORA	Noise	Non-bat noise
SMU06498_20240722_004048.wav	Site 4	7/22/2024	0:40:48	CORA	Noise	Non-bat noise
SMU06498_20240722_004244.wav	Site 4	7/22/2024	0:42:44	CORA	Noise	Non-bat noise
SMU06498_20240722_003157.wav	Site 4	7/22/2024	0:31:57	CORA	Noise	Non-bat noise
SMU06498_20240722_030249.wav	Site 4	7/22/2024	3:02:49	CORA	Noise	Non-bat noise
SMU06498_20240722_032958.wav	Site 4	7/22/2024	3:29:58	CORA	Noise	Non-bat noise
SMU06498_20240722_002551.wav	Site 4	7/22/2024	0:25:51	CORA	Noise	Non-bat noise
SMU06498_20240722_003727.wav	Site 4	7/22/2024	0:37:27	CORA	Noise	Non-bat noise
SMU06498_20240722_043549.wav	Site 4	7/22/2024	4:35:49	CORA	Noise	Non-bat noise
SMU06498_20240722_005600.wav	Site 4	7/22/2024	0:56:00	CORA	Noise	Non-bat noise
SMU06498_20240717_232732.wav	Site 4	7/17/2024	23:27:32	CORA	Noise	Non-bat noise
SMU06498_20240722_003142.wav	Site 4	7/22/2024	0:31:42	CORA	Noise	Non-bat noise
SMU06498_20240720_010300.wav	Site 4	7/20/2024	1:03:00	CORA	Noise	Non-bat noise
SMU06498_20240721_023159.wav	Site 4	7/21/2024	2:31:59	CORA	Noise	Non-bat noise
SMU06498_20240722_003458.wav	Site 4	7/22/2024	0:34:58	CORA	Noise	Non-bat noise
SMU06498_20240719_224240.wav	Site 4	7/19/2024	22:42:40	CORA	Noise	Non-bat noise
SMU06498_20240719_230147.wav	Site 4	7/19/2024	23:01:47	CORA	Noise	Non-bat noise
SMU06498_20240716_200535.wav	Site 4	7/16/2024	20:05:35	CORA	Noise	Non-bat noise
SMU06498_20240720_003341.wav	Site 4	7/20/2024	0:33:41	CORA	Noise	Non-bat noise
SMU06498_20240720_004812.wav	Site 4	7/20/2024	0:48:12	CORA	Noise	Non-bat noise
SMU06498_20240720_013111.wav	Site 4	7/20/2024	1:31:11	CORA	Noise	Non-bat noise
SMU06498_20240720_231336.wav	Site 4	7/20/2024	23:13:36	CORA	Noise	Non-bat noise
SMU06498_20240721_022331.wav	Site 4	7/21/2024	2:23:31	CORA	Noise	Non-bat noise
SMU06498_20240721_023249.wav	Site 4	7/21/2024	2:32:49	CORA	Noise	Non-bat noise
SMU06498_20240722_021623.wav	Site 4	7/22/2024	2:16:23	CORA	Noise	Non-bat noise
SMU06498_20240716_200505.wav	Site 4	7/16/2024	20:05:05	CORA	Noise	Non-bat noise
SMU06498_20240719_225430.wav	Site 4	7/19/2024	22:54:30	CORA	Noise	Non-bat noise
SMU06498_20240721_024643.wav	Site 4	7/21/2024	2:46:43	CORA	Noise	Non-bat noise
SMU06498_20240721_024800.wav	Site 4	7/21/2024	2:48:00	CORA	Noise	Non-bat noise
SMU06498_20240722_002020.wav	Site 4	7/22/2024	0:20:20	CORA	Noise	Non-bat noise
SMU06498_20240722_005416.wav	Site 4	7/22/2024	0:54:16	CORA	Noise	Non-bat noise
SMU06498_20240720_212419.wav	Site 4	7/20/2024	21:24:19	CORA	Noise	Non-bat noise
SMU06498_20240721_002824.wav	Site 4	7/21/2024	0:28:24	CORA	Noise	Non-bat noise
SMU06498_20240721_025019.wav	Site 4	7/21/2024	2:50:19	CORA	Noise	Non-bat noise
SMU06498_20240722_001011.wav	Site 4	7/22/2024	0:10:11	CORA	Noise	Non-bat noise
SMU06498_20240722_031507.wav	Site 4	7/22/2024	3:15:07	CORA	Noise	Non-bat noise
SMU06498_20240722_032423.wav	Site 4	7/22/2024	3:24:23	CORA	Noise	Non-bat noise
SMU06498_20240722_033157.wav	Site 4	7/22/2024	3:31:57	CORA	Noise	Non-bat noise
SMU06498_20240722_033615.wav	Site 4	7/22/2024	3:36:15	CORA	Noise	Non-bat noise
SMU06498_20240722_053351.wav	Site 4	7/22/2024	5:33:51	CORA	Noise	Non-bat noise
SMU06498_20240718_004735.wav	Site 4	7/18/2024	0:47:35	CORA	Noise	Non-bat noise
SMU06498_20240720_012414.wav	Site 4	7/20/2024	1:24:14	CORA	Noise	Non-bat noise
SMU06498_20240719_224858.wav	Site 4	7/19/2024	22:48:58	CORA	Noise	Non-bat noise

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240721_044729.wav	Site 4	7/21/2024	4:47:29	CORA	Noise	Non-bat noise
SMU06498_20240722_043342.wav	Site 4	7/22/2024	4:33:42	CORA	Noise	Non-bat noise
SMU06498_20240720_234636.wav	Site 4	7/20/2024	23:46:36	CORA	Noise	Non-bat noise
SMU06498_20240719_225549.wav	Site 4	7/19/2024	22:55:49	CORA	Noise	Non-bat noise
SMU06498_20240722_003909.wav	Site 4	7/22/2024	0:39:09	CORA	Noise	Non-bat noise
SMU06498_20240719_230054.wav	Site 4	7/19/2024	23:00:54	EPFU	Noise	Non-bat noise
SMU06498_20240719_230033.wav	Site 4	7/19/2024	23:00:33	EPFU	Noise	Non-bat noise
SMU06498_20240719_230341.wav	Site 4	7/19/2024	23:03:41	EPFU	Noise	Non-bat noise
SMU06498_20240719_230306.wav	Site 4	7/19/2024	23:03:06	EPFU	Noise	Non-bat noise
SMU06498_20240719_225303.wav	Site 4	7/19/2024	22:53:03	EPFU	Noise	Non-bat noise
SMU06498_20240719_225228.wav	Site 4	7/19/2024	22:52:28	EPFU	Noise	Non-bat noise
SMU06498_20240719_230213.wav	Site 4	7/19/2024	23:02:13	EPFU	Noise	Non-bat noise
SMU06498_20240719_224553.wav	Site 4	7/19/2024	22:45:53	EPFU	Noise	Non-bat noise
SMU06498_20240719_225518.wav	Site 4	7/19/2024	22:55:18	EPFU	Noise	Non-bat noise
SMU06498_20240717_200533.wav	Site 4	7/17/2024	20:05:33	EPFU	Noise	Non-bat noise
SMU06498_20240720_014111.wav	Site 4	7/20/2024	1:41:11	EPFU	Noise	Non-bat noise
SMU06498_20240722_052304.wav	Site 4	7/22/2024	5:23:04	EPFU	Noise	Non-bat noise
SMU06498_20240719_234214.wav	Site 4	7/19/2024	23:42:14	EPFU	Noise	Non-bat noise
SMU06498_20240716_194851.wav	Site 4	7/16/2024	19:48:51	EPFU	Noise	Non-bat noise
SMU06498_20240717_215802.wav	Site 4	7/17/2024	21:58:02	EPFU	Noise	Non-bat noise
SMU06498_20240719_224523.wav	Site 4	7/19/2024	22:45:23	EPFU	Noise	Non-bat noise
SMU06498_20240719_224647.wav	Site 4	7/19/2024	22:46:47	EPFU	Noise	Non-bat noise
SMU06498_20240722_054121.wav	Site 4	7/22/2024	5:41:21	EPFU	Noise	Non-bat noise
SMU06498_20240717_200807.wav	Site 4	7/17/2024	20:08:07	EPFU	Noise	Non-bat noise
SMU06498_20240717_220710.wav	Site 4	7/17/2024	22:07:10	EPFU	Noise	Non-bat noise
SMU06498_20240722_052917.wav	Site 4	7/22/2024	5:29:17	EPFU	Noise	Non-bat noise
SMU06498_20240719_233559.wav	Site 4	7/19/2024	23:35:59	EPFU	Noise	Non-bat noise
SMU06498_20240719_234524.wav	Site 4	7/19/2024	23:45:24	EPFU	Noise	Non-bat noise
SMU06498_20240719_234905.wav	Site 4	7/19/2024	23:49:05	EPFU	Noise	Non-bat noise
SMU06498_20240720_012326.wav	Site 4	7/20/2024	1:23:26	EPFU	Noise	Non-bat noise
SMU06498_20240719_233452.wav	Site 4	7/19/2024	23:34:52	EPFU	Noise	Non-bat noise
SMU06498_20240720_013505.wav	Site 4	7/20/2024	1:35:05	EPFU	Noise	Non-bat noise
SMU06498_20240721_051848.wav	Site 4	7/21/2024	5:18:48	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_012111.wav	Site 4	7/20/2024	1:21:11	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240719_215313.wav	Site 4	7/19/2024	21:53:13	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_032603.wav	Site 4	7/20/2024	3:26:03	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_211757.wav	Site 4	7/22/2024	21:17:57	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_230741.wav	Site 4	7/20/2024	23:07:41	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_053453.wav	Site 4	7/18/2024	5:34:53	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240717_221607.wav	Site 4	7/17/2024	22:16:07	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052842.wav	Site 4	7/21/2024	5:28:42	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_221153.wav	Site 4	7/20/2024	22:11:53	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240719_230529.wav	Site 4	7/19/2024	23:05:29	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_041118.wav	Site 4	7/18/2024	4:11:18	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240724_031219.wav	Site 4	7/24/2024	3:12:19	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_215808.wav	Site 4	7/20/2024	21:58:08	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_211228.wav	Site 4	7/20/2024	21:12:28	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_220659.wav	Site 4	7/21/2024	22:06:59	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_221828.wav	Site 4	7/22/2024	22:18:28	LABO	LABO/NYHU	Calls not definitive to a single species

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240723_053616.wav	Site 4	7/23/2024	5:36:16	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_051404.wav	Site 4	7/22/2024	5:14:04	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240719_221033.wav	Site 4	7/19/2024	22:10:33	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240719_233059.wav	Site 4	7/19/2024	23:30:59	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_010013.wav	Site 4	7/21/2024	1:00:13	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_225842.wav	Site 4	7/20/2024	22:58:42	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240717_232237.wav	Site 4	7/17/2024	23:22:37	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_015451.wav	Site 4	7/18/2024	1:54:51	LABO	Noise	Non-bat noise
SMU06498_20240719_224702.wav	Site 4	7/19/2024	22:47:02	LABO	Noise	Non-bat noise
SMU06498_20240718_034059.wav	Site 4	7/18/2024	3:40:59	LABO	Noise	Non-bat noise
SMU06498_20240718_042225.wav	Site 4	7/18/2024	4:22:25	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_035638.wav	Site 4	7/21/2024	3:56:38	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_054245.wav	Site 4	7/21/2024	5:42:45	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240719_230230.wav	Site 4	7/19/2024	23:02:30	LABO	Noise	Non-bat noise
SMU06498_20240718_015346.wav	Site 4	7/18/2024	1:53:46	LABO	UNKN	Poor-quality recording
SMU06498_20240718_015152.wav	Site 4	7/18/2024	1:51:52	LABO	Noise	Non-bat noise
SMU06498_20240720_050749.wav	Site 4	7/20/2024	5:07:49	LABO	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_034828.wav	Site 4	7/21/2024	3:48:28	LABO	Noise	Non-bat noise
SMU06498_20240721_041808.wav	Site 4	7/21/2024	4:18:08	LABO	Noise	Non-bat noise
SMU06498_20240721_050347.wav	Site 4	7/21/2024	5:03:47	LABO	UNKN	Poor-quality recording
SMU06498_20240723_045735.wav	Site 4	7/23/2024	4:57:35	LABO	UNKN	Poor-quality recording
SMU06498_20240723_050527.wav	Site 4	7/23/2024	5:05:27	LABO	UNKN	Poor-quality recording
SMU06498_20240718_003108.wav	Site 4	7/18/2024	0:31:08	LABO	UNKN	Poor-quality recording
SMU06498_20240721_050316.wav	Site 4	7/21/2024	5:03:16	LABO	UNKN	Poor-quality recording
SMU06498_20240720_001605.wav	Site 4	7/20/2024	0:16:05	LABO	Noise	Non-bat noise
SMU06498_20240721_022006.wav	Site 4	7/21/2024	2:20:06	LABO	Noise	Non-bat noise
SMU06498_20240717_195946.wav	Site 4	7/17/2024	19:59:46	LABO	Noise	Non-bat noise
SMU06498_20240718_234147.wav	Site 4	7/18/2024	23:41:47	LABO	Noise	Non-bat noise
SMU06498_20240719_225151.wav	Site 4	7/19/2024	22:51:51	LABO	Noise	Non-bat noise
SMU06498_20240720_231720.wav	Site 4	7/20/2024	23:17:20	LABO	Noise	Non-bat noise
SMU06498_20240721_060557.wav	Site 4	7/21/2024	6:05:57	LABO	Noise	Non-bat noise
SMU06498_20240722_023146.wav	Site 4	7/22/2024	2:31:46	LABO	Noise	Non-bat noise
SMU06498_20240722_024441.wav	Site 4	7/22/2024	2:44:41	LABO	UNKN	Poor-quality recording
SMU06498_20240723_051807.wav	Site 4	7/23/2024	5:18:07	LABO	UNKN	Poor-quality recording
SMU06498_20240716_214720.wav	Site 4	7/16/2024	21:47:20	LABO	Noise	Non-bat noise
SMU06498_20240718_004719.wav	Site 4	7/18/2024	0:47:19	LABO	Noise	Non-bat noise
SMU06498_20240719_234039.wav	Site 4	7/19/2024	23:40:39	LABO	Noise	Non-bat noise
SMU06498_20240721_003354.wav	Site 4	7/21/2024	0:33:54	LABO	Noise	Non-bat noise
SMU06498_20240717_195935.wav	Site 4	7/17/2024	19:59:35	LABO	Noise	Non-bat noise
SMU06498_20240720_010533.wav	Site 4	7/20/2024	1:05:33	LABO	Noise	Non-bat noise
SMU06498_20240720_013755.wav	Site 4	7/20/2024	1:37:55	LABO	Noise	Non-bat noise
SMU06498_20240723_005804.wav	Site 4	7/23/2024	0:58:04	LABO	Noise	Non-bat noise
SMU06498_20240722_005700.wav	Site 4	7/22/2024	0:57:00	LABO	Noise	Non-bat noise
SMU06498_20240717_195902.wav	Site 4	7/17/2024	19:59:02	LABO	Noise	Non-bat noise
SMU06498_20240718_220053.wav	Site 4	7/18/2024	22:00:53	LACI	Noise	Non-bat noise
SMU06498_20240721_045753.wav	Site 4	7/21/2024	4:57:53	LACI	Noise	Non-bat noise
SMU06498_20240720_024029.wav	Site 4	7/20/2024	2:40:29	LACI	Noise	Non-bat noise
SMU06498_20240722_060457.wav	Site 4	7/22/2024	6:04:57	LACI	Noise	Non-bat noise
SMU06498_20240723_005743.wav	Site 4	7/23/2024	0:57:43	LANO	Noise	Non-bat noise

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240721_060810.wav	Site 4	7/21/2024	6:08:10	LANO	Noise	Non-bat noise
SMU06498_20240717_231628.wav	Site 4	7/17/2024	23:16:28	MYAU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240721_040929.wav	Site 4	7/21/2024	4:09:29	MYAU	UNKN	Poor-quality recording
SMU06498_20240717_222946.wav	Site 4	7/17/2024	22:29:46	MYAU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240716_200214.wav	Site 4	7/16/2024	20:02:14	MYAU	Noise	Poor-quality recording
SMU06498_20240720_041333.wav	Site 4	7/20/2024	4:13:33	MYAU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_041824.wav	Site 4	7/22/2024	4:18:24	MYAU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_225213.wav	Site 4	7/19/2024	22:52:13	MYAU	Noise	Poor-quality recording
SMU06498_20240721_202145.wav	Site 4	7/21/2024	20:21:45	MYGR	PESU	Lack of strong tails
SMU06498_20240719_203059.wav	Site 4	7/19/2024	20:30:59	MYGR	PESU	Lack of strong tails
SMU06498_20240719_203130.wav	Site 4	7/19/2024	20:31:30	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202245.wav	Site 4	7/21/2024	20:22:45	MYGR	PESU	Lack of strong tails
SMU06498_20240719_202928.wav	Site 4	7/19/2024	20:29:28	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202014.wav	Site 4	7/21/2024	20:20:14	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202301.wav	Site 4	7/21/2024	20:23:01	MYGR	PESU	Lack of strong tails
SMU06498_20240716_202940.wav	Site 4	7/16/2024	20:29:40	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202044.wav	Site 4	7/21/2024	20:20:44	MYGR	PESU	Lack of strong tails
SMU06498_20240716_202955.wav	Site 4	7/16/2024	20:29:55	MYGR	PESU	Lack of strong tails
SMU06498_20240716_203056.wav	Site 4	7/16/2024	20:30:56	MYGR	PESU	Lack of strong tails
SMU06498_20240719_203115.wav	Site 4	7/19/2024	20:31:15	MYGR	PESU	Lack of strong tails
SMU06498_20240716_203011.wav	Site 4	7/16/2024	20:30:11	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202129.wav	Site 4	7/21/2024	20:21:29	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202114.wav	Site 4	7/21/2024	20:21:14	MYGR	PESU	Lack of strong tails
SMU06498_20240719_202711.wav	Site 4	7/19/2024	20:27:11	MYGR	PESU	Lack of strong tails
SMU06498_20240719_203044.wav	Site 4	7/19/2024	20:30:44	MYGR	PESU	Lack of strong tails
SMU06498_20240719_202943.wav	Site 4	7/19/2024	20:29:43	MYGR	PESU	Lack of strong tails
SMU06498_20240719_202656.wav	Site 4	7/19/2024	20:26:56	MYGR	PESU	Lack of strong tails
SMU06498_20240722_202905.wav	Site 4	7/22/2024	20:29:05	MYGR	PESU	Lack of strong tails
SMU06498_20240719_202757.wav	Site 4	7/19/2024	20:27:57	MYGR	PESU	Lack of strong tails
SMU06498_20240721_201959.wav	Site 4	7/21/2024	20:19:59	MYGR	PESU	Lack of strong tails
SMU06498_20240716_203026.wav	Site 4	7/16/2024	20:30:26	MYGR	PESU	Lack of strong tails
SMU06498_20240719_202626.wav	Site 4	7/19/2024	20:26:26	MYGR	PESU	Lack of strong tails
SMU06498_20240719_203029.wav	Site 4	7/19/2024	20:30:29	MYGR	PESU	Lack of strong tails
SMU06498_20240719_202913.wav	Site 4	7/19/2024	20:29:13	MYGR	PESU	Lack of strong tails
SMU06498_20240716_202910.wav	Site 4	7/16/2024	20:29:10	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202200.wav	Site 4	7/21/2024	20:22:00	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202059.wav	Site 4	7/21/2024	20:20:59	MYGR	PESU	Lack of strong tails
SMU06498_20240716_202925.wav	Site 4	7/16/2024	20:29:25	MYGR	PESU	Lack of strong tails
SMU06498_20240719_202641.wav	Site 4	7/19/2024	20:26:41	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202029.wav	Site 4	7/21/2024	20:20:29	MYGR	PESU	Lack of strong tails
SMU06498_20240719_202611.wav	Site 4	7/19/2024	20:26:11	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202948.wav	Site 4	7/21/2024	20:29:48	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202721.wav	Site 4	7/21/2024	20:27:21	MYGR	PESU	Lack of strong tails
SMU06498_20240716_203041.wav	Site 4	7/16/2024	20:30:41	MYGR	PESU	Lack of strong tails
SMU06498_20240721_201943.wav	Site 4	7/21/2024	20:19:43	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202215.wav	Site 4	7/21/2024	20:22:15	MYGR	PESU	Lack of strong tails
SMU06498_20240719_202556.wav	Site 4	7/19/2024	20:25:56	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202230.wav	Site 4	7/21/2024	20:22:30	MYGR	PESU	Lack of strong tails
SMU06498_20240720_203332.wav	Site 4	7/20/2024	20:33:32	MYGR	PESU	Lack of strong tails

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240721_201928.wav	Site 4	7/21/2024	20:19:28	MYGR	PESU	Lack of strong tails
SMU06498_20240717_202728.wav	Site 4	7/17/2024	20:27:28	MYGR	PESU	Lack of strong tails
SMU06498_20240723_202103.wav	Site 4	7/23/2024	20:21:03	MYGR	PESU	Lack of strong tails
SMU06498_20240719_202812.wav	Site 4	7/19/2024	20:28:12	MYGR	PESU	Lack of strong tails
SMU06498_20240716_203111.wav	Site 4	7/16/2024	20:31:11	MYGR	PESU	Lack of strong tails
SMU06498_20240721_203119.wav	Site 4	7/21/2024	20:31:19	MYGR	PESU	Lack of strong tails
SMU06498_20240719_202857.wav	Site 4	7/19/2024	20:28:57	MYGR	PESU	Lack of strong tails
SMU06498_20240722_203051.wav	Site 4	7/22/2024	20:30:51	MYGR	PESU	Lack of strong tails
SMU06498_20240721_203134.wav	Site 4	7/21/2024	20:31:34	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202331.wav	Site 4	7/21/2024	20:23:31	MYGR	PESU	Lack of strong tails
SMU06498_20240719_203145.wav	Site 4	7/19/2024	20:31:45	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202822.wav	Site 4	7/21/2024	20:28:22	MYGR	PESU	Lack of strong tails
SMU06498_20240719_202827.wav	Site 4	7/19/2024	20:28:27	MYGR	PESU	Lack of strong tails
SMU06498_20240719_202727.wav	Site 4	7/19/2024	20:27:27	MYGR	PESU	Lack of strong tails
SMU06498_20240716_202840.wav	Site 4	7/16/2024	20:28:40	MYGR	PESU	Lack of strong tails
SMU06498_20240723_202048.wav	Site 4	7/23/2024	20:20:48	MYGR	PESU	Lack of strong tails
SMU06498_20240717_202655.wav	Site 4	7/17/2024	20:26:55	MYGR	PESU	Lack of strong tails
SMU06498_20240723_201917.wav	Site 4	7/23/2024	20:19:17	MYGR	PESU	Lack of strong tails
SMU06498_20240719_202540.wav	Site 4	7/19/2024	20:25:40	MYGR	PESU	Lack of strong tails
SMU06498_20240717_202625.wav	Site 4	7/17/2024	20:26:25	MYGR	PESU	Lack of strong tails
SMU06498_20240723_202133.wav	Site 4	7/23/2024	20:21:33	MYGR	PESU	Lack of strong tails
SMU06498_20240717_202554.wav	Site 4	7/17/2024	20:25:54	MYGR	PESU	Lack of strong tails
SMU06498_20240719_202742.wav	Site 4	7/19/2024	20:27:42	MYGR	PESU	Lack of strong tails
SMU06498_20240717_202640.wav	Site 4	7/17/2024	20:26:40	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202806.wav	Site 4	7/21/2024	20:28:06	MYGR	PESU	Lack of strong tails
SMU06498_20240719_203429.wav	Site 4	7/19/2024	20:34:29	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202316.wav	Site 4	7/21/2024	20:23:16	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202346.wav	Site 4	7/21/2024	20:23:46	MYGR	PESU	Lack of strong tails
SMU06498_20240722_202749.wav	Site 4	7/22/2024	20:27:49	MYGR	PESU	Lack of strong tails
SMU06498_20240722_202804.wav	Site 4	7/22/2024	20:28:04	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202401.wav	Site 4	7/21/2024	20:24:01	MYGR	PESU	Lack of strong tails
SMU06498_20240716_202855.wav	Site 4	7/16/2024	20:28:55	MYGR	PESU	Lack of strong tails
SMU06498_20240720_202945.wav	Site 4	7/20/2024	20:29:45	MYGR	PESU	Lack of strong tails
SMU06498_20240722_202542.wav	Site 4	7/22/2024	20:25:42	MYGR	PESU	Lack of strong tails
SMU06498_20240720_203317.wav	Site 4	7/20/2024	20:33:17	MYGR	PESU	Lack of strong tails
SMU06498_20240723_201932.wav	Site 4	7/23/2024	20:19:32	MYGR	PESU	Lack of strong tails
SMU06498_20240723_202149.wav	Site 4	7/23/2024	20:21:49	MYGR	PESU	Lack of strong tails
SMU06498_20240722_203106.wav	Site 4	7/22/2024	20:31:06	MYGR	PESU	Lack of strong tails
SMU06498_20240719_203013.wav	Site 4	7/19/2024	20:30:13	MYGR	PESU	Lack of strong tails
SMU06498_20240722_202819.wav	Site 4	7/22/2024	20:28:19	MYGR	PESU	Lack of strong tails
SMU06498_20240722_202850.wav	Site 4	7/22/2024	20:28:50	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_202003.wav	Site 4	7/23/2024	20:20:03	MYGR	PESU	Lack of strong tails
SMU06498_20240722_202734.wav	Site 4	7/22/2024	20:27:34	MYGR	PESU	Lack of strong tails
SMU06498_20240723_202707.wav	Site 4	7/23/2024	20:27:07	MYGR	PESU	Lack of strong tails
SMU06498_20240720_203302.wav	Site 4	7/20/2024	20:33:02	MYGR	PESU	Lack of strong tails
SMU06498_20240717_202609.wav	Site 4	7/17/2024	20:26:09	MYGR	PESU	Lack of strong tails
SMU06498_20240716_202825.wav	Site 4	7/16/2024	20:28:25	MYGR	PESU	Lack of strong tails
SMU06498_20240723_202033.wav	Site 4	7/23/2024	20:20:33	MYGR	PESU	Lack of strong tails
SMU06498_20240719_202842.wav	Site 4	7/19/2024	20:28:42	MYGR	LABO	Bouncing Fmin, lack of tails

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240721_203104.wav	Site 4	7/21/2024	20:31:04	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_202118.wav	Site 4	7/23/2024	20:21:18	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_202454.wav	Site 4	7/19/2024	20:24:54	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240721_202447.wav	Site 4	7/21/2024	20:24:47	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_203519.wav	Site 4	7/22/2024	20:35:19	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_201847.wav	Site 4	7/23/2024	20:18:47	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_203015.wav	Site 4	7/20/2024	20:30:15	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_202958.wav	Site 4	7/19/2024	20:29:58	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_203113.wav	Site 4	7/18/2024	20:31:13	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_203000.wav	Site 4	7/20/2024	20:30:00	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_201948.wav	Site 4	7/23/2024	20:19:48	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240721_202432.wav	Site 4	7/21/2024	20:24:32	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202417.wav	Site 4	7/21/2024	20:24:17	MYGR	PESU	Lack of strong tails
SMU06498_20240719_202509.wav	Site 4	7/19/2024	20:25:09	MYGR	PESU	Lack of strong tails
SMU06498_20240723_201832.wav	Site 4	7/23/2024	20:18:32	MYGR	PESU	Lack of strong tails
SMU06498_20240723_201902.wav	Site 4	7/23/2024	20:19:02	MYGR	PESU	Lack of strong tails
SMU06498_20240717_202853.wav	Site 4	7/17/2024	20:28:53	MYGR	PESU	Lack of strong tails
SMU06498_20240723_202018.wav	Site 4	7/23/2024	20:20:18	MYGR	PESU	Lack of strong tails
SMU06498_20240723_202204.wav	Site 4	7/23/2024	20:22:04	MYGR	PESU	Lack of strong tails
SMU06498_20240717_202539.wav	Site 4	7/17/2024	20:25:39	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202751.wav	Site 4	7/21/2024	20:27:51	MYGR	PESU	Lack of strong tails
SMU06498_20240723_202651.wav	Site 4	7/23/2024	20:26:51	MYGR	PESU	Lack of strong tails
SMU06498_20240722_202648.wav	Site 4	7/22/2024	20:26:48	MYGR	PESU	Lack of strong tails
SMU06498_20240717_202923.wav	Site 4	7/17/2024	20:29:23	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202535.wav	Site 4	7/21/2024	20:25:35	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202706.wav	Site 4	7/21/2024	20:27:06	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240721_202502.wav	Site 4	7/21/2024	20:25:02	MYGR	PESU	Lack of strong tails
SMU06498_20240718_203128.wav	Site 4	7/18/2024	20:31:28	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_203020.wav	Site 4	7/22/2024	20:30:20	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_202704.wav	Site 4	7/22/2024	20:27:04	MYGR	PESU	Lack of strong tails
SMU06498_20240720_202759.wav	Site 4	7/20/2024	20:27:59	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_201817.wav	Site 4	7/23/2024	20:18:17	MYGR	PESU	Lack of strong tails
SMU06498_20240720_203511.wav	Site 4	7/20/2024	20:35:11	MYGR	PESU	Lack of strong tails
SMU06498_20240717_203040.wav	Site 4	7/17/2024	20:30:40	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202517.wav	Site 4	7/21/2024	20:25:17	MYGR	PESU	Lack of strong tails
SMU06498_20240720_202347.wav	Site 4	7/20/2024	20:23:47	MYGR	PESU	Lack of strong tails
SMU06498_20240721_203348.wav	Site 4	7/21/2024	20:33:48	MYGR	PESU	Lack of strong tails
SMU06498_20240723_202636.wav	Site 4	7/23/2024	20:26:36	MYGR	PESU	Lack of strong tails
SMU06498_20240720_202330.wav	Site 4	7/20/2024	20:23:30	MYGR	PESU	Lack of strong tails
SMU06498_20240722_202358.wav	Site 4	7/22/2024	20:23:58	MYGR	PESU	Lack of strong tails
SMU06498_20240720_202930.wav	Site 4	7/20/2024	20:29:30	MYGR	PESU	Lack of strong tails
SMU06498_20240716_203351.wav	Site 4	7/16/2024	20:33:51	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202907.wav	Site 4	7/21/2024	20:29:07	MYGR	PESU	Lack of strong tails
SMU06498_20240717_202954.wav	Site 4	7/17/2024	20:29:54	MYGR	PESU	Lack of strong tails
SMU06498_20240717_202938.wav	Site 4	7/17/2024	20:29:38	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202550.wav	Site 4	7/21/2024	20:25:50	MYGR	PESU	Lack of strong tails
SMU06498_20240722_202429.wav	Site 4	7/22/2024	20:24:29	MYGR	PESU	Lack of strong tails
SMU06498_20240720_203456.wav	Site 4	7/20/2024	20:34:56	MYGR	PESU	Lack of strong tails
SMU06498_20240722_202610.wav	Site 4	7/22/2024	20:26:10	MYGR	PESU	Lack of strong tails

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240720_203116.wav	Site 4	7/20/2024	20:31:16	MYGR	PESU	Lack of strong tails
SMU06498_20240720_203556.wav	Site 4	7/20/2024	20:35:56	MYGR	PESU	Lack of strong tails
SMU06498_20240722_202512.wav	Site 4	7/22/2024	20:25:12	MYGR	PESU	Lack of strong tails
SMU06498_20240717_202838.wav	Site 4	7/17/2024	20:28:38	MYGR	PESU	Lack of strong tails
SMU06498_20240721_203033.wav	Site 4	7/21/2024	20:30:33	MYGR	PESU	Lack of strong tails
SMU06498_20240716_203126.wav	Site 4	7/16/2024	20:31:26	MYGR	PESU	Lack of strong tails
SMU06498_20240720_202829.wav	Site 4	7/20/2024	20:28:29	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_202910.wav	Site 4	7/18/2024	20:29:10	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_203541.wav	Site 4	7/20/2024	20:35:41	MYGR	PESU	Lack of strong tails
SMU06498_20240720_202814.wav	Site 4	7/20/2024	20:28:14	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240717_203055.wav	Site 4	7/17/2024	20:30:55	MYGR	PESU	Lack of strong tails
SMU06498_20240717_203010.wav	Site 4	7/17/2024	20:30:10	MYGR	PESU	Lack of strong tails
SMU06498_20240717_202710.wav	Site 4	7/17/2024	20:27:10	MYGR	PESU	Lack of strong tails
SMU06498_20240719_203353.wav	Site 4	7/19/2024	20:33:53	MYGR	PESU	Lack of strong tails
SMU06498_20240720_203526.wav	Site 4	7/20/2024	20:35:26	MYGR	PESU	Lack of strong tails
SMU06498_20240717_203025.wav	Site 4	7/17/2024	20:30:25	MYGR	PESU	Lack of strong tails
SMU06498_20240722_202625.wav	Site 4	7/22/2024	20:26:25	MYGR	PESU	Lack of strong tails
SMU06498_20240721_202922.wav	Site 4	7/21/2024	20:29:22	MYGR	PESU	Lack of strong tails
SMU06498_20240723_201802.wav	Site 4	7/23/2024	20:18:02	MYGR	PESU	Lack of strong tails
SMU06498_20240721_203003.wav	Site 4	7/21/2024	20:30:03	MYGR	PESU	Lack of strong tails
SMU06498_20240724_010853.wav	Site 4	7/24/2024	1:08:53	MYGR	PESU	Lack of strong tails
SMU06498_20240719_203444.wav	Site 4	7/19/2024	20:34:44	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_203453.wav	Site 4	7/19/2024	20:34:53	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_042642.wav	Site 4	7/18/2024	4:26:42	MYGR	PESU	Lack of strong tails
SMU06498_20240720_203426.wav	Site 4	7/20/2024	20:34:26	MYGR	PESU	Lack of strong tails
SMU06498_20240718_203058.wav	Site 4	7/18/2024	20:30:58	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_050956.wav	Site 4	7/23/2024	5:09:56	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_052037.wav	Site 4	7/23/2024	5:20:37	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_050754.wav	Site 4	7/23/2024	5:07:54	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240721_205339.wav	Site 4	7/21/2024	20:53:39	MYGR	PESU	Lack of strong tails
SMU06498_20240716_203838.wav	Site 4	7/16/2024	20:38:38	MYGR	PESU	Lack of strong tails
SMU06498_20240718_203200.wav	Site 4	7/18/2024	20:32:00	MYGR	UNKN	Poor-quality recording
SMU06498_20240717_202753.wav	Site 4	7/17/2024	20:27:53	MYGR	PESU	Lack of strong tails
SMU06498_20240723_050424.wav	Site 4	7/23/2024	5:04:24	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_202503.wav	Site 4	7/22/2024	20:25:03	MYGR	PESU	Lack of strong tails
SMU06498_20240719_203618.wav	Site 4	7/19/2024	20:36:18	MYGR	PESU	Lack of strong tails
SMU06498_20240721_203406.wav	Site 4	7/21/2024	20:34:06	MYGR	PESU	Lack of strong tails
SMU06498_20240723_051022.wav	Site 4	7/23/2024	5:10:22	MYGR	UNKN	Poor-quality recording
SMU06498_20240719_203410.wav	Site 4	7/19/2024	20:34:10	MYGR	UNKN	Poor-quality recording
SMU06498_20240721_011720.wav	Site 4	7/21/2024	1:17:20	MYGR	PESU	Lack of strong tails
SMU06498_20240721_205404.wav	Site 4	7/21/2024	20:54:04	MYGR	PESU	Lack of strong tails
SMU06498_20240723_051432.wav	Site 4	7/23/2024	5:14:32	MYGR	UNKN	Poor-quality recording
SMU06498_20240720_045830.wav	Site 4	7/20/2024	4:58:30	MYGR	UNKN	Poor-quality recording
SMU06498_20240723_050807.wav	Site 4	7/23/2024	5:08:07	MYGR	UNKN	Poor-quality recording
SMU06498_20240723_050741.wav	Site 4	7/23/2024	5:07:41	MYGR	UNKN	Poor-quality recording
SMU06498_20240721_205422.wav	Site 4	7/21/2024	20:54:22	MYGR	PESU	Lack of strong tails
SMU06498_20240724_022649.wav	Site 4	7/24/2024	2:26:49	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_202559.wav	Site 4	7/22/2024	20:25:59	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_051315.wav	Site 4	7/23/2024	5:13:15	MYGR	LABO	Bouncing Fmin, lack of tails

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240723_051457.wav	Site 4	7/23/2024	5:14:57	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_042657.wav	Site 4	7/18/2024	4:26:57	MYGR	PESU	Lack of strong tails
SMU06498_20240716_203143.wav	Site 4	7/16/2024	20:31:43	MYGR	PESU	Lack of strong tails
SMU06498_20240721_032511.wav	Site 4	7/21/2024	3:25:11	MYGR	PESU	Lack of strong tails
SMU06498_20240718_020715.wav	Site 4	7/18/2024	2:07:15	MYGR	PESU	Lack of strong tails
SMU06498_20240719_203507.wav	Site 4	7/19/2024	20:35:07	MYGR	PESU	Lack of strong tails
SMU06498_20240718_015657.wav	Site 4	7/18/2024	1:56:57	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_043610.wav	Site 4	7/19/2024	4:36:10	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_000141.wav	Site 4	7/22/2024	0:01:41	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240724_012802.wav	Site 4	7/24/2024	1:28:02	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_014301.wav	Site 4	7/23/2024	1:43:01	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240721_020341.wav	Site 4	7/21/2024	2:03:41	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_051512.wav	Site 4	7/23/2024	5:15:12	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_001341.wav	Site 4	7/18/2024	0:13:41	MYGR	UNKN	Poor-quality recording
SMU06498_20240719_035551.wav	Site 4	7/19/2024	3:55:51	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_035025.wav	Site 4	7/19/2024	3:50:25	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_022902.wav	Site 4	7/19/2024	2:29:02	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_051039.wav	Site 4	7/23/2024	5:10:39	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_042458.wav	Site 4	7/19/2024	4:24:58	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_212702.wav	Site 4	7/18/2024	21:27:02	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_035054.wav	Site 4	7/19/2024	3:50:54	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_011755.wav	Site 4	7/22/2024	1:17:55	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_023352.wav	Site 4	7/23/2024	2:33:52	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240721_012703.wav	Site 4	7/21/2024	1:27:03	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240716_235135.wav	Site 4	7/16/2024	23:51:35	MYGR	UNKN	Poor-quality recording
SMU06498_20240723_235444.wav	Site 4	7/23/2024	23:54:44	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_041848.wav	Site 4	7/20/2024	4:18:48	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_013126.wav	Site 4	7/22/2024	1:31:26	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_044043.wav	Site 4	7/19/2024	4:40:43	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240721_225018.wav	Site 4	7/21/2024	22:50:18	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_012059.wav	Site 4	7/23/2024	1:20:59	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_051051.wav	Site 4	7/22/2024	5:10:51	MYGR	UNKN	Poor-quality recording
SMU06498_20240719_040840.wav	Site 4	7/19/2024	4:08:40	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240721_022749.wav	Site 4	7/21/2024	2:27:49	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240721_034402.wav	Site 4	7/21/2024	3:44:02	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_222701.wav	Site 4	7/18/2024	22:27:01	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_041916.wav	Site 4	7/19/2024	4:19:16	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_050946.wav	Site 4	7/23/2024	5:09:46	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_050809.wav	Site 4	7/22/2024	5:08:09	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240717_232840.wav	Site 4	7/17/2024	23:28:40	MYGR	UNKN	Poor-quality recording
SMU06498_20240719_035444.wav	Site 4	7/19/2024	3:54:44	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_042951.wav	Site 4	7/19/2024	4:29:51	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_230605.wav	Site 4	7/19/2024	23:06:05	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_015643.wav	Site 4	7/18/2024	1:56:43	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_050845.wav	Site 4	7/23/2024	5:08:45	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_053530.wav	Site 4	7/23/2024	5:35:30	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_051525.wav	Site 4	7/23/2024	5:15:25	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_035231.wav	Site 4	7/19/2024	3:52:31	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_035151.wav	Site 4	7/19/2024	3:51:51	MYGR	LABO	Bouncing Fmin, lack of tails

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240719_035330.wav	Site 4	7/19/2024	3:53:30	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_233558.wav	Site 4	7/20/2024	23:35:58	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_042237.wav	Site 4	7/18/2024	4:22:37	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_051105.wav	Site 4	7/22/2024	5:11:05	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240717_233714.wav	Site 4	7/17/2024	23:37:14	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240721_021600.wav	Site 4	7/21/2024	2:16:00	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_035746.wav	Site 4	7/18/2024	3:57:46	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_225715.wav	Site 4	7/20/2024	22:57:15	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240717_235547.wav	Site 4	7/17/2024	23:55:47	MYGR	UNKN	Poor-quality recording
SMU06498_20240720_043419.wav	Site 4	7/20/2024	4:34:19	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_041645.wav	Site 4	7/19/2024	4:16:45	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_012250.wav	Site 4	7/22/2024	1:22:50	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_050935.wav	Site 4	7/23/2024	5:09:35	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_231903.wav	Site 4	7/23/2024	23:19:03	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_003731.wav	Site 4	7/20/2024	0:37:31	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_025431.wav	Site 4	7/23/2024	2:54:31	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_033632.wav	Site 4	7/18/2024	3:36:32	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_010339.wav	Site 4	7/20/2024	1:03:39	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_214214.wav	Site 4	7/20/2024	21:42:14	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_210540.wav	Site 4	7/23/2024	21:05:40	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240721_215715.wav	Site 4	7/21/2024	21:57:15	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_012026.wav	Site 4	7/18/2024	1:20:26	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_013445.wav	Site 4	7/19/2024	1:34:45	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_032827.wav	Site 4	7/20/2024	3:28:27	MYGR	UNKN	Poor-quality recording
SMU06498_20240722_044940.wav	Site 4	7/22/2024	4:49:40	MYGR	UNKN	Poor-quality recording
SMU06498_20240719_005400.wav	Site 4	7/19/2024	0:54:00	MYGR	UNKN	Poor-quality recording
SMU06498_20240722_041457.wav	Site 4	7/22/2024	4:14:57	MYGR	UNKN	Poor-quality recording
SMU06498_20240723_050402.wav	Site 4	7/23/2024	5:04:02	MYGR	UNKN	Poor-quality recording
SMU06498_20240720_032335.wav	Site 4	7/20/2024	3:23:35	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_042658.wav	Site 4	7/20/2024	4:26:58	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_035221.wav	Site 4	7/19/2024	3:52:21	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_034151.wav	Site 4	7/23/2024	3:41:51	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_005308.wav	Site 4	7/20/2024	0:53:08	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_040928.wav	Site 4	7/20/2024	4:09:28	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_000222.wav	Site 4	7/22/2024	0:02:22	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_015154.wav	Site 4	7/22/2024	1:51:54	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_022056.wav	Site 4	7/23/2024	2:20:56	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_214228.wav	Site 4	7/19/2024	21:42:28	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_050639.wav	Site 4	7/20/2024	5:06:39	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_014743.wav	Site 4	7/19/2024	1:47:43	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_044256.wav	Site 4	7/20/2024	4:42:56	MYGR	UNKN	Poor-quality recording
SMU06498_20240719_034411.wav	Site 4	7/19/2024	3:44:11	MYGR	UNKN	Poor-quality recording
SMU06498_20240720_033113.wav	Site 4	7/20/2024	3:31:13	MYGR	UNKN	Poor-quality recording
SMU06498_20240722_015923.wav	Site 4	7/22/2024	1:59:23	MYGR	UNKN	Poor-quality recording
SMU06498_20240722_042523.wav	Site 4	7/22/2024	4:25:23	MYGR	UNKN	Poor-quality recording
SMU06498_20240722_043842.wav	Site 4	7/22/2024	4:38:42	MYGR	UNKN	Poor-quality recording
SMU06498_20240719_014337.wav	Site 4	7/19/2024	1:43:37	MYGR	UNKN	Poor-quality recording
SMU06498_20240723_014444.wav	Site 4	7/23/2024	1:44:44	MYGR	UNKN	Poor-quality recording
SMU06498_20240724_034629.wav	Site 4	7/24/2024	3:46:29	MYGR	UNKN	Poor-quality recording

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240719_035142.wav	Site 4	7/19/2024	3:51:42	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_012131.wav	Site 4	7/20/2024	1:21:31	MYGR	LABO	Bouncing Fmin, lack of tails
SMU06498_20240716_200617.wav	Site 4	7/16/2024	20:06:17	MYGR	Noise	Non-bat noise
SMU06498_20240720_013048.wav	Site 4	7/20/2024	1:30:48	MYGR	Noise	Non-bat noise
SMU06498_20240722_044902.wav	Site 4	7/22/2024	4:49:02	MYGR	UNKN	Poor-quality recording
SMU06498_20240723_014910.wav	Site 4	7/23/2024	1:49:10	MYGR	UNKN	Poor-quality recording
SMU06498_20240720_045322.wav	Site 4	7/20/2024	4:53:22	MYGR	UNKN	Poor-quality recording
SMU06498_20240721_034736.wav	Site 4	7/21/2024	3:47:36	MYGR	UNKN	Poor-quality recording
SMU06498_20240721_043120.wav	Site 4	7/21/2024	4:31:20	MYGR	UNKN	Poor-quality recording
SMU06498_20240721_050147.wav	Site 4	7/21/2024	5:01:47	MYGR	UNKN	Poor-quality recording
SMU06498_20240722_033708.wav	Site 4	7/22/2024	3:37:08	MYGR	Noise	Non-bat noise
SMU06498_20240719_040045.wav	Site 4	7/19/2024	4:00:45	MYGR	UNKN	Poor-quality recording
SMU06498_20240721_020938.wav	Site 4	7/21/2024	2:09:38	MYGR	UNKN	Poor-quality recording
SMU06498_20240722_051120.wav	Site 4	7/22/2024	5:11:20	MYGR	UNKN	Poor-quality recording
SMU06498_20240720_012934.wav	Site 4	7/20/2024	1:29:34	MYLE	Noise	Non-bat noise
SMU06498_20240721_041345.wav	Site 4	7/21/2024	4:13:45	MYLE	Noise	Non-bat noise
SMU06498_20240721_001040.wav	Site 4	7/21/2024	0:10:40	MYLE	Noise	Non-bat noise
SMU06498_20240720_012712.wav	Site 4	7/20/2024	1:27:12	MYLE	Noise	Non-bat noise
SMU06498_20240721_021701.wav	Site 4	7/21/2024	2:17:01	MYLE	Noise	Non-bat noise
SMU06498_20240720_004325.wav	Site 4	7/20/2024	0:43:25	MYLE	Noise	Non-bat noise
SMU06498_20240720_011116.wav	Site 4	7/20/2024	1:11:16	MYLE	Noise	Non-bat noise
SMU06498_20240722_031230.wav	Site 4	7/22/2024	3:12:30	MYLE	Noise	Non-bat noise
SMU06498_20240718_005731.wav	Site 4	7/18/2024	0:57:31	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_011132.wav	Site 4	7/22/2024	1:11:32	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240721_234839.wav	Site 4	7/21/2024	23:48:39	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_223945.wav	Site 4	7/23/2024	22:39:45	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_033652.wav	Site 4	7/18/2024	3:36:52	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_022836.wav	Site 4	7/22/2024	2:28:36	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_221852.wav	Site 4	7/23/2024	22:18:52	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_231412.wav	Site 4	7/18/2024	23:14:12	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240717_221555.wav	Site 4	7/17/2024	22:15:55	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_011204.wav	Site 4	7/18/2024	1:12:04	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240717_221543.wav	Site 4	7/17/2024	22:15:43	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_032801.wav	Site 4	7/20/2024	3:28:01	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_231252.wav	Site 4	7/18/2024	23:12:52	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_221958.wav	Site 4	7/22/2024	22:19:58	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_211750.wav	Site 4	7/22/2024	21:17:50	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_032920.wav	Site 4	7/20/2024	3:29:20	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_215351.wav	Site 4	7/19/2024	21:53:51	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_000157.wav	Site 4	7/23/2024	0:01:57	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_023753.wav	Site 4	7/23/2024	2:37:53	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240716_224114.wav	Site 4	7/16/2024	22:41:14	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_222751.wav	Site 4	7/23/2024	22:27:51	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_230002.wav	Site 4	7/19/2024	23:00:02	MYLU	Noise	Non-bat noise
SMU06498_20240722_032219.wav	Site 4	7/22/2024	3:22:19	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_214801.wav	Site 4	7/22/2024	21:48:01	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_030545.wav	Site 4	7/22/2024	3:05:45	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240721_214015.wav	Site 4	7/21/2024	21:40:15	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240721_214021.wav	Site 4	7/21/2024	21:40:21	MYLU	LABO	Bouncing Fmin, lack of tails

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240722_205746.wav	Site 4	7/22/2024	20:57:46	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_220158.wav	Site 4	7/18/2024	22:01:58	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240717_221210.wav	Site 4	7/17/2024	22:12:10	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_034646.wav	Site 4	7/23/2024	3:46:46	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240716_223545.wav	Site 4	7/16/2024	22:35:45	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240721_025443.wav	Site 4	7/21/2024	2:54:43	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_231646.wav	Site 4	7/23/2024	23:16:46	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240721_053929.wav	Site 4	7/21/2024	5:39:29	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240716_220748.wav	Site 4	7/16/2024	22:07:48	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_020950.wav	Site 4	7/20/2024	2:09:50	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_230113.wav	Site 4	7/19/2024	23:01:13	MYLU	Noise	Non-bat noise
SMU06498_20240720_224424.wav	Site 4	7/20/2024	22:44:24	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_233951.wav	Site 4	7/22/2024	23:39:51	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_043403.wav	Site 4	7/19/2024	4:34:03	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_223852.wav	Site 4	7/18/2024	22:38:52	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_221440.wav	Site 4	7/22/2024	22:14:40	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_060932.wav	Site 4	7/18/2024	6:09:32	MYLU	Noise	Non-bat noise
SMU06498_20240722_051755.wav	Site 4	7/22/2024	5:17:55	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_224014.wav	Site 4	7/23/2024	22:40:14	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240718_040718.wav	Site 4	7/18/2024	4:07:18	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_215633.wav	Site 4	7/22/2024	21:56:33	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_225616.wav	Site 4	7/19/2024	22:56:16	MYLU	Noise	Non-bat noise
SMU06498_20240719_230125.wav	Site 4	7/19/2024	23:01:25	MYLU	Noise	Non-bat noise
SMU06498_20240724_002131.wav	Site 4	7/24/2024	0:21:31	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_012347.wav	Site 4	7/19/2024	1:23:47	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240722_234539.wav	Site 4	7/22/2024	23:45:39	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_043426.wav	Site 4	7/19/2024	4:34:26	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240723_025458.wav	Site 4	7/23/2024	2:54:58	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240716_200141.wav	Site 4	7/16/2024	20:01:41	MYLU	Noise	Non-bat noise
SMU06498_20240719_234000.wav	Site 4	7/19/2024	23:40:00	MYLU	Noise	Non-bat noise
SMU06498_20240723_013444.wav	Site 4	7/23/2024	1:34:44	MYLU	UNKN	Poor-quality recording
SMU06498_20240719_001543.wav	Site 4	7/19/2024	0:15:43	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240721_022319.wav	Site 4	7/21/2024	2:23:19	MYLU	Noise	Non-bat noise
SMU06498_20240722_011446.wav	Site 4	7/22/2024	1:14:46	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_233645.wav	Site 4	7/19/2024	23:36:45	MYLU	Noise	Non-bat noise
SMU06498_20240717_220450.wav	Site 4	7/17/2024	22:04:50	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_215247.wav	Site 4	7/19/2024	21:52:47	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240717_234429.wav	Site 4	7/17/2024	23:44:29	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_225533.wav	Site 4	7/19/2024	22:55:33	MYLU	Noise	Non-bat noise
SMU06498_20240719_234320.wav	Site 4	7/19/2024	23:43:20	MYLU	Noise	Non-bat noise
SMU06498_20240721_011507.wav	Site 4	7/21/2024	1:15:07	MYLU	UNKN	Poor-quality recording
SMU06498_20240717_200358.wav	Site 4	7/17/2024	20:03:58	MYLU	Noise	Non-bat noise
SMU06498_20240719_233417.wav	Site 4	7/19/2024	23:34:17	MYLU	Noise	Non-bat noise
SMU06498_20240717_195941.wav	Site 4	7/17/2024	19:59:41	MYLU	Noise	Non-bat noise
SMU06498_20240720_014202.wav	Site 4	7/20/2024	1:42:02	MYLU	Noise	Non-bat noise
SMU06498_20240721_042614.wav	Site 4	7/21/2024	4:26:14	MYLU	Noise	Non-bat noise
SMU06498_20240723_022443.wav	Site 4	7/23/2024	2:24:43	MYLU	UNKN	Poor-quality recording
SMU06498_20240717_195825.wav	Site 4	7/17/2024	19:58:25	MYLU	Noise	Non-bat noise
SMU06498_20240719_225940.wav	Site 4	7/19/2024	22:59:40	MYLU	Noise	Non-bat noise

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240721_021415.wav	Site 4	7/21/2024	2:14:15	MYLU	Noise	Non-bat noise
SMU06498_20240723_013802.wav	Site 4	7/23/2024	1:38:02	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_224754.wav	Site 4	7/19/2024	22:47:54	MYLU	Noise	Non-bat noise
SMU06498_20240720_011032.wav	Site 4	7/20/2024	1:10:32	MYLU	Noise	Non-bat noise
SMU06498_20240722_053034.wav	Site 4	7/22/2024	5:30:34	MYLU	Noise	Non-bat noise
SMU06498_20240719_014643.wav	Site 4	7/19/2024	1:46:43	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_050143.wav	Site 4	7/19/2024	5:01:43	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_224635.wav	Site 4	7/19/2024	22:46:35	MYLU	Noise	Non-bat noise
SMU06498_20240719_233708.wav	Site 4	7/19/2024	23:37:08	MYLU	Noise	Non-bat noise
SMU06498_20240719_233936.wav	Site 4	7/19/2024	23:39:36	MYLU	Noise	Non-bat noise
SMU06498_20240717_200303.wav	Site 4	7/17/2024	20:03:03	MYLU	Noise	Non-bat noise
SMU06498_20240718_224411.wav	Site 4	7/18/2024	22:44:11	MYLU	Noise	Non-bat noise
SMU06498_20240719_225345.wav	Site 4	7/19/2024	22:53:45	MYLU	Noise	Non-bat noise
SMU06498_20240720_012924.wav	Site 4	7/20/2024	1:29:24	MYLU	Noise	Non-bat noise
SMU06498_20240720_013855.wav	Site 4	7/20/2024	1:38:55	MYLU	Noise	Non-bat noise
SMU06498_20240720_013942.wav	Site 4	7/20/2024	1:39:42	MYLU	Noise	Non-bat noise
SMU06498_20240720_013354.wav	Site 4	7/20/2024	1:33:54	MYLU	Noise	Non-bat noise
SMU06498_20240721_025851.wav	Site 4	7/21/2024	2:58:51	MYLU	Noise	Non-bat noise
SMU06498_20240721_043250.wav	Site 4	7/21/2024	4:32:50	MYLU	Noise	Non-bat noise
SMU06498_20240722_231946.wav	Site 4	7/22/2024	23:19:46	MYLU	Noise	Non-bat noise
SMU06498_20240716_220512.wav	Site 4	7/16/2024	22:05:12	MYLU	Noise	Non-bat noise
SMU06498_20240717_200137.wav	Site 4	7/17/2024	20:01:37	MYLU	Noise	Non-bat noise
SMU06498_20240719_222402.wav	Site 4	7/19/2024	22:24:02	MYLU	UNKN	Poor-quality recording
SMU06498_20240720_010149.wav	Site 4	7/20/2024	1:01:49	MYLU	Noise	Non-bat noise
SMU06498_20240720_013606.wav	Site 4	7/20/2024	1:36:06	MYLU	Noise	Non-bat noise
SMU06498_20240720_200146.wav	Site 4	7/20/2024	20:01:46	MYLU	Noise	Non-bat noise
SMU06498_20240717_215711.wav	Site 4	7/17/2024	21:57:11	MYLU	Noise	Non-bat noise
SMU06498_20240720_012019.wav	Site 4	7/20/2024	1:20:19	MYLU	Noise	Non-bat noise
SMU06498_20240720_233231.wav	Site 4	7/20/2024	23:32:31	MYLU	Noise	Non-bat noise
SMU06498_20240721_021808.wav	Site 4	7/21/2024	2:18:08	MYLU	Noise	Non-bat noise
SMU06498_20240721_042234.wav	Site 4	7/21/2024	4:22:34	MYLU	UNKN	Poor-quality recording
SMU06498_20240718_031904.wav	Site 4	7/18/2024	3:19:04	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240719_232749.wav	Site 4	7/19/2024	23:27:49	MYLU	Noise	Non-bat noise
SMU06498_20240720_235453.wav	Site 4	7/20/2024	23:54:53	MYLU	Noise	Non-bat noise
SMU06498_20240722_003040.wav	Site 4	7/22/2024	0:30:40	MYLU	Noise	Non-bat noise
SMU06498_20240723_001414.wav	Site 4	7/23/2024	0:14:14	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240717_233756.wav	Site 4	7/17/2024	23:37:56	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_013134.wav	Site 4	7/20/2024	1:31:34	MYLU	Noise	Non-bat noise
SMU06498_20240720_013424.wav	Site 4	7/20/2024	1:34:24	MYLU	Noise	Non-bat noise
SMU06498_20240720_013723.wav	Site 4	7/20/2024	1:37:23	MYLU	Noise	Non-bat noise
SMU06498_20240719_233612.wav	Site 4	7/19/2024	23:36:12	MYLU	Noise	Non-bat noise
SMU06498_20240717_195845.wav	Site 4	7/17/2024	19:58:45	MYLU	Noise	Non-bat noise
SMU06498_20240718_005436.wav	Site 4	7/18/2024	0:54:36	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_005412.wav	Site 4	7/20/2024	0:54:12	MYLU	LABO	Bouncing Fmin, lack of tails
SMU06498_20240720_014002.wav	Site 4	7/20/2024	1:40:02	MYLU	Noise	Non-bat noise
SMU06498_20240722_010225.wav	Site 4	7/22/2024	1:02:25	MYLU	Noise	Non-bat noise
SMU06498_20240721_023925.wav	Site 4	7/21/2024	2:39:25	MYSE	Noise	Non-bat noise
SMU06498_20240720_012145.wav	Site 4	7/20/2024	1:21:45	MYSE	Noise	Non-bat noise
SMU06498_20240722_024819.wav	Site 4	7/22/2024	2:48:19	MYSE	Noise	Non-bat noise

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240719_224345.wav	Site 4	7/19/2024	22:43:45	MYSE	Noise	Non-bat noise
SMU06498_20240719_224602.wav	Site 4	7/19/2024	22:46:02	MYSE	Noise	Non-bat noise
SMU06498_20240722_043516.wav	Site 4	7/22/2024	4:35:16	MYSE	Noise	Non-bat noise
SMU06498_20240722_042419.wav	Site 4	7/22/2024	4:24:19	MYSE	Noise	Non-bat noise
SMU06498_20240722_040709.wav	Site 4	7/22/2024	4:07:09	MYSE	Noise	Non-bat noise
SMU06498_20240720_004904.wav	Site 4	7/20/2024	0:49:04	MYSE	Noise	Non-bat noise
SMU06498_20240721_001341.wav	Site 4	7/21/2024	0:13:41	MYSE	Noise	Non-bat noise
SMU06498_20240722_003055.wav	Site 4	7/22/2024	0:30:55	MYSE	Noise	Non-bat noise
SMU06498_20240722_034217.wav	Site 4	7/22/2024	3:42:17	MYSE	Noise	Non-bat noise
SMU06498_20240721_023507.wav	Site 4	7/21/2024	2:35:07	MYSE	Noise	Non-bat noise
SMU06498_20240719_225639.wav	Site 4	7/19/2024	22:56:39	MYSE	Noise	Non-bat noise
SMU06498_20240719_225609.wav	Site 4	7/19/2024	22:56:09	MYSE	Noise	Non-bat noise
SMU06498_20240722_033239.wav	Site 4	7/22/2024	3:32:39	MYSE	Noise	Non-bat noise
SMU06498_20240722_033514.wav	Site 4	7/22/2024	3:35:14	MYSE	Noise	Non-bat noise
SMU06498_20240722_022754.wav	Site 4	7/22/2024	2:27:54	MYSE	Noise	Non-bat noise
SMU06498_20240720_004616.wav	Site 4	7/20/2024	0:46:16	MYSE	Noise	Non-bat noise
SMU06498_20240721_023308.wav	Site 4	7/21/2024	2:33:08	MYSE	Noise	Non-bat noise
SMU06498_20240722_003832.wav	Site 4	7/22/2024	0:38:32	MYSE	Noise	Non-bat noise
SMU06498_20240722_003703.wav	Site 4	7/22/2024	0:37:03	MYSE	Noise	Non-bat noise
SMU06498_20240722_032443.wav	Site 4	7/22/2024	3:24:43	MYSE	Noise	Non-bat noise
SMU06498_20240721_025408.wav	Site 4	7/21/2024	2:54:08	MYSE	Noise	Non-bat noise
SMU06498_20240722_021921.wav	Site 4	7/22/2024	2:19:21	MYSE	Noise	Non-bat noise
SMU06498_20240722_041311.wav	Site 4	7/22/2024	4:13:11	MYSE	Noise	Non-bat noise
SMU06498_20240722_042642.wav	Site 4	7/22/2024	4:26:42	MYSE	Noise	Non-bat noise
SMU06498_20240721_002631.wav	Site 4	7/21/2024	0:26:31	MYSE	Noise	Non-bat noise
SMU06498_20240721_022403.wav	Site 4	7/21/2024	2:24:03	MYSE	Noise	Non-bat noise
SMU06498_20240722_043443.wav	Site 4	7/22/2024	4:34:43	MYSE	Noise	Non-bat noise
SMU06498_20240721_023719.wav	Site 4	7/21/2024	2:37:19	MYSE	Noise	Non-bat noise
SMU06498_20240720_003427.wav	Site 4	7/20/2024	0:34:27	MYSE	Noise	Non-bat noise
SMU06498_20240720_003004.wav	Site 4	7/20/2024	0:30:04	MYSE	Noise	Non-bat noise
SMU06498_20240721_023800.wav	Site 4	7/21/2024	2:38:00	MYSE	Noise	Non-bat noise
SMU06498_20240720_005944.wav	Site 4	7/20/2024	0:59:44	MYSE	Noise	Non-bat noise
SMU06498_20240720_213810.wav	Site 4	7/20/2024	21:38:10	MYSE	Noise	Non-bat noise
SMU06498_20240721_002536.wav	Site 4	7/21/2024	0:25:36	MYSE	Noise	Non-bat noise
SMU06498_20240721_023316.wav	Site 4	7/21/2024	2:33:16	MYSE	Noise	Non-bat noise
SMU06498_20240721_025424.wav	Site 4	7/21/2024	2:54:24	MYSE	Noise	Non-bat noise
SMU06498_20240721_004004.wav	Site 4	7/21/2024	0:40:04	MYSE	Noise	Non-bat noise
SMU06498_20240722_003328.wav	Site 4	7/22/2024	0:33:28	MYSE	Noise	Non-bat noise
SMU06498_20240722_042334.wav	Site 4	7/22/2024	4:23:34	MYSE	Noise	Non-bat noise
SMU06498_20240720_232221.wav	Site 4	7/20/2024	23:22:21	MYSE	Noise	Non-bat noise
SMU06498_20240722_033753.wav	Site 4	7/22/2024	3:37:53	MYSE	Noise	Non-bat noise
SMU06498_20240720_004649.wav	Site 4	7/20/2024	0:46:49	MYSE	Noise	Non-bat noise
SMU06498_20240720_012157.wav	Site 4	7/20/2024	1:21:57	MYSE	Noise	Non-bat noise
SMU06498_20240720_223203.wav	Site 4	7/20/2024	22:32:03	MYSE	Noise	Non-bat noise
SMU06498_20240721_023823.wav	Site 4	7/21/2024	2:38:23	MYSE	Noise	Non-bat noise
SMU06498_20240721_025507.wav	Site 4	7/21/2024	2:55:07	MYSE	Noise	Non-bat noise
SMU06498_20240722_004801.wav	Site 4	7/22/2024	0:48:01	MYSE	Noise	Non-bat noise
SMU06498_20240722_024928.wav	Site 4	7/22/2024	2:49:28	MYSE	Noise	Non-bat noise
SMU06498_20240722_004422.wav	Site 4	7/22/2024	0:44:22	MYSE	Noise	Non-bat noise

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240722_033347.wav	Site 4	7/22/2024	3:33:47	MYSE	Noise	Non-bat noise
SMU06498_20240720_012628.wav	Site 4	7/20/2024	1:26:28	MYSE	Noise	Non-bat noise
SMU06498_20240721_002032.wav	Site 4	7/21/2024	0:20:32	MYSE	Noise	Non-bat noise
SMU06498_20240722_042214.wav	Site 4	7/22/2024	4:22:14	MYSE	Noise	Non-bat noise
SMU06498_20240721_022347.wav	Site 4	7/21/2024	2:23:47	MYSE	Noise	Non-bat noise
SMU06498_20240721_023848.wav	Site 4	7/21/2024	2:38:48	MYSE	Noise	Non-bat noise
SMU06498_20240722_041439.wav	Site 4	7/22/2024	4:14:39	MYSE	Noise	Non-bat noise
SMU06498_20240722_040035.wav	Site 4	7/22/2024	4:00:35	MYSE	Noise	Non-bat noise
SMU06498_20240719_225704.wav	Site 4	7/19/2024	22:57:04	MYSE	Noise	Non-bat noise
SMU06498_20240722_023236.wav	Site 4	7/22/2024	2:32:36	MYSE	Noise	Non-bat noise
SMU06498_20240720_012102.wav	Site 4	7/20/2024	1:21:02	MYSE	Noise	Non-bat noise
SMU06498_20240720_212522.wav	Site 4	7/20/2024	21:25:22	MYSE	Noise	Non-bat noise
SMU06498_20240721_020953.wav	Site 4	7/21/2024	2:09:53	MYSE	Noise	Non-bat noise
SMU06498_20240720_004537.wav	Site 4	7/20/2024	0:45:37	MYSE	Noise	Non-bat noise
SMU06498_20240720_005402.wav	Site 4	7/20/2024	0:54:02	MYSE	Noise	Non-bat noise
SMU06498_20240720_011815.wav	Site 4	7/20/2024	1:18:15	MYSE	Noise	Non-bat noise
SMU06498_20240720_012343.wav	Site 4	7/20/2024	1:23:43	MYSE	Noise	Non-bat noise
SMU06498_20240720_234234.wav	Site 4	7/20/2024	23:42:34	MYSE	Noise	Non-bat noise
SMU06498_20240721_001913.wav	Site 4	7/21/2024	0:19:13	MYSE	Noise	Non-bat noise
SMU06498_20240721_004908.wav	Site 4	7/21/2024	0:49:08	MYSE	Noise	Non-bat noise
SMU06498_20240721_025604.wav	Site 4	7/21/2024	2:56:04	MYSE	Noise	Non-bat noise
SMU06498_20240721_025619.wav	Site 4	7/21/2024	2:56:19	MYSE	Noise	Non-bat noise
SMU06498_20240722_012835.wav	Site 4	7/22/2024	1:28:35	MYSE	Noise	Non-bat noise
SMU06498_20240722_024719.wav	Site 4	7/22/2024	2:47:19	MYSE	Noise	Non-bat noise
SMU06498_20240722_031927.wav	Site 4	7/22/2024	3:19:27	MYSE	Noise	Non-bat noise
SMU06498_20240722_052936.wav	Site 4	7/22/2024	5:29:36	MYSE	Noise	Non-bat noise
SMU06498_20240722_053301.wav	Site 4	7/22/2024	5:33:01	MYSE	Noise	Non-bat noise
SMU06498_20240719_224737.wav	Site 4	7/19/2024	22:47:37	MYSE	Noise	Non-bat noise
SMU06498_20240720_004040.wav	Site 4	7/20/2024	0:40:40	MYSE	Noise	Non-bat noise
SMU06498_20240722_004549.wav	Site 4	7/22/2024	0:45:49	MYSE	Noise	Non-bat noise
SMU06498_20240722_005315.wav	Site 4	7/22/2024	0:53:15	MYSE	Noise	Non-bat noise
SMU06498_20240722_200823.wav	Site 4	7/22/2024	20:08:23	MYSE	Noise	Non-bat noise
SMU06498_20240719_225442.wav	Site 4	7/19/2024	22:54:42	MYSE	Noise	Non-bat noise
SMU06498_20240721_002856.wav	Site 4	7/21/2024	0:28:56	MYSE	Noise	Non-bat noise
SMU06498_20240721_004842.wav	Site 4	7/21/2024	0:48:42	MYSE	Noise	Non-bat noise
SMU06498_20240721_024246.wav	Site 4	7/21/2024	2:42:46	MYSE	Noise	Non-bat noise
SMU06498_20240721_025229.wav	Site 4	7/21/2024	2:52:29	MYSE	Noise	Non-bat noise
SMU06498_20240721_044418.wav	Site 4	7/21/2024	4:44:18	MYSE	Noise	Non-bat noise
SMU06498_20240722_005635.wav	Site 4	7/22/2024	0:56:35	MYSE	Noise	Non-bat noise
SMU06498_20240722_043136.wav	Site 4	7/22/2024	4:31:36	MYSE	Noise	Non-bat noise
SMU06498_20240722_053205.wav	Site 4	7/22/2024	5:32:05	MYSE	Noise	Non-bat noise
SMU06498_20240721_021236.wav	Site 4	7/21/2024	2:12:36	MYSE	Noise	Non-bat noise
SMU06498_20240721_024555.wav	Site 4	7/21/2024	2:45:55	MYSE	Noise	Non-bat noise
SMU06498_20240721_025302.wav	Site 4	7/21/2024	2:53:02	MYSE	Noise	Non-bat noise
SMU06498_20240722_003214.wav	Site 4	7/22/2024	0:32:14	MYSE	Noise	Non-bat noise
SMU06498_20240720_004715.wav	Site 4	7/20/2024	0:47:15	MYSE	Noise	Non-bat noise
SMU06498_20240721_022431.wav	Site 4	7/21/2024	2:24:31	MYSE	Noise	Non-bat noise
SMU06498_20240722_005452.wav	Site 4	7/22/2024	0:54:52	MYSE	Noise	Non-bat noise
SMU06498_20240722_003949.wav	Site 4	7/22/2024	0:39:49	MYSE	Noise	Non-bat noise

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240722_032108.wav	Site 4	7/22/2024	3:21:08	MYSE	Noise	Non-bat noise
SMU06498_20240719_225602.wav	Site 4	7/19/2024	22:56:02	MYSE	Noise	Non-bat noise
SMU06498_20240722_023207.wav	Site 4	7/22/2024	2:32:07	MYSE	Noise	Non-bat noise
SMU06498_20240722_051141.wav	Site 4	7/22/2024	5:11:41	MYSE	Noise	Non-bat noise
SMU06498_20240722_232356.wav	Site 4	7/22/2024	23:23:56	MYSE	Noise	Non-bat noise
SMU06498_20240721_004526.wav	Site 4	7/21/2024	0:45:26	MYSE	Noise	Non-bat noise
SMU06498_20240722_003508.wav	Site 4	7/22/2024	0:35:08	MYSE	Noise	Non-bat noise
SMU06498_20240721_045026.wav	Site 4	7/21/2024	4:50:26	MYSE	Noise	Non-bat noise
SMU06498_20240719_234143.wav	Site 4	7/19/2024	23:41:43	MYSE	Noise	Non-bat noise
SMU06498_20240719_224216.wav	Site 4	7/19/2024	22:42:16	MYSE	Noise	Non-bat noise
SMU06498_20240720_003325.wav	Site 4	7/20/2024	0:33:25	MYSE	Noise	Non-bat noise
SMU06498_20240720_004554.wav	Site 4	7/20/2024	0:45:54	MYSE	Noise	Non-bat noise
SMU06498_20240720_010853.wav	Site 4	7/20/2024	1:08:53	MYSE	Noise	Non-bat noise
SMU06498_20240720_011701.wav	Site 4	7/20/2024	1:17:01	MYSE	Noise	Non-bat noise
SMU06498_20240720_012657.wav	Site 4	7/20/2024	1:26:57	MYSE	Noise	Non-bat noise
SMU06498_20240720_020222.wav	Site 4	7/20/2024	2:02:22	MYSE	Noise	Non-bat noise
SMU06498_20240721_001233.wav	Site 4	7/21/2024	0:12:33	MYSE	Noise	Non-bat noise
SMU06498_20240721_004407.wav	Site 4	7/21/2024	0:44:07	MYSE	Noise	Non-bat noise
SMU06498_20240721_021720.wav	Site 4	7/21/2024	2:17:20	MYSE	Noise	Non-bat noise
SMU06498_20240721_022725.wav	Site 4	7/21/2024	2:27:25	MYSE	Noise	Non-bat noise
SMU06498_20240721_022656.wav	Site 4	7/21/2024	2:26:56	MYSE	Noise	Non-bat noise
SMU06498_20240722_001115.wav	Site 4	7/22/2024	0:11:15	MYSE	Noise	Non-bat noise
SMU06498_20240722_033735.wav	Site 4	7/22/2024	3:37:35	MYSE	Noise	Non-bat noise
SMU06498_20240722_040146.wav	Site 4	7/22/2024	4:01:46	MYSE	Noise	Non-bat noise
SMU06498_20240722_042842.wav	Site 4	7/22/2024	4:28:42	MYSE	Noise	Non-bat noise
SMU06498_20240722_231223.wav	Site 4	7/22/2024	23:12:23	MYSE	Noise	Non-bat noise
SMU06498_20240719_224130.wav	Site 4	7/19/2024	22:41:30	MYSE	Noise	Non-bat noise
SMU06498_20240719_224956.wav	Site 4	7/19/2024	22:49:56	MYSE	Noise	Non-bat noise
SMU06498_20240720_010038.wav	Site 4	7/20/2024	1:00:38	MYSE	Noise	Non-bat noise
SMU06498_20240721_021942.wav	Site 4	7/21/2024	2:19:42	MYSE	Noise	Non-bat noise
SMU06498_20240721_022511.wav	Site 4	7/21/2024	2:25:11	MYSE	Noise	Non-bat noise
SMU06498_20240721_023649.wav	Site 4	7/21/2024	2:36:49	MYSE	Noise	Non-bat noise
SMU06498_20240722_010302.wav	Site 4	7/22/2024	1:03:02	MYSE	Noise	Non-bat noise
SMU06498_20240722_022908.wav	Site 4	7/22/2024	2:29:08	MYSE	Noise	Non-bat noise
SMU06498_20240722_023130.wav	Site 4	7/22/2024	2:31:30	MYSE	Noise	Non-bat noise
SMU06498_20240722_031411.wav	Site 4	7/22/2024	3:14:11	MYSE	Noise	Non-bat noise
SMU06498_20240722_041723.wav	Site 4	7/22/2024	4:17:23	MYSE	Noise	Non-bat noise
SMU06498_20240717_200011.wav	Site 4	7/17/2024	20:00:11	MYSE	Noise	Non-bat noise
SMU06498_20240720_011247.wav	Site 4	7/20/2024	1:12:47	MYSE	Noise	Non-bat noise
SMU06498_20240720_012426.wav	Site 4	7/20/2024	1:24:26	MYSE	Noise	Non-bat noise
SMU06498_20240720_013820.wav	Site 4	7/20/2024	1:38:20	MYSE	Noise	Non-bat noise
SMU06498_20240720_221402.wav	Site 4	7/20/2024	22:14:02	MYSE	Noise	Non-bat noise
SMU06498_20240721_003156.wav	Site 4	7/21/2024	0:31:56	MYSE	Noise	Non-bat noise
SMU06498_20240722_041807.wav	Site 4	7/22/2024	4:18:07	MYSE	Noise	Non-bat noise
SMU06498_20240720_221019.wav	Site 4	7/20/2024	22:10:19	MYSE	Noise	Non-bat noise
SMU06498_20240720_221514.wav	Site 4	7/20/2024	22:15:14	MYSE	Noise	Non-bat noise
SMU06498_20240722_042549.wav	Site 4	7/22/2024	4:25:49	MYSE	Noise	Non-bat noise
SMU06498_20240720_232310.wav	Site 4	7/20/2024	23:23:10	MYSE	Noise	Non-bat noise
SMU06498_20240722_004330.wav	Site 4	7/22/2024	0:43:30	MYSE	Noise	Non-bat noise

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240719_224503.wav	Site 4	7/19/2024	22:45:03	MYSE	Noise	Non-bat noise
SMU06498_20240721_025348.wav	Site 4	7/21/2024	2:53:48	MYSO	Noise	Non-bat noise
SMU06498_20240720_003412.wav	Site 4	7/20/2024	0:34:12	MYSO	Noise	Non-bat noise
SMU06498_20240721_025324.wav	Site 4	7/21/2024	2:53:24	MYSO	Noise	Non-bat noise
SMU06498_20240721_030435.wav	Site 4	7/21/2024	3:04:35	MYSO	Noise	Non-bat noise
SMU06498_20240719_202404.wav	Site 4	7/19/2024	20:24:04	MYSO	UNKN	Poor-quality recording
SMU06498_20240721_002043.wav	Site 4	7/21/2024	0:20:43	MYSO	Noise	Non-bat noise
SMU06498_20240721_021524.wav	Site 4	7/21/2024	2:15:24	MYSO	Noise	Non-bat noise
SMU06498_20240719_203337.wav	Site 4	7/19/2024	20:33:37	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_051223.wav	Site 4	7/23/2024	5:12:23	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_212712.wav	Site 4	7/18/2024	21:27:12	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_053235.wav	Site 4	7/21/2024	5:32:35	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_051301.wav	Site 4	7/21/2024	5:13:01	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_050430.wav	Site 4	7/21/2024	5:04:30	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_050415.wav	Site 4	7/21/2024	5:04:15	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_051632.wav	Site 4	7/23/2024	5:16:32	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_051238.wav	Site 4	7/23/2024	5:12:38	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_202448.wav	Site 4	7/20/2024	20:24:48	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_051720.wav	Site 4	7/23/2024	5:17:20	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_051035.wav	Site 4	7/21/2024	5:10:35	NYHU	LABO	Bouncing Fmin
SMU06498_20240721_051318.wav	Site 4	7/21/2024	5:13:18	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052953.wav	Site 4	7/21/2024	5:29:53	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_050734.wav	Site 4	7/21/2024	5:07:34	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_051206.wav	Site 4	7/23/2024	5:12:06	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_051331.wav	Site 4	7/23/2024	5:13:31	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_202835.wav	Site 4	7/18/2024	20:28:35	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_051433.wav	Site 4	7/21/2024	5:14:33	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_051657.wav	Site 4	7/21/2024	5:16:57	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_053144.wav	Site 4	7/21/2024	5:31:44	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_202926.wav	Site 4	7/18/2024	20:29:26	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052700.wav	Site 4	7/21/2024	5:27:00	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_051401.wav	Site 4	7/23/2024	5:14:01	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_051253.wav	Site 4	7/23/2024	5:12:53	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_051947.wav	Site 4	7/21/2024	5:19:47	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_051732.wav	Site 4	7/21/2024	5:17:32	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052451.wav	Site 4	7/21/2024	5:24:51	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_050702.wav	Site 4	7/21/2024	5:07:02	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_051107.wav	Site 4	7/23/2024	5:11:07	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_202528.wav	Site 4	7/20/2024	20:25:28	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_225901.wav	Site 4	7/23/2024	22:59:01	NYHU	LABO	Bouncing Fmin
SMU06498_20240721_050842.wav	Site 4	7/21/2024	5:08:42	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_051358.wav	Site 4	7/21/2024	5:13:58	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_053051.wav	Site 4	7/21/2024	5:30:51	NYHU	LABO	Bouncing Fmin
SMU06498_20240723_052428.wav	Site 4	7/23/2024	5:24:28	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_051059.wav	Site 4	7/21/2024	5:10:59	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_051803.wav	Site 4	7/21/2024	5:18:03	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052920.wav	Site 4	7/21/2024	5:29:20	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_052126.wav	Site 4	7/23/2024	5:21:26	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_050651.wav	Site 4	7/21/2024	5:06:51	NYHU	LABO/NYHU	Calls not definitive to a single species

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240721_051343.wav	Site 4	7/21/2024	5:13:43	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240717_203221.wav	Site 4	7/17/2024	20:32:21	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_203436.wav	Site 4	7/18/2024	20:34:36	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_052202.wav	Site 4	7/23/2024	5:22:02	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_051919.wav	Site 4	7/21/2024	5:19:19	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_051627.wav	Site 4	7/21/2024	5:16:27	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052208.wav	Site 4	7/21/2024	5:22:08	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_203405.wav	Site 4	7/18/2024	20:34:05	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_051139.wav	Site 4	7/18/2024	5:11:39	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240716_203344.wav	Site 4	7/16/2024	20:33:44	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052414.wav	Site 4	7/21/2024	5:24:14	NYHU	LABO	Bouncing Fmin
SMU06498_20240724_035557.wav	Site 4	7/24/2024	3:55:57	NYHU	LABO	Bouncing Fmin
SMU06498_20240721_052613.wav	Site 4	7/21/2024	5:26:13	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240719_203659.wav	Site 4	7/19/2024	20:36:59	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052754.wav	Site 4	7/21/2024	5:27:54	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052506.wav	Site 4	7/21/2024	5:25:06	NYHU	LABO	Bouncing Fmin
SMU06498_20240721_052740.wav	Site 4	7/21/2024	5:27:40	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240724_033842.wav	Site 4	7/24/2024	3:38:42	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052907.wav	Site 4	7/21/2024	5:29:07	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_052411.wav	Site 4	7/23/2024	5:24:11	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052810.wav	Site 4	7/21/2024	5:28:10	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052722.wav	Site 4	7/21/2024	5:27:22	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_051550.wav	Site 4	7/23/2024	5:15:50	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_051705.wav	Site 4	7/23/2024	5:17:05	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_051939.wav	Site 4	7/23/2024	5:19:39	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_051616.wav	Site 4	7/23/2024	5:16:16	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_052110.wav	Site 4	7/23/2024	5:21:10	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052340.wav	Site 4	7/21/2024	5:23:40	NYHU	UNKN	Poor-quality recording
SMU06498_20240721_051050.wav	Site 4	7/21/2024	5:10:50	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240717_230447.wav	Site 4	7/17/2024	23:04:47	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_053009.wav	Site 4	7/21/2024	5:30:09	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_050608.wav	Site 4	7/23/2024	5:06:08	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_052607.wav	Site 4	7/23/2024	5:26:07	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_052648.wav	Site 4	7/23/2024	5:26:48	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240717_230522.wav	Site 4	7/17/2024	23:05:22	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240724_033822.wav	Site 4	7/24/2024	3:38:22	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_022218.wav	Site 4	7/23/2024	2:22:18	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240719_221114.wav	Site 4	7/19/2024	22:11:14	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_052514.wav	Site 4	7/20/2024	5:25:14	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_041441.wav	Site 4	7/21/2024	4:14:41	NYHU	LABO	Bouncing Fmin
SMU06498_20240721_050904.wav	Site 4	7/21/2024	5:09:04	NYHU	LABO	Bouncing Fmin
SMU06498_20240721_051334.wav	Site 4	7/21/2024	5:13:34	NYHU	LABO	Bouncing Fmin
SMU06498_20240720_202503.wav	Site 4	7/20/2024	20:25:03	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052429.wav	Site 4	7/21/2024	5:24:29	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_052744.wav	Site 4	7/23/2024	5:27:44	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_022622.wav	Site 4	7/18/2024	2:26:22	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_043112.wav	Site 4	7/18/2024	4:31:12	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_043517.wav	Site 4	7/18/2024	4:35:17	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_001103.wav	Site 4	7/23/2024	0:11:03	NYHU	LABO/NYHU	Calls not definitive to a single species

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240720_051738.wav	Site 4	7/20/2024	5:17:38	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_050007.wav	Site 4	7/20/2024	5:00:07	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_051825.wav	Site 4	7/22/2024	5:18:25	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_050618.wav	Site 4	7/23/2024	5:06:18	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_051336.wav	Site 4	7/18/2024	5:13:36	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240724_025754.wav	Site 4	7/24/2024	2:57:54	NYHU	LABO	Bouncing Fmin
SMU06498_20240721_231907.wav	Site 4	7/21/2024	23:19:07	NYHU	LABO	Bouncing Fmin
SMU06498_20240721_221822.wav	Site 4	7/21/2024	22:18:22	NYHU	LABO	Bouncing Fmin
SMU06498_20240718_043502.wav	Site 4	7/18/2024	4:35:02	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052604.wav	Site 4	7/21/2024	5:26:04	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_053106.wav	Site 4	7/21/2024	5:31:06	NYHU	UNKN	Poor-quality recording
SMU06498_20240718_043057.wav	Site 4	7/18/2024	4:30:57	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_052501.wav	Site 4	7/23/2024	5:25:01	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_201607.wav	Site 4	7/23/2024	20:16:07	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240719_033536.wav	Site 4	7/19/2024	3:35:36	NYHU	LABO	Bouncing Fmin
SMU06498_20240718_051119.wav	Site 4	7/18/2024	5:11:19	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_045338.wav	Site 4	7/22/2024	4:53:38	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240717_234211.wav	Site 4	7/17/2024	23:42:11	NYHU	LABO	Bouncing Fmin
SMU06498_20240718_021826.wav	Site 4	7/18/2024	2:18:26	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_051229.wav	Site 4	7/20/2024	5:12:29	NYHU	LABO	Bouncing Fmin
SMU06498_20240723_052443.wav	Site 4	7/23/2024	5:24:43	NYHU	LABO	Bouncing Fmin
SMU06498_20240720_004757.wav	Site 4	7/20/2024	0:47:57	NYHU	LABO	Bouncing Fmin
SMU06498_20240721_050820.wav	Site 4	7/21/2024	5:08:20	NYHU	LABO	Bouncing Fmin
SMU06498_20240724_020956.wav	Site 4	7/24/2024	2:09:56	NYHU	LABO	Bouncing Fmin
SMU06498_20240721_051247.wav	Site 4	7/21/2024	5:12:47	NYHU	LABO	Bouncing Fmin
SMU06498_20240721_051728.wav	Site 4	7/21/2024	5:17:28	NYHU	LABO	Bouncing Fmin
SMU06498_20240723_052621.wav	Site 4	7/23/2024	5:26:21	NYHU	LABO	Bouncing Fmin
SMU06498_20240721_045845.wav	Site 4	7/21/2024	4:58:45	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_051903.wav	Site 4	7/22/2024	5:19:03	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_043450.wav	Site 4	7/18/2024	4:34:50	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_053545.wav	Site 4	7/23/2024	5:35:45	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_052523.wav	Site 4	7/23/2024	5:25:23	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_230734.wav	Site 4	7/20/2024	23:07:34	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_002355.wav	Site 4	7/22/2024	0:23:55	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_052128.wav	Site 4	7/22/2024	5:21:28	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_231027.wav	Site 4	7/21/2024	23:10:27	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_050805.wav	Site 4	7/20/2024	5:08:05	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_040239.wav	Site 4	7/22/2024	4:02:39	NYHU	LABO	Bouncing Fmin
SMU06498_20240720_211200.wav	Site 4	7/20/2024	21:12:00	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_052545.wav	Site 4	7/23/2024	5:25:45	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240719_210452.wav	Site 4	7/19/2024	21:04:52	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_230126.wav	Site 4	7/21/2024	23:01:26	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_051856.wav	Site 4	7/23/2024	5:18:56	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_012344.wav	Site 4	7/18/2024	1:23:44	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_004106.wav	Site 4	7/21/2024	0:41:06	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_052211.wav	Site 4	7/18/2024	5:22:11	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_211359.wav	Site 4	7/20/2024	21:13:59	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052936.wav	Site 4	7/21/2024	5:29:36	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_221513.wav	Site 4	7/21/2024	22:15:13	NYHU	LABO/NYHU	Calls not definitive to a single species

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240720_051418.wav	Site 4	7/20/2024	5:14:18	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052632.wav	Site 4	7/21/2024	5:26:32	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_051811.wav	Site 4	7/22/2024	5:18:11	NYHU	LABO	Bouncing Fmin
SMU06498_20240723_051819.wav	Site 4	7/23/2024	5:18:19	NYHU	LACI	Multiple bats, dominant signal is LACI
SMU06498_20240723_051955.wav	Site 4	7/23/2024	5:19:55	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_053138.wav	Site 4	7/21/2024	5:31:38	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052549.wav	Site 4	7/21/2024	5:25:49	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_053122.wav	Site 4	7/21/2024	5:31:22	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_050506.wav	Site 4	7/23/2024	5:05:06	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_220212.wav	Site 4	7/20/2024	22:02:12	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_005315.wav	Site 4	7/18/2024	0:53:15	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_051959.wav	Site 4	7/20/2024	5:19:59	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_202233.wav	Site 4	7/20/2024	20:22:33	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_050351.wav	Site 4	7/21/2024	5:03:51	NYHU	LABO	Bouncing Fmin
SMU06498_20240723_222923.wav	Site 4	7/23/2024	22:29:23	NYHU	LABO	Bouncing Fmin
SMU06498_20240723_022203.wav	Site 4	7/23/2024	2:22:03	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_224951.wav	Site 4	7/18/2024	22:49:51	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_051447.wav	Site 4	7/23/2024	5:14:47	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_220148.wav	Site 4	7/18/2024	22:01:48	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_052844.wav	Site 4	7/23/2024	5:28:44	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_053036.wav	Site 4	7/21/2024	5:30:36	NYHU	LABO	Bouncing Fmin
SMU06498_20240723_052217.wav	Site 4	7/23/2024	5:22:17	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_031357.wav	Site 4	7/22/2024	3:13:57	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_214908.wav	Site 4	7/20/2024	21:49:08	NYHU	LABO	Bouncing Fmin
SMU06498_20240722_002343.wav	Site 4	7/22/2024	0:23:43	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_203357.wav	Site 4	7/18/2024	20:33:57	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_211145.wav	Site 4	7/20/2024	21:11:45	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240724_033805.wav	Site 4	7/24/2024	3:38:05	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_041649.wav	Site 4	7/18/2024	4:16:49	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_204829.wav	Site 4	7/22/2024	20:48:29	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240719_231031.wav	Site 4	7/19/2024	23:10:31	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_044901.wav	Site 4	7/18/2024	4:49:01	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_050203.wav	Site 4	7/21/2024	5:02:03	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_052516.wav	Site 4	7/21/2024	5:25:16	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_053711.wav	Site 4	7/21/2024	5:37:11	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_032634.wav	Site 4	7/21/2024	3:26:34	NYHU	LABO	Bouncing Fmin
SMU06498_20240720_211242.wav	Site 4	7/20/2024	21:12:42	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240719_225410.wav	Site 4	7/19/2024	22:54:10	NYHU	LABO	Bouncing Fmin
SMU06498_20240723_050716.wav	Site 4	7/23/2024	5:07:16	NYHU	LABO	Bouncing Fmin
SMU06498_20240720_221232.wav	Site 4	7/20/2024	22:12:32	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_050941.wav	Site 4	7/21/2024	5:09:41	NYHU	LABO	Bouncing Fmin
SMU06498_20240722_051554.wav	Site 4	7/22/2024	5:15:54	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_204042.wav	Site 4	7/22/2024	20:40:42	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_055545.wav	Site 4	7/21/2024	5:55:45	NYHU	LABO	Bouncing Fmin
SMU06498_20240718_203617.wav	Site 4	7/18/2024	20:36:17	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_045618.wav	Site 4	7/22/2024	4:56:18	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_051848.wav	Site 4	7/22/2024	5:18:48	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_052442.wav	Site 4	7/20/2024	5:24:42	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_021354.wav	Site 4	7/22/2024	2:13:54	NYHU	LABO/NYHU	Calls not definitive to a single species

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240720_223539.wav	Site 4	7/20/2024	22:35:39	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_053022.wav	Site 4	7/21/2024	5:30:22	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_052054.wav	Site 4	7/23/2024	5:20:54	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240716_232444.wav	Site 4	7/16/2024	23:24:44	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_224710.wav	Site 4	7/22/2024	22:47:10	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_035615.wav	Site 4	7/23/2024	3:56:15	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_015711.wav	Site 4	7/18/2024	1:57:11	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_224518.wav	Site 4	7/18/2024	22:45:18	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_015837.wav	Site 4	7/21/2024	1:58:37	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240717_203121.wav	Site 4	7/17/2024	20:31:21	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_034837.wav	Site 4	7/23/2024	3:48:37	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240719_223330.wav	Site 4	7/19/2024	22:33:30	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240717_195113.wav	Site 4	7/17/2024	19:51:13	NYHU	Noise	Non-bat noise
SMU06498_20240718_031038.wav	Site 4	7/18/2024	3:10:38	NYHU	Noise	Non-bat noise
SMU06498_20240718_220726.wav	Site 4	7/18/2024	22:07:26	NYHU	Noise	Non-bat noise
SMU06498_20240722_053229.wav	Site 4	7/22/2024	5:32:29	NYHU	Noise	Non-bat noise
SMU06498_20240718_032938.wav	Site 4	7/18/2024	3:29:38	NYHU	Noise	Non-bat noise
SMU06498_20240718_232654.wav	Site 4	7/18/2024	23:26:54	NYHU	Noise	Non-bat noise
SMU06498_20240722_215303.wav	Site 4	7/22/2024	21:53:03	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_211555.wav	Site 4	7/23/2024	21:15:55	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_231839.wav	Site 4	7/20/2024	23:18:39	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_041952.wav	Site 4	7/21/2024	4:19:52	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_053011.wav	Site 4	7/23/2024	5:30:11	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_233637.wav	Site 4	7/21/2024	23:36:37	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_045704.wav	Site 4	7/22/2024	4:57:04	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240719_230509.wav	Site 4	7/19/2024	23:05:09	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_224759.wav	Site 4	7/21/2024	22:47:59	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_051320.wav	Site 4	7/18/2024	5:13:20	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240721_235102.wav	Site 4	7/21/2024	23:51:02	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_223832.wav	Site 4	7/20/2024	22:38:32	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240717_224445.wav	Site 4	7/17/2024	22:44:45	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_045651.wav	Site 4	7/23/2024	4:56:51	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_203553.wav	Site 4	7/18/2024	20:35:53	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_212411.wav	Site 4	7/23/2024	21:24:11	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_050049.wav	Site 4	7/22/2024	5:00:49	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_211412.wav	Site 4	7/20/2024	21:14:12	NYHU	LABO	Bouncing Fmin
SMU06498_20240722_045743.wav	Site 4	7/22/2024	4:57:43	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_224333.wav	Site 4	7/20/2024	22:43:33	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_201619.wav	Site 4	7/23/2024	20:16:19	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240717_195759.wav	Site 4	7/17/2024	19:57:59	NYHU	Noise	Non-bat noise
SMU06498_20240718_015956.wav	Site 4	7/18/2024	1:59:56	NYHU	Noise	Non-bat noise
SMU06498_20240718_025224.wav	Site 4	7/18/2024	2:52:24	NYHU	Noise	Non-bat noise
SMU06498_20240718_033209.wav	Site 4	7/18/2024	3:32:09	NYHU	Noise	Non-bat noise
SMU06498_20240722_042914.wav	Site 4	7/22/2024	4:29:14	NYHU	UNKN	Poor-quality recording
SMU06498_20240723_231249.wav	Site 4	7/23/2024	23:12:49	NYHU	UNKN	Poor-quality recording
SMU06498_20240724_034004.wav	Site 4	7/24/2024	3:40:04	NYHU	UNKN	Poor-quality recording
SMU06498_20240716_203333.wav	Site 4	7/16/2024	20:33:33	NYHU	UNKN	Poor-quality recording
SMU06498_20240718_045741.wav	Site 4	7/18/2024	4:57:41	NYHU	UNKN	Poor-quality recording
SMU06498_20240718_060857.wav	Site 4	7/18/2024	6:08:57	NYHU	Noise	Non-bat noise

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240718_043428.wav	Site 4	7/18/2024	4:34:28	NYHU	UNKN	Poor-quality recording
SMU06498_20240722_005959.wav	Site 4	7/22/2024	0:59:59	NYHU	UNKN	Poor-quality recording
SMU06498_20240722_035452.wav	Site 4	7/22/2024	3:54:52	NYHU	UNKN	Poor-quality recording
SMU06498_20240724_031148.wav	Site 4	7/24/2024	3:11:48	NYHU	UNKN	Poor-quality recording
SMU06498_20240721_041426.wav	Site 4	7/21/2024	4:14:26	NYHU	LABO	Bouncing Fmin
SMU06498_20240721_220958.wav	Site 4	7/21/2024	22:09:58	NYHU	UNKN	Poor-quality recording
SMU06498_20240718_043848.wav	Site 4	7/18/2024	4:38:48	NYHU	UNKN	Poor-quality recording
SMU06498_20240721_045415.wav	Site 4	7/21/2024	4:54:15	NYHU	UNKN	Poor-quality recording
SMU06498_20240724_001658.wav	Site 4	7/24/2024	0:16:58	NYHU	UNKN	Poor-quality recording
SMU06498_20240721_050253.wav	Site 4	7/21/2024	5:02:53	NYHU	UNKN	Poor-quality recording
SMU06498_20240721_052544.wav	Site 4	7/21/2024	5:25:44	NYHU	UNKN	Poor-quality recording
SMU06498_20240721_214034.wav	Site 4	7/21/2024	21:40:34	NYHU	LABO	Bouncing Fmin
SMU06498_20240722_045358.wav	Site 4	7/22/2024	4:53:58	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_012130.wav	Site 4	7/18/2024	1:21:30	NYHU	LABO	Bouncing Fmin
SMU06498_20240720_213221.wav	Site 4	7/20/2024	21:32:21	NYHU	LABO	Bouncing Fmin
SMU06498_20240721_052652.wav	Site 4	7/21/2024	5:26:52	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240722_212150.wav	Site 4	7/22/2024	21:21:50	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240723_050346.wav	Site 4	7/23/2024	5:03:46	NYHU	LABO	Bouncing Fmin
SMU06498_20240722_050744.wav	Site 4	7/22/2024	5:07:44	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240718_052310.wav	Site 4	7/18/2024	5:23:10	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240720_204010.wav	Site 4	7/20/2024	20:40:10	NYHU	LABO/NYHU	Calls not definitive to a single species
SMU06498_20240719_202231.wav	Site 4	7/19/2024	20:22:31	NYHU	LABO	Bouncing Fmin
SMU06498_20240718_045714.wav	Site 4	7/18/2024	4:57:14	PESU	UNKN	Poor quality recording
SMU06498_20240723_050723.wav	Site 4	7/23/2024	5:07:23	PESU	UNKN	Poor quality recording
SMU06498_20240722_203121.wav	Site 4	7/22/2024	20:31:21	PESU	UNKN	Poor quality recording
SMU06498_20240721_051118.wav	Site 4	7/21/2024	5:11:18	PESU	UNKN	Poor quality recording
SMU06498_20240720_011854.wav	Site 4	7/20/2024	1:18:54	PESU	LABO/NYHU	Bouncing fmin
SMU06498_20240718_050118.wav	Site 4	7/18/2024	5:01:18	PESU	UNKN	Poor quality recording
SMU06498_20240721_051216.wav	Site 4	7/21/2024	5:12:16	PESU	UNKN	Poor quality recording
SMU06498_20240721_203205.wav	Site 4	7/21/2024	20:32:05	PESU	UNKN	Poor quality recording
SMU06498_20240721_051833.wav	Site 4	7/21/2024	5:18:33	PESU	LABO	Bouncing fmin
SMU06498_20240717_235500.wav	Site 4	7/17/2024	23:55:00	PESU	UNKN	Poor quality recording
SMU06498_20240720_043920.wav	Site 4	7/20/2024	4:39:20	PESU	LABO	Bouncing fmin
SMU06498_20240723_052316.wav	Site 4	7/23/2024	5:23:16	PESU	UNKN	Poor quality recording
SMU06498_20240721_051231.wav	Site 4	7/21/2024	5:12:31	PESU	LABO	Bouncing fmin
SMU06498_20240721_052435.wav	Site 4	7/21/2024	5:24:35	PESU	UNKN	Poor quality recording
SMU06498_20240717_221351.wav	Site 4	7/17/2024	22:13:51	PESU	UNKN	Poor quality recording
SMU06498_20240721_052033.wav	Site 4	7/21/2024	5:20:33	PESU	UNKN	Poor quality recording
SMU06498_20240721_052119.wav	Site 4	7/21/2024	5:21:19	PESU	UNKN	Poor quality recording
SMU06498_20240718_052114.wav	Site 4	7/18/2024	5:21:14	PESU	UNKN	Poor quality recording
SMU06498_20240721_052134.wav	Site 4	7/21/2024	5:21:34	PESU	UNKN	Poor quality recording
SMU06498_20240721_052002.wav	Site 4	7/21/2024	5:20:02	PESU	UNKN	Poor quality recording
SMU06498_20240718_021307.wav	Site 4	7/18/2024	2:13:07	PESU	UNKN	Poor quality recording
SMU06498_20240721_052312.wav	Site 4	7/21/2024	5:23:12	PESU	UNKN	Poor quality recording
SMU06498_20240721_052226.wav	Site 4	7/21/2024	5:22:26	PESU	UNKN	Poor quality recording
SMU06498_20240722_223646.wav	Site 4	7/22/2024	22:36:46	PESU	UNKN	Poor quality recording
SMU06498_20240717_235430.wav	Site 4	7/17/2024	23:54:30	PESU	UNKN	Poor quality recording
SMU06498_20240721_053250.wav	Site 4	7/21/2024	5:32:50	PESU	UNKN	Poor quality recording
SMU06498_20240722_051428.wav	Site 4	7/22/2024	5:14:28	PESU	LABO	Bouncing fmin

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240721_052012.wav	Site 4	7/21/2024	5:20:12	PESU	UNKN	Poor quality recording
SMU06498_20240723_053310.wav	Site 4	7/23/2024	5:33:10	PESU	UNKN	Poor quality recording
SMU06498_20240724_012431.wav	Site 4	7/24/2024	1:24:31	PESU	UNKN	Poor quality recording
SMU06498_20240718_001146.wav	Site 4	7/18/2024	0:11:46	PESU	UNKN	Poor quality recording
SMU06498_20240723_034947.wav	Site 4	7/23/2024	3:49:47	PESU	UNKN	Poor quality recording
SMU06498_20240718_021715.wav	Site 4	7/18/2024	2:17:15	PESU	UNKN	Poor quality recording
SMU06498_20240718_045533.wav	Site 4	7/18/2024	4:55:33	PESU	LABO	Bouncing fmin
SMU06498_20240721_052410.wav	Site 4	7/21/2024	5:24:10	PESU	UNKN	Poor quality recording
SMU06498_20240721_052944.wav	Site 4	7/21/2024	5:29:44	PESU	UNKN	Poor quality recording
SMU06498_20240721_052355.wav	Site 4	7/21/2024	5:23:55	PESU	UNKN	Poor quality recording
SMU06498_20240717_235805.wav	Site 4	7/17/2024	23:58:05	PESU	UNKN	Poor quality recording
SMU06498_20240718_000715.wav	Site 4	7/18/2024	0:07:15	PESU	UNKN	Poor quality recording
SMU06498_20240721_052022.wav	Site 4	7/21/2024	5:20:22	PESU	UNKN	Poor quality recording
SMU06498_20240718_220012.wav	Site 4	7/18/2024	22:00:12	PESU	LABO	Bouncing fmin
SMU06498_20240721_051148.wav	Site 4	7/21/2024	5:11:48	PESU	UNKN	Poor quality recording
SMU06498_20240718_002304.wav	Site 4	7/18/2024	0:23:04	PESU	UNKN	Poor quality recording
SMU06498_20240718_020921.wav	Site 4	7/18/2024	2:09:21	PESU	UNKN	Poor quality recording
SMU06498_20240722_035041.wav	Site 4	7/22/2024	3:50:41	PESU	UNKN	Poor quality recording
SMU06498_20240718_000201.wav	Site 4	7/18/2024	0:02:01	PESU	UNKN	Poor quality recording
SMU06498_20240718_020816.wav	Site 4	7/18/2024	2:08:16	PESU	UNKN	Poor quality recording
SMU06498_20240724_021753.wav	Site 4	7/24/2024	2:17:53	PESU	LABO	Bouncing fmin
SMU06498_20240717_235900.wav	Site 4	7/17/2024	23:59:00	PESU	UNKN	Poor quality recording
SMU06498_20240723_034933.wav	Site 4	7/23/2024	3:49:33	PESU	UNKN	Poor quality recording
SMU06498_20240719_230505.wav	Site 4	7/19/2024	23:05:05	PESU	LABO	Bouncing fmin
SMU06498_20240718_020359.wav	Site 4	7/18/2024	2:03:59	PESU	UNKN	Poor quality recording
SMU06498_20240719_011913.wav	Site 4	7/19/2024	1:19:13	PESU	LABO	Bouncing fmin
SMU06498_20240718_203901.wav	Site 4	7/18/2024	20:39:01	PESU	UNKN	Poor quality recording
SMU06498_20240723_222841.wav	Site 4	7/23/2024	22:28:41	PESU	LABO	Bouncing fmin
SMU06498_20240718_044302.wav	Site 4	7/18/2024	4:43:02	PESU	LABO	Bouncing fmin
SMU06498_20240720_043935.wav	Site 4	7/20/2024	4:39:35	PESU	UNKN	Poor quality recording
SMU06498_20240718_233426.wav	Site 4	7/18/2024	23:34:26	PESU	LABO	Bouncing fmin
SMU06498_20240718_020216.wav	Site 4	7/18/2024	2:02:16	PESU	UNKN	Poor quality recording
SMU06498_20240717_235738.wav	Site 4	7/17/2024	23:57:38	PESU	UNKN	Poor quality recording
SMU06498_20240718_001927.wav	Site 4	7/18/2024	0:19:27	PESU	UNKN	Poor quality recording
SMU06498_20240722_052822.wav	Site 4	7/22/2024	5:28:22	PESU	UNKN	Poor quality recording
SMU06498_20240717_221524.wav	Site 4	7/17/2024	22:15:24	PESU	UNKN	Poor quality recording
SMU06498_20240722_002202.wav	Site 4	7/22/2024	0:22:02	PESU	UNKN	Poor quality recording
SMU06498_20240718_050135.wav	Site 4	7/18/2024	5:01:35	PESU	UNKN	Poor quality recording
SMU06498_20240718_000839.wav	Site 4	7/18/2024	0:08:39	PESU	UNKN	Poor quality recording
SMU06498_20240721_011821.wav	Site 4	7/21/2024	1:18:21	PESU	UNKN	Poor quality recording
SMU06498_20240717_203627.wav	Site 4	7/17/2024	20:36:27	PESU	UNKN	Poor quality recording
SMU06498_20240718_001652.wav	Site 4	7/18/2024	0:16:52	PESU	UNKN	Poor quality recording
SMU06498_20240717_203753.wav	Site 4	7/17/2024	20:37:53	PESU	UNKN	Poor quality recording
SMU06498_20240722_050911.wav	Site 4	7/22/2024	5:09:11	PESU	UNKN	Poor quality recording
SMU06498_20240717_235944.wav	Site 4	7/17/2024	23:59:44	PESU	UNKN	Poor quality recording
SMU06498_20240718_001114.wav	Site 4	7/18/2024	0:11:14	PESU	UNKN	Poor quality recording
SMU06498_20240717_235913.wav	Site 4	7/17/2024	23:59:13	PESU	UNKN	Poor quality recording
SMU06498_20240718_001525.wav	Site 4	7/18/2024	0:15:25	PESU	UNKN	Poor quality recording
SMU06498_20240721_052158.wav	Site 4	7/21/2024	5:21:58	PESU	UNKN	Poor quality recording

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240719_205555.wav	Site 4	7/19/2024	20:55:55	PESU	UNKN	Poor quality recording
SMU06498_20240721_053430.wav	Site 4	7/21/2024	5:34:30	PESU	UNKN	Poor quality recording
SMU06498_20240719_024327.wav	Site 4	7/19/2024	2:43:27	PESU	UNKN	Poor quality recording
SMU06498_20240722_045125.wav	Site 4	7/22/2024	4:51:25	PESU	UNKN	Poor quality recording
SMU06498_20240723_043627.wav	Site 4	7/23/2024	4:36:27	PESU	LABO	Bouncing fmin
SMU06498_20240722_214459.wav	Site 4	7/22/2024	21:44:59	PESU	LABO	Bouncing fmin
SMU06498_20240721_053201.wav	Site 4	7/21/2024	5:32:01	PESU	LABO	Bouncing fmin
SMU06498_20240722_002210.wav	Site 4	7/22/2024	0:22:10	PESU	UNKN	Poor quality recording
SMU06498_20240719_225719.wav	Site 4	7/19/2024	22:57:19	PESU	Noise	Non-bat noise
SMU06498_20240722_052726.wav	Site 4	7/22/2024	5:27:26	PESU	UNKN	Poor quality recording
SMU06498_20240718_020536.wav	Site 4	7/18/2024	2:05:36	PESU	UNKN	Poor quality recording
SMU06498_20240723_024754.wav	Site 4	7/23/2024	2:47:54	PESU	UNKN	Poor quality recording
SMU06498_20240718_020428.wav	Site 4	7/18/2024	2:04:28	PESU	UNKN	Poor quality recording
SMU06498_20240722_224440.wav	Site 4	7/22/2024	22:44:40	PESU	Noise	Non-bat noise
SMU06498_20240722_212910.wav	Site 4	7/22/2024	21:29:10	PESU	LABO	Bouncing fmin
SMU06498_20240718_000341.wav	Site 4	7/18/2024	0:03:41	PESU	UNKN	Poor quality recording
SMU06498_20240718_001226.wav	Site 4	7/18/2024	0:12:26	PESU	UNKN	Poor quality recording
SMU06498_20240718_021633.wav	Site 4	7/18/2024	2:16:33	PESU	UNKN	Poor quality recording
SMU06498_20240718_013839.wav	Site 4	7/18/2024	1:38:39	PESU	UNKN	Poor quality recording
SMU06498_20240716_235035.wav	Site 4	7/16/2024	23:50:35	PESU	LABO	Bouncing fmin
SMU06498_20240722_052808.wav	Site 4	7/22/2024	5:28:08	PESU	UNKN	Poor quality recording
SMU06498_20240723_002940.wav	Site 4	7/23/2024	0:29:40	PESU	UNKN	Poor quality recording
SMU06498_20240717_221745.wav	Site 4	7/17/2024	22:17:45	PESU	UNKN	Poor quality recording
SMU06498_20240722_013051.wav	Site 4	7/22/2024	1:30:51	PESU	LABO	Bouncing fmin
SMU06498_20240721_053306.wav	Site 4	7/21/2024	5:33:06	PESU	UNKN	Poor quality recording
SMU06498_20240722_032636.wav	Site 4	7/22/2024	3:26:36	PESU	UNKN	Poor quality recording
SMU06498_20240722_220307.wav	Site 4	7/22/2024	22:03:07	PESU	UNKN	Poor quality recording
SMU06498_20240717_235639.wav	Site 4	7/17/2024	23:56:39	PESU	UNKN	Poor quality recording
SMU06498_20240718_001251.wav	Site 4	7/18/2024	0:12:51	PESU	UNKN	Poor quality recording
SMU06498_20240718_031043.wav	Site 4	7/18/2024	3:10:43	PESU	LABO	Bouncing fmin
SMU06498_20240718_231448.wav	Site 4	7/18/2024	23:14:48	PESU	LABO	Bouncing fmin
SMU06498_20240721_231603.wav	Site 4	7/21/2024	23:16:03	PESU	LABO	Bouncing fmin
SMU06498_20240719_232016.wav	Site 4	7/19/2024	23:20:16	PESU	LABO	Bouncing fmin
SMU06498_20240718_002603.wav	Site 4	7/18/2024	0:26:03	PESU	LABO	Bouncing fmin
SMU06498_20240720_222707.wav	Site 4	7/20/2024	22:27:07	PESU	LABO	Bouncing fmin
SMU06498_20240720_222544.wav	Site 4	7/20/2024	22:25:44	PESU	LABO	Bouncing fmin
SMU06498_20240723_012312.wav	Site 4	7/23/2024	1:23:12	PESU	LABO	Bouncing fmin
SMU06498_20240717_235703.wav	Site 4	7/17/2024	23:57:03	PESU	UNKN	Poor quality recording
SMU06498_20240718_223525.wav	Site 4	7/18/2024	22:35:25	PESU	UNKN	Poor quality recording
SMU06498_20240721_045921.wav	Site 4	7/21/2024	4:59:21	PESU	UNKN	Poor quality recording
SMU06498_20240721_053624.wav	Site 4	7/21/2024	5:36:24	PESU	UNKN	Poor quality recording
SMU06498_20240721_053655.wav	Site 4	7/21/2024	5:36:55	PESU	UNKN	Poor quality recording
SMU06498_20240722_050947.wav	Site 4	7/22/2024	5:09:47	PESU	UNKN	Poor quality recording
SMU06498_20240723_022036.wav	Site 4	7/23/2024	2:20:36	PESU	UNKN	Poor quality recording
SMU06498_20240716_204644.wav	Site 4	7/16/2024	20:46:44	PESU	UNKN	Poor quality recording
SMU06498_20240716_223237.wav	Site 4	7/16/2024	22:32:37	PESU	LABO	Bouncing fmin
SMU06498_20240718_020507.wav	Site 4	7/18/2024	2:05:07	PESU	LABO	Bouncing fmin
SMU06498_20240719_021933.wav	Site 4	7/19/2024	2:19:33	PESU	LABO	Bouncing fmin
SMU06498_20240718_015615.wav	Site 4	7/18/2024	1:56:15	PESU	LABO	Bouncing fmin

Attachment 4: Data Tables

File Name	Site	Date	Time	Auto ID	Manual ID	Comments
SMU06498_20240718_030415.wav	Site 4	7/18/2024	3:04:15	PESU	UNKN	Poor quality recording
SMU06498_20240721_053454.wav	Site 4	7/21/2024	5:34:54	PESU	UNKN	Poor quality recording
SMU06498_20240724_031653.wav	Site 4	7/24/2024	3:16:53	PESU	UNKN	Poor quality recording
SMU06498_20240718_001440.wav	Site 4	7/18/2024	0:14:40	PESU	UNKN	Poor quality recording
SMU06498_20240718_001625.wav	Site 4	7/18/2024	0:16:25	PESU	UNKN	Poor quality recording
SMU06498_20240720_011609.wav	Site 4	7/20/2024	1:16:09	PESU	UNKN	Poor quality recording
SMU06498_20240718_002330.wav	Site 4	7/18/2024	0:23:30	PESU	UNKN	Poor quality recording
SMU06498_20240723_002948.wav	Site 4	7/23/2024	0:29:48	PESU	UNKN	Poor quality recording
SMU06498_20240717_221943.wav	Site 4	7/17/2024	22:19:43	PESU	UNKN	Poor quality recording
SMU06498_20240717_224116.wav	Site 4	7/17/2024	22:41:16	PESU	UNKN	Poor quality recording
SMU06498_20240718_060913.wav	Site 4	7/18/2024	6:09:13	PESU	Noise	Non-bat noise
SMU06498_20240720_221946.wav	Site 4	7/20/2024	22:19:46	PESU	Noise	Non-bat noise
SMU06498_20240721_050118.wav	Site 4	7/21/2024	5:01:18	PESU	UNKN	Poor quality recording
SMU06498_20240724_014626.wav	Site 4	7/24/2024	1:46:26	PESU	UNKN	Poor quality recording
SMU06498_20240716_220054.wav	Site 4	7/16/2024	22:00:54	PESU	LABO	Bouncing fmin
SMU06498_20240722_222622.wav	Site 4	7/22/2024	22:26:22	PESU	Noise	Non-bat noise
SMU06498_20240724_021112.wav	Site 4	7/24/2024	2:11:12	PESU	UNKN	Poor quality recording
SMU06498_20240721_012517.wav	Site 4	7/21/2024	1:25:17	PESU	UNKN	Poor quality recording
SMU06498_20240721_223108.wav	Site 4	7/21/2024	22:31:08	PESU	UNKN	Poor quality recording
SMU06498_20240721_230318.wav	Site 4	7/21/2024	23:03:18	PESU	UNKN	Poor quality recording
SMU06498_20240724_022756.wav	Site 4	7/24/2024	2:27:56	PESU	LABO	Bouncing fmin
SMU06498_20240720_013403.wav	Site 4	7/20/2024	1:34:03	PESU	LABO	Bouncing fmin
SMU06498_20240721_021441.wav	Site 4	7/21/2024	2:14:41	PESU	Noise	Non-bat noise
SMU06498_20240718_022103.wav	Site 4	7/18/2024	2:21:03	PESU	UNKN	Poor quality recording
SMU06498_20240718_032423.wav	Site 4	7/18/2024	3:24:23	PESU	UNKN	Poor quality recording
SMU06498_20240720_005120.wav	Site 4	7/20/2024	0:51:20	PESU	Noise	Non-bat noise
SMU06498_20240720_011729.wav	Site 4	7/20/2024	1:17:29	PESU	Noise	Non-bat noise
SMU06498_20240720_020758.wav	Site 4	7/20/2024	2:07:58	PESU	Noise	Non-bat noise
SMU06498_20240720_051104.wav	Site 4	7/20/2024	5:11:04	PESU	UNKN	Poor quality recording
SMU06498_20240720_230931.wav	Site 4	7/20/2024	23:09:31	PESU	Noise	Non-bat noise
SMU06498_20240721_024144.wav	Site 4	7/21/2024	2:41:44	PESU	Noise	Non-bat noise
SMU06498_20240721_045508.wav	Site 4	7/21/2024	4:55:08	PESU	UNKN	Poor quality recording
SMU06498_20240721_053357.wav	Site 4	7/21/2024	5:33:57	PESU	UNKN	Poor quality recording
SMU06498_20240721_053613.wav	Site 4	7/21/2024	5:36:13	PESU	UNKN	Poor quality recording
SMU06498_20240722_214514.wav	Site 4	7/22/2024	21:45:14	PESU	Noise	Non-bat noise
SMU06498_20240724_035106.wav	Site 4	7/24/2024	3:51:06	PESU	Noise	Non-bat noise
SMU06498_20240721_020839.wav	Site 4	7/21/2024	2:08:39	PESU	Noise	Non-bat noise
SMU06498_20240721_023138.wav	Site 4	7/21/2024	2:31:38	PESU	Noise	Non-bat noise
SMU06498_20240721_023740.wav	Site 4	7/21/2024	2:37:40	PESU	Noise	Non-bat noise
SMU06498_20240723_041820.wav	Site 4	7/23/2024	4:18:20	PESU	UNKN	Poor quality recording

Table 4-7: Weather Conditions During the First 5 Hours of Sampling Each Night.

Night	Low Temperature (°F)	Wind Speed > 9 MPH for > 30 Minutes	Precipitation for > 30 Minutes
7/16/2024	78	No	No
7/17/2024	75	No	No
7/18/2024	64	No	No
7/19/2024	68	No	No
7/20/2024	72	No	No
7/21/2024	72	No	No
7/22/2024	71	No	No
7/23/2024	71	No	No
7/24/2024	72	No	Yes

Source: Weather data for West Paducah, Kentucky (Weather Station KKYPADUC84), retrieved from Weather Underground (https://www.wunderground.com)

Appendix P

Air Emissions from Proposed GLE Facility

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P.1 Fugitive Dust

Construction of facilities the scale of the Proposed PLEF commonly produces fugitive dust emissions that potentially could have a temporary impact on air quality in the vicinity of the construction project. The fugitive dust emissions from the Proposed PLEF Site were estimated. The key assumptions are provided in P4 in Table P 4-1, and the estimated fugitive dust emissions are provided in Table P 5-1 and P 5-2. Actual fugitive dust emissions levels from construction of the Proposed PLEF are expected to be lower than the values that were estimated using the general emissions factors. Fugitive dust emissions at the PLEF Site are expected to be naturally mitigated by precipitation in the Proposed PLEF Site area (see Section 3.6.2.2 of this Report, Precipitation [Climate]). In addition, regular use of water spray trucks and other fugitive dust-suppression practices that are planned to be used during construction (see Section 5.6 of this Report, Air Quality [Mitigation Measures]) would further mitigate fugitive dust emissions at the PLEF Site.

P.2 Off-Road Construction Equipment

The air emissions resulting from operation of the off-road construction equipment at the PLEF Site were estimated. The key assumptions used for the estimates are in P.6. Equipment-specific emissions factors were developed for the assumed equipment mixes using the U.S. Environmental Protection Agency’s (EPA’s) NONROAD emission factor model (U.S. EPA, 2023b). The estimated air emissions are provided in Table P 5-1 and P 5-2.

P.3 Motor Vehicles

The motor vehicle traffic impacts projected to occur during the construction of the Proposed PLEF are discussed in Section 4.2.2.1 of this Report (Site Preparation and Construction [Proposed Action]). Based on the motor vehicle trip estimates for the Proposed PLEF construction phase presented in Section 4.2.2.1, the air emissions resulting from these motor vehicle trips were estimated. The key assumptions used for the estimates are provided in P4 in Table P 4-1. Applicable emissions factors selected from existing factors developed using EPA’s MOBILE vehicle emission factor model were used to predict the motor vehicle emissions associated with the Proposed PLEF construction phase. The estimated air emissions are provided in Table P 5-1 and P 5-2. Because motor vehicles are mobile sources, the emission estimates do not represent the emissions to the atmosphere from any one location (e.g., the PLEF Site or any other given point). Instead, the estimated emissions represent the incremental increase in air emissions to the atmosphere from all automobiles and trucks traveling along the same roadway routes that would be used by the automobiles and trucks traveling to and from the PLEF Site.

P.4 Key Assumptions and Methodology

4.12 Assumptions

Table 4-1: Key Assumptions Used for Proposed GLE Facility Construction Air Emissions Estimates

Air Emission Source	Assumption Parameter	Assumption Value
General Assumptions	Construction Period	3 years, construction schedule not finalized at this time. Indoor Construction activities are expected to continue beyond start-up date of the facility. However, indoor activities will have minimal to no impact on outdoor ambient air quality and are therefore excluded
	Total number of construction days per year	260 days
	Hours per construction day	10 hours
	Operating Schedule	Site Preparations: 3 months General Construction: 30 months
	Average number of workers on site	388 workers during initial 3 years of construction. Total daily number may vary depending on specific construction activities. [a]
Fugitive Dust	Emission Factors	Excavation and backfilling factors from AP-42, Table 11.9-4 (dated 7/98), assuming 100% of TSP is PM10 Windblown dust factor from "Improvement of Specific Emission Factors" prepared for South Coast AQMD by Midwest Research Institute (1996) assuming 100% of TSP is PM10.
Off-Road Equipment	Off-Road equipment for site preparation and road construction	4 Crawler Tractor/Dozers 4 Skid Steer Loaders 2 Graders 2 Rollers 1 Excavators 1 Off-highway Trucks [water truck] 1 Pavers
	Off-Road equipment for building and general construction activities	1 Cranes 4 Tractors/Loaders/Backhoes 4 Forklifts 4 Aerial Lifts 2 Other Construction Equipment [air compressor]
	Emission Factors	Off-Road equipment-specific factors using EPA Motor Vehicle Emission Simulator v4.0.1 (ran Sept 2024) and factors from 40 CFR 98. Assumes all equipment is manufactured post-2017.

Air Emission Source	Assumption Parameter	Assumption Value
Motor Vehicles (commuting, equipment delivery, feed stock delivery)	Average number of construction worker trips per workday	388 workers during initial 3 years of construction. Total daily number may vary depending on specific construction activities. [a]
	Average number of full-time employee trips per workday.	350 full-time positions are expected to be filled once operation commences. [b]
	Average commuting vehicle miles traveled per trip	50 miles [c]
	Commuting vehicle Emission factors	On-Road Tailpipe Emissions Factors are sources from following: Updated Emission Factors of Air Pollutants from Vehicle Operations in GREET using MOVES (Sept 2013). Table A6: Lifetime mileage 10-weighted average air pollutant emission factors (g/mile) for gasoline light-duty commercial trucks for model years 1990–2020 (2020 Used). Accessed 9/25/23 Vehicle breakdown based on U.S. fleet trends in "The 2023 EPA Automotive Trends Report - Greenhouse Gas Emissions, Fuel Economy, and Technology since 1975." Published December 2023, Accessed July 2024 and U.S. Dept. of Energy, 2022 Light-Duty Vehicle Registration Counts by Fuel Type. Accessed July 2024.
	Number of long-haul trucks (tractor-trailers) utilized for construction equipment delivery	30 long-haul truck trips (onx10-way).
	Average vehicle miles traveled per construction equipment delivery truck	Assumes construction equipment is sources from towns within a 70 miles radius.
	Average number of visitor vehicles (vendors) per workday	2 Trucks
	Average number of truck shipments to or from the Proposed Facility per day	5 Trucks
	Average vehicle miles traveled per trip per day (shipments)	Average miles traveled to facility: 641 miles. Trucks transporting feed materials from ports in Baltimore MD (805 miles)

Air Emission Source	Assumption Parameter	Assumption Value
		, Portsmouth VA (856 miles) , or facilities in Metropolis IL (17 miles), Port Hope Ontario CA (887 miles) to facility. Average miles traveled from facility: 200 miles Trucks transporting waste material to Paducah KY (15 Miles) or Portsmouth Ohio (385 Miles)
	Heavy Duty On-Road Equipment Emission Factors	On-Road Tailpipe Emissions Factors are sources from following: Updated Emission Factors of Air Pollutants from Vehicle Operations in GREET using MOVES (Sept 2013). Table A22: Lifetime mileagx10-weighted average air pollutant emission factors (g/mile) for diesel combination long-haul trucks for model years 1990–2020 (2020 Used). Accessed 9/25/23 Assumes Class 8 Heavy Duty Vehicle

a. Average annual number of employees during site preparation and initial construction activities as presented in Table 4.10-3 Projected Vehicle Trips Generated by the PLEF Site.
b. Average number of full-time employees during production operation as presented in Table 4.10-3 Projected Vehicle Trips Generated by the PLEF Site.
c. Conservatively assumes employees will commute from within a 50 miles radius which includes nearby communities across the Illinois, Missouri, or Tennessee state borders.

4.13 Methodology

4.13.1 Emission Factors

- Construction equipment emission factors are sources from MOVES 4.0.1 (Sept, 2024) and 40 CFR 98
- On-Road Tailpipe Emissions were sources from the following:
    - Updated Emission Factors of Air Pollutants from Vehicle Operations in GREET using MOVES (Sept 2013). Table A6 & Table A22. Accessed
    - Table 1 EPA Final Industry Fleet Wide CO2 Compliance Targets - Light Duty Trucks 2026: Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards 40 CFR 86 / 40 CFR 600 accessed 9/22/23 at https://www.federalregister.gov/d/2021-27854
    - 40 CFR Part 98
    - Emission Factors for Greenhouse Gas Inventories (Feb 2024.). Table 5. Accessed 4/10/24 athttps://www.epa.gov/system/files/documents/2024-02/ghg-emission-factors-hub-2024.pdf
- Global Warming Potentials as cited in 40 CFR Part 98.

4.13.2 On-Road Tailpipe Calculations

4.13.2.1 Personal Vehicles

- The composition of the fleet of personal vehicles is proportional to the ratio of vehicle types as reported by the U.S. EPA 2023 Automotive Trends Report and U.S. Dept. of Energy Vehicle Registration data.
- For both construction and operation, assume a 50 miles radius as conservative commuting estimate.

$$\begin{aligned}\boldsymbol{On-Road\ Tailpipe\ Emissions} &= \boldsymbol{\#\ of\ Personnel} \times \boldsymbol{1\ Round\ Trip\ x\ \#\ of\ days\ on\ site} \times \boldsymbol{Miles\ per\ Round\ Trip} \\ &\quad \times \boldsymbol{Emission\ Factor}\ (\boldsymbol{g/mile})\end{aligned}$$

4.13.2.2 Equipment Mobilization (Heavy Duty Trucks)

- Each piece of equipment will require 2 round trips via Heavy Duty Tractor Trailer: one for delivering to the site and one for returning from the site.
- Each tractor trailer can transport a maximum of 1 piece(s) of construction equipment per trip.
- Each piece of equipment only needs to be delivered to the site once.
- Emissions associated with equipment movement on the site are assumed to be included in the hourly operation emissions.
- Construction Equipment is delivered to site from within a 70-mile radius.

$$\begin{aligned}\boldsymbol{On-Road\ Tailpipe\ Emissions} &= \boldsymbol{\#\ Construction\ Equipment} \times \boldsymbol{2\ Round\ Trip} \times \boldsymbol{Miles\ per\ Round\ Trip} \\ &\quad \times \boldsymbol{Emission\ Factor}\ (\boldsymbol{g/mile})\end{aligned}$$

4.13.3 Fugitive Dust Emissions

4.13.3.1 Excavation

- Excavation and backfilling Emission factors are sources from AP-42.
- PM2.5 emissions were calculated following the SCAQMD Particulate Matter PM2.5 Significance Thresholds and Calculation Methodology (2006). For construction and demolition of fugitive dust sources, 20.8% of the PM10 would be PM2.5.
- Windblown dust factor from "Improvement of Specific Emission Factors" prepared for South Coast AQMD by Midwest Research Institute (1996) assuming 100% of TSP is PM10.
- Approximately 226 acres of land is expected to be disturbed to a depth up to 1' due to temporary workspaces or temporary access spaces.
- The operational building will require excavation for the foundation up to 5' deep.
- Non-Seismic buildings will require excavation for foundations up to 3' deep.

4.13.3.2 Road Emissions

- Light Duty Pickup Truck used for construction activities are assumed to meet the Federal Highway Administration (FHWA) VM-1 definition of light duty vehicles.
- Standard Dump Trucks are utilized for soil removal from the site with a load capacity of approximately 14 tons.

4.13.3.2.1 Unpaved Roads

- Unpaved Roads emission factor from AP-42, Section 13.2.2: Unpaved Roads (11/06); Equations a1 and 2

$$\boldsymbol{E = k\left(\frac{s}{2}\right)^{a}\left(\frac{W}{3}\right)^{b} \quad (a1)}$$

E = size-specific emission factor (lb./VMT)

s = 8.50, (surface material silt content (%) [Surface Silt (s) content based on Table 13.2.2-1 - construction sites])

W = mean vehicle weight

Table 13.2.2-2 - Constants for Equation 1a

Constant	PM2.5	PM10
k (lb/VMT)	0.15	1.5
a	0.9	0.9
b	0.45	0.45

$$\boldsymbol{E_{ext} = E\left(\frac{[365 - P]}{365}\right) \quad (2)}$$

Eext = annual size-specific emission factor extrapolated for natural mitigation, lb/VMT

E = emission factor from Equation 1a

P = 110 days [Average number of days with > 0.01 inches of precipitation for McCracken County, KY, Figure 13.2.2-1

4.13.3.2.2 Paved Roads

Paved Roads emission factor from AP-42, Section 13.2.1: Paved Roads (01/11)

$$\boldsymbol{E = k(sL)^{0.91}(W)^{1.02}(1 - P(4 * 365))}$$

where:

sL = 0.6, road surface silt loading silt loading (g/m2) [Table 13.2.1-2, for Ubiquitous Baseline, <500]

W = 20 tons [Average vehicle weight]

kPM2.5 = 0.00054 lb/VMT [Table 13.2.1-1, for PM2.5]

kPM10 = 0.00220 lb/VMT [Table 13.2.1-1, for PM2.5]

P = 110 days, [Average number of days with > 0.01 inches of precipitation for McCracken County, KY (Figure 13.2.2-1)

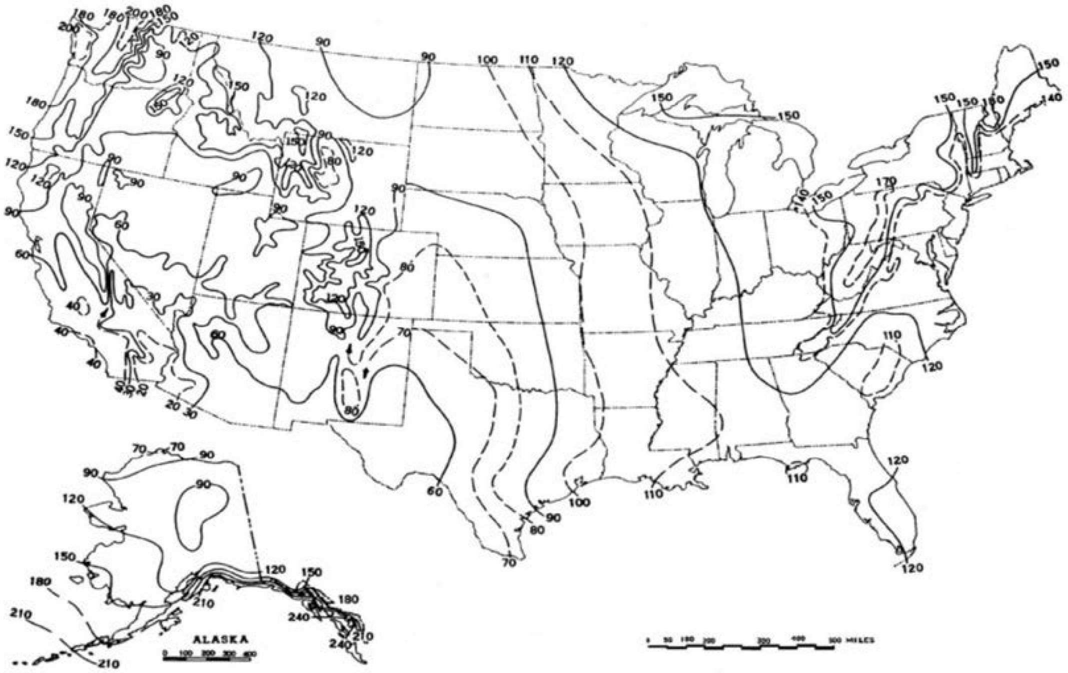
ALASKA
0 100 200 300 400
0 50 100 200 300 400 500 MILES
180
200
150
120
90
60
40
30
20
70
80
100
110
170
140
210
240

Figure 13.2.1-2. Mean number of days with 0.01 inch or more of precipitation in the United States.

Figure 1: Mean Number of days with 0.01 inch or more precipitation in the United States (AP-42 Figure 13.2.1-2)

Table 4-2: Expected Equipment List

Equipment Type	Estimated Number of Each Equipment Type
	General Construction
Aerial Lifts	4
Cranes	1
Crawler Tractor/Dozers	4
Excavators	1
Forklifts	4
Graders	2
Off-highway Trucks	1
Other Construction Equipment	2
Pavers	1
Rollers	2
Skid Steer Loaders	4
Tractors/Loaders/Backhoes	4

P.5 Calculation Summary

Table 5-1: Estimated Air Emissions for Proposed GLE Facility – Construction Sources

Construction Process Description	**Total Project Emissions (tons)**							
	NO$_x$	**CO**	**VOC**	**SO$_2$**	**PM$_{10}$**	**PM$_{2.5}$**	**HAPs [b]**	**CO$_2$e**
Combustion Emissions								
Site Preparation Construction Equipment	2.21	0.86	0.15	1.82x10^{-03}	0.14	0.14	0.07	343
General Construction Construction Equipment	8.06	4.13	0.73	4.92x10^{-03}	0.63	0.61	0.30	897
On-Road Tail Pipe	6.62	117.89	6.60	0.15	0.64	0.64	0.08	14,567
Equipment Mobilization	2.03x10^{-02}	7.32x10^{-03}	1.80x10^{-03}	6.60x10^{-05}	6.42x10^{-04}	3.80x10^{-04}	1.67x10^{-05}	1.02
Fugitive Emissions								
Unpaved roads - Particulates	--	--	--	--	653.42	65.34	--	--
Paved roads - Particulates	--	--	--	--	39.29	9.64	--	--
Earthmoving – Particulates [a]	--	--	--	--	238.19	49.54	--	--
Total emissions	16.92	122.89	7.48	0.16	932.32	125.91	0.45	15,807

a. Earthmoving accounts for fugitive emissions from excavation and backfilling activities as well as windblown dust from any exposed areas.

b. Sum of common combustion hazardous air pollutants including benzene, toluene, xylenes, 1,3-butadiene, formaldehyde, acetaldehyde, acrolein, and polycyclic aromatic hydrocarbons.

Table 5-2: Estimated Air Emissions for Proposed GLE Facility – Operational Sources

Operational Description	**Total Project Emissions (tons)**							
	NO_x	**CO**	**VOC**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**HAPs** [b]	**CO_2e**
Combustion Emissions								
Emergency Generators	10.69	6.61	0.56	0.07	0.39	0.39	8.71×10^{-03}	1,204
On-Road Tail Pipe	5.91	105.51	5.91	0.14	0.57	0.57	0.07	13,035
Fugitive Emissions								
Paved roads - Particulates	--	--	--	--	77.39	19.00	--	--
Average Annual Emissions	38.48	123.49	7.48	1.13	78.99	20.60	0.08	16,652

a. Maximum annual emissions based on the maximum projected commuting workforce from the commencement of operation to decommissioning activities.
b. Sum of common combustion hazardous air pollutants including benzene, toluene, xylenes, 1,3-butadiene, formaldehyde, acetaldehyde, acrolein, and polycyclic aromatic hydrocarbons.

P.6 Calculations

6.12 Construction Emissions

Table 6-1: Description of Off-Road Equipment by Construction Phase

Construction Phase Name	Construction Phase Days	Off Road Equipment Type	Off Road Equipment Unit Amount	Usage Hours/Day	Fuel Type	Load Factor[d]
All Construction Phases	650	Aerial Lifts	4	10	Diesel	0.8
	650	Cranes	1	10	Diesel	0.8
	130	Crawler Tractor/Dozers	4	10	Diesel	0.8
	130	Excavators	1	10	Diesel	0.8
	650	Forklifts	4	10	Diesel	0.8
	130	Graders	2	10	Diesel	0.8
	130	Off-highway Trucks	1	10	Diesel	0.8
	650	Other Construction Equipment	2	10	Diesel	0.8
	130	Pavers	1	10	Diesel	0.8
	130	Rollers	2	10	Diesel	0.8
	130	Skid Steer Loaders	4	10	Diesel	0.8
	650	Tractors/Loaders/Backhoes	4	10	Diesel	0.8

Table 6-2: Off-Road Equipment Tail-Pipe Criteria Emissions

Off Road Equipment Type	**Emission Factors^{a,b,c}**								**Annual Emissions (tons)^{f}**						
	NOx	**CO**	**VOC**	**SO$_2$**	**PM$_{10}$**	**PM$_{2.5}$**	**CO2e^{c}**	**Units**	**NO$_x$**	**CO**	**VOC**	**SO$_2$**	**PM$_{10}$**	**PM$_{2.5}$**	**CO$_2$e**
Aerial Lifts	32.12	30.67	7.20	0.01	4.49	4.36	2,368	gr/hr	0.74	0.70	0.17	$3.29x10^{-04}$	0.10	0.10	54.27
Cranes	123.96	30.23	7.08	0.09	5.33	5.17	17,616	gr/hr	0.71	0.17	0.04	$5.44x10^{-04}$	0.03	0.03	100.97
Crawler Tractor/Dozers	169.76	63.27	9.19	0.15	9.96	9.66	27,582	gr/hr	0.78	0.29	0.04	$6.71x10^{-04}$	0.05	0.04	126.48
Excavators	88.41	31.30	4.74	0.09	5.78	5.60	18,268	gr/hr	0.10	0.04	$5.44x10^{-03}$	$1.08x10^{-04}$	$6.62x10^{-03}$	$6.42x10^{-03}$	20.94
Forklifts	58.77	23.41	2.49	0.05	3.59	3.49	10,595	gr/hr	1.35	0.54	0.06	$1.22x10^{-03}$	0.08	0.08	242.91
Graders	100.61	36.65	6.13	0.11	6.98	6.77	21,610	gr/hr	0.23	0.08	0.01	$2.59x10^{-04}$	0.02	0.02	49.55
Off-highway Trucks	580.00	143.96	24.38	0.43	20.36	19.75	82,586	gr/hr	0.66	0.17	0.03	$4.92x10^{-04}$	0.02	0.02	94.68
Other Construction Equipment	358.93	154.97	21.99	0.20	21.49	20.85	34,793	gr/hr	4.11	1.78	0.25	$2.26x10^{-03}$	0.25	0.24	398.86
Pavers	96.06	37.06	5.83	0.08	6.53	6.34	13,463	gr/hr	0.11	0.04	$6.68x10^{-03}$	$9.40x10^{-05}$	$7.49x10^{-03}$	$7.26x10^{-03}$	15.43
Rollers	69.99	29.48	4.39	0.05	4.95	4.81	10,155	gr/hr	0.16	0.07	0.01	$1.25x10^{-04}$	0.01	0.01	23.28
Skid Steer Loaders	36.72	38.96	9.08	0.02	6.59	6.40	2,653	gr/hr	0.17	0.18	0.04	$7.22x10^{-05}$	0.03	0.03	12.16
Tractors/Loaders/Backhoes	50.40	41.10	9.37	0.02	7.24	7.03	4,342	gr/hr	1.16	0.94	0.21	$5.70x10^{-04}$	0.17	0.16	99.55

a. Diesel emission factors for non-road mobile emissions (construction equipment) based on EPA MOVES 4.0.1, accessed September 2024. Equipment is assumed to be manufactured post 2017 at the time of construction.

b. Greenhouse gas emission factors for N2O and CH4 (grams per horsepower-hour) from 40 CFR 98, Table C-1 and C-2; conversion of 2544.43 Btu/hp-hr is assumed

c. Global warming potentials: CO2 = 1, CH4 = 25, N2O = 298 (Table A-1 to Subpart A of 40 CFR 98)

d. To be conservative and consistent a load factor of 0.8 was used for all construction equipment

Construction equipment and schedule are assumptions and both items are not finalized as of the date of these calculations (Sept. 2024)

Table 6-3: Off-Road Equipment Tail-Pipe HAP Emissions

Off Road Equipment Type	Emission Factors[a,b,c]								
	Benzene	Toluene	Xylenes	1,3-Butadiene	Formaldehyde	Acetaldehyde	Acrolein	PAHs	Units
Aerial Lifts	0.20	0.14	0.14	0.01	1.64	0.59	$1.80x10^{-01}$	$4.27x10^{-07}$	gr/hr
Cranes	0.29	0.21	0.11	0.01	1.83	0.65	$1.38x10^{-01}$	$4.27x10^{-07}$	gr/hr
Crawler Tractor/Dozers	0.41	0.30	0.13	0.02	2.47	0.88	$1.73x10^{-01}$	$4.27x10^{-07}$	gr/hr
Excavators	0.24	0.17	0.06	0.01	1.33	0.48	$8.64x10^{-02}$	$4.27x10^{-07}$	gr/hr
Forklifts	0.13	0.09	0.03	0.00	0.72	0.26	$4.58x10^{-02}$	$4.27x10^{-07}$	gr/hr
Off-highway Trucks	1.25	0.89	0.31	0.04	6.94	2.48	$4.47x10^{-01}$	$4.27x10^{-07}$	gr/hr
Other Construction Equipment	0.68	0.51	0.39	0.04	5.21	1.86	$4.90x10^{-01}$	$4.27x10^{-07}$	gr/hr
Pavers	0.28	0.20	0.08	0.01	1.61	0.57	$1.06x10^{-01}$	$4.27x10^{-07}$	gr/hr
Rollers	0.20	0.15	0.06	0.01	1.20	0.43	$8.05x10^{-02}$	$4.27x10^{-07}$	gr/hr
Skid Steer Loaders	0.21	0.15	0.18	0.02	1.98	0.71	$2.30x10^{-01}$	$4.27x10^{-07}$	gr/hr
Tractors/Loaders/Backhoes	0.24	0.19	0.17	0.02	2.13	0.76	$2.05x10^{-01}$	$4.27x10^{-07}$	gr/hr

Off Road Equipment Type	Annual Emissions (tons)								
	Benzene	Toluene	Xylenes	1,3-Butadiene	Formaldehyde	Acetaldehyde	Acrolein	PAHs	Total HAPs
Aerial Lifts	$4.54x10^{-03}$	$3.21x10^{-03}$	$3.15x10^{-03}$	$3.07x10^{-04}$	0.04	0.01	$4.13x10^{-03}$	$9.80x10^{-09}$	0.07
Cranes	$1.64x10^{-03}$	$1.21x10^{-03}$	$6.28x10^{-04}$	$7.43x10^{-05}$	0.01	$3.75x10^{-03}$	$7.92x10^{-04}$	$2.45x10^{-09}$	0.02
Crawler Tractor/Dozers	$1.89x10^{-03}$	$1.38x10^{-03}$	$6.10x10^{-04}$	$7.70x10^{-05}$	0.01	$4.05x10^{-03}$	$7.93x10^{-04}$	$1.96x10^{-09}$	0.02
Excavators	$2.74x10^{-04}$	$1.97x10^{-04}$	$7.39x10^{-05}$	9.86x10-06	$1.53x10^{-03}$	$5.47x10^{-04}$	$9.90x10^{-05}$	$4.90x10^{-10}$	$2.73x10^{-03}$
Forklifts	$3.00x10^{-03}$	$2.14x10^{-03}$	$7.35x10^{-04}$	$1.04x10^{-04}$	0.02	$5.86x10^{-03}$	$1.05x10^{-03}$	$9.80x10^{-09}$	0.03
Graders	$7.02x10^{-04}$	$5.05x10^{-04}$	$1.93x10^{-04}$	$2.55x10^{-05}$	$3.94x10^{-03}$	$1.41x10^{-03}$	$2.56x10^{-04}$	$9.80x10^{-10}$	$7.03x10^{-03}$
Off-highway Trucks	$1.44x10^{-03}$	$1.02x10^{-03}$	$3.58x10^{-04}$	$5.13x10^{-05}$	$7.95x10^{-03}$	$2.84x10^{-03}$	$5.12x10^{-04}$	$4.90x10^{-10}$	0.01
Other Construction Equipment	$7.83x10^{-03}$	$5.79x10^{-03}$	$4.51x10^{-03}$	$4.65x10^{-04}$	0.06	0.02	$5.61x10^{-03}$	$4.90x10^{-09}$	0.11
Pavers	$3.17x10^{-04}$	$2.30x10^{-04}$	$9.00x10^{-05}$	$1.23x10^{-05}$	$1.84x10^{-03}$	$6.57x10^{-04}$	$1.22x10^{-04}$	$4.90x10^{-10}$	$3.27x10^{-03}$
Rollers	$4.63x10^{-04}$	$3.37x10^{-04}$	$1.36x10^{-04}$	$1.85x10^{-05}$	$2.75x10^{-03}$	$9.78x10^{-04}$	$1.85x10^{-04}$	$9.80x10^{-10}$	$4.87x10^{-03}$

Skid Steer Loaders	9.65x10^{-04}	7.00x10^{-04}	8.34x10^{-04}	7.74x10^{-05}	0.01	3.25x10^{-03}	1.06x10^{-03}	1.96x10^{-09}	0.02
Tractors/Loaders/Backhoes	5.60x10^{-03}	4.37x10^{-03}	3.89x10^{-03}	3.99x10^{-04}	0.05	0.02	4.70x10^{-03}	9.80x10^{-09}	0.09
Graders	0.31	0.22	0.08	0.01	1.72	0.61	1.12x10^{-01}	4.27x10^{-07}	gr/hr

a. Diesel emission factors for non-road mobile emissions (construction equipment) based on EPA MOVES 4.0.1, accessed September 2024. Equipment is assumed to be manufactured post 2017 at the time of construction.

b. Greenhouse gas emission factors for N2O and CH4 (grams per horsepower-hour) from 40 CFR 98, Table C-1 and C-2; conversion of 2544.43 Btu/hp-hr is assumed

c. Global warming potentials: CO2 = 1, CH4 = 25, N2O = 298 (Table A-1 to Subpart A of 40 CFR 98)

d. To be conservative and consistent a load factor of 0.8 was used for all construction equipment

Construction equipment and schedule are assumptions and both items are not finalized as of the date of these calculations (Sept. 2024)

Table 6-4: Tail-Pipe Emissions from Construction Equipment Mobilization

Emission Source	Total Distance	Pollutants	Emission Factor		Tailpipe Emissions
	miles		g / mile	tons / mile	(Tons)
Diesel Long Haul Trucks (Tractor Trailer)	4,020	NOx	4.58	5.05x10^{-06}	2.03x10-02
		CO	1.65	1.82x10^{-06}	7.32x10^{-03}
		VOC	0.41	4.47x10^{-07}	1.80x10^{-03}
		SO$_2$	0.01	1.64x10^{-08}	6.60x10^{-05}
		PM$_{10}$	0.14	1.60x10^{-07}	6.42x10^{-04}
		PM2.5	0.09	9.46x10^{-08}	3.80x10^{-04}
		HAPS	3.77x10^{-03}	4.16x10^{-09}	1.67x10^{-05}
		CO$_2$	217.46	2.40x10^{-04}	9.64x10^{-01}
		CH$_4$	0.46	5.11x10^{-07}	2.05x10^{-03}
		N$_2$O	2.00x10^{-03}	2.20x10^{-09}	8.86x10^{-06}
		CO$_2$e			1.02

Table 6-5: Commuting Vehicles by Type

Category of Vehicle	Percentage
Passenger Cars [a]	63%
Passenger Trucks a	37%
Gasoline Vehicles [b]	96%
Diesel Vehicles [b]	3%
EV [b,c]	1%

a. Vehicle breakdown based on U.S. fleet trends in “The 2023 EPA Automotive Trends Report - Greenhouse Gas Emissions, Fuel Economy, and Technology since 1975. Published December 2023”, Accessed 7/2024

b. U.S. Dept. of Energy, 2022 Light-Duty Vehicle Registration Counts by Fuel Type. Accessed 7/2024.

c. Electric Vehicles do not produce tailpipe emissions.

Table 6-6: On-Road Tail-Pipe Emission Factors

On-Road Tailpipe Criteria Emission Factors (grams per mile) [a,b]										
NO$_x$	**CO**	**VOC**	**SO$_2$**	**P$_{10}$**	**PM2.5**	**HAPs**	**CO$_2$**	**CH$_4$**	**N$_2$O**	**CO$_2$e**
0.12	2.8547	$1.66x10^{-01}$	$4.20x10^{-03}$	$1.52x10^{-02}$	$1.52x10^{-02}$	$5.08x10^{-06}$	0.87	$1.07x10^{-05}$	$3.48x10^{-06}$	0.87
0.23	2.7317	$7.16x10^{-02}$	$2.00x10^{-03}$	$1.00x10^{-02}$	$1.00x10^{-02}$	$8.32x10^{-06}$	4.04	$8.08x10^{-05}$	$4.01x10^{-06}$	4.04
0.31	4.8947	$2.68x10^{-01}$	$5.40x10^{-03}$	$2.64x10^{-02}$	$2.64x10^{-02}$	$5.08x10^{-06}$	0.87	$1.07x10^{-05}$	$3.48x10^{-06}$	0.87
0.94	1.1364	$7.66x10^{-02}$	$4.50x10^{-03}$	$2.03x10^{-02}$	$2.03x10^{-02}$	$8.32x10^{-06}$	4.04	$8.08x10^{-05}$	$4.01x10^{-06}$	4.04

a. NOx, CO, VOC, SO2, PM10, and PM2.5 Emission factors in grams/mile from "Updated Emission Factors of Air Pollutants from Vehicle Operations in GREETTM Using MOVES" (2013)

b. HAP and GHG Emission factors in pounds per mile derived from US EPA Moves 2014b Model

Table 6-7: Construction Related On-Road Vehicle Tail-Pipe Emissions

Vehicle Type	Fuel	%	# of Vehicles	Travel Distance [a]	Emissions (tons)							
					NO_x	CO	VOC	SO_2	PM_{10}	$PM_{2.5}$	HAPs	CO_2e
Passenger Car	Gasoline	60%	235	100	2.42	57.68	3.35	0.08	0.31	0.31	0.05	7,986
	Diesel	2%	7	100	0.14	1.64	0.04	$1.20x10^{-03}$	$6.04x10^{-03}$	$6.04x10^{-03}$	$2.27x10^{-03}$	1,104
Passenger Truck	Gasoline	36%	138	100	3.66	58.08	3.18	0.06	0.31	0.31	0.03	4,690
	Diesel	1%	5	100	0.40	0.49	0.03	$1.93x10^{-03}$	$8.74x10^{-03}$	$8.74x10^{-03}$	$7.82x10^{-04}$	788
Total					**6.62**	**117.89**	**6.60**	**0.15**	**0.64**	**0.64**	**0.08**	**14,567**

a. Round Trip distance, miles per vehicle per day

b. Based on an average of 388 Construction workers for a total of 3 years (780 days).

Paved Road Emissions Calculations

Paved Roads emission factor from AP-42, Section 13.2.1: *Paved Roads* (01/11)

$$E = k(sL)^{0.91}(W)^{1.02}(1-P/(4*365))$$

Where:

$sL =$ 0.6 road surface silt loading silt loading (g/m2) [Table 13.2.1-2, for Ubiquitous Baseline, <500]

$W_{(commuter)} =$ 2 tons [Average vehicle weight]

$W_{(LHT)} =$ 28 Tons [Average Class 8 Heavy Duty Diesel Truck vehicle weight]

$k_{PM2.5} =$ 0.00054 lb/VMT [Table 13.2.1-1, for $PM_{2.5}$]

$k_{PM10} =$ 0.00220 lb/VMT [Table 13.2.1-1, for $PM_{2.5}$]

$P =$ 110 P = days [Average number of days with > 0.01 inches of precipitation for McCracken County, KY (Figure 13.2.2-1)

$E_{(C,\ PM2.5)} = 6.36X10^{-04}$ lb/VMT

$E_{(C,\ PM10)} = 2.59X10^{-03}$ lb/VMT

$E_{(LHT,\ PM2.5)} = 9.22X10^{-03}$ lb/VMT

$E_{(LHT,\ PM10)} = 3.76X10^{-02}$ lb/VMT

Duration= 780 days

Equipment Type	**Average Vehicle Weight (tons)[a]**	**Paved Roads**		
		VMT per day	**Quantity**	**VMT**
Commuter	2	100	388	30,264,000
Diesel Long Haul Trucks (Tractor Trailer)	28	--	--	4,020
Project Totals				
PM2.5 (tons)				9.64
PM10 (tons)				39.29

a. Weighted average vehicle wt (tons) in 2022, EPA Automotive Trend Data accessed 9/2024.

Table 6-8: Summary of Earthmoving Activities

Construction Activity	Activity Type	Excavation Volume[a.1-2] (ft^3)	Temporary Workspace for Construction (ft^2)[b]
Access Roads	Grading	66,296	66,296
Site Preparation	Grading	30,607,650	30,607,650
General Construction	Grading	566,280	566,280
	Foundation Excavation Operational Buildings	5,478,334	1,095,667
	Foundation Excavation Non-Seismic Buildings	1,159,184	386,395

(a.1) The project consists of the grading of approximately 322 acres as well as the excavation of multiple foundations for future buildings on site. Grading depth is estimated to be an average of 1' throughout the site, 1' for access roads, and foundation depth is assumed to be 3' and 5' for operational buildings and non-seismic buildings respectively.

(a.2) Soil density is assumed to be 100 lb/ft^3

Table 6-9: Fugitive Emissions from Earthmoving Activities

Construction Activity	**Excavation [a]**	**Excavation PM_{10} Emission Factor [c]**	**Excavation PM_{10} Emissions**	**Backfilling [a]**	**Backfilling PM_{10} Emission Factor [c]**	**Back-filling PM10 Emissions**	**Windblown Dust Area**	**PM_{10} Windblown Dust Emission Factor [d,e]**	**Windblown Dust PM_{10} Emissions - Controlled**	**Total PM_{10} emissions**	**Total $PM_{2.5}$ Emissions [f]**
	tons	lb/ton	tons	tons	lb/ton	tpy	ft^2	lb/ft^2	tons	tons	tons
Grading	1,562,011	0.058	45.30	--[g]	0.012	--	31,240,226	2.52×10^{-05}	0.39	45.69	9.50
Foundation Excavations	6,637,518		192.49				1,095,667		1.38×10^{-02}	192.50	40.04
Total										238.19	49.54

a. The project consists of the grading of approximately 322 acres as well as the excavation of multiple foundations for future buildings on site. Grading depth is estimated to be an average of 1' throughout the site, 1' for access roads, and foundation depth is assumed to be 3' and 5' for operational buildings and non-seismic buildings respectively.
b. Soil density is assumed to be 100 lb/ft^3
c. Workspace areas and building footprints as outline in documentation in the GLE PLEF ER Document.
d. Excavation and backfilling factors from AP-42, Table 11.9-4 (dated 7/98), assuming 100% of TSP is PM10
e. Windblown dust factor from "Improvement of Specific Emission Factors" prepared for South Coast AQMD by Midwest Research Institute (1996) assuming 100% of TSP is PM10.
f. PM10 emissions are conservatively assumed to be 100% of TSP.
g. PM2.5 emissions were calculated following the SCAQMD Particulate Matter PM2.5 Significance Thresholds and Calculation Methodology (2006).
h. For construction and demolition of fugitive dust sources, 20.8% of the PM10 would be PM2.5.
There is assumed to be no backfilling activities as excavation will be completed to the extent need to establish the proposed grade elevation.

Unpaved Roads emission factor from AP-42, Section 13.2.2: *Unpaved Roads* (11/06); Equations 1a and 2

$$E = k(s/12)^a(W/3)^b \qquad (1a)$$

Where:

E = size10-specific emission factor (lb/VMT)

S = 8.50, surface material silt content (%) [Surface Silt (s) content based on Table 13.2.2-1 - construction sites]

W= Average vehicle weight

Table 13.2.2-2 - Constants for Equation 1a

Constant	$PM_{2.5}$	PM_{10}
k (lb/VMT)	0.15	1.5
a	0.9	0.9
b	0.45	0.45

$$E_{est} = E[(365-P)/365] \qquad (2)$$

E_{est}= annual sizx10-specific emission factor extrapolated for natural mitigation, lb/VMT

E= emission factor from Equation 1a

P= 110, days [Average number of days with > 0.01 inches of precipitation for McCracken County, KY (Figure 13.2.2-1)

Table 6-10: Unpaved Roads Vehicle Specifications and Travel Assumptions

Equipment	Construction Duration (days)	Miles per Day	Quantity	Total Vehicle Miles Traveled [a] (VMT)	W: Mean Vehicle Weight (tons)[b]
Dump Truck [c]		1.4	585,681	819,953	14
Vendor Truck	650	1.4	2	1,820	7
Water Truck	130	1.4	1	182	30
Daily Pickup Trucks	650	2	39	50700	4

a. VMT per day are projected based on experience from previous construction projects

b. Weighted average vehicle wt (tons) based on typical vehicle weights and rated hauling capacity

c. Dump Truck total loads based on standard truck weight capacities, 14 tons, and soil excavation volume

Table 6-11: Unpaved Roads Vehicle Emissions

Equipment	Emission Factors (lb/VMT)[a]	Emissions (tons)	Emission Factors (lb/VMT)[a]	Emissions (tons)
	PM2.5	PM2.5	PM10	PM10
Dump Truck	0.154	65.34	1.537	653.42

Equipment	Emission Factors (lb/VMT)[a]	Emissions (tons)	Emission Factors (lb/VMT)[a]	Emissions (tons)
	PM2.5	PM2.5	PM10	PM10
Vendor Truck	0.112	0.102	1.125	1.024
Water Truck	0.217	0.020	2.165	0.197
Daily Pickup Trucks	0.087	2.217	0.875	22.169
Total		39.299		392.995

a. AP 42 Section 13 2.2 Unpaved Roads, dated November 2006, Equations 1a and 2

6.13 Operational Emission

Table 6-12: Number of Expected Commuting Vehicles During Operational Phases

Phase	# of Commuters
Phase 2: Operation And Final Construction Number of Full-Time Employees + Construction Staff	743
Phase 3: Operation Number of Full-Time Employees	350
Phase 4: Start of Decommission Number of Full-Time Employees + Decommission Staff	400
Phase 5: Decommission Number of Decommission Employees	500

Table 6-13: Operational On-Road Tailpipe Emissions

Phase	Vehicle Type	Fuel	# of Vehicles	Estimated Travel Distance[a]	Emissions (tons)							
					NOx	CO	VOC	SO_2	PM_{10}	$PM_{2.5}$	HAPs	CO_2e
Phase 2	Passenger Car	Gasoline	449	100	2.16	51.57	3.00	0.08	0.27	0.27	0.04	7,140
		Diesel	14	100	0.13	1.54	0.04	1.13×10^{-03}	5.66×10^{-03}	5.66×10^{-03}	2.13×10^{-03}	1,033
	Passenger Truck	Gasoline	264	100	3.27	51.99	2.84	0.06	0.28	0.28	0.02	4,198
		Diesel	9	100	0.34	0.41	0.03	1.63×10^{-03}	7.36×10^{-03}	7.36×10^{-03}	6.59×10^{-04}	664
Phase 3	Passenger Car	Gasoline	212	100	1.02	24.35	1.41	0.04	0.13	0.13	0.02	3,371
		Diesel	7	100	0.07	0.77	0.02	5.63×10^{-04}	2.83×10^{-03}	2.83×10^{-03}	1.06×10^{-03}	517
	Passenger Truck	Gasoline	124	100	1.54	24.42	1.34	0.03	0.13	0.13	0.01	1,972
		Diesel	4	100	0.15	0.18	0.01	7.24×10^{-04}	3.27×10^{-03}	3.27×10^{-03}	6.07×10^{-04}	295
Phase 4	Passenger Car	Gasoline	242	100	1.17	27.80	1.61	0.04	0.15	0.15	0.02	3,848
		Diesel	8	100	0.07	0.88	0.02	6.44×10^{-04}	3.23×10^{-03}	3.23×10^{-03}	1.21×10^{-03}	590
	Passenger Truck	Gasoline	142	100	1.76	27.96	1.53	0.03	0.15	0.15	0.01	2,258
		Diesel	4	100	0.15	0.18	0.01	7.24×10^{-04}	3.27×10^{-03}	3.27×10^{-03}	6.07×10^{-04}	295
Phase 5	Passenger Car	Gasoline	302	100	1.46	34.69	2.01	0.05	0.18	0.18	0.03	4,802
		Diesel	9	100	0.08	0.99	0.03	7.24×10^{-04}	3.64×10^{-03}	3.64×10^{-03}	1.37×10^{-03}	664
	Passenger Truck	Gasoline	178	100	2.21	35.05	1.92	0.04	0.19	0.19	0.02	2,830
		Diesel	6	100	0.23	0.27	0.02	1.09×10^{-03}	4.91×10^{-03}	4.91×10^{-03}	9.11×10^{-04}	443

a. Miles, Round trip distance
b. NOx, CO, $PM_{10/2.5}$, SO_2, VOC Emission factors in grams/mile from "Updated Emission Factors of Air Pollutants from Vehicle Operations in GREET^{TM} Using MOVES" (2013)
c. HAP and GHG Emission factors in pounds per mile derived from US EPA Moves 2014b Model.

Paved Roads emission factor from AP-42, Section 13.2.1: *Paved Roads* (01/11)

$E = k(sL)^{0.91}(W)^{1.02}(1-P/(4*365))$

Where:

$sL =$ 0.6 road surface silt loading silt loading (g/m2) [Table 13.2.1-2, for Ubiquitous Baseline, <500]

$W_{(commuter)} =$ 2 tons [Average vehicle weight]

$W_{(LHT)} =$ 40 tons [Average vehicle weight]

$k_{PM2.5} =$ 0.00054 lb/VMT [Table 13.2.1-1, for $PM_{2.5}$]

$k_{PM10} =$ 0.00220 lb/VMT [Table 13.2.1-1, for $PM_{2.5}$]

$P =$ 110 P = days [Average number of days with > 0.01 inches of precipitation for McCracken County, KY (Figure 13.2.2-1)

$E_{(C, PM2.5)} =$ $6.36X10^{-04}$ lb/VMT

$E_{(C, PM10)} =$ $2.59X10^{-03}$ lb/VMT

$E_{(LHT, PM2.5)} =$ $1.35X10^{-02}$ lb/VMT

$E_{(LHT, PM10)} =$ $5.50X10^{-02}$ lb/VMT

Annual days= 365

Equipment Type [a]	**Average Vehicle Weight (tons)**	**Paved Roads**			**PM2.5**	**PM10**
		VMT per day	**Quantity**	**VMT**	**tons per year**	
Phase 2 Commuter [b]	2	100	743	27,119,500	8.63	35.14
Phase 3 Commuter			350	12,775,000	4.06	16.55
Phase 4 Commuter			400	14,600,000	4.64	18.92
Phase 5 Commuter			500	18,250,000	5.80	23.65
Long Haul Trucks [c,d]	40	841	5	1,535,281	10.37	42.25
Project Totals					**19.00**	**77.39**

a. Phase 2: Operation and Final Construction, Phase 3: Operation, Phase 4: Operation and Start of Decommission, Phase 5: Decommissioning Activities.
b. Weighted average vehicle wt (tons) in 2022, EPA Automotive Trend Data accessed 9/2024.
c. The maximum legal weight for a fully loaded semi in the U.S. is 40 tons.
d. Average vehicle miles traveled accounting for feed delivery from ports in Baltimore MD, Portsmouth VA, or locations in Metropolis IL, Port Hope Ontario plus waste material hauling to Paducah, KY or Portsmouth, OH.

6.13.1 Emergency Generators

Table 6-14: Maximum Allowable Emissions

Pollutant	Emergency Generators Two 1,000 kW (tpy)	Emergency Generators One 100 kW (tpy)	Potential Emissions (tpy)
NO_X	7.05	3.64	10.69
CO	3.86	2.76	6.61
PM	0.22	0.17	0.39
PM_{10}	0.22	0.17	0.39
$PM_{2.5}$	0.22	0.17	0.39
VOC	0.47	$8.42\text{x}10^{-02}$	0.56
SO_2	$8.13\text{x}10^{-04}$	$6.87\text{x}10^{-02}$	0.07
H_2SO_4 Mist	$1.24\text{x}10^{-04}$	$1.05\text{x}10^{-02}$	0.01
CO_2e	803	401	1,204
HAP(Combined)	$2.1\text{x}10^{-02}$	$1.65\text{x}10^{-03}$	$8.71\text{x}10^{-03}$

Table 6-15: 1,000 kW Emergency Generator Specifications

Parameter	Value	Unit
Size	1,000	KW
	1,340	hp
	71.10	gal/hr
	9.81	MMBtu/hr
Operation	500	hours/year
Quantity	2	

Table 6-16: 1,000 kW Emergency Generator Emission Calculations

Pollutant	Emission Factors				Emissions		
	g/kw-hr	lb/bhp-hr	lb/MMBtu	Source	lb/hr	tpy	Combine tpy
NO_X	6.4	--	--	NSPS[a]	14.1	3.53	7.05
CO	3.5	--	--	NSPS[a]	7.7	1.9	3.86
$PM/PM_{10}/PM_{2.5}$	0.2	--	--	NSPS[a]	0.441	0.11	0.22
VOC	--	7.05×10^{-04}	--	AP-42[b]	0.9	0.24	0.47
SO_2	--	1.21×10^{-06}	--	AP-42[b]	1.63×10^{-03}	4.07×10^{-04}	8.13×10^{-04}
H_2SO_4 Mist	--	--	--	Mass Balance	2.49×10^{-04}	6.22×10^{-05}	1.24×10^{-04}
CO_2e	--	--	163.6	Federal Register[c]	1,605	401	803

a. NSPS Limits - 40 CFR Part 60, Subpart IIII, (40 CFR 60.4202(b)(2) and 40 CFR Appendix I to Part 1039, Appendix I)
b. AP-42 Section 3.4 (10/96)
c. Federal Register - Subpart C of Part 98

Table 6-17: 100 kW Emergency Generator Specifications

Parameter	Value	Unit
Size	100.0	KW
	134.0	hp
	7.40	gal/hr
	1.02	MMBtu/hr
Operation	500	hours/year
Quantity	1	

Table 6-18: 100 kW Emergency Generator Emission Calculations

Pollutant	Emission Factors				Emissions	
	g/kw-hr	lb/bhp-hr	lb/MMBtu	Source	lb/hr	tpy
NO_X	6.6	--	--	NSPS[a]	10.9	2.73
CO	5	--	--	NSPS[a]	8.3	2.1
$PM/PM_{10}/PM_{2.5}$	0.3	--	--	NSPS[a]	0.496	1.24×10^{-01}
VOC	--	2.51×10^{-03}	--	AP-42[b]	0.3	8.42×10^{-02}
SO_2	--	2.05×10^{-03}	--	AP-42[b]	2.75×10^{-01}	6.87×10^{-02}
H_2SO_4 Mist	--	--	--	Mass Balance	4.21×10^{-02}	1.05×10^{-02}
CO_2e	--	--	163.6	Federal Register[c]	1205.7	301.4

a. NSPS Limits - 40 CFR Part 60, Subpart IIII, (40 CFR 60.4202(b)(2) and 40 CFR Appendix I to Part 1039, Appendix I)
b. AP-42 Section 3.3 (10/96)
c. Federal Register - Subpart C of Part 98

Table 6-19: Sulfuric Acid Mist Conversion

Each Unit	SO_2	SO_2 converted to SO_3	SO_3 created	H_2SO_4 created	H_2SO_4	Molecular Weights	
	lb/hr				tpy		
100 kW Diesel Generator	2.75x10^{-01}	2.7x10^{-02}	3.4x10^{-02}	4.2x10^{-02}	1.1x10^{-02}	SO_2	64.1
750 kW Diesel Generator	1.22x10^{-03}	1.2x10^{-04}	1.5x10^{-04}	1.9x10^{-04}	4.7x10^{-05}	H_2SO_4	98.1

Assume 10% of SO_2 is converted to SO_3, 10 percent conversion, $SO_2 + 1/2\ O_2 = SO_3$
Assume 100% of SO_3 is converted to H_2SO_4, 100 percent conversion, $SO_3 + H_2O = H_2SO_4$

Table 6-20: Emergency Generator HAPS Emissions

Pollutant	CAS. No.	Emission Factors [a]	100 kW Emergency Diesel Generator		Emission Factors [b]	1,000 kW Emergency Diesel Generator			HAP Emissions (All Project Equipment
		lb/MMBtu	lb/hr	tpy	lb/MMBtu	lb/hr	tpy per each	Tpy all	tpy (total)
1,3-Butadiene	106-99-0	3.91x10^{-05}	3.99x10^{-05}	9.98x10^{-06}	--	--	--	--	1.42x10^{-04}
Acenaphthene	83-32-9	1.42x10^{-06}	1.45x10^{-06}	3.63x10^{-07}	4.68x10^{-06}	4.59x10^{-05}	1.15x10^{-05}	2.30x10^{-05}	2.33x10^{-05}
Acenaphthylene	203-96-8	5.06x10^{-06}	5.17x10^{-06}	1.29x10^{-06}	9.23x10^{-06}	9.06x10^{-05}	2.26x10^{-05}	4.53x10^{-05}	4.66x10^{-05}
Acetaldehyde	75-07-0	7.67x10^{-04}	7.83x10^{-04}	1.96x10^{-04}	2.52x10^{-05}	2.47x10^{-04}	6.18x10^{-05}	1.24x10^{-04}	3.19x10^{-04}
Acrolein	107-028	9.25x10^{-05}	9.45x10^{-05}	2.36x10^{-05}	7.88x10^{-06}	7.73x10^{-05}	1.93x10^{-05}	3.87x10^{-05}	6.23x10^{-05}
Anthracene	120-12-7	1.87x10^{-06}	1.91x10^{-06}	4.77x10^{-07}	1.23x10^{-06}	1.21x10^{-05}	3.02x10^{-06}	6.03x10^{-06}	6.51x10^{-06}
Benz(a)anthracene	56-55-3	1.68x10^{-06}	1.72x10^{-06}	4.29x10^{-07}	6.22x10^{-07}	6.10x10^{-06}	1.53x10^{-06}	3.05x10^{-06}	3.48x10^{-06}
Benzene	71-43-2	9.33x10^{-04}	9.53x10^{-04}	2.38x10^{-04}	7.76x10^{-04}	7.61x10^{-03}	1.90x10^{-03}	3.81x10^{-03}	4.05x10^{-03}
Benzo(b)fluoranthene	205-99-2	9.91x10^{-08}	1.01x10^{-07}	2.53x10^{-08}	1.11x10^{-06}	1.09x10^{-05}	2.72x10^{-06}	5.45x10^{-06}	5.47x10^{-06}
Benzo(a)pyrene	50-32-8	1.88x10^{-07}	1.92x10^{-07}	4.80x10^{-08}	2.57x10^{-07}	2.52x10^{-06}	6.30x10-^{07}	1.26x10^{-06}	1.31x10^{-06}
Benzo(g,h,i)perylene	191-24-2	4.89x10^{-07}	4.99x10^{-07}	1.25x10^{-07}	5.56x10^{-07}	5.46x10^{-06}	1.36x10^{-06}	2.73x10^{-06}	2.85x10^{-06}
Benzo(k)fluoranthene	205-82-3	1.55x10^{-07}	1.58x10^{-07}	3.96x10^{-08}	2.18x10^{-07}	2.14x10^{-06}	5.35x10-^{07}	1.07x10^{-06}	1.11x10^{-06}
Chrysene	218-01-9	3.53x10^{-07}	3.60x10^{-07}	9.01x10^{-08}	1.53x10^{-06}	1.50x10^{-05}	3.75x10^{-06}	7.51x10^{-06}	7.60x10^{-06}
Dibenzo(a,h)anthracene	53-70-3	5.83x10^{-07}	5.95x10^{-07}	1.49x10^{-07}	3.46x10^{-07}	3.39x10^{-06}	8.49x10-^{07}	1.70x10^{-06}	1.85x10^{-06}

Pollutant	**CAS. No.**	**Emission Factors [a]**	**100 kW Emergency Diesel Generator**		**Emission Factors [b]**	**1,000 kW Emergency Diesel Generator**			**HAP Emissions (All Project Equipment**
		lb/MMBtu	**lb/hr**	**tpy**	**lb/MMBtu**	**lb/hr**	**tpy per each**	**Tpy all**	**tpy (total)**
Fluoranthene	206-44-0	7.61x10^{-06}	7.77x10^{-06}	1.94x10^{-06}	4.03x10^{-06}	3.95x10^{-05}	9.89x10^{-06}	1.98x10^{-05}	2.17x10^{-05}
Fluorene	86-73-7	2.92x10^{-05}	2.98x10^{-05}	7.45x10^{-06}	1.28x10^{-05}	1.26x10^{-04}	3.14x10^{-05}	6.28x10^{-05}	7.03x10^{-05}
Formaldehyde	50-00-0	1.18x10^{-03}	1.21x10^{-03}	3.01x10^{-04}	7.89x10^{-05}	7.74x10^{-04}	1.94x10^{-04}	3.87x10^{-04}	6.88x10^{-04}
Indeno(1,2,3-cd)pyrene	193-39-5	3.75x10^{-07}	3.83x10^{-07}	9.57x10^{-08}	4.14x10^{-07}	4.06x10^{-06}	1.02x10^{-06}	2.03x10^{-06}	2.13x10^{-06}
Naphthalene	91-20-3	8.48x10^{-05}	8.66x10^{-05}	2.16x10^{-05}	1.30x10^{-04}	1.28x10^{-03}	3.19x10^{-04}	6.38x10^{-04}	6.59x10^{-04}
Phenanthrene	85-01-8	2.94x10^{-05}	3.00x10^{-05}	7.51x10^{-06}	4.08x10^{-05}	4.00x10^{-04}	1.00x10^{-04}	2.00x10^{-04}	2.08x10^{-04}
Propylene	115-07-1	2.58x10^{-03}	2.63x10^{-03}	6.59x10^{-04}	2.79x10^{-03}	2.74x10^{-02}	6.84x10^{-03}	1.37x10^{-02}	1.43x10^{-02}
Pyrene	129-00-0	4.78x10^{-06}	4.88x10^{-06}	1.22x10^{-06}	3.71x10^{-06}	3.64x10^{-05}	9.10x10^{-06}	1.82x10^{-05}	1.94x10^{-05}
Toluene	108-88-3	4.09x10^{-04}	4.18x10^{-04}	1.04x10^{-04}	2.81x10^{-04}	2.76x10^{-03}	6.89x10^{-04}	1.38x10^{-03}	1.48x10^{-03}
Xylene	1330-20-7	2.85x10^{-04}	2.91x10^{-04}	7.28x10^{-05}	1.93x10^{-04}	1.89x10^{-03}	4.73x10^{-04}	9.47x10^{-04}	1.02x10^{-03}

a. Emission factors from AP-42, Section 3.3, 10/96
b. Emission factors from AP-42, Section 3.4 10/96

P.7 References

40 CFR Part 60 Subpart IIII

Appendix I to Part 1039, Title 40

Table A-1 to Subpart A of Part 98, Title 40

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