



August 18, 2017

Ms. Sharon S. Butts
Associate Director
South Western Kentucky Economic Development Council
2800 Fort Campbell Boulevard
Hopkinsville, Kentucky 42240

**Subject: Threatened/Endangered Species Report
Commerce Park II
Christian County, Kentucky
USFWS Consultation Code: 04EK1000-2017-SLI-0517
Redwing Project No.: 17-083**

Dear Ms. Butts:

Redwing Ecological Services, Inc. (Redwing) is pleased to submit this report to the South Western Kentucky Economic Development Council (SWK-EDC) regarding the potential presence of threatened/endangered species on the proposed Commerce Park II development site in Christian County, Kentucky. The purpose of this report is to address potential impacts to species listed by the U.S. Fish and Wildlife Service (USFWS) under the Endangered Species Act that could result from the development of the project site.

The wooded areas of the site represent potential summer roosting habitat for the federally-endangered Indiana bat (*Myotis sodalis*) and the federally-threatened northern long-eared bat (*Myotis septentrionalis*). Suitable habitat for other federally-listed threatened/endangered species is not present based on:

- The absence of caves, abandoned mines, sinkholes, and other cave-like features that represent suitable winter hibernacula for the Indiana bat and the northern long-eared bat, as well as suitable winter or summer roosting habitat for the gray bat (*Myotis grisescens*).
- The isolated and low quality nature of marginal foraging habitat for the gray bat.
- The absence of rivers or large streams with substrate suitable for mussel species.

PROJECT BACKGROUND

The SWK-EDC is proposing the industrial development of the Commerce Park II project on an approximately 704-acre site located approximately 6.5 miles southeast of Hopkinsville in Christian County, Kentucky. The site is located southwest of Highway 41 (Pembroke Road), directly south of existing rail lines and Johns Rivers Road (Figures 1, 2 and 3).

STUDY METHODOLOGY

Redwing assessed the site for the presence of suitable habitat for federally-listed threatened/endangered species through a combination of in-house research and a field survey. In-house research involved review of available mapping, aerial photographs, and a data report from the USFWS Information for Planning Consortium (IPaC). Redwing biologists conducted a field assessment of the Commerce Park II development site on June 21, 2017, to characterize the on-site natural areas and to document the presence/absence of suitable habitat for the Indiana bat, northern long-eared bat, gray bat, and mussel species. Areas of suitable habitat were marked on site maps and documented with notes and photographs.

RESULTS

The results of the ecological assessment are presented below in terms of existing natural habitats and federally-listed species.

EXISTING HABITATS

The majority of the Commerce Park II site consists of active agricultural land currently cropped with a combination of corn (*Zea mays*), wheat (*Triticum* sp.), and soybeans (*Glycine max*). The corn fields are located in the western and eastern portion of the site, while the soybean and wheat fields are located in the central portion of the site.

Small areas of forest habitat occupy scattered woodlots, stream corridors and fence lines primarily along the perimeter of the site, as well as in the south-central and eastern portion of the site. Common species within the mixed-aged woods include black walnut (*Juglans nigra*), silver maple (*Acer saccharinum*), box elder (*Acer negundo*), sugar berry (*Celtis laevigata*), shagbark hickory (*Carya ovata*), northern red oak (*Quercus rubra*), American sycamore (*Platanus occidentalis*), pecan (*Carya illinoensis*), persimmon (*Diospyros virginiana*), and black gum (*Nyssa sylvatica*).

THREATENED/ENDANGERED SPECIES

The attached USFWS IPaC data report (Consultation Code 04EK1000-2017-SLI-0517) identifies three mammal and three mussel species potentially occurring on, or in the vicinity of, the project site. Species listed on the report, the presence/absence of suitable habitat for these species on the site, and potential effects on each species are summarized in the following table and discussed below.

Scientific Name	Common Name	Federal Status	Habitat Present	Species Impacted
Mammals				
<i>Myotis grisescens</i>	gray bat	E	No	No
<i>Myotis septentrionalis</i>	northern long-eared bat	T	Summer	Indirect
<i>Myotis sodalis</i>	Indiana bat	E	Summer	Indirect
Mussels				
<i>Obovaria retusa</i>	ring pink	E	No	No
<i>Pleuronaia dolabelloides</i>	slabside pearly mussel	E	No	No
<i>Ptychobranhus subtentum</i>	fluted kidneyshell	E	No	No

E = Federally Endangered; T = Federally Threatened

Indiana Bat: The federally-endangered Indiana bat requires distinct habitat types during the winter and summer months. Winter habitat is restricted to suitable underground hibernacula typically consisting of caves located in karst areas; however, these species also hibernate in cave-like locations, including abandoned mines. During the habitat assessment, a pedestrian survey of the project site was performed to identify caves, abandoned mines, sinkholes, and other underground features that could be considered suitable winter habitat.

Summer habitat for the Indiana bat consists of a variety of forested areas utilized for roosting, foraging, and commuting. These habitats include forested blocks and linear features that consist of dense or loose aggregates of trees with variable amounts of canopy closure. Suitable summer roosting habitat is defined as trees (live or dead) with a diameter at breast height (dbh) of five inches or greater that exhibit exfoliating bark, crevices, or cracks. Typical foraging habitat includes closed to semi-open forest, where bats forage along forest edges and the tree canopy. Commuting habitat is used to travel between roosting and foraging areas, and typically includes forest edges and linear features, including riparian corridors and wooded fencerows.

No caves, rock shelters, or mine portals are present; however, there were small depressions on the site that were notated as sink holes on the University of Kentucky, Kentucky Geological Map Information Services website. Based on the site visit, the small depressions in the wheat field have been filled with rip rap and marked with a pipe, and the depressions in the western portion of the site are ponds. Therefore, no winter habitat for the Indiana bat is present on the site. The mixed-aged forest on site represents suitable summer roosting habitat for the Indiana bat. The identified summer roosting habitat was marked on aerial photographs, and the location and extent of this habitat was transferred into ArcGIS to calculate habitat acreages. The project area is located within an area designated by the USFWS as Potential summer roosting/maternity habitat (Figure 3). It is located over 11 miles from the nearest designated Known swarming habitat zone. The proposed project site contains 16.77 acres of suitable Indiana bat summer roosting habitat including 15.69 acres of forested blocks and 1.08 acre of 12 individual trees (Figure 2).

Clearing of roosting habitat during the occupied period (April 1 through October 15) may be considered a potential direct impact, while clearing during the unoccupied timeframe (October 15 to March 31) would be considered an indirect impact. Potential impacts to Indiana bats from clearing of summer habitat (wooded areas) can generally be managed through the *Revised Conservation Strategy for Forest-Dwelling Bats in the Commonwealth of Kentucky* (effective June 2016) developed by the USFWS Kentucky Field Office. Under this Conservation Strategy possible direct or indirect impacts to the bat can be mitigated through payment to the Imperiled Bat Conservation Fund (IBCF).

Northern Long-Eared Bat: The federally-threatened northern long-eared bat requires distinct habitat types during the winter and summer months. Winter habitat is restricted to suitable underground hibernacula typically consisting of caves located in karst areas; however, these species also hibernate in cave-like locations, including abandoned mines. During the habitat assessment, a pedestrian survey of the project site was performed to identify caves, abandoned mines, sinkholes, and other underground features that could be considered suitable winter habitat.

Summer habitat for the northern long-eared bat consists of a variety of forests utilized for roosting, foraging, and commuting. These habitats include forested blocks and linear features that consist of dense or loose aggregates of trees with variable amounts of canopy closure. Suitable summer roosting habitat is defined as trees (live or dead) with a diameter at breast height (dbh) of three inches or greater that exhibit exfoliating bark, crevices, or cracks. Northern long-eared bats have also been found roosting in man-made structures, including barns, sheds, and houses. Typical foraging habitat includes closed to semi-open

forests, where bats forage along forest edges and the tree canopy. Commuting habitat is used to travel between roosting and foraging areas, and typically includes forest edges and linear features, including riparian corridors and wooded fencerows.

No caves, rock shelters, or mine portals are present; however, there were small depressions on the site that were notated as sink holes on the University of Kentucky, Kentucky Geological Map Information Services website. Based on the site visit, the small depressions in the wheat field have been filled with rip rap and marked with a pipe, and the depressions in the western portion of the site are ponds. Therefore, no winter habitat for the or northern long-eared bat is present on the site. The mixed-aged forest on site represents suitable summer roosting habitat for the northern long-eared bat. The identified summer roosting habitat was marked on aerial photographs, and the location and extent of this habitat was transferred into ArcGIS to calculate habitat acreages. The project area is located within an area designated by the USFWS as Potential summer roosting/maternity habitat for the species (Figure 3). It is located over 11 miles from the nearest designated Known swarming habitat zone. The proposed project site contains 16.77 acres of Potential northern long-eared bat summer roosting habitat including 15.69 acres of forested blocks and 1.08 acres of 12 individual trees (Figure 2).

Under the current USFWS 4(d) Rule, incidental take of the northern long bat is not prohibited since the project is not located within 0.25 mile of a known hibernacula or 150 feet of a known maternity roost tree (Figure 4).

Gray Bat: This federally-endangered species roosts in caves year-round, but utilizes different caves during the winter and summer. Gray bats have also been known to roost in abandoned mines and other cave-like structures, under bridges, and in culverts. No caves, abandoned mines or rock shelters, were identified at the property during the assessment. The sinkholes present within the site have been filled or are ponds surrounded by corn fields, and are therefore, not habitat for the gray bat.

Typical foraging habitat for the gray bat includes riparian areas and open water bodies, such as rivers, streams, lakes, and reservoirs. Commuting habitat for this species primarily consists of wooded corridors used to travel between roosting and foraging habitat.

Based on the lack of caves, abandoned mines, and suitable sinkholes identified on the project site, no impacts to gray bat summer or winter roosting habitat are anticipated from the project. Additionally, Best Management Practices (BMPs) will be implemented to limit impacts from sedimentation and other contaminants into downstream waters. Although the wooded portions of the site containing streams and the four ponds represent marginal gray bat foraging habitat, the lack of adjacent forested areas, isolation of on-site forested areas, and the current land use (active corn fields) make it poor quality foraging habitat that is likely not utilized by the species. Thus, the proposed project is unlikely to adversely affect this species.

Mussels: The three federally threatened/endangered mussel species potentially occurring in Christian County in the vicinity of the project are found in small to large rivers in shallow or deep water. Coarse sediments, such as sand and gravel, are preferred habitat, though some of the species tolerate muddy sediments. The on-site streams do not provide suitable habitat for these species due to their limited flow regime, degraded riffle/run habitat, and unsuitable substrate (muddy and silty bottoms. In addition, no shells were observed within the streams during the site visit.

The project is not likely to adversely affect these species based on the lack of suitable habitat for the mussel species and the utilization of an Erosion Prevention and Sediment Control plan to ensure sediment is not transferred off site.

DISCUSSION

Under Section 7 of the Endangered Species Act, projects that have federal nexus (utilize federal funds or require federal permits) are required to complete consultation with the USFWS. Thus, any future phases of development on the Commerce Park II site that require Section 404 permits from the U.S. Army Corps of Engineers for impacts to jurisdictional waters/wetlands or that receive federal funding, will likely be required to consult with the USFWS. The USFWS typically resolves proposed clearing of Indiana bat summer habitat (forests or individual trees) through payments to the ICBF. At the current time, payment rates within Potential habitat area are \$3,420/acre for clearing in the occupied period between April 1 through October 15 (excluding June and July), \$1,710/acre for clearing in the unoccupied period between October 15 and March 31, and \$6,840/acre for clearing in June and July.

CONCLUSION

Suitable habitat for federally-listed species on the project site is limited to summer roosting habitat for the Indiana and northern long-eared bats, which includes the small scattered woodlots, fencerows and riparian zones. No suitable habitat for mussel species, summer/winter roosting habitat for the gray bat, winter hibernacula habitat for the Indiana and northern long-eared bat is present on the site. Under the current USFWS 4(d) Rule, incidental take of the northern long-eared bat at this site is not prohibited. If tree clearing is proposed for specific phases of future development that also involve federal permitting or funding, consultation with the USFWS will likely be required and result in a per-acre payment to the ICBF for any clearing of suitable bat habitat.

We appreciate the opportunity to work with you on this project. If you have any questions regarding this report or the overall project, please feel free to contact Kaitlin McCulloch or Ron Thomas at (502) 625-3009.

Sincerely,


Kaitlin J. McCulloch
Staff Ecologist

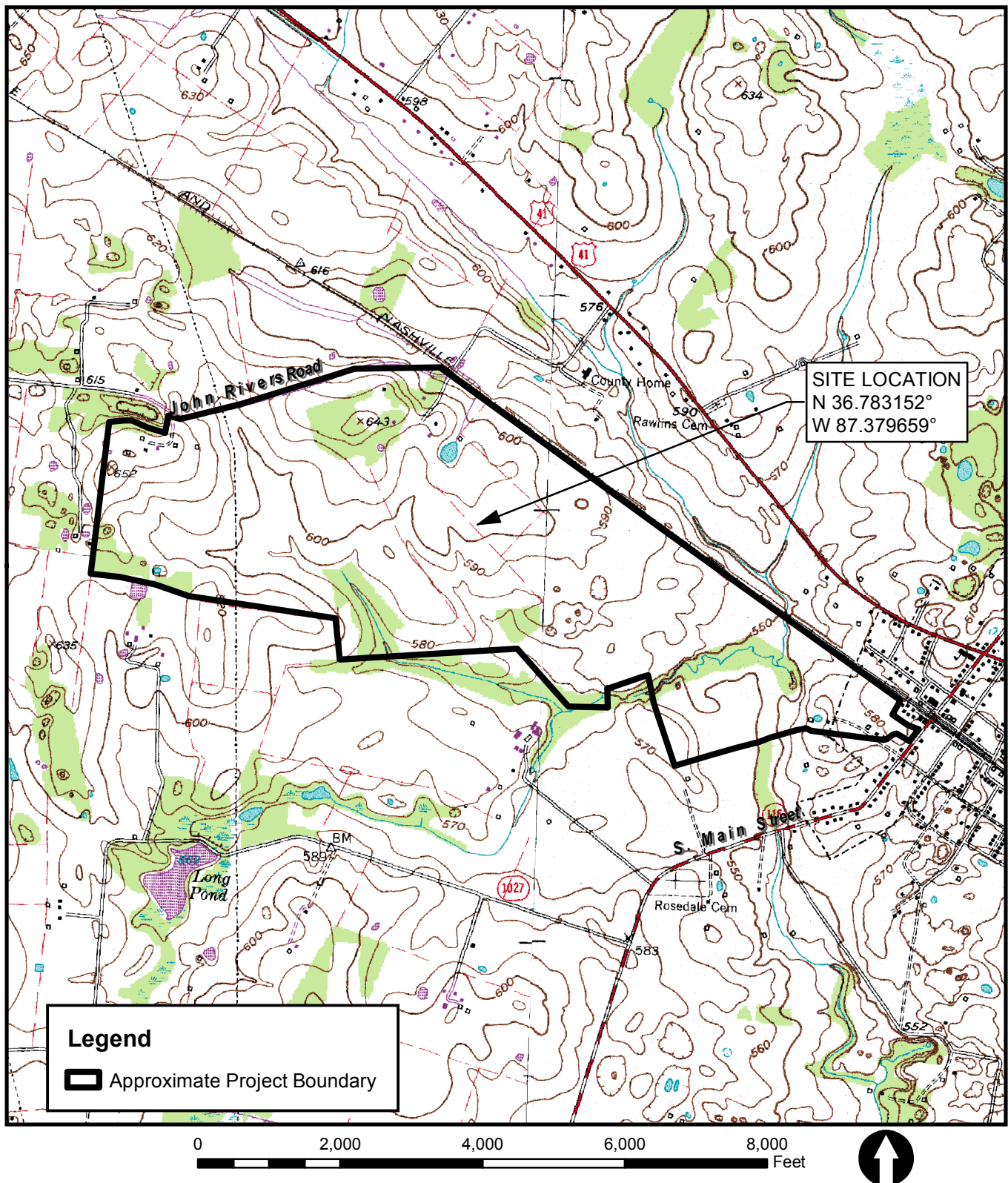

Ronald L. Thomas
Principal
Senior Ecologist

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Attachments: Figures
Photographs
USFWS IPaC Data Search Results

FIGURES

Source: USGS 7.5-minute Topographic Map - Hopkinsville and Pembroke, Kentucky Quadrangles.



COMMERCE PARK II
CHRISTIAN COUNTY, KENTUCKY



SITE LOCATION MAP

REVISED DATE: 06-23-17

DRAWN BY: KJM

FIGURE 1

Source: World Imagery - Esri and the GIS User Community (2016).



0 400 800 1,600 2,400 3,200 Feet



COMMERCE PARK II
CHRISTIAN COUNTY, KENTUCKY

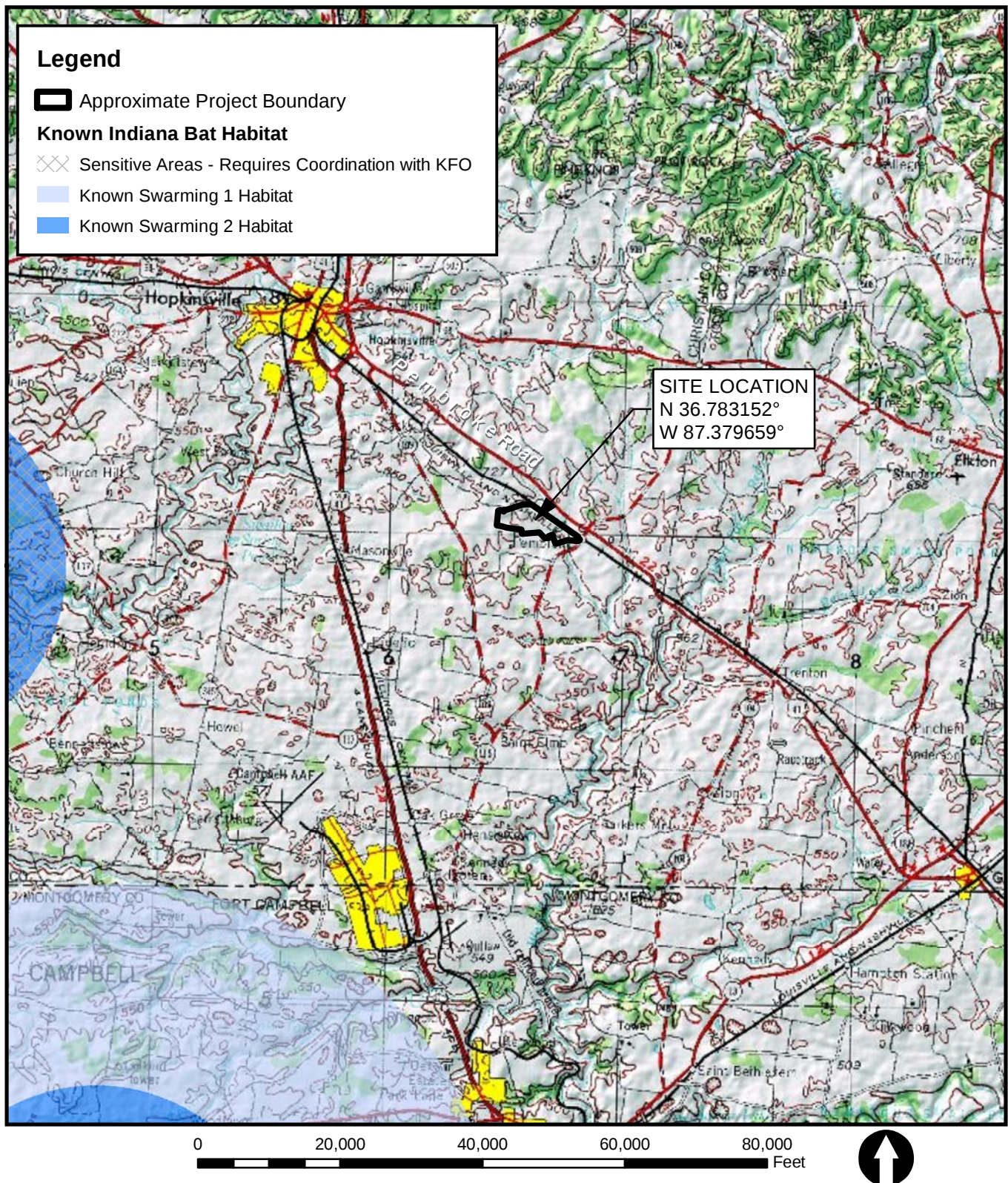
REVISED DATE: 07-17-17 | DRAWN BY: KJM/EDB



SUITABLE INDIANA AND
NORTHERN LONG-EARED
BAT HABITAT MAP

FIGURE 2

Source: USA Topo Maps, (2013) National Geographic Society, USGS 7.5-minute Topographic Map - Kentucky and Tennessee Quadrangles.



COMMERCE PARK II
CHRISTIAN COUNTY, KENTUCKY



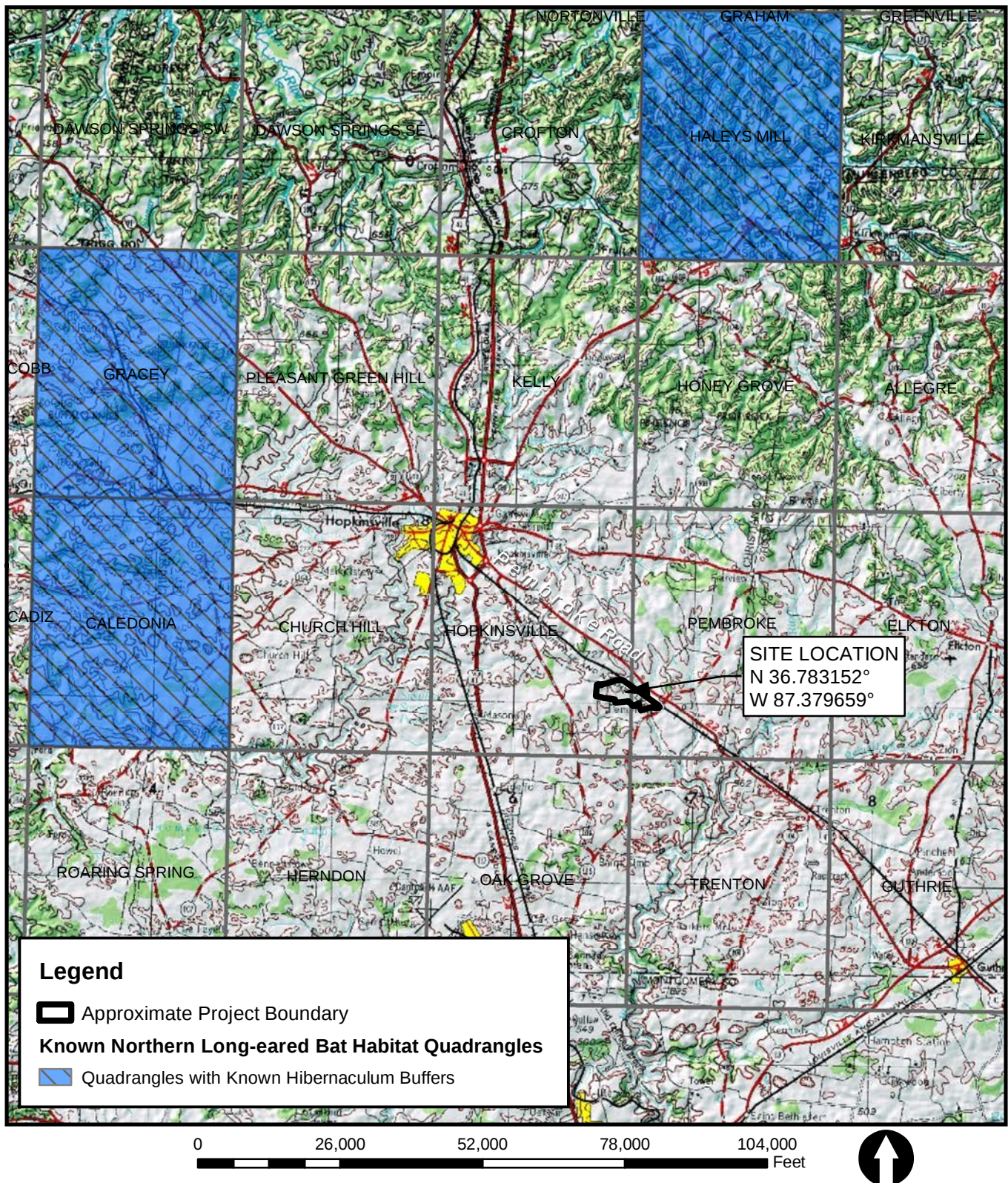
KNOWN INDIANA AND NORTHERN
LONG-EARED BAT HABITAT

REVISED DATE: 06-23-17

DRAWN BY: KJM

FIGURE 3

Source: USA Topo Maps, (2013) National Geographic Society, USGS 7.5-minute Topographic Map - Kentucky and Tennessee Quadrangles.



COMMERCE PARK II
CHRISTIAN COUNTY, KENTUCKY



KNOWN NORTHERN
LONG-EARED BAT HABITAT
QUADRANGLE MAP

REVISED DATE: 06-23-17

DRAWN BY: KJM

FIGURE 4

PHOTOGRAPHS



Photograph 1: Mixed-aged woods in the southeastern portion of the site within the stream riparian corridor. The mixed-aged woods contain trees that provide suitable summer habitat for Indiana and northern long-eared bats (*Myotis sodalis* and *Myotis septentrionalis*). June 21, 2017.



Photograph 2: Forested corridor along an on-site perennial stream in the eastern portion of the site represents suitable Indiana and northern long-eared bat summer habitat. June 21, 2017.



Photograph 3: The on-site perennial stream, facing downstream, exhibits a silty substrate that does not represent suitable habitat for the federally-listed mussels in Christian County, Kentucky. June 21, 2017.



Photograph 4: View of one of the four ponds located on the site within active crop fields in the southwestern portion of the site. June 21, 2017.



Photograph 5: View of the harvested wheat field, with sprouting soybeans, and the forested tree line that provides suitable habitat for the Indiana and northern long-eared bat. June 21, 2017.



Photograph 6: View of the corn fields located in the eastern portion of the site. June 21, 2017.



Photograph 7: Overview of the site showing corn fields and harvested wheat fields. June 21, 2017.



Photograph 8: View of a sinkhole within the wheat/soybean field that has been filled with rip rap and marked with a white pipe. June 21, 2017.

**USFWS IPaC DATA SEARCH RESULTS
CONSULTATION CODE:
04EK1000-2017-SLI-0517**



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) 695-0468 Fax: (502) 695-1024
<http://www.fws.gov/frankfort/>

In Reply Refer To:

June 14, 2017

Consultation Code: 04EK1000-2017-SLI-0517

Event Code: 04EK1000-2017-E-01858

Project Name: Commerce Park II - Rail Served Site

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

To Whom It May Concern:

Your concern for the protection of endangered and threatened species is greatly appreciated. The purpose of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.) (ESA) is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. The species list attached to this letter fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the ESA to provide information as to whether any proposed or listed species may be present in the area of a proposed action. This is not a concurrence letter; additional consultation with the Service may be required.

The Information in Your Species List:

The enclosed species list identifies federal trust species that may occur within the boundary that you entered into IPaC. For this list to most accurately represent the species that may potentially be affected by the proposed project, the boundary that you input into IPaC should represent the entire "action area" of the proposed project by considering all the potential "effects of the action," including potential direct, indirect, and cumulative effects, to federally-listed species or their critical habitat as defined in 50 CFR 402.02. This includes effects of any "interrelated actions" that are part of a larger action and depend on the larger action for their justification and "interdependent actions" that have no independent utility apart from the action under consideration (e.g.; utilities, access roads, etc.) and future actions that are reasonably certain to occur as a result of the proposed project (e.g.; development in response to a new road). If your project is likely to have indirect effects that extend well beyond the project footprint (e.g.;

substantial impacts to water quality), we highly recommend that you coordinate with the Service early to appropriately define your action area and ensure that you are evaluating all the species that could potentially be affected.

We must advise you that our database is a compilation of collection records made available by various individuals and resource agencies available to the Service and may not be all-inclusive. This information is seldom based on comprehensive surveys of all potential habitats and, thus, does not necessarily provide conclusive evidence that species are present or absent at a specific locality. 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 note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and associated information. To re-access your project in IPaC, go to the IPaC web site (<https://ecos.fws.gov/ipac/>), select "Need an updated species list?", and enter the consultation code on this letter.

ESA Obligations for Federal Projects:

Under sections 7(a)(1) and 7(a)(2) of the ESA 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.

If a Federal project (a project authorized, funded, or carried out by a federal agency) may affect federally-listed species or critical habitat, the Federal agency is required to consult with the Service under section 7 of the ESA, 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:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

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)). Recommended contents of a Biological Assessment are described at 50 CFR 402.12. 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.

ESA Obligations for Non-federal Projects:

Proposed projects that do not have a federal nexus (non-federal projects) are not subject to the

obligation to consult under section 7 of the ESA. However, section 9 of the ESA prohibits certain activities that directly or indirectly affect federally-listed species. These prohibitions apply to all individuals subject to the jurisdiction of the United States. Non-federal project proponents can request technical assistance from the Service regarding recommendations on how to avoid and/or minimize impacts to listed species. The project proponent can choose to implement avoidance, minimization, and mitigation measures in a proposed project design to avoid ESA violations.

Additional Species-specific Information:

In addition to the species list, IPaC also provides general species-specific technical assistance that may be helpful when designing a project and evaluating potential impacts to species. To access this information from the IPaC site (<https://ecos.fws.gov/ipac/>), click on the text “My Projects” on the left of the black bar at the top of the screen (you will need to be logged into your account to do this). Click on the project name in the list of projects; then, click on the “Project Home” button that appears. Next, click on the “See Resources” button under the “Resources” heading. A list of species will appear on the screen. Directly above this list, on the right side, is a link that will take you to pdfs of the “Species Guidelines” available for species in your list. Alternatively, these documents and a link to the “ECOS species profile” can be accessed by clicking on an individual species in the online resource list.

Next Steps:

Requests for additional technical assistance or consultation from the Kentucky Field Office should be submitted following guidance on the following page <http://www.fws.gov/frankfort/PreDevelopment.html> and the document retrieved by clicking the “outline” link at that page. When submitting correspondence about your project to our office, please include the Consultation Tracking Number in the header of this letter. (There is no need to provide us with a copy of the IPaC-generated letter and species list.)

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) 695-0468

Project Summary

Consultation Code: 04EK1000-2017-SLI-0517

Event Code: 04EK1000-2017-E-01858

Project Name: Commerce Park II - Rail Served Site

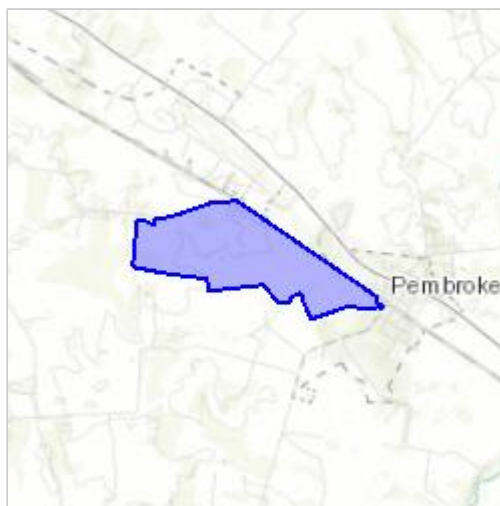
Project Type: DEVELOPMENT

Project Description: The approximately 704-acre site is located southwest of Highway 41 (Pembroke Road), directly south of existing rail lines and John Rives Road.

Project Location:

Approximate location of the project can be viewed in Google Maps:

<https://www.google.com/maps/place/36.78121780120328N87.38153618236413W>



Counties: Christian, KY

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on your 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 1 of these species should be considered only under certain conditions. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Gray Bat (<i>Myotis grisescens</i>) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat (<i>Myotis sodalis</i>) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat (<i>Myotis septentrionalis</i>) No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: Incidental take of the northern long-eared bat at this location is excepted by the 4(d) rule and is, therefore, not prohibited under the ESA. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Clams

NAME	STATUS
Fluted Kidneyshell (<i>Ptychobranchus subtentum</i>) There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1397	Endangered
Ring Pink (mussel) (<i>Obovaria retusa</i>) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4128	Endangered
Slabside Pearlymussel (<i>Pleuonaia dolabelloides</i>) There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1518	Endangered

Critical habitats

There are no critical habitats within your project area.
