ENVIRONMENTAL ASSESSMENT

Transmission Operations Center
Owensboro, Kentucky

United States Department of Agriculture
Rural Utilities Service (RUS)

Prepared by:

Sargent & Lundy, L.L.C.
55 East Monroe Street
Chicago, Illinois 60603

Submitted by:

Big Rivers Electric Corporation
201 3rd Street
Henderson, KY 42450

August 2023

FINAL TRANSMISSION OPERATIONS CENTER PROJECT ENVIRONMENTAL ASSESSMENT

Prepared for

United States Department of Agriculture
Rural Utilities Service
1400 Independence Avenue, SW
Washington, DC 20250

Applicant

Big Rivers Electric Corporation
201 3rd Street
Henderson, KY 42450

Prepared by

Sargent & Lundy, L.L.C.
55 East Monroe Street
Chicago, Illinois 60603

S&L Project No. A14055.011
August 28, 2023
Rev. 5

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ATTACHMENTS

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AEI	American Engineers Incorporated
agl	above ground level
BCC	Birds of Conservation Concern
BIA	Bureau of Indian Affairs
Big Rivers	Big Rivers Electric Corporation
BLM	Bureau of Land Management
BMP	Best Management Practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulation
CIP	Critical Infrastructure Protection
DC	data center
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMS	Energy Management System
EO	Executive Order 12898
ER	Environmental Report
ESA	Environmental Site Assessment
ET&S	Energy Transmission & Substation
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
ft^2	square foot/feet
HQ	headquarters
IPaC	Information, Planning, and Consultation
KDFWR	Kentucky Department of Fish & Wildlife Resources
KEEC	Kentucky Energy and Environment Cabinet
KNCT	Kentucky Natural Land Trust
KPDES	Kentucky Pollutant Discharge Elimination System
K_{sat}	water capacity of the most limiting layer to transmit water

Acronym/Abbreviation	Definition
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NFHL	National Flood Hazard Layer
NWI	National Wetlands Inventory
OFD	Owensboro Fire Department
OMPC	Owensboro Metropolitan Planning Commission
OMU	Owensboro Municipal Utilities
PCBs	polychlorinated biphenyls
PPE	personal protective equipment
RUS	Rural Utilities Service
RWRA	Regional Water Resource Agency
TOC	Transmission Operations Center
USCB	U.S. Census Bureau
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geologic Survey
WOTUS	Waters of the United States

1.0 PURPOSE AND NEED FOR THE PROJECT

1.1 Introduction and Project Description

Big Rivers Electric Corporation (Big Rivers) is a member-owned, not-for-profit, generation and transmission cooperative currently with headquarters (HQ) in Henderson, Kentucky. Big Rivers provides wholesale electric power and services to three distribution cooperative members across 22 counties in western Kentucky. The member cooperatives are Jackson Purchase Energy Corporation, Kenergy Corporation, and Meade County Rural Electric Cooperative Corporation. The three member-owners of Big Rivers serve more than 121,000 members (Big Rivers, 2022c).

Big Rivers plans to submit a loan application to the U.S. Department of Agriculture (USDA) Rural Development's Rural Utilities Service (RUS) to construct, own and operate a new Transmission Operations Center (the TOC Facility or Proposed Action) to be located south of the intersection of Henderson Road and Industrial Drive near 3740 U.S. Hwy 60 W, Owensboro, Kentucky (the Project). RUS provides financing for water and waste treatment, electric power, and telecommunications infrastructure or infrastructure improvements serving rural communities.

Construction of the proposed facility would enable Big Rivers to combine its existing Energy Transmission & Substation (ET&S) Facility; energy control, planning & compliance operations; engineering; and other support operations at one central location. The facility would include an office building, warehouse, enclosed and covered vehicle storage space, outdoor equipment storage, and a loading dock. It would be accessible via major thoroughfares in Owensboro, including U.S. Highway 60 W (Wendell Ford Expressway) and Henderson Road (KY-331).

On behalf of Big Rivers, Sargent & Lundy LLC prepared this environmental assessment (EA) to support RUS's National Environmental Policy Act of 1969 (NEPA) review of the Proposed Action. The purpose of this EA is to analyze and disclose the potential direct, indirect, and cumulative effects of building, operating, and maintaining the Proposed Action. The analysis in this EA has taken place in accordance with NEPA (42 United States Code [USC] 4321 et seq.) and its implementing regulations (40 Code of Federal Regulations [CFR] 1500–1508) as well as Rural Development's NEPA guidance, particularly RD Instruction 1970-Subpart C. This document provides guidance to the RUS decision-maker regarding any significant effects of the Proposed Action to consider in determining whether the Proposed Action requires preparation of an environmental impact statement (EIS) or a finding of no significant impact (FONSI). If RUS determines that this Proposed Action would have "significant" impacts, as defined by 40 CFR 1508.27, then an EIS would be prepared. If not, a FONSI would be prepared for the Proposed Action.

Chapter 1.0 of the EA describes the purpose of and need for the Proposed Action; applicable laws and regulations; and the agency decision to be made. Chapter 2.0 describes alternatives to the Proposed Action that were evaluated, including the No Action Alternative, and describes the Proposed Action Alternative in detail. Chapter 3.0 describes the affected environment and identifies and evaluates the

potential environmental effects of the proposed and alternative actions. Chapter 4.0 evaluates the potential cumulative effects that the Proposed Action and alternatives would have on the affected environment, including the effects of past, present, and reasonably foreseeable future actions. Chapter 5.9 summarizes mitigation measures recommended for the Proposed Action and alternatives. Chapter 6.0 describes the public scoping process and the agency and Tribal consultations that have taken place to date.

1.2 Purpose and Need

Big Rivers routinely reviews the space requirements and adequacy of existing real estate and building assets for its various business operations. Adequacy reviews include an evaluation of the suitability and condition of the existing assets, taking into consideration the physical condition of the existing facility, projected employee growth, regulatory requirements, and the ability to efficiently perform required functions to determine investments needed to continue to maintain or restore the facility to acceptable building and regulatory standards. Assessments consider existing facility age and upgrades needed, such as roof, windows, plumbing, electrical, fire protection, accessibility, means of egress, sprinkler systems, security, and emergency lighting. Based on these ongoing assessments, Big Rivers determined that the existing ET&S Facility located in Henderson, Kentucky, including site limitations that prohibit further development of the existing site, does not adequately meet Big Rivers' operational needs.

The existing ET&S Facility is located on 5.6 acres at 5650 Airline Road in Henderson, Kentucky. The ET&S Facility is the sole operations facility for the entire Big Rivers transmission system and the primary warehouse for all transmission line and substation materials. The main building on the site was constructed in 1979 and encloses 23,000 square feet (ft^2), including office space, warehousing, and vehicle storage. An additional 6,000-ft^2 warehouse was constructed at the site in 1984 for vehicle storage. The current facility has onsite fueling infrastructure, compressed gas storage, a loading dock, and a 3,500-ft^2 vehicle maintenance and oil storage area. Approximately half of the 5.6-acre site is within the flood hazard zone and is not usable for additional facility expansion (FEMA, 2022a).

Given limitations that prohibit further development at the existing ET&S location, additional offsite locations are also utilized to provide storage for vehicles and other equipment needed to maintain safe and reliable operation of the Big Rivers transmission system. Offsite storage includes an unstaffed substation used for the outdoor storage of tanker trailers and mobile substations. Due to indoor storage limitations, inventory materials, trailers, various transmission equipment, and bushings are stored outdoors at other Big Rivers locations. Various transmission-related equipment is also stored at the Sebree generating facility.

In addition to consolidating all ET&S functions at one location, construction of the TOC Facility would enable Big Rivers to combine ET&S operations with other critical support services currently housed at its existing HQ building in Henderson, Kentucky. The existing HQ building currently houses the Energy Control, Engineering, Planning & Compliance, IT/IS Departments, the HQ Data Center, and other corporate functions. On December 7, 2021, the Kentucky Public Service Commission approved Big Rivers' proposal to construct a new 47,000-ft^2 HQ building to replace the Henderson HQ complex. The

new HQ Facility, located at 710 W. 2nd Street in Owensboro, Kentucky, will consist of a four-story office building with the building's design incorporating more modern offices, meeting rooms, collaboration spaces, and communication systems that match future utility needs. However, the new HQ building will be approximately 25 percent smaller than the current HQ complex; as such, certain functions, including Engineering, Energy Control, Planning & Compliance, the HQ Data Center, and the Energy Control Department would be moved to the TOC Facility.

The Energy Control Department operates a control center primarily functioning to monitor and safely control the flow of electricity through Big Rivers' substations and power lines on a 24-hour x 7-day-per-week basis. North American Electric Reliability Corporation (NERC)-certified system operators perform their operational duties within the Control Center, while engineers work to enhance the electric system and ensure compliance. This Control Center is the single most critical element of Big Rivers' transmission system because the operational integrity of the entire transmission system relies on the functionality of this single location. The current Control Center is not a physically hardened facility and is configured much as it was when the existing HQ was constructed in the 1960s. Relocating the Control Center to the new TOC Facility would enable Big Rivers to harden the facility against extreme weather events and incorporate updated safety and security systems into the design of the facility.

The HQ Data Center (DC) is the primary location for all business-critical applications and data, and is the central termination point for all corporate-owned or leased voice and data communications. At approximately 1,000 ft^2, the HQ DC is also the largest of two active DC facilities. The HQ DC currently houses 15 rack-enclosures containing business servers, storage hardware, and core networking infrastructure. Six of the rack-enclosures are reserved for business-critical systems. NERC Critical Infrastructure Protection (CIP) regulations require these assets to meet increased physical and cybersecurity standards. These physical security requirements have proven to be burdensome to implement within the current shared DC space. To better meet the intent of the CIP regulations and improve both physical and cybersecurity for these critical systems, CIP-regulated devices should be isolated in a physically hardened, access-protected space. Retrofitting these upgrades in the current HQ DC would not be possible without a significant effect on day-to-day business activities. As such, Big Rivers plans to move both the corporate DC and the CIP-regulated DC to the new TOC Facility with an updated design to more effectively meet cybersecurity needs.

In summary, Big Rivers has identified the need to expand and relocate its existing ET&S functions to a new location. This determination was made taking into consideration existing site limitations, code requirements, mechanical and electrical requirements, and technology and site security issues. The physical condition of the existing HQ building in Henderson, Kentucky has become outdated and would require significant modification and upgrades to meet NERC CIP regulations, and the existing ET&S Facility is space-constrained, cannot be expanded at its present location, and does not adequately meet Big Rivers' operational needs.

1.3 Applicable Environmental Laws, Statutes, and Regulations

As a federal agency, projects financed by RUS must demonstrate compliance with NEPA, which requires federal agencies to assess the environmental effects of their Proposed Actions prior to making decisions. NEPA implementing regulations that apply to programs administered by RUS are codified at 7 CFR Part 1970 – *Environmental Policies and Procedures*. Construction projects funded by RUS may be categorically excluded from environmental review or can require preparation of an ER, EA, or EIS, depending upon the potential for adverse environmental or cultural resource impacts.

Construction of the TOC Facility would impact more than 46 acres of real property. This EA reviews Big River's proposed construction and operation of the TOC Facility. The Proposed Action includes the construction of an office building, warehouse, vehicle maintenance building and a 157-foot communications tower. In addition, the Proposed Action includes construction of covered and secured parking, outdoor equipment storage, and stormwater retention. Construction of the TOC Facility would impact approximately 46 acres of the 114-acre site Big Rivers acquired for the Proposed Action.

This EA was prepared in accordance with 40 CFR Parts 1500 through 1508 and 7 CFR Part 1794. In addition, this EA addresses, as applicable, other environmental laws, regulations, and executive orders promulgated to protect and enhance environmental quality. Environmental laws, statutes, and regulations of particular relevance in preparation of this EA are:

- National Environmental Policy Act (2 USC 4321 et seq.)
- Endangered Species Act of 1973 (16 USC 703)
- Migratory Bird Treaty Act of 1918 (16 USC 703)
- National Historic Preservation Act 16 (USC 470)
- Clean Air Act of 1977 (33 USC 1251 et seq.)
- Clean Water Act of 1977 (33 USC 1251 et seq.)
- Archaeological Resources Protection Act of 1979 (16 USC 470)
- Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001–3013)
- American Indian Religious Freedom Act of 1996 (42 USC 1996)
- Farmland Protection Policy Act (7 USC 4201 et seq).

1.4 Agency Decision to be Made

The proposed federal action is for RUS to decide whether to provide financial assistance to Big Rivers for construction of the proposed new TOC Facility. This EA does not contain the final decision regarding the Proposed Action and No Action Alternatives. The purpose of this EA is to identify and evaluate potential impacts of the Proposed Action on the natural and human environment and to inform RUS and the public of reasonable alternatives that would avoid or minimize potential adverse effects.

2.0 ALTERNATIVES EVALUATED INCLUDING THE PROPOSED ACTION AND NO ACTION

Space limitations at the existing ET&S Facility, located on 5.6 acres at 5650 Airline Road in Henderson, Kentucky, prompted Big Rivers to consider alternatives for expanding or relocating ET&S operations. The ET&S Facility is the sole operations facility for the entire Big Rivers transmission system and the primary warehouse for all transmission line and substation materials. Big Rivers considered a number of potential alternatives for addressing space limitations at the existing location. To inform the decision-making process, Big Rivers developed specific criteria for use in its evaluation of alternatives, including:

- ET&S space requirements
- Operational efficiencies and impacts
- Co-locating support operations, including Energy Control, Planning & Compliance, Engineering, and Control Center operations with ET&S
- Proximity to Big Rivers' new HQ building planned for Owensboro, Kentucky

Big Rivers determined that operational efficiencies could be achieved by co-locating ET&S operations with other support operations and that relocating Control Center operations would provide for increased hardening and security of these vital operations.

2.1 Alternatives Considered but Eliminated from Detailed Analysis

Based on the determination that co-locating certain support operations with ET&S operations would improve internal communications and provide operational efficiencies, Big Rivers determined that the new facility would require space to house approximately 40 full-time employees, 5 part-time employees, and 26 ET&S field employees. Required amenities would include office space, vehicle storage and maintenance buildings, parking, equipment storage and laydown areas, and associated site development and stormwater management systems. Based on these criteria, Big Rivers determined a space requirement of a minimum of approximately 30 developable acres. Potentially available alternatives considered included:

- Expanding the existing ET&S Facility.
- Relocating ET&S operations to a different Big Rivers Facility.
- Purchasing the Henderson Municipal Power & Light (HMPL) electric system and using HMPL's facilities for ET&S operations.
- Retrofitting the existing HQ building in Henderson, Kentucky to satisfy TOC needs.
- Relocating ET&S and TOC operations to a new location.
- Big Rivers would continue to operate inefficiently and without operational continuity.

2.1.1 Expanding Existing ET&S Facility

The ET&S Facility is the sole operations facility for the entire Big Rivers transmission systems. Operations at the ET&S Facility include warehousing of all transmission line and substation materials, vehicle storage, vehicle maintenance and oil storage, onsite fueling, and compressed gas storage. The existing ET&S Facility, located at 5650 Airline Road in Henderson, Kentucky, is currently at capacity. In fact, due to limitations that prohibit further development at the existing ET&S location, additional offsite locations are needed to provide storage for vehicles and other equipment required to maintain safe and reliable operation of the Big Rivers transmission system. Inventory materials, trailers, various transmission equipment, and bushings are stored outdoors at other Big Rivers locations. Offsite storage includes an unstaffed substation used for the outdoor storage of tanker trailers and mobile substations.

Big Rivers evaluated the feasibility of expanding operations at the existing facility; however, undeveloped portions of the site are located within Federal Emergency Management Agency's (FEMA) designated 100-year floodplain. Approximately half of the 5.6-acre site is within the flood hazard zone and is not usable for additional facility expansion (FEMA, 2022a). Developing this area would require significant modification and permitting. Based on the site limitations, this alternative was determined to be impractical and was not selected.

2.1.2 Relocating ET&S Operations to a Different Big Rivers Facility

Big Rivers evaluated relocating ET&S operations to a different Big Rivers facility, including existing power plants and substations. As described above, ET&S operations include warehousing and storing all transmission line and substation materials, vehicle storage and maintenance, oil storage, onsite fueling, and compressed gas storage. As such, space is needed to provide approximately 30,000 ft^2 of enclosed/covered vehicle storage, 12,500 ft^2 vehicle maintenance building, 22,500 ft^2 equipment storage warehouse, as well as outdoor equipment laydown and storage. Based on an evaluation of space availability at other existing Big Rivers facilities, it was determined that adequate space was not available for ET&S operations and relocating ET&S operations to other existing Big Rivers facilities would require dividing operations between various facilities. Furthermore, dividing ET&S operations between locations would fail to carryout Big Rivers' plan to co-locate ET&S with other critical operations, including Energy Control, Planning & Compliance, Engineering, and Control Center operations. Given space limitations at existing Big Rivers facilities, and potentially adverse operational impacts associated with dividing ET&S operations between various locations, this alternative was not selected.

2.1.3 Purchasing Henderson Municipal Power & Light

Big Rivers evaluated the feasibility of purchasing HMPL and using HMPL's facilities for ET&S operations. HMPL is a municipal electric utility located in Henderson, Kentucky. HMPL provides electric transmission, distribution, and fiber internet and phone services to residents of Henderson and is a Transmission Owning Member of MISO. Big Rivers concluded that purchasing HMPL could be a reasonable economic decision, which, among other things could provide a practical solution to ET&S

space limitations. However, HMPL rejected Big Rivers offer on July 13, 2021; thus, this alternative is no longer viable.

2.1.4 Retrofitting the Existing Henderson Headquarters Building to Satisfy ET&S Needs

Big Rivers evaluated the feasibility of redesigning and retrofitting its existing Henderson, Kentucky HQ building to accommodate ET&S operations. Under this alternative, Big Rivers would retrofit its existing Henderson HQ building to satisfy ET&S needs, including vehicle storage and maintenance and equipment warehousing. Big Rivers also evaluated the feasibility of supplementing ET&S by constructing a second warehouse and upgrading the Henderson HQ building to harden the control room and data center.

An assessment of the existing HQ building concluded that retrofitting the building for ET&S operations and a properly hardened and secure control room and DC would be impractical for several reasons. First, the location of Big Rivers' existing HQ Facility in downtown Henderson is suited for business offices and light vehicle traffic, not for the light industrial operations required at the ET&S Facility. Second, the Henderson location does not have adequate space for ET&S operations, nor for the housing of large vehicles and equipment. Third, the existing Henderson office building does not provide a hardened space as needed for modern control centers and lacks the modern design elements and security protections common for today's critical utility facilities. Redesigning and renovating the existing Henderson HQ building to accommodate a hardened transmission control center and hardened DC without moving the ET&S operations were also found to be impractical, as it was determined that a complete teardown with a new facility constructed on site would be necessary to provide a properly hardened and secure facility.

Based on an assessment of the existing HQ building, Big Rivers concluded that the location is not suited for ET&S operations, does not have the space needed for ET&S operations, and that redesigning and renovating the building to achieve the goals of the TOC Facility (e.g., combined ET&S and other operations and properly hardened and secure facilities) would be impractical. For these reasons, retrofitting the existing HQ building was eliminated from further consideration.

2.1.5 Relocating TOC Operations to a New Location

Based on the disadvantages and impracticalities described under alternatives listed above in Subsection 2.1, Big Rivers evaluated the alternative of relocating TOC operations, including ET&S, Energy Control, Planning & Compliance, Engineering, and Control Center operations at a new location.

After identifying relocation of TOC operations to a new location as the preferred alternative, the next step consisted of the process to determine where to locate the TOC Facility. Given the need to relocate the ET&S facilities (along with the other transmission related functions) and the in-progress relocation of Big Rivers' HQ building, Big Rivers concluded that Owensboro, Kentucky was the logical location for the new TOC Facility because of its proximity to the new HQ. In addition to proximity to the new HQ building, criteria used to identify potential locations within or near Owensboro included: suitability of the

site's size, available land for future expansion, site availability and cost, soil quality and topography, compatibility with adjacent land uses, and site accessibility from existing highways.

Big Rivers initially identified a location near the Owensboro–Daviess County Airport as its preferred location. That property was jointly owned by the City of Owensboro, Daviess County, and the Owensboro-Daviess County Industrial Foundation. After reviewing the intended property use of the property, the ownership group did not approve the sale to Big Rivers. Big Rivers ultimately selected the property at 90 Industrial Drive, Owensboro for the TOC location. Once the property at 90 Industrial Drive, Owensboro was identified as the preferred location for the TOC Facility, Big Rivers successfully negotiated incentives with the City of Owensboro that make the relocation cost-effective. As such, Big Rivers purchased the property for the proposed TOC Facility from a private landowner (Audubon Loans I, LLC) on November 23, 2021.

2.2 No Action Alternative

Under the No Action Alternative, RUS would not provide financial assistance to Big Rivers to relocate and construct the proposed TOC Facility. As a result, Big Rivers would be required to secure alternative financing for the Project or forego construction of the new TOC Facility and continue ET&S operations at one or more existing Big Rivers Facility. The No Action Alternative would result in increased project financing costs, which would have an adverse impact on the financial viability of the Project or eliminate the opportunity to consolidate all ET&S functions at one location, physically hardened the Control Center against extreme weather events, and incorporate updated safety and security systems into the design of the Facility for these vital operations.

2.3 Proposed Action Alternative

Based on a comprehensive review of available alternatives, Big Rivers determined that relocating ET&S and support operations to a new location was the preferred alternative to effectively address all purpose and need criteria described in Subsection 1.2. Under the Proposed Action Alternative, RUS would approve Big Rivers' financing request and the company would construct and operate the new TOC Facility. Big Rivers has acquired approximately 114 acres of property to support construction of the new facility at 90 Industrial Drive, Owensboro, Kentucky 42301 (37° 46' 11" N Latitude and 87° 09' 32 " W Longitude). The facility would occupy approximately 46 acres within the 114-acre site. Site boundaries used to define the "Project Area" are shown in Figure 2-1 and are included in Attachment A. The Owensboro site meets all site selection criteria established by Big Rivers for the Proposed Action, including site size and area available for development, access to utilities and transportation, site zoning and adjacent land uses.

Figure 2-1. TOC Facility Property Boundary

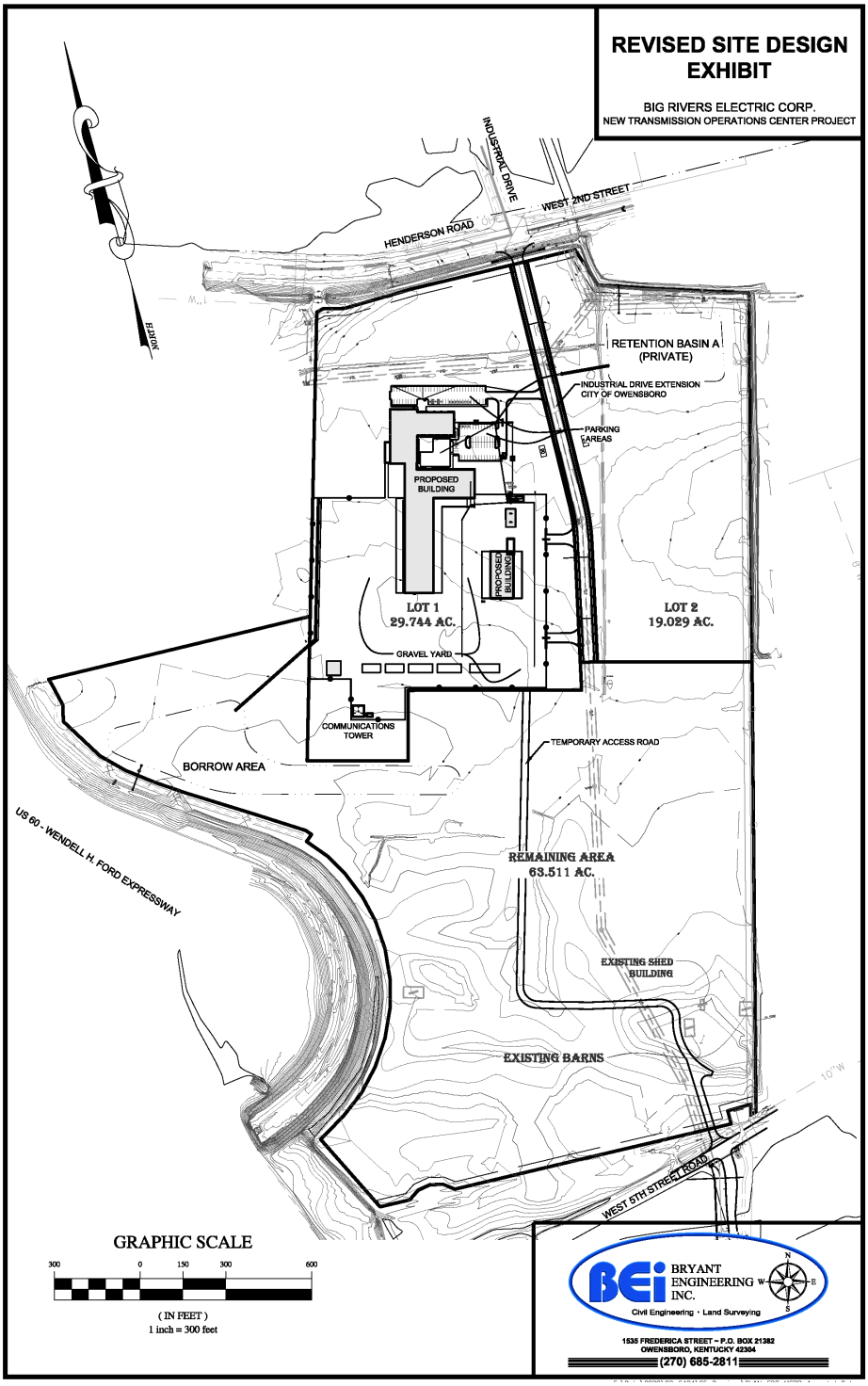
The Proposed Action includes construction of a 29,691 ft² office building to house the Energy Control, Planning & Compliance operations, Engineering, and other support operations, including Control Center operations with the ability for full remote control of the entire Big Rivers' transmission system and generating unit dispatch. In addition to the office building, the Proposed Action would include a 22,703-ft² warehouse, 33,529 ft² of enclosed and covered vehicle storage, a 12,396-ft² vehicle maintenance building, as well as onsite fuel storage and a vehicle fueling island. Proposed storage tanks include a 10,000 gallon aboveground diesel fuel tank, 6,000 gallon aboveground gasoline tank, and 1,000 gallon aboveground diesel exhaust fluid storage tank. All storage tanks would be located in a secure area and designed as double-walled tanks. The permanent site drainage system, which includes stormwater piping/drains and sediment traps, would be installed during grading activities at the site and connected to a stormwater retention pond located east of the Project Area.

Project-related activities connected to the Proposed Action in time and proximity but not part Big Rivers' request for RUS funding include the extension of Industrial Drive and construction of a new nominal 157-foot above ground level (agl) communications tower. The Industrial Drive extension project, being

implemented by the City of Owensboro, extends Industrial Drive south of Henderson Road to provide access to the facility. The communications tower would be located adjacent to the Proposed Action, but within the Project Area. The communications tower is being constructed by Big Rivers to support its new HQ facility in Owensboro, Kentucky. The two connected projects are independent of the TOC Facility and would proceed without RUS financing; nevertheless, given the proximity of the tower to the facility and the shared site preparation and construction activities, potential impacts associated with construction of the Industrial Drive extension and the communications tower are included in this assessment as connected actions.

A general arrangement drawing of the Proposed Action and the location of the connected actions is provided in Figure 2-2 and included in Attachment B.

Figure 2-2. Site General Arrangement



The Proposed Action would be constructed using standard construction techniques and sequencing. Overall, approximately 46 acres of land would be disturbed for construction and operation of the Proposed Action, including construction of the office and maintenance buildings, parking areas, stormwater retention, and graveled areas. The property is currently undeveloped and in agricultural production.

Construction activities would be restricted to that portion of the Project Area being developed for the Proposed Action. Construction personnel would include preconstruction survey crews, engineers, construction supervisors, and skilled workers. The construction workforce would increase following initial site preparation and fencing as the Proposed Action advances. Site construction activities would occur sequentially, and include cut and fill grading, excavation, and soil stabilization, as needed. Following all foundation, concrete wall, and flatwork, steel shell erection would commence and include all structural framing, post and beams, trusses, steel siding, and roof systems. Following shell erection, interior construction measures would commence to complete the buildings, including internal wall construction, mechanical, electrical, and plumbing systems, interior finishes, flooring, lighting, and fixtures. Other outside activities would occur simultaneously with site grading, excavation, and foundations, and include installation of the fire protection systems and sanitary piping, construction of the interior road system, and installation of permanent lighting. The site would be landscaped to meet zoning requirements. Site security would include fencing and exterior lighting, with a motor-operated security gate at the entrance. The exterior lights would be directed downward and away from the tree lines to avoid impacts to residential areas and wildlife.

After principal construction, the workforce and related traffic disturbances would be reduced greatly. Following construction, the Proposed Action would employ an estimated 40 full-time permanent and contract employees, 5 part-time employees, and 26 field employees (Big Rivers, 2022b). Outdoor parking for 59 vehicles would be provided in an area north of the proposed office building, and additional secured parking would be provided for 50 vehicles adjacent east of the office building.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This Chapter provides a description of the existing natural and human resource conditions present in the vicinity of the Proposed Action that may be impacted by construction and operation of the Proposed Action and No Action Alternatives. The affected environment and potential environmental consequences of the Proposed and No Action Alternatives are assessed for the following resources:

- Land Use
- Floodplains
- Wetlands
- Water Resources
- Coastal Resources
- Biological Resources
- Cultural and Historic Resources
- Aesthetics
- Air Quality
- Socioeconomics and Environmental Justice
- Noise
- Transportation
- Human Health and Safety
- Corridors
- Soils

Several studies previously conducted at the location of the Proposed Action and surrounding areas were referenced to inform preparation of the EA. These include a Phase I Environmental Site Assessment prepared by AEI, dated November 18, 2021 (AEI, 2021a); Site Intelligence Report (SIR) prepared by AEI, dated November 18, 2021 (AEI, 2021b), which is included in Attachment C; Report of Geotechnical Exploration prepared by AEI with dates of November 2021 and February 2022 (AEI, 2022); a Cultural Historic Survey prepared by Cultural Resource Analysts, Inc. (CRA) dated June 5, 2023 (CRA, 2023a); and an Archaeological Survey prepared by CRA dated March 31, 2023.

3.1 Land Use

3.1.1 General Land Use

3.1.1.1 Affected Environment

Land use in the Project Area is composed primarily of cultivated cropland. A small portion of the southwest corner of the Project Area is identified as deciduous forest.

The location of the Proposed Action is currently zoned I-1 (Light Industrial) by the Owensboro Metropolitan Planning Commission (OMPC). According to Article 8 of the Owensboro Metropolitan Zone Ordinance, "the I-1 Light Industrial Zone is intended for light manufacturing warehouses, shops of special trade, heavy equipment dealers, and related uses" (OMPC, 2010). Adjacent zoning classifications are I-1, A-U (Urban Agri cultural), B-4 (General Business), and R1-C (Single Family Residential). Nearby zoning also includes A-U, B-4, R1-C, R1-A (Single-Family Residential Zone), R1-B (Single-Family Residential Zone), P-1 (Professional/Service Zone), R-3MF (Multi-Family Residential Zone), R-4DT (Inner-City Residential Zone). Figure 3-1 is the OMPC zoning map that includes the Project Area (OMPC, 2022).

Figure 3-1. OMPC Zoning Map

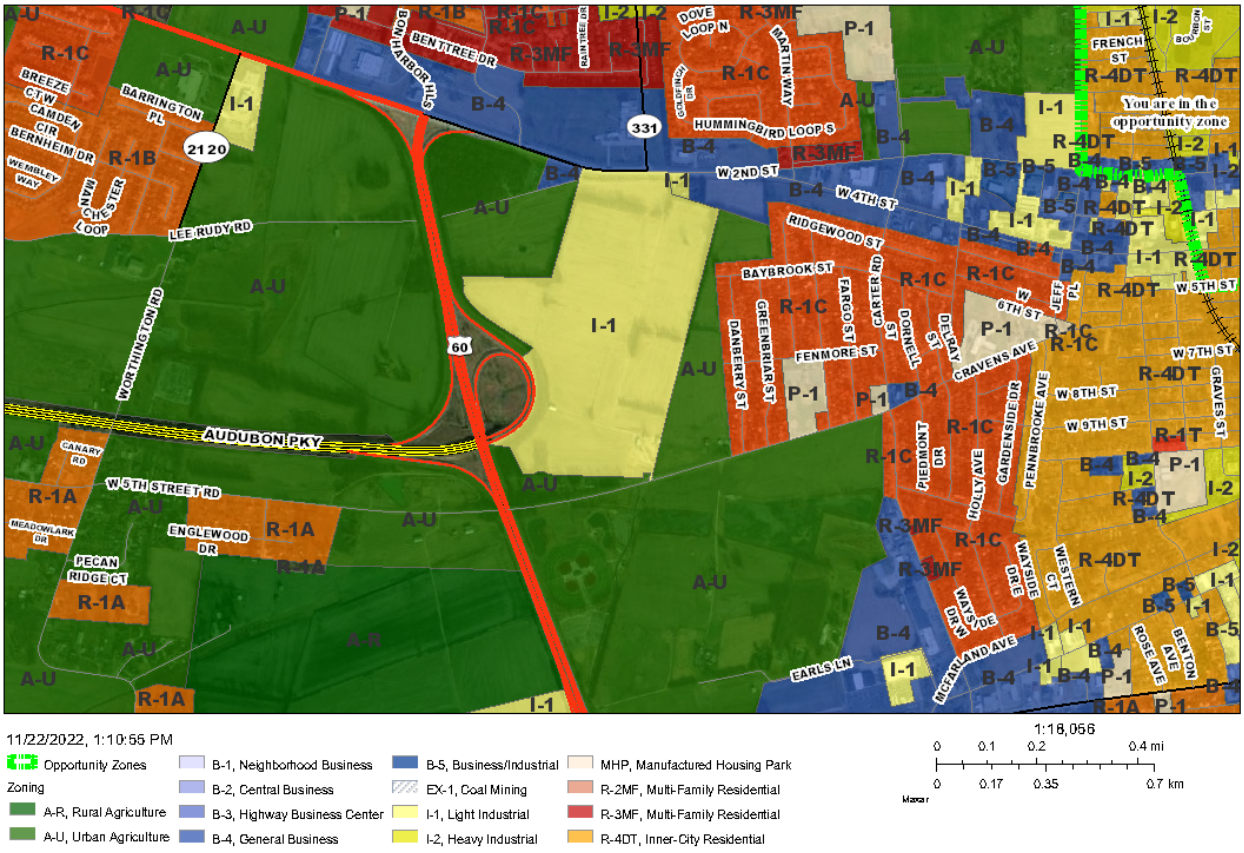


Table 3-1 provides a current description of the properties located adjacent to the boundaries of the Proposed Action.

Table 3-1. Description of Adjacent Properties

Direction from Site	Adjacent Land Use Description
North	Henderson Road parallels the north border of the Project Area. Parcels located north of Henderson Road primarily consist of mixed general business and commercial development, urban agricultural land, and residential dwellings. The Ohio River is located approximately 1.22 miles northeast of the Project Area.
East	The east adjacent properties primarily consist of urban agricultural followed by residential dwellings. The City of Owensboro borders the east, north, and south boundaries of the Project Area, and intersects portions of the Project Area (City of Owensboro, 2022).
South	The south adjacent properties primarily consist of urban agricultural land and scattered commercial development. The Owensboro-Daviess County Airport is located approximately 1 mile south of the Project Area.
West	The west adjacent properties primarily consist of urban agricultural land and U.S. Hwy 60. The Joe Ford Nature Park, a 14-acre wooded area, is located adjacent northwest of the Project Area.

A Site Intelligence Report (see Attachment C), prepared by AEI in November 2021, noted that the site was previously zoned A-U (AEI, 2021b). The A-U Urban Agriculture Zone was established to provide for agricultural and related open space uses for portions of the Owensboro Urban Service Area projected for urban development (OMPC, 2010). The A-U Zone was also intended to designate potential development areas surrounding particular rural communities of Daviess County and the area surrounding Whitesville (OMPC, 2010). Rezoning the Project Area I-1 provided for the proper zoning classification for the Proposed Action.

3.1.1.2 Environmental Consequences

3.1.1.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to land use at or in the vicinity of the Proposed Action. ET&S operations would continue at the existing Henderson Location, and Big Rivers would continue to operate inefficiently and without operational continuity.

3.1.1.2.2 Proposed Action

The Proposed Action would result in approximately 46 acres of land changing from agricultural production to office/light industrial use and greenspace.

The Project Area is properly zoned for the Proposed Action, and the I-1 classification indicates that the land has been designated for light industrial development. Although the Proposed Action would result in approximately 46 acres of land changing from agricultural production to office/light industrial use, this change would not result in adverse impacts to agricultural production in the region. Construction and operation of the Proposed Action is consistent with OMPC planning and zoning and would not affect land use in the vicinity of the Proposed Action.

3.1.1.3 Mitigation

No mitigation measures are proposed for general land use.

3.1.2 Important Farmlands

Projects with a federal nexus that result in the conversion of prime farmland to nonagricultural uses may be subject to review pursuant to the Farmland Protection Policy Act (FPPA) of 1981, codified at 7 USC 4201 through 4209. The FPPA is administered by the U.S. Department of Agriculture – Natural Resource Conservation Service (NRCS) and is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses (USDA, 2022).

3.1.2.1 Affected Environment

According to the U.S. Soil Conservation Service, prime agricultural land is land available and best suited for producing food, feed, forage, and oilseed crops. Prime farmland also has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops economically when treated and managed according to modern farming methods, including water management. Prime farmland in defined in 7 CFR Part 657, Subpart A as “land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses … [and] has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management”.

In 2012, there were 5.29 million acres of prime farmland in Kentucky (USDA, 2017a). In 2017 there were 5.27 million acres of prime farmland in Kentucky, representing a loss of approximately 20,000 acres of prime farmland over a two-year period (USDA, 2017a). Daviess County is located in a geological region that contains high-quality farmland and has historically been a successful agricultural community with climatology that supports a large variety of crops and livestock. However, like many other municipal areas, urban development has resulted in the conversion of farmland to non-farm uses (UK, 2022).

Based on information available in "The Comprehensive Plan for Owensboro, Whitesville, Daviess County" (the "Comprehensive Plan") prepared by OMPC, the number of farms in Daviess County declined between 1997 and 2002, although the average size of farms increased (OMPC, 2017). According to the 2002 Census of Agriculture County Profile for Daviess County, the most recent census data available at the time the Comprehensive Plan was adopted, there were 1,062 farms in 2002 down 9 percent from 1,161 in 1997. The 2017 Census of Agriculture for Daviess County showed a total of 919 farms in Daviess County continuing the decline of farm operations (USDA, 2017b). The 2017 survey shows a total of 227,989 total acres used for farm operation in Daviess Count (USDA, 2017b).

The USDA Web based soil survey was reviewed to identify mapped soil units and properties within the Project Area (USDA, 2022a). A soils map is provided in Figure 3-2 and Attachment D. Soils in the Project Area are shown in Table 3-2. The primary soil type located within the Project Area is from the Melvin series (MelA). The Melvin silt loam series consists of a poorly drained drainage class with a negligible runoff class. Water capacity of the most limiting layer to transmit water (K_{sat}) is moderately high at 0.20 to 0.60 in/hr.

Figure 3-2. Web Soil Survey for the Project Area

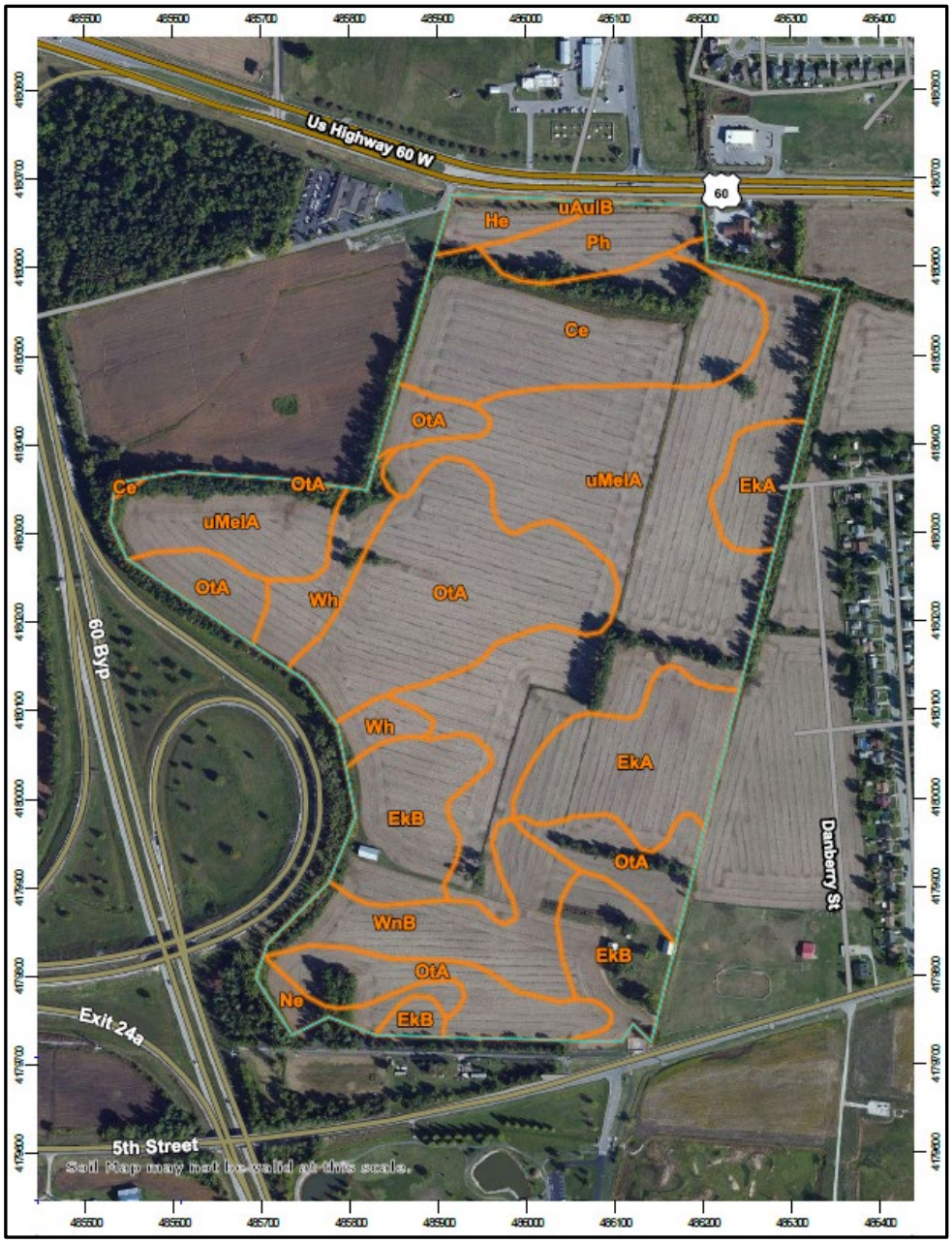


Table 3-2. Soil Types

Map Unit Symbol	Map Unit Description	Drainage Class	Hydric Soil?	Prime Farmland?[2]
Ce	Cape silty clay loam, 0 to 2 percent slopes	Occasionally flooded	Yes	Prime farmland if drained
EkA	Elk silt loam, 0 to 2 percent slopes	Rarely flooded	No	All areas are prime farmland
EkB	Elk silt loam, 2 to 6 percent slopes	Rarely flooded	No	All areas are prime farmland
He	Henshaw silt loam, 0 to 2 percent slopes	Rarely flooded	No[1]	Prime farmland if drained
Ne	Newark silt loam, 0 to 2 percent slopes,	Occasionally flooded	No[1]	Prime farmland if drained
OtA	Otwood silt loam, 0 to 2 percent slopes,	Rarely flooded	No[1]	All areas are prime farmland
Ph	Patton silt loam, overwash, 0 to 2 percent slopes,	Occasionally flooded	Yes	Prime farmland if drained
uAulB	Alford-Urban land complex, 2 to 6 percent slopes	NA	No	Not prime farmland
uMelA	Melvin silt loam, 0 to 2 percent slopes,	Occasionally flooded	Yes	Prime farmland if drained
Wh	Weinbach silt loam, 0 to 2 percent slopes,	Rarely flooded	No[1]	Prime farmland if drained
WnB	Wheeling loam, 2 to 6 percent slopes	Rarely flooded	No[1]	All areas are prime farmland

[1] Contains minor hydric components.
[2] USDA, 2022b.

Based on a review of the USDA Soil Data Access tool, all of the soil types that are present within the Project Area are classified as “prime farmland” or “prime farmland if drained,” with the exception of soils in the Alford-Urban land complex (uAulB) (USDA, 2022b). A very small area of uAulB soil is present along the northern edge of the property (see, Figure 3-2 and Table 3-2). A review of the Soil Survey Geographic Database also shows that prime farmland occupies a majority of the Project Area (SSURGO, 2022).

3.1.2.2 Environmental Consequences

3.1.2.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to important farmlands at or in the vicinity of the Proposed Action. ET&S operations would continue at the existing Henderson Location, and Big Rivers would continue to operate inefficiently and without operational continuity.

3.1.2.2.2 Proposed Action

Land identified as an "urbanized area" is not subject to review under the FPPA (see, 7 CFR 657.5). Furthermore, as discussed above, the 2017 Census of Agriculture for Daviess County showed a total of 227,989 acres used for farm operations (USDA, 2017b). Thus, even if all 114 acres are removed from agricultural production, the acreage would represent only a small fraction (i.e., approximately 0.05 percent) of existing farmland in Daviess County.

Given the fact that the Project Area is currently zoned for light industrial development, and the small percentage of farmland that would be converted to nonagricultural uses, the Proposed Action would have only minimal impacts to farmland.

3.1.2.3 Mitigation

No mitigation measures are proposed for impacts to farmland.

3.1.3 Formally Classified Lands

Formally classified lands are properties that are administered either by Federal, State, or local agencies, or have been given special protection through formal legislative designation. These include federally managed lands such as National Parks and National Historic Sites, as well as lands managed by the Commonwealth of Kentucky, Daviess County, and City of Owensboro (see, 7 CFR 1970.555).

3.1.3.1 Affected Environment

The location and proximity of formally classified lands from the Project Area include:

- National Wildlife Refuges: The nearest wildlife refuge to the Project Area is the Green River National Wildlife Refuge and Conservation Partnership Area located approximately 17.5 miles northwest of the Project Area.
- Wilderness Areas: The nearest wilderness area is the Garden of the Gods Wilderness area located in Illinois, approximately 67 miles west of the Project Area.
- Wild, Scenic, and Recreational Rivers: The Ohio River is located approximately 1.22 miles northeast of the Project Area.
- State Parks and State Fish and Wildlife Management Areas: The nearest state park is the Ben Hawes Park, which is located approximately 2 miles northwest of the Project Area. The Western Kentucky Botanical Garden is located approximately 0.55 miles northwest of the Project Area.
- Local Parks and Recreation. The Joe Ford Nature Park, managed by Owensboro Parks and Recreation, is located adjacent to the northwest corner of the Project Area and approximately 0.15 miles northwest of the proposed facility. The Jack C. Fisher Park, managed my Owensboro Parks and Recreation, is located approximately 0.08 miles south of the Project Area and approximately 0.33 miles south of the proposed facility.

- Bureau of Land Management (BLM)-administered lands: According to the BLM database, there are no BLM-administered lands within the Project Area or within Kentucky.

- Native American Owned Lands and Leases Administered by the Bureau of Indian Affairs (BIA): There are no Native American owned lands and leases administered by the BIA within or near the Project Area according to the U.S. Census Bureau (USCB) (USCB, 2022d).

3.1.3.2 Environmental Consequences

3.1.3.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to formally classified lands at or in the vicinity of the Proposed Action. ET&S operations would continue at the existing Henderson Location, and Big Rivers would continue to operate inefficiently and without operational continuity.

3.1.3.2.2 Proposed Action

Construction and operation of the Proposed Action would not convert parkland or other formally classified lands to another use. Furthermore, based on the results of a traffic impact study (see, Section 3.1.3), with the exception of the US-60/Henderson Road intersection during the 2034 PM peak traffic period, the Proposed Action would cause only minimal changes to traffic in the area and nor would it affect access to any formally classified lands, including nearby local parks. The Proposed Action could result in noise impacts at the Joe Ford Nature Park, located adjacent to the northwest corner of the Project Area; however, the park is currently bounded by US-60 to the west, Henderson Road to the north, and Gradd Way to the east and south. Furthermore, construction activities and the proposed facility would be located approximately 0.15 miles east of the nature park. No adverse impacts to formally classified lands, including local parks, would be expected during operation of the Proposed Action.

3.1.3.3 Mitigation

No mitigation measures are proposed for formally classified lands.

3.2 Floodplains

The Federal Emergency Management Administration (FEMA) defines a floodplain as any land area susceptible to being inundated by floodwaters from any source (FEMA, 2022b). This can include land along a river that is flooded when the waterway rises out of its banks and low-lying land that fills with water when it rains. The 100-year (or 1 percent) floodplain is land that is covered in water during a flood event that has a 1 percent chance of being equaled or exceeded each year. The 500-year (or 0.2 percent) floodplain is land that is covered in water during a flood event that has a 0.2 percent chance of being equaled or exceeded each year. The regulatory floodway designation is applied to channels of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. These

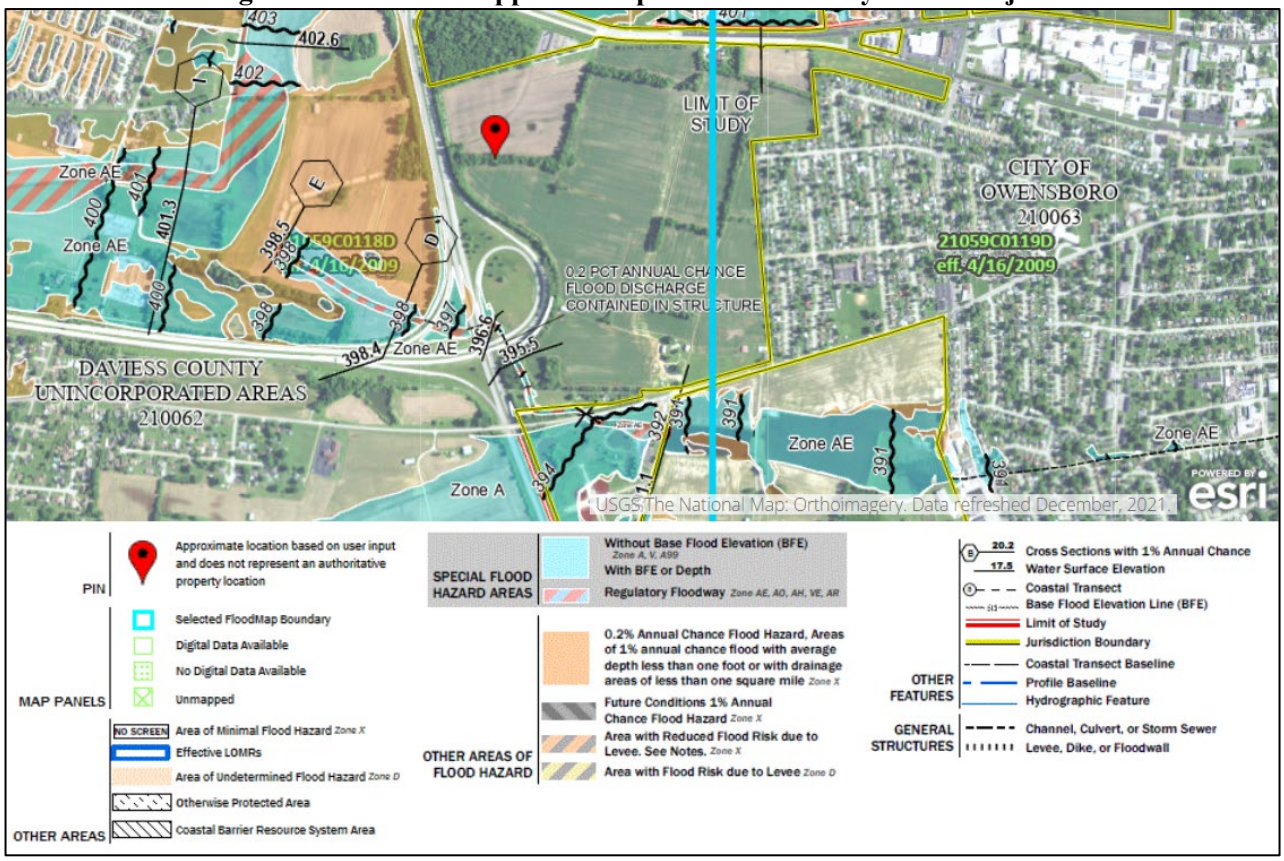
designations are based on computer models and statistical estimates of the 1 percent and 0.2 percent rainfall amounts (FEMA, 2022b).

Executive Order 11988 – Floodplain Management, issued in May 1977 directs Federal Agencies to: (1) assert leadership in reducing flood losses and losses to environmental values served by floodplains; (2) avoid actions located in or adversely affecting floodplains unless there is no practicable alternative; (3) take action to mitigate losses if avoidance is not practicable; and (4) establishes a process for flood hazard evaluation based upon the 100-year base flood standard (FEMA, 2023). Federal agencies are responsible for implementing EO 11988 through their own regulations. RUS guidance implementing EO 11988 and other federal flood risk policies, are 7 CFR Part 1970 Subpart F – Floodplain Management.

3.2.1 Affected Environment

Based on a review of FEMA's National Flood Hazard Layer (NFHL) Viewer and Flood Insurance Rate Maps for Daviess County, Kentucky (FIRM Panels 0118D and 0119D), the Project Area is not located within a designated floodplain or regulatory floodway. The nearest designated floodplains are located adjacent to the southwest corner of the Project Area near the entrance ramp to the Audubon Parkway and north of Henderson Road. Both areas are designated flood zone AE, indicating a 1 percent annual chance of flooding. The FIRM identifies a regulatory floodway located near the southwest corner, but outside of, the Project Area. Figure 3-3 provides a copy of the FEMA NFHL Viewer map of designated floodplains and regulatory floodways in the vicinity of the Project Area (FEMA, 2022a). Copies of the FEMA FIRM maps are provided in Attachment E.

Figure 3-3. FEMA-Mapped Floodplains in Proximity to the Project Area



3.2.2 Environmental Consequences

3.2.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to floodplains or the designated floodway at or in the vicinity of the Proposed Action.

3.2.2.2 Proposed Action

Construction activities planned for the Proposed Action would not adversely impact stormwater flow in the regulatory floodway, as all disturbed areas are located away from the southwest corner of the Project Area and stormwater runoff during operation of the Proposed Action would be collected and managed in a designated stormwater detention pond (see Figure 2-2). Based on the implementation of sediment and erosion controls, and stormwater detention and discharge controls, construction and operation of the Proposed Action would not result in any short-term or long-term impacts to floodplains or designated floodways.

3.2.3 Mitigation

Sediment and erosion control best management practices (BMPs) would be implemented during construction of the Proposed Action and stormwater detention and discharge controls would be designed to avoid any potential impacts to the designated floodway located southwest of the Project Area.

3.3 Wetlands

3.3.1 Affected Environment

A formal assessment of wetlands within the Project Area was conducted by Wetland Services between May 15, 2023 and May 18, 2023. A copy of the formal assessment, *Wetland Delineation, Stream Assessment, and Rapanos Report (JD Report) for BREC - Transmission Operations Center*, dated May 2023 is included as Attachment F (the JD Report). Based on findings from the field assessment, a number of small wetland areas have been delineated within the Project Area.

Wetland Services delineated the entire 114-acre Project Area for wetlands, including agricultural landscapes, to document the presence of wetlands within the Project Area and conditions where development is planned to occur. As noted in the JD Report, that assessed area resides in two HUC 12 watersheds: 051100050501 Rhodes Creek-Green River and 051402011202 Jackson Creek-Ohio River. Although most of the site resides in Rhodes Creek watershed, most of the site drains north to the Ohio River.

No open waters were located on site. Three types of wetlands were mapped on site: Palustrine forested (PFO), Palustrine emergent (PEM), and Palustrine unconsolidated bottom (PUBG). Mapped wetlands are shown in Figure 3-4. The most common mapped wetland condition on site were large, aggraded drainage ditches located in mature tree lines (2MW1, 2MW4, 1MW6). Wetland 2MW1 is located near the northern border of the Project Area, running east/west, while the other two aggraded ditches, 2MW4 and 1MW6, are located the northeast and southwest property lines of the site, respectively. The JD Report noted that over time these drainage features have developed obstructions leading to ponding of surface water. One PEM wetland was mapped where a maintained sewer right-of-way occurs through a tree line (2MW2). One, old, excavated trash pit was mapped as PUBG (1MW5). One surface drainage feature located in agriculture was mapped as linear wetland (2AW3).

As shown in Figure 3-4, delineated wetlands on the Project Area include an aggraded drainage ditch within a tree line near the northern border of the property, running east/west, and two small areas on the southeastern border of the property along the tree line.

Figure 3-4. Transmission Operations Center Jurisdictional Determination Map

3.3.2 Environmental Consequences

3.3.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to wetlands at or in the vicinity of the Proposed Action.

3.3.2.2 Proposed Action

Construction of the Proposed Action, including construction of the proposed office, maintenance, and parking structures; extension of Industrial Drive; construction of the communications tower; and grading and graveling of the operations yard, is expected to impact approximately 0.04 acres of wetlands, designated as 1MW5 in Figure 3-4. Layout of the gravel yard and communications tower would be designed to avoid impacts to wetland 1MW1, located in the southwest corner of the Project Area, and to avoid wetland 2MW1 located north of the proposed office building. In addition, approximately 0.10 acres of wetland 2MW1 would be impacted by the construction of the Industrial Drive extension project to provide access to the site. In total, approximately 0.14 acres of wetlands would be impacted by the construction of the Proposed Action.

3.3.3 Mitigation

Big Rivers has designed the layout of the Proposed Action to avoid, to the extent possible, wetlands identified within the Project Area. As described above, construction of the Proposed Action would impact a total of approximately 0.14 acres of wetlands. Big Rivers has been in consultation with the U.S. Army Corps of Engineers (USACE) to obtain coverage for project-related construction activities under Nationwide Permit (NWP) 39 – *Commercial and Institutional Developments*. Coverage under NWP-39 is available to projects that do not cause the loss of greater than 1/2-acre of non-tidal Waters of the United States (WOTUS). Projects with the potential to impact 1/10-acre or more of wetlands require submittal of a pre-construction notification (PCN) prior to commencing activities that may result in impacts to jurisdictional waters.

NWP-39 requires the installation and maintenance of appropriate soil erosion and sediment controls during construction, and all exposed soil and other fills, as well as any work below the ordinary high-water mark, must be permanently stabilized at the earliest practicable date. Compensatory mitigation may be required for all wetland losses that exceed 1/10-acre, unless the USACE district engineer determines that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal and provides an activity-specific waiver of this requirement. Big Rivers is in consultation with the USACE to obtain coverage for the Proposed Action under NWP-39; however, compensatory mitigation requirements, if any, have not yet been defined. In the event compensatory mitigation is required, it is anticipated that Big Rivers would secure credits from an approved mitigation bank or in-lieu fee program.

Big Rivers would install erosion control structures and BMPs to minimize or avoid impacts to wetlands, and to comply with the Kentucky Pollutant Discharge Elimination System(KPDES) General Permit for Stormwater Discharges Associated with Construction Activities. Coverage under the general permit requires preparation of a Stormwater Pollution Prevention Plan (SWPPP), which describes the sediment and erosion control BMPs that would be implemented during construction. All proposed sediment and erosion control measures would be installed prior to initiating soil-disturbing activities and maintained in effective operating condition during construction.

3.4 Water Resources

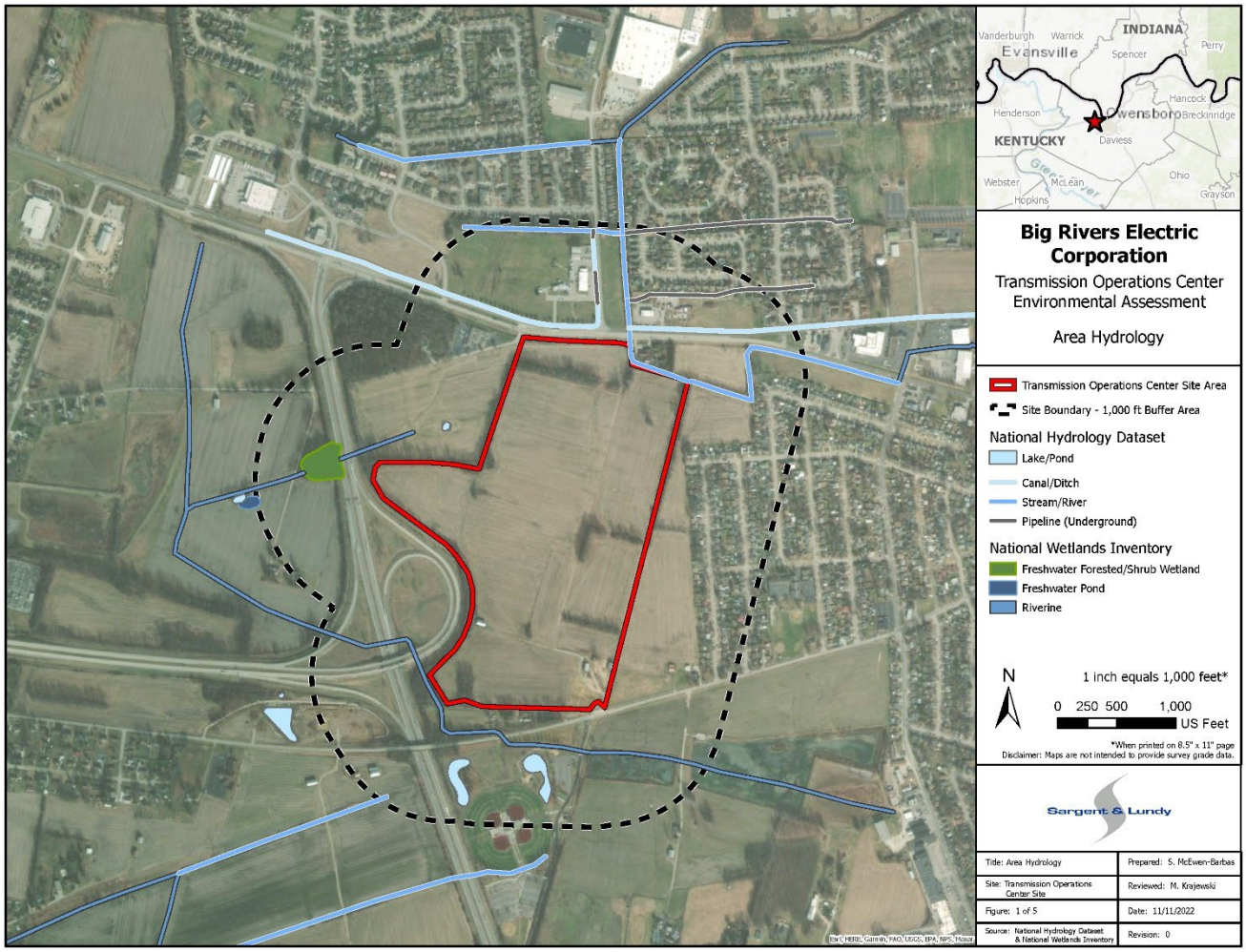
The Clean Water Act (CWA) prohibits the discharge of pollutants through a point source into WOTUS unless such discharge is authorized by a National (or state) Pollutant Discharge Elimination System (NPDES) permit. In Kentucky, all discharges to waters of the Commonwealth require a KPDES discharge permit. Such permits include effluent limitations developed from technology-based and water quality-based criteria. This section addresses water quantity and quality issues related to proposed discharges to, or appropriations from, surface or ground water; ground water protection programs (e.g., sole source aquifers and recharge areas); and water quality degradation from temporary construction activities. In addition, facilities that store more than 1,320 gallons of oil or petroleum products in aboveground storage tanks are subject to the Spill Prevention, Control, and Countermeasure (SPCC) regulations at 40 CFR Part 112 if there is a reasonable expectation of an oil discharge into or upon navigable waters of the U.S. or adjoining shorelines.

3.4.1 Surface Water Features

3.4.1.1 Affected Environment

The Project Area resides in two HUC 12 watersheds: 051100050501 Rhodes Creek-Green River and 051402011202 Jackson Creek-Ohio River, both of which lie within the 05 Ohio Region. Although most of the site resides in Rhodes Creek watershed, most of the site drains north to the Ohio River. The Ohio River is approximately 1.25 miles northeast of the Project Area. Figure 3-5 provides a hydrology map showing the location of the surface water features in proximity to the Project Area. The hydrology map is also included in Attachment G. Other than the wetlands described in Subsection 3.3, no surface water features are located within the Project Area.

Figure 3-5. Area Hydrology



3.4.1.2 Environmental Consequences

3.4.1.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to surface water and water supply at or in the vicinity of the Proposed Action.

3.4.1.2.2 Proposed Action

Potential impacts to surface water features associated with construction activities would be short-term in nature and minimized through the use of sediment and erosion control BMPs. Based on implementing erosion and sediment BMPs during the construction phase of the Proposed Action in accordance with Kentucky stormwater and erosion control regulations, construction activities would result in minimal short-term, and no long-term impacts to surface water features in the vicinity of the Proposed Action.

In addition, construction and operation of the Proposed Action would not result in any long-term or short-term impacts to water supply, as the Proposed Action would be connected to city utilities. An existing 10-inch water main dead-ends at the southeast corner of the Project Area, and multiple 6-inch mains dead-end where the roadways end in the subdivision to the east of the Project Area (AEI, 2021b). Water for the Proposed Action would be provided to the site by the local utility and would not result in any short-term or long-term impacts to water supply in the vicinity of the Proposed Action.

3.4.1.3 Mitigation

At a minimum, Big Rivers would install erosion control structures and BMPs to comply with the KPDES General Permit for Stormwater Discharges Associated with Construction Activities. All sediment and erosion control measures would be installed prior to initiating soil-disturbing activities and maintained in effective operating condition during construction.

3.4.2 Water Quality

The Kentucky Division of Water (KDOW) Water Quality Branch monitors the water quality of the Commonwealth's streams, rivers, lakes, and wetlands. The branch develops and reviews water quality standards, classifies surface waters for designated uses (e.g., cold water aquatic habitat and outstanding state resource waters), reports on the state's water quality in the 305(b) Integrated Report, and creates Total Maximum Daily Load (TMDL) documents (KDOW, 2023a). Section 305(b) of the CWA requires states to assess and report current water quality conditions to the EPA every two years. Section 303(d) requires states to maintain a list of impaired waters and to develop TMDLs for impaired waters.

3.4.2.1 Affected Environment

Based on a review of the KDOW 303(d) list of impaired waters, there are no impaired waters identified in or adjacent to the Project Area (KEEC, 2022). The nearest stream segment included on the 303(d) list is the Gilles Ditch located approximately 0.6 miles west of the Project Area boundary. Gilles Ditch is listed as being impaired due to loss of riparian habitat and streambank modifications/destabilization.

3.4.2.2 Environmental Consequences

3.4.2.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to water quality at or in the vicinity of the Proposed Action.

3.4.2.2.2 Proposed Action

The Proposed Action would not generate any industrial wastewater streams that require treatment or discharge to WOTUS. Any wastewater streams that cannot be discharged directly to the local sanitary system would be segregated and transported off site for treatment and disposal. Sanitary wastewaters

generated by the Proposed Action would be directed to the existing city sanitary wastewater system. An existing 24-inch gravity sanitary sewer that serves RWRA's Southwest Master Pump Station runs north through the Project Area (AEI, 2021b). The pump station is capable of pumping 5 million gallons per day (MGD) and, based on conversations with RWRA, is available and has the capacity to service the Proposed Action.

The Proposed Action would result in approximately 713,750 square feet (16.39 acres) of new impervious surface within the Project Area, including building roofs and paved areas, and approximately 469,140 square feet (10.77 acres) of graveled surface. There is sufficient relief across the property to provide for adequate drainage, and the site would be developed for stormwater management and stormwater detention. During operations, gasoline and diesel fuel would be stored at the facility to provide fuel for maintenance trucks and other vehicles. Proposed storage tanks include a 10,000 gallon aboveground diesel fuel tank, 6,000 gallon aboveground gasoline tank, and 1,000 gallon aboveground diesel exhaust fluid storage tank. All storage tanks would be located in a secure area and designed as double-walled tanks.

3.4.2.3 Mitigation

Runoff created by the introduction of impervious surface (e.g., roofs, parking, etc.) would be collected in piped stormwater systems and ditches and directed to a stormwater detention area located east of the proposed office building, as depicted in Figure 2-2. The stormwater management system would be designed to ensure compliance with the City of Owensboro Stormwater Management Ordinance (Owensboro Municipal Code, Chapter 6, Article VII), which requires compliance with the KPDES general permit to control construction site stormwater runoff, and to design stormwater management systems to maintain after development, as nearly as possible, the predevelopment runoff characteristics, and to reduce stream channel erosion, pollution, siltation and sedimentation, and local flooding (Article VII, Sec. 26-351). In addition, both Owensboro and Daviess County are required to meet the Phase II Stormwater standards, which require post-construction and stormwater runoff BMPs to be in place to control debris released into the waters of Kentucky.

The proposed facility would have an aboveground storage capacity of more than 1,320 gallons of oil or oil products (including diesel fuel and gasoline) and would be required to comply with the Spill Prevention, Control, and Countermeasure (SPCC) requirements of 40 CFR Part 112. To ensure compliance with the Part 112 requirements, all aboveground storage tanks at the facility would be designed as double-walled tanks designed to satisfy the secondary containment requirements of 112(c) and the bulk storage secondary containment requirements at 112.8(c)(2). The facility would implement a facility-specific SPCC Plan that describes oil handling operations, spill prevention practices, and spill response practices to prevent oil spills from reaching navigable waters or adjoining shorelines.

Given the proposed design and operation of the Proposed Action, including sanitary wastewater discharges to the local sanitary sewer system, stormwater detention and control, the lack of industrial

wastewater discharges, and implementation of SPCC requirements, the Proposed Action would result in no short-term or long-term impacts to water quality.

3.4.3 Groundwater

Groundwater is a vital resource in Kentucky that may be used for drinking water, crop irrigation, and industrial use. Groundwater also helps maintain stream flow during dry seasons, and provides water to lakes, ponds, and wetlands. The KDOW regulates well drilling and groundwater protection efforts in the Commonwealth. KDOW is responsible for monitoring groundwater and regulates groundwater protection by implementing the Kentucky Groundwater Protection Plan regulation (401 KAR 5:037).

3.4.3.1 Affected Environment

The Project Area is within the Western Coal Field physiographic region (DOW, 2018). The Western Coal Field physiographic region is composed of sandstone, siltstone, clay, shale, and coal beds (DOW, 2018). Groundwater usually occurs in shallow stress relief fractures and occasionally in deep consolidated sand deposits and sandstone aquifers (DOW, 2018). The Ohio River alluvial aquifer is the primary source of drinking water for the residents of Owensboro and Daviess County and adjacent counties in Kentucky. The aquifer consists of sand and gravel deposits that partly fill a bedrock-valley system consisting of shales of Pennsylvanian age. The thickness of the alluvium ranges from approximately two feet near the bedrock-valley walls to approximately 150 feet in the area west of Owensboro. Estimates of the transmissivity of the alluvium near the Ohio River are in excess of 50,000 gallons/day/ft (USGS, 1997).

The Safe Drinking Water Act of 1974 (SDWA) gives EPA the authority to designate aquifers which are the sole or principal drinking water source for an area, and which, if contaminated, would create a significant hazard to public health as sole source aquifers. Once designated as a sole source aquifer, no commitment for federal financial assistance may be provided for any project which the EPA determines may contaminate the aquifer through its recharge area so as to create a significant hazard to public health.

In Kentucky, water supply protection programs have been developed to ensure that public water suppliers that utilize groundwater and surface water resources are protected from contamination. The SDWA provides the guidance and framework for these programs. Kentucky's programs are administered through the Wellhead Protection Program and Source Water Assessment and Protection Program. These programs require water suppliers to delineate the areas contributing to their water sources, determine their susceptibility to contamination, develop strategies to manage potential contaminants and plan for future use (KDOW, 2023b).

3.4.3.2 Environmental Consequences

3.4.3.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to groundwater at or in the vicinity of the Proposed Action.

3.4.3.2.2 Proposed Action

Construction and operation of the Proposed Action would not result in any short-term or long-term adverse impacts to groundwater resources. Water for the Proposed Action would be sourced from OMU, and groundwater would not be used as a resource to support the Proposed Action.

Based on a review of EPA's sole source aquifer mapping system, the Proposed Action is not located in the vicinity of a designated sole source aquifer (EPA, 2023). Based on a review of the Kentucky Source Water Protection Viewer, the Project Area is not located within a well head protection or source water protection area. The nearest Source Water Protection area is located approximately 4.15 miles east of the Project Area, associated with the Owensboro Municipal Utilities (OMU) public water system and the OMU Wellhead Protection Area (KEEC, 2023a).

3.4.3.3 Mitigation

To mitigate for a potential release of a hazardous substance or petroleum product to groundwater, all hazardous substances and petroleum products, including oils, lubricants, and fuel associated with vehicle maintenance activities, would be located indoors and/or with secondary containment. Secondary containment may include double-walled tanks or structures designed to contain 100 percent of the largest single storage container within the containment area plus the volume of a 24-hour, 25-year storm (if located outside). During construction and operation of the Proposed Action, Big Rivers would develop and implement, as required, spill response plans and have adequate spill response supplies available to respond to spills.

3.5 Coastal Resources

3.5.1 Affected Environment

The Project Area is located in Owensboro, Kentucky. The State of Kentucky does not have a coastal zone regulated by the Coastal Zone Management Act.

3.5.2 Environmental Consequences

3.5.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to coastal resources.

3.5.2.2 Proposed Action

The Proposed Action would have no short-term or long-term impacts to coastal resources.

3.5.3 Mitigation

No mitigation measures are proposed for coastal resources.

3.6 Biological Resources

3.6.1 General Fish, Wildlife, and Vegetation Resources

3.6.1.1 Affected Environment

The Project Area is located in the Wabash–Ohio Bottomlands ecoregion (Ecoregion 72a). This region is composed of nearly level, poorly drained floodplains and undulating terraces. Wetlands, ponds, abandoned channels, oxbow lakes, and low ridges occur within the region. Potential natural vegetation is mapped as southern floodplain forest. At present, some woodlands remain, but livestock, alfalfa, corn, soybean, and wheat farming are extensive. The remaining woodland communities within this ecoregion are relatively small in size, fragmented, and located in areas that are not easily farmed. Land use in the ecoregion can be affected by seasonally high-water tables and localized flooding. Low gradient streams with silt or sand bottoms occur and channelization and drainage ditches are common (EPA, 2022b).

The Project Area is composed primarily of cultivated crops and a small portion of the southwest corner of the Project Area is identified as deciduous forest (USGS, 2022c).

According to the Kentucky Department of Fish and Wildlife Resources, there are 419 wildlife species observations in Daviess County, including: 108 species within the Actinopterygii class (ray-finned fishes); 23 species within the Amphibia class (amphibians); 175 species within the Aves class (avian/birds); 42 species within the Bivalvia class (two-shelled mollusks); 7 species within the Chelonia class (turtles); 5 species within the Gastropoda class (snails and slugs); 8 species within the Malacostraca class (crustaceans); 32 species within the Mammalia class (mammals); and 19 species within the Reptilia class (reptiles) (KDFWR, 2022). Common wildlife species that may occur within the Project Area would include species able to adapt to areas developed for commercial and residential development and areas in active agricultural production such as deer, coyotes, raccoons, and opossums (KDFWR, 2023a).

3.6.1.2 Environmental Consequences

3.6.1.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to wildlife or vegetation resources at or in the vicinity of the Proposed Action.

3.6.1.2.2 Proposed Action

Construction of the Proposed Action would convert the 46-acre Project Area from agricultural production to office/light industrial use and greenspace. Greenspace planned as part of the Proposed Action may continue in urban agriculture production or provide an opportunity to reestablish native vegetative communities associated with the Wabash-Ohio Bottomlands ecoregion. Regardless of the ultimate use of planned greenspace (e.g., continued urban agricultural or reestablished native vegetation), given the current use of the Project Area, construction and operation of the Proposed Action are expected to have no adverse short-term or long-term impacts on either agricultural or native vegetation communities at or in the vicinity of the Proposed Action.

Based on the proposed layout of the Proposed Action, planned construction activities would avoid the forested area (see Figure 2-2). Wildlife within the area, including common wildlife species adapted to commercial and residential development and active agricultural cultivation, may be impacted during construction of the Proposed Action, and approximately 3.5 acres of trees would be cleared from the Project Area during construction (see Attachment H). Tree clearing would be done in accordance with City of Owensboro Ordinance Chapter 5, Article IV, Division 3 – Trees and Other Landscape Materials. In general, that ordinance, referred to as the "Tree Ordinance of the City of Owensboro, Kentucky", requires a permit for trees planted on public right-of-way and requires property owners to maintain trees so as not to interfere with or damage public streets or sidewalks, but does not require a permit for tree removal from private property. Given the current use of the Project Area, the amount of tree clearing planned for the Proposed Action is not expected to adversely affect common bird species.

The conversion of approximately 46 acres of the 114-acre site to office/light industrial operations could be expected to impede the movement of common wildlife species that may occur in the vicinity of the Proposed Action; however, once construction activities are complete, existing urban wildlife communities would be expected to return to the area. Furthermore, the Proposed Action is located south of the intersection of Henderson Road and Industrial Drive, in an area that has undergone substantial commercial and residential development. Noise and human activity associated with construction of the Proposed Action may result in short-term, temporary displacement impacts to urban wildlife species, but are not expected to result in long-term impacts to wildlife within the Project Area.

3.6.1.3 Mitigation

Construction of the Proposed Action would be designed to avoid, to the extent feasible, forested areas within the Project Area and to minimize tree removal requirements (see Figure 2-2). Tree removal required for the Proposed Action would be done in accordance with the Tree Ordinance of the City of Owensboro, Kentucky. No other mitigation measures are proposed to reduce potential short-term impacts to general fish, wildlife, or vegetation resources.

3.6.2 Endangered Species Act-Listed Threatened and Endangered Species

3.6.2.1 Affected Environment

Based on information available from the U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Consultation (IPaC) tool, there are 16 federally listed threatened and endangered species that have current and historical ranges within the vicinity of the Proposed Action (see Attachment I). However, 12 of the listed species are freshwater clams and mussels, which would not occur within the Project Area given the lack surface water and aquatic habitat within the Project Area. Listed species with the potential to occur within the Project Area include the following (USFWS, 2023a; USFWS, 2023b):

- Endangered Mammals:
    - Indiana Bat (*Myotis sodalis*)
    - Gray Bat (*Myotis grisescens*)
    - Northern Long-Eared Bat (*Myotis septentrionalis*)
    - Whooping Crane (*Grus americana*)
- Candidate Insects:
    - Monarch Butterfly (*Danaus plexippus*)

Candidate and listed species are described in Table 3-3. No critical habitats were identified within the Project Area (USFWS, 2023a; USFWS 2023b).

Table 3-3. Federally Listed Threatened and Endangered Species that may Occur in the Vicinity of the Project Area

Species Type	Common Name	Scientific Name	Federal Status	Preferred Habitat Type
Mammal	Gray Bat	*Myotis grisescens*	Endangered	The gray bat (*Myotis grisescens*) is a medium-sized insectivorous bat with an overall length of about 3.5 inches and a wingspan of 10 to 11 inches. Gray bats occupy caves or cave-like structures year-round. While gray bats prefer caves, summer colonies have been documented using dams, mines, quarries, concrete box culverts, and the undersides of bridges. Summer caves must be warm or have restricted rooms that can trap the body heat of clustered bats. Winter hibernation sites are often deep vertical caves that trap large volumes of cold air; these caves are naturally very rare (USFWS, 2022a).
Mammal	Indiana Bat	*Myotis sodalis*	Endangered	During winter, Indiana bats are restricted to suitable underground hibernacula. Most of these sites are caves located in karst areas of the east-central United States; however, Indiana bats also hibernate in other cave-like locations, especially abandoned mines. Only a small percentage of caves and mines provide the conditions required for successful hibernation. Most Indiana bats hibernate in caves or mines where the ambient temperature remains below 10°C, or 50.0°F, but above freezing, and remains relatively stable. In summer, most reproductive females occupy roost sites in forested areas under the exfoliating bark of dead or dying trees that retain large, thick slabs of peeling bark. Primary roosts usually receive direct sunlight for more than half the day. Roost trees are often within canopy gaps in a forest, in a fence line, or along a wooded edge. Habitats in which maternity roosts occur include riparian zones, bottomland and floodplain habitats, wooded wetlands, and upland communities. Indiana bats typically forage in semi-open to closed forested habitats with open understory, forest edges, and riparian areas (USFWS, 2022b).
Mammal	Northern Long-eared Bat	*Myotis septentrionalis*	Endangered	Northern long-eared bat habitat changes over the course of the year and varies based on sex and reproductive status. Summer: Northern long-eared bats commonly roost in trees but have been known to roost in human-made structures. This species often roosts under bark close to the tree trunk, or in crevices of tree species such as maples, oaks, and ashes. Winter: The Northern long-eared bat hibernates in caves and abandoned mines in winter and tends to be found in deep crevices. The roosting season for Northern long-eared bats ranges from summer to early fall (April–September). During the summer, Northern long-eared bats roost underneath bark, in cavities, or in crevices of both live and dead trees. Preferred habitats include forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats, such as emergent wetlands and adjacent edges of agricultural fields, old fields, and pastures. There is no critical habitat designated for this species (USFWS, 2022c).

Species Type	Common Name	Scientific Name	Federal Status	Preferred Habitat Type
Bird	Whooping Crane	*Grus americana*	Experimental Population, Non-essential	Whooping cranes breed, migrate, winter, and forage in a variety of wetland and other habitats, including coastal marshes and estuaries, inland marshes, lakes, ponds, wet meadows and rivers, and agricultural fields. Whooping cranes breed and nest in wetland habitat in Wood-Buffalo National Park, Canada. Bulrush is the dominant vegetation type in the potholes used for nesting, although cattail, sedge, musk-grass, and other aquatic plants are common. Nest sites are primarily located in shallow diatom ponds that contain bulrush. During migration, whooping cranes use a variety of habitats, of which wetland mosaics appear to be the most suitable. For feeding, whooping cranes primarily use shallow, seasonally and semi-permanently flooded palustrine wetlands for roosting, and various cropland and emergent wetlands. Wintering habitat in the Aransas National Wildlife Refuge, Texas, includes salt marshes and tidal flats on the mainland and barrier islands, dominated by salt grass, saltwort, smooth cordgrass, glasswort, and sea ox-eye (USFWS, 2023c).
Insect	Monarch Butterfly	*Danaus plexippus*	Candidate	Individuals of this species in temperate climates undergo long-distance migration and live for an extended period. In the fall, this species begins migrating to their respective overwintering sites. This migration can include distances over 3,000 kilometers (km) and last for over two months. In the early spring, individuals mate at the overwintering sites before dispersing back to their breeding grounds. During the breeding season, eggs are laid on milkweed host plants and larvae emerge after two to five days. Monarch Butterflies breed year-round. No critical habitat has been designated for this species (USFWS, 2022d).

3.6.2.2 Environmental Consequences

3.6.2.2.1 No Action Alternative

The No Action Alternative would have no effect to rare, threatened, or endangered species at or in the vicinity of the Proposed Action.

3.6.2.2.2 Proposed Action

Construction and operation of the Proposed Action would have no effect on designated critical habitat.

As described in Subsection 3.1.1, the Project Area is currently in active agricultural cultivation and approximately 3.5 acres of tree clearing is expected to occur during construction of the Proposed Action (see Figure 2-2). Given the preferred habitat of the Indiana bats and Gray bats, which typically includes underground caves in karst areas, and the lack of karst formations in the vicinity of the Project Area, the probability of adverse effects to Indiana bat or Gray bat habitat or bat hibernacula is considered to be low.

Construction activities that involve tree clearing could impact potential Indiana and Northern Long-eared bat maternity roost trees. As such, Big Rivers and RUS consulted with USFWS, Kentucky Department for Natural Resources (KDNR), and Kentucky Department of Fish and Wildlife Resources (KDFWR).

Suitable habitat for the Northern long ear bat, Indiana bat, and Gray bat has not been identified in the Project Area.

USFWS is in agreement with the USDA determination that there will be a potential to affect the gray bat *(Myotis grisescens),* Indiana bat *(Myotis sodalis),* and northern long-eared bat *(Myotis septentrionalis).*

The whooping crane (*Grus americana*) occurs only in North America, specifically within Canada and the United States, and is the continent's tallest bird. (USFWS, 2023d). The historical range of the whooping crane from north to south range included Canada and the United State to Mexico, and its east to west range included the Rocky Mountains to the East Coast. Population declines were caused primarily by hunting and destruction of prairie habitat from agricultural development. The USFWS currently identifies four geographically distinct populations that exist in the wild:

1. Aransas Wood Buffalo Population – The only natural, self-sustaining population in existence migrates between Aransas National Wildlife Refuge on the Texas Coast and Wood Buffalo National Park in Alberta, Canada.
2. Central Florida – An experimental, non-migratory population that was reintroduced from 1993 to 2005.
3. Eastern Migratory Population – An experimental population that was reintroduced from 2001 to 2010 and migrates between Wisconsin and Florida.
4. White Lake, Louisiana - A non-migratory flock that was introduced in 2011.

The only natural population of whooping cranes (i.e., the Aransas Wood Buffalo Population) nests in Wood Buffalo National Park and adjacent areas within northern Alberta and the Northwest Territories, Canada and winters in coastal marshes in the Aransas National Wildlife Refuge near Corpus Christi, Texas. This population can also be found along Nebraska's Platte River during migration.

As described in Table 3-3, the whooping crane breeds, migrates, winters, and forages in a variety of habitats, including coastal marshes and estuaries, inland marshes, lakes, open ponds, shallow bays, salt marshes and sand or tidal flats, upland swales, wet meadows and rivers, and pastures and agricultural fields (USFWS, 2023d). The conversion of wetlands to cropland, urban uses, roads, and powerlines, as well as wind farms continue to have a negative impact on the migratory corridor used by whooping cranes (USFWS, 2023d). Although Kentucky is along the migratory corridor of the Aransas Wood Buffalo Population, the proposed Project Area is located in a relatively urban area in proximity to major transportation infrastructure and commercial development. In addition, the Project Area has been in agricultural production for many years and wetlands identified within, or immediately adjacent to the Project Area is relatively small and isolated, totaling approximately 1.11 acres. As such, the probability of suitable habitat for migrating whooping cranes is considered low, and the Proposed Action is not expected to have an adverse impact on the crane population or migratory corridor. Nevertheless, Big Rivers would consult with the USFWS, KDNR, and KDFWR to assess and mitigate potential impacts.

Monarch butterflies typically occur in prairies, meadows, and grasslands across most of North America (NPS, 2017). Although monarchs feed on the nectar of many flowers, they lay their eggs only on certain

types of milkweed plants, many of which have been eradicated as noxious weeds. The USFWS has determined that the Proposed Action would have No Effect on the Monarch Butterfly.

3.6.2.3 Mitigation

As a mitigation measure for removal of trees, Big Rivers will implement tree clearing restrictions from June 1 through July 31 and has contributed $13,702.5 to the Imperiled Bat Conservation Fund (IBCF) as mitigation for potential impacts to suitable bat habitat. The IBCF is a partnership between the USFWS Kentucky Ecological Services Field Office and Kentucky Natural Lands Trust (KNLT, 2023). The IBCF was established to protect important bat and forest habitat in Kentucky and to provide active research and management of important habitat. RUS has completed coordination with the USFWS Kentucky Ecological Services Field Office (see Attachment J for correspondence to date). RUS has coordinated with USFWS, and the findings are that the proposed project has the potential to affect the gray bat, Indiana bat, and northern long-eared bat.

Section 7 requirements of the ESA for this project have been concluded.

3.6.3 Migratory Bird Treaty Act

3.6.3.1 Affected Environment

Table 3-4 provides a list of the migratory birds identified on the USFWS Birds of Conservation Concern (BCC) database with the potential to occur within the Project Area as identified in the USFWS IPaC Resource List (USFWS, 2023b), including the preferred habitat and breeding season for each bird.

Table 3-4. Migratory Bird Species, Breeding Seasons, and Preferred Habitat

Migratory Bird Species Name	Breeding Season (USFWS,2023b)	Preferred Habitat
Bald Eagle (*Haliaeetus leucocephalus*)	September 1 to July 31	Estuaries, large lakes, reservoirs, rivers, and some seacoasts are preferred habitat for the bald eagle; however, they can occasionally be found in drier areas, such as farmland and suburban habitat. They traditionally nest near rivers, lakes, and marshes (USFWS, 2022e).
Cerulean Warbler (*Dendroica cerulea*)	April 23 to July 20	Found in deciduous forests (USFWS, 2022f).

Migratory Bird Species Name	Breeding Season (USFWS,2023b)	Preferred Habitat
Chimney Swift (*Chaetura pelagica*)	March 15 to August 25	Preferred nesting sites are human-made chimneys. They are found in forests, agricultural lands, and areas inhabited by humans (ADW, 2022a).
Eastern Whip-poor-will (*Antrostomus vociferus*)	May 1 to August 20	Found in leafy woodlands and breeds in rich, moist deciduous or mixed woodlands (Audubon, 2022a).
Field Sparrow (*Spizella pusilla)*	March 1 to August 15	Prefer open, savanna-like habitats. For example, they are often found in old fields, forest edges and openings, fencerows, orchards, and nurseries; however, they are rarely found near human habitation (ADW, 2022b).
Kentucky Warbler (*Oporornis formosus*)	April 20 to August 20	Found in wet forests, dense second growth, and swamps (Conserve Wildlife, 2022).
Lesser Yellowlegs (*Tringa flavipes*)	Breeds elsewhere	Typically found in tidal flats, shallow lagoons, and marshes (USFWS, 2022g).
Prairie Warbler (*Dendroica discolor*)	May 1 to July 31	Found in pine forests, abandoned agricultural fields, areas between forests and grasslands, and dune habitats in the summer and in desert washes, scrubs, pine forests, and mangroves in the winter (ADW, 2022c).
Prothonotary Warbler (*Protonotaria citrea*)	April 1 to July 31	Prefers habitat near water, such as lakes, creeks, swamps, and flooded forests (ADW, 2022d).
Red-headed Woodpecker (*Melanerpes erythrocephalus*)	May 10 to September 10	Found in groves, farm country, orchards, shade trees in towns, large and scattered trees, forest edges, and clearings in the woods (Audubon, 2022b).

Migratory Bird Species Name	Breeding Season (USFWS,2023b)	Preferred Habitat
Rusty blackbird (*Euphagus carolinus*)	Breeds elsewhere	Found in river groves, wooded swamps, muskeg, and areas with trees near water. Additionally, the rusty blackbird will forage in open fields and cattle feedlots with other blackbirds (Audubon, 2022c).
Wood thrush (*Hylocichla mustelina*)	May 10 to August 31	Found in forested areas, most often deciduous forests (USFWS, 2022h).

3.6.3.2 Environmental Consequences

3.6.3.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to migratory birds at or in the vicinity of the Proposed Action.

3.6.3.2.2 Proposed Action

As described in Table 3-4, the preferred habitat for many MBTA-protected species include woodlands wet forest and often include areas near water, wetlands, or marshes (see Table 3-4). Given the preferred habitat for these species, and because the Project Area is actively cultivated for agricultural production, it is unlikely that construction and operation of the Proposed Action would have an adverse effect on species such as the eastern whip-poor-will, Kentucky warbler, lesser yellowlegs, prairie warbler, or prothonotary warbler.

Other MBTA-protected species that could occur within the Project Area include the cerulean warbler, chimney swift, field sparrow, red-headed woodpecker, and wood thrush. Chimney swifts can be found in open country and towns, and often nest in human-made chimneys (ADW, 2022a). The chimney swift breeds between March 15 and August 25 (USFWS, 2023b). Red-headed woodpeckers can be found in farm country (Audubon, 2022b) and breed between May 10 and September 10 (USFWS, 2023b). The rusty blackbird is occasionally found in open fields (Audubon, 2022c); however, based on USFWS IPaC data, the rusty blackbird does not breed within the vicinity of the Project Area (USFWS, 2023b). Preferred habitat for the cerulean warbler and wood thrush includes deciduous forests, and both species bread during late spring through summer (USFWS, 2022f and USFWS, 2022h). Given the preferred habitat of these migratory birds, construction activities such as tree clearing would impact bird habitat; however, given the amount of tree clearing required, the Proposed Action would not adversely affect MBTA protected species.

3.6.3.3 Mitigation

To limit potential impacts to migratory bird species, the USFWS recommends scheduling all vegetation removal, trimming, and grading of vegetated areas outside of the peak bird breeding season to the extent practicable. If construction activities are proposed to occur during the primary nesting season of an MBTA-protected species that may occupy the Project Area, or at any other time that may result in adverse impacts to migratory birds, their nests, or their eggs, nest surveys may be required. If a field survey identifies one or more active bird nest, appropriate measures would be taken to avoid incidental take. If an active nest is identified that cannot be avoided, Big Rivers would consult with the KDFWR and USFWS prior to construction in the area of the nest to mitigate potential impacts to MBTA-protected species.

3.6.4 Bald and Golden Eagle Treaty Act

The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d) prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald or golden eagles, including their parts (including feathers), nests, or eggs. The Act provides criminal penalties for persons who take any bald or golden eagle, or any part including nests. Among other things, the Act defines "take" to include nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior (50 CFR 22.6).

3.6.4.1 Affected Environment

According to the USFWS IPaC resource list, there is potential for bald eagles to occur within the Project Area; however, there does not appear to be potential for golden eagles in the Project Area (USFWS, 2023b). Preferred habitat for bald eagles includes estuaries, large lakes, reservoirs, and rivers; however, they can occasionally be found in drier areas, such as farmland and suburban habitat. They traditionally nest near rivers, lakes, and marshes (USFWS, 2022e).

3.6.4.2 Environmental Consequences

3.6.4.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to bald or golden eagles at or in the vicinity of the Proposed Action.

3.6.4.2.2 Proposed Action

Although there is currently no indication that bald eagles occupy the Project Area, bald eagles are increasingly found in farmland areas and suburban habitat. Therefore, there is a potential for construction-related activities, such as tree removal, to impact bald eagle habitat (USFWS, 2022e). Bald eagles breed between September 1 and July 31 (USFWS, 2023b).

3.6.4.3 Mitigation

If construction activities are proposed to occur during the primary nesting season of the bald eagle, or at any other time that may result in adverse impacts to their nests or their eggs, nest surveys may be required. If a field survey identifies one or more active eagle nest, appropriate measures would be taken to avoid incidental take. If an active nest is identified that cannot be avoided, Big Rivers would consult with the KDFWR and USFWS prior to construction in the area of the nest to mitigate potential impacts to protected species.

3.6.5 Invasive Species

Invasive species include noxious weeds, non-native species, and exotic species. A noxious weed is any plant designated by federal, state, or local government officials as injurious to public health, agriculture, recreation, wildlife, or property. Noxious weeds negatively impact natural areas by displacing native plant species, potentially increasing soil erosion, and decreasing wildlife habitat and recreational opportunities. Non-native species are those that have been deliberately or accidentally introduced to areas outside their native geographic range and that are able to reproduce and maintain sustainable populations in those areas.

Invasive species surveys can play an important role in forest and natural-habitat management. Invasive species can be introduced through many avenues, including the intentional planting of certain agricultural crops, landscaping and ornamental plants, and the pet trade. Nuisance species in Kentucky potentially include plants, birds, mammals, and aquatic species. The 2008 Kentucky Terrestrial Nuisance Species Management Plan provides a list of both established and potential invasive species in Kentucky. A copy of the management plan is included as Attachment K to this document.

3.6.5.1 Affected Environment

The Project Area is approximately 46 acres of farmland with a small tree presence. There are currently a minimum of 100 known invasive and nuisance species found in Kentucky.

3.6.5.2 Environmental Consequences

3.6.5.2.1 No Action Alternative

The No Action Alternative would not impact invasive species. Invasive species that currently occupy the Project Area would continue to persist. Invasive species populations may increase as a result of climate change or management actions; however, management actions such as herbicide and pesticide treatment may also reduce or limit the populations.

3.6.5.2.2 Proposed Action

The potential for invasive species expansion or introduction could increase due to ground disturbance and the increase in equipment and number of vehicles accessing the site during construction. If Invasive plants, which often colonize along the edges of surface disturbance, are present, they could spread to non-disturbed adjacent habitats, degrading habitat quality, and decrease the amount of native forage for local mammals and birds. Equipment and vehicle traffic would decrease after construction is complete, and equipment maintenance and management actions such as herbicide and pesticide treatment can limit the introduction of invasive populations.

The potential for the introduction of invasive plant species to the Project Area during operations is considered low as a result of minimal activity on undeveloped portions of the site and can be further mitigated to reduce potential impacts with monitoring and intervention, as needed.

There would be no potential for increase in aquatic invasive species under the Proposed Action Alternative because the Project Area lacks aquatic habitat.

3.6.5.3 Mitigation

Big Rivers would manage vegetation growth at the Project Area with regular mowing and maintenance which would inhibit the potential of invasive species, if present, spreading.

3.7 Historic and Cultural Resources

3.7.1 Affected Environment

Culture Resource Analysts, Inc. (CRA) conducted two cultural resources surveys for the Proposed Action in Owensboro, Kentucky, titled: *An archaeological Survey for the Proposed Big Rivers Operation Center in Owensboro, Daviess County, Kentucky* (Rusche, 2023) and *Cultural Historic Survey for the Proposed New Transmission Operation Center in Daviess County, Kentucky* (Dickerson and Reynolds, 2023). . The Area of Potential Influence studied by CRA included the 114 acres of primarily agricultural fields acquired by Big Rivers for the Proposed Action, and the Area of Potential Effects included a 0.75-mile buffer surrounding the 114 acres (CRA, 2023a; CRA, 2023b).

As a result of the archaeological survey, the investigators identified one previously unknown archaeological site and one isolated artifact find. Neither of these archaeological finds were recommended to be eligible for the National Register of Historic Places. The cultural historical survey identified a total of 562 properties within the Proposed Action's area of potential effect. The investigators recommended that 560 of these resources were not eligible for the National Register of Historic Places, and that the eligibility of the other two resources could not be determined. However, the investigators also recommended that, assuming these two resources might be historic properties, that it was unlikely that the Proposed Action would diminish their integrity.

Based on their review and acceptance of these recommendations, the Rural Utilities Service made a determination of no adverse effect to historic properties and consulted with the following parties: the Kentucky Heritage Council (SHPO); the Cherokee Nation; the Delaware Nation, Oklahoma; the Eastern Band of Cherokee Indians; the Miami Tribe of Oklahoma; the Osage Nation, and; the Peoria Tribe of Indians of Oklahoma. RUS's determination of no adverse effect to historic properties was provided to consulting parties on June 28, 2023. The Cherokee Nation and Miami Nation indicated that they had no objections to the proposed project on July 20, 2023, and July 24, 2023. (Attachment L). The Kentucky SHPO indicated that they concurred with the determination of effect on July 28, 2023. No other responses were received from other consulting parties.

The administrative record of consultation has been omitted from this document to protect potentially sensitive information but is on file with the agency.

3.7.2 Environmental Consequences

3.7.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to cultural resources in the vicinity of the Project Area.

3.7.2.2 Proposed Action

As a result of the identification and consultation efforts, it was agreed that no historic properties would be adversely affected by the Proposed Action. Neither construction nor operation of the Proposed Action would result in short-term or long-term impacts to historic and cultural resources.

3.7.3 Mitigation

As a result of the there being a finding of No Adverse Effects for the Proposed Action, there is no need for mitigation.

3.8 Aesthetics

3.8.1 Affected Environment

Visually sensitive areas in the vicinity of the Project Area include parks, recreational areas, wilderness areas, wild and scenic rivers, and historic sites. Seven parks and recreational areas were identified within one mile of the proposed Project Area. Table 3-5 lists these areas and the approximate distance from the nearest Project boundary to the site (Google, 2022). Parks and recreational areas within one mile of the Project Area are also displayed in Figure 3-8.

Table 3-5. Parks and Recreational Areas within One Mile of the Site

Park/Recreation Area Name	Approximate Distance from Nearest Site Boundary	Approximate Distance from Communications Tower	Direction
Jack C. Fisher Park	0.01 mile	0.30 mile	S
Joe Ford Nature Park	0.11 mile	0.25 mile	NW
Thompson Berry Park	0.37 mile	0.75 mile	NE
Cravens Pool	0.46 mile	0.80 mile	E
Western Kentucky Botanical Garden	0.55 mile	0.90 mile	NW
Centre Court	0.90 mile	1.23 mile	S
Russell Shifley Park	0.91 mile	1.24 mile	SSE
Owensboro Dugan Best Rec Center	0.97 mile	1.22 mile	E

Areas of high scenic value that may be affected by aesthetics of the Proposed Action include designated wilderness areas, as well as wild and scenic rivers. The nearest designated wilderness area to the Proposed Action is the Garden of the Gods Wilderness Area, located approximately 67 miles southwest of the property (NWSRS, 2022; Google, 2022). There are no federally designated wild and scenic reivers in close proximity to the Project Area. The two nearest designated wild and scenic rivers are the Obed River and the Vermillion River (NWSRS, 2022). The Obed River is located approximately 165 miles southeast in Tennessee and the Vermillion River is located approximately 165 miles north-northwest in Illinois (Google, 2022). The Ohio River, which provides opportunities for recreational activities, is located approximately 3 miles north of the property. Additional discussion of formally classified lands near the property is provided in Section 3.1.3.

3.8.2 Environmental Consequences

3.8.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to aesthetics at or in the vicinity of the Proposed Action.

3.8.2.2 Proposed Action

Construction of the Proposed Action would involve office trailers, storage trailers, parking for construction personnel, security fencing, along with security lighting at night. These visual impacts are typical during a construction project, and security lighting provided during the construction process would be in accordance with applicable codes and regulations.

During operations, there would be structures such as buildings, personnel parking, tanks, fencing, along with security lighting at night. The highest permanent structure planned as a connected action to the Proposed Action would be the 157-foot agl communications tower; all other structures are expected to be 30 feet agl or less. The entire Project Area is bordered by trees, which tree lines between the area that would be developed as part of the Proposed Action and existing roadways, parks, and residential areas (Google, 2022). With the exception of the communications tower, it is anticipated that existing vegetation would obscure the Proposed Action from public view. The proposed communications tower would be visible from a greater distance and would not be obscured by vegetation. The communications tower would visually impact nearby parks and recreational areas; however, the proposed location is properly zoned for the Proposed Action and connected actions, and construction of the tower is consistent with City of Owensboro planned development. The Proposed Action would have no visual impacts on formally classified lands.

3.8.3 Mitigation

The proposed Project Area is bordered by trees generally obscuring the site from public view (Google, 2022). No additional mitigation measures are proposed for aesthetic impacts.

3.9 Air Quality and Climate

Potential air quality effects can be short-term (construction-related) or long-term (stationary emission sources, increased traffic, fugitive dust emission, etc.). The federal Clean Air Act requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for “criteria” pollutants, including ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide, and lead. Federal and state environmental agencies implement provisions of the Clean Air Act through a series of emission standards and permitting requirements that limit air emissions from emission sources to achieve compliance with all applicable NAAQS. In Kentucky, the Kentucky Energy and Environment Cabinet (KEEC) Division of Air Quality has been delegated authority to implement requirements of the Clean Air Act. Cabinet provisions require air permits for industrial and commercial sources that release pollutants into the air. Air permits include information on which pollutants are being released, the levels of emissions that may be released, and what steps the source’s owner or operator is required to take to reduce emissions. Permits are issued to large sources (“major” sources) and smaller sources (“minor” or “area” sources). The Division for Air Quality is responsible for air permitting in all counties in Kentucky, except Jefferson.

3.9.1 Air Quality

3.9.1.1 Affected Environment

Under the Clean Air Act, EPA is required to set NAAQS for "criteria" pollutants (ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide, and lead). There are currently four counties within Kentucky that are classified as nonattainment or maintenance: Henderson County, Kenton County, Oldham County, and Webster County. The Project Area is located in Daviess County, Kentucky. Daviess County has been designated as being in attainment, or unclassified, with all existing NAAQS (EPA, 2022a).

3.9.1.2 Environmental Consequences

3.9.1.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to air quality in the vicinity of the Proposed Action. Minimal air quality impacts associated with ET&S operations at the existing Henderson, Kentucky location would not change.

3.9.1.2.2 Proposed Action

Air emissions from the Proposed Action are expected to be minimal and generally limited to transitory emissions associated with construction of the facility, minor fugitive emissions from fuel loading and vehicle maintenance operations, and an incremental increase in traffic. During construction, small amounts of air pollutants, primarily construction-related fugitive dust and construction equipment exhaust, would be temporarily generated from construction activities at the site. These activities include clearing and grading the site, excavation of footings and foundations, and construction of the office and maintenance buildings. Construction-related activities may temporarily increase ambient concentrations of suspended particulate matter for short periods of time; however, these short-term increases in particulate matter are anticipated to end following construction and would not result in a significant change to the overall air quality.

The use of heavy construction equipment during the construction phase of the Proposed Action, including bulldozers, cranes, dump trucks, graders, and similar equipment, would also generate internal combustion engine exhaust emissions. The level of emissions would depend on the level of activity and prevailing weather conditions. Construction equipment emissions would also contribute to a short-term increase in greenhouse gas (GHG) emissions, primarily carbon dioxide (CO_2); however, given the limited duration of construction activities, GHG emissions resulting from construction of the Proposed Action would be insignificant.

The primary sources of emissions during operation of the Proposed Action are expected to be related to heating and cooling of the building structures, vehicle exhaust emissions, and minor fugitive emissions from vehicle fueling and vehicle maintenance.

The planned office complex would be similar in nature to other retail and office structures in the vicinity of the site. The new office would be outfitted with energy efficient mechanical, electrical, and lighting systems. Vehicle maintenance activities would be similar to other automotive repair shops and would include vehicle servicing, oil changes, lubrication, and vehicle fueling. The Proposed Action includes an aboveground fuel storage capacity of approximately 10,000 gallons diesel fuel, 6,000 gallons gasoline, and 1,000 gallon diesel exhaust fluid storage. Total emissions from operational activities, including building heating, fuel storage, vehicle fueling, and vehicle maintenance activities are expected to be below the Kentucky air permitting thresholds, and emissions from the Proposed Action would have no adverse impact on long-term air quality in the vicinity of the Project Area.

3.9.1.3 Mitigation

Air quality impacts during the construction phase of the Proposed Action would be transient and short-term. Potential short-term air quality impacts would be mitigated during construction through the implementation of fugitive dust control measures, including watering, to reduce generation of fugitive dust. All construction equipment would be maintained in accordance with manufacturer's instructions, and exhaust emissions from construction vehicles would be short-term and terminate once major construction activities have ended. Vegetated areas between active construction areas and the site boundary would reduce the level of airborne particulate matter beyond the site's boundary. Emissions during operation of the Proposed Action would be limited by using energy efficient mechanical, electrical, and lighting systems.

3.9.2 Climate

3.9.2.1 Affected Environment

Kentucky experiences four seasons, with hot, humid summers and very cold, wet winters. July is typically the hottest month of the year. The average high temperature in July is 88°F and the average low temperature in July is 69°F. January is typically the coldest month of the year. The average high temperature in January is 43°F and the average low temperature in January is 27°F (Weather Spark, 2022).

The wet season in Owensboro occurs between March 17 to August 6. During the wet season, there is a 32 percent chance on any given day to experience greater than 0.04 inches of precipitation (Weather Spark, 2022).

Between October 16 and May 19, Owensboro experiences more wind than the remainder of the year. During this time, windspeeds average greater than 7.3 miles per hour. March is the windiest month of the

year, with average wind speeds of 9.3 miles per hour. The least amount of wind experienced in Owensboro is in August, with an average wind speed of 5.4 miles per hour (Weather Spark, 2022).

3.9.2.2 Environmental Consequences

3.9.2.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to climate at or in the vicinity of the Proposed Action.

3.9.2.2.2 Proposed Action

As discussed above, GHG emissions from the Proposed Action are limited to combustion-related emissions from vehicular traffic and building heating. Emissions would be similar to those from any commercial or light industrial development. The increase in worker commuting trips and E&TS vehicles operating from the new location as a result of the Proposed Action would result in an incremental increase in vehicle exhaust emissions in the Owensboro area. Based on information published by the Kentucky Center for Statics (KYstats, 2020), the average commuting distance in urban areas located in northern Kentucky varies between approximately 9 and 12 miles (each way) (KYstats, 2020). Assuming 45 full- and part-time employees and 26 field employees would work at, or operate from, the new facility (Big Rivers, 2022b), and assuming an average daily commute of 24-miles for each employee, daily commuting miles to and from the facility would total approximately 1,700-commuter miles per day. Applying a CO_2 emission rate of 400 grams (0.88 lbs) CO_2 per passenger vehicle mile (USEPA, 2023), results in total CO_2 emissions of approximately 1,500 lbs CO_2/day or approximately 194 tons CO_2/year (assuming 260 working days per year [5 days/week for 52 weeks/year]). These emissions can be categorized as insignificant when compared with total GHG emissions of approximately 101.9 million metric tons CO_2 equivalent ($MMtCO_2e$) emitted by Kentucky energy-related sources in 2020 (EIA, 2023). Furthermore, vehicle emissions resulting from the Proposed Action would be offset by emissions reductions associated with relocating Big Rivers employees from other locations. As such, overall regional GHG emissions are not expected to increase as a result of the Proposed Action.

3.9.2.3 Mitigation

No mitigation measures are proposed for climate impacts.

3.10 Socioeconomics and Environmental Justice

This section of the EA evaluates the Proposed Action with respect to socioeconomic impacts and economic opportunities for rural residents. The evaluation considers both positive and negative socioeconomic impacts to affected areas, focusing on population or income changes and effects on local institutions such as schools, health care facilities, and housing. in addition, EO 12898 requires applicants for an RUS loan to determine whether their proposal has, or may have, a disproportionately high and

adverse human health or environmental effect on minority or low-income populations. The analysis area for socioeconomics and environmental justice is Daviess County because the Project Area is within this county and most socioeconomic indicators are measured at the county level. Impact indicators for socioeconomic impacts include potential increase in population, potential increase in employment, potential impacts on infrastructure and public services, potential increase in noise, and other impacts that may affect quality of life.

3.10.1 Population and Employment

3.10.1.1 Affected Environment

3.10.1.1.1 Population Growth Trends

U.S. Census Bureau (USCB) population data show that there has been little change in the population of Owensboro since 2010. From the 2010 Census to the 2020 Census, there was a 5 percent population increase. However, 2020 Census data and 2021 population estimates show a population decrease of 0.03 percent, from 60,183 to 60,111 (USCB, 2022c).

Daviess County as a whole has the same population trend as Owensboro. Census results from 2020 show the population to be 103,312 and the 2021 population figure is 103,063, a decrease of 0.02 percent (USCB, 2022c).

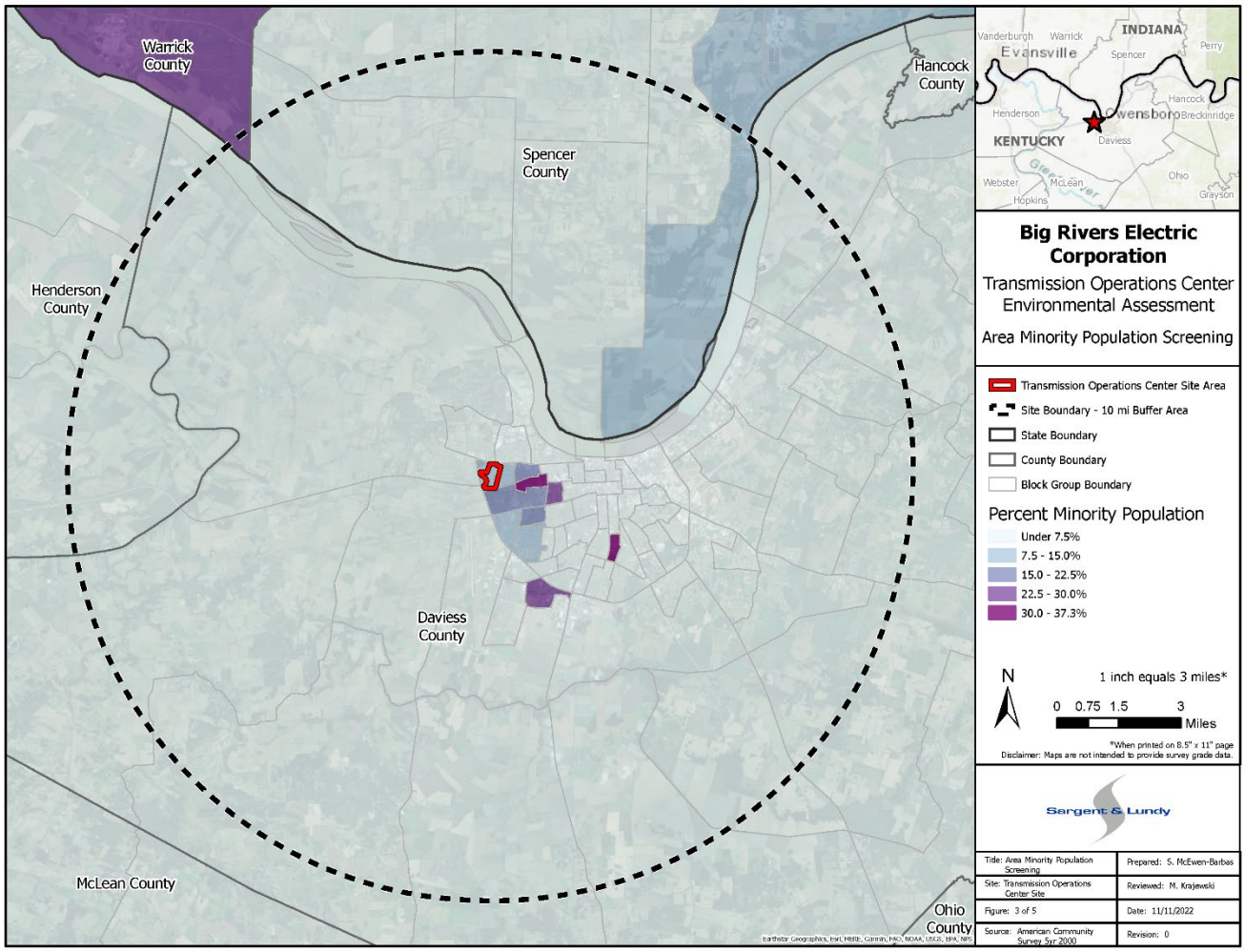
3.10.1.1.2 Racial and Ethnic Characteristics

The largest city near the Proposed Action is Owensboro, for which census data show the total population to be approximately 60,011 in 2021. Of that, 85 percent (51,011) are of Caucasian descent (including persons of Hispanic descent), with the second most prevalent race being black or African American at 4.9 percent (2,958). The remaining 10.1 percent of the population is a combination of Asian, Native American, and multi-racial persons. (USCB, 2022a).

The racial distribution of Daviess County is very similar to that of the City of Owensboro. The entire population in 2021, was estimated to be 103,321 persons (USCB, 2022b). Of that, the Caucasian population is 85.6 percent (88,425) and the African American population is 4.7 percent (4,872) (USCB, 2022b). The remaining 9.7 percent (14,915) of the population is a combination of Asian, Native American, and multi-racial persons (USCB, 2022b).

Figure 3-6 (also included in Attachment M) shows the location of the Proposed Action in relation to USCB census tracts shown based on percent minority population. In general, areas north and west of the Project Area have minority populations under 7.5 percent, while areas immediately east and south of the site have somewhat higher minority populations, ranging from 7.5 to 22.9 percent. Census tract 1, within which the Project Area is located, has a minority population between 7.5 and 15 percent. Census tract 5, located approximately 1.5 miles east of the Project Area has a minority population between 30 and 37.3 percent.

Figure 3-6. Area Minority Population Screening



3.10.1.1.3 Employment and Income

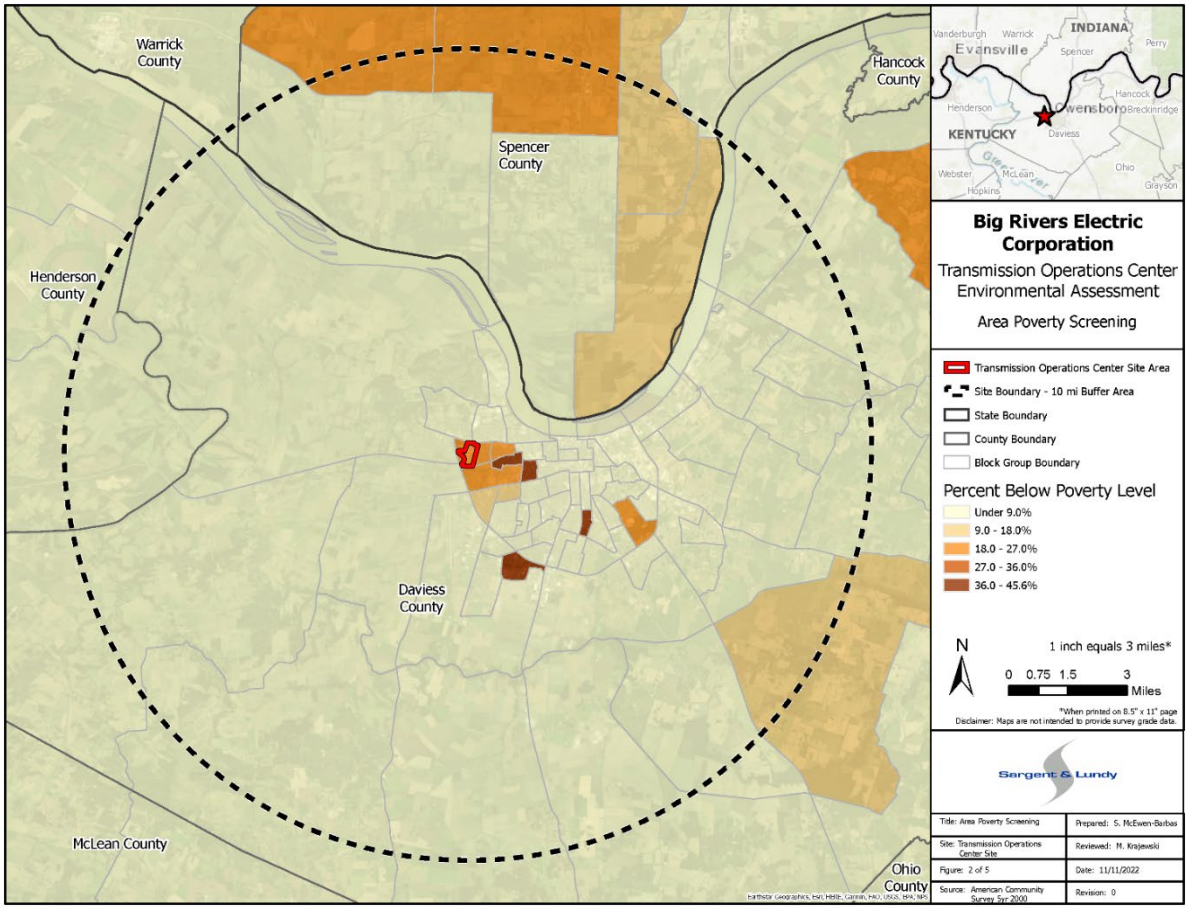
From 2016 to 2020, the labor force over the age of 16 in the City of Owensboro was 46,873, of which 58.8 percent was employed (USCB, 2022c). Of the population in the City of Owensboro over the age of 25, 89.8 percent are high school graduates or higher and 24.6 percent of the population have a bachelor's degree or higher (USCB, 2022c). The most common jobs among those employed were in manufacturing, the retail trade, and educational/health care fields (USCB, 2022c). From 2016 to 2020, the median

household income in the City of Owensboro was $46,193 and 58.7 percent of the population over the age of 16 was employed (USCB, 2022c).

From 2016 to 2020, the labor force over the age of 16 in Daviess County was 81,339, of which 59.6 percent was employed (USCB, 2022c). Of the Daviess County population over the age of 25, 90.5 percent are high school graduates or higher and 24.4 percent of the population in Daviess County has a bachelor's degree or higher (USCB, 2022c). The most common jobs in Daviess County are manufacturing, the retail trade, and educational/health fields. The median income from 2016 to 2020 was $54,881 (USCB, 2022c).

The poverty rate (all ages) for the City of Owensboro is estimated to be 20.5 percent (USCB, 2022c). The poverty rate for census tract 1, within which the Project Area is located, and for census tracts located directly east of the Project Area range between 18 percent and 27 percent. The poverty rate (all ages) for Daviess County is estimated to be 13.3 percent (USCB, 2022c). Figure 3-7**Error! Reference source not found.** (also included in Attachment M) shows the results of area poverty screening based on census tract within a 10-mile radius of the proposed Project site.

Figure 3-7. Area Poverty Screening



3.10.1.2 Environmental Consequences

3.10.1.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts associated with employment or population at or in the vicinity of the Proposed Action.

3.10.1.2.2 Proposed Action

The Proposed Action is expected to have a beneficial impact on employment and the local Owensboro economy with minimal impact on population, while conversely having a corresponding adverse economic impact in the vicinity of the existing ET&S Facility in Henderson, Kentucky. Construction of the Proposed Action would create a number of temporary construction jobs, and result in increased demand for skilled labor in areas of excavation and grading, building construction, electrical, plumbing, and related trades. Construction of the Proposed Action would result in increased demand for both skilled and unskilled labor and provide an opportunity for local residents to gain employment. Because the Proposed Action would be located in Daviess County, with a population of more than 100,000 persons, it is expected that a majority of the construction workers would be from the immediate area; thus, construction of the Proposed Action is not expected to require a short-term influx of construction workers or adversely affect population in the Owensboro area or community resources.

Following construction, the Proposed Action employ an estimated 45 full- and part-time and 26 field employees (Big Rivers, 2022b). Initially, all of the employees would be relocated from other existing Big Rivers locations, including the existing ET&S Facility and HQ building located in Henderson, Kentucky. Big Rivers expects that most employees would choose to relocate to the Owensboro area, while others may choose to commute to the Owensboro location from Henderson. Henderson is located approximately 30 miles west of Owensboro, resulting in a commute of approximately 35 minutes via US 60 or the Audubon Parkway. Given the limited number of new employees, and the opportunity for employees to commute to the Owensboro location, operation of the Proposed Action is not expected to adversely affect population or community resources in the Owensboro area. Although operation of the Proposed Action would initially employ Big Rivers employees from other locations, continued operation of the facility would also provide for local employment opportunities.

3.10.1.3 Mitigation

No mitigation measures are proposed for population and employment impacts.

3.10.2 Environmental Justice

Environmental justice concerns may arise from human health or environmental effects of a project on either minority or low-income populations. The need to identify environmental justice issues is stated in EO 12898, entitled “Federal Actions to Address Environmental Justice in Minority Populations and Low-

income Populations." The EO states "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." A Presidential Memorandum accompanying the EO directed agencies to incorporate environmental justice concerns into their NEPA processes and practices.

Environmental justice issues are identified by determining whether minority or low-income populations are present in the Project Area. If so, disproportionate effects on these populations would be considered. The CEQ guidance states that minority populations should be identified when the percentage of minority residents in the affected area exceeds 50 percent or is meaningfully greater than the percentage of minority residents in the general population (CEQ, 1997). If the percentage of minority residents of the population in the Project Area census tract exceeds the county level by more than 10 percent, it is considered to be "meaningfully greater" for the purposes of this analysis. The CEQ guidance also states that the low-income populations should be identified based on poverty thresholds as reported by the USCB. If the poverty rate for the population of the Project Area census tract exceeds the county poverty rate by more than 10 percent, it is considered to be an area of environmental justice concern for the purposes of this analysis.

3.10.2.1 Affected Environment

The minority population of census tract 1, within which the Project Area is located, is between 7.5 and 15 percent, compared to a Daviess County minority population of approximately 14.4 percent. As such, the Proposed Action would not be located in an area with a meaningful greater minority population than that of the county. The poverty rate (all ages) for census tract 1 is between 18 and 27 percent, compared to a poverty rate of 13.3 percent for Daviess County. Depending upon the actual poverty rate for census tract 1, the Project Area may be located within a census tract that exceeds the county poverty rate by more than 10 percent. Therefore, environmental justice concerns, and the potential for disproportionate environmental and socioeconomic impacts on the surrounding community, will be evaluated, as appropriate, in Section 3.10 of this EA.

3.10.2.2 Environmental Consequences

3.10.2.2.1 No Action Alternative

No Action Alternative would have no short-term or long-term impacts associated with environmental justice at or in the vicinity of the Proposed Action.

3.10.2.2.2 Proposed Action

The Proposed Action would have minimal or no impacts to human health or the environment and would not result in disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

USEPA has established a number of EJ indexes against which projects can be evaluated for environmental and human health impacts. The EJ and supplemental indexes are a combination of environmental and socioeconomic information, and all of the environmental and human health indexes have been evaluated in this EA. There are twelve EJ and supplemental indexes reflecting the following 12 environmental indicators (USEPA, 2022):

- Particulate Matter 2.5 (PM2.5)
- Ozone
- Diesel Particulate Matter
- Air Toxics Cancer Risk
- Air Toxics Respiratory Hazard Index
- Traffic Proximity
- Lead Paint
- Risk Management Plan (RMP) Facility Proximity
- Hazardous Waste Proximity
- Superfund Proximity
- Underground Storage Tanks
- Wastewater Discharge

As described in Section 3.9, air quality impacts from the Proposed Action, including PM2.5, ozone precursors, diesel emission, and air toxics, would be limited to vehicle emissions, building heating/cooling, and minor fugitive emissions from fuel storage, fueling, and equipment maintenance. The Proposed Action is expected to be a minor source of air emissions. Furthermore, the Proposed Action is located in an area that has been designated as being in attainment with all NAAQS, and construction/operation of the Proposed Action would not cause or contribute to the exceedance of a NAAQS.

Based on a review of USEPA's EJScreen Mapping Tool (USEPA, 2022b), the Proposed Action is located in an area that has not been designated as an area with high existing community impacts for any of the EJ or supplemental indexes. In addition, operations planned for the Proposed Action would not contribute to environmental or human health impacts on the local community. For example, the Proposed action does not include underground storage tanks, would not treat or dispose of hazardous wastes or handle hazardous chemicals in quantities that would require an RMP, and would not result in an industrial wastewater discharge. Although the Proposed Action may be located in an area with a higher percentage of low-income population than that of Daviess County as a whole, environmental and human health impacts from the Proposed Action are minimal and the Proposed Action would result in beneficial economic, labor, and socioeconomic impacts to the community.

3.10.2.3 Mitigation

No mitigation measures are proposed for environmental justice.

3.11 Miscellaneous Issues

3.11.1 Noise

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that interferes with or disrupts normal activities. Prolonged exposure to high noise levels has been demonstrated to cause hearing loss; however, the principal human response to environmental noise is annoyance. The perceived importance of noise depends upon the setting, the time of day, the activity creating the noise, and the sensitivity of the individual. Sensitivity receptors may include school settings, churches, nursing homes, and medical facilities.

As a result of the Noise Control Act of 1972, the EPA developed standards for noise levels that would protect public health and welfare with an adequate margin of safety. The EPA determined that outdoor day-night average sound levels (Ldn) less than or equal to 55 A-weighted decibels (dBA) are sufficient to protect public health and welfare in residential areas (EPA, 1974). Job-related noise is regulated by the Occupational Safety and Health Administration (OSHA).

According to the Kentucky Noise Related Statutes, all vehicles on highways shall be “equipped as to make a minimum of noise, smoke, or other nuisance,” persons operating automobiles and bicycles “shall not sound the horn or sound device unnecessarily.” Additionally, “every motor vehicle with an internal-combustion, steam, or air motor shall be equipped with a suitable and efficient muffler” and “no person shall modify the exhaust system of a motor vehicle or an off-highway vehicle in a manner which would amplify or increase the noise emitted by the motor of such vehicle above that emitted by the muffler originally installed” (Kentucky Noise Related Statutes, 2022).

The City of Owensboro. Noise Control ordinance is in Chapter 17, Section 17-8 of the Owensboro Code of Ordinances. The Owensboro ordinance does not include specific noise levels, but prohibits any excessive or unreasonably loud noise, considering the time, date, place, and nature of such noise.

3.11.1.1 Affected Environment

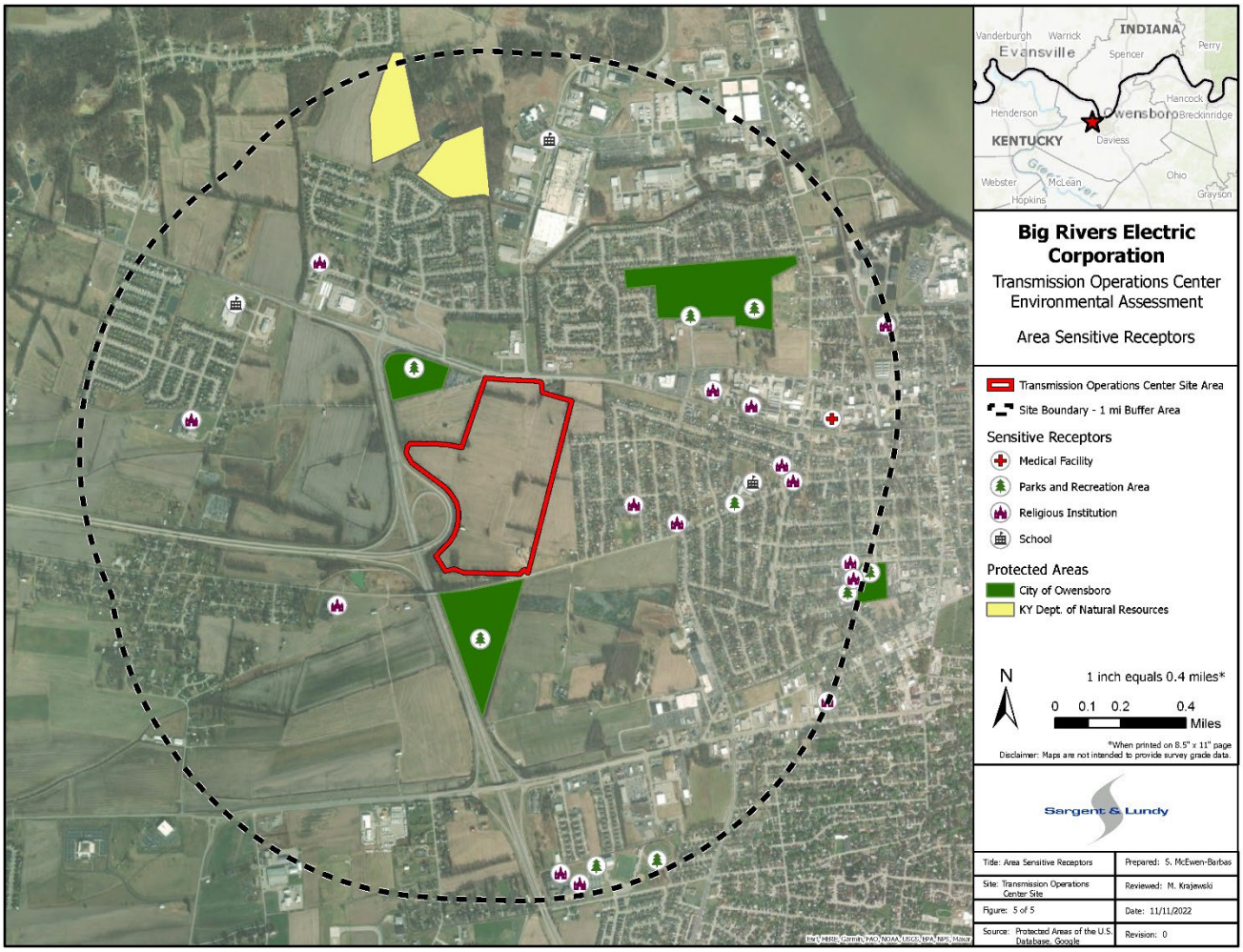
The Proposed Action is located in an area of Owensboro that is designated for industrial development. The Project Area is currently undeveloped. Henderson Road runs parallel to the northern border of the Project Area, and US-60 and the Audubon Parkway are located adjacent west of the site. Ambient noise surrounding the Project Area consists predominantly of vehicle traffic.

Noise-sensitive receptors include schools, hospitals, residences, and churches. Table 3-6 and Figure 3-8 show the sensitive receptors located within one mile of the Proposed Action (Google 2022; USGS, 2022a). Figure 3-8 is also included in Attachment N.

Table 3-6. Schools, Medical Facilities, and Religious Facilities within One Mile of the Site

Sensitive Receptor Type	Facility Name	Approximate Distance from Site (miles)
School	Cravens Elementary School	0.50
School	Valley School	0.73
School	Audubon Elementary School	0.79
Medical	Twin Rivers Nursing and Rehabilitation	0.76
Religious	Precious Blood Catholic Church	0.27
Religious	First Free Will Baptist Church	0.35
Religious	Ridgewood Baptist Church	0.39
Religious	Church Alive	0.40
Religious	First Assembly of God Church	0.52
Religious	Westside Church of Christ	0.61
Religious	Asbury United Methodist Church	0.62
Religious	Crosspointe Baptist Church	0.67
Religious	Next Level Church of God	0.68
Religious	Baptist Center	0.92
Religious	Kaio Student Ministries	0.93
Religious	Wings of Faith Church of God	0.94
Religious	Owensboro Christ Gospel Church	0.97
Religious	The Father's House	0.97
Religious	Gracepoint Church	1.00
Parks	Joe Ford Nature Park	0.05
Parks	Jack C. Fisher Park	0.05
Parks	Thompson Berry Park	0.37
Parks	Cravens Pool	0.46
Parks	Western Kentucky Botanical Garden	0.55
Parks	Centre Court	0.90
Parks	Russell Shifley Park	0.91
Parks	Owensboro Dugan Best Rec Center	0.97

Figure 3-8. Sensitive Receptors within One Mile of the Project Area



As shown in Table 3-6 and Figure 3-8, three schools, one medical facility, three parks, and 15 religious facilities are located within one mile of the proposed Project Area (Google, 2022; USGS, 2022a). Additionally, residential areas with more than 100 residences are located within one mile of the Project Area, generally east of the proposed site within the Owensboro city limits (Google, 2022).

3.11.1.2 Environmental Consequences

3.11.1.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to noise in the vicinity of the Proposed Action.

3.11.1.2.2 Proposed Action

Construction of the Proposed Action would utilize equipment and personnel typical of commercial construction, such as various trucks, dozers, welders, and workers necessary to build the office building, maintenance building, and warehouse building. Construction activities would likely result in short-term, transitory noise impacts in the immediate vicinity of the Project Area. Noise generating activities would be conducted in a manner designed to ensure compliance with all applicable requirements of the City of Owensboro. Noise Control ordinance (Chapter 17, Section 17-8 of the Owensboro Code of Ordinances). In addition, construction-related noise impacts to sensitive receptors would be mitigated due to existing ambient noise associated with traffic in the vicinity of the Project Area and by the presence of existing vegetative buffers between active construction areas and potential noise receptors..

Following construction, it is assumed that noise impacts associated with operating the Proposed Action would be similar to noise impacts at Big Rivers' current Henderson ET&S Facility. Noise sources associated with operation of the Proposed Action would generally result from vehicle traffic, including transmission line maintenance and repair vehicles, as operations at the office building, maintenance building, and warehouse would not be expected to generate noise. The proposed facility would operate 24 hours per day, 7 days per week; however, most activity would occur at the site on Mondays through Fridays, between 6 am and 5 pm.

Big Rivers management has indicated there have been no noise complaints noted at the current Henderson ET&S Facility. Although no site-specific noise studies have been conducted at the Henderson Location or the proposed Project Area, noise generating activities during operation of the Proposed Action are expected to be minimal and generally limited to vehicle-related noise. Given the general absence of noise generating activities during operation, the distance to sensitive receptors such as schools, hospitals, and churches, and existing vegetative buffers between the proposed facility and receptors such as parks and residential areas, the Proposed Action is not expected to result in adverse noise impacts.

3.11.1.3 Mitigation

Construction-related noise would be mitigated due to existing ambient noise associated with traffic in the vicinity of the Project Area and by the presence of existing vegetative buffers between active construction areas and potential noise receptor. In addition, the general lack of noise generating activities and existing vegetative buffers would reduce potential noise impacts during operation of the Proposed Action.

3.11.2 Transportation and Traffic

3.11.2.1 Affected Environment

The Proposed Action is located south of KY 331 (Henderson Road) at the intersection of Henderson Road and Industrial Drive. The Audubon Parkway intersects with US 60 (Wendell Ford Expressway) immediately adjacent west of the proposed Project Area. The Audubon Parkway is a four-lane freeway

which is 23.44 miles in total length. The west end of the Parkway terminates at US 41 in Henderson and the east end terminates at Route US 60 in Owensboro. US 60 is a divided four-lane urban freeway expressway that runs around the City of Owensboro (HMB, 2022). US 60 intersects with KY 331 (Henderson Road) approximately 0.33 miles west of the northwest corner of the Project Area. Henderson Road is a divided urban minor arterial four-lane road that runs east-west along the northern border of the Project Area. Henderson Road has a posted speed limit of 55 mph until it turns into Industrial Drive where it lowers to 35 mph. It has 12-ft lanes, 10-ft paved outside shoulders, 3-ft paved inside shoulders, and a 15-ft raised median (HMB, 2022).

The nearest airport is the Owensboro/Daviess County Regional Airport, which is located approximately 1 mile south of the proposed Project Area. Additional airports in the vicinity of the proposed Action are the Evansville Indiana Regional Airport located approximately 25 miles northwest of the Project Area and the Louisville International Airport which is approximately 80 miles northeast of the Project Area.

One CSX Transportation train freight line runs through Daviess County; however, the Proposed Action would not need to access freight rail service.

3.11.2.2 Environmental Consequences

3.11.2.2.1 No Action Alternative

The No Action Alternative would have no impact on the traffic or changes to any traffic patterns in the vicinity of the Proposed Action.

3.11.2.2.2 Proposed Action

During construction and operation of the Proposed Action, ingress and egress to the Project Area would be via Henderson Road at the intersection of Henderson Road and Industrial Drive. Henderson Road is a divided urban arterial four-lane road that runs east-west along the northern border of the Project Area (HMB, 2022). Construction of the Proposed Action would result in a short-term increase in traffic along Henderson Road associated with construction workers commuting to the site and construction-related vehicles. Following construction of the facility, operation of the Proposed Action would result in increased traffic associated with employees commuting to the site and ET&S vehicles entering and exiting the facility.

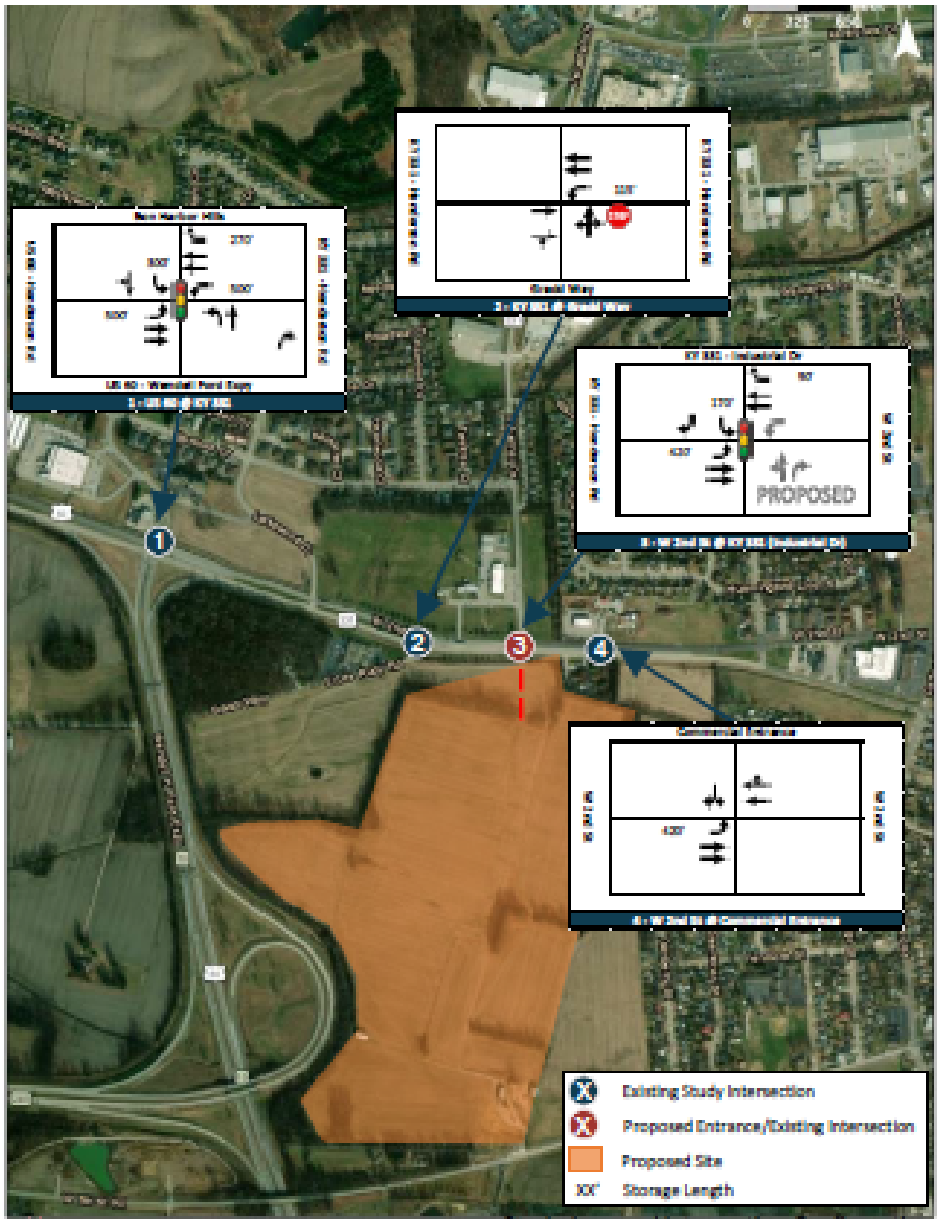
A traffic impact study, conducted to assess potential impacts of the Proposed Action, is included in Attachment O (HMB, 2022). The study was conducted by HMB Professional Engineers and evaluated potential traffic-related impacts at the following intersections:

- US 60 at KY 331 / Bon Harbor Hills – signalized
- KY 331 at Gradd Way – unsignalized (spot count only)
- West 2nd Street / KY 331 (Industrial Drive) – signalized

- W 2nd Street at Commercial Entrance, East of Industrial Drive (containing Subway, Val-U Liquors West and Sturdi Built)- unsignalized (spot count only)

The study area and intersection configurations are shown in Figure 3-9.

Figure 3-9. Study Area and Intersection Configuration



HMB, 2022, page 2.

The study included an existing conditions analysis, including turning movement counts (TMCs) to determine the AM and PM peak period for each intersection. In addition to the TMCs, detailed hourly

counts were collected from Kentucky Transportation Cabinet (KYTC) for two Annual Average Daily Traffic (AADT) count stations on US 60 to compare against the collected TMCs and derive forecasted traffic. Level of Service (LOS) and delay was analyzed for each intersection for 2034 No Build and 2034 Build scenarios. LOS is a term used to qualitatively describe different traffic conditions. LOS varies from Level A, representing free flow, to Level F, where traffic breakdown conditions are evident. Delay is a qualitative measure used to evaluate motor vehicle traffic service based on measures such as vehicle speed, density, and congestion.

The LOS and delay results for the 2022 existing conditions, 2034 No Build, and 2034 Build scenarios at the two signalized intersections are summarized in Table 3-7.

Table 3-7. Current (2022) and 2034 Intersection LOS and Delay Summary

Intersections and Approaches	1 – US 60 @ KY 331 / Bon Harbor Hills – Signalized Overall Intersection	3 – W 2nd St @ KY 331 (Industrial Dr) – Signalized Overall Intersection
2022 Existing AM Peak LOS	C	A
2022 Existing AM Peak Delay	27.3	8
2022 Existing PM Peak LOS	D	B
2022 Existing PM Peak Delay	38.5	10.9
2034 No Build AM Peak LOS	C	A
2034 No Build AM Peak Delay	27.6	8.4
2034 No Build PM Peak LOS	D	B
2034 No Build PM Peak Delay	41.9	12.1
2034 Build AM Peak LOS	C	A
2034 Build AM Peak Delay	29.2	8.5
2034 Build PM Peak LOS	E	B
2034 Build PM Peak Delay	60.9	11.3

(HMB, 2022)

The study concluded that, with the exception of the US 60 intersection during the 2034 PM Peak, the Proposed Action would have minimal changes in LOS delay between the No Build and Build scenarios. The study concluded that due to heavy westbound left turn volume at US 60, this intersection operates at LOS D for the 2034 PM Peak No Build with delay increasing by 12.1 seconds per vehicle resulting in LOS E for the 2034 PM Peak Build.(HMB, 2022). The study determined that the lower LOS is "primarily driven by shift change at several nearby manufacturing facilities and occurs earlier than a typical PM Peak Hour", and that "the higher traffic volumes are limited to 3:30 – 3:45 where the movement is 60 percent higher than any other 15-minute period" (HMB, 2022). The study recommended monitoring local traffic in the immediate vicinity of the proposed main entrance but concluded that no further improvements are warranted at the US 60–Henderson Road intersection. The study also noted that an eastbound right turn lane at the main entrance to the proposed facility is not warranted, and a westbound left turn lane could be accommodated in the existing median (HMB, 2022).

Project-related activities connected to the Proposed Action in time and proximity, but that are not part of Big Rivers' request for RUS funding, include construction of 157-foot communications tower on the Project Site. As the Proposed Action and by extension construction of the communications tower, is within 1 mile of the Project Site, Big Rivers has consulted and/or applied for permits with both the Federal Aviation Administration (FAA) and Federal Communications Commission (FCC). On July 26, 2023, the FAA issued a Determination of No Hazard to Air Navigation, as the height of the tower does not exceed obstruction standards (Attachment P). The FCC permitting process is on hold pending approval of RUS as the FCC recognizes the RUS as the lead Federal Agency for the Proposed Action.

3.11.2.3 Mitigation

No mitigation measures are proposed for transportation and traffic.

3.11.3 Utilities

3.11.3.1 Affected Environment

Utility requirements of the Proposed Action include water, electricity, sanitary sewer, natural gas, telephone, and internet.

An existing 10-inch water main currently dead-ends at the southeast corner of the property. In addition, there are multiple 6-inch water mains that dead-end where the roadways end in the residential area east of the Project Area. Based on a review of the property, Owensboro Municipal Utilities (OMU) concluded that there would be no issues servicing the property with water (AEI, 2021b).

An OMU electrical substation is located approximately 1 mile from the property, and there are two existing electrical distribution lines that run along the southern boundary of the property. OMU stated that the utility service provider has the capacity to serve the property with up to 4 megawatts of power, which is significantly more than the anticipated electric load required for the Proposed Action (AEI, 2021b).

There is an existing Atmos Energy natural gas regulator station located on a leased parcel on the southeast corner of the property. In addition, an 8-inch high-pressure line runs along the east side of the property and 4-inch distribution pressure line runs west from the regulator station. High pressure natural gas lines also run east and south out of the regulator station but are not located within the Project Area. Atmos Energy has stated that there should be no issues with serving the property with natural gas as needed (AEI, 2021b).

The Regional Water Resource Agency (RWRA) in Daviess County has indicated that there is a 24-inch gravity sanitary sewer that runs north through the Project Area that serves RWRA's Southwest Master Pump Station. The pump station is capable of pumping five million gallons per day. RWRA has indicated that the line has adequate capacity to service the Proposed Action (AEI, 2021b).

OMU and AT&T both provide telecommunication services to area near the proposed Project Area. OMU telecommunications are on W 5th Street Road, while AT&T telecommunications services are located to the east of the property, on the western portion of the residential neighborhood (AEI, 2021b).

3.11.3.2 Environmental Consequences

3.11.3.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to utilities at or in the vicinity of the Proposed Action.

3.11.3.2.2 Proposed Action

Construction and operation of the Proposed Action would result in increased usage of the following utilities in Daviess County: water, electricity, stormwater, sanitary sewer, natural gas, telephone, and internet. Utility requirements for the Proposed Action would be similar to those from any commercial or light industrial development.

OMU has indicated there would be no issues servicing water and electricity for the Proposed Action. Atmos Energy Corporation has indicated there would not be any issues servicing natural gas to the proposed facility. RWRA has indicated they are able to service the proposed facility's sanitary sewer requirements. Additionally, adequate stormwater drainage control would be achieved through good engineering practices.

Given quantity of utilities needed to operate the proposed facility and the availability of utilities in the vicinity of the Project Area, construction and operation of the Proposed Action would result in no short-term or long-term impacts to utilities.

3.11.3.3 Mitigation

No mitigation measures are proposed for utility impacts.

3.11.4 Community Resources

3.11.4.1 Affected Environment

Community resource requirements associated with the construction and operation of the Proposed Action include availability and adequacy of local fire and police resources and access to emergency medical services.

Emergency and medical services are located in close proximity to the Project Area. The Owensboro Regional Health Medical Center is located approximately seven (7) miles east of the proposed Project Area. Owensboro Regional Health Medical Center is a privately owned not for profit hospital with a 469 inpatient acute and short-term care facility and is a Level III trauma hospital. .

The Owensboro Fire Department (OFD) is located approximately three (3) miles east of the proposed Project Area. The OFD operates five stations and also has a regional training center within the City of Owensboro. There are 99 uniformed personnel, one civilian employee, and two part-time safety specialists employed by the OFD (OFD, 2022).

The Owensboro Police Department (OPD) is located approximately three (3) miles east of the proposed Project Area. The OPD is a full-service police department with 107 sworn personnel and 44 civilian personnel (OPD, 2020). The OPD is responsible for a land area of 18.5 square miles, including the proposed Project Area.

3.11.4.1.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to community resources in the vicinity of the Proposed Action.

3.11.4.1.2 Proposed Action

Following construction of the Proposed Action, approximately 40 full-time employees, 5 part-time employees, and 26 ET&S field employees would occupy the facility. Operation of the Proposed Action would require access to local fire and police resources, as well as access to local emergency medical services.

Because the Proposed Action is located in an area of industrial, commercial, and residential development, adequate emergency medical, police, and fire response services are located in close proximity to the Project Area. Emergency services would likely access the Project Area from the east via W 2nd or W 4th street or via Henderson Road from the west, which, based on the results of the traffic study summarized in Section 3.11.2.2.2, would minimally be affected by the Proposed Action. Existing emergency services in the City of Owensboro have adequate capacity to support the Proposed Action, and minimal impacts to traffic associated with the Proposed Action would not adversely affect emergency service response times.

Construction and operation of the Proposed Action would not affect community access to human health and safety resources in the vicinity of the Project Area.

3.11.4.2 Mitigation

No mitigation measures are proposed for impacts to community resources.

3.12 Human Health and Safety

Potential human health and safety impacts resulting from the Proposed Action are assessed for the Project Area and communities located immediately adjacent to the Project Area. The impact indicators for human health safety include a potential increase in electromagnetic field radiation in comparison to recommended exposure limits, and potential impacts from the production, storage, and disposal of solid or hazardous wastes.

Electromagnetic radiation (EMR) consists of waves of electric and magnetic energy moving together through space. Electromagnetic radiation can range from low to high frequency, measured in hertz, and can range from low to high energy, measured in electron volts. Electromagnetic fields (EMFs) generally refer to alternating current low frequency magnetic fields that are created by electricity flowing through wires. There are two general categories of EMFs: non-ionizing and ionizing. Non-ionizing radiation is low-level radiation which is generally perceived as harmless to humans. Non-ionizing radiation can be generated by microwave ovens, computers, wireless (wi-fi) networks, cell phones, Bluetooth devices, powerlines, and magnetic resonance imaging (MRIs). Ionizing radiation is high-level radiation, which has the potential for cellular and DNA damage. Ionizing radiation can be generated by sunlight, x-rays, and some gamma rays (NIEHS, 2023). EMR associated with power lines is a type of low frequency non-ionizing radiation.

Communications towers emit EMF as radiofrequency (RF) EMF. Common RF sources include communications towers, such as radio and television transmission towers and cell towers, as well as cell phones, wireless computer networks, and radar equipment. Exposure to very high levels of RF radiation can be harmful due to the ability of RF energy to heat biological tissue (referred to as “thermal” effects), which is the principle by which microwave ovens cook food. However, studies have shown that environmental levels of RF energy routinely encountered by the general public are far below levels necessary to produce thermal heating effects (FCC, 2023a).

3.12.1 Electromagnetic Fields and Interference

3.12.1.1 Affected Environment

Common EMF sources include power and transmission lines, electrical panels, transformers, motors, and appliances. Based on a review of power line data available from the Homeland Infrastructure Foundation-Level Data, an existing 69 kv overhead electric transmission line is located along W. 5th Street Road

which parallels the southern border of the Project Area. Other overhead transmission lines in the area include a 138 kV line located approximately 0.6 miles east of the Project Area along Worthington Road and a 69 kV line that runs along Carter Road approximately 0.45 miles east of the Project Area.

Existing communications towers in the vicinity of the Proposed Action include an existing Am Tower (Hancock Communications, Inc.) located north of Henderson Road, approximately 0.4 miles north of the proposed communications tower. Based on information available from the Federal Communications Commission (FCC) Am Tower Locator Map construction of a new 157-foot agl communications tower at the proposed location would not require notification of the existing tower operator (FCC, 2023b). There are no existing cellular towers located within a one (1) mile radius of the Project Area. The nearest cellular tower to the Proposed Action is a Verizon Tower (KNKA716) located approximately 1.6 miles northwest of the site at 92 Booth Field Road, Owensboro (FCC, 2023c).

3.12.1.2 Environmental Consequences

3.12.1.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts associated with electromagnetic fields and interference at or in the vicinity of the Proposed Action.

3.12.1.2.2 Proposed Action

The Proposed Action does not include potentially significant EMF sources such as new electric power transmission lines, substations, or other power distribution equipment. A new distribution line may be constructed to provide electric power to the Proposed Action; however, potential EMR exposure would be minimal and similar to that at any other industrial, commercial, or residential development. Thus, no short-term or long-term EMF impacts are associated with the construction and operation of the Proposed Action.

The associated communications tower would emit RF EMF. RF waves from the communications tower antenna, like those from other telecommunication antennas, would be directed toward the horizon (parallel to the ground) and located toward the top of the 157 foot tower and away from potential biological receptors. The amount of energy from RF waves decreases rapidly as the distance from the antenna increases. As a result, the level of exposure to RF waves at ground level near typical cellular base stations is hundreds to thousands of times less than the limits for safe exposure set by the FCC. The communications tower would be designed and operated to comply with all applicable FCC regulations and guidelines limiting RF exposure. As such, operation of the communications tower would have no short-term or long-term impacts to human health or safety as the result of RF EMR (FCC, 2023a).

3.12.1.3 Mitigation

No mitigation measures are proposed for electromagnetic fields and interference. Exposure levels from the associated communications towers must comply with FCC RF exposure guidelines, which were developed to protect the public from RF-related health risks and would be far below levels necessary to produce biological effects.

3.12.2 Solid and Hazardous Wastes

Solid wastes include garbage, refuse, and other discarded material, resulting from industrial, commercial, and agricultural operations, and from community activities. Hazardous waste is a waste with properties that make it capable of having a harmful effect on human health or the environment. Wastes that are improperly managed or disposed of can degrade land and result in impacts to air and water quality.

3.12.2.1 Affected Environment

The Project Area is currently in agricultural production, and farming activities at the site do not currently include the handling or storage of solid or hazardous wastes. A Phase I Environmental Site Assessment (ESA) of the proposed Project Area, prepared by AEI in November 2021, did not identify evidence of underground storage tanks, hazardous waste generation, or hazardous substance/petroleum product releases at the site (AEI, 2021a).

3.12.2.2 Environmental Consequences

3.12.2.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term health impact to communities resulting from the improper management of solid or hazardous wastes in the vicinity of the Proposed Action.

3.12.2.2.2 Proposed Action

Solid and hazardous wastes generated by the Proposed Action could negatively impact health and safety at the Project Area and adjacent communities if wastes are improperly managed and stored on site, or improperly transported off site for disposal.

Hazardous materials are not expected to be stored at the site during construction; however, gasoline and diesel fuel may be delivered and utilized on site during construction. Non-hazardous solid wastes generated during the construction process, including construction debris and general refuse, would be managed and disposed of off site in a permitted solid waste disposal facility in accordance with state and local regulations. Hazardous wastes are not expected to be generated during the construction process; however, any hazardous waste generated during construction would be segregated and disposed of off site at a permitted hazardous waste treatment, storage, disposal (TSD) facility in accordance with Federal and state regulations.

Solid wastes generated at the proposed facility would generally consist of office refuse, discarded equipment and parts, and wastes generated from the servicing and maintenance of vehicles including used oils, lubricants, and spent cleaning solvents. Solid wastes generated during operation of the Proposed Action would be classified as non-hazardous solid wastes subject to the Resource Conservation and Recovery Act (RCRA) Subpart D standards and the corresponding Kentucky solid waste regulations, while solid wastes exhibiting one or more hazardous waste characteristic or listed as a hazardous waste would be managed in accordance with RCRA Subpart C and the corresponding Kentucky hazardous waste standards. All solid and hazardous wastes generated by the Proposed Action would be transported off site for proper treatment and disposal. No wastes would be disposed of on site.

In addition to wastes generated at the facility, polychlorinated biphenyl (PCB) contaminated oil and debris from used transmission system electrical equipment may be received on occasion and managed at the facility. Big Rivers anticipates that the quantity of PCB-contaminated oil/debris managed at the new facility during operations would be similar to that of the current ET&S Facility. In 2021, 7 articles containing PCBs were managed through the existing ET&S Facility. One article had a concentration of 500 parts per million (ppm) or greater, with an approximate weight of 177 kilograms (390 lbs.). The other six articles had concentrations between 50 and 449 ppm, with an approximate weight of 1,416 kilograms (3,120 lbs.).

3.12.2.3 Mitigation

Solid and hazardous wastes generated during construction and operation of the Proposed Action would be characterized in accordance with the requirements of 40 CFR Section 261 and Kentucky regulations. All wastes would be managed, stored, and transported off site for disposal in accordance with applicable federal and state solid waste regulations. All PCB contaminated oil/debris would be disposed of off site by thermal incineration in accordance with applicable RCRA and Toxic Substances Control Act (TSCA) regulations at Emerald Transformer in Twinsburg, Ohio. No PCB-contaminated materials would be disposed of on site. Implementation of strict solid/hazardous waste management procedures would ensure that operation of the Proposed Action would have no short-term or long-term environmental, health, or safety impacts associated with waste management.

3.12.3 Environmental Risk Management

A Phase I ESA was performed at the proposed Project Area by AEI in November 2021 (AEI, 2021a). The Phase I ESA included a visual inspection of the Project Area, interviews of current facility owners/operators (as applicable), and an environmental data records search of industrial activities in the surrounding area.

A Phase I ESA is a common process conducted to permit the user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser liability limitations under the Comprehensive Environmental Response, Compensation, and Liability Act

of 1980 (CERCLA, 42 USC 9601 et seq.). CERCLA established the federal Superfund program, administered by EPA, for the cleanup and remediation of sites contaminated with hazardous substances.

3.12.3.1 Affected Environment

The proposed Project Area currently consists of undeveloped land that has been in agricultural production for many years. Because the Project Area is largely undeveloped, the Phase I ESA, conducted through both research and visual inspection, did not identify any indications of potentially recognized environmental conditions (RECs) within the Project Area and concluded that no further investigations were necessary (AEI, 2021a). No evidence of underground storage tanks, hazardous waste generation, or hazardous substance/petroleum product releases were identified during the site investigation. No superfund sites are located on the Project Site

One pole mounted transformer was identified on the property which was assumed to have polychlorinated biphenyls (PCBs) and a capped oil well, located in the south-east section of the site, was identified within the site boundary (AEI, 2021a).The Phase I ESA did not identify indications of a release from either the transformer or capped well. The well, which was capped in 1999, is activity monitored by the Kentucky Department of Mines and Mineral. As such, neither activity is indicative of a REC.

Although no Superfund sites are located in the immediate vicinity of the Project Area (EPA 2020c), there are 12 superfund sites located within the City of Owensboro. There are two sites which are currently active: Dart polymers styrene release and Goodloe Elementary School site. Both sites are categorized as removal only sites, with no further site assessment needed.

3.12.3.2 Environmental Consequences

3.12.3.2.1 No Action Alternative

The No Action Alternative would not result in potential environmental risks at the proposed Project Area.

3.12.3.2.2 Proposed Action

No environmental hazards or remediation is expected during the construction phase of the Proposed Action. Nonhazardous solid wastes and hazardous wastes generated during facility construction and operation would be managed in accordance with Federal and Commonwealth regulations. Hazardous materials and petroleum products would be stored in accordance with Commonwealth regulations. As such, the Proposed Action would not result in potential environmental risks as the proposed Project Area.

3.12.3.3 Mitigation

No mitigation measures, beyond those proposed for solid waste management and hazardous substance/petroleum storage, are proposed for environmental risk management.

3.13 Corridor Analysis

The Proposed Action does not include the development of a transportation or utility corridor; thus, a corridor analysis does not apply to the project.

3.14 Geology and Soils

3.14.1 Affected Environment

3.14.1.1 Geology

Based on information available from the National Geologic Map Database, the geology of the Project Area is identified as alluvium, unconsolidated, and undifferentiated (USGS, 2022b). Alluvium includes glacial deposits along the Ohio River and its tributaries west of the Cannelton locks located approximately 25-miles east of Owensboro, KY (USGS, 1997).

As described in Section 2 of the Report of Geotechnical Exploration (AEI, 2022), the site is underlain by Quaternary-aged Tazewell outwash deposits. The stratigraphic column indicates that the Tazewell outwash is underlain with Loess deposits. The primary lithology of the Tazewell outwash consists of sand, silt, clay, and gravel. The sand is described as light olive gray to yellowish brown in color, very fine to coarse grained, well sorted, and friable. The silt is described as yellowish brown to medium gray in color, clayey to sandy, and interbedded with light olive brown silty plastic clay. The clay occurs mainly in the upper part and may be in part of lacustrine origins. The gravel is described as subangular to subrounded pebbles of quartz, white, and brown chert, and some igneous and metamorphic rocks of glacial origin (AEI, 2022).

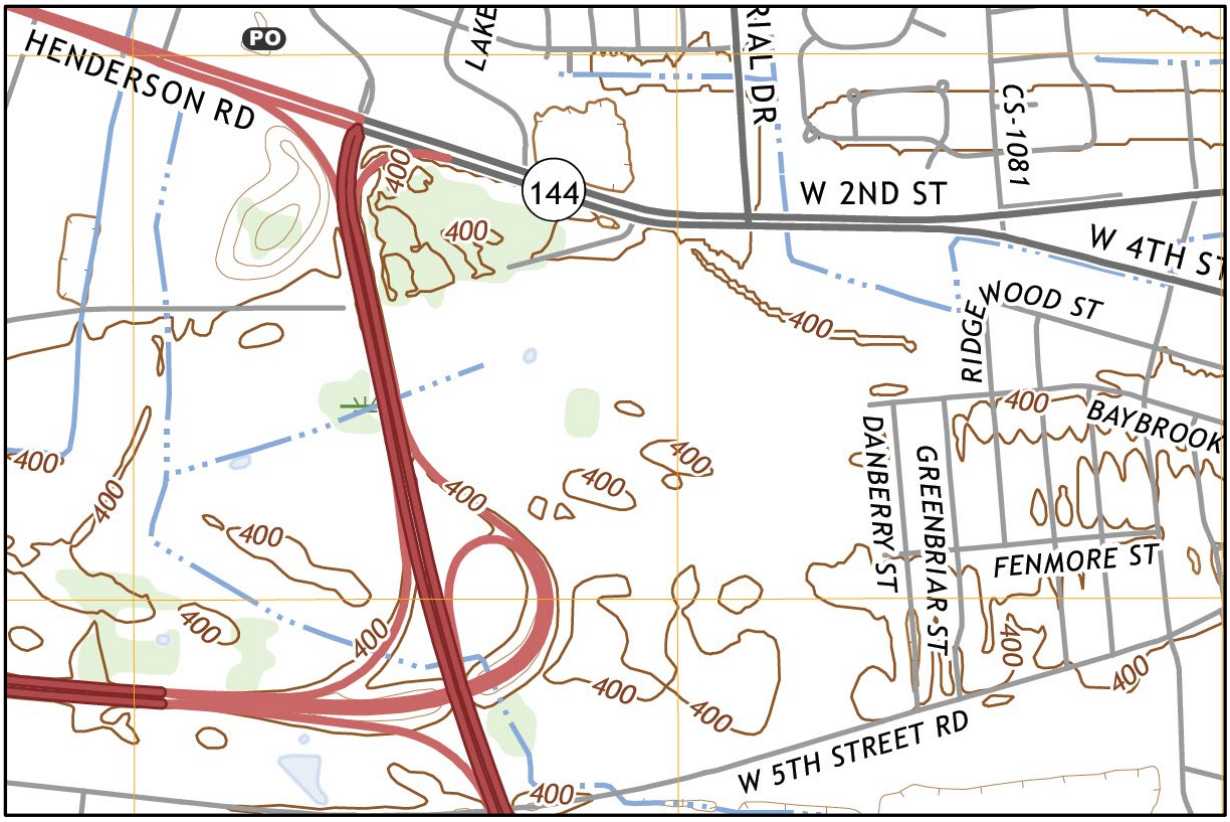
Geologic mapping indicates the presence of normal and concealed faults located near the northern portion of the site. Both faults have a throw direction towards the southeast. No other immediate geologic hazards were noted during the investigation or upon review of available geologic mapping; however, it should be noted that it is nearly impossible to fully identify the presence of all geologic hazards at a site during the course of a typical geotechnical investigation (AEI, 2022).

Western Kentucky Gas formerly stored gas under this property and one well was located on the property near the southern edge. Gas storage is monitored by the Commonwealth of Kentucky - Department of Mines and Minerals. Based on information available from the Department, the 1,167-foot deep well was drilled in March of 1946 and plugged in March of 1999 (KGS, 2022; AEI, 2022).

3.14.1.2 Site Topography

The proposed Project Area mainly encompasses flat terrain and is currently in active agricultural production. Topography of the Project Area varies from 400 to 410 feet above mean sea level as shown in Figure 3-10 (USGS, 2022b). The 1:24,000 Owensboro West Quadrangle map is included in Attachment Q (USGS, 2016).

Figure 3-10. Site Topography



3.14.1.3 Soils

The USDA Web based soil survey was reviewed to identify mapped soil units and properties within the Project Area (USDA, 2022a). A soils map is provided in Figure 3-2 and Attachment D. Soils in the Project Area are shown in Table 3-2. The primary soil type located within the Project Area is from the Melvin series (MelA). The Melvin silt loam series generally consists of a poorly drained drainage class with a negligible runoff class. Water capacity of the most limiting layer to transmit water (K_{sat}) is moderately high at 0.20 to 0.60 in/hr.

Based on an information available from the Kentucky Geologic Survey (KGS, 2002) regarding karst occurrence in Kentucky, no karst features are known to occur within the vicinity of the proposed Project Area. Karst is terrain that is generally underlain by limestone or dolomite where the topography is form chiefly by the dissolving of rock. Karst regions are susceptible to unique problems such as sinkhole collapse, sinkhole flooding, and rapid groundwater connectivity and pollution. The proposed Project Area lies within an area described by KGS as an area “underlain by bedrock with limited or no potential for karst development” (KGS, 2002).

3.14.2 Environmental Consequences

3.14.2.1 No Action Alternative

The No Action Alternative would have no short-term or long-term impacts to geology or soils at or in the vicinity of the Proposed Activity.

3.14.2.2 Proposed Action

Construction of the new facility would have no impact on site geology. During construction, soils at the Project Area would be exposed to erosion from stormwater runoff and wind-blown fugitive dust emissions. Construction activities, such as vegetation clearing, trenching, grading, topsoil segregation, and back filling, may increase erosion potential by destabilizing the soil surface, resulting in loss of soil productivity. Soil compaction can result from the movement of heavy construction vehicles at the proposed Project Area.

In the event sinkholes, caverns, or springs are encountered during excavation, Big Rivers would contact the Kentucky Department of Natural Resources (KYDNR) and Kentucky EEC to discuss proper mitigation measures. Sinkholes encountered within construction areas would be left undisturbed, the existing volume of surface drainage to sinkholes would be maintained, and drainage from construction would be filtered or treated prior to entering a sinkhole.

3.14.3 Mitigation

Big Rivers would implement soil erosion Best Management Practices (BMPs) during the construction phase of the Proposed Action to reduce the potential for soils and sediment leaving the construction site. At a minimum, Big Rivers would install erosion control structures and BMPs to comply with the Kentucky Pollutant Discharge Elimination System (KPDES) General Permit for Stormwater Discharges Associated with Construction Activities (KPDES No. KYR100000). BMPs may include silt fencing, fiber rolls or straw bale barriers, hydroseeding, soil binders, mulching, or similar controls. Disturbed areas would be stabilized and revegetated, as soon as practicable, once construction activities are completed. Based on implementing erosion and sediment BMPs during the construction phase of the Proposed Action in accordance with Kentucky stormwater and erosion control regulations, no significant impacts to surrounding land or surface water features are expected.

With the installation of proper BMPs, construction and operation of the Proposed Action would not be expected to result in any short-term or long-term impacts to geology or soils at or in the vicinity of the Proposed Action.

3.15 CUMULATIVE EFFECTS

This section evaluates the cumulative effects of the Proposed Action combined with other past, present, and reasonably foreseeable future actions (RFFAs) that have affected, or may affect, the same resources.

Cumulative effects are evaluated based on the region of influence (ROI) for each environmental, socioeconomic, or significant cultural resource. The ROI represents the physical area wherein effects may occur and may vary for each resource.

3.15.1 Regions of Influence

Cumulative effects are evaluated based upon the geographic area of potential impact for each resource which may extend beyond the proposed Project Area's site boundary. The ROI, or geographic area of potential effects, for each group of environmental, health and safety, cultural, and socioeconomic resources is provided in Table 3-8.

Table 3-8. Cumulative Effect Region of Influence

Resource	Region of Influence	Basis
Land Use, Geology, Soils, and Farmland	Owensboro and Daviess County	Evaluate land use and geologic impacts on the city and county level within which the Project Area is located.
Air Resources • Air Quality • Climate	50 km (31 miles)	Approximate radius of impact used for air quality impact modeling if emissions associated with the Proposed Action exceed major source Prevention of Significant Deterioration and Title V thresholds.
Water Resources • Surface Water • Wetlands • Floodplains • Groundwater	Watershed within which the Project Area is located	Two HUC 12 watersheds: 051100050501 Rhodes Creek-Green River and 051402011202 Jackson Creek-Ohio River. (Figure 3-5)
Terrestrial Resources • Vegetation • Wildlife • Threatened & Endangered Species • Critical Habitat	Ecoregion within which the Project Area is located	The area assessed includes the ecoregion within Daviess County in which the Project Area is located. Ecoregions denote areas of general similarity in the type, quality, and quantity of environmental resources. The proposed Project Area is located in the Wabash–Ohio Bottomlands ecoregion (Ecoregion 72a) in Daviess County.
Community Resources • Transportation • Utilities • Solid Waste • Recreation • Visual and Noise	Owensboro and Daviess County	Evaluate community resource impacts on the city and county level within which the Project Area is located.

Resource	Region of Influence	Basis
Socioeconomic Resources and Public Health • Cultural Resources • Public Health and Safety • Environmental Justice	Owensboro and Daviess County	Evaluate socioeconomic resource impacts, public health, and environmental justice impacts on the city and county level within which the Project Area is located,

3.15.2 Past, Present, and Reasonably Foreseeable Future Actions

The Proposed Action is located in Owensboro, Kentucky. Owensboro is the fourth largest city by population in Kentucky and is the county seat of Daviess County (City of Owensboro, 2023). Owensboro is located about 32 miles southeast of Evansville, Indiana; 123 miles north of Nashville, Tennessee; and 109 miles southwest of Louisville, Kentucky. The city is located on U.S. Route 60 and has direct access via interstate and state highway, rail, river, and air. Construction of the I-69 spur and I-64 / I-65 corridor links Owensboro to the interstate highway system. The Owensboro–Daviess County Regional Airport serves as access to the international air transportation system (City of Owensboro, 2023).

Past and present actions that have affected resources within the Owensboro and Daviess County region include:

- Residential and commercial development in the Owensboro area;
- Construction of urban water distribution systems, sewer lines, and other associated utilities;
- Construction of local and regional transportation infrastructure, including:
    - The William H. Natcher Bridge which provides a route to I-64 in Indiana;
    - Commencement of construction the I-69 spur and I-64 / I-65 corridor linking Owensboro to the interstate highway system;
    - The Owensboro–Daviess County Regional Airport which provides access to the international air transportation system;
    - Development of the Ohio River waterfront for industrial and recreational activities.
- Construction of educational institutions, medical facilities, entertainment venues, and recreational facilities; and
- Private agricultural and farming activities.

Owensboro is the principal city of the Owensboro, Kentucky, Metropolitan Statistical Area, with a city population of 60,012 in 2021 and a metropolitan population of 114,752 (USCB, 2022a).

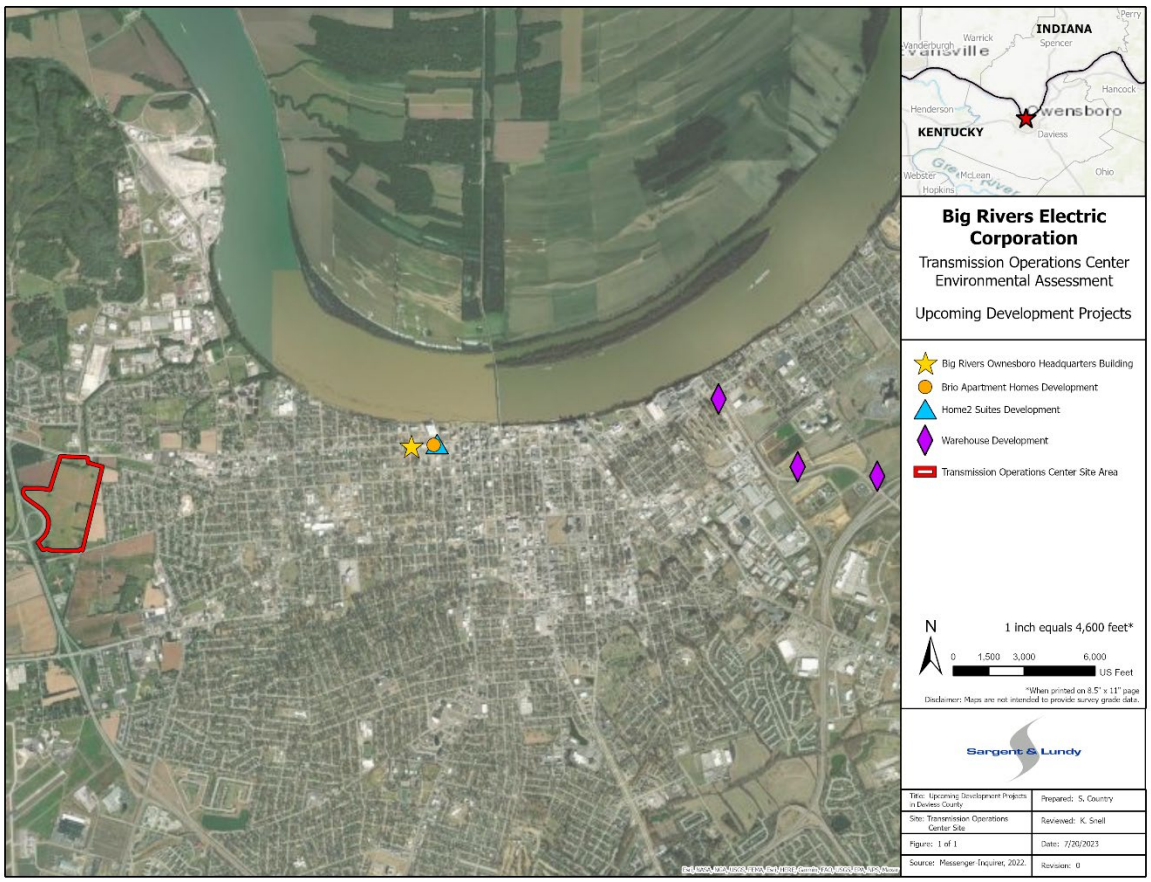
RFFAs that may affect resources within the Owensboro and Daviess County region are generally related to the continued economic development of the region. Although no specific large-scale RFFAs with a significant impact on environmental resources have been identified in the vicinity of the Project Area, Kentucky and the Owensboro area continue to experience a period of economic growth. In April 2022, Kentucky governor Andy Beshear announced $300 million worth of investments in the state that will produce more 1,400 new jobs (Owensboro Times, 2022). Although none of those announcements specifically involved Owensboro, more than $150 million in construction projects were announced in Daviess County in 2022. Development projects announced in 2022 are listed in Table 3-9, and the location of these projects in relation to the Proposed Action are shown in Figure 3-11.

Table 3-9. Announced Development Projects in Daviess County

Project	General Location
Big Rivers Owensboro Headquarters Building	710 W. Second Street
Home2Suites Development	South of the Owensboro Convention Center on 2nd Street
Brio Apartment Homes Development	South of the Owensboro Convention Center adjacent to the Home2Suite development
Warehouse Development	KY 603 from U.S. 60 past the Owensboro Health Regional Hospital to KY 144

Source: Messenger-Inquirer, 2022.

Figure 3-11. Location of Announced Development Projects in Daviess County



Other publicly announced economic development projects in Daviess County in 2022 include Glenmore Distillery investing $23.2 million and 361 new jobs; Specialty Food Group with $7.6 million and 50 new jobs; Green River Distilling Company bringing in $5.5 million; and Riverside Transport Inc. with $60,000 and 10 new jobs (Owensboro Times, 2022).

Economic development and growth in the region are evaluated against and subject to the stated goals and objectives of the "The Comprehensive Plan for Owensboro, Whitesville, Daviess County" (the "Comprehensive Plan") prepared by the Owensboro Metropolitan Planning Commission (OMPC, 2017). Kentucky Revised Statutes, Chapter 100, require local governments to adopt a comprehensive plan in order to apply land use, zoning, and subdivision regulations, and to discourage the arbitrary application of land use regulations. The Kentucky statute encourages local communities to devise a vision of its future, and to apply land use regulations as tools to implement that vision (OMPC, 2017).

The overall vision adopted in the Comprehensive Plan is a community that has a good form, a logical layout; and a community that functions efficiently, where public service costs are minimized (OMPC, 2017). The stated intent of the OMPC is to achieve, through implementation of the Comprehensive Plan, a coordinated and joint effort of public and private activities so as to minimize unwise and costly

allocation of monetary and natural resources (OMPC, 2017). The Project Area is located within an area designated as the Urban Service Area (USA), and specifically the Urban Belt (UB) area of Owensboro. The UB is comprised of areas within the USA that are specifically designated for future urban growth and development consistent with the goals of the Comprehensive Plan. The Comprehensive Plan envisions concentrating Daviess County's urban development within the Owensboro USA by reducing urban sprawl and encouraging new urban development near urban built-up areas through public-private partnerships.

The Comprehensive Plan serves as a coordinating device for economic development and includes zoning and subdivision regulations that are consistent with the objectives of the plan and planned population growth in the region. By anticipating population growth, OMPC is able to anticipate the necessities of urban living (e.g., streets, housing, schools, parks, business centers, industrial sites, etc.), and adopt and implement environmental standards designed to achieve sustainable growth and long-term compatibility between the natural and built environments (OMPC, 2017). The Proposed Action is located in an area specifically designated for urban development, currently zoned for light-industry, and consistent with the goals and objectives of the Comprehensive Plan.

3.15.3 Land Use (Geology, Soils, and Farmland)

The Proposed Action would result in approximately 46 acres of land changing from agricultural production to office/light industrial use and greenspace. As such, construction of the Proposed Action, when combined with other RFFAs, would contribute to ongoing cumulative effects of farmland depletion in Daviess County. However, as discussed in Section 3.1.1, the Proposed Action would impact only a small fraction of available farmland in Daviess County and would not contribute to adverse impacts to agricultural production in the County.

Based on information available in the Comprehensive Plan, Daviess County is 476 square miles in area. In 2017, the date of the Comprehensive Plan, eighty-five percent (85%) of the total land in Daviess County was zoned agricultural, with 45% of the Owensboro USA and over 91% of the Rural Service Area (RSA) being zoned agricultural. Residential zoning accounted for 28% of the USA, followed by industrial zoning at 12% and business zones at 8%. (OMPC, 2017).

Between 1997 and 2002, the number of farms in Daviess County declined, although the average size of farms increased (OMPC, 2017). According to the 2002 Census of Agriculture County Profile for Daviess County, the most recent census data available at the time the Comprehensive Plan was adopted, there were 1,062 farms in 2002 down 9 percent from 1,161 in 1997. The 2017 Census of Agriculture for Daviess County showed a total of 919 farms in Daviess County continuing the decline of farm operations (USDA, 2017b).

Table 3-10 provides a summary of the zoning changes and trends in Daviess County and the Owensboro USA for the years 2005 through 2011 and 2011 through 2018.

Table 3-10. Daviess County and Owensboro USA Change in Acres Zoned (2005 – 2018)

Zoning Change	To AR / AU	To Business	To EX (Coal Mining)	To Industrial	To Residential	To Professional Services
Urban Service Area 2005-2011	185.83	242.82	598.9	-218	149.84	243.12
Urban Service Area 2011-2018	-4225.95	321.83	0	-37.69	392.43	-69.69
Rural Service Area 2005-2011	228.75	1.17	273.95	35.83	168.24	0.356
Rural Service Area 2011-2018	4309.09	16.64	-756.74	34.44	-85.06	5.74
Daviess County 2005-2011 Total Net	414.58	243.99	-324.95	-136.64	318.08	243.48
Daviess County 2011-2018 Total Net	83.14	338.47	-756.38	-3.25	307.4	-63.92

Source: OMPC, 2017.

Based on information summarized in Table 3-10, between 2011 and 2018 more than 4,000 acres of land within the Owensboro USA was rezoned from agriculture to other designations; however, approximately the same number of acres (4,309 acres) were rezoned to agriculture in the RSA, primarily from the continued decline in coal mining and reversion of coal mines to their original agricultural zones after mining has ceased (OMPC, 2017). Land use trends identified in the Comprehensive Plan suggest a continued trend in Daviess County, and especially in the Owensboro USA, of declining coal mining and agricultural zoning and increased residential zoning. These trends are consistent with the Comprehensive Plan, with the stated goal of protecting rural areas from intrusion by incompatible activities by encouraging growth in the Owensboro USA (OMPC, 2017).

Two local parks, the Joe Ford Nature Center and Jack C. Fisher Park, are located in relatively close proximity to the Proposed Action (see Section 3.1.3). Environmental impacts at the local parks, including air quality impacts and noise, are related to past actions including construction of US 60 and residential/industrial development in the Owensboro USA. The Joe Ford Nature Park, located adjacent to the northwest corner of the Project Area is bounded by US 60 to the west, Henderson Road (KY 331) to the north, and Gradd Way to the east and south. US 60 is a divided four-lane urban freeway that runs around the City of Owensboro, and Henderson Road is a divided urban arterial four-lane road with posted speed limit of 55 mph. Both would contribute to near-field air quality impacts at the park from vehicle noise, exhaust, and roadway particulates. Given the location of the nature center (i.e., bounded by major roadways), construction and operation of the Proposed Action and other RFFAs would not be expected to

contribute further to environmental impacts at the nature center. Construction activities related to the Proposed Action would be located approximately 0.15 miles east of the nature center and an existing tree line would remain in place separating the nature center from the Proposed Action. Although undeveloped land is located west of the nature center, across US 60, no RFFAs were identified for that area, and identified RFFAs are located further east of the park toward the city center.

Environmental impacts at the Jack C. Fisher Park, located south of the Project Area, are also related to related to past actions. The park is bordered to the west by US 60 and to the north by W. 5th Street Road. Residential and commercial development in the Owensboro USA/UB has extended to within approximately 0.3 miles east of the park. Undeveloped land, zoned for urban agriculture, is located east and west of the park, across US 60, and will likely be subject to future development consistent the Comprehensive Plan; however, Big Rivers is not aware of any RFFAs or planned development for those areas.

Although currently in urban agricultural production, the Project Area is zoned for Light Industrial (I-1) by OMPC (see, Figure 3-1, OMPC, 2022). According to Article 8 of the Owensboro Metropolitan Zone Ordinance, "the I-1 Light Industrial Zone is intended for light manufacturing warehouses, shops of special trade, heavy equipment dealers, and related uses" (OMPC, 2010). As such, the Project Area is properly zoned for the Proposed Action, and the I-1 classification indicates that the land has been designated for development. The Proposed Action is consistent with the character and planned development of the Project Area and adjacent properties. Other economic development RFFAs identified by Big Rivers based on a review of publicly available information are similarly compatible with planned economic development in Owensboro and Daviess County, and in conformance with the Comprehensive Plan. As such, the Proposed Action, when combined with known RFFAs, would not contribute to adverse cumulative land use impacts.

3.15.4 Air Quality

The proposed Project Area is located in Daviess County Kentucky. Daviess County has been designated as being in attainment, or unclassified, with all existing NAAQS (EPA, 2022a). Air emissions from the Proposed Action are expected to be minimal; and generally limited to transitory emissions associated with construction of the facility, minor fugitive emissions from fuel loading and vehicle maintenance operations, and an incremental increase in traffic. Construction-related activities may temporarily increase ambient concentrations of suspended particulate matter for short periods of time; however, these short-term emission increases are not anticipated to affect the area's overall air quality. Cumulative impacts to air quality resulting from other planned economic development RFFAs in the area would be subject to review and permitting, as applicable, by Kentucky EEC Bureau of Air. Furthermore, ambient air quality monitoring conducted by the Kentucky EEC, including ambient air monitoring in the Owensboro area, indicates that air quality has improved in Kentucky over the past several years, and there is no indication that cumulative emission increases associated with planned RFFAs would result in an exceedance of a NAAQS (KEEC, 2023b). Overall, given the minor emissions associated with construction and operation

of the Proposed Action, when added to other past, present, and RFFAs, the Proposed Action would not be expected to contribute to an exceedance of an air quality standard and would not contribute to adverse cumulative effects to air quality.

3.15.5 Water Resources (Surface Water, Wetlands, Groundwater)

The Project Area resides in two HUC 12 watersheds: 051100050501 Rhodes Creek-Green River and 051402011202 Jackson Creek-Ohio River. Although most of the site resides in Rhodes Creek watershed, most of the site drains north to the Ohio River.(see, Figure 3-5).

No open waters are located within the Project Area. Three types of wetlands were mapped on site. Mapped wetlands are shown in Figure 3-4. Construction of the Proposed Action, including construction of the proposed facility, communications tower, and extension of Industrial Drive is expected to impact approximately 0.14 acres of wetlands.

Based on information published by the USFWS, wetlands compose less than 2.5 percent of the surface area of Kentucky, with the alluvial flood plains of the Ohio River and its tributaries in the Western Kentucky Coal Field physiographic region, including the Owensboro area, containing most of the wetlands in the region (USFWS, 2023e). On the basis of the distribution of hydric soils, Kentucky has lost about 60 to 76 percent of its wetlands since predevelopment times, primarily through drainage and subsequent conversion to cropland and pastureland (USFWS, 2023e). The primary cause of wetland loss in Daviess County has been the conversion of bottom-land hardwood forests for agricultural use; however, the rate of loss has declined because of Federal and Commonwealth regulations, changes to government subsidy programs, and the overall scarcity of remaining forested wetlands (USFWS, 2023e).

Based on a review of the National Wetlands Inventory, limited wetlands remain in Daviess County primarily due to hydrologic alterations, such as channelization for flood control, highway construction, and modifications associated with industrial and commercial development. As with wetlands loss in more rural areas, loss due to those causes is also declining in response to the expansion and enforcement of regulations and recognition in the Comprehensive Plan of the need for preserving wetland habitat. As such, all RFFAs in the vicinity of the Project Area affecting wetlands would be subject to USCOE Section 404 permitting and the corresponding Kentucky Section 401 water quality certification requirements.

Based on a review of the KDOW 303(d) list of impaired waters, there are no impaired waters identified in or adjacent to the Project Area (KEEC, 2022). The nearest stream segment included on the 303(d) list is the Gilles Ditch located approximately 0.6 miles west of the Project Area boundary. Gilles Ditch is listed as being impaired due to loss of riparian habitat and streambank modifications/destabilization, likely due to hydraulic alterations, such as channelization for flood control, highway construction, and modifications associated with urban development. Potential impacts to surface water features associated with the Proposed Action and all other RFFAs, would be subject to KDOW discharge permitting for point source wastewater discharges, KPDES General Permit for Stormwater Discharges Associated with Construction

Activities, the City of Owensboro Stormwater Management Ordinance, and the Owensboro and Daviess County Phase II Stormwater standards, as applicable. As such, construction-related impacts to surface water features would be short-term and minimized through the use of sediment and erosion control BMPs, and permanent site drainage systems would be required at all RFFAs to provide stormwater and erosion control during operation of each action.

3.15.6 Terrestrial Resources (Vegetation, Wildlife, and Threatened & Endangered Species)

The Project Area is located in the Wabash–Ohio Bottomlands ecoregion (Ecoregion 72a) in Daviess County, Kentucky. This region is composed of nearly level, poorly drained floodplains and undulating terraces. Potential natural vegetation is mapped as southern floodplain forest (EPA, 2022b). Although some woodlands remain, much of the area within Daviess County has been changed by human activities, including agriculture and livestock production, coal mining, forestry, and urban development. Based on information provided in the Comprehensive Plan, 85% of the total land area in Daviess County is currently zoned agricultural, and over 91% of the rural service area (i.e., land outside of the Owensboro urban service area) is zoned for agriculture.

Daviess County has historically supported a successful agricultural community due to its climatology and abundance of prime farmlands (OMPC, 2017). However, agricultural activities have a significant impact on terrestrial resources and native vegetation and wildlife. Conversion of land for agricultural use disrupts the natural ecosystem by eliminating much of the native plant species and reducing biodiversity. Agricultural activities also contribute to nutrient runoff which can result in excess nitrogen and phosphorous in rivers, adversely impact insect populations due to the use of pesticides and land use changes and contribute to habitat fragmentation.

Similarly, urban activities including the construction of roads, railways, and buildings, noise and exhaust from traffic, and light pollution negatively impact terrestrial resources through land use modifications, habitat loss, and fragmentation. Urbanization contributes to air pollution and surface water impacts that can negatively affect terrestrial resources and wildlife; light pollution and noise from urban areas can disrupt the natural biological rhythms of organisms; and roads, railways, buildings restrict wildlife movement resulting in loss of habitat and habitat fragmentation. The Kentucky Department of Fish & Wildlife Resources (KDFWR) notes that habitat loss and fragmentation are among the most serious threats to Kentucky's wildlife.

Although terrestrial resources in Ecoregion 72a within Daviess County has been changed by human activities, environmental regulations and resource planning efforts have been developed to limit future impacts. The Comprehensive Plan acknowledges the importance of terrestrial resources and includes goals to reduce future impacts through planned development, promote growth of trees and plants in urban areas, protect and enhance existing green areas, and discourage urban development on prime farmland except within designated urban growth areas (OMPC, 2027) To support these efforts, KDFWR has developed Kentucky's Comprehensive Wildlife Conservation Strategy, a roadmap for sustaining fish and

wildlife diversity. The plan identifies a total of 301 Species of Greatest Conservation Need from seven taxonomic groups including Bivalves, Fishes, Lampreys, Amphibians, Reptiles, Birds and Mammals. KDFWR mapped the ranges and known locations for each species, identified key habitats, and identified conservation issues and proposed prioritized actions to address those issues. The agency monitors the status of species and their habitats and has developed Priority Conservations Areas for species conservation (KDFWR, 2023b).

Given impacts to the 72a Ecoregion in Daviess County from past actions such as agriculture, mining, foresting, and urbanization, present and future planned development in the area would be subject to several environmental regulations designed to limit impacts to important terrestrial resources, limit impacts to wildlife and their preferred habitat, and limit land used conversion in accordance with planned development, zoning, and conservation restrictions. The Proposed Action, and all other RFFAs, would be required to comply with applicable Federal, Commonwealth, and local regulations addressing impacts to terrestrial resources, vegetation, and wildlife, and would not be expected to significantly contribute to cumulative impacts on such resources.

3.15.7 Community Resources

Potential impacts to community resources include impacts to transportation and cumulative traffic-related impacts, utilities, solid waste management, noise, and aesthetic/visual impacts. Cumulative impacts to community resources are assessed in the following subsections.

3.15.8 Transportation

The Proposed Action is located in an area of urban development. The Audubon Parkway intersects with US 60 (Wendell Ford Expressway) immediately adjacent west of the proposed Project Area. US 60 is a divided four-lane urban freeway that runs around the City of Owensboro (HMB, 2022). US 60 intersects with KY 331 (Henderson Road) approximately 0.33 miles west of the northwest corner of the Project Area. Henderson Road is a divided urban arterial four-lane road that runs east-west along the northern border of the Project Area.

As noted in Section 3.11.2, a traffic study was prepared for the Proposed Action (HMB, 2022). The study included traffic counts and an assessment of existing traffic conditions in the vicinity of the Proposed Action. As shown in Table 3-7, the existing LOS at the US 60 – KY 331 intersection is designated as a C during the AM Peak and D during the PM Peak. At level C, the number of vehicles stopping is significant, although many still pass through the intersection without stopping. Level D represents more congestion, but the overall operations are generally considered acceptable by most agencies (HMB, 2022). The study determined that the lower LOS is “primarily driven by shift change at several nearby manufacturing facilities” or traffic impacts from past actions (HMB, 2022). The study found that recent improvements to the local US 60-Henderson Road intersection made in 2021 were adequate, and that no additional improvements were warranted at this time.

Potential traffic-related impacts from the Proposed Action are evaluated in Section 3.11.2. Traffic-related impacts during construction of the Proposed Action would be transitory and of a limited duration and impacts during operation were determined to have minimal impact to traffic along Henderson Road or at the US 60-Henderson Road interchange. Potential traffic impacts for identified RFFAs would not be expected to contribute to cumulative impacts in the vicinity of the Project Area as identified RFFAs are all east of the Project Area toward the Owensboro city center. Potential traffic impacts for identified RFFAs would not be expected to contribute to cumulative impacts in the vicinity of the Project Area as identified RFFAs are all east of the Project Area toward the Owensboro city center. Furthermore, economic development and growth in the region are evaluated against and subject to the stated goals and objectives of the Comprehensive Plan. By anticipating population growth, OMPC is able to anticipate the necessities of urban living, including streets and traffic congestion. Based on the relatively small number of employees expected to travel to and from the proposed TOC Facility, the location of other RFFAs, and OMPC oversight of planned economic development in the area, the Proposed Action and identified RFFAs are consistent the Comprehensive Plan and would not contribute to cumulative adverse transportation or traffic-related impacts in the area.

3.15.8.1 Utilities

The Proposed Action is located in the Owensboro USA/UB/UB area in the Comprehensive Plan. The UB area is designated for development, including residential, commercial, and light industrial. Utilities servicing the area include OMU (electricity and water), Atmos Energy (natural gas), and the Regional Water Resource Agency (wastewater services). Based on information available in the Comprehensive Plan, the existing utility infrastructure in the Owensboro USA has adequate capacity to support planned development and to accommodate growth in the Owensboro USA. Local utilities, including OMU, Atmos Energy, and the RWRA have also indicated that they have adequate capacity to service the Proposed Action.

3.15.8.2 Solid Waste

The Daviess County Landfill serves as the primary disposal facility for all solid wastes (OMPC, 2017). Hazardous chemical disposal is located outside the county. The Owensboro Sanitation Department and private waste haulers in Daviess County collect residential, commercial, and industrial wastes for disposal. The Daviess County Landfill is located on over 875 acres in western Daviess County. At current usage rates, the permitted boundary of the landfill contains enough capacity to last until 2040. The landfill has adequate capacity to support planned growth in Daviess County, including the Proposed Action and all RFFAs. Furthermore, as described in Section 3.12.2, given the relatively small quantity of solid/hazardous wastes expected to be generated by the Proposed Action would not contribute to cumulative solid waste management and disposal issues in the region.

3.15.8.3 Noise

As described in Section 3.11.1, the Proposed Action would likely result in short-term, transitory noise impacts in the immediate vicinity of the Project during construction; however, construction-related noise would be mitigated due to existing ambient noise associated with traffic in the vicinity of the Project Area and by the presence of existing vegetative buffers. Following construction, noise impacts associates with the operation of the Proposed Action are expected to be minimal, generally result from vehicle traffic.

Development of other RFFAs in the general vicinity of the Project Area would be expected to result in increased traffic; however, no heavy industrial development or other RFFAs were identified in northwest Owensboro near the Project Area. Noise impacts at the local parks are generally related to past actions including construction of US 60 and residential/industrial development in the Owensboro USA, and both local parks are located adjacent to US 60 to the west, which would contribute to ambient noise in the area. Given past development in the area, the minimal noise sources planned for the Proposed Action, and the expected nature of noise generating sources at other economic development RFFAs, the Proposed Action and other RFFAs would not be expected to contribute to increased noise levels at the parks.

3.15.8.4 Aesthetics and Visual Resources

As described in Section 3.8, the Proposed Action would introduce new structures and lighting at the site, which is currently composed of cropland. However, with the exception of the communications tower, the height of the tallest structure associated with the Proposed Action would be less than 30 feet agl, and the property is bordered by trees, which would obscure most of the Proposed Action's components from public view. The existing viewshed in the Project Area has previously been impacted by past industrial, commercial, and residential development, and the construction of Henderson Road and US 60. An existing radio tower, approximately 400 feet agl, is located north of Henderson Road (AirNav, 2022). RFFAs identified based on a review of public announcements and press releases, in the area generally consist of office buildings and light industrial development consistent with the Comprehensive Plan. Given the planned development of the area surrounding the Project Area, and existing impacts to visual resources, including the existing radio tower, construction of the Proposed Action would not be expected to significantly contribute to cumulative adverse impacts to visual resources in the area.

3.15.9 Socioeconomic Resources and Public Health

Cumulative impacts to socioeconomic resources, including cultural resources and environmental justice impacts, are assessed in the following subsections.

3.15.10 Cultural Resources

The site of the Proposed Action has been in active agricultural cultivation for a number of years; thus, the probability of significant cultural resources occurring within the Project Area is considered low. As described in Section 3.7, archaeological and historic records reviews of the Project Area did not identify

any structures or archaeological sites within the Project Area. Big Rivers has been in consultation with the Kentucky Heritage Council and State Historic Preservation Office, as appropriate, to properly classify potential cultural resources and implement appropriate BPMs to avoid potential adverse impacts.

Existing development in the immediate area of the Proposed Action may have inadvertently impacted unidentified cultural sites; however, no documented impacts have been identified in the vicinity of the Project Area. Furthermore, the Proposed Action would not impact any National Register of Historic Places eligible resources, and potential future impacts from federally funded or permitted actions in the area would be subject to review pursuant to Section 106 of the National Historic Preservation Act. RFFAs identified based on a review of publicly available resources are generally located east of the Project Area near the Owensboro city center and would not contribute to cumulative impacts to cultural resources in the vicinity of the Proposed Action. Given the location of the Project Area, and the fact that the area has been in active agricultural production for a number of years, the Proposed Action would not contribute to cumulative impacts to significant cultural resources in the area.

3.15.11 Socioeconomic Impacts

Construction and operation of the Proposed Action is expected to have a beneficial impact on employment and contribute to economic growth in the Owensboro area. Construction of the Proposed Action would result in increased demand for both skilled and unskilled labor and provide an opportunity for local residents to gain employment. Although operation of the Proposed Action would initially employ Big Rivers employees from other locations, continued operation of the Proposed Action would also provide for local employment opportunities.

Similarly, the RFFAs listed in Table 3-9 would have a beneficial impact on employment and the local economy. Construction of the RFFAs would result in increased demand for both skilled and unskilled labor, provide an opportunity for local residents to gain employment, and contribute to the Owensboro tax base.

3.15.12 Environmental Justice

Based on a review of USEPA's EJScreen Mapping Tool (USEPA, 2022b), the Project Area is located in an area that has not been designated as an area with high existing community impacts for any of the EJ or supplemental indexes. In addition, operations planned for the Proposed Action would not contribute to environmental or human health impacts on the local community. The Project Area is located in an area designated for light industrial development and compatible with existing and planned surrounding land use., No residents would be displaced by the Proposed Action, and operation of the facility would not contribute to disproportionate environmental or human health impacts to minority or low-income communities. Although the Project Area may be located in an area with a higher percentage of low-income population than that of Daviess County as a whole, construction and operation of the Proposed Action would contribute to the cumulative beneficial economic, labor, and socioeconomic impacts to the

surrounding community from planned economic development that is consistent with the city's Comprehensive Plan.

RFFAs identified in the Owensboro and Daviess County area are all located east of the Project Area near the Owensboro city center and would not impact communities in the vicinity of the Proposed Action.

3.15.13 Summary of Cumulative Effects Analysis

Table 3-11 provides a summary of the cumulative environmental, socioeconomic, and human health and safety impacts from the Proposed Action combined with other past, present, and reasonably foreseeable future actions that have affected, or may affect, the same resources. Based on the minimal potential environmental and human health impacts resulting from the Proposed Action (e.g., minor air emissions, no industrial wastewater discharges, and no onsite solid/hazardous waste disposal), the Proposed Action would not contribute to cumulative adverse environmental or human health impacts on the surrounding community. Furthermore, the Project Area is located in an area that is designated for light industrial development, is consistent with existing zoning of the Project Area, and compatible with the existing and planned surrounding land use. Finally, construction and operation of the Proposed Action would contribute to the cumulative beneficial economic, labor, and socioeconomic impacts to the surrounding community from planned economic development that is consistent with the city's Comprehensive Plan.

Table 3-11. Summary of Cumulative Impacts Assessment

Resource	Region of Influence	Cumulative Impacts	Contribution of the Proposed Action to Cumulative Impacts
Land Use, Geology, Soils, and Farmland	Owensboro and Daviess County	Impacts to soil and surface water from increased stormwater runoff and sediment erosion associated with construction activities. Past activities, including conversion of land to agriculture, mining, forestry, and urbanization have affected land use in the ROI.	Potential soil and surface water impacts would be mitigated via the Proposed Action's SWPPP and installation of erosion control BMPs. Minor contribution to conversion of land from agriculture to light industrial; however, the Project Area is located in an area designated for light industrial development.
Air Resources • Air Quality • Climate	50 km (31 miles)	Daviess County has been designated as being in attainment (or unclassifiable) with respect to all NAAQS. Planned economic development in the area would be subject to review and permitting by the Kentucky ECC Bureau of Air.	The Proposed Action would be a minor source of air emissions, generally associated with vehicle emissions, and would not contribute to cumulative adverse air quality impacts.

Resource	Region of Influence	Cumulative Impacts	Contribution of the Proposed Action to Cumulative Impacts
Water Resources • Surface Water • Wetlands • Floodplains • Groundwater	Watershed within which the Project Area is located	Past and planned economic development have resulted in impacts to surface waters from increased stormwater runoff and soil erosion, and water quality impacts for permitted wastewater discharges. Based on a review of the KDOW 303(d) list of impaired waters, the nearest stream segment included on the 303(d) list is the Gilles Ditch located approximately 0.6 miles west of the Project Area boundary. Gilles Ditch is listed as being impaired due to loss of riparian habitat and streambank modifications/destabilization, likely due to hydraulic alterations, such as channelization for flood control, highway construction, and modifications associated with urban development.	The Proposed Action would not discharge wastewater to waters of the U.S. and would not contribute to cumulative adverse impacts to surface water, wetlands, floodplains, or groundwater within the watershed.

Resource	Region of Influence	Cumulative Impacts	Contribution of the Proposed Action to Cumulative Impacts
Terrestrial Resources • Vegetation • Wildlife • Threatened & Endangered Species • Critical Habitat	Ecoregion in Daviess County within which the Project Area is located	Past actions have had a significant impact on Ecoregion 72a in Daviess County. Conversion of land for agricultural use disrupts the natural ecosystem by eliminating much of the native plant species and reducing biodiversity and contributes to habitat fragmentation. Urban activities including the construction of roads, railways, and buildings, noise and exhaust from traffic, and light pollution negatively impact terrestrial resources through land use modifications, habitat loss, and fragmentation, Potential impacts from planned economic developments may result in modified vegetative communities, conversion of natural areas, and removal of bat maternity trees. Development in accordance with the Comprehensive Plan would minimize potential terrestrial resource impacts.	The Proposed Action may affect common urban wildlife communities due to the conversion of land from agricultural to light industrial; however, the Proposed Action would require minimal tree removal, would have no impact on designated critical habitat, and would not contribute to cumulative impacts to terrestrial resources.
Community Resources • Transportation • Utilities • Solid Waste • Recreation • Visual and Noise	Owensboro and Daviess County	Economic development projects may stress community resources such as roadways, traffic, and utilities; and may result in increased ambient noise and impacts to viewsheds. Development in accordance with the Comprehensive Plan would minimize potential community resource impacts.	Existing community resources in the Project Area, including utilities, emergency services, and medical resources, are sufficient to support the Proposed Action. The Proposed Action would have minimal noise and visual impacts, consistent with light industrial development.

Resource	Region of Influence	Cumulative Impacts	Contribution of the Proposed Action to Cumulative Impacts
Socioeconomic Resources and Public Health • Cultural Resources • Public Health and Safety • Environmental Justice	Owensboro and Daviess County	Economic development projects generally result in beneficial socioeconomic impacts; however, projects may adversely impact cultural resources, and projects that result in environmental or human health impacts may disproportionally impact minority communities or low-income communities. Development in accordance with the Comprehensive Plan would minimize potential impacts.	The Proposed Action would not contribute to environmental or human health impacts on the local community. The Project Area is located in an area designated for light industrial development and compatible with existing and planned surrounding land use. Construction and operation of the Proposed Action would contribute to the cumulative beneficial economic, labor, and socioeconomic impacts to the surrounding community from planned economic development that is consistent with the city's Comprehensive Plan.

3.16 SUMMARY OF MITIGATION

Table 3-12 summarizes the mitigation measures identified in the various resource sections of this EA.

Table 3-12. Mitigation for Proposed Action

Resource	Mitigation Measure
Land Use	None
Floodplains	Sediment and erosion control BMPs implemented during construction of the Proposed Action, and stormwater detention and discharge controls would be designed to avoid any potential impacts to the designated floodway located southwest of the Project Area.
Wetlands	Big Rivers has designed the layout of the Proposed Action to avoid, to the extent possible, wetlands identified within the Project Area. Big Rivers has been in consultation with the U.S. Army Corps of Engineers to obtain coverage for the Proposed Action's construction activities under Nationwide Permit (NWP) 39 – *Commercial and Institutional Developments*. NWP-39 requires the installation and maintenance of appropriate soil erosion and sediment controls during construction, and all exposed soil and other fills, as well as any work below the ordinary high-water mark, must be permanently stabilized at the earliest practicable date. Compensatory mitigation may be required for all wetland losses that exceed 1/10-acre , unless the USACE district engineer determines that either some other form of mitigation would be more environmentally appropriate, or the adverse environmental effects of the proposed activity are no more than minimal and provides an activity-specific waiver of this requirement. Big Rivers is in consultation with the USACE to obtain coverage for the Proposed Action under NWP-39; however, compensatory mitigation requirements, if any, have not yet been defined. In the event compensatory mitigation is required, it is anticipated that Big Rivers would secure credits from an approved mitigation bank or in-lieu fee program. Big Rivers would install erosion control structures and BMPs to minimize or avoid impacts to wetlands, and to comply with the KPDES General Permit for Stormwater Discharges Associated with Construction Activities. Coverage under the general permit requires preparation of a Stormwater Pollution Prevention Plan (SWPPP) which describes the sediment and erosion control BMPs that would be implemented during construction. Sediment and erosion control BMPs would be installed as needed around active construction areas to reduce the potential for adverse impacts to wetlands and other off site surface water features. All proposed sediment and erosion control measures would be installed prior to initiating soil-disturbing activities and maintained in effective operating condition during construction.

Resource	Mitigation Measure
Water Resources	At a minimum, Big Rivers would install erosion control structures and BMPs to comply with the KPDES General Permit for Stormwater Discharges Associated with Construction Activities. All proposed sediment and erosion control measures would be installed prior to initiating soil-disturbing activities. Runoff created by the introduction of impervious surface (e.g., roofs, parking, etc.) would be collected in piped storm systems and ditches and directed to a stormwater detention area located north of the proposed office building, as depicted in Figure 2-2. Both Owensboro and Daviess County are required to meet the Phase II Stormwater standards which require post-construction and stormwater runoff BMPs to be in-place to control debris released into the waters of Kentucky. All aboveground storage tanks at the facility would be designed as double-walled tanks designed to satisfy the secondary containment requirements of 112(c) and the bulk storage secondary containment requirements at 112.8(c)(2). The facility would implement a facility-specific SPCC Plan that describes oil handling operations, spill prevention practices, and spill response practices to prevent oil spills from reaching navigable waters or adjoining shorelines. To mitigate for a potential release of a hazardous substance or petroleum product to groundwater, all hazardous substances and petroleum products, including oils, lubricants, and fuel associated with vehicle maintenance activities, would be located indoors and/or within secondary containment. Secondary containment may include double-walled tanks or structures designed to contain 100 percent of the largest single storage container within the containment area plus the volume of a 24-hour, 25- year storm (if located outside). During construction and operation of the Proposed Action, Big Rivers would develop and implement, as required, spill response plans and have adequate spill response supplies available to respond to a spill.
Coastal Resources	None

Resource	Mitigation Measure
Biological Resources	Construction of the Proposed Action would be designed to avoid, to the extent feasible, forested areas within the Project Area and to minimize tree removal requirements (see Figure 2 2). Tree removal required for the Proposed Action would be done in accordance with the Tree Ordinance of the City of Owensboro, Kentucky. USFWS is in agreement with the USDA determination that there will be no effect on the following endangered and/or threatened species in the vicinity of the Proposed Action: Clubshell *(Pleurobema clava),* Fanshell *(Cyprogenia stegaria),* Northern Riffleshell *(Epioblasma torulosa rangiana),* Orangefoot Pimpleback *(Plethobasus cooperianus),* Pink Mucket *(Lampsilis abrupta),* Rabbitsfoot *(Quadrula cylindrica cylindrica),* Ring Pink *(Obovaria retusa),* Rough Pigtoe *(Pleurobema plenum),* Sheepnose Mussel *(Plethobasus cyphyus),* Snuffbox Mussel *(Epioblasma triquetra),* and Spectaclecase *(Cumberlandia monodonta).* USFWS is in agreement with the USDA determination that there will be a potential affect the gray bat *(Myotis grisescens),* Indiana bat *(Myotis sodalis),* and northern long-eared bat *(Myotis septentrionalis).* The USFWS has determined that the Proposed Action is consistent with the actions evaluated in the 2015 Biological Opinion: *Kentucky Field Office's Participation in Conservation Memoranda of Agreement for the Indiana Bat and/or Northern Long-eared Bat* (BO) that supports the Conservation Strategy. Any incidental take of Indiana bats or NLEBs resulting from forested habitat removal is not prohibited. The BO concludes that this incidental take is not likely to jeopardize the continued existence of the Indiana bat or NLEB. As a mitigation measure for removal of trees, Big Rivers will implement tree clearing restrictions from June 1 through July 31 and has contributed $13,702.50 to the Imperiled Bat Conservation Fund as mitigation for potential impacts to suitable bat habitat. The IBCF is a partnership between the USFWS Kentucky Ecological Services Field Office and Kentucky Natural Lands Trust (KNLT, 2023). The IBCF was established to protect important bat and forest habitat in Kentucky and to provide active research and management of important habitat. RUS has completed coordination with the USFWS Kentucky Ecological Services Field Office (see Attachment J for correspondence to date). Should there be any changes to the Big Rivers TOC facility project SOW, Big Rivers would consult with RUS and USFWS to determine whether trees that will be removed as part of the Project have suitable habitat for any of the listed endangered bat species. If construction activities are proposed to occur during the primary nesting season of the bald eagle or an MBTA-protected species that may occupy the Project Area, or at any other time that may result in adverse impacts to their nests, or their eggs, nest surveys may be required. If a field survey identifies one or more active bird nest, appropriate measures would be taken to avoid incidental take. If an active nest is identified that cannot be avoided, Big Rivers would consult with the KDFWR and USFWS prior to construction in the area of the nest to mitigate potential impacts to eagles and MBTA-protected species.
Cultural and Historic Resources	None
Aesthetics	None

Resource	Mitigation Measure
Air Quality	Potential short-term air quality impacts would be mitigated during construction through the implementation of fugitive dust control measures, including watering, to reduce generation of fugitive dust. All construction equipment would be maintained in accordance with manufacturer's instructions, and exhaust emissions from construction vehicles would be short-term and terminate once major construction activities have ended. Vegetated areas between active construction areas and the site boundary would likely reduce the level of airborne particulate matter beyond the site's boundary. Emissions during operation of the Proposed Action would be limited by using energy efficient mechanical, electrical, and lighting systems.
Social Impact/ Environmental Justice	None
Noise	Construction-related noise would likely be mitigated due to existing ambient noise associated with traffic in the vicinity of the Project Area and by the presence of existing vegetative buffers between active construction areas and potential noise receptor. . In addition, the general lack of noise generating activities and existing vegetative buffers would reduce potential noise impacts during operation of the Proposed Action.
Transportation	None
Human Health and Safety	During construction and operation of the Proposed Action, Big Rivers and its construction contractors would develop and implement HES programs to comply with all applicable OSHA standards. Non-hazardous solid wastes generated during the construction process would be managed and disposed of off-site in a permitted solid waste disposal facility in accordance with state and local regulations. Any hazardous waste generated during construction would be segregated and disposed of off-site at a permitted hazardous waste TSD facility in accordance with Federal and state regulations. During operations, fuel would be stored in secure aboveground storage tanks with secondary containment. Secondary containment structures would be designed to contain 100 percent of the largest single storage container within the containment area plus the volume of a 24-hour, 25- year storm (if located outside). Solid wastes generated at the facility would be characterized in accordance with the requirements of 40 CFR Section 261 and Kentucky regulations. Solid wastes would be classified as non-hazardous solid wastes subject to the RCRA Subpart D standards and the corresponding Kentucky solid waste regulations, while solid wastes exhibiting one or more hazardous waste characteristic or listed as a hazardous waste would be managed in accordance with RCRA Subpart C and the corresponding Kentucky hazardous waste standards. All solid and hazardous wastes generated at the facility would be transported off site for proper treatment and disposal. No wastes would be disposed of on site. All PCB contaminated oil/debris is disposed of off-site by thermal incineration in accordance with applicable RCRA and TSCA regulations at Emerald Transformer in Twinsburg, Ohio. No PCB-contaminated materials are disposed of on site.
Corridor Analysis	None

Resource	Mitigation Measure
Soils	Stormwater sediment and erosion control BMPs installed during construction activities and stormwater detention incorporated into the design of the Proposed Action would minimize the potential for adverse impacts to off site surface water features associated with stormwater runoff.

4.0 COORDINATION, CONSULTATION, AND CORRESPONDENCE

4.1 Public Scoping Process

As a component of the NEPA process for the Big Rivers Proposed Action, RUS requested that scoping be performed for all potentially interested federal and state agencies and scoping notices were sent in March of 2023. The goal of the scoping process is to gain participation in the analysis and decision-making process for the Proposed Action. Sargent & Lundy compiled a mailing list of potentially interested government agencies and Native American Tribes and used RUS scoping letter templates to draft a scoping letter to inform agency contacts of the Proposed Action and provide instructions on submitting feedback and comments on the Proposed Action. The following federal and state agencies were contacted:

Table 4-1. Agencies Contacted During RUS Scoping

FEDERAL AGENCIES	STATE AGENCIES
US Fish and Wildlife Service	Kentucky Emergency Management Agency
US Environmental Protection Agency	Kentucky Heritage Council (SHPO)
Federal Emergency Management Agency	Kentucky Department of Fish and Wildlife Resources
Federal Aviation Administration	Kentucky Energy and Environment Cabinet
US Army Corp of Engineers	Kentucky Transportation Cabinet
US Forest Service	Daviess County
National Park Service	City of Owensboro
USDA Natural Resources Conservation Service	Kentucky Department for Environmental Protection

The U.S. Army Corp of Engineers and the Kentucky Energy and Environment Cabinet responded to the scoping letter.

The USACE initial response concluded that WOTUS may exist on the Project Area and a consultation was initiated with the USACE. A Pre-Jurisdictional Determination request was subsequently submitted, and the determination was made that WOTUS may be found onsite. An application for Nationwide Permit 39 has been submitted to the USACE. See Attachment R for the U.S. Army Corp of Engineers initial response.

The Kentucky Energy and Environment Cabinet ("Cabinet") is the state clearing house for reviewing documents generated pursuant to NEPA. The Cabinet coordinated the review of Kentucky's environmental state agencies. The response outlined several environmental areas and actions which could be applicable to the Proposed Action. These include items from the Division of Water, Division of Air Quality, and Kentucky Nature Preserves. See Attachment S for the Cabinet's initial response.

4.2 Tribal Consultation

The following Tribes received initial notification of the Proposed Action and have received the final NHPA Section 106 Archaeological and Historical Reports for their possible review and comment: Peoria Tribe of Indians of Oklahoma, Delaware Nation of Oklahoma, Osage Nation, Eastern Band of Cherokee Indians, Miami Tribe of Oklahoma, and Cherokee Nation.

4.3 Additional Public Involvement

The EA will be made available for public review with a Notice of Availability (NOA) published in a local newspaper which will include information regarding the webpage where the EA is located and the locations where hardcopies (if applicable) are located. Comments on the EA will be allowed for 15 days after the first day of publication.

5.0 PERMITTING

A list of potential permits and approvals that may be required for the Proposed Action by the federal, state, and local governments is provided in Table 5-1.

Table 5-1. Potential Required Federal Permits or Approvals

Statute/Law	Agency	Permit/Approval	Nature of Permit/Approval
14 CFR Part 77	Federal Aviation Administration	Airspace Obstruction Analysis for permanent or temporary (construction) equipment, Determination of No Hazard to Air Navigation	Required if new stacks, vessels, equipment, and/or any temporary construction equipment would be greater than 200 ft tall or located within 200 ft of an airport.
47 CFR Part 17	Federal Communications Commission	FCC Licensing/ Antenna Structure Registration	FCC Antenna Structure Registration is required for antennas over 200 ft tall (above ground level) or that could interfere with flight path of a nearby airport.
40 CFR Part 112	U.S. Environmental Protection Agency	SPCC Plan	Required if storing greater than 1,320 gallons of oil or greater than 42,000 gallons below ground and there is a reasonable expectation of an oil discharge into or upon navigable waters of the US or adjoining shorelines.
Clean Water	U.S. Army Corps of Engineers	Section 404 Permit	Required for dredge/fill (regulated activities) in Waters of the United States (WOTUS).
Endangered Species Act (16 USC §1531 et seq.) Section 7	U.S. Fish and Wildlife Service (USFWS)	Threatened and Endangered Species Consultation	Coordination with USFWS regarding presence of federally listed threatened and endangered species at the Project Area.

Table 5-2. Potential Required State Permits or Approvals

Statute/Law	Agency	Permit/Approval	Nature of Permit/Approval
National Historic Preservation Act, Section 106	Kentucky Heritage Council, Cherokee Nation, Delaware Nation of Oklahoma, Eastern Band of Cherokee Indians, Miami Tribe of Oklahoma, Osage Nation, Peoria Tribe of Indians of Oklahoma	Cultural Resources Consultation	Consultation is required for projects with a federal nexus to determine potential impacts of the Proposed Action to cultural resources.
Clean Water Act, Section 401	Kentucky Energy and Environment Cabinet (KEEC)	Water Quality Certification (WQC)	Required if obtaining a Section 404 permit from USACE for impacts to WOTUS.
Clean Water Act, Section 402	KEEC – Division of Water	Kentucky Pollutant Discharge Elimination System (KPDES) General Permit KYR10 – Stormwater Construction and Stormwater Pollution Prevention Plan (SWPPP)	Authorizes the discharge of pollutants in stormwater discharges associated with construction activities. Required for disturbance of one or more acres of land.
KRS 189.271(9)(b)	Kentucky Transportation Cabinet	Overweight/ Over-Dimensional Permit	Required to transport overweight or oversized loads.
KRS 177.016	Kentucky Transportation Cabinet	Encroachment Permit	Required for work within state right-of-way.

Table 5-3. Potential Required Local Permits or Approvals

Statute/Law	Agency	Permit/Approval	Nature of Permit/Approval
OMPC Sec. 26-301	City of Owensboro Planning and Zoning Department	Building Permit (Construction Permit Application)	Required for new construction, remodeling, additions, and rehabilitation.
OMPC Sec. 26-320	OMPC – Building and Electrical Division	Building Plan Review and Site Plan Review	Required for new construction, additions, and remodeling.
	OMPC – Building and Electrical Division	Floodplain Development Permit	Required for 1) excavation, cut, or fill of earth or debris, whether or not it is located within a floodplain; 2) construction of bridges, culverts, walls, or other structures that are NOT roofed buildings, only when they are located within regulatory floodplains; or 3) building permits for construction of roofed buildings, whether or not they are located within a floodplain.
OMPC Sec 26-304+	OMPC - Building and Electrical Division	Electrical Permits	Required for electrical work in Daviess County. Must be issued to a state-licensed Electrical Contractor.
OMPC Sec. 26-352	OMPC - Building and Electrical Division	Heating, Ventilation, and Air Conditioning (HVAC) Permit	Required for HVAC work in Daviess County. Must be issued to a state-licensed HVAC Contractor.
OMPC Sec. 26-302	OMPC - Building and Electrical Division	Sign Permit	Required for 1) off premises signs; 2) portable signs greater than 10 square feet in area; and 3) permanent on-premises signs that are electrical and/or greater than 10 square feet in area.

Statute/Law	Agency	Permit/Approval	Nature of Permit/Approval
	OMPC - Building and Electrical Division	Certificate of Occupancy	Typically required for occupancy of a building.
OMPC Sec. 26-355	OMPC - Building and Electrical Division	Excavation Permit	Required for excavation, cut, or fill of Earth or debris in Daviess County.
	Daviess County Engineering Department	Driveway Installation Application	Required for installation of a driveway.

6.0 REFERENCES

ADW (Animal Diversity Web), 2022a. *Chaetura pelagica* – chimney swift. Available: https://animaldiversity.org/accounts/Chaetura_pelagica/#ba1ca6f726b5025dbf23b31e841751e4. Accessed December 27, 2022.

ADW, 2022b. *Spizella pusilla* – field sparrow. Available: https://animaldiversity.org/accounts/Spizella_pusilla/. Accessed December 27, 2022.

ADW, 2022c. *Dendroica discolor* – prairie warbler. Available: https://animaldiversity.org/accounts/Dendroica_discolor/. Accessed December 27, 2022.

ADW, 2022d. *Protonotaria citrea* - Prothonotary Warbler. Available: https://animaldiversity.org/accounts/Protonotaria_citrea/. Accessed December 27, 2022.

AEI (American Engineers Incorporated), 2021a. Phase I Environmental Site Assessment – Audubon Loans I, LLC – Big Rivers Electric Corporation, dated November 2021.

AEI, 2021b. Site Intelligence Report – Audubon Loans I, LLC – Big Rivers Electric Company, dated November 18, 2021.

AEI, 2022. Report of Geotechnical Exploration – Big Rivers Electric and Kenergy Offices and Warehouses – Owensboro, Kentucky, Project Number 222-022, Borings Drilled/ Dated October 6, 13, and 14, 2021 and February 14, 15, and 16, 2022.

AirNav, 2022. AirNav.com, Owensboro/Daviess County Regional Airport, VFR Sectional Chart, Available: http://vfrmap.com/?type=vfrc&lat=37.739&lon=-87.167&zoom=10&api_key=763xxE1MJHyhr48DlAP2qQ. Accessed December 22, 2022.

Audubon, 2022a. Guide to North American Birds – Eastern Whip-poor-will (*Antrostomus vociferus)*. Available: https://www.audubon.org/field-guide/bird/eastern-whip-poor-will. Accessed December 27, 2022.

Audubon, 2022b. Guide to North American Birds – Red-headed Woodpecker (*Melanerpes erythrocephalus*). Available: https://www.audubon.org/field-guide/bird/red-headed-woodpecker#:~:text=Groves%2C%20farm%20country%2C%20orchards%2C,open%20country%20are%20likely%20habitats. Accessed December 27, 2022.

Audubon, 2022c. Guide to North American Birds – Rusty Blackbird (*Euphagus carolinus*). Available: https://www.audubon.org/field-guide/bird/rusty-blackbird. Accessed December 27, 2022.

Big Rivers, 2022a. Transmission Operations Center (TOC) Initial Request for Information (RFI). October 18, 2022.

Big Rivers, 2022b. Bradley, C. E-mail message to Sargent & Lundy. November 8, 2022.

Big Rivers, 2022c. Big Rivers Electric Corporation. Who We Are. Available: http://www.bigrivers.com. Accessed November 9, 2022.

CEQ (Council on Environmental Justice), 1997. Guidance Under the National Environmental Policy Act. Executive Office of the President. Washington, DC, USA. 1997.

CFR (Code of Federal Regulations), 2018. Title 7 – Agriculture, Part 657 – Prime and Unique Farmlands, Subpart A – Important Farmlands Inventory. January 1, 2018.

City of Owensboro, 2022. City of Owensboro, City Boundary Map. Available: https://services.owensboro.org/maps/citizen-information/. Accessed December 30, 2022.

City of Owensboro, 2023. City of Owensboro, About Owensboro. Available: About Owensboro - City of Owensboro. Accessed January 6, 2023.

Conserve Wildlife, 2022. Field Guide – Kentucky Warbler (*Oporornis formosus*). Available: http://www.conservewildlifenj.org/species/fieldguide/view/Oporornis%20formosus/. Accessed December 27, 2022.

Cultural Resource Analysts, Inc. (CRA), 2023a. Cultural Historic Survey for the Proposed New Transmission Operation Center in Daviess County, Kentucky, June 5, 2023.

CRA, 2023b. Archaeological Survey for the Proposed Big Rivers Operation Center in Owensboro, Daviess County, Kentucky, March 31, 2023.

Daviess County Kentucky, 2023. West Daviess County Landfill, available at: https://www.daviessky.org/departments/solid-waste/landfill/, accessed July 20,2023.

DOW (Kentucky Division of Water), 2018. Watershed Management Branch. Report on the Condition of Ambient Groundwater in Kentucky – Analysis of the Ambient Groundwater Quality Monitoring Network Data. January 2018.

EPA (Environmental Protection Agency), 1974. U.S. Environmental Protection Agency, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, 550/9-74- 004. Washington, D.C.: Office of Abatement and Control.

EPA, 2022a. Green Book. Kentucky Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants. Accessed November 18, 2022.

EPA, 2022b. Ecoregions of Kentucky. Available: http://ecologicalregions.info/data/ky/ky_front.pdf. Accessed November 22, 2022.

EPA, 2023. U.S. Environmental Protection Agency, Sole Source Aquifer Program, available at: https://www3.epa.gov/region1/eco/drinkwater/pc_solesource_aquifer.html, accessed July 13, 2023.

FCC (Federal Communications Commission), 2023a. Federal Communications Commission, Radio Frequency Safety, available at: https://www.fcc.gov/general/radio-frequency-safety-0, accessed June 15, 2023.

FCC, 2023b. Federal Communications Commission, Am Tower Locator Map, available at: https://www.fcc.gov/wireless-telecommunications/am-towers?lat=37.770815&long=-87.159160&height=300, accessed July 18, 2023.

FCC, 2023c. Federal Communications Commission, Cellular Tower ArcGIS data, available at: https://hub.arcgis.com/datasets/fedmaps::cellular-towers-in-the-united-states/explore?location=37.775818%2C-87.152800%2C14.38, accessed July 18, 2023.

FEMA (Federal Emergency Management Agency), 2022a. National Flood Hazard Layer. Available: https://www.fema.gov/flood-maps/national-flood-hazard-layer. Accessed October 25, 2022.

FEMA, 2022b. National Flood Insurance Program, Flood Insurance Manual. October 2022. https://www.fema.gov/pdf/nfip/manual201205/content/22_definitions.pdf.

FEMA, 2023. Executive Order 11988 Floodplain Management. Available at: https://www.fema.gov/glossary/executive-order-11988-floodplain-management. Accessed July 20, 2023.

Google, 2022. Google Earth Pro v. 7.3.0.3832. 37° 46' 11" N Latitude and 87° 09' 32 "W Longitude. Image Date: May 11, 2022.

HMB, 2022. HMB Professional Engineers, Big Rivers Electric – Kenergy Operations Center Traffic Impact Study, submitted to Kentucky Transportation Cabinet, District 2, City of Owensboro, Daviess County, February 16, 2022, updated March 17, 2022.

Kentucky Noise Related Statutes, 2022. Kentucky Noise Related Statutes. Title 15 Motor Vehicles, Chapter 189 Traffic Regulations. Available: https://noisefree.org/wp-content/uploads/2017/12/kentucky.pdf. Accessed October 27, 2022.

KDFWR (Kentucky Department of Fish and Wildlife Resources), 2022. Species Information – Daviess County. Available: http://app.fw.ky.gov/speciesinfo/speciesinfo.asp. Accessed October 25, 2022.

KDFWR, 2023a. Kentucky Department of Fish & Wildlife Resources, Nuisance Wildlife, available at: https://fw.ky.gov/Wildlife/Pages/Nuisance-Wildlife.aspx, accessed July 13, 2023.

KDFWR, 2023b. Kentucky Department of Fish & Wildlife Resources, Wildlife Action Plan, available at: https://fw.ky.gov/WAP/Pages/Wildlife-Action-Plan-Full.aspx#2, accessed July 20, 2023.

KDOW, 2023a. Kentucky Energy and Environment Cabinet Division of Water, available at: https://eec.ky.gov/Environmental-Protection/Water/Pages/default.aspx, accessed July 13, 2023.

KDOW, 2023b. Kentucky Energy and Environment Cabinet, Division of Water, Source Water Protection, available at: https://eec.ky.gov/Environmental-Protection/Water/Protection/Pages/SWP.aspx, accessed July 13, 2023.

KEEC (Kentucky Energy and Environment Cabinet), 2022. Integrated Reports §303(d) list of Impaired Waters. Kentucky Energy and Environment Cabinet. Accessed October 25, 2022.

KEEC, 2023a. Kentucky Energy and Environment Cabinet, Source Water Protection Viewer, available at: https://kygis.maps.arcgis.com/apps/webappviewer/index.html?id=c2324b998e78433aaf9e6a3d7ad9f86a, accessed July 13, 2023.

KEEC, 2023b. Kentucky Energy and Environment Cabinet – Bureau of Air, Kentucky Air Quality Trends. Available: https://eec.ky.gov/Environmental-Protection/Air/Air-Monitoring/Pages/Kentucky%20Air%20Quality%20Trends.aspx. Accessed January 6, 2023. KGS (Kentucky Geological Survey), 2022. Kentucky Geologic Map Service. Available: https://kgs.uky.edu/kygeode/geomap/?LayoutID=2&ptX=-%2087.120976&ptY=37.573992&wkid=4326&zoom=true. Accessed November 23, 2022.

KGS, 2002. Karst Occurrence in Kentucky, University of Kentucky, Paylor, Randall L., Currens, James C Lexington, 2002.

KNLT, 2023. Kentucky Natural Lands Trust, Imperiled Bat Conservation Fund, available at: Imperiled Bat Conservation Fund – KNLT, accessed June 15, 2023.

KYstats, 2020. Kentucky Center for Statistics, Kentucky Labor Force Update, March 2020, available at: https://kystats.ky.gov/Content/Reports/WP-LF_Update_March_2020.pdf?v=20200330124548, accessed June, 15, 2023.

Messenger-Inquirer, 2022. Messenger-Inquirer, 2022 Shaping Up to be a Big Year, by Keith Lawrence, January 3, 2022.

National Institute of Environmental Health Sciences (NIEHS), 2023. Electric and Magnetic Fields. Available: https://www.niehs.nih.gov/health/topics/agents/emf/index.cfm. Accessed June 12, 2023.

NPS (National Park Service), 2017. Pollinators – Monarch Butterfly. Available: https://www.nps.gov/articles/monarch-butterfly.htm#:~:text=Monarch%20butterflies%20live%20mainly%20in,long%20proboscis%20to%20sip%20food. Accessed December 27, 2022.

NWI, 2022. National Wetlands Inventory Wetlands Mapper. Available: https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper. Accessed October 25, 2022.

National Wild and Scenic Rivers System (NWSRS), 2022. Explore Designated Rivers. Available: https://www.rivers.gov/map.php. Accessed October 27, 2022.

Owensboro Fire Department (OFED), 2022. Personnel. Available: https://owensborofire.org/personnel/. Accessed November 22, 2022.

OMPC (Owensboro Metropolitan Planning Commission,), 2010. The Owensboro Metropolitan Zoning Ordinance, As adopted by Owensboro, Whitesville, & Daviess County. Article 8: Schedule of Zones. August 2010.

OMPC, 2017. The Comprehensive Plan for Owensboro, Whitesville, Daviess County, Adopted by the City of Owensboro on October 17, 2017.

OMPC, 2018. The Comprehensive Plan for Owensboro, Whitesville, Daviess County. Page 41. Adopted December 13, 2018.

OMPC, 2022. GIS Mapping – Zoning. Available: https://odcgis.maps.arcgis.com/apps/webappviewer/index.html?id=4cfeb557a9c0445e8b7cb8c39b96f495. Accessed November 22, 2022.

Owensboro Police Department (OPD), 2020. 2020 Annual Report.

Owensboro Times, 2022. The Owensboro Times, "Beshear: Major Economic Development Coming to Daviess County Soon" by Josh Kelly, April 29, 2022. Available: https://www.owensborotimes.com/news/2022/04/beshear-major-economic-development-coming-to-daviess-county-soon/.

University of Kentucky (UK), 2022. Vantreese, et. al. University of Kentucky – College of Agriculture. A Brief Look at Farmland Conversion in Kentucky. Accessed November 22, 2022.

USCB (United States Census Bureau), 2022a., American Community Survey, Owensboro, Kentucky. Available: 9nsboro+city,+Kentucky&tid=ACSSE2021.K200201. Accessed November 21, 2022.

USCB, 2022b. Decennial Census, Daviess County, Kentucky. Available: https://data.census.gov/table?q=Daviess+County,+Kentucky&tid=DECENNIALPL2020.P1. Accessed November 21, 2022.

USCB 2022c. QuickFacts – Owensboro city, Kentucky; Daviess County, Kentucky. Available: https://www.census.gov/quickfacts/fact/table/owensborocitykentucky,daviesscountykentucky/PST045221. Accessed November 21, 2022.

USCB, 2022d. My Tribal Area. Available: https://www.census.gov/tribal/. Accessed November 22, 2022.

USDA (United States Department of Agriculture), 2017a. RCA Data Viewer: Natural Resources Conservation Service – National Resources Inventory, 2017. Prime Farmland. Available: Accessed November 22, 2022.

USDA, 2017b. Census of Agriculture, Kentucky State and County Data, updated April 2019.

USDA, 2022a. Natural Resources Conservation Service, Web Soil Survey. Accessed November 16, 2022.

USDA, 2022b. Soil Data Access (SDA) Prime and other Important Farmlands. Accessed November 22, 2022.

USDA, 2022. Natural Resource Conservation Service. Available: https://www.nrcs.usda.gov/conservation-basics/natural-resource-concerns/land/cropland/farmland-protection-policy-act). Accessed December 15, 2022.

U.S. Energy Information Administration (EIA), 2023. Energy-Related CO2 Emission Data Tables, Released October 11, 2022, available at: https://www.eia.gov/environment/emissions/state/, accessed June 15, 2022.

USEPA, 2022a. U.S. Environmental Protection Agency, Environmental Justice. Available: https://www.epa.gov/environmentaljustice. Accessed December 30, 2022.

USEPA, 2022b. U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool. Available: https://www.epa.gov/ejscreen. Accessed December 30, 2022.

USEPA, 2023. U.S. Environmental Protection Agency, Tailpipe Greenhouse Gas Emissions from a Typical Passenger Vehicle, available at: https://www.epa.gov/greenvehicles/tailpipe-greenhouse-gas-

emissions-typical-passenger-vehicle#:~:text=typical%20passenger%20vehicle%3F-,A%20typical%20passenger%20vehicle%20emits%20about%204.6%20metric%20tons%20of,8%2C887%20grams%20of%20CO2., accessed June 15, 2023.

USFWS (United States Fish and Wildlife Service), 2022a. Species – Gray Myotis. Available: https://www.fws.gov/species/gray-myotis-myotis-grisescens. Accessed December 27, 2022.

USFWS, 2022b. Species – Indiana Bat. Available: https://www.fws.gov/species/indiana-bat-myotis-sodalis. Accessed December 27, 2022.

USFWS, 2022c. Species – Northern Long-eared Bat. Available: https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis. Accessed December 27, 2022.

USFWS, 2022d. Environmental Conservation Online System – Monarch Butterfly (*Danaus plexippus*). Available: https://ecos.fws.gov/ecp/species/9743. Accessed December 27, 2022.

USFWS, 2022e. Species – Bald Eagle. Available: https://www.fws.gov/species/bald-eagle-haliaeetus-leucocephalus. Accessed December 27, 2022.

USFWS, 2022f. Species – Cerulean Warbler. Available: https://www.fws.gov/species/cerulean-warbler-dendroica-cerulea. Accessed December 27, 2022.

USFWS, 2022g. Environmental Conservation Online System- Lesser Yellowlegs (*Tringa flavipes*). Available: https://ecos.fws.gov/ecp/species/9679#candidate. Accessed December 27, 2022.

USFWS, 2022h. Species – Wood Thrush. Available: https://www.fws.gov/species/wood-thrush-hylocichla-mustelina. Accessed December 27, 2022.

USFWS, 2022i. Nationwide Standard Conservation Measures. Available: https://www.fws.gov/media/nationwide-standard-conservation-measures#:~:text=This%20document%20lists%20the%20effective,Habitat%20Protection%2C%20and%20Stressor%20Management. Accessed October 24, 2022.

USFWS, 2023a. Official Species List – Kentucky Ecological Services Field Office – Transmission Operations Center. Dated June 5, 2023.

USFWS, 2023b. Information, Planning, and Consultation (IPaC) Tool – Resource List – Daviess County. Dated July 17, 2023.

USFWS, 2023c. Environmental Conservation Online System – Whooping Crane. Available: https://ecos.fws.gov/ecp/species/758. Date accessed: May 13, 2023.

USFWS, 2023d. Species – Whooping Crane. Available: https://www.fws.gov/species/whooping-crane-grus-americana, accessed June 12, 2023.

USFWS, 2023e. U.S. Fish and Wildlife Service, National Water Summary – Wetland Resources, Kentucky Wetland Resources, available at: https://www.fws.gov/wetlands/data/Water-Summary-Reports/National-Water-Summary-Wetland-Resources-Kentucky.pdf, accessed July 19, 2023. USGS (United States Geologic Survey), 1997. Geohydrology and Simulation of Ground-Water Flow for the Ohio River Alluvial Aquifer Near Owensboro, Northwestern Kentucky, Water-Resources Investigations Report 96-4274. Accessed November 21, 2022.

USGS, 2016. U.S. Topo - Owensboro West Quadrangle, Kentucky-Indiana, 7.5-Minute Series. https://prd-tnm.s3.amazonaws.com/StagedProducts/Maps/USTopo/PDF/KY/KY_Owensboro_West_20160407_TM_geo.pdf.

USGS, 2022a. Protected Areas Database of the U.S. (PAD-US). Available: https://www.usgs.gov/programs/gap-analysis-project/science/protected-areas#:~:text=The%20USGS%20Protected%20Areas%20Database,Marine%20Protected%20Areas%2C%20and%20more. Accessed November 11, 2022

USGS, 2022b. National Map. Available: https://apps.nationalmap.gov/downloader/. Accessed November 16, 2022.

USGS, 2022c. National Land Cover Database. Available: https://www.usgs.gov/centers/eros/science/national-land-cover-database. Accessed November 21, 2022.

USURGO, 2022. US Soil Survey Geographic Database (Farmland Class – Map Viewer. Available: https://www.arcgis.com/home/item.html?id=9708ede640c640aca1de362589e60f46. Accessed November 21, 2022.

Weather Spark, 2022. Climate and Average Weather Year Round in Owensboro. Available: https://weatherspark.com/y/13996/Average-Weather-in-Owensboro-Kentucky-United-States-Year-Round. Accessed October 27, 2022.

7.0 LIST OF PREPARERS

Table 7-1 identifies the RUS and consultant staff involved in the preparation of this EA.

Table 7-1. RUS Staff and Consultants Involved in Preparation of this EA

Name	Agency/Company	Role/Resource Specialty
Suzanne Kopich	RUS	Environmental Protection Specialist/Project Manager
Kenneth Pemberton	Sargent & Lundy	Senior Manager/Professional Engineer
Kenneth Snell	Sargent & Lundy	Senior Environmental Manager
Jill Lagace	Sargent & Lundy	Environmental Project Associate
Samantha Country	Sargent & Lundy	Environmental Associate