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ECONOMIC DEVELOPMENT GRANT PROPOSAL FOR THE PURCHASE OF ADAMSON FARM

ENVIRONMENTAL ASSESSMENT

Simpson County, Kentucky (Franklin)

Prepared by:

TENNESSEE VALLEY AUTHORITY
Knoxville, Tennessee

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For Information, contact:

Brittany Renee Kunkle

NEPA Compliance

Tennessee Valley Authority

400 West Summit Hill Drive, WT 11B

Knoxville, Tennessee 37902-1499

Email: brkunkle@tva.gov

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1.0 PROPOSED ACTION AND NEED

An integral part of the Tennessee Valley Authority's (TVA) mission is to promote economic development within the TVA service area. TVA provides financial assistance to help bring to market new/improved sites and facilities within the TVA service area and position communities to compete successfully for new jobs and capital investment. TVA proposes to provide an economic development grant through InvestPrep funds to the Franklin-Simpson Industrial Authority (FSIA) to assist with the purchase of Adamson Farm in Simpson County, Kentucky. This activity, herein referred to as the Proposed Action, is further detailed in Section 3.2 below. Site improvements are not part of the Proposed Action. The area of TVA's Proposed Action (herein referred to as the Project Area) encompasses Adamson Farm, approximately 118 acres of a combination of open grassy land, scrub-shrub, and forested areas. The Project Area is located approximately 0.6 mile east of Interstate 65 (I-65), and about four miles east of Franklin, Kentucky. Access is provided from I-65 Scottsville Road/Highway 100 to Loving Chapel Road then Rufus Dison Road (see Figure 1 below and Attachment 1, Figure 1-A). The proposed grant to the FSIA, used in combination with non-TVA funds, would be used to support the purchase of the Project Area. This purchase would allow for the expansion of adjacent Henderson Interstate Industrial Park (HIIP) and provide more area for industrial development. This action would support achievement of the FSIA's and TVA's missions of job creation and capital investment. Multiple industrial or commercial sites exist at the HIIP west and southwest of the Project Area. Target industries include metals, automotive, and electric vehicle battery manufacturing. Pursuant to the National Environmental Policy Act (NEPA) and its implementing regulations 40CFR 1500 – 1508 and TVA's implementing regulations 18 CFR 1318, this Environmental Assessment (EA) evaluates the environmental impacts that would potentially result from TVA's Proposed Action. TVA's decision is whether to provide the requested funding to the FSIA.

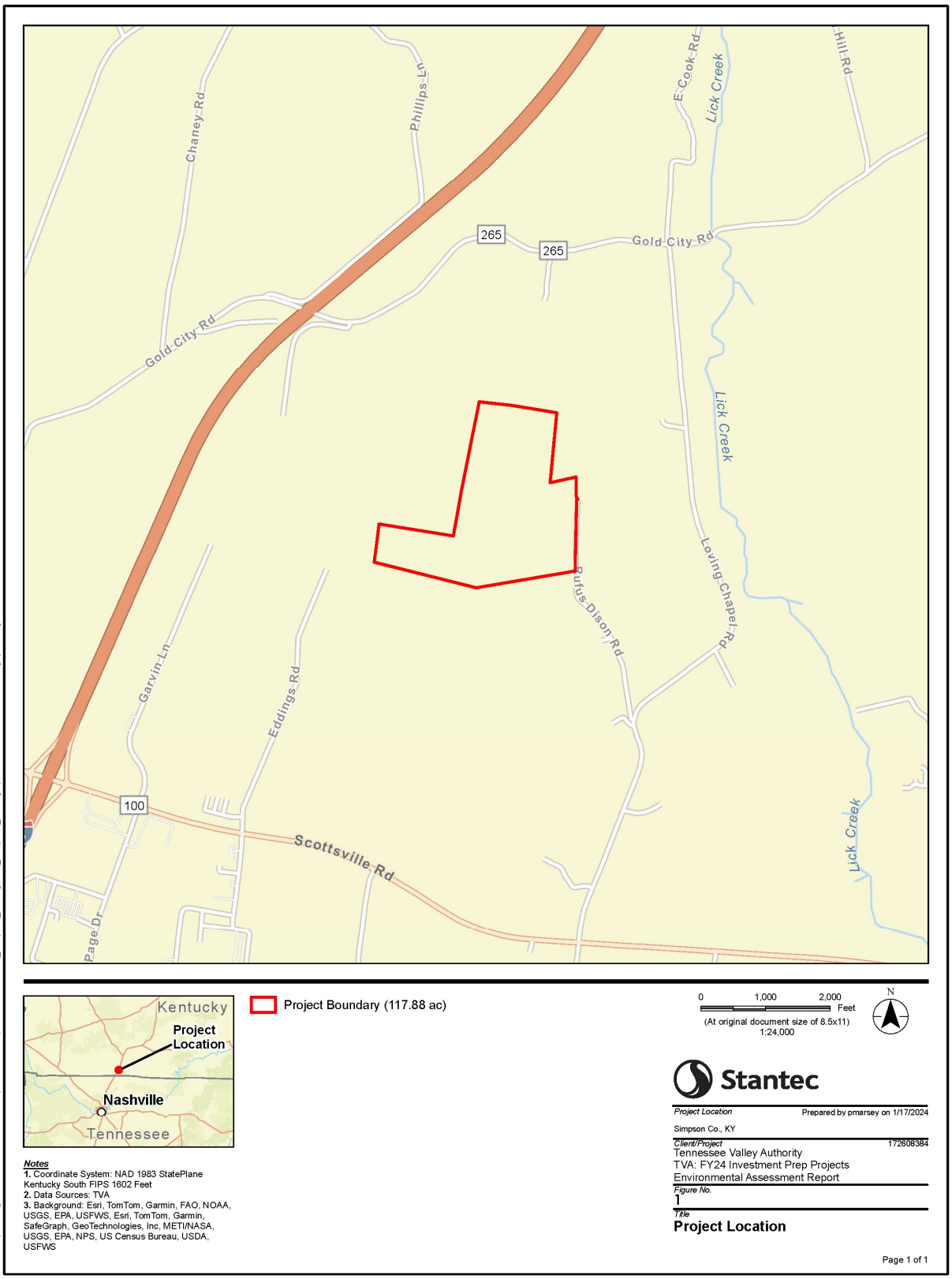

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Figure 1. Project Location Map

2.0 OTHER ENVIRONMENTAL REVIEWS AND DOCUMENTATION

In preparation for site purchase, two studies were performed at the Project Area in spring and summer of 2023: a Phase I Environmental Site Assessment (ACES 2023a) and a Report of Geotechnical Engineering Investigation (ACES 2023b) for the 118-acre Project Area.

A Phase I Environmental Site Assessment (Phase I ESA) of the Project Area was performed consistent with the procedures included in ASTM E1527-13 and the updated ASTM E1527-21. The Phase I ESA report was issued in March 2023 for the approximate 118-acre Project Area, which is also the Project Area (ACES 2023a). The purpose of the Phase I ESA was to identify to the extent feasible the presence of recognized environmental conditions (REC) or controlled recognized environmental conditions (CREC) associated with the property. Recognized environmental conditions include the presence or likely presence of hazardous substances or petroleum products due to a release or that pose a threat of a future release. The report concluded that there were no REC, CREC, historic REC, or significant data gaps associated with the Project Area (ACES 2023a).

The Report of Geotechnical Engineering Investigation of the Project Area was issued in July 2023 (ACES 2023b). The purpose of geotechnical investigation was to “determine the general near surface and subsurface conditions of the site” and to “develop the general geotechnical engineering recommendations necessary for the initial planning and design of the development.” The report indicated that the site could be developed, but karst features were identified that should be investigated further via additional geotechnical and geophysical studies once proposed building locations are identified. These features may be associated with sinkholes and may require repair or remediation. The report stated that the risk of sinkhole development was no greater at the site than other sites in the same geologic setting. The report also identified other basic design and construction considerations (ACES 2023b).

TVA staff performed field surveys for terrestrial zoology and botany in October and November 2023, respectively, as described in more detail below.

Stantec Consulting Services, Inc. (Stantec) performed a surface water and wetlands delineation of the Project Area on January 22 and 23, 2024. Although no presumed jurisdictional waterbodies or wetlands were identified, presumed non-jurisdictional waterbodies and one presumed non-jurisdictional wetland were observed (Stantec 2024a) as discussed further below.

Stantec performed an evaluation for archaeology resources within the Project Area in January 2024 (Stantec 2024b). Based on the results of the archeology study, no sites were considered eligible for the National Register of Historic Places (NRHP) and no further work was recommended. Stantec also conducted a survey for historic structures and sites within the Project Area in January 2024 (Stantec 2024c). No properties were recommended as eligible for the NRHP.

The Phase I ESA, geotechnical investigation, TVA field surveys, Stantec aquatics and wetlands findings and report, and the Stantec archaeology and historic structures cultural resources findings and survey reports were used in the preparation of this EA.

3.0 ALTERNATIVES

Based on internal scoping, TVA has determined that there are two reasonable alternatives to assess under NEPA: the No Action Alternative and the Action Alternative.

3.1 The No Action Alternative

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FSIA. TVA would not be furthering its mission of promoting economic development by assisting the local community to compete successfully for new jobs and capital investment through the Proposed Action. If the FSIA were to obtain alternate funding and proceed with its current plans, overall environmental consequences would be similar to those expected from implementing the Action Alterative. In the event the project is postponed, any environmental effects would be delayed for the duration of postponement. If the project were cancelled, no direct environmental effects are anticipated, as environmental conditions on site would remain essentially unchanged from current conditions for the foreseeable future.

3.2 The Action Alternative

Under the Action Alternative, TVA would provide InvestPrep funds to the FSIA to assist with the purchase of the 118-acre Project Area. The FSIA would perform activities associated with the purchase.

TVA's preferred alternative is the Action Alternative. The Action Alternative does not include assessment of activities that may be directly or indirectly associated with the Project Area or adjacent lots already developed or under construction or the eventual build-out, occupation, and future use of the Project Area. Future use of the site has not been fully defined. Given this uncertainty, an analysis of potential impacts for development of the Project Area and adjacent lots is beyond the scope of this EA.

4.0 AFFECTED ENVIRONMENT AND ANTICIPATED IMPACTS

4.1 Site Description

The 118-acre Project Area encompasses the largely vacant, undeveloped Project Area in Simpson County, Kentucky, on agricultural, scrub-shrub, and forested uplands approximately 0.6 mile east of I-65, and about four miles east of Franklin, Kentucky (Attachment 1, Figure 1-A).

The Project Area is situated within a mixed agricultural, industrial/commercial, and light residential area of Simpson County, Kentucky, and is zoned as Agricultural, although the FSIA intends to pursue rezoning to Industrial upon completion of the purchase. Industrial and/or commercial neighbors located within approximately one mile of the Project Area include the HIIP, home to Harcros Chemicals, Inc., Bluegrass Warehouse, Sumitomo Electric Wiring System, a Shell gas station, BIR Truck Repair, Wash and Chrome Shop, and Hunt Ford. Site access is from Rufus Dison Road (approximately 0.7 mile), leading to Loving Chapel Road (approximately 0.7 mile) which connects to Scottsville Road/Highway 100. Scottsville Road/Highway has access to I-65 at a distance of approximately 1.6 miles from Loving Chapel Road. The land use surrounding the Project Area includes roads, I-65, patchy forested areas, and agricultural lands to the west, agricultural areas, patchy forest, and scattered residences to the south and east, and agricultural areas, patchy forest, scattered residences, and commercial/industrial areas to the north. Permanent structures or utilities located within the Project Area include a gravel access road,

abandoned house, and abandoned barn. Utilities located adjacent to the Project Area include a 12-inch water line, 10-inch sewer line, overhead electric distribution lines, and a four-inch natural gas line.

The Project Area ranges from approximately 650 to 690 feet above mean sea level (msl) (Attachment 1, Figure 1-B). In the past, portions of the Project Area have been used for farming or pasture, but now consists of a mix of undeveloped pasture, scrub-shrub, and patchy forest. The Project Area previously contained additional pasture and farmland in the late 1990s, particularly within the western portions, but these areas have been subject to shrub and tree encroachment over the last 25 years (Google Earth 2024).

4.2 Impacts Evaluated

As stated previously, a Phase I ESA was conducted in the Project Area. The Phase I ESA did not identify any RECs or current or historical chemical, petroleum, or hazardous substance operations, storage areas, or locations within the Project Area that would indicate the presence of solid or hazardous wastes (ACES 2023a). Based on the 2023 Phase I ESA, there is no evidence that historical use of pesticides/herbicides within the Project Area was conducted outside of standard practices. Therefore, the possible long-term use of agricultural grade pesticides or herbicides that may persist in the soils at the subject Property does not represent a REC. No demolition or construction waste activities are associated with the Action Alternative. Therefore, the Proposed Action is not expected to result in significant impacts from the creation or disposal of solid and hazardous wastes.

The Federal Emergency Management Agency (FEMA) flood insurance rate maps for Simpson County, Kentucky (Attachment 1, Figure 1-C), (panel numbers 21213C0185C and 21213C0225C, effective 03/17/2011) indicate the Project Area would not be located within an identified 100-year floodplain. Therefore, the Proposed Action would be consistent with Executive Order 11988 and would have no impact on floodplains or their natural and beneficial values.

Stantec performed a field assessment of the Project Area for aquatic resources (i.e., waterbodies) and wetlands on January 22 and 23, 2024. A map of features based on the U.S. Fish and Wildlife Service's (USFWS) National Wetlands Inventory and Waters Inventory is provided in Attachment 1, Figure 1-D. No waterbodies or wetlands presumed subject to the U.S. Army Corps of Engineers (USACE) or the State of Kentucky jurisdiction were identified during Stantec's survey. However, several presumed non-jurisdictional features were documented including: two wet weather conveyances (i.e., ephemeral streams), two ponds, and one wetland (Stantec 2024a; Attachment 1, Figure 1-E).

The two wet weather conveyances flow only in response to precipitation events and therefore do not provide suitable stream habitat for aquatic fauna (Stantec 2024a). The two ponds may provide limited aquatic habitat. The wetland was saturated but did not have surface water and aquatic fauna were not observed. Endangered, threatened, and rare aquatic species of fish, snails, mussels, and a crayfish were documented by TVA's natural heritage database as present within the Project Area's hydrologic unit code, although suitable habitat in the Project Area is lacking.

Completion of the proposed purchase by FSIA would allow FSIA to pursue a change in zoning for the Project Area from Agricultural to Industrial. The Project Area's land use is currently a combination of wooded and pasture lands, and the Proposed Action would not modify the current setting. The Project Area is located immediately adjacent to, and would allow for, expansion of

the existing HIIP in the future. Multiple industrial or commercial neighbors are already located to the west and southwest of the Project Area as discussed in Section 1.0. Further, potential future development of the site is uncertain, and the details of potential future development are unknown.

The Project Area spans approximately 118 acres which includes 0.26 acre of Prime Farmland and 50.69 acres of Farmland of Statewide Importance (Attachment 1, Figure 1-F). However, based on coordination with the Natural Resources Conservation Service (NRCS), no conversion or impacts on prime farmland or farmland of statewide importance would occur (NRCS 2024; Attachment 3).

Managed areas include lands held in public ownership that are managed by an entity (e.g., TVA, U.S. Department of Agriculture, U.S. Forest Service, State of Tennessee) to protect and maintain certain ecological and/or recreational features. Natural areas include ecologically significant sites, federal, state, or local park lands, national or state forests, wilderness areas, scenic areas, wildlife management areas, recreational areas, greenways, trails, Nationwide Rivers Inventory streams, and wild and scenic rivers. Ecologically significant sites are either tracts of privately owned land that are recognized by resource biologists as having significant environmental resources or identified tracts on TVA lands that are ecologically significant but not specifically managed by TVA's Natural Areas program.

A review of the TVA Regional Natural Heritage database, accessed in September 2023, identified two managed and natural areas within three miles of the Project Area: certified organic farms located 2.4 miles west and 2.7 miles south of the Project Area. Based on a review of data and imagery available on Google Earth (2024) the West Fork Drakes Creek Reservoir and Boat Ramp are located 2.3 miles west of the Project Area. The two certified organic farms and the reservoir and boat ramp fall within three miles of the Project Area. However, given their distance from the Project Area and the nature of the Proposed Action, no impacts to these areas are expected.

TVA has determined that the Proposed Action, subsequent to TVA's selection of the Action Alternative, would have no impact on hazardous wastes, floodplains, managed and natural areas, recreation, land use, and prime farmland. Therefore, potential impacts to these resources are not described in further detail in this EA.

Resources that could potentially be impacted (negatively or positively) by implementing the Action Alternative include air quality and climate change, groundwater, soils, surface water, wetlands, aquatic ecology, terrestrial zoology, and botany. Implementation of the Action Alternative could create potential impacts to the human environment, including archaeology, historic structures and sites, visual resources, noise, socioeconomics, environmental justice, and transportation. Potential impacts to resources and impacts to the human environment resulting from implementation of the Action Alternative are discussed in detail below.

4.2.1 Air Quality and Climate Change

Federal and state regulations protect ambient air quality. With authority granted by the Clean Air Act (CAA) 42 United States Code (USC) 7401 et seq. as amended in 1977 and 1990, the United States Environmental Protection Agency (USEPA) established National Ambient Air Quality Standards (NAAQS) to protect human health and public welfare. The USEPA codified NAAQS in 40 CFR 50 for the following "criteria pollutants:" nitrogen dioxide (NO_2), carbon monoxide (CO), ozone, sulfur dioxide (SO_2), lead, particulate matter (PM) with an aerodynamic diameter equal to or less than 10 microns (PM_{10}), and PM with an aerodynamic diameter equal to or less than

2.5 microns ($PM_{2.5}$). The NAAQS reflect the relationship between pollutant concentrations and health and welfare effects. Primary standards protect human health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards are designed to protect public welfare, including visibility, animals, crops, vegetation, and buildings. These standards reflect the latest scientific knowledge and have an adequate margin of safety intended to address uncertainties and provide a reasonable degree of protection. The air quality in Simpson County, Kentucky is designated as being in attainment with respect to the criteria pollutants (USEPA 2024).

Other pollutants, such as hazardous air pollutants (HAPs) and greenhouse gases (GHGs) are also a consideration in air quality impact analyses. Section 112(b) of the CAA lists HAPs, also known as toxic air pollutants or air toxins, because they present a threat of adverse human health effects or adverse environmental effects. Although there are no applicable ambient air quality standards for HAPs, their emissions are limited through permit thresholds and technology standards as required by the CAA.

GHGs are gases that trap heat in the atmosphere, are non-toxic and non-hazardous at normal ambient concentrations. At this time, there are no applicable ambient air quality standards or emission limits for GHGs under the CAA. GHGs occur in the atmosphere both naturally and resulting from human activities, such as the burning of fossil fuels. GHG emissions due to human activity are the main cause of increased atmospheric concentration of GHGs since the industrial age and are the primary contributor to climate change. The principal GHGs are carbon dioxide (CO_2), methane, and nitrous oxide.

Fugitive dust is a source of respirable airborne PM, including PM_{10} and $PM_{2.5}$, which could result from ground disturbances such as travel on unpaved roads, tilling and upturning of soils, and general farming maintenance procedures in areas where loose dirt is present in which dust can easily become airborne. In addition, weather can affect air quality. Winds strong enough, such as those seen at the leading edge of a storm or from a pressure front, can dislodge loose dirt and soils, making them airborne, reducing visibility and creating health risks to those outside. Rain, on the other hand, will often act as a suppressor to airborne dust. Water interacts with aerosols in the atmosphere through coagulation, oftentimes removing harmful particulate matter. Soils and dirt that become saturated become more compact and tightly held, limiting the ability for further ground disturbance to affect the air while it maintains saturation. The amount of dust generated is a function of all the aforementioned activities, including silt and moisture content of the soil, wind speed, frequency of precipitation, vehicle traffic, vehicle types, and roadway characteristics. Given that the Proposed Action involves providing funds for property acquisition only, the Project would have no contribution to fugitive dust and respirable airborne PM conditions. No fossil fuel-fired equipment would be used in the Proposed Action.

Concerning climate change, trees, like other green plants, are carbon sinks that use photosynthesis to convert CO_2 into sugar, cellulose, and other carbon-containing carbohydrates that they use for food and growth. Carbon sequestration is the process by which carbon sinks remove CO_2 from the atmosphere. Although forests do release some CO_2 from natural processes such as decay and respiration, a healthy forest typically stores carbon at a greater rate than it releases carbon. Only a small section of the Project Area is composed of tree growth. No trees would be cleared as a part of the Proposed Action. Since the Project Area is agricultural land with scattered forested areas, it contributes only in a minor way as a carbon sink. Given the site

conditions and that the Proposed Action is to provide funds to assist with purchase of the parcel, the project would have no contribution to climate change. Methane is emitted as a result of animal waste from livestock and through agricultural practices. It is a very potent greenhouse gas, being far better at absorbing long-wave radiation than carbon-dioxide, which contributes to the acceleration of human-caused climate change.

The Action Alternative involves the use of InvestPrep funds to assist with purchase of the Project Area; therefore, implementation of the Proposed Action would not result in air quality and climate change impacts.

Under the No Action Alternative, TVA would not provide InvestPrep funds to assist FSIA with the purchase of this Simpson County, Kentucky Project Area. Similar to the Proposed Action, if the FSIA was able to obtain alternate funding and proceed with its current plans, air quality and climate change impacts would not occur. If the FSIA was unable to secure other funding or the Project was cancelled, the Proposed Action would not occur and there would also be no air quality and climate change impacts, as the site would remain essentially unchanged from the current conditions.

4.2.2 Groundwater

The Project Area is located within the Highland Rim Section of the Interior Low Plateaus Province (NPS 2017 and USGS 2023). The Highland Rim Section of the Interior Low Plateaus Province is characterized by Quaternary age unconsolidated sand and gravel deposits and Paleozoic sedimentary rocks consisting of consolidated limestone, dolomite, and sandstone. The Interior Low Plateaus Province extends from northern Alabama to southern Indiana and Illinois (USGS 1995).

The principal aquifers in the Interior Low Plateaus Province consist of carbonate rocks that are primarily Pennsylvanian, Mississippian, Silurian, Devonian, and Ordovician aged rocks (USGS 1995). The primary aquifer system that underlies the project site is regionally referred to as the Mississippian Plateau aquifer system and consists of limestone (USGS 1995). The Mississippian Plateau aquifer system is typically overlain by weathered rock material or residuum consisting of clay, silt, sand and pebble of limestone and chert. The Mississippian Plateau aquifer system underlying the Project Area is comprised of Mississippian aged rocks, specifically the Ste. Genevieve and the St. Louis Limestones. The Ste. Genevieve limestone is considered to be white to bluish gray, fine to coarsely crystalline, contains dark bluish gray to black chert and oolitic near the base. The Ste. Genevieve limestone can be up to 150 to 200 feet thick. The underlying Ste. Louis limestone is considered to be light gray to black, fine to coarsely crystalline, argillaceous in places, dolomitic and contains abundant black chert stringers and nodules (USGS 1962).

Water quality in the Mississippian Plateau aquifer system is highly variable and based on water residence time within the aquifer (KGS 2004). The water quality is characterized as hard and is either calcium magnesium bicarbonate or calcium carbonate based (USGS 1995). Median total dissolved solids and iron concentrations appear to be below EPA drinking water secondary maximum contaminate standards (USGS1995). Freshwater in this aquifer can circulate up to depths of 500 feet below land surface; however, the typical extent of freshwater is approximately 300 feet below land surface (USGS 1995). Percolation of rainwater infiltrates downward to the water table; the groundwater moves through intergranular spaces in the consolidated materials of the overburden. Groundwater within the limestone bedrock flows through secondary permeability of dissolution features consisting of fractures and enlargement of bedding planes

created by slightly acidic water. Water is stored via solution openings and is transmitted through limestone that discharges to wells, springs, and streams (USGS 1995). The regional flow pattern of groundwater within the Mississippian Plateau aquifer system is typically perpendicular to potentiometric contours. Locally, groundwater flows along bedding planes and existing fractures (USGS 1995).

The “Report of Geotechnical Engineering Investigation – Adamson Property” conducted by Arnold Consulting Engineering Services (ACES) Inc. indicates the overburden at the project site consists mostly of silty clay and varying degree of rock fragments intermixed with depths ranging from land surface to 10 to 20 feet below land surface (maximum depth of conducted boring was 20 feet below land surface) in all borings except boring B-16 that consisted of silty clay and rock fragments from land surface to a depth of 4.5 feet below land surface. Borings were either completed to a depth of 20 feet or until auger refusal presumed to be caused by bedrock surface underlying the overburden. Groundwater was not encountered during any of the geotechnical borings (ACES Inc. 2023b).

A Phase 1 Environmental Site Assessment (ESA) was completed onsite by ACES, Inc. and their findings were provided in the report “Phase 1 Environmental Site Assessment – 850 Rufus Dison RD”. The report categorized the site as undeveloped land and did not identify any current RECs associated with the Project Area. (ACES Inc. 2023a)

The Action Alternative involves the use of InvestPrep funds to assist with purchase of the Project Area; therefore, implementation of the Proposed Action would not result in impacts on groundwater resources.

Similar to the Action Alternative, under the No Action Alternative, if the FSIA were able to secure assistance with funding for the Proposed Action described in this EA from outside sources, there would be no direct or indirect impacts to groundwater. If the FSIA was not able to secure the funding for the actions described in this EA, the proposed property purchase would not occur and existing site conditions would likely be unchanged, also resulting in no impacts to groundwater.

4.2.3 Soils

The Project Area is in Simpson County, Kentucky within the Highland Rim Section of the Interior Low Plateaus Province (NPS 2017 and USGS 2023).

Soil types and descriptions were obtained from the Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2024) (see Attachment 1, Figure 1-F). Soil types found within the Project Area include Baxter gravelly silt loam (6 to 12 percent slopes), Baxter gravelly silt loam (12 to 20 percent slopes) and Mountainview silt loam (2 to 6 percent slopes).

A geotechnical investigation was conducted on the Project Area in 2023 (ACES, Inc. 2023b). The 2023 investigation conducted 20 soil borings within the Project Area, the borings ranged from approximately 4.2 feet to 20 feet below land surface. The soil borings encountered silty clays across the Project Area. The borings were conducted to 20 feet below land surface or until auger refusal was encountered. The report indicated that the auger refusal was likely caused by the underlying bedrock at the Project Area.

Additionally, Stantec conducted an archaeological survey (Phase 1) on the Project Area and described the soils and sediments encountered during their shovel testing as consisting of silt

loam, silt and silty clay in their report titled “Phase 1 Archaeological Survey for the Adamson Farm Project.” The shovel tests were conducted to depths of approximately 40 centimeters deep.

The Action Alternative involves the use of InvestPrep funds to assist with purchase of the Project Area; therefore, implementation of the Proposed Action would not result in impacts on soils.

Similar to the Action Alternative, under the No Action Alternative, if the FSIA were able to secure the funding for the proposed TVA-funded action described in this EA from outside sources, there would be no direct or indirect impacts to soils and soil erosion. If the FSIA was not able to secure the funding for the actions described in this EA, the proposed property purchase would not occur and existing site conditions would likely be unchanged, also resulting in no impacts to soils and soil erosion.

4.2.4 Surface Water

The Project Area is located within the 8-digit Hydrologic Unit Code (HUC) Barren River watershed (HUC 05110002) and is split between two 12-digit HUC sub-watersheds: Sinking Creek-West Fork Drakes Creek (HUC 051100020603) and Lick Creek-West Fork Drakes Creek (HUC 051100020606) (USEPA 2024). Rainfall in the vicinity (Russellville, KY, UsClimateData.com 2024) averages 50.7 inches of precipitation annually.

Stantec performed field surveys of the entire Project Area on January 22 and 23, 2024, to document waterbodies (Stantec 2024a; [Attachment 1, Figure 1-E]). A map of features based on the U.S. Fish and Wildlife’s National Wetlands Inventory and Waters Inventory is provided as Attachment 1, Figure 1-D. No waterbodies presumed subject to the U.S. Army Corps of Engineers or the State of Kentucky jurisdiction were identified. However, four presumed non-jurisdictional features were documented including two wet weather conveyances (WWC, i.e., ephemeral streams) and two ponds (Attachment 1, Figure 1-E).

WWC E001 was approximately 38 feet long and located in the central portion of the Project Area. Flow direction was from south to north and was directed into an apparent sinkhole. The channel substrate consisted of silt and clay. No water was observed in the channel at the time of the survey.

WWC E002 was approximately 71 feet long and located in the central part of the Project Area. E002 begins as an overflow channel for pond P001 and also appears to flow into a sinkhole. The channel substrate consisted of silt and gravel. Small areas of pooled water were observed.

Pond P001 is located near the center of the Project Area and was surrounded by upland trees and plants. P001 was less than 0.1 acre in size and does not receive inputs from any other hydrologic feature. A single outlet was observed on the southern side of the pond. Data associated with the National Wetlands Inventory (NWI) indicated that P001 was semi-permanently flooded and excavated.

Pond P002 is located near the west-center of the Project Area. P002 was 0.4 acre in size and does not receive inputs from any other hydrologic feature, nor were any outlets observed. Data associated with the NWI indicated that P002 was seasonally flooded and excavated.

The Action Alternative involves the use of InvestPrep funds to assist with purchase of the Project Area; therefore, implementation of the Proposed Action would not result in impacts on surface waters. The Project would be consistent with Sections 401 and 404 of the Clean Water Act.

Similar to the Action Alternative, under the No Action Alternative, if the FSIA were able to secure the funding for the proposed TVA-funded action described in this EA from outside sources, there would be no direct or indirect impacts to surface waters. If the FSIA was not able to secure the funding for the actions described in this EA, the proposed property purchase would not occur and existing site conditions would likely be unchanged, also resulting in no impacts to surface waters.

4.2.5 Wetlands

As noted above for surface water, Stantec performed field surveys of the entire Project Area on January 22 and 23, 2024, to document wetlands (Stantec 2024a). A map of features based on the USFWS's National Wetlands Inventory and Waters Inventory is provided as Attachment 1, Figure 1-D. No waterbodies or wetlands presumed subject to the USACE or the State of Kentucky jurisdiction were identified. One presumed non-jurisdictional, isolated wetland, W001, was identified (Attachment 1, Figure 1-E).

W001 is located in the east-central portion of the Project Area and is less than 0.1 acre in size. It is a palustrine emergent (PEM) wetland. Due to recent construction in the area, there was significant disturbance observed within the wetland boundary. W001 scored as 24 in the Tennessee Valley Authority Rapid Assessment Method, indicating that this wetland was of low resource value.

The Action Alternative involves the use of InvestPrep funds to assist with purchase of the Project Area; therefore, implementation of the Proposed Action would not result in impacts on wetlands. Implementation of the Proposed Action would be consistent with EO 11990.

Similar to the Action Alternative, under the No Action Alternative, if the FSIA were able to secure the funding for the proposed TVA-funded action described in this EA from outside sources, there would be no direct or indirect impacts to wetlands. If the FSIA was not able to secure the funding for the actions described in this EA, the proposed property purchase would not occur and existing site conditions would likely be unchanged, also resulting in no impacts to wetlands.

4.2.6 Aquatic Zoology

As noted in section 4.2.4, no perennial stream habitat occurs within the Project Area, and the lone identified wetland was not inundated at the time of survey. These features would not provide suitable habitat for aquatic fauna. Two ponds, P001 and P002, are artificial and may not contain water year-round. As such, aquatic habitats, if they occur, would be of limited value. No aquatic animal species were observed during the delineation. Generalist fish species such as mosquitofish (*Gambusia affinis*) and sunfish (*Lepomis spp.*) could potentially occur in the ponds.

The Action Alternative involves the use of InvestPrep funds to assist with purchase of the Project Area; therefore, implementation of the Proposed Action would not result in impacts on aquatic zoology resources.

Similar to the Action Alternative, under the No Action Alternative, if the FSIA were able to secure the funding for the proposed TVA-funded action described in this EA from outside sources, there would be no direct or indirect impacts to aquatic zoology resources. If the FSIA was not able to secure the funding for the actions described in this EA, the proposed property purchase would not occur and existing site conditions would likely be unchanged, also resulting in no impacts to aquatic zoology resources.

4.2.6.1 Threatened and Endangered Species (Aquatics)

A review of aquatic species in the TVA Regional Natural Heritage database on September 26, 2023, returned three federally listed aquatic species within the Project Area's HUC along with one additional species under federal review and multiple state rare or listed species (Table 4.2-1). All three of the federally listed species and the species under federal review are mussels that require un-impounded rivers with coarse sand, gravel, or cobble substrates (NatureServe Explorer 2024; Parmalee and Bogan 1998). There is a lack of suitable and/or quality aquatic habitat, including stream or riverine habitat to potentially support endangered, threatened, and rare aquatic species, present within the Project Area.

Table 4.2-1. State- and Federally listed Aquatic Species Reported from Simpson County, Kentucky and Other Species of Conservation Concern Documented Within the HUC for the Project Area, Simpson County, Kentucky

Scientific Name	Common Name	Element Occurrence Rank (2*)	State Rank (3*)	State Status (4*)	Federal Status (4*)
Alasmidonta marginata	Elktoe	H - Historical	S2	T	
Barbicambarus cornutus	Bottlebrush Crayfish	D - Poor estimated viability	S2S3	S	
Carychium stygium	Cave Thorn	H? - Possibly historical	S2		
Cyprogenia stegaria	Fanshell	H - Historical	S1	E	E, XN
Erimystax insignis	Blotched Chub	H? - Possibly historical	S1	E	
Etheostoma barrenense	Splendid Darter	E - Verified extant (viability not assessed)	S3	D	
Etheostoma bellum	Orangefin Darter	E - Verified extant (viability not assessed)	S3	D	
Etheostoma maculatum	Spotted Darter	D - Poor estimated viability	S2	T	
Percina macrocephala	Longhead Darter	H - Historical	S1	E	
Phenacobius uranops	Stargazing Minnow	H - Historical	S2S3	S	
Pleurobema clava	Clubshell	H - Historical	S1	E	E, XN
Quadrula cylindrica cylindrica	Smooth Rabbitsfoot	H - Historical	S2	T	T
Rabdotus dealbatus	Whitewashed Rabdotus	C - Fair estimated viability	S1S2	T	
Villosa lienosa	Little Spectaclecase	H - Historical	S3S4		
Villosa ortmanni	Kentucky Creekshell	C - Fair estimated viability	S1S2	E	UR
Villosa vanuxemensis	Mountain Creekshell	H - Historical	S2	T	

1* Source: TVA Regional Natural Heritage database; USFWS Information for Planning and Consultation (IPaC) resource list (https://ecos.fws.gov/ipac/) -If Relevant; NatureServe Explorer 2024.

2* EO = Element Occurrence; Common ranks: A = Excellent est. viability/ecol. Integrity; B = Good est. viability/ecol. Integrity; C = Fair est. viability/ecol. Integrity; E = Verified extant (viability/ecological integrity not assessed); H = Historical; X = Extirpated; NR = Not ranked. See Heritage Data Viewer Handbook for more ranks.

3* State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; S4 = Apparently Secure; S5 = Secure; SX = Presumed Extirpated. See Heritage Data Viewer Handbook for more ranks.

4* Status Codes: D = Deemed in Need of Management; DM = Delisted, still being monitored; E = Endangered; LE = Listed Endangered; LT = Listed Threatened; C = Candidate; PS = Partial Status; T = Threatened; E-P = Endangered/Possibly Extirpated; E-PT = Endangered/Proposed Threatened; RARE = Rare; SLNS = State listed, no status; S = Special Concern; S-P = Special Concern/Possibly Extirpated.; S-CE = Special Concern/Commercial Exploited; T-C E= Threatened/Commercial Exploited

5* See Heritage Data Viewer Handbook for full scope of Natural Areas as well as definitions of Natural Area types and units.

The Action Alternative involves the use of InvestPrep funds to assist with purchase of the Project Area; therefore, implementation of the Proposed Action would not result in impacts on rare, threatened, and endangered aquatic zoology resources.

Similar to the Action Alternative, under the No Action Alternative, if the FSIA were able to secure the funding for the proposed TVA-funded action described in this EA from outside sources, there would be no direct or indirect impacts to aquatic zoology resources. If the FSIA was not able to secure the funding for the actions described in this EA, the proposed property purchase would not occur and existing site conditions would likely be unchanged, also resulting in no impacts on rare, threatened, and endangered aquatic zoology resources.

4.2.7 Terrestrial Zoology

4.2.7.1 Wildlife

The Proposed Action is to utilize InvestPrep funds matched with non-TVA funds to assist with the purchase of the 118-acre Project Area. The Project Area is composed of agricultural fields, several small, forested areas, two barns and an abandoned farmhouse. Landscape features surrounding the Project Area consist of a variety of early successional habitat and cropland (i.e., pasture and agricultural), mixed deciduous and coniferous forest consisting of mostly maples and pines and developed or otherwise disturbed areas including a nearby industrial park.

Approximately 46 acres of the Project Area is comprised of corn fields. Common inhabitants of agricultural fields include brown-headed cowbird, eastern bluebird, and eastern kingbird. Bobcat, coyote, eastern cottontail, hispid cotton rat, raccoon, red fox, Virginia opossum, and white-tailed deer are mammals typical of fields and cultivated land (Whitaker 1996). Reptiles including black kingsnake, black racer, common garter snake, eastern hognose snake, gray rat snake, milk snake, and northern copperhead are also known to occur in this habitat type (Moore and Sloane 2015). The fields are surrounded by a road to the west, and agricultural fields to the east.

Approximately 72 acres of the Project Area is comprised of forested habitat, most of which is primarily evergreen forest; however, pockets of uncut field and deciduous forest exist throughout the Project Area amongst the evergreen forest. Mixed forests with open areas provide habitat for an array of common terrestrial animal species. Birds typically found in this type of habitat include American robin, barred owl, blue jay, downy and hairy woodpecker, eastern towhee, indigo bunting, pileated woodpecker, prairie warbler, red-eyed vireo, red-tailed hawk, tufted titmouse, and white-breasted nuthatch (National Geographic 2002). American crows, American robin, black vultures, downy woodpeckers, and European starlings were observed during a field survey. This area also provides foraging and roosting habitat for several species of bat. Some examples of bat species likely found within this habitat include big brown bat, eastern red, and evening bat (Harvey et al. 2011). Eastern chipmunk, eastern woodrat, white-footed mouse, and woodland vole are other mammals that may be present within this habitat (Whittaker 1996). Eastern box turtle, eastern fence lizard, eastern garter snake, gray ratsnake, ring-necked snake, and southern black racer are common reptiles of these forests in the project region (Powell et al. 2016, Dorcas and Gibbons 2005). Ponds within forested areas also provide habitat for additional amphibians and reptiles such as Cope's gray treefrog, northern watersnake, spring peeper, and upland chorus frog (Powell et al. 2016).

During a field survey on October 20, 2023, performed by TVA terrestrial zoologists, a search was conducted of the two barns and farmhouse on the property. Two big brown bats were observed in the farmhouse. Big brown bats are one of the most common bats that can be found year-round in Kentucky. Big brown bats are associated with manufactured structures and are often found in eaves of buildings, bridges, and other dark structures. In winter, they migrate to roost in caves, typically hibernating by themselves or in small clusters of less than half-dozen individuals (Macgregor 2023). Additionally, raccoon latrines were found in the farmhouse and in both barns. Coyote scat was observed in the barn nearest the road. These are all common species to the area and ample suitable habitat exists for them in surrounding properties.

Review of the TVA Regional Natural Heritage database conducted on October 11, 2023, indicated one cave has been documented within three miles of the Project Area. This cave occurs approximately 2.54 miles from the Project Area. Stantec staff, while performing an assessment for waterbodies and wetlands, incidentally, observed one possible cave portal, the extent and depth of which is unknown, near the far southwestern border of the Project Area (Stantec 2024a). The possible cave portal was approximately one foot by two feet in size, was at the bottom of a sinkhole, however neither air flow nor water flow were observed at this location and the site was too small to be accessed. The TVA Regional Natural Heritage database review did not find any records of heronries or other aggregations of migratory birds within three miles of the Project Area. Review of the USFWS' Information for Planning and Consultation (IPaC) website on October 11, 2023, identified seven migratory birds of conservation concern (bald eagle, chimney swift, field sparrow, lesser yellowlegs, prairie warbler, prothonotary warbler, and red-headed woodpecker) that have the potential to occur within the Project Area.

Bald eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). This species is associated with large mature trees capable of supporting massive nests, which can weigh several hundred pounds and are typically built near larger waterways where eagles forage primarily for fish (USFWS 2007). No suitable habitat for bald eagle exists within the Project Area and no bald eagle nests are known within Simpson County, Kentucky.

Chimney swifts use chimneys in urban areas as nesting sites and communal roosts (Palmer-Ball 1996). Two chimneys were observed in the farmhouse at the time of survey. While nests were not observed at the time of survey, this structure could provide suitable nesting and roosting habitat for this species.

Field sparrows are found in brushy fields (Nicholson 1997). Suitable habitat for field sparrow exists in uncut grassland areas interspersed within the forest.

Lesser yellowlegs migrate through Kentucky using wet muddy areas and areas of shallow open water as stopover sites (Tibbitts and Moskoff 2020). Multiple periodically flooded areas of agricultural fields could be used by lesser yellowlegs as stopover habitat.

Prairie warblers are found in dry secondary growth forests with abundant shrubs and an open canopy (Nicholson 1997). Abundant suitable habitat for prairie warbler occurs in the Project Area in open locations where young cedars are present.

Prothonotary warblers are found in mature bottomland hardwood forests and swamps (Nicholson 1997). Suitable habitat for prothonotary warbler does not occur in the Project Area.

Red-headed woodpeckers use a variety of treed habitats but show preference for open forested areas with an abundance of available snag trees (Frei et al. 2020). Suitable nesting and foraging habitat for red-headed woodpecker is present throughout the Project Area.

The Action Alternative involves the use of InvestPrep funds to assist with purchase of the Project Area; therefore, implementation of the Proposed Action would not result in direct, indirect, or cumulative impacts on terrestrial zoology resources.

Similar to the Action Alternative, under the No Action Alternative, if the FSIA were able to secure funding for the proposed TVA-funded action described in this EA from outside sources, there would be no direct, indirect, or cumulative impacts to terrestrial wildlife species. If the FSIA was not able to secure the funding for the actions described in this EA, the proposed property purchase would not occur and existing site conditions would likely be unchanged, also resulting in no impacts to terrestrial wildlife species.

4.2.7.2 Threatened and Endangered Species (Wildlife)

A review of terrestrial animal species in the TVA Regional Natural Heritage database on October 11, 2023, returned one federally listed terrestrial animal species (gray bat) within three miles of the Project Area. One additional species proposed for federal listing (tricolored bat) is known from Simpson County, Kentucky. The U.S. Fish and Wildlife Service (USFWS) has determined that three federally listed species (Indiana bat, northern long-eared bat, and whooping crane) and one candidate for federal listing (monarch butterfly) have the potential to occur in the Project Area (Table 4.2-2). Thus, habitat suitability and potential impacts to these species will also be addressed.

Table 4.2-2. Federally Listed Terrestrial Animal Species Reported from Simpson County, Kentucky and Other Species of Conservation Concern Documented within Three Miles of FY24 InvestPrep- Simpson County, KY.[1]

Common Name	Scientific Name	Status[2]	
		Federal	State (Rank[3])
Birds			
Whooping crane[4]	*Grus americana*	EXPN	-
Invertebrates			
Monarch butterfly[5]	*Danaus plexippus*	C	-
Mammals			
Gray bat	*Myotis grisescens*	E	T(S2)
Indiana bat[4]	*Myotis sodalis*	E	E(S1S2)
Northern long-eared bat[4]	*Myotis septentrionalis*	E	E(S1)
Tricolored bat[6]	*Perimyotis subflavus*	PE	T(S2)

1. Source: TVA Regional Natural Heritage database and USFWS' Ecological Conservation Online System (2023b) (http://ecos.fws.gov/ecos/home.action) extracted 10/20/2023.
2. Status Codes: C = Candidate species under consideration for listing; E = Listed Endangered, EXPN= Experimental Population, non-essential; PE = Proposed Endangered; T = Listed Threatened.
3. State Ranks: S1 = Critically Imperiled; S2 = Imperiled.
4. Species not currently known in Simpson County, but the USFWS has determined they could exist within Project Area.
5. Candidate species for listing under the Endangered Species Act. Historically this species has not been tracked by state or federal heritage programs.
6. Federally listed species known from Simpson County, but not within three miles of the project footprint.

Monarch butterfly are a highly migratory species, with eastern United States (U.S.) populations overwintering in Mexico. Monarch populations typically return to the eastern U.S. in April (Davis and Howard 2005). Summer breeding habitat requires milkweed plant species, on which adults exclusively lay eggs for larvae to develop and feed on. Adults will drink nectar from other blooming wildflowers when milkweeds are not in bloom (NatureServe 2023). While this species has not been historically tracked by state or federal heritage programs, the USFWS IPaC project planning tool determined that this species has the potential to occur within the Project Area. The edges of fields within the Project Area have potential to contain some wildflower and other flowering plant species that could provide suitable foraging habitat. However, due to the intense agricultural use of the site for some time, it is unlikely that any meaningful quantity of flowering plants are present within the seedbank or likely to occur on site.

Whooping crane is a large bird that once occurred throughout North America but has declined to three populations that breed in Canada and winter in coastal Texas. In the Eastern United States, a small captive-raised population breeds in Wisconsin and overwinters in Florida. The whooping crane is listed as endangered in the Southwest (USFWS Region 2). Outside of this region (including Kentucky), the whooping crane is categorized as a non-essential experimental population. For the purposes of consultation, non-essential experimental populations are treated as threatened species on National Wildlife Refuge and National Park land (require consultation under 7(a)(2) of the ESA) and as a proposed species on private land (no section 7(a)(2) requirements, but Federal agencies must not jeopardize their existence (section 7(a)(4))) (USFWS 2023a). Migration habitat does not exist within the Project Area. Whooping crane would not be impacted by the Proposed Action.

Gray bat is a federally listed species associated year-round with caves, roosting in different caves throughout the year (Brady et al. 1982, Tuttle 1976a,b). Bats disperse from colonies at dusk to forage along waterways (Harvey et al. 2011). The nearest gray bat record is from a mist net capture 1.29 miles from the Project Area. One documented cave record is known within three miles of the project footprint. This cave occurs 2.54 miles from the Project Area. While performing an assessment for waterbodies and wetlands, Stantec staff incidentally observed one possible cave portal, the extent and depth of which is unknown, near the far southwestern border of the Project Area (Stantec 2024a). No additional roosting habitat was observed in or near the Project Area by TVA Terrestrial Zoologists during a site visit on October 20, 2023. Foraging habitat for this species exists in the Project Area over two small ponds and a wetland.

Indiana bat hibernates in caves during winter and inhabits forested areas around these caves for swarming (mating) in the fall and staging in the spring, prior to migration to summer habitat. During summer, Indiana bats roost under exfoliating bark and in cracks and crevices of trees. These trees are typically located in mature forests with an open understory and a nearby source of water. Indiana bats are known to change roost trees frequently throughout the season, yet still maintain site fidelity, returning to the same summer roosting areas in subsequent years (Pruitt and TeWinkel 2007; Kurta et al. 2002). The USFWS has determined that this species has the potential to occur statewide in Kentucky; however, no records are known from Simpson County, Kentucky (USFWS 2023c). Foraging habitat for Indiana bats exists over two small ponds and one wetland and over and around nearby forested areas. Similarly suitable foraging habitats are abundant throughout the adjacent landscape.

Northern long-eared bat predominantly overwinters in large hibernacula such as caves, abandoned mines, and cave-like structures. During fall and spring, they utilize entrances of caves and surrounding forested areas for swarming and staging. In summer, northern long-eared bats roost individually or in colonies beneath exfoliating bark or in crevices of both live and dead trees. Roost selection by northern long-eared bat is similar to Indiana bat; however, it is thought that northern long-eared bats are more opportunistic in roost site selection. This species also roosts in abandoned buildings and under bridges. Northern long-eared bats emerge at dusk to forage below the canopy of mature forests on hillsides and roads, and occasionally over forest clearings and along riparian areas (USFWS 2014). No records of northern long-eared bats are known from Simpson County, KY; however, the USFWS has determined this species may occur there (USFWS 2023c). Foraging habitat for northern long-eared bats exists over two small ponds, one wetland, and within nearby forested areas. Similarly suitable foraging habitats are abundant throughout the adjacent landscape.

Tricolored bat has been proposed for federal listing and are generally considered to be a solitary species but can sometimes be found in small groups. They are associated with forested landscapes where they forage near trees and along waterways, especially riparian areas. Maternity and other summer roosts are typically in clumps of dead or live tree foliage. Caves, mines, culverts, and rock crevices may also be used as roosts and winter hibernacula (USFWS 2021; USFWS 2023d). The nearest documented tricolored bat record is from a winter hibernacula 3.74 miles from the Project Area. No additional winter roosting habitat was observed near the project footprint by TVA Terrestrial Zoologists during a site visit on October 20, 2023. Foraging habitat for tricolored bat exists over two small ponds, one wetland, and over and around nearby forested areas. Similarly suitable foraging habitats are abundant in the area.

No documented caves or suitable winter roosting structures for gray bat, Indiana bat, northern long-eared bat, or tricolored bat are known from the Project Area. One suitable winter roosting structure has been documented within three miles of the Project Area (a cave 2.54 miles away). While performing an assessment for waterbodies and wetlands, Stantec staff incidentally observed one possible cave portal, the extent and depth of which is unknown, near the far southwestern border of the Project Area (Stantec 2024a). The possible cave portal was approximately one foot by two feet in size and was located at the bottom of a sinkhole, however, neither air flow nor water flow were observed, and the passage was too small to allow for survey. Trees within the Project Area were assessed for potential summer roosting and foraging sites for Indiana bat, Northern long-eared bat, and tricolored bat following the Range Wide Indiana Bat and Northern Long-eared Bat Survey Guidelines (USFWS 2023d). Summer roosting habitat for these species exists within the forested acreage of the Project Area. Approximately 71.62 acres of suitable summer roosting habitat exists for Indiana bats and northern-long eared bats within the Project Area. Approximately 73.43 acres of suitable summer roosting habitat for tricolored bat exists within the Project Area. Foraging habitat is present at two small ponds, one wetland, and over and around forested areas across the property. Buildings on the property were examined for evidence of bat use. Two big brown bats were observed roosting in the old farmhouse. No evidence of large colonies of bats was found, and no federally protected bats were observed.

Impacts were assessed for five terrestrial animal species having the potential to occur in the Project Area. Suitable habitat exists in the Project Area for monarch butterfly, gray bat, Indiana bat, Northern long-eared bat, and tricolored bat. No suitable habitat exists in the Project Area for

whooping crane. Neither the No Action nor the Action Alternative would jeopardize the continued existence of whooping crane.

Monarch butterfly foraging habitat may exist within narrow margins of field edge that may not have been aggressively impacted by agricultural crop production. No vegetation removal or ground disturbance is proposed. This species is currently listed under the Endangered Species Act (ESA) as a candidate species and is not subject to Section 7 consultation under the ESA. The Action Alternative would not jeopardize the continued existence of monarch butterfly.

No caves or other hibernacula for gray bat, Indiana bat, Northern long-eared bat, or tricolored bat would be impacted by the Proposed Action Alternative. No suitable summer roosting habitat would be removed as tree clearing is not within the scope of the Proposed Action. Two small ponds and one wetland on site may provide suitable aquatic foraging habitat, however there are currently no proposed activities that would affect these waterbodies. There would be no direct, indirect, or cumulative impacts to rare, threatened, or endangered terrestrial wildlife species or unique habitat under the Action Alternative or the No Action Alternative.

Activities associated with this approval were addressed in TVA's programmatic consultation with the U.S. Fish and Wildlife Service on routine actions and federally listed bats in accordance with Endangered Species Act Section 7(a)(2), originally completed April 2018, and updated in May 2023. TVA has determined that the Action and No Action Alternatives would have no effect on Indiana or northern long-eared bats. Similarly, Action and No Action Alternatives would not jeopardize the continued existence of tricolored bats.

4.2.8 Botany

4.2.8.1 Vegetation

A field survey was conducted by TVA staff in November 2023 to document plant communities, infestations of invasive plants, and to search for possible threatened and endangered plant species, and rare plant communities. All plant communities present on the parcel were visited during the survey. Using the National Vegetation Classification System (Grossman et al. 1998), vegetation types observed during field surveys can be classified as a combination of evergreen, deciduous forest, and herbaceous vegetation. No forested areas in the Project Area had structural characteristics indicative of old growth forest stands (Leverett 1996).

Evergreen forest, which occurs throughout the Project Area, is the most common forest type and accounts for the vast majority of the vegetation observed. This forest has low species diversity and is dominated by young eastern red cedar (*Juniperus virginiana*) less than 20 feet tall with the Project Area exhibiting a wide range of density of red cedars. Areas with a low density of red cedars had more sun-loving plant species growing nearby as opposed to areas with higher density which had more shade tolerant species growing underneath. The understory is comprised of saplings of the overstory, Bradford pear (*Pyrus calleryana*), Chinese privet (*Ligustrum sinense*), coralberry (*Symphoricarpos orbiculatus*), eastern blackberry (*Rubus pensilvanicus*), and winged sumac (*Rhus copallinum*). Sun-loving herbaceous species include Carolina elephantsfoot (*Elephantopus carolinianus*), harvestlice (*Agrimonia parviflora*), late goldenrod (*Solidago altissima*), sericea lespedeza (*Lespedeza cuneata*), small beaked panic grass (*Coleataenia anceps*), and tall fescue (*Lolium arundinaceum*). Shade tolerant species found include ebony spleenwort (*Asplenium platyneuron*), Japanese stiltgrass (*Microstegium vimineum*) and white snakeroot (*Ageratina altissima* var. *altissima*).

Herbaceous vegetation is characterized by greater than 75 percent cover of forbs and grasses and less than 25 percent cover of other types of vegetation. The most common type of herbaceous vegetation is agricultural fields of corn. The least common herbaceous vegetation are pockets of old unmowed fields with thickets and they are interspersed within the young evergreen forests throughout the Project Area. Common herbaceous species in this habitat include annual ragweed (*Ambrosia artemisiifolia*), asters (*Symphyotrichum* sp.), broomsedge bluestem (*Andropogon virginicus*), Carolina horsenettle (*Solanum carolinense* var. *carolinense*), eastern rabbit tobacco (*Pseudognaphalium obtusifolium*), field thistle (*Cirsium discolor*), harvestlice, hyssopleaf thoroughwort (*Eupatorium hyssopifolium*), late goldenrod, milkweed (*Asclepias syriaca*), purpletop tridens, sericea lespedeza, small beaked panic grass, swamp sunflower (*Helianthus angustifolius*), tall fescue, and yellow foxtail (*Setaria pumila* ssp. *pumila*). Woody plants found include eastern blackberry and Japanese honeysuckle.

Deciduous forest, where deciduous trees account for more than 75 percent of total canopy cover, is the least common forest type, located mainly at the house site and to the extreme southwest. Common trees in these areas include black oak (*Quercus velutina*), black walnut (*Juglans nigra*), eastern red cedar, honeylocust (*Gleditsia triacanthos*), northern hackberry (*Celtis occidentalis*), post oak (*Quercus stellata*), slippery elm (*Ulmus rubra*), Small's hackberry (*C. smallii*), southern red oak (Quercus *falcata*), sugar maple (*Acer saccharum*), sweetgum (*Liquadambar styraciflua*), and white ash (*Fraxinus americana*). The understory is comprised of woody shrubs such as Chinese privet, coralberry, eastern blackberry, and multiflora rose (*Rosa multiflora*). The herbaceous layer is species poor and includes ebony spleenwort and Indian strawberry (*Potentilla indica*).

Overall, none of the proposed Project Area supports high quality plant communities with significant conservation value.

The Action Alternative involves the use of InvestPrep funds to assist with purchase of the Project Area; therefore, implementation of the Proposed Action would not result in impacts on plant species and vegetation.

Similar to the Action Alternative, under the No Action Alternative, if the FSIA were able to secure the funding for the proposed TVA-funded action described in this EA from outside sources, there would be no direct or indirect impacts on plant species and vegetation. If the FSIA was not able to secure the funding for the actions described in this EA, the proposed property purchase would not occur and existing site conditions would likely be unchanged, also resulting in no impacts on plant species and vegetation.

4.2.8.2 Threatened and Endangered Species

Review of the TVA Regional Natural Heritage database indicates that one state and no federally listed plant species have been previously reported within a five-mile vicinity of the Project Area. No federally listed plant species has been previously reported from Simpson County, Kentucky (Table 4.2-3), where the Project Area is located. No state or federally listed plants were observed in the proposed Project Area. No designated critical habitat for plants occurs in the Project Area.

Table 4.2-3. Plant Species of Conservation Concern Previously Reported from within Five Miles of the InvestPrep Simpson County, KY project.

Common Name	Scientific Name	Federal Status[1]	KY State Status[1]	State Rank[2]
Rough Dropseed	*Sporobolus clandestinus*	–	THR	S2S3

Source: TVA Regional Natural Heritage database, queried November 2023

[1] Status Codes: THR = Listed as Threatened

[2] State Ranks: S2 = Imperiled; S3 = Vulnerable; S#S# = Denotes a range of ranks because the exact rarity of the element is uncertain

A field survey completed in November 2023 indicates that no habitat for rough dropseed, or any other state or federally listed plant species, occurs on-site. The entirety of the Project Area is highly disturbed and is populated primarily with weedy native and non-native species. No designated critical habitat for plants occurs in the proposed Project Area.

The Action Alternative involves the use of InvestPrep funds to assist with purchase of the Project Area; therefore, implementation of the Proposed Action would not result in impacts on rare, threatened, or endangered plant species.

Similar to the Action Alternative, under the No Action Alternative, if the FSIA were able to secure the funding for the proposed TVA-funded action described in this EA from outside sources, there would be no direct or indirect impacts on rare, threatened, or endangered plant species. If the FSIA was not able to secure the funding for the actions described in this EA, the proposed property purchase would not occur and existing site conditions would likely be unchanged, also resulting in no impacts on rare, threatened, or endangered plant species.

4.2.9 Archaeology and Historic Structures and Sites

Historic and cultural resources, including archaeological resources, are protected under various federal laws, including: the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, and the National Historic Preservation Act (NHPA). Section 106 of the NHPA requires federal agencies to consult with the respective State Historic Preservation Officer (SHPO) when proposed federal actions could affect these resources.

TVA determined that the Proposed Action Alternative is an “undertaking” as defined by the regulations under NHPA. Once an action is determined to be an undertaking, the regulations require agencies to consider whether the proposed activity has the potential to impact historic properties. If the undertaking is such an activity, then the agency must follow the following steps: (1) involve the appropriate consulting parties; (2) define the Area of Potential Effect (APE); (3) identify historic properties in the APE; (4) evaluate possible effects of the undertaking on historic properties in the APE; and (5) resolve adverse effects (36 CFR § 800.4 through 800.13). An APE is defined as the “geographic area or areas within which the undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist” (36 CFR § 800.16). TVA recommends that the APE be considered as the total area within which the proposed purchase would take place (118 acres).

TVA contracted with Stantec to carry out archaeological and architectural surveys for the project APE, which were conducted in January 2024, and to write reports titled: Phase I Archaeological Survey for the Adamson Farm Project, Simpson County, Kentucky (Stantec 2024b) and Cultural Historic Survey, InvestPrep Round 11: Henderson Interstate Industrial Park, Simpson County, Kentucky (Stantec 2024c). TVA determined that the survey and the report are consistent

with the *Secretary of Interior's Standards and Guidelines for Identification* (National Park Service [NPS] (1983).

4.2.9.1 Archaeology

Stantec prepared a phase I archaeological survey of the Project Area with the field surveying performed in January 2024 (Stantec 2024b). No prior archaeology studies were identified within the APE. A total of 1,153 shovel tests were pre-plotted for excavation within the APE resulting in 937 shovel tests negative for cultural material, 206 not excavated, and 10 positive for cultural material. Of the 206 that were not excavated, most were within sinkholes containing slopes greater than 15 percent, while others were along transects containing farm ponds or areas previously disturbed by historic roadbeds. Several others were not excavated due to surface erosion or bedrock at the surface. Sinkholes were visually inspected to investigate the potential for rock overhangs, or chert quarries. One archaeological site and ten isolated finds were identified during this survey.

Site 15Si70 was identified at the south-central portion of the APE adjacent to the APE boundary. The site is defined by three positive shovel tests containing a small assemblage of precontact debitage (i.e., the byproduct of tool making and associated activities such as rock flakes). The site's deposits were recovered entirely within a disturbed plow zone. No further work is recommended at Site 15Si70.

Ten isolated finds were also identified within the APE. Five of the isolated finds (IF-02, IF-03, IF-07, IF-08, IF-09) were identified and collected from the ground surface. These artifacts were not associated with subsurface positive shovel tests. The remaining five isolated finds (IF-01, IF-04, IF-05, IF-06, IF-10) were recovered from shovel tests. Each subsurface isolated find was delineated at a close-interval radial shovel test (10-meter) to inspect for additional deposits. IF-01 was distributed between two positive shovel tests with both containing one artifact, respectively. Similarly, IF-06 was distributed between two adjacent shovel tests with one artifact, respectively. These adjacent shovel tests produced too few artifacts to warrant a site designation. The remaining isolated finds (IF-04, IF-05, IF-10) were shovel tests that produced one artifact, respectively.

Due to the limited assemblage and lack of potential for intact, buried deposits, Site 15Si70 is recommended not eligible for the NRHP. Stantec recommended no additional work for the APE. TVA received concurrence from the Kentucky Heritage Council (KHC) on May 3, 2024, with the report's findings (Attachment 3).

The Action Alternative involves the use of InvestPrep funds to assist with purchase of the Project Area; therefore, implementation of the Proposed Action would not result in impacts on archaeology resources.

Similar to the Action Alternative, under the No Action Alternative, if the FSIA were able to secure the funding for the proposed TVA-funded action described in this EA from outside sources, there would be no direct or indirect impacts to archaeology resources. If the FSIA was not able to secure the funding for the actions described in this EA, the proposed property purchase would not occur and existing site conditions would likely be unchanged, also resulting in no impacts to archaeology resources.

4.2.9.2 Historic Structures and Sites

Stantec prepared a cultural historic survey of the Project Area with the field surveying performed in January 2024 (Stantec 2024c). No previously recorded documented historic resources were identified within the APE. Stantec's field survey documented one site with potential to be eligible for listing in the NRHP, field site FS 1 [Kentucky Heritage Council (KHC) Site SI-577]. Site FS 1 consisted of a dwelling, privy, shed, well, and two barns. All features were either in poor condition or collapsing. Site FS 1 was recommended not eligible for list in the NRHP due to the poor condition of the structures and loss of integrity. No NRHP districts were identified.

TVA agrees with the findings and recommendations of Stantec's survey reports. TVA received concurrence from the KHC on May 3, 2024, with the report's findings (Attachment 3). TVA therefore finds that the proposed undertaking would result in no effects to historic properties included in, or eligible for inclusion in, the NRHP.

The Action Alternative involves the use of InvestPrep funds to assist with purchase of the Project Area; therefore, implementation of the Proposed Action would not result in impacts on historic structures and sites.

Similar to the Action Alternative, under the No Action Alternative, if the FSIA were able to secure the funding for the proposed TVA-funded action described in this EA from outside sources, there would be no direct or indirect impacts to historic structures and sites. If the FSIA was not able to secure the funding for the actions described in this EA, the proposed property purchase would not occur and existing site conditions would likely be unchanged, also resulting in no impacts to historic structures and sites.

4.2.10 Visual Resources

The Project Area is approximately 118 acres consisting of open grassy land, scrub-shrub, and forested areas. The Project Area is bordered by LioChem e-Materials LLC and Harcros Chemicals, Inc. to the west, agricultural land and scattered forested areas to the north, and agricultural lands and some forested areas to the south and east. The visual landscape consists of rural, flat areas with primarily agricultural/open land, as well as industrial development to the west and some rural residential areas north and southeast adjacent to the Project Area.

Further to the west of the Project Area is I-65. There are trees and visual screening between the interstate and the Project Area from the industrial development in the area. Patchy forest may also provide some visual screening of the Project Area relative to the residences in the vicinity to the north and southeast.

The Action Alternative involves the use of InvestPrep funds to assist with purchase of the Project Area; therefore, implementation of the Proposed Action would not result in impacts on visual resources.

Similar to the Action Alternative, under the No Action Alternative, if the FSIA were able to secure the funding for the proposed TVA-funded action described in this EA from outside sources, there would be no direct or indirect impacts to visual resources. If the FSIA was not able to secure the funding for the actions described in this EA, the proposed property purchase would not occur and existing site conditions would likely be unchanged, also resulting in no impacts to visual resources.

4.2.11 Noise

Existing ambient noise levels, or background noise levels, are the current sounds from natural and artificial sources at receptors. The magnitude and frequency of background noise at any given location may vary considerably over the course of a day or night and throughout the year. The variations are caused in part by weather conditions, seasonal vegetative cover, and human activity. Existing sources of noise in the vicinity of the Project Area are primarily associated with traffic along the surrounding roads and the surrounding businesses and residences.

The Action Alternative involves the use of InvestPrep funds to assist with purchase of the Project Area; therefore, implementation of the Proposed Action would not result in impacts on potential noise receptors.

Similar to the Action Alternative, under the No Action Alternative, if the FSIA were able to secure the funding for the proposed TVA-funded action described in this EA from outside sources, there would be no direct or indirect impacts on noise receptors. If the FSIA was not able to secure the funding for the actions described in this EA, the proposed property purchase would not occur and existing site conditions would likely be unchanged, also resulting in no impacts on noise receptors.

4.2.12 Socioeconomics and Environmental Justice

This section evaluates the potential impact of the Action Alternative on socioeconomic resources. It also considers the range of communities impacted to determine whether the Action Alternative is likely to have a disproportionate and adverse impact on minority and low-income populations.

This analysis focuses on the state, county, and locality within which the Action Alternative would occur. Publicly available statistics generated by the United States Census Bureau and the United States Bureau of Labor Statistics were used to characterize socioeconomic conditions in the host state (Kentucky), county (Simpson), and locality (City of Franklin, Kentucky) (Table 4.2-4). Details of the Action Alternative were then used to evaluate likely effects on existing socioeconomic resources. The demographics and income of the host county and locality were considered, relative to the demographics and wealth levels at the state level, to identify the potential for a disproportionate and adverse impact on minority and low-income populations, which is commonly referred to as an evaluation of Environmental Justice.

Table 4.2-4. Population, Demographics, Income, and Employment in the Host State, County and Locality

	Kentucky	Simpson County	City of Franklin, Kentucky
Population [1]			
July 2022 Population	4,511,563	19,949	10,344
April 2020 Population	4,505,836	19,594	10,176
Population, Percent Change	0.1%	1.8%	1.6%
Population per Square Mile	114.1	83.7	690.0
Demographics [1]			
White Alone, not Hispanic or Latino	83.2%	84.7%	80.2%
Black or African American Alone	8.7%	9.3%	13.0%
American Indian and Alaska Native Alone	0.3%	0.4%	0.1%

	Kentucky	Simpson County	City of Franklin, Kentucky
Asian Alone	1.8%	0.9%	0.4%
Native Hawaiian and Other Pacific Islander Alone	0.1%	0.1%	0.0%
Two or More Races	2.3%	2.2%	6.2%
Hispanic or Latino (of any race)	4.3%	3.1%	3.0%
Income [1]			
Median Household Income	$60,183	$55,907	$54,784
Per Capita Income	$33,515	$27,951	$23,835
Percent with Income Below the Poverty Level	16.5%	15.6%	16.8%
Employment (Not Seasonally Adjusted): April 2023 [2]			
Labor Force	2,0109,568	8,832	NA
Employed	1,942,066	8,509	NA
Unemployed	77,502	323	NA
Unemployment Rate (%)	3.8%	3.7%	NA

Notes: NA=Not available
[1] Source: United States Census Bureau (2024)
[2] Source: United States Bureau of Labor Statistics (2024)

The evaluation of Environmental Justice determined the following:

- Relative to the average Kentucky resident, the residents of Simpson County live at a lower population density, but a higher population growth. Relative to the average Kentucky resident, the residents of the City of Franklin, Kentucky, live at a higher population density and higher population growth.
- Relative to the average Kentucky resident, the residents of Simpson County are less likely to self-identify as a minority race or ethnicity. Relative to the average Kentucky resident, the residents of City of Franklin, Kentucky, are more likely to self-identify as a minority race or ethnicity.
- Per capita income and median household income are both lower in Simpson County than in Kentucky. Per capita income and median household income are both lower in the City of Franklin, Kentucky than in Kentucky as a whole. Residents of Simpson County are less likely to live below the poverty level than residents of Kentucky as a whole. Residents of the City of Franklin, Kentucky, are more likely to live below the poverty level than residents of Kentucky as a whole.
- The unemployment rate in Simpson County is lower than the unemployment rate in Kentucky.

There are several residential subdivisions within 0.5 mile of the Project Area. EPA's EJScreen Tool identified the following demographic characteristics for this area. Relative to the state, these neighborhoods in aggregate have a lower percentile population of color, a lower level of low-income population, a lower rate of linguistic isolation and a lower level of population with less than high school education.

There is minimal potential that the Action Alternative would result in a disproportionate and adverse impact on minority and low-income populations. This conclusion is based on two observations. First, the Action Alternative would have either no effect or a minor positive effect on the local economy. Second, as described throughout this document, there would be no environmental effects associated with the Action Alternative.

The Action Alternative involves the use of InvestPrep funds to assist with purchase of the Project Area; therefore, implementation of the Proposed Action would not result in impacts on socioeconomics and environmental justice.

Similar to the Action Alternative, under the No Action Alternative, if the FSIA were able to secure the funding for the proposed TVA-funded action described in this EA from outside sources, there would be no direct or indirect impacts to socioeconomics and environmental justice. If the FSIA was not able to secure the funding for the actions described in this EA, the proposed property purchase would not occur and existing site conditions would likely be unchanged, also resulting in no impacts to socioeconomics and environmental justice.

4.2.13 Transportation

The Project Area can be accessed from Rufus Dison Road. The site entrance would be located on the eastern side of the Project Area. Rufus Dison Road runs approximately north to south and merges into Loving Chapel Road which continues in an approximate north to south direction until it terminates at Scottsville Road. Scottsville Road runs east to west and provides access to I-65.

Rufus Dison Road and Loving Chapel Road are local roads which provide access to residential and rural agricultural properties to the east and south of the Project Area. Rufus Dison Road and Loving Chapel Road are paved along their length, and sufficiently wide for a single lane of traffic in each direction. Based on preliminary review of Google aerial and Street View images (recorded July 2023 and June 2023, respectively), the road is in good condition with narrow grassy verges. General road conditions were considered acceptable based on observations during Stantec's field surveys. Rufus Dison Road and Loving Chapel Road are not listed on the Functional Classification System by the Kentucky Transportation Cabinet (KTC) (KTTC 2024a).

Scottsville Road is a two-lane state highway listed as Rural Major Collector by the KTC. Scottsville road is south of the Project Area and runs west to Franklin, KY and east to Scottsville, KY. Scottsville Road provides access to multiple commercial and residential properties to the east and west. Based on preliminary review of Google Street View images (recorded June 2023), the road is in good condition with narrow grassy verges. General road conditions were considered acceptable based on observations during Stantec's field surveys.

I-65 is a six-lane highway and is classified as a Rural Interstate by the functional classification system by the KTC. I-65 is west of the Project Area and runs north to south. Based on preliminary review of Google Street View images (recorded November 2023), the road is in good condition with paved shoulders. General road conditions were considered acceptable based on observations during Stantec's field surveys.

Based on a review of KTC historical traffic data (KTC 2024b), there are no traffic count stations located on Rufus Dison Road or Loving Chapel Road. KTC historical traffic data indicates the nearest traffic count stations are located on Scottsville Road and the ramps to I-65. The annual average daily traffic count (AADT) for the relevant stations are presented in Table 4.2-5 below.

Table 4.2-5. Kentucky Transportation Cabinet Traffic Count Data for the Project Area

Route Description	Station ID	Distance from Project Area (Miles)	Year	AADT
Scottsville Road	107273	1.5	2020	4,085
Interstate 65 (north)	107301	3.0	2021	3,912
Interstate 65 (south)	107298	3.2	2021	4,899

Source: Kentucky Transportation Cabinet (Traffic Counts (ky.gov)), extracted 2/6/2024.

The Proposed Action, to provide funds to assist with the purchase of the Project Area, would not result in changes in traffic patterns or volume. The Action Alternative involves the use of InvestPrep funds to assist with purchase of the Project Area; therefore, implementation of the Proposed Action would not result in impacts on transportation.

Similar to the Action Alternative, under the No Action Alternative, if the FSIA were able to secure the funding for the proposed TVA-funded action described in this EA from outside sources, there would be no direct or indirect impacts to transportation infrastructure. If the FSIA was not able to secure the funding for the actions described in this EA, the proposed property purchase would not occur and existing site conditions would likely be unchanged, also resulting in no impacts on transportation.

5.0 PERMITS, LICENSES, AND APPROVALS

Implementation of the Action Alternative as the Proposed Action is not anticipated to require permits, licenses, and approvals.

The future use of the site has not been defined; therefore, an analysis of the potential impacts to the environmental resources described in this EA resulting from future development is beyond the scope of this EA. The FSIA, or its contractors, would be responsible for obtaining local, state, or federal permits, licenses, and approvals necessary for any future development of the Project Area. The Action Alternative would result in TVA providing funds to the FSIA to assist with the purchase of the Project Area. The FSIA would be responsible for all processes needed to complete the property transaction.

6.0 BEST MANAGEMENT PRACTICES AND MITIGATION MEASURES

The Proposed Action is to provide funds to assist the FSIA with purchase of the Project Area. No other actions would occur. Implementation of the Action Alternative as the Proposed Action is not anticipated to require implementation of BMPs and mitigation measures.

The future use of the site has not been fully defined; therefore, an analysis of the potential impacts to the environmental resources described in this EA resulting from future development is beyond the scope of this EA.

7.0 LIST OF PREPARERS

Table 7-1 summarizes the expertise and contribution made to the EA by the Project Team.

Table 7-1. Environmental Assessment Project Team

Name/Education	Experience	Project Role
TVA		
Brittany Kunkle *BS Environmental and Soil Science*	5 years in Project Management, Managing and Performing NEPA Analyses	Economic Development Grant Project NEPA Compliance Manager
David Nestor *M.S. Botany; B.S. Aquaculture, Fisheries, and Wildlife Biology*	21 years in Floristic Surveys, Plant Ecology, and Invasive Plant Species and 19 years in ESA and NEPA compliance	Threatened and Endangered Plants, Plant Ecology, Invasive Plant Species
Britta Lees *MS Botany; B.S. Biology*	25 years in water/wetland assessment and compliance	Surface Water
Derek Reaux *PhD Anthropology, MA Anthropology, BA Anthropology*	12 years of experience in archaeological research, cultural resource management, and Section 106 compliance.	Cultural resources, NHPA Section 106 compliance
Matthew Reed *M.S. Wildlife and Fisheries Science; QHP*	13 years working with threatened and endangered aquatic species in the Southeastern United States; 7 years in ESA, NEPA, and CWA compliance and stream assessments	Aquatic Ecology, Aquatic T&E Species
Carrie Williamson, P.E., CFM *BS and MS Civil Engineering*	11 years in Floodplain and Flood Risk; 11 years in Compliance Monitoring; 3 years in River Forecasting	Floodplains QA/QC
Anne E. Hatfield *B.S. Wildlife and Fisheries Science, University of Tennessee*	2 years in biological compliance, NEPA compliance, and ESA consultation for T&E terrestrial animals. Four years in animal husbandry.	Terrestrial Zoology, Threatened and Endangered Species
Sara McLaughlin-Johnson *B.S. Wildlife and Fisheries Science, University of Tennessee*	11 years in Biological Compliance, NEPA compliance, and ESA consultation for T&E terrestrial animals. 18 years in biological field studies.	Terrestrial Zoology, Threatened and Endangered Species
Fallon Parker Hutcheon *M.S. Environmental Studies* *B.S. Biology*	5 years in wetland delineation, wetland impact analysis, and NEPA and CWA compliance	Wetlands
Chloe Sweda *B.S. Earth and Environmental Sciences*	5.5 years in Natural Resource Management	Managed and Natural Areas
Stantec		
Douglas Mooneyhan *M.S. Biology, Tennessee Technological University* *B.S. Wildlife and Fisheries Science, University of Tennessee*	34 years in managing and performing environmental studies, Project Manager for a variety of different project types including NEPA, construction monitoring, natural resources, water resources, and fisheries biology.	EA Program Manager QA/QC

Name/Education	Experience	Project Role
Jaclyn Martin *M.S. Environmental Sciences, Swedish University of Agricultural Sciences, Uppsala, Sweden* *M.S. Environmental Sciences, University of Natural Resources and Life Sciences, Vienna, Austria* *B.S. Biology, Winthrop University, South Carolina*	10 years in environmental consulting in the preparation and review of NEPA compliance reports, environmental assessments, and permitting for a variety of telecommunication, alternative energy, and FERC-regulated projects.	Socioeconomics and Environmental Justice, Visual
Duane Simpson *M.A. Anthropology, University of Arkansas* *B.A. Anthropology, Ohio University*	29 years in archaeological consulting including management of projects across the southeast and Mid-Atlantic regions. Principal Investigator for over 15 years.	Archaeology
Rachel Kennedy *M.H.P. Historic Preservation, University of Kentucky* *B.A. Political Science and History, University of Kentucky*	23 years of experience working in non-profit, governmental, and private sectors with all aspects of preservation planning, from interpretation of the Secretary of the Interior's Standards for the Treatment of Historic Properties to cultural landscape examinations to identifying, evaluating, and listing properties to the NRHP. Meets the Secretary of the Interior's Professional Qualifications Standards for History and Architectural History, per 36 Code of Federal Regulations (CFR), Part 61.	Historic Structures and Sites
Josh Yates, P.G. *M.S. Geology, University of South Florida* *B.S. Natural Resources Management and Engineering, University of Connecticut*	18 years of hydrogeologic assessments and water resources permitting experience. This experience includes water supply planning, hydrogeologic investigations, groundwater modeling, water use permitting, well construction oversight, EIS and EA preparation, minimum flow and level (MFL) impact analysis, monitoring well network design, aquifer performance tests, and GIS analysis.	Groundwater, Soils
Ellen Mullins *M.S. Forestry, Mississippi State University, Starkville, Mississippi, 2015* *B.S. Forestry, University of Kentucky, Lexington, Kentucky, 2011*	Ms. Ellen Mullins is a project manager with 14 years of experience in environmental consulting and government. Ellen currently provides support and leadership for environmental planning and the NEPA permitting process. She prepares application packages and manages agency coordination efforts related to Threatened and Endangered Species, Clean Water Act (CWA) Section 404/401, and Section 106 Cultural Resources. She serves as a technical expert for natural resource projects for documents that are used in regulatory submissions.	Prime Farmland, Air Quality and Climate Change, Noise

Name/Education	Experience	Project Role
James Kiser *B.S. Biology, Morehead State University*	Mr. Kiser is a Senior biologist and has over three decades of ecological and environmental services experience. He has conducted numerous endangered species surveys and habitat assessments throughout the eastern United States. He understands how the Endangered Species Act (ESA) is implemented and how to streamline the process while maintaining integrity and ensuring protection of listed species. He has completed both informal and formal consultation with the US Fish and Wildlife Service on projects involving Indiana bats, gray bats, northern long-eared bats, endangered freshwater mussels, and numerous listed plant species.	Botany
Chris Knable, TN-QHP *B.S. Natural Resources and Environmental Science, University of Kentucky*	Mr. Knabel is a biologist with six years of experience conducting wetland delineations, hydrologic determinations, threatened and endangered species surveys, and various other ecological and biological field surveys. He has personally conducted numerous Hydrologic Determinations throughout Tennessee and conducted thousands of acres of wetland delineations throughout Tennessee and Kentucky. Additionally, he has extensive knowledge of USACE Section 404 permitting and Section 7 protected species consultation.	Aquatics, Wetlands
Shane Kelley, TN-QHP *B.S. Natural Resources & Environmental Science, University of Kentucky*	Mr. Kelley is a biologist with ten years of experience in multiple areas of the environmental field with a particular focus on USACE Section 404 permitting, Section 7 protected species consultation, and various ecological and biological field surveys. He is a Qualified Hydrologic Professional and has personally conducted numerous Hydrological Determinations throughout Tennessee and North Carolina and completed thousands of acres of wetland delineations throughout Kentucky, Tennessee, and Mississippi. Mr. Kelley has conducted various endangered plant species surveys throughout Kentucky, Tennessee, and North Carolina including Short's goldenrod (*Solidago shortii*), Virginia spiraea (*Spiraea virginiana*), and small whorled pogonia (*Isotria medeoloidies*). Additionally, he is a federally permitted bat biologist for all listed bat species throughout the TVA service area.	Aquatics, Wetlands

Name/Education	Experience	Project Role
Iris Eschen *Heald Business College, San Francisco, CA*	As Document Production Manager, Ms. Iris Eschen has more than 30 years of experience coordinating the production of large, complex documents for engineering and environmental consulting firms in California. She has overseen the technical editing, quality assurance, quality check, and production, submission, and distribution of countless reports and written products, including environmental impact statements/reports (EISs/EIRs), license applications, pre-application documents (PADs), wetland delineations, initial studies, mitigated negative declarations (MNDs), biological opinions (BOs), environmental assessments (EAs), and habitat conservation plans (HCPs).	Editor, Document Production
Brenton Jenkins, P.E. *B.S. Environmental Engineering, Louisiana State University*	11 years in environmental consulting for various private and public sector clients, including engineering design, permitting, and assessments, primarily in the oil and gas sector.	Transportation

8.0 AGENCIES AND OTHERS CONSULTED

The following federal and state agencies and federally recognized Indian Tribes were consulted.

- Natural Resources Conservation Service
- Kentucky Heritage Council / State Historic Preservation Office

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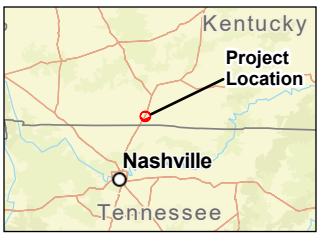
Attachment 1

Project Figures



Project Boundary (117.88 ac)

0 200 400 Feet
(At original document size of 8.5x11)
1:6,000

N

Notes
1. Coordinate System: NAD 1983 StatePlane Kentucky South FIPS 1602 Feet
2. Data Sources: TVA
3. Background: Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census

Stantec

Project Location
Simpson Co., KY

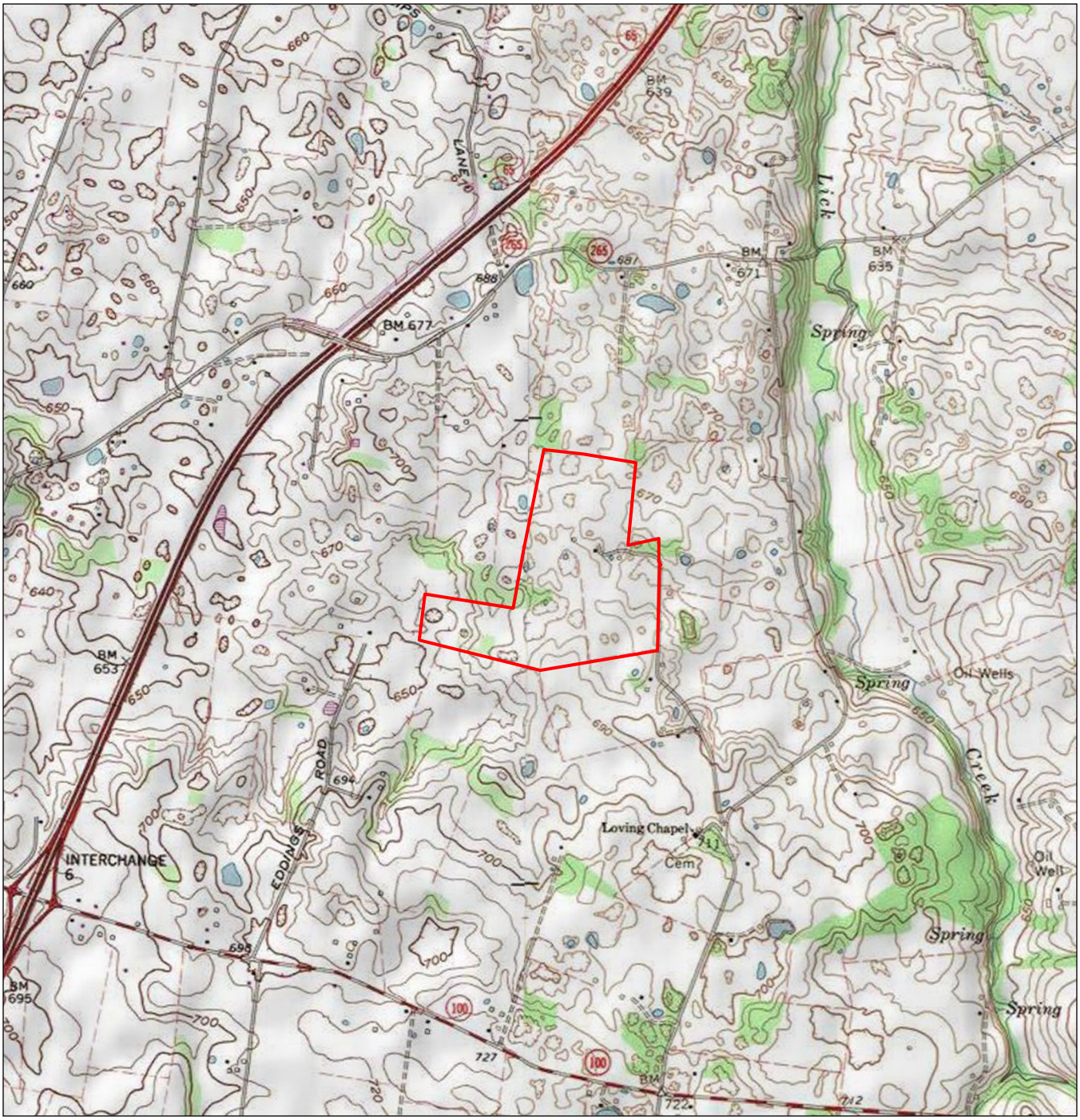
Prepared by pmarsey on 1/17/2024

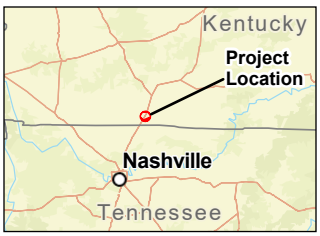
Client/Project
Tennessee Valley Authority
TVA: FY24 Investment Prep Projects
Environmental Assessment Report

172608384

Figure No.
1A

Title
Simpson County Project Aerial





Project Boundary (117.88 ac)

0 1,000 2,000 Feet

(At original document size of 8.5x11)
1:24,000

N

Stantec

Project Location
Simpson Co., KY

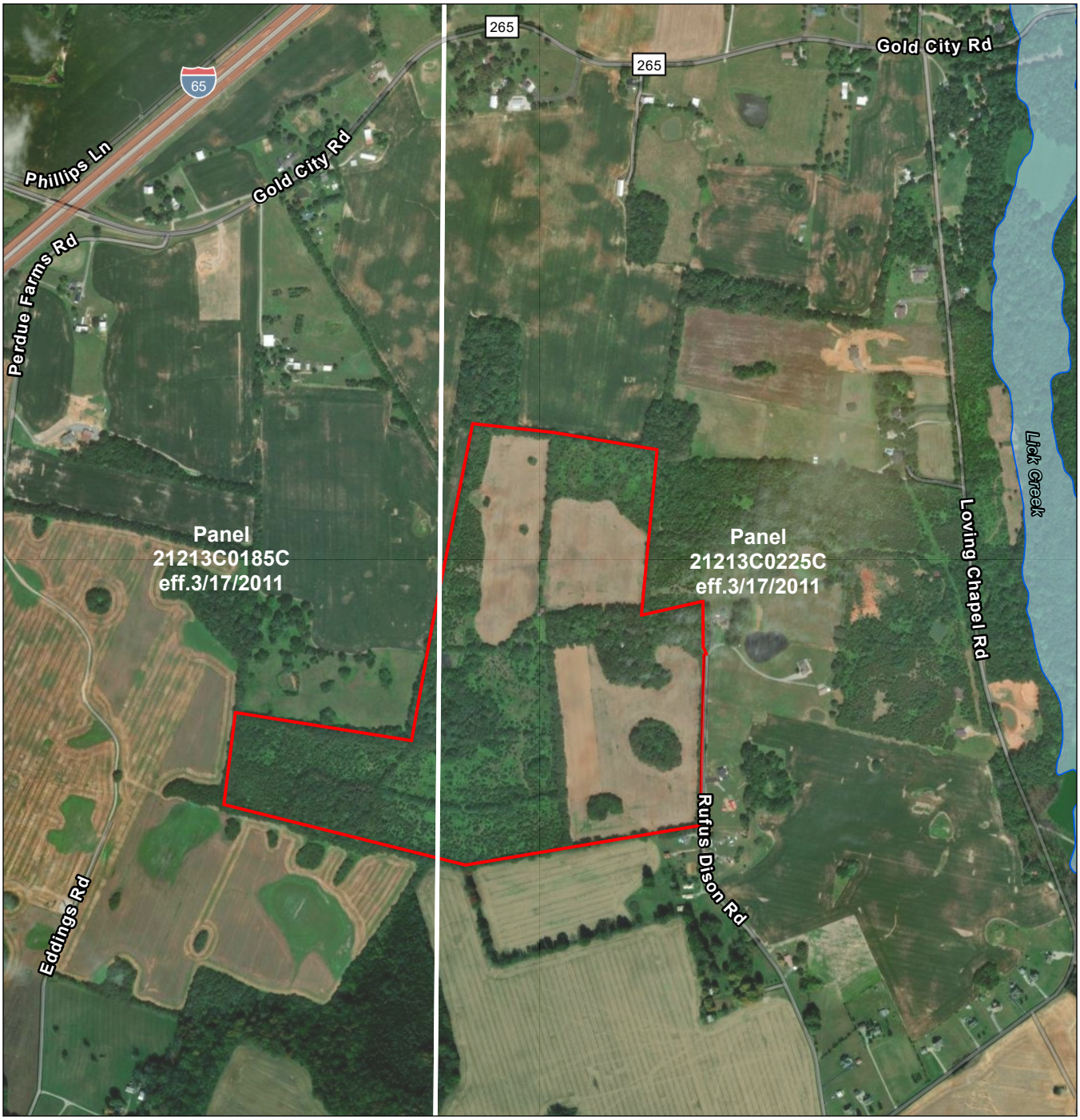
Prepared by pmarsey on 1/17/2024

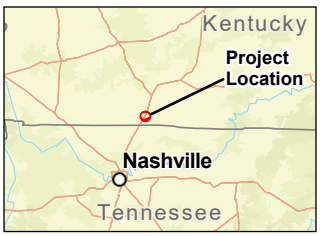
Client/Project
Tennessee Valley Authority
TVA: FY24 Investment Prep Projects
Environmental Assessment Report

Figure No.
1B

Title
Simpson County
USGS Quadrangle

Notes
1. Coordinate System: NAD 1983 StatePlane Kentucky South FIPS 1602 Feet
2. Data Sources: TVA
3. Background: Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Copyright:© 2013 National Geographic Society, i-cubed





Project Boundary (117.88 ac)
FEMA Floodplain

0 500 1,000 Feet
(At original document size of 8.5x11)
1:12,000

N

Stantec

Project Location
Simpson Co., KY

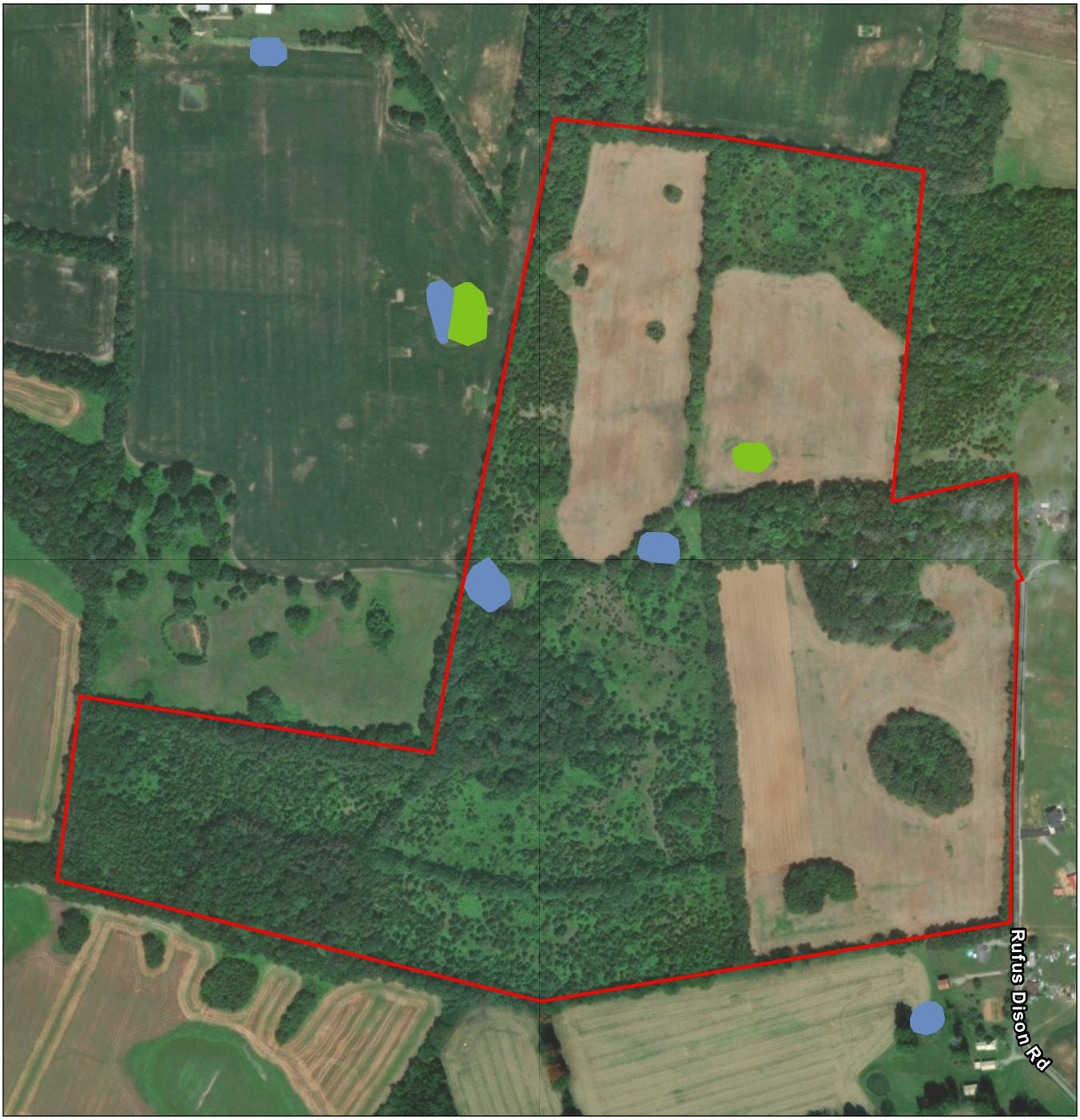
Prepared by pmarsey on 3/20/2024

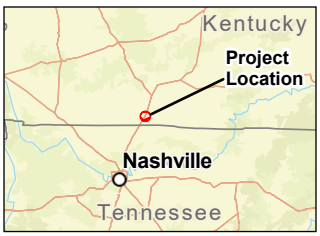
Client/Project
Tennessee Valley Authority
TVA: FY24 Investment Prep Projects
Environmental Assessment Report

Figure No.
1C

Title
Simpson County
FEMA Floodplain

Notes
1. Coordinate System: NAD 1983 StatePlane Kentucky South FIPS 1602 Feet
2. Data Sources: TVA, FEMA
3. Background: Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Esri Community Maps Contributors, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Maxar





Project Boundary (117.88 ac)

NWI Wetlands

Freshwater Emergent Wetland

Freshwater Pond

0 200 400 Feet

(At original document size of 8.5x11)
1:6,000

N

Stantec

Project Location
Simpson Co., KY

Prepared by pmarsey on 1/17/2024

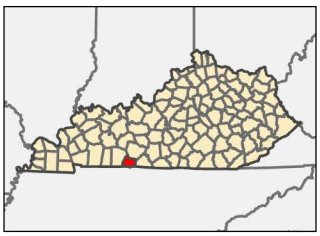
Client/Project
Tennessee Valley Authority
TVA: FY24 Investment Prep Projects
Environmental Assessment Report

Figure No.
1D

Title
Simpson County
USFWS NWI and Water Inventory

Notes
1. Coordinate System: NAD 1983 StatePlane Kentucky South FIPS 1602 Feet
2. Data Sources: TVA, USFWS
3. Background: Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census

C:\Users\pmarsey\OneDrive - Stantec\Desktop\Move to Tampa\172608384\TVA_Simpson_County\TVA_Simpson_County.aprx Revised: 2024-01-17 By: pmarsey



Notes
1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
2. Data Sources: TVA, Stantec
3. Background: Esri Aerial Imagery Basemap

Legend
- Project Boundary
- Stream Points
- Delineated Wetlands
- Delineated Open Water
- Wet Weather Conveyance

WAS Points
- Upland
- Wetland

0 300 600 Feet
(At original document size of 8.5x11)
1 inch = 600 feet

N

Stantec

Project Location
Simpson County,
Kentucky

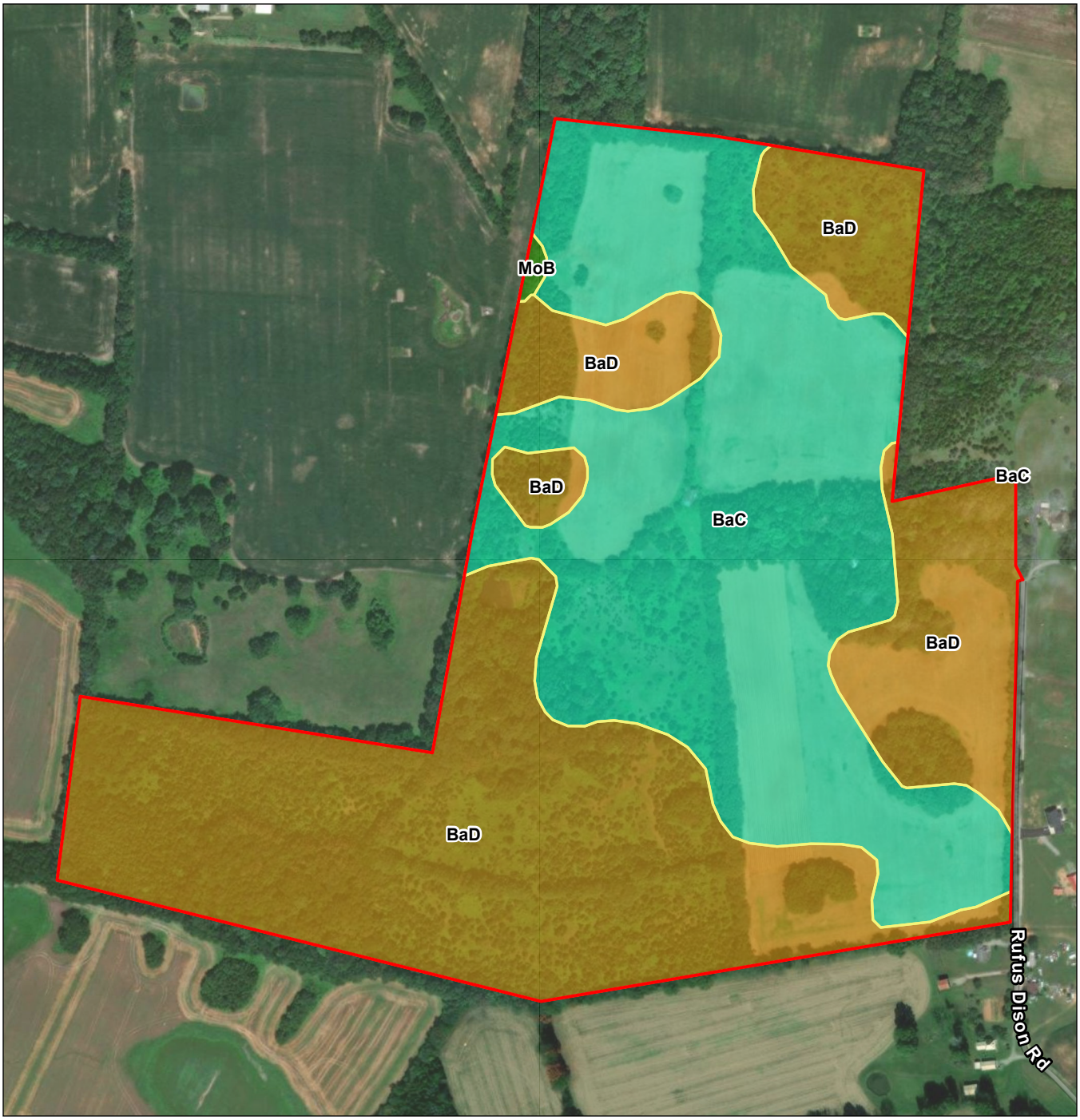
Prepared by MNA on 2024-02-13
TR by SPK on 2024-02-13
IR by DM on 2024-02-13

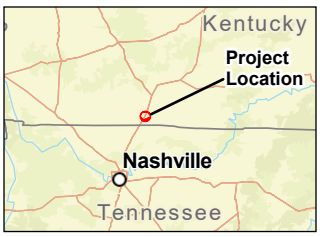
Client/Project
172608384
Tennessee Valley Authority
TVA FY24 InvestPrep Projects
Environmental Assessment Report

Figure No.
1E

Title
Wetland and Waterbody Delineation Map

C:\Users\mangel\Documents\ArcGIS\Projects_2024\TVA_InvestPrep_FY24_Projects\1.Simpson_County_KY_Shapefiles\SimpsonCo_KY_20240201\SimpsonCo_KY_20240201.aprx Revised: 2024-02-21 By: mangel





- Project Boundary (117.88 ac)
- BaC - Baxter gravelly silt loam, 6 to 12 percent slopes (50.69 ac)
- BaD - Baxter gravelly silt loam, 12 to 20 percent slopes (66.93 ac)
- MoB - Mountview silt loam, 2 to 6 percent slopes (0.26 ac)
- All areas are prime farmland (0.26 ac)
- Farmland of statewide importance (50.69 ac)
- Not prime farmland (66.93 ac)

0 200 400 Feet

(At original document size of 8.5x11)
1:6,000

N

Notes
1. Coordinate System: NAD 1983 StatePlane Kentucky South FIPS 1602 Feet
2. Data Sources: TVA, USDA-NRCS
3. Background: Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census

Stantec

Project Location
Simpson Co., KY

Prepared by pmarsey on 2/13/2024

Client/Project
Tennessee Valley Authority
TVA: FY24 Investment Prep Projects
Environmental Assessment Report

172608384

Figure No.
1F

Title
Simpson County
NRCS Soils

Attachment 2

TVA Bat Strategy Project Screening Form

Project Review Form - TVA Bat Strategy *(06/2019)*

*This form should **only** be completed if project includes activities in Tables 2 or 3 (STEP 2 below). This form is not required if project activities are limited to Table 1 (STEP 2) or otherwise determined to have no effect on federally listed bats. If so, include the following statement in your environmental compliance document (e.g., add as a comment in the project CEC): "Project activities limited to Bat Strategy Table 1 or otherwise determined to have no effect on federally listed bats. Bat Strategy Project Review Form NOT required." This form is to assist in determining required conservation measures per TVA's ESA Section 7 programmatic consultation for routine actions and federally listed bats.*[1]

Project Name: FY24 InvestPrep - Simpson County, KY - Adamson Farm **Date:** Oct 27, 2023

Contact(s): Brittany Kunkle **CEC#:** **Project ID:** 2024-1

Project Location (City, County, State): Franklin, Simpson County, KY

Project Description:

Utilize TVA InvestPrep funds matched with Non-TVA funds to assist with the purchase of the 118-acre Adamson Farm.

SECTION 1: PROJECT INFORMATION - ACTION AND ACTIVITIES

STEP 1) Select TVA Action. If none are applicable, contact environmental support staff, Environmental Project Lead, or Terrestrial Zoologist to discuss whether form (i.e., application of Bat Programmatic Consultation) is appropriate for project:

- ☐ 1 Manage Biological Resources for Biodiversity and Public Use on TVA Reservoir Lands
- ☐ 2 Protect Cultural Resources on TVA-Retained Land
- ☐ 3 Manage Land Use and Disposal of TVA-Retained Land
- ☐ 4 Manage Permitting under Section 26a of the TVA Act
- ☐ 5 Operate, Maintain, Retire, Expand, Construct Power Plants
- ☐ 6 Maintain Existing Electric Transmission Assets
- ☐ 7 Convey Property associated with Electric Transmission
- ☐ 8 Expand or Construct New Electric Transmission Assets
- ■ 9 Promote Economic Development
- ☐ 10 Promote Mid-Scale Solar Generation

STEP 2) Select all activities from Tables 1, 2, and 3 below that are included in the proposed project.

TABLE 1. Activities with no effect to bats. Conservation measures & completion of bat strategy project review form NOT required.

■ 1. Loans and/or grant awards	☐ 8. Sale of TVA property	☐ 19. Site-specific enhancements in streams and reservoirs for aquatic animals
■ 2. Purchase of property	☐ 9. Lease of TVA property	☐ 20. Nesting platforms
☐ 3. Purchase of equipment for industrial facilities	☐ 10. Deed modification associated with TVA rights or TVA property	☐ 41. Minor water-based structures (this does not include boat docks, boat slips or piers)
☐ 4. Environmental education	☐ 11. Abandonment of TVA retained rights	☐ 42. Internal renovation or internal expansion of an existing facility
☐ 5. Transfer of ROW easement and/or ROW equipment	☐ 12. Sufferance agreement	☐ 43. Replacement or removal of TL poles
☐ 6. Property and/or equipment transfer	☐ 13. Engineering or environmental planning or studies	☐ 44. Conductor and overhead ground wire installation and replacement
☐ 7. Easement on TVA property	☐ 14. Harbor limits delineation	☐ 49. Non-navigable houseboats

TABLE 2. Activities not likely to adversely affect bats with implementation of conservation measures. Conservation measures and completion of bat strategy project review form REQUIRED; review of bat records in proximity to project NOT required.		
☐ 18. Erosion control, minor	☐ 57. Water intake - non-industrial	☐ 79. Swimming pools/associated equipment
☐ 24. Tree planting	☐ 58. Wastewater outfalls	☐ 81. Water intakes – industrial
☐ 30. Dredging and excavation; recessed harbor areas	☐ 59. Marine fueling facilities	☐ 84. On-site/off-site public utility relocation or construction or extension
☐ 39. Berm development	☐ 60. Commercial water-use facilities (e.g., marinas)	☐ 85. Playground equipment - land-based
☐ 40. Closed loop heat exchangers (heat pumps)	☐ 61. Septic fields	☐ 87. Aboveground storage tanks
☐ 45. Stream monitoring equipment - placement and use	☐ 66. Private, residential docks, piers, boathouses	☐ 88. Underground storage tanks
☐ 46. Floating boat slips within approved harbor limits	☐ 67. Siting of temporary office trailers	☐ 90. Pond closure
☐ 48. Laydown areas	☐ 68. Financing for speculative building construction	☐ 93. Standard License
☐ 50. Minor land based structures	☐ 72. Ferry landings/service operations	☐ 94. Special Use License
☐ 51. Signage installation	☐ 74. Recreational vehicle campsites	☐ 95. Recreation License
☐ 53. Mooring buoys or posts	☐ 75. Utility lines/light poles	☐ 96. Land Use Permit
☐ 56. Culverts	☐ 76. Concrete sidewalks	

Table 3: Activities that may adversely affect federally listed bats. Conservation measures AND completion of bat strategy project review form REQUIRED; review of bat records in proximity of project REQUIRED by OSAR/Heritage eMap reviewer or Terrestrial Zoologist.		
☐ 15. Windshield and ground surveys for archaeological resources	☐ 34. Mechanical vegetation removal, includes trees or tree branches > 3 inches in diameter	☐ 69. Renovation of existing structures
☐ 16. Drilling	☐ 35. Stabilization (major erosion control)	☐ 70. Lock maintenance/ construction
☐ 17. Mechanical vegetation removal, does not include trees or branches > 3" in diameter (in Table 3 due to potential for woody burn piles)	☐ 36. Grading	☐ 71. Concrete dam modification
☐ 21. Herbicide use	☐ 37. Installation of soil improvements	☐ 73. Boat launching ramps
☐ 22. Grubbing	☐ 38. Drain installations for ponds	☐ 77. Construction or expansion of land-based buildings
☐ 23. Prescribed burns	☐ 47. Conduit installation	☐ 78. Wastewater treatment plants
☐ 25. Maintenance, improvement or construction of pedestrian or vehicular access corridors	☐ 52. Floating buildings	☐ 80. Barge fleeting areas
☐ 26. Maintenance/construction of access control measures	☐ 54. Maintenance of water control structures (dewatering units, spillways, levees)	☐ 82. Construction of dam/weirs/ levees
☐ 27. Restoration of sites following human use and abuse	☐ 55. Solar panels	☐ 83. Submarine pipeline, directional boring operations
☐ 28. Removal of debris (e.g., dump sites, hazardous material, unauthorized structures)	☐ 62. Blasting	☐ 86. Landfill construction
☐ 29. Acquisition and use of fill/borrow material	☐ 63. Foundation installation for transmission support	☐ 89. Structure demolition
☐ 31. Stream/wetland crossings	☐ 64. Installation of steel structure, overhead bus, equipment, etc.	☐ 91. Bridge replacement
☐ 32. Clean-up following storm damage	☐ 65. Pole and/or tower installation and/or extension	☐ 92. Return of archaeological remains to former burial sites
☐ 33. Removal of hazardous trees/tree branches		

STEP 3) Project includes one or more activities in Table 3? ○ **YES (Go to Step 4)** ◉ **NO (Go to Step 13)**

SECTION 3: REQUIRED CONSERVATION MEASURES

STEP 13) Review Conservation Measures in Table 4 and ensure those selected are relevant to the project. If not, manually override and uncheck irrelevant measures, and explain why in ADDITIONAL NOTES below Table 4.

Did review of Table 4 result in ANY remaining Conservation Measures in **RED**?

- (●) **NO** (Go to Step 14)
- ( ) **YES** (STOP HERE; Submit for Terrestrial Zoology Review. Click File/Save As, name form as "ProjectLead_BatForm_CEC-or-ProjectIDNo_Date", and submit with project information).

Table 4. TVA's ESA Section 7 Programmatic Bat Consultation Required Conservation Measures

The Conservation Measures in Table 4 are automatically selected based on your choices in Tables 2 and 3 but can be manually overridden, if necessary. To Manually override, press the button and enter your name.

Manual Override

Check if Applies to Project	Activities Subject To Conservation Measure	Conservation Measure Description

[1]Bats addressed in consultation (02/2018), which includes gray bat (listed in 1976), Indiana bat (listed in 1967), northern long-eared bat (listed in 2015), and Virginia big-eared bat (listed in 1979).

Hide All Unchecked Conservation Measures

- (•) HIDE
- ( ) UNHIDE

Hide Table 4 Columns 1 and 2 to Facilitate Clean Copy and Paste

- (•) HIDE
- ( ) UNHIDE

NOTES (additional info from field review, explanation of no impact or removal of conservation measures).

STEP 14) Save completed form (Click File/Save As, name form as "ProjectLead_BatForm_CEC-or-ProjectIDNo_Date") in project environmental documentation (e.g. CEC, Appendix to EA) AND send a copy of form to batstrategy@tva.gov
Submission of this form indicates that Project Lead/Applicant:

Brittany Knuckle (name) is (or will be made) aware of the requirements below.

- Implementation of conservation measures identified in Table 4 is required to comply with TVA's Endangered Species Act programmatic bat consultation.
- TVA may conduct post-project monitoring to determine if conservation measures were effective in minimizing or avoiding impacts to federally listed bats.

For Use by Terrestrial Zoologist Only

☒ Terrestrial Zoologist acknowledges that Project Lead/Contact (name) Brittany Knuckle has been informed of any relevant conservation measures and/or provided a copy of this form.

☐ For projects that require use of Take and/or contribution to TVA's Bat Conservation Fund, Terrestrial Zoologist acknowledges that Project Lead/Contact has been informed that project will result in use of Incidental Take 0 ○ ac ◉ trees and that use of Take will require $ 0 contribution to TVA's Conservation Fund upon completion of activity (amount entered should be $0 if cleared in winter).

For Terrestrial Zoology Use Only. Finalize and Print to Noneditable PDF.

Attachment 3

Agency Correspondence

ANDY BESHEAR
GOVERNOR

JACQUELINE COLEMAN
LT. GOVERNOR

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

LINDY CASEBIER
SECRETARY

CRAIG A. POTTS
EXECUTIVE DIRECTOR &
STATE HISTORIC PRESERVATION OFFICER

May 3, 2024

Derek Reaux
Tennessee Valley Authority
400 West Summit Hill Drive
Knoxville, TN 37902
djreaux@tva.gov

RE: TVA, CRMS 81956866585, Proposed Adamson Farm Purchase
Along Rufus Dison Road, Franklin, Simpson County, Kentucky

Determination of Effect, Cultural Historic, and

Phase I Archaeological Survey for the Adamson Farm Project, Simpson County, Kentucky by Christopher Blair

Dear Mr. Reaux,

Thank you for your submittal of a Determination of Effect, Cultural Historic, and Archaeology report for the above-referenced undertaking. We understand TVA is providing financial assistance for the purchase of the 118-acre Adamson Farm in Franklin, Kentucky. The area of potential effect (APE) for the current undertaking was limited to the 118-acre project footprint where physical effects may occur.

The above-ground report identified one newly identified resource within the direct APE: SI-577 a former farmstead. The consultant recommends SI-577 as Ineligible for the National Register of Historic Places (NRHP), and our office concurs with this recommendation.

Stantec Consulting Services Inc. (Stantec) conducted an archaeological survey of the 118-acre APE in January of 2024. We understand methods included pedestrian survey and shovel testing. One new archaeological site (15Si70) and ten isolated finds were documented as a result of this survey.

Stantec recommends that Site 15Si70 is not eligible for the NRHP. We concur with this recommendation.

We understand materials will be curated at the Erskine Ramsay Archaeological Repository located at Moundville Archaeological Park, Moundville, Alabama. We accept the archaeology report without revision.

Please note that this correspondence does **not** constitute Section 106 clearance for construction on or for any further development of this property.

However, for planning purposes our office concurs with the finding of **No Historic Properties Affected**. This concurrence is conditional upon receipt of a completed KHC survey form for SI-577 within three months of the date of this letter. Please submit the form to khc.section106@ky.gov.

Should you have any questions, please contact Gabrielle Fernandez or Patti Hutchins of my staff at Gabrielle.Fernandez@ky.gov or Patricia.Hutchins@ky.gov.

Sincerely,

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

CP: gf, peh
KHC # 241158 prev. 240731
e-cc: Philip Mink, OSA, pbmink2@uky.edu
Michaelyn Harle, TVA, mharle@tva.gov
Emily Beliles, TVA, ebeliles@tva.gov

United States Department of Agriculture
Farm Production and Conservation
Natural Resources Conservation Service
Owensboro Service Center
3100 Alvey Park Drive W
Owensboro, KY 42303

February 9, 2024

Ellen Mullins
Stantec
3052 Beaumont Centre Circle
Lexington, KY 40513

RE: Adamson Farm—Simpson County—TVA Purchasing Project

Dear Ellen:

In response to your request regarding the above referenced project the Natural Resources Conservation Service (NRCS) is mandated to provide information on the soils and/or impact to farmland according to the Farmland Protection Policy Act (P.L. 97-98) for projects that will be utilizing federal funding.

Based on the information contained in your request, no conversion of agricultural lands (Prime or Statewide Important Farmland) will occur or be negatively impacted by the proposed undertaking. Therefore, an AD-1006/CPA-106 form is not needed, and this office has no concerns at this time. If I may be of additional assistance, please do not hesitate to contact me.

Sincerely,

Perri P. Brown

Perri P. Brown
Resource Soil Scientist
Perri.Brown@usda.gov