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(Fayetteville)
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**ECONOMIC DEVELOPMENT GRANT PROPOSAL FOR THE
BULLINGTON SITE
ENVIRONMENTAL ASSESSMENT
Lincoln County, Tennessee (Fayetteville)**

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1.0 PROPOSED ACTION AND NEED

An integral part of Tennessee Valley Authority's (TVA) mission is to promote economic development in the TVA service area. TVA provides financial assistance to help bring to market new/improved sites and facilities in 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 Fayetteville Lincoln County Industrial Development Board (FLCIDB) to assist with the development of the Bullington Site (Proposed Action or Project). The area of TVA's Proposed Action (herein referred to as the Project Area) comprises approximately 22.9 acres and is located just east of Fayetteville, Tennessee (TN), northeast of the intersection of Franke Boulevard and State Highway 15 (United States [U.S.] Highway 64) in Lincoln County, TN (Figure 1; Attachment 1, Figures 1-A and 1-B). TVA funds would be used to assist with tree clearing, grading of a 100,000-square foot (expandable to 200,000-square foot) compacted dirt building pad, construction of a gravel access road, and grading of two detention basins.

The primary purpose of the Proposed Action is to enable the FLCIDB to develop the Bullington Site. The proposed grant to the FLCIDB would assist with improvements to put the site in a more marketable position and allow prospects to better envision the development potential. Proposed improvements would lead to an increased probability of achieving TVA's core mission of job creation and capital investment. Target industries for the Bullington Site include automotive and advanced manufacturing. Pursuant to the National Environmental Policy Act (NEPA) and its implementing regulations, 40 CFR Parts 1500–1508 and TVA's implementing regulations, 18 CFR Part 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 FLCIDB.

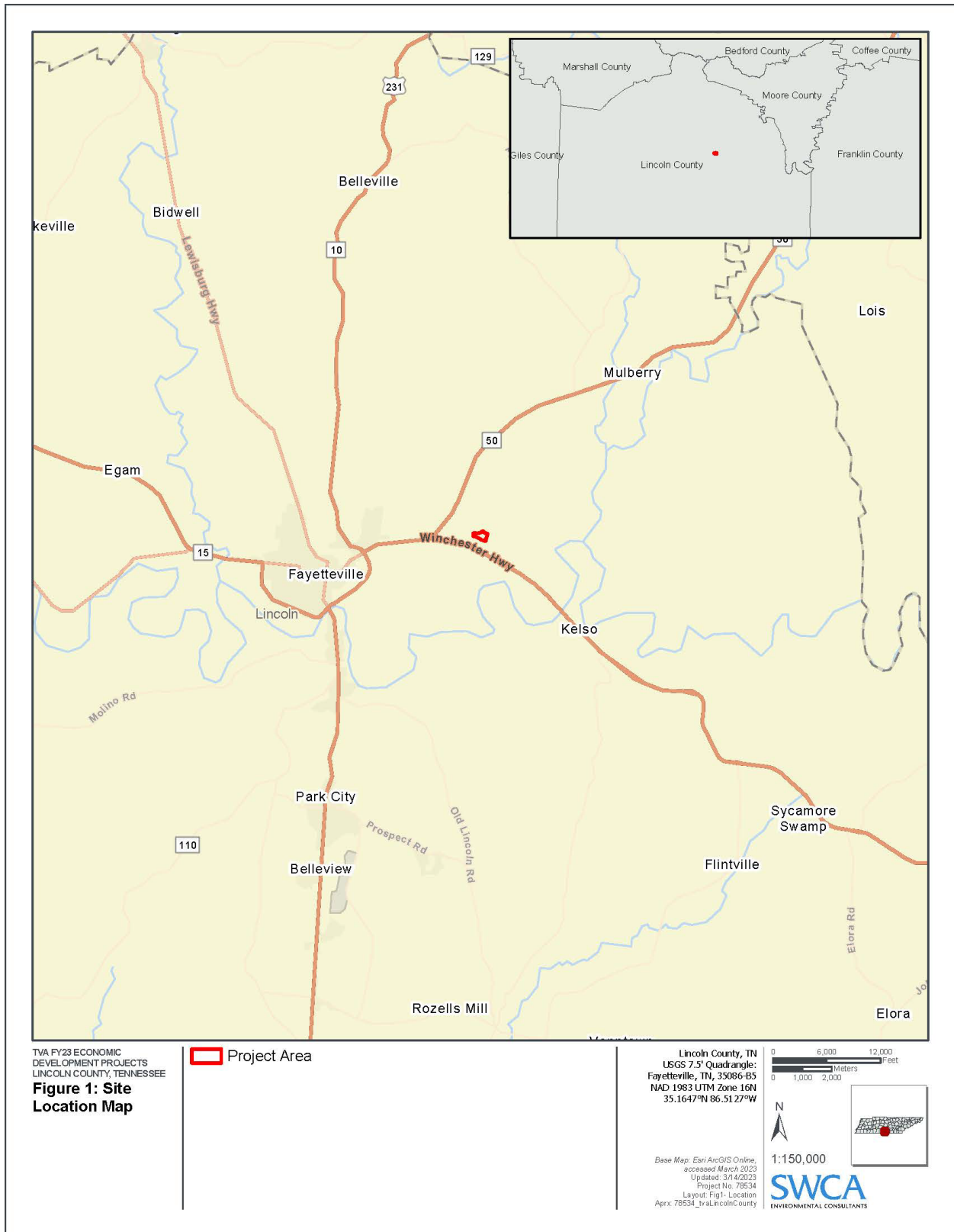


Figure 1. Project location map.

2.0 OTHER ENVIRONMENTAL REVIEWS AND DOCUMENTATION

Other studies have been performed on behalf of FLCIDB within the Project Area. In October 2022, S&ME, Inc., conducted a jurisdictional waters assessment of the Project Area (S&ME, Inc., 2022a). The purpose of the survey was to identify potentially jurisdictional wetlands and waterbodies in the study area.

In October 2022, SM&E, Inc., performed a protected species assessment of the Project Area (S&ME, Inc., 2022b). The report details determinations on whether protected species and/or their habitat are present within the Project Area.

In September 2022, GeoSolutions, LLC (GeoSolutions), conducted a geotechnical exploration of the Project Area (GeoSolutions 2022). The review evaluated subsurface conditions at the site to evaluate for site development and construction planning purposes.

In October 2021, S&ME, Inc., performed a Phase I environmental site assessment of the Project Area (S&ME, Inc., 2021). The assessment consisted of a general property reconnaissance, a review of available aerial photographs, ownership chronological search and examination, and review of regulatory databases.

The jurisdictional waters assessment, report of protected species assessment, report of geotechnical exploration, and Phase I environmental site assessment 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 FLCIDB. 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 FLCIDB were to obtain alternate funding and proceed with its current plans, the overall environmental consequences would be similar to those anticipated from implementing the Action Alternative. If the Project is postponed, any environmental effects would be delayed for the duration of the postponement. If the Project were cancelled, no direct environmental effects are anticipated, as environmental conditions on the site would remain essentially unchanged from the current conditions for the foreseeable future.

3.2 The Action Alternative

Under the Action Alternative, TVA would provide InvestPrep funds to the FLCIDB to assist with tree clearing, grading of a 100,000-square foot (expandable to 200,000-square foot) compacted dirt building pad, construction of a gravel access road, and grading of two detention ponds. The Action Alternative would require disturbance of approximately 22.9 acres and would result in the clearing of approximately 8.6 acres of trees (see Attachment 1, Figures 1-A and 1-B).

Site activities required for the Action Alternative would occur over approximately 9 months and would require a small workforce that would likely be drawn from a local contractor. Trees and stumps would be cut and either hauled off or mulched on-site.

The FLCIDB, or its contractors, would obtain all required permits and authorizations, and in compliance with those permits take appropriate feasible measures, such as mitigation and implementing best management practices (BMPs) and best construction practices, to minimize or reduce the potential environmental effects of the proposed Project to insignificant levels. These practices would include but are not limited to installation of sediment and erosion controls (silt fences, sediment traps, etc.), management of fugitive dust, daytime work hours, and other appropriate measures.

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

4.0 AFFECTED ENVIRONMENT AND ANTICIPATED IMPACTS

4.1 Site Description

The 22.9-acre Project Area is located just east of Fayetteville, TN, in the Bullington Site, northeast of the intersection of Franke Boulevard and State Highway 15 (U.S. Highway 64) in Lincoln County, TN. The Project Area can be accessed from Franke Boulevard that occurs to the west of the Project Area (see Attachment 1, Figure 1-A). The Project Area is a mostly cleared, undeveloped area, located adjacent to a community college, a plastics fabrication company, and forested area. There are a few forested areas on site, but no permanent structures present within the Project Area.

The Project Area is situated within an open herbaceous parcel with areas of forested land along the eastern edge of the parcel (see Attachment 1, Figure 1-A). Industrial properties lie to the north and west of the Project Area, commercial property to the south, and forested lands to the east. Historically, the site has been undeveloped agricultural land, but has since been rezoned to I-1 (Industrial).

The Project Area ranges from approximately ± 719 feet (219.2 meters) above mean sea level (MSL) to ± 800 feet (243.8 meters) above MSL (see Attachment 1, Figure 1-B). There are wooded areas along the eastern edge of the parcel as well as scattered throughout the north-central portion of the property. Franke Boulevard connects directly to State Highway 15. The Project Area is currently open herbaceous land, but the site is zoned for industrial use.

4.2 Impacts Evaluated

TVA has determined that the Proposed Action, subsequent to TVA's selection of the Action Alternative, would have no impact on floodplains, land use, prime farmland, and wetlands. The Proposed Action would also not result in impacts from the creation of solid and hazardous wastes. Therefore, potential impacts to these resources are not described in further detail in this EA.

According to Lincoln County, TN, Flood Insurance Rate Map Panel number 47103C0167D, effective September 19, 2007, and a 2022 jurisdictional waters assessment, the Project Area is located outside identified and unmapped 100-year floodplains, which would be consistent with Executive Order 11988. Therefore, the proposed Project would have no impact on floodplains and their natural and beneficial values.

There would be no impact to land use and prime farmland as the Project Area is located within a property zoned as industrial, and the Proposed Action would not result in a change to the zoned land use. Additionally, the Project Area does not contain prime farmland soils.

No demolition or waste disposal activities are associated with the Action Alternative. Therefore, the Action Alternative would not result in the creation or disposal of solid and hazardous wastes.

A field survey conducted in October 2022 determined there are no wetlands present on the parcel. The survey was performed using the Routine On-Site Determination Method as defined in the Corps of Engineers 1987 Wetlands Delineation Manual and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Environmental Laboratory 1987, USACE 2012). There would be no impacts to wetlands as the result of either the No Action or Action Alternative for this Project as there are no wetlands present within the Project Area.

Resources that could potentially be impacted (negatively or positively) by implementing the Action Alternative include soils, groundwater, surface water and soil erosion, aquatic ecology, botany, terrestrial zoology, managed and natural areas, cultural resources, air quality and climate change, and public recreation opportunities. Implementation of the Action Alternative could create potential impacts to the human environment, including visual effects, noise, socioeconomics, environmental justice, and transportation issues. 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 Soils

Soil types and descriptions were obtained from the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey for the Project Area (USDA NRCS 2023). The Project Area is within the East and Central Farming and Forest Region and encompasses three distinct soil map units (see Table 4-1) (USDA NRCS 2023). See Attachment 1, Figure 1-D, for the location of each USDA NRCS soil map unit within the Project Area.

Barfield-Ashwood-Rock outcrop complex, 5 to 20 percent slopes (BaC), and Barfield-Gladdice-Rock outcrop complex, 30 to 70 percent slopes (MnC), are the dominant soil map units in the Project Area and account for approximately 99.9% of the area; neither of these soils are classified as hydric soils and have a drainage class of well drained (USDA NRCS 2023). Mimosa silt loam, 5 to 12 percent slopes, eroded (MmC2) makes up the remaining 0.1% of the Project Area, and is also a non-hydric soil and is well drained and is located in the northwest corner of the Project Area (USDA NRCS 2023).

Implementation of the Action Alternative would result in near-surface soil compaction due to heavy construction vehicles and soil erosion caused by ground-disturbing activities such as tree clearing and site grading. Subsequent impacts to groundwater and surface water impacts are discussed further in Sections 4.2.2 and 4.2.3 below, but impacts are expected to be minor and temporary. BMPs, as described in the *Tennessee Erosion and Sediment Control Handbook* (TDEC 2012), would be used during site development to avoid contamination of surface water from soil erosion in the Project Area.

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FLCIDB. If the FLCIDB were to obtain alternate funding and proceed with its current plans, the overall

environmental consequences would be similar to those anticipated from implementing the Action Alternative. If the FLCIDB was unable to secure other funding or the Project was cancelled, the Proposed Action would not occur and there would be no impacts to soils or prime farmland as environmental conditions on the site would remain essentially unchanged from the current conditions.

Table 4-1. NRCS-mapped Soils Within the Project Area, TVA FY2023, Lincoln County, Tennessee

Map Unit Symbol	Map Unit Name	Hydric Criteria	Drainage Class	Farmland Classification	Acreage Within Project Area ¹	Percentage of Project Area ¹
BaC	Barfield-Ashwood-Rock outcrop complex, 5 to 20 percent slopes	No	Well drained	Not prime farmland	12.2	53.3
MnC	Barfield-Gladdice-Rock outcrop complex, 30 to 70 percent slopes	No	Well drained	Not prime farmland	10.7	46.6
MmC2	Mimosa silt loam, 5 to 12 percent slopes, eroded	No	Well drained	Not prime farmland	<0.1	0.1
Total²					22.9	100.0

Source: USDA NRCS 2023.

¹ Acreages and percentages are rounded to 0.1.

² Total values may differ slightly from total expected values due to rounding.

4.2.2 Groundwater

The Project Area is located within the Interior Low Plateaus (U.S. National Park Service 2017). The Interior Low Plateaus occupy portions of six states in the Midwest and Southeast regions of the United States, Illinois, Indiana, Ohio, Kentucky, Tennessee, and Alabama (United States Geological Survey [USGS] 1995).

The Interior Low Plateaus consist of unconsolidated sand and gravel deposits of Quaternary age that compose the surficial aquifer system and consolidated limestone, dolomite, and sandstone of Paleozoic age (USGS 1995). Approximately 3.4 acres of the Project Area is within the Ordovician aquifer system of the Interior Lowland Plateaus. The Ordovician rocks crop out in the central part of these areas and lie beneath Silurian, Devonian, and younger rocks on the perimeter of the areas. The carbonate-rock aquifers consist of almost pure limestone and minor dolomite and are interlayered with confining units of shale and shaly limestone. Where these aquifers are in the subsurface, they are overlain by and separated from the Mississippian aquifers by a confining unit of Upper Devonian shale (USGS 1995). The depth of freshwater in the limestone and dolomite aquifers can vary greatly, but wells drilled in these aquifers generally range from 50 to 200 feet deep in Tennessee. In a large area of central Tennessee, the upper parts of these aquifers are beneath a thin layer of Mississippian limestone or the Chattanooga Shale of Mississippian and Devonian age or both and contain freshwater. Water from the Ordovician rocks in Tennessee commonly is hard and contain large concentrations of dissolved solids, chloride, and iron. Contaminated and turbid waters are common problems for the users of water from the limestone and dolomite aquifers in Ordovician rocks in Tennessee. The thin

soil and residuum and the presence of solution features, such as sinkholes, swallow holes, and solution-enlarged fractures, allow water from the land surface to recharge the aquifer directly and rapidly. Contaminated and sediment-laden waters can then spread rapidly through the system of interconnected solution openings to eventually reach wells and springs (USGS 1995).

Approximately 19.5 acres of the Project Area are not within a principal aquifer system (USGS 1995). Areas that are not defined by a principal aquifer system are areas underlain by low-permeability deposits and rocks, unsaturated materials, or aquifers that supply little water because they are of local extent, poorly permeable, or both. Rocks and deposits with minimal permeability, which are not considered to be aquifers, consist of intrusive igneous rocks, metamorphic rocks, shale, siltstone, evaporite deposits, silt, and clay (USGS 2021a).

Implementation of the Action Alternative would result in ground disturbance during construction activities. Tree clearing would result in minor ground disturbance at shallow depths. Existing topography ranges from approximately ± 719 feet (219.2 meters) above MSL to ± 800 feet (243.8 meters) above MSL. Grading to create a 100,000-square foot (2.3-acre) (expandable to 200,000-square foot [4.6-acre]) compacted dirt building pad (and associated parking/truck court areas), two detention basins, and construction of a gravel access road from Franke Boulevard to the compacted dirt building pad, would result in greater ground disturbance at moderate depths. A geotechnical investigation was conducted within the Project Area by GeoSolutions in September 2022. The geotechnical results indicate the Project Area is underlain by Leipers and Catheys formations. These formations are described as limestone, dark-gray, fine-grained, and thin to medium bedded. On site borings were conducted and depths ranged from 0.5 to 5.8 feet before auger refusal. No ground water was observed within the borings during drilling, or at least 24 hours after drilling was completed (GeoSolutions 2022).

Ground disturbances are not anticipated to be at depths that would intersect public groundwater supplies (typically 142 to 202 feet beneath the land surface [USGS 2021b]) or result in significant impacts to groundwater resources. Shallow aquifers could sustain minor impacts from changes in overland water flow and recharge caused by clearing and grading. Water infiltration, which is normally enhanced by vegetation, would be reduced until vegetation is re-established. In addition, near-surface soil compaction caused by heavy construction vehicles could reduce the ability of soil to absorb water. These minor impacts would be temporary and would not significantly affect groundwater resources.

A Phase I environmental site assessment was completed in October 2022 by S&ME, Inc., which indicated that the Project Area consists of industrial development, wooded land, and commercial developments, with no structures existing within the Project Area. There was no discovery of adverse environmental conditions within the Project Area. As such, it is not anticipated that Project activities would encounter hazardous substances during the aforementioned site improvements. Furthermore, it is expected that the FLCIDB, or its contractors, would conduct safety-minded operations and implement BMPs involving chemical or fuel storage and resupply, along with equipment and vehicle servicing to avoid leakage, spillage, and potential subsequent ground water contamination.

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FLCIDB. If the FLCIDB were to obtain alternate funding and proceed with its current plans, the overall environmental consequences would be similar to those anticipated from implementing the Action Alternative. If the FLCIDB was unable to secure other funding or the Project was

cancelled, the Proposed Action would not occur and there would be no impacts to groundwater resources as environmental conditions on the site would remain essentially unchanged from the current conditions.

4.2.3 Surface Water and Soil Erosion

The Project Area is in Lincoln County, TN, within the Outer Nashville Basin ecoregion. The Project Area drains to streams within the Norris Creek-Elk River Watershed (Hydrologic Unit Code [HUC]-10, 0603000307). The surface water streams in the vicinity of the Project include the Elk River, Norris Creek, and its associated tributaries (Attachment 1, Figure 1-E). Elk River, Norris Creek, and its associated tributaries are all outside of the Project Area. The Elk River is approximately 0.9 mile southeast of the Project Area.

Precipitation in the vicinity of the Project Area averages about 56 inches per year. The average annual air temperature ranges from a monthly average of 28 degrees Fahrenheit to 89 degrees Fahrenheit (BestPlaces 2022).

A hydrologic determination conducted in October 2022 identified a wet weather conveyance (WWC) (Attachment 1, Figure 1-F) within the Project Area totaling approximately 115 feet (S&ME, Inc., 2022a). The WWC did not appear as a feature on the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory, or the National Hydrography Dataset (USGS 2021c, USFWS 2022a). Alterations to WWCs are permitted, in accordance with Tennessee State Code Section 69-3-108(q) without notice or application to the State.

S&ME, Inc. (2022a) conducted a jurisdictional waters assessment concurrently with the hydrologic determination. It was determined that the WWC is a potentially jurisdictional feature, and a Preliminary Jurisdictional Determination (PJD) request was submitted to the U.S. Army Corps of Engineers (USACE) Nashville District on November 8, 2022 and was issued by the USACE on January 9, 2023. As such, a dredge and fill authorization from the USACE under Section 404 of the Clean Water Act (CWA) would be required for impacts to the WWC. The FLCIDB or its contractors would be responsible for obtaining the Section 404 CWA permit necessary for the project.

The federal CWA requires all states to identify all waters where required pollution controls are not sufficient to attain or maintain applicable water quality standards and to establish priorities for the development of limits based on the severity of the pollution and the sensitivity of the established uses of those waters. States are required to submit reports to the United States Environmental Protection Agency (USEPA). The term "303(d) list" refers to the list of impaired and threatened streams and water bodies identified by the state. The 2022 field study did not identify any waterbodies that are on Tennessee 303(d) listed waters (Tennessee Department of Environment and Conservation [TDEC] 2022). However, Little Norris Creek, which is located approximately 2 miles northwest of the Project Area, is listed as impaired due to alteration in stream-side or littoral vegetative covers and sedimentation/siltation from livestock grazing in riparian or shoreline zones (TDEC 2022). Little Norris Creek is downgradient from the Project Area. Surface water leaving the Project Area flows west into a tributary of Norris Creek then, flows south into Norris Creek and away from Little Norris Creek. Surface water leaving the Project Area would not enter Little Norris Creek and contribute to the impairment of this waterbody. Additionally, a segment of the Elk River is listed as an Exceptional Tennessee Water (TDEC 2023). However, this segment is located at sufficient distance (0.9 mile southeast) from the Project Area to not require additional general construction stormwater permit requirements

for project development (TDEC 2021). The primary designations for Little Norris Creek have yet to be classified (TDEC 2019).

Soil types and descriptions were obtained from the USDA NRCS Web Soil Survey (USDA NRCS 2023) (see Attachment 1, Figure 1-D). Soil types found within the Project Area are provided in Table 4-1.

The geotechnical results indicate the soil surface within the Project Area ranges from 4 to 10 inches thick. The geotechnical report recommends that the Bullington Site preparation include stripping of topsoil and surface vegetation and remaining residual soil be removed to expose intact rock (GeoSolutions 2022).

Implementation of the Action Alternative would result in construction activities that have the potential to temporarily affect surface water via stormwater runoff. Impervious surfaces prevent rain from percolating through the soil and result in additional runoff of water and pollutants into storm drains, ditches, and streams. Based on the PJD received for the Project, impacts to the WWC within the Project Area would also require Section 404 CWA permitting through the USACE. The Action Alternative would increase impervious flows in the Project Area. Soil erosion and sedimentation can clog small streams, threaten aquatic life, and contribute to degraded water quality. It is expected that the FLCIDB, or its contractors, would comply with all appropriate federal, state, and local permit requirements. Appropriate BMPs would be followed, and all proposed Project activities would be conducted in a manner to ensure that waste materials are contained, and the introduction of pollution materials to the receiving waters would be minimized. A general construction stormwater permit would be required since more than one acre would be disturbed as part of the Action Alternative. This permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP would identify specific BMPs to address construction-related activities that would be adopted to minimize stormwater impacts. Part of these BMPs would be the construction of a stormwater detention basin to control sediment discharges from the Project Area. BMPs, as described in the Tennessee Erosion and Sediment Control Handbook (TDEC 2012), would be used during site development to avoid contamination of surface water in the Project Area. Under the required permits, all flows would need to be properly treated with either implementation of the BMPs or an engineered discharge drainage system that could handle any increased flows prior to discharge through the outfall(s).

It is expected that portable toilets would be provided for the construction workforce as needed. These toilets would be pumped out regularly, and the sewage would be transported by tanker truck to a publicly-owned wastewater treatment plant. Equipment washing and dust control discharges would be handled in accordance with BMPs described in the SWPPP for water-only cleaning.

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FLCIDB. If the FLCIDB were to obtain alternate funding and proceed with its current plans, the overall environmental consequences would be similar to those anticipated from implementing the Action Alternative. If the FLCIDB was unable to secure other funding or the Project was cancelled, the Proposed Action would not occur and there would be no impacts to surface water resources, including impacts resulting from soil erosion, as environmental conditions on the site would remain essentially unchanged from the current conditions.

4.2.4 Aquatic Ecology

4.2.4.1 Aquatic Resources

As described in Section 4.2.3, surface waters in the vicinity of the Project Area are the Elk River, Norris Creek, and one ephemeral stream/WWC. The Elk River and Norris Creek are located outside of the Project Area (see Attachment 1, Figure 1-E). The Red River is a perennial waterbody that lies approximately 0.9 mile southeast of the Project Area. Temporary effects to surface waters in the vicinity of the Project Area due to stormwater runoff during construction activities are described in Section 4.2.3.

Impacts to the WWC identified in the Project Area are proposed under the Action Alternative due to the clearing and grading construction activities. However, WWCs are man-made or natural watercourses, including natural watercourses that have been modified by channelization. There is not sufficient water to support fish or multiple populations of obligate lotic aquatic organisms whose life cycle includes an aquatic phase of at least two months (TDEC 2011) and therefore, are not aquatic resources able to support aquatic species. Stormwater detention ponds have little chance of supporting aquatic plants and animals when poor water quality and shoreline conditions exist (USEPA 1998). As such, no significant direct impacts to aquatic species or their habitats would occur. Additionally, with proper implementation of BMPs, no significant indirect impacts from erosion and sedimentation to aquatic species or their habitats would occur either.

Construction activities would not involve moving aquatic species or water from different locations, and equipment and materials used during construction would be clean and free of debris that could introduce exotic species and adversely affect aquatic habitat. Thus, the Action Alternative would not contribute to the spread of exotic or invasive aquatic species.

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FLCIDB. Similar to the Action Alternative, if the FLCIDB were to obtain alternate funding and proceed with its current plans, there would be no impacts to aquatic resources. If the FLCIDB was unable to secure other funding or the Project was cancelled, the Proposed Action would not occur and there would also be no impacts to aquatic resources as environmental conditions on the site would remain essentially unchanged from the current conditions.

4.2.4.2 Threatened and Endangered Aquatic Species

The Endangered Species Act (ESA) provides broad protection for species of fish, wildlife, and plants listed as threatened or endangered in the United States. The ESA outlines procedures for federal agencies to follow when taking actions that may jeopardize federally listed species or their designated critical habitat. The policy directs federal agencies to conserve endangered and threatened species and use their authorities in furtherance of the ESA's purposes. The State of Tennessee provides protection for species considered threatened, endangered, or deemed in need of management in the state in addition to those federally listed under the ESA.

A query of the TVA Regional Natural Heritage database (accessed October 4, 2022) for records of listed aquatic animal species indicated that the occurrence of one federally listed fish species (boulder darter [*Etheostoma wapiti*]) and 13 federally listed mussels have been documented within the Norris Creek-Elk River 10-digit HUC (0603000307) watershed encompassing the Project Area (Table 4-2). Two state-listed fish species, three state-listed mussels, and three state-listed snails have also been documented. Additionally, SWCA Environmental Consultants

(SWCA) conducted a review of the USFWS Information for Planning and Consultation (IPaC) website (USFWS 2023).

Table 4-2. Records of Federal and State-listed Aquatic Animal Species within the Norris Creek- Elk River 10-digit HUC (0603000307) Watershed (TVA Request ID 41640)¹

Common Name	Scientific Name	Element Rank ²	Federal Status ³	State Status (Rank ⁴)
FISH				
Ashy darter	<i>Etheostoma cinereum</i>	H?	–	E (S2S3)
Boulder darter	<i>Etheostoma wapiti</i>	AC	E	E (S1)
Flame chub	<i>Hemitremia flammea</i>	E	–	D (S3)
Mussels				
Angled riffleshell	<i>Epioblasma biemarginata</i>	X	–	– (SX)
Cracking pearlymussel	<i>Hemistena lata</i>	C	E	E (S1)
Cumberland monkeyface	<i>Quadrula intermedia</i>	E	E	E (S1)
Cumberlandian combshell	<i>Epioblasma brevidens</i>	C	E	E (S1)
Fine-rayed pigtoe	<i>Fusconaia cuneolus</i>	H	E	E (S1)
Fluted kidneyshell	<i>Ptychobranhus subtentum</i>	X	E	E (S2)
Ornate rocksnail	<i>Lithasia geniculata</i>	E	–	– (S2)
Purple lilliput	<i>Toxolasma lividus</i>	X	–	– (S1S2)
Rayed bean	<i>Villosa fabalis</i>	H	E	E (S1)
Round hickorynut	<i>Obovaria subrotunda</i>	H?	PT	– (S2S3)
Shiny pigtoe pearlymussel	<i>Fusconaia cor</i>	E	E	E (S1)
Slabside pearlymussel	<i>Pleuroaia dolabelloides</i>	E	E	E (S2)
Smooth rabbitsfoot	<i>Quadrula cylindrica cylindrica</i>	C	T	T (S3)
Tan riffleshell	<i>Epioblasma florentina walkeri</i>	H	E	E (S1)
Tennessee clubshell	<i>Pleurobema oviforme</i>	E	–	– (S2S3)
Tubercled blossom pearlymussel	<i>Epioblasma torulosa torulosa</i>	X	E	E (SX)
Turgid blossom pearlymussel	<i>Epioblasma turgidula</i>	X	E	E (SX)
Umbilicate river snail	<i>Leptoxis umbilicata</i>	H	–	– (S1)
Warty rocksnail	<i>Lithasia lima</i>	H	–	– (S2)

¹ Source: TVA Regional Natural Heritage Database, queried on 10/04/2022; USFWS 2023.

² Heritage Element Occurrence Rank; E = extant record ≤25 years old; H = historical record ≥ 25 years old; H? = possibly historical; AC = excellent, good, or fair estimated viability; X = Extirpated; C = Fair estimated viability.

³ Status Codes: E = Listed Endangered; T = Listed Threatened; PT= Potentially Threatened; D = Deemed In Need of Management.

⁴ State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; SX = Presumed Extirpated; S#S# = Denotes a range of ranks because the exact rarity of the element is uncertain (e.g., S1S2).

Brief habitat descriptions of protected species that have been documented within the Norris Creek-Elk River 10-digit HUC (0603000307) watershed encompassing the Project Area are provided below. Habitat requirements are as described in NatureServe (2023) and USFWS

(2023). No suitable habitat for any federally or state-listed species is present within the Project Area.

Ashy darter primarily occupies clear, shallow pools under slab-rock boulders within small to medium upland rivers. Areas with silt-free sand, gravel, and rubble substrates appear to be the most suitable for the species. No suitable habitat for this species occurs within the Project Area.

Boulder darter habitat includes deep, rocky, flowing pools of small to medium rivers with swift currents. Adults have only been known to occur within boulder and rubble substrates. No suitable habitat for this species occurs within the Project Area.

Flame chub habitat includes springs and spring-fed streams with abundant aquatic vegetation. Flame chub are known to occur within mud and bedrock substrates but prefer gravel substrates. No suitable habitat for this species occurs within the Project Area.

Angled riffleshell were known to occur within shallow water in medium to large rivers with swift current. This species is presumed extinct. No suitable habitat for this species occurs within the Project Area.

Cracking pearl mussel habitat includes medium-sized creeks to large rivers. They are typically found within sand, gravel, and cobble substrates in swift currents or mud and sand in slower currents. No suitable habitat for this species occurs within the Project Area.

Cumberland monkeyface prefer clear waters of streams and rivers with fast moving currents. Areas with silt-free sand, gravel, and cobble substrates appear to be the most suitable for the species. No suitable habitat for this species occurs within the Project Area.

Cumberlandian combshell inhabit free-flowing, medium-sized creeks to large rivers. Areas with coarse sand, gravel, and cobble substrates appear to be the most suitable for the species. No suitable habitat for this species occurs within the Project Area.

Fine-rayed pigtoe inhabit clear, high gradient creeks with cobble and gravel substrates. No suitable habitat for this species occurs within the Project Area.

Fluted kidneyshell preferred habitat includes small to medium-sized rivers with swift currents. They often occur within sand, gravel, and cobble substrates. No suitable habitat occurs within the Project Area.

Ornate rocksnail prefer medium rivers with moderate gradients. No suitable habitat occurs within the Project Area.

Purple lilliput prefers the headwaters of small to medium-sized rivers. They occur within various substrates including sand, mud, and gravel. No suitable habitat occurs within the Project Area.

Rayed bean occur within small creeks to large rivers with abundant aquatic vegetation. Areas with coarse sand and gravel substrates appear to be the most suitable for the species. No suitable habitat for this species occurs within the Project Area.

Round hickorynut occur within shallow, gentle flowing areas of medium-sized streams to large rivers. They occur within various substrates including sand, mud, and gravel. No suitable habitat occurs within the Project Area.

Shiny pigtoe pearlymussel habitat includes clear, small creeks to medium-sized rivers with moderate to fast currents. They often occur within sand and cobble substrates. No suitable habitat for this species occurs within the Project Area.

Slabside pearlymussel occur within large creeks to medium-sized rivers with moderate to swift currents. Areas with sand, gravel, and cobble substrates appear to be the most suitable for the species. No suitable habitat for this species occurs within the Project Area.

Smooth rabbitsfoot preferred habitat includes small to medium streams and some rivers with moderate to swift currents. They occur in gravel and cobble substrates. No suitable habitat for this species occurs within the Project Area.

Tan riffleshell primarily occupy small rivers to medium-sized creeks. Areas with sand and gravel substrates appear to be the most suitable for the species. No suitable habitat for this species occurs within the Project Area.

Tennessee clubshell habitat includes riffles and shoals of creeks and small rivers with moderate currents. Substrates consist of sand/gravel mixtures and occasionally mud or in cracks between bedrock slabs. No suitable habitat for this species occurs within the Project Area.

Tubercled blossom pearlymussel were known to occur within small creeks to medium-sized rivers with swift currents and sandy gravel substrates. This species is presumed extinct. No suitable habitat for this species occurs within the Project Area.

Turgid blossom pearlymussel were known to occur within small, fast-flowing streams to medium-sized rivers with sand or gravel substrates. This species is presumed extinct. No suitable habitat for this species occurs within the Project Area.

Umbilicate river snail occur within several central Tennessee rivers and their drainages. No suitable habitat for this species occurs within the Project Area.

Warty rocksnail occur within small to moderate-sized rivers with swift currents. Areas with silt-free gravel and cobble substrates appear to be the most suitable for the specie. No suitable habitat for this species occurs within the Project Area.

Implementation of the Action Alternative would not result in direct impacts to aquatic species or their habitats. There is designated critical habitat for the federally listed slabside pearlymussel within the same watershed (Elk Fork-Red River [HUC 0513020607]) where the Project would occur. The critical habitat is limited to the Elk River and is approximately 0.9 mile southeast of the Project Area; therefore, implementation of the Action Alternative would not affect slabside pearlymussel critical habitat. Furthermore, ground disturbance would be minimized, and all work conducted in accordance with applicable BMPs to minimize erosion and subsequent sedimentation in streams. Therefore, with proper implementation of BMPs, there would be no effect to threatened and endangered aquatic species or unique or important aquatic habitats.

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FLCIDB. Similar to the Proposed Action, if the FLCIDB were to obtain alternate funding and proceed with its current plans, no impacts to threatened and endangered aquatic species would occur. If the FLCIDB was unable to secure other funding or the Project was cancelled, the Proposed Action would not occur and there would also be no impacts to threatened and endangered aquatic species, and environmental conditions on the site would remain essentially unchanged from the current conditions.

4.2.5 Botany

4.2.5.1 Vegetation

Field surveys were conducted in November 2022 to document plant communities and to search for possible threatened and endangered plant species. 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 mixed evergreen deciduous forest and herbaceous vegetation. No forested areas in the proposed Project Area had structural characteristics indicative of old growth forest stands (Leverett 1996).

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. Common herbaceous species in the Project Area's open pastures include broomsedge (*Andropogon virginicus*), Carolina horsenettle (*Solanum carolinense*), common yarrow (*Achillea millefolium*), Johnson grass (*Sorghum halepense*), purpletop tridens (*Tridens flavus*), sericea lespedeza (*Lespedeza cuneata*), tall fescue (*Lolium arundinacea*), Virginia wild rye (*Elymus virginicus*), white crownbeard (*Verbesina virginica*), and yellow bristle grass (*Setaria glauca*). Woody plants include coralberry (*Symphoricarpos orbiculatus*), saw greenbrier (*Smilax bona-nox*), and saplings of eastern red cedar (*Juniperus virginiana*).

Mixed evergreen deciduous forest is defined as stands where both evergreen and deciduous species contribute between 25-75 percent of total canopy cover. The forested sections in the Project Area do have an overstory of mixed evergreen deciduous tree species. Common trees in these areas include eastern red cedar, chinquapin oak (*Quercus muehlenbergii*), honey locust (*Gleditsia triacanthos*), Osage orange (*Maclura pomifera*), shagbark hickory (*Carya ovata*), and Shumard Oak (*Q. shumardii*). The understory is comprised of Carolina buckthorn (*Frangula caroliniana*), woody shrubs such as Chinese privet (*Ligustrum sinense*) and coralberry, the woody vines crossvine (*Bignonia capreolata*) and saw greenbrier, and saplings of the trees found in the overstory. The herbaceous layer is species poor and dominated by plants found in disturbed habitats including ebony spleenwort (*Asplenium platyneuron*), Virginia wild rye, white crownbeard, and white snakeroot (*Ageratina altissima*).

Based on the November 2022 field surveys, the Project Area does not support high quality plant communities with significant conservation value.

Implementation of the Action Alternative would not result in adverse impacts to vegetation on any appreciable scale. Adoption of the Action Alternative would result in the potential disturbance of the entire 22.9 acres. All vegetation within the proposed compacted dirt building pad, gravel access road, and detention ponds would be removed, and the areas would be graded or graveled. Impacts to vegetation in these locations may be permanent, but the vegetation found within the Project Area is comprised of native and non-native weeds and early successional plants that have little to no conservation value. All other areas would be stabilized and seeded after construction activities are completed.

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FLCIDB. If the FLCIDB were to obtain alternate funding and proceed with its current plans, the overall environmental consequences would be similar to those anticipated from implementing the Action Alternative. If the FLCIDB was unable to secure other funding or the Project was

cancelled, the Proposed Action would not occur and there would be no impacts to vegetation as environmental conditions on the site would remain essentially unchanged from the current conditions.

4.2.5.2 Threatened and Endangered Plant 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 5-mile vicinity of the Project Area (Table 4-3). No federally listed plant species have been previously reported from Lincoln County, TN. 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 4-3. Plant Species of Conservation Concern known from within 5.0 Miles of the Project Area and Federally Listed Plants in Lincoln County, TN¹

Common Name	Scientific Name	Element Rank ²	Federal Status ³	State Status ³ (Rank) ⁴
Plants				
Alabama snow-wreath	<i>Neviusia alabamensis</i>	E	-	S2
¹ Sources: TVA Regional Natural Heritage Database, extracted on October 4, 2022; USFWS 2023a. ² Heritage Element Occurrence Rank: E = extant record ≤25 years old. ³ Status Codes: THR= Listed Threatened. ⁴ State Ranks: S2 = Imperiled.				

Field surveys indicate that no habitat for Alabama snow-wreath, or any other state or federally listed plant species, occurs on-site. The entirety of the Project Area is actively grazed, 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.

Implementation of the Action Alternative would not impact protected plant species. Adoption of this alternative would result in wholesale disturbance across the entire Project Area. The Project Area would be graded and all vegetation would be removed. Impacts to vegetation may be permanent, but the vegetation found on site is comprised of native and non-native weeds and early successional plants that have little to no conservation value.

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FLCIDB. Similar to the Proposed Action, if the FLCIDB were to obtain alternate funding and proceed with its current plans, no impacts to threatened and endangered plant species would occur. If the FLCIDB was unable to secure other funding or the Project was cancelled, the Proposed Action would not occur and there would also be no impacts to threatened and endangered plant species, and environmental conditions on the site would remain essentially unchanged from the current conditions.

4.2.6 Terrestrial Zoology

4.2.6.1 Terrestrial Wildlife

The Project Area consists of 22.9 acres of land. The western edge and southern portion of the Project Area consists of a hay field that transitions into mixed hardwood stands. The central area of the Project Area is composed of a thin stand of mature shagbark hickory with an understory of immature cedar (*Juniperus* spp.) regeneration. The eastern edge of the Project

Area consists of a mixed hardwood forest consisting of shagbark hickory, eastern red cedar, red oak (*Quercus* sp.), and Osage orange. Features surrounding the Project Area consist of a variety of croplands (i.e., pasture and agricultural), and developed or otherwise disturbed areas.

Approximately 11 acres of the Project Area is a hay field in the early stages of succession. The majority of this area is still a grassland. Common inhabitants of early successional habitat include brown-headed cowbird (*Molothrus ater*), brown thrasher (*Toxostoma rufum*), common yellowthroat (*Geothlypis trichas*), dickcissel (*Spiza americana*), eastern bluebird (*Sialia sialis*), eastern kingbird (*Tyrannus tyrannus*), eastern meadowlark (*Sturnella magna*), field sparrow (*Spizella pusilla*), and grasshopper sparrow (*Ammodramus savannarum*) (National Geographic 2002). Bobcat (*Lynx rufus*), coyote (*Canis latrans*), eastern cottontail (*Sylvilagus floridanus*), hispid cotton rat (*Sigmodon hispidus*), red fox (*Vulpes vulpes*), and white-tailed deer (*Odocoileus virginianus*) are mammals typical of fields and cultivated land (Kays and Wilson 2002). Amphibians such as Fowler's toad (*Anaxyrus fowleri*) and reptiles including common garter snake (*Thamnophis* spp.), DeKay's brownsnake (*Storeria dekayi*), and southern black racer (*Coluber constrictor priapus*) are also known to occur in this habitat type (Dorcas and Gibbons 2005; Niemiller et al. 2013; Powell et al. 2016). Pollinators such as eastern tiger swallowtail (*Papilio glaucus*), great spangled fritillary (*Speyeria cybele*), and red-spotted purple butterfly (*Limenitis arthemis*) may occur in this region (Brock and Kaufman 2003).

Approximately 8.6 acres of the Project Area is comprised of either a block of forest or scattered trees. Birds typical of this habitat include blue-gray gnatcatcher (*Polioptila caerulea*), common yellowthroat, downy woodpecker (*Picoides pubescens*), eastern whip-poor-will (*Antrostomus vociferus*), pileated woodpecker (*Dryocopus pileatus*), red-bellied woodpecker (*Melanerpes carolinus*), red-eyed vireo (*Vireo olivaceus*), red-tailed hawk (*Buteo jamaicensis*), scarlet tanager (*Piranga olivacea*), wild turkey (*Meleagris gallopavo*), wood thrush (*Hylocichla mustelina*), and yellow-rumped warbler (*Setophaga coronata*) (National Geographic 2002). This area also provides foraging and roosting habitat for several species of bat, particularly in areas where the forest understory is partially open. Bat species likely found within this habitat include big brown bat (*Eptesicus fuscus*), eastern red bat (*Lasiurus borealis*), and evening bat (*Nycticeius humeralis*). Eastern chipmunk (*Tamias striatus*), eastern woodrat (*Neotoma floridana*), and white-tailed deer are other mammals likely to occur within this habitat (Kays and Wilson 2002). Broad-headed skink (*Plestiodon laticeps*), eastern black kingsnake (*Lampropeltis nigra*), eastern box turtle (*Terrapene carolina carolina*), five-lined skink (*Plestiodon fasciatus*), gray ratsnake (*Pantherophis spiloides*), and smooth earthsnake (*Virginia valeriae*) are common reptiles of eastern deciduous forests (Dorcas and Gibbons 2005; Niemiller et al. 2013; Powell et al. 2016).

Review of the TVA Regional Natural Heritage database on October 4, 2022, indicated that one known cave is located within three miles of the Project Area, approximately 2.1 miles from the Project Area. This same review did not find any records of heronries or other aggregations of migratory birds within 3 miles of the Project Area. Review of the USFWS's IPaC website on October 4, 2022, identified one migratory bird of conservation concern that could occur in the Project Area: field sparrow. Field sparrows are residents year-round. It is found in old field habitats and field edges (Peterjohn and Rice 1991), both of which are found in the Project Area.

Under the Action Alternative, TVA would provide funds to assist with tree clearing, grading of a 100,000-square foot (expandable to 200,000-square foot) compacted dirt building pad,

construction of a gravel access road, and grading of two detention basins. Up to 22.9 acres of pasture and woodland in the Project Area has the potential to be graded. This would result in the displacement of any wildlife (primarily common, habituated species) currently using the area. Direct effects to some individuals may occur if those individuals are immobile during the time of habitat removal. This could be the case if activities took place during breeding/nesting/hibernation seasons. Habitat removal likely would disperse mobile wildlife into surrounding areas in an attempt to find new food sources, shelter, and to reestablish territories. However, the actions are not likely to affect populations of species common to the area, as similar herbaceous habitats and forested fragments exist in the surrounding landscape.

One migratory bird of conservation concern identified by the USFWS could be impacted by the Proposed Action. Field sparrow may forage throughout the herbaceous portion of the Project Area throughout the year. This species may also nest in portions of the herbaceous areas that are not subject to hay production and harvesting. Should vegetation removal and grading occur during nesting season, this species could be directly impacted. If such proposed actions occur outside of the nesting season (May–August) individuals on site would be expected to flush if disturbed. This species is known to nest several times per season. Once construction activities begin, disturbance in the area is likely to dissuade any additional nesting in this area. Therefore, additional broods are not expected to be impacted once initial vegetation removal is completed. In addition, similarly suitable habitat is abundant nearby. Due to the relative abundance of similarly suitable habitat nearby, and the size of the action area, and the ability of this species to re-nest should initial attempts fail, it is not expected that populations of this species of migratory bird would be impacted.

Based on the distance to documented caves, the Proposed Action alternative is unlikely to affect unique or important karst habitats.

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FLCIDB. If the FLCIDB were to obtain alternate funding and proceed with its current plans, the overall environmental consequences would be similar to those anticipated from implementing the Action Alternative. If the FLCIDB was unable to secure other funding or the Project was cancelled, the Proposed Action would not occur, no ground disturbance would occur, and terrestrial wildlife and their habitats would not be impacted.

4.2.6.2 Threatened and Endangered Species

A review of terrestrial animal species in the TVA Regional Heritage Database on October 4, 2022, identified two federally listed species within 3 miles of the Project Area (gray bat [*Myotis grisescens*] and Indiana bat [*Myotis sodalis*]). No additional federally listed species are known from Lincoln County, Tennessee. The USFWS also has determined that the federally listed northern long-eared bat (*Myotis septentrionalis*), federally proposed endangered tricolored bat (*Perimyotis subflavus*), the monarch butterfly (*Danaus plexippus*), a candidate for federal listing, and a non-essential experimental population of the federally endangered whooping crane (*Grus americana*) have the potential to occur in the Project Area. Thus, habitat suitability and potential impacts to these species are addressed below (Table 4-4).

Table 4-4. Federally Listed Terrestrial Animal Species Reported From and Other Species Of Conservation Concern Documented Within 3 Miles of the Project Area¹

Common Name	Scientific Name	Federal Status ²	State Status (Rank) ³
Birds			
Whooping crane	<i>Grus americana</i>	E(XPN)	-
Invertebrates			
Monarch butterfly ^{4,5}	<i>Danaus plexippus</i>	C	(S4)
Mammals			
Gray bat	<i>Myotis grisescens</i>	E	E(S2)
Indiana bat	<i>Myotis sodalis</i>	E	E(S1)
Northern long-eared bat ⁵	<i>Myotis septentrionalis</i>	E	T(S1S2)
Tricolored bat ⁵	<i>Perimyotis subflavus</i>	PE	T(S2S3)
¹ Source: TVA Regional Natural Heritage Database, extracted 10/04/2022 and USFWS IPaC resource list (https://ecos.fws.gov/ipac/), accessed 10/04/2022. ² Status Codes: C = Candidate species; E = Endangered; PE = Proposed Endangered; T = Threatened; XPN = Experimental Population. ³ State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; S4 = Apparently Secure. ⁴ Historically this species has not been tracked by state or federal heritage programs. ⁵ Species that has not been documented within three miles of the Project Area or within Lincoln County, Tennessee; USFWS has determined this species could occur within the Project Area.			

The 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 closest record is approximately 2.1 miles away within a cave.

The northern long-eared bat predominantly overwinters in large hibernacula such as caves, abandoned mines, and cave-like structures. During the fall and spring, they utilize entrances of caves and the surrounding forested areas for swarming and staging. In the 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). Although there are no records of northern long-eared bat within Lincoln County, the USFWS has determined that this species could occur statewide (USFWS 2022b).

Tricolored bats hibernate in caves or man-made structures such as culverts or bridges (Fujita and Kunz 1984, Newman 2021). During the summer, tricolored bats roost in clumps of tree

foliage, often in oak (*Quercus* sp.) and hickory (*Carya* spp.) trees (Veilleux et al. 2003, O'Keefe et al. 2009, Schaefer 2017, Thames 2020). Foraging studies of tricolored bats are lacking, but it is believed they typically forage near their roost trees in forested areas and riparian corridors. There are no documented records of tricolored bat in Lincoln County, Tennessee, but it is likely they are found in caves in this county. The USFWS has determined they could occur statewide.

Gray bats roost in caves year-round and migrate between summer and winter roosts during spring and fall (USFWS 1982, Tuttle 1976a). Bats disperse over bodies of water at dusk where they forage for insects emerging from the surface of the water (Tuttle 1976b). The closest gray bat record is a summer roost cave approximately 2.1 miles away, this is also the closest known cave to the Project Area. No additional caves were observed by TVA Terrestrial Zoologists during a site visit on November 7, 2022.

One cave with known Indiana and gray bat records is located within 3 miles of the Project Area, approximately 2.1 miles away. No caves were observed within the Project Area during field surveys on November 7, 2022. Approximately 7.3 acres of suitable summer roosting habitat for Indiana bat, northern long-eared bat, and tricolored bat is present throughout the wooded areas in the Project Area. Shagbark hickory, a common roost tree for Indiana bats and northern long-eared bats, was present in both the thicker woodlot and the thinner more open woodlot to the central section of the Project Area. Foraging habitat exists both over the fields and within woodlots in and adjacent to the Project Area. One ephemeral stream within the Project Area offer suitable foraging habitat for all four bat species.

The monarch butterfly is 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 (Lotts and Naberhaus 2017). The eastern edge of the Project Area has some potential to contain some wildflower and other flowering plant species that could provide suitable foraging. However, due to the intense agricultural use of the site for some time, no significant quantity of flowering plants is likely to occur on site. In addition, no milkweeds were observed in the Project Area during field reviews. Though this species has not been historically tracked by state or federal heritage programs, the USFWS IPaC tool determined that this species could occur within the Project Area.

Whooping cranes migrate through Tennessee twice per year in small flocks of three-five birds. During this migration they stop to feed and rest in wetland complexes, marshes, ponds, lakes, rivers, and agricultural fields (USFWS 2023a). Historically, the Project Area has been undeveloped agricultural land but has since been rezoned to industrial and no longer contains sufficient quantities of agricultural grains that would attract these birds. No permanent bodies of water exist on the site. Therefore, the Project Area does not provide suitable habitat for whooping crane.

Under the Action Alternative, TVA would provide funds to assist with tree clearing, grading of a 100,000-square foot (expandable to 200,000-square foot) compacted dirt building pad, construction of a gravel access road, and grading of two detention basins. Impacts were assessed for the four terrestrial animal species with the potential to occur in the Project Area. Whooping crane would not be impacted by the proposed actions due to lack of suitable habitat in the Project Area.

Monarch butterfly foraging habitat may exist in small, narrow strips along field edges that have not been impacted by agricultural crop production. Grading would impact monarch butterfly foraging habitat should it occur in the Project Area. However, these impacts are expected to be minor due to the small quantity of habitat potentially present. This species is currently listed under the ESA as a candidate species and is not subject to Section 7 consultation under the ESA. Significant impacts to the monarch butterfly are not anticipated as a result of this Project.

No caves or other hibernacula for gray bat, Indiana bat, northern long-eared bat, or tricolored bat exist in the Project Area or would be impacted by the Proposed Action. Approximately 7.3 acres of suitable summer roosting habitat for Indiana bat, northern long-eared bat, and tricolored bat are proposed for removal as part of the Proposed Action. To avoid direct impacts to Indiana bat and northern long-eared bat while they are birthing and rearing pups (June 1–July 31), tree removal is proposed to occur in the winter (November 15–March 31) and pup season would be avoided. Removal of suitable habitat in winter (November 15–March 31) would avoid direct impacts to Indiana bat, northern long-eared bat, and tricolored bat as these species are roosting underground at that time.

A number of activities associated with the Proposed Action, were addressed in TVA's programmatic consultation with the USFWS on routine actions and federally listed bats in accordance with ESA Section 7(a)(2) completed in April 2018 and updated in May 2023. For those activities with potential to affect bats, TVA committed to implementing specific conservation measures. These activities and associated conservation measures are identified on page 5 of the TVA Bat Strategy Project Screening Form (Attachment 2) and need to be reviewed/implemented as part of the proposed Project. Reinitiation of TVA's bat programmatic is underway to address the uplisting of the northern long-eared bat from threatened to endangered. In this interim, additional Section 7 consultation was performed using the IPaC determination key for northern long-eared bat. Proposed actions may affect but are not likely to adversely affect the northern long-eared bat. In addition, TVA has determined that the proposed actions are not likely to jeopardize the continued existence of the tricolored bat. With the use of conservation measures identified on the Bat Strategy Project Screening Form, and winter tree removal, the Proposed Action would not significantly impact gray bat, Indiana bat, northern long-eared bat, and tricolored bat.

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FLCIDB. If the FLCIDB were to obtain alternate funding and proceed with its current plans, the overall environmental consequences would be similar to those anticipated from implementing the Action Alternative. If the FLCIDB was unable to secure other funding or the Project was cancelled, the Proposed Action would not occur, no ground disturbance or tree clearing would occur, and threatened and endangered terrestrial wildlife species and their habitats would not be impacted.

4.2.7 *Managed and Natural Areas*

Managed areas include lands held in public ownership that are managed by an entity (e.g., TVA, USDA, 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 Project database identified seven managed and natural areas within 3 miles of the Project Area (Table 4-5).

Table 4-5. Managed/Natural Areas within 3.0 Miles of the Project Area¹

Managed/Natural Area	Acres	County	State
Bradford Property	103.9	Lincoln	TN
Atlantic Coast Conservancy/Pelican Coast Conservancy Conservation Easement E201113	66.68	Lincoln	TN
Tennessee Land Trust ID 403	273.79	Lincoln	TN
Elk River	276.99	Multiple	Multiple
Georgia-Alabama Land Trust Easement #148	160.69	Lincoln	TN
Lincoln County Bat Cave Protection Planning Site	4.83	Lincoln	TN
Mulberry Bridge Bluff Protection Planning Site	58.78	Lincoln	TN

¹ Source: TVA Regional Natural Heritage Database, extracted October 4, 2022.

Of the seven managed or natural areas that occur within 3 miles of the proposed Project Area, none overlap with the Project Area. Two occur within 1 mile of the proposed Project: Land Trust for TN easement parcel located 0.5 mile east and Elk River, a Nationwide Rivers Inventory stream, located 0.9 mile south. Given their distance from the Project Area, no direct impacts to either of these natural areas are expected as a result of the Action Alternative.

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FLCIDB. Similar to the Proposed Action, if the FLCIDB were to obtain alternate funding and proceed with its current plans, no impacts to managed natural areas would occur. If the FLCIDB was unable to secure other funding or the Project was cancelled, the Proposed Action would not occur, there would be no impacts to managed or natural areas, and environmental conditions on the site would remain essentially unchanged from the current conditions.

4.2.8 Cultural Resources

Cultural resources, including archaeological and architectural 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.

The Project Area is located north of U.S. Highway 64, and along the east side of Franke Boulevard in Fayetteville, Lincoln County, Tennessee. Lincoln County is located within southern Middle Tennessee, with most of the county in the Central Basin and the remainder along the Highland Rim. The region is characterized by gently rolling topography containing rural agricultural and densely wooded parcels, with mid-twentieth century residential development

along U.S. Highway 64 to the south and southwest. The Project Area is located within the USGS Fayetteville Quadrangle (1973). The Bullington Site consists of a 28.3-acre undeveloped rural property characterized by cleared fields to the west and dense woods to the east. The Project Area lies within the Bullington Site and consists of 22.9 acres of the property, and proposed tree clearing is restricted to 8.6 acres within the Project Area. The parcel has frontages along Franke Boulevard to the west, with the boundaries to the north and south being shared with commercially developed adjacent properties and to the east being shared with a densely wooded adjacent property.

Pursuant to Section 106 of the NHPA and implementing regulations 36 CFR 800, a historic architectural survey was completed by SWCA to identify National Register of Historic Places (NRHP) listed, eligible, or potentially eligible historic structures and sites within the Project Area (SWCA 2023). In preparation for the survey, a search of the site survey files and other resources available at the Tennessee Historical Commission (THC) was completed. Background research conducted via the Tennessee Historic Property Viewer, historic cartographic resources, and modern aerial photographs revealed seven properties that are 50 years of age or older within the Project Area determined by viewshed verification. One of these was a previously identified resource documented with the THC (LN-101). SWCA identified six previously undocumented historic architectural resources within the viewshed of the Project Area within the 0.5-mile buffer. All survey targets were documented and evaluated for eligibility for listing in the NRHP.

From January 8 through January 10, 2023, SWCA completed an archaeological survey throughout the entirety of the 22.9-acre Project Area. During the archaeological survey, a pedestrian inspection coupled with the excavation of 157 shovel tests were completed. The walkover survey was conducted along transects aligned north-south and spaced approximately 30-meter intervals. All areas of exposed ground surface were examined for artifacts. The shovel tests were excavated that measured 30 centimeters (cm) in diameter and were dug to 70 cm below surface whenever possible, unless obstructed by subsoil or standing water. As a result of the survey, one prehistoric chert flake was encountered in one shovel test. The isolated artifact does not qualify as an archaeological site, therefore, was not designated a Tennessee Department of Archaeology site number. This isolated find is not eligible for listing in the NRHP, and no further work is recommended.

According to the Tennessee Department of Archaeology site file database (2021), a segment of the Trail of Tears traverses the general vicinity of the current project tract. This portion of the Trail of Tears is referred to as Bell's Route. Bell's Route is named for Mr. John Bell, a Cherokee who travelled with the group escorted by Lieutenant Edward Deas. This was one of the last groups to be removed, and during late October and early November 1838, they passed through Lincoln County and Fayetteville on the way to Oklahoma (Morfe 2014). Much of the trail in this area has been impacted by the construction of roadways and industrial developments. No evidence of the route was identified within the Project Area.

During the historic architectural survey, SWCA documented and assessed seven architectural resources which were over 50 years in age in the Area of Potential Effect (APE) (Table 4-6). The APE included the immediate 22.9 acres of the Project Area and an unobstructed 0.5-mile viewshed surrounding the Project Area. None of the six surveyed properties were recommended eligible to be listed in the NRHP. Based on the background research and the

Phase I architectural survey, TVA found that the Action Alternative would have no adverse effect on historic properties.

Table 4-6. Cultural Resources Identified during the Phase I Cultural Historic Survey

Cultural Resource Number	Description	Eligibility Recommendation
LN-101	1801 Winchester Highway, Fayetteville, TN 37334	Not Eligible
LN-IP-001	55 Providence Road, Fayetteville, TN 37334	Not Eligible
LN-IP-003	1764 Winchester Highway, Fayetteville, TN 37334	Not Eligible
LN-IP-004	1760 Winchester Highway, Fayetteville, TN 37334	Not Eligible
LN-IP-005	1758 Winchester Highway, Fayetteville, TN 37334	Not Eligible
LN-IP-006	1752 Winchester Highway, Fayetteville, TN 37334	Not Eligible
LN-IP-007	1756 Winchester Highway, Fayetteville, TN 37334	Not Eligible

TVA consulted with the Tennessee SHPO in a letter dated March 28, 2023, regarding TVA's findings and recommendations. In a letter dated March 29, 2023, the Tennessee SHPO concurred with TVA's findings and recommendations (Attachment 3). Pursuant to 36 CFR Part 800.3(f) (2), TVA also consulted with federally recognized Indian tribes regarding properties that may have religious and cultural significance to their tribe and eligible for the NRHP. TVA received no responses from the federally recognized Indian tribes regarding the Action Alternative.

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FLCIDB. Similar to the Proposed Action, if the FLCIDB were to obtain alternate funding and proceed with its current plans, no impacts to cultural resources would occur. If the FLCIDB was unable to secure other funding or the Project was cancelled, the Proposed Action would not occur, and there would also be no impacts to cultural resources as environmental conditions on the site would remain essentially unchanged from the current conditions.

4.2.9 Air Quality and Climate Change

Federal and state regulations protect ambient air quality. With authority granted by the Clean Air Act (CAA) 42 U.S.C. 7401 et seq. as amended in 1977 and 1990, the 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 (NO₂), carbon monoxide (CO), ozone, sulfur dioxide (SO₂), lead, particulate matter (PM) with an aerodynamic diameter equal to or less than 10 microns (PM₁₀), 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 Lincoln County, TN, meets the ambient air quality standards and is in attainment with respect to the criteria pollutants (USEPA 2023a).

Other pollutants, such as hazardous air pollutants (HAPs) and greenhouse gases (GHGs) are also a consideration in air quality impacts analyses. Section 112(b) of the CAA lists HAPs, also known as toxic air pollutants or air toxics, 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. They are non-toxic and non-hazardous at normal ambient concentrations. Currently, 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 (CO₂), methane, and nitrous oxide.

Air quality impacts associated with activities under the Action Alternative include emissions from fossil fuel-fired equipment and fugitive dust from ground disturbances. Fossil fuel-fired equipment are a source of combustion emissions, including nitrogen oxides (NOX), CO, volatile organic compounds (VOCs), SO₂, PM₁₀, PM_{2.5}, GHGs, and small amounts of HAPs. Gasoline and diesel engines used because of the Action Alternative would comply with the USEPA mobile source regulations in 40 CFR Part 85 for on-road engines and 40 CFR Part 89 for non-road engines. These regulations are designed to minimize emissions and require a maximum sulfur content in diesel fuel of 15 parts per million.

Fugitive dust is a source of respirable airborne PM, including PM₁₀ and PM_{2.5}, which could result from ground disturbances such as land clearing, grading, excavation, and travel on unpaved roads. The amount of dust generated is a function of the activity, silt and moisture content of the soil, wind speed, frequency of precipitation, vehicle traffic, vehicle types, and roadway characteristics. The FLCIDB, or its contractors, would comply with TDEC Air Pollution Control Rule 1200-3-8, which requires reasonable precautions to prevent PM from becoming airborne. Such reasonable precautions include but are not limited to the use of water or chemicals for control of dust in construction operations, grading of roads, or the clearing of land. In addition, the application of asphalt, water, or suitable chemicals on dirt roads, material stockpiles, and other surfaces which can create airborne dusts, are also considered reasonable precautions.

With the use of BMPs and other permit-required measures described above to reduce emissions associated with the Action Alternative, air quality impacts would be minimal, temporary, and localized; and would not be anticipated to result in any violation of applicable ambient air quality standards or impact regional air quality.

Concerning climate change, trees, like other green plants, are carbon sinks that use photosynthesis to convert CO₂ 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 CO₂ from the atmosphere. Although forests do release some CO₂ from natural processes such as decay and respiration, a healthy forest typically stores carbon at a greater rate than it releases carbon. The 22.9 acres that make up the Project Area is by and large made up of rolling green hills and dense forested deciduous tree cover. There is a pronounced cut-off where the open fields end and where the forest begins. The dense tree coverage is primarily

oak-dominant (*Quercus* sp.), but also consists of other seasonal mixed hardwoods, such as beech (*Fagus* sp.) and poplar (*Liriodendron* sp.) trees. Interspersed among these are evergreens that do not lose their foliage in the winter months. Seeing as how there are numerous dense mixed deciduous forests within the immediate vicinity of the Project Area, and the Tennessee Region is in a deciduous forest zone, any loss in carbon sequestration would be minimal within the immediate area and make no impact on large-scale reduction of natural carbon sinks.

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FLCIDB. If the FLCIDB were to obtain alternate funding and proceed with its current plans, similar emissions from equipment and ground disturbances would occur, resulting in similar air quality and climate change impacts as those described above for the Action Alternative. If the FLCIDB was unable to secure other funding or the Project was cancelled, the Proposed Action would not occur, emissions from equipment and ground disturbances would not occur, and there would be no impacts to air quality and climate change.

4.2.10 Recreation

The Project Area is located in an undeveloped area, with no permanent structures present. Historically, the land has been used for agriculture, specifically for hay production. Currently, the Project Area is vacant with the western portion maintained through mowing, and the remaining eastern portion being forested. The Project Area is zoned for general industrial use (Lincoln County Planning & Zoning Department n.d.).

There are no developed parks or outdoor recreation areas in the immediate vicinity of the Project Area. There are three parks; Fayetteville Parks and Recreation Gun Range, Kids Park, and S.J. King Park, to the southwest of the Project Area which are approximately 2.01, 2.34, and 2.42 miles from the Project Area, respectively. C&S Plastics borders the Project boundary to the north and the Motlow State Community College Fayetteville Campus is approximately 160 feet to the south of the southern Project Area boundary line. Franke, a global food service industry, is located on the western side of Franke Boulevard, approximately 400 feet from the western boundary of the Project Area. The area directly to the east of the Project Area consists of deciduous forest (Google Maps 2023).

Because the Project Area is zoned for general industrial use and is located in a primarily industrial area, implementation of the Action Alternative is not anticipated to result in significant impacts on recreational opportunities near the Project Area. Because of the distances between the Project Area and developed recreation areas, no impacts on public use of existing recreation areas are anticipated.

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FLCIDB. If the FLCIDB were to obtain alternate funding and proceed with its current plans, impacts to recreational opportunities would not be anticipated. If the FLCIDB was unable to secure other funding or the Project was cancelled, the Proposed Action would not occur, and impacts to recreational opportunities would not be anticipated as environmental conditions on the site would remain essentially unchanged from the current conditions.

4.2.11 Visual

The Project Area is approximately 22.9 acres consisting of land primarily used for the growth of agricultural hay. There are dense clusters of trees on the eastern portion of the Project Area that

become more sporadic and dispersed as you move from the east to the west across the Project Area. The Project Area is zoned for general industrial use matching the surrounding area. The Project Area is immediately surrounded by light commercial and industrial development to the north, south and west connected by Franke Boulevard, and a densely forested area to the east. Commercial and industrial development in this area consists of one to two story geometrical and straight long horizontal building lines and straight or angular roof lines. These buildings are mostly neutral colors (i.e., white and gray) and made of smooth siding with the exception of the community college which is made of smooth dark red/brown brick.

Project activities that could influence visual change in the landscape would include tree clearing, grading, construction of the compacted dirt building pad, grading of two detention basins and a gravel access road. Impacts to visual resources in this area were measured by comparing the existing visual conditions of the Project Area, the proposed Project components, and the degree of contrast created from the change of the landscape as viewed. The degree to which a project affects the visual quality of a landscape depends on the visual contrast created between a project and the existing landscape. The contrast can be evaluated by comparing the project features with the major features in the existing landscape. The basic design elements of form, line, color, and texture are used to make this comparison and to describe the visual contrast created by the project. This assessment process provides a means for determining visual impacts and for identifying measures (if applicable) to mitigate these impacts. The degree of contrast and subsequent degree of impact was evaluated as none, low, moderate, and high using the criteria in Table 4-7 below.

Table 4-7. Criteria for Degree of Contrast

Degree of Contrast	Criteria
None	The landscape when viewed appears unaltered and project components would not attract attention or project components would repeat the form, line, color, texture or scale common in the landscape.
Low	The landscape when viewed appears slightly altered and project components would begin to introduce form, line, color, texture or scale in the landscape that would be visually subordinate.
Moderate	The landscape when viewed appears moderately altered and project components would introduce form, line, color, texture or scale not common in the landscape and would be visually prominent in the landscape.
High	The landscape when viewed appears heavily altered and project components would be out of scale or contain detail that is out of character with the existing landscape as viewed.

Visual impacts experienced during construction would be from the presence of workers, dust caused by construction traffic and equipment or grading activities in the Project Area, and the removal of vegetation. During construction, viewers in the area would experience views of construction activities and equipment (e.g., an excavator, bulldozer, dump truck, or similar vehicles and heavy machinery). These views are anticipated to be limited to vehicular travelers on Franke Boulevard and workers or visitors to the industrial and commercial businesses surrounding the Project Area. Construction would begin to introduce changes to the existing landscape character with the introduction of forms, lines, colors, and textures not currently found

in the Project Area. This would result in a temporary low visual degree of impacts to viewers and the existing landscape character. The impacts from this generated contrast would be lessened by implementing dust control measures, such as a low construction speed limit for vehicles and occasional spraying of water from water trucks to reduce airborne dust on disturbed areas.

The presence of Project components would cause long term visual impacts with the existing landscape character which would be the primary source of visual impacts. Removal of existing vegetation would cause contrast with the existing naturally dense forested area on the east side of the project resulting in an open field, as well as the introduction of a geometrical forms and straight edges associated with the proposed tree clearing areas. The result of tree clearing in the Project Area would match the geometric forms and straight lines of existing forest surrounding the area where development has cut into the forest. Other Project components including graded detention basins, gravel access road, and compacted dirt building pad would create a low degree of visual impacts with the existing landscape character with the introduction of forms, lines, colors, and textures not currently see in the Project Area but would be similar in form, line, and texture to the surrounding development.

It is anticipated that vehicular travelers along Franke Boulevard, Providence Road and the surrounding commercial and industrial developments within the Bullington Site would experience a low degree of visual impact from the Project with the introduction of form, line, color, and texture similar to the existing industrial development in the surrounding area. The Project Area is anticipated to appear slightly altered and be visually subordinate to the existing development in the surrounding area.

In the surrounding area there is some scattered residential development (the nearest residence is approximately 0.2 mile away); however, the existing vegetation between residences and the existing industrial development surrounding the Project would result in infrequent views of low to no visual impacts.

The landscape character of the Project Area would illustrate a visual change from an open field to land ready to support industrial development with a heavy degree of commercial and industrial development surrounding the Project Area. Therefore, implementation of the Action Alternative would result in a low impact to visual resources. The Project would introduce form, line, color, and texture to a scale similar to development common in the landscape resulting in a landscape that appears slightly altered.

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FLCIDB. If the FLCIDB were to obtain alternate funding and proceed with its current plans, similar visual quality impacts would occur as those described above for the Action Alternative. If the FLCIDB was unable to secure other funding or the Project was cancelled, the Proposed Action would not occur, and impacts to visual resources would not be anticipated as environmental conditions on the site would remain essentially unchanged from the current conditions.

4.2.12 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. This includes traffic along the roads of Franke Boulevard and State Highway 15 (also known as U.S. Highway 64 or Winchester Highway), found along the perimeter of the Project Area. In addition, sources of noise can originate from the businesses situated along and across the highway intersection with Franke Boulevard near the south-west corner of the Project Area. The levels of these existing noise sources are likely minimal because of the sparse human activity, tree obstruction, and lack of heavy commute, making existing noise pollution thresholds low.

Noise impacts associated with construction activities under the Action Alternative would be primarily from construction equipment. Construction activities would involve operation of an excavator, bulldozer, dump truck, or similar vehicles and heavy machinery over the temporary duration of construction. Construction equipment noise levels are temporary and rarely steady; they fluctuate depending on the number and type of vehicles and equipment in use at any given time. In addition, construction-related sound levels experienced by a noise sensitive receptor in the vicinity of construction activity would be a function of distance, other noise sources, and the presence and extent of vegetation, structures, and intervening topography between the noise source and receptor.

Primary sensitive noise receptors in the area include the Motlow State Community College Fayetteville Campus directly adjacent to State Highway 15 and Franke Boulevard, just south of the Project Area, the C&S Plastics manufacturing company adjacent to Franke Boulevard and northwest of the Project Area, the Franke Contract Group located across from Franke Boulevard west of the Project Area, and the Frito-Lay food supplier just across State Highway 15 southeast of the Project Area, all within a quarter-mile from the Project Area. In addition, a little less than half a mile west of the Project Area exists the East Haven apartment complex. The noise would be localized and temporary, and no receptor would be exposed to significant noise levels for an extended period. Further, construction activities would be conducted during daylight hours only, when ambient noise levels are often higher, and most individuals are less sensitive to noise. Thus, noise-related impacts resulting from implementation of the Action Alternative are anticipated to be temporary and minor.

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FLCIDB. If the FLCIDB were to obtain alternate funding and proceed with its current plans, similar direct and indirect noise-related impacts would occur as described above for the Action Alternative. If the FLCIDB was unable to secure other funding or the Project was cancelled, the Proposed Action would not occur and existing site conditions would likely be maintained resulting in no noise-related impacts.

4.2.13 Socioeconomics

This analysis evaluates the effects of the proposed Project on socioeconomic indicators in Lincoln County, TN. These indicators include population level and demographics, employment, housing, tourism, and demand for public services.

The first step in the assessment is to characterize existing conditions in the county using information compiled by the U.S. Census Bureau (USCB) as part of their American Community Survey and other publicly available information. The information characterizing existing conditions is integrated with project-specific data to characterize expected socioeconomic impacts.

Table 4-8 characterizes the population, labor force, and income levels for Lincoln County. Table 4-8 also reports housing and public service statistics for the county. Similar information is provided at the state level for comparison purposes.

Table 4-8. Population, Labor Force, Housing, and Public Services

	Tennessee	Lincoln County
Population (Five-Year Estimates Ending in Designated Year)^{a,b}		
Total Population (2011)	6,297,991	33,108
Total Population (2021)	6,859,497	35,042
Population Change (2011 to 2021)	8.9%	5.8%
Persons per Square Mile (2021)	166.4	61.4
Labor Force (2017–2021 Five-Year Estimates)^c		
Civilian Labor Force	3,380,708	16,658
Employed	3,201,140	15,841
Unemployed	179,568	817
Average Annual Unemployment Rate	5.3%	4.9%
Income (2017–2021 Five-Year Estimates)^c		
Per Capita Income	\$32,908	\$30,202
Median Household Income	\$58,516	\$57,455
Percent of Persons Below Poverty Level	14.3%	11.1%
Housing (2017–2021 Five-Year Estimates)^{d,e}		
Total Housing Units	3,011,124	15,842
Total Occupied Housing Units	2,664,791	14,032
Total Vacant Units	346,333	1,810
Homeowner Vacancy Rate	1.2%	0.9%
Rental Vacancy Rate	6.7%	2.1%
Number of Hotels/Motels ^f	NR	6
Number of RV Parks/Campgrounds ^g	NR	0
Public Services and Facilities		
Police Departments ^h	NR	3
Fire Departments ^f	NR	7
Hospitals ⁱ	NR	2
Public Schools ⁱ	NR	11
NR: Not Reported		
^a USCB 2011		
^b USCB 2021a		
^c USCB 2021b		
^d USCB 2021c		
^e USCB 2021d		
^f Google Maps 2023		
^g Allstays 2023		
^h USACOPS 2023		
ⁱ USEPA 2023b		

With a population density less than half the state average, Lincoln County is reasonably characterized as rural. Unlike many rural areas, per capita income, poverty rates, and unemployment rates are not indicative of less economic activity relative to the state. Employment is centered in three sectors: 1) manufacturing; 2) education, health care, and social assistance and 3) retail trade (USCB 2021b). The rental vacancy rate is below the state average which is consistent with a population that is expanding somewhat more rapidly than the pool of rental housing.

Tree clearing, construction of the gravel access road, grading to create a compacted dirt building pad, and grading two detention basins is anticipated to take place over a 9-month period and require a small local workforce. Due to the small size of the workforce and the short duration of construction activities, the Project is characterized as having a negligible impact on economy, employment, and income.

Because the workforce would likely be drawn from the surrounding area, there would be no impact on the population level or demographics in Lincoln County. Workers who live in the surrounding area would typically commute to and from the Project Area on a daily basis rather than use temporary housing. If the workforce were drawn from outside of the surrounding area, it is anticipated that there would be a negligible impact on population level or demographics in Lincoln County due to the anticipated small workforce required for construction. Further, demand for public services such as education, emergency medical, and law enforcement would not be affected.

There are no RV parks/campgrounds in the county and no tourist attractions have been identified within 1 mile of the Project. The Project Area is surrounded by an existing industrial park, so development of the Bullington Site would not represent a significant change from current land use in the area. Therefore, the Project is not likely to affect Lincoln County tourism.

Due to the small scale of activities associated with the Project, the Project would not have a material impact on tax revenue at the state or county level.

Based on the preceding analysis, the overall impact of the Project on socioeconomic conditions in Lincoln County, TN, would be negligible.

Implementation of the Action Alternative would result in ground disturbance during construction activities: tree clearing and site grading for the development of a compacted dirt building pad and a gravel access road. Based on the preceding analysis, the overall impact of the Project on socioeconomic conditions in Lincoln County, Tennessee, would be negligible.

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FLCIDB. If the FLCIDB were to obtain alternate funding and proceed with its current plans, the overall environmental consequences would be similar to those anticipated from implementing the Action Alternative. If the FLCIDB was unable to secure other funding or the Project was cancelled, the Proposed Action would not occur, and there would be no impacts to the socioeconomic conditions in Lincoln County, TN.

4.2.14 Environmental Justice

An environmental justice analysis was conducted to determine if the Project would be likely to have disproportionate and adverse human health or environmental effects on minority and low-income populations. Environmental justice analyses are typically implemented in three steps. First, census data are used to identify environmental justice communities. Second, information characterizing the project's impact on environmental resources is used to determine if the Project is likely to affect environmental justice communities disproportionately and adversely. Finally, if disproportionate and adverse impacts to minority or low-income communities are anticipated, plans to mitigate those impacts are developed.

4.2.14.1 Identifying Environmental Justice Communities

The environmental justice analysis was performed at the census block group level, which is the smallest geographic unit for which the necessary demographic data are reported.

The environmental justice analysis area includes all block groups within 1 mile of the Project Area. This distance was selected because potential impacts to humans arising from project-related changes in parameters such as air quality, groundwater quality, noise, and aesthetics are likely to be most acute near a project and then dissipate rapidly.

Table 4-9 summarizes race/ethnicity and poverty data for the four block groups in the environmental justice analysis area. Information for Tennessee and Lincoln County are provided as a basis of comparison. Block groups were identified as communities of potential environmental justice concern if either of the following is true.

1. The percentage of the block group's population self-identifying as something other than "white-alone not Hispanic" (referred to as "minority") exceeds 50 percent OR if the percentage of the block group's population self-identifying as something other than "white-alone not Hispanic" is 10 percentage points greater than the same measure in the corresponding county.
2. The percentage of the block group living below the poverty level is greater than the same measure in the corresponding county.

Two of the four block groups in the environmental justice analysis area for the Project are characterized as communities of potential environmental justice concern. This is because block groups 2 and 3 of census tract 9754 have poverty rates greater than the poverty rate in Lincoln County. In addition, the proportion of residents in block group 2 of census tract 9754 that self-identify as minority is more than twice the rate in Lincoln County.

Furthermore, the USEPA's EJScreen reports that block group 2 of census tract 9750 falls in the 42nd state percentile of "Less Than HS Education". This indicates that the proportion of persons with a high school education in this block group is neither unusually high nor low. In contrast, block group 1 of census tract 9750, and block groups 2 and 3 of census tract 9754 fall in the 64th, 79th, and 77th state percentile of "Less Than HS Education", respectively, indicating that the proportion of persons with a high school education is unusually low.

Table 4-9. Race/Ethnicity and Poverty

	Tennessee	Lincoln County	Census Tract 9750, Block Group 1	Census Tract 9750, Block Group 2	Census Tract 9754, Block Group 2	Census Tract 9754, Block Group 3
Race/Ethnicity (2017–2021 Five-Year Estimates)^a						
Total Population	6,859,497	35,042	1,261	709	1,255	1,290
White Alone Not Hispanic	72.9%	85.7%	94.5%	80.0%	66.4%	92.9%
Black or African American	16.3%	6.5%	2.6%	5.1%	30.0%	4.7%
American Indian and Alaska Native	0.2%	0.2%	0.0%	6.6%	0.5%	0.0%
Asian	1.8%	0.6%	0.0%	0.0%	0.0%	0.0%
Native Hawaiian and Other Pacific Islander	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Some other race	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Two or more races	2.7%	3.2%	2.3%	6.1%	2.7%	2.3%
Hispanic or Latino	5.8%	3.8%	0.6%	2.3%	0.5%	0.0%
Total Racial Minority	27.1%	14.3%	5.5%	20.0%	33.6%	7.1%
Low-Income (2017–2021 Five-Year Estimates)^b						
Percent of Households Below Poverty Level	14.1%	12.8%	9.8%	5.6%	13.3%	13.1%
^a USCB 2020e ^b USCB 2020f Low-income or minority populations exceeding the established thresholds are indicated with orange shading						

4.2.14.2 Evaluating the Potential for Disproportionate and Adverse Impacts

The Bureau of Land Management (2022) reports that determining whether the effect of a project on an environmental justice population is likely to be disproportionate is a matter of professional judgement. Specifically, they write that determining whether the effect of an impact would “appreciably exceed . . . those on the general population is a matter of judgment, taking all relevant information into account.” It is suggested that the analyst ask whether members of the environmental justice community are more sensitive to Project-related impacts than the general public because of income status, historical exclusion based on race or ethnicity, an inability to respond to the action, or increased exposure potential.

When conducting this environmental justice assessment, the full range of potential changes that could affect humans was considered (e.g., changes in air quality, changes in water quality, degradation of cultural resources, and socioeconomic alterations). In each instance, the analysis asked whether minority and low-income populations would have different ways, relative

to the general population, of being adversely affected by the Project. Three specific questions were posed, and both direct and indirect Project impacts were considered when answering these questions.

1. Are residents of environmental justice communities likely to be disproportionality and adversely affected because they are more sensitive to a given level of exposure due to pre-existing medical conditions and/or reduced access to health care and/or because they are exposed to higher baseline concentrations of health stressors, such as PM_{2.5}?
2. Are residents of environmental justice communities likely to be disproportionality and adversely affected due to lifestyle approaches such as subsistence fishing and/or because they have different cultural, community, or religious practices?
3. Are residents of environmental justice communities likely to be disproportionality and adversely affected because their economic status or language barriers prevent them from taking mitigating actions that general members of the public might readily adopt, such as closing doors and windows to limit dust exposure?

In addition to reviewing the resource-specific analysis reported in the remainder of this EA, USCB data were used to identify potential language barriers in the area. No block groups in the environmental justice analysis area were identified as limited English proficiency communities (USCB 2021g).

The Project would not result in environmental justice-related issues. This is because the provision of an economic development grant to the FLCIDB to assist with the development of the Project Area for future industrial use is generally not expected to materially affect environmental or socioeconomic resources. Further, where environmental resources are affected, those effects would not disproportionately and adversely affect low income or minority populations.

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FLCIDB. If the FLCIDB were to obtain alternate funding and proceed with its current plans, the overall environmental consequences would be similar to those anticipated from implementing the Action Alternative, with no impacts to environmental justice communities anticipated. If the FLCIDB was unable to secure other funding or the Project was cancelled, the Proposed Action would not occur and there would also be no impacts to environmental justice communities.

4.2.15 Transportation

The Project Area would be accessed from Franke Boulevard. Franke Boulevard is located to the west of the Project Area. Installation of a new entrance and construction of a gravel access road from Franke Boulevard to the compacted dirt building pad would be required.

Franke Boulevard is a local roadway approximately 0.5 mile in length that runs through the Bullington Site. Franke Boulevard ends to the south of the Project Area at the intersection with State Highway 15 and to the north of the Project Area at the intersection with Providence Road. Based on preliminary review of Google Streetview images (recorded June 2018, as supplemented by review of Google Earth imagery obtained on June 19, 2022), Franke Boulevard is paved and unmarked along its length and is sufficiently wide for a single lane of traffic in each direction and appears to be in good condition. Franke Boulevard is not listed on the Functional Classification System for Lincoln County (Tennessee Department of

Transportation [TDOT] 2018). The site entrance location and configuration should consider safe sight distances and other safety concerns for the traffic that would enter Franke Boulevard from the property. Necessary precautions would be taken during mobilization and de-mobilization such as reduced speed in areas of poor visibility or poor road condition, with other precautions such as a flagman or traffic control to be considered if required.

U.S. Highway 64 is a four-lane highway and is classified as both a Principal Arterial Roadway and a National Highway by the Functional Classification System for Lincoln County (TDOT 2018). Based on preliminary review of Google Streetview images (recorded July 2022, as supplemented by review of Google Earth imagery obtained on June 20, 2022), the road is in good condition with paved shoulders and a median turning lane between oncoming traffic. This highway can accommodate commercial and construction vehicles. It is expected that normal care would be taken by workers entering and exiting U.S. Highway 64 with regards to traffic safety.

Based on a review of TDOT historical traffic data (2021) there are no traffic count stations on Franke Boulevard and the nearest traffic count station on U.S. Highway 64 is located approximately 1 mile to the east of the intersection with Franke Boulevard, south of the site entrance. The 2021 annual average daily traffic counts (AADT) for the relevant station are presented in Table 4-10.

Table 4-10. Tennessee Department of Transportation Traffic Count Data for the Project Area¹

Route Description	Location ID	Distance from Project Area (Miles)	Year	AADT	PA	BC
Winchester HWY (East of Fayetteville)	52000079	1.0	2021	6,109	5,578 (91%)	531 (9%)
Where: AADT = annual average daily traffic count; PA = passenger vehicles; and BC = business/commercial vehicles ¹ Source: Tennessee Department of Transportation (Annual Average Daily Traffic (AADT) (tn.gov)), extracted 2/8/2023.						

In the context of the existing AADT volumes of these roadways, the anticipated traffic generated by the proposed Project activities would be minor and temporary. It is anticipated that implementation of the Action Alternative would generate minor traffic associated with construction activities and have a temporary and negligible impact on overall traffic volumes and level of service of Franke Boulevard.

Under the No Action Alternative, TVA would not provide InvestPrep funds to the FLCIDB. If the FLCIDB were to obtain alternate funding and proceed with its current plans, the overall environmental consequences would be similar to those anticipated from implementing the Action Alternative. If the FLCIDB was unable to secure other funding or the Project was cancelled, the Proposed Action would not occur, and existing site conditions would likely be maintained, resulting in no impacts on overall traffic volumes and level of service.

5.0 PERMITS, LICENSES, AND APPROVALS

The Action Alternative would result in greater than one acre of earth disturbing activities; therefore, it would be necessary to obtain coverage under the 2021 (or current version) NPDES General Permit for Discharges Associated with Construction Activity (TNR100000). Coverage

would require submittal of a Notice of Intent (NOI) and development of a site-specific SWPPP. The FLCIDB, or its contractors, would be responsible for obtaining local, state, or federal permits, licenses, and approvals necessary for the Project. A dredge and fill authorization from the USACE under Section 404 of the CWA would be required for impacts to the WWC, as it is assumed to be a jurisdictional WOTUS per the PJD authorization. The FLCIDB or its contractors would be responsible for obtaining the Section 404 CWA permit necessary for the project. The Action Alternative would not result in permanent impacts to any wetlands.

6.0 BEST MANAGEMENT PRACTICES AND MITIGATION MEASURES

To minimize or reduce the environmental effects of site activities associated with the Action Alternative, the FLCIDB, or its contractors, are expected to ensure all clearing and grading activities conducted are in compliance with stormwater permitting requirements and use applicable BMPs to minimize and control erosion and fugitive dust during these actions.

Operations involving chemical or fuel storage or resupply and vehicle servicing are expected to be handled outside of riparian areas and in such a manner as to prevent these items from reaching a watercourse. Earthen berms or other effective means are expected to be installed to protect nearby stream channels from direct surface runoff. Servicing of equipment and vehicles is expected to be done with care to avoid leakage, spillage, and subsequent surface or groundwater contamination. Oil waste, filters, and other litter are expected to be collected and disposed of properly.

Specific avoidance and conservation measures would be implemented as a part of the Action Alternative to reduce effects to Indiana bat and northern long-eared bat. These measures are identified in the TVA Bat Strategy Project Screening Form (see Attachment 2).

7.0 LIST OF PREPARERS

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

Table 7-1. Environmental Assessment Project Team

Name/Education	Experience	Project Role
TVA		
Brittany Kunkle <i>B.S. Environmental and Soil Science</i>	4 years of professional experience in NEPA and environmental compliance	NEPA Project Manager
Lori Whitehorse	19 years in environmental regulatory compliance and 7 years in NEPA and permitting.	Environmental Program Manager
Susan Housley	16 ½ years in river and reservoir monitoring, 1 ½ years in NEPA compliance	NEPA Compliance
Britta Lees <i>M.S. Botany</i> <i>B.S. Biology</i>	25 years in wetland assessment, field biology, NEPA contributions, and water permitting	Surface Water, Soil Erosion
Fallon Parker Hutcheon <i>M.S., Environmental Studies</i> <i>B.S., Biology</i>	4 years in wetland delineation, wetland impact analysis, and NEPA and CWA compliance	Wetlands

Name/Education	Experience	Project Role
Carrie Williamson, P.E., CFM <i>B.S. and M.S., Civil Engineering</i>	10 years in Floodplain and Flood Risk; 11 years in Compliance Monitoring; 3 years in River Forecasting	Floodplains
Adam Dattilo <i>M.S., Forestry</i> <i>B.S., Natural Resource Conservation Management</i>	21 years in ecological restoration and plant ecology, 16 years in botany	Botany
David Nestor <i>M.S., Botany</i> <i>B.S., Aquacultural, Fisheries & Wildlife Biology</i>	25 years in botany, 19 years in Biological NEPA & ESA compliance; 25 years in T&E and invasive plant species surveys	Botany
Derek Reaux <i>B.A., Anthropology, University of Kentucky</i> <i>M.A./Ph.D., Anthropology, University of Nevada</i>	11 years of experience in cultural resource management and archaeological research.	Cultural resources, NHPA, Section 106 compliance
Matt Reed, QHP <i>M.S., Wildlife and Fisheries Science</i>	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
Chloe Sweda	5 years in natural resource management	Managed and Natural Areas
Sara Bayles <i>M.S., Sport and Recreation Management</i>	4 years of experience in recreation, 1 year experience in NEPA compliance	Recreation
Megan Wallrichs <i>M.S., Natural Resources, Delaware State University</i> <i>B.S., Biology, University of North Carolina at Greensboro</i>	13 years working with threatened and endangered terrestrial species in the Southeastern United States; 2 years of ESA and NEPA compliance	Terrestrial Zoology
Elizabeth Burton Hamrick <i>M.S., Wildlife and Fisheries Science, University of Tennessee</i> <i>B.A., Biology, B.A., Anthropology, Grinnell College</i>	22 years in biological field studies, 9 years in biological compliance, NEPA compliance, and ESA consultation for T&E terrestrial animals	Terrestrial Zoology
SWCA		
Rachel Bell, PMP <i>B.S., Environmental Science, Auburn University</i>	17 years in natural resources planning and NEPA compliance, including project management, preparation of EAs and Environmental Impact Statements (EISs), state and federal permitting, and biological and environmental studies and analysis.	EA Program Manager QA/QC

Name/Education	Experience	Project Role
<p>Samantha Walker <i>B.S., Plant Biology, North Carolina State University</i> <i>B.S., Natural Resources – Ecosystem Management, North Carolina State University</i></p>	<p>6 years in the environmental consulting field and state government sector. Experience includes NEPA compliance and EA preparation, vegetation sampling and surveys, threatened and endangered species habitat assessments, and USFWS Section 7 Consultation.</p>	<p>EA Project Manager QA/QC Purpose and Need, Other Environmental Documentation, Alternatives, Site Description, Permits, Licenses and Approvals, Best Management Practices and Mitigation Measures</p>
<p>Fiona Cook <i>B.S., Marine Biology, Texas A&M University at Galveston</i></p>	<p>10 years of experience in the environmental consulting field. This experience includes wetland and waterbody delineations, wetland and waterbody assessments, wetland monitoring, threatened and endangered species surveys, vegetation surveys, as well as permitting.</p>	<p>Land Use and Recreation, Soils</p>
<p>Madison Cross <i>B.S., Environmental Science, University of West Florida</i></p>	<p>4 years of experience in natural resource management and permitting. Her expertise includes environmental permitting, wetland delineation, listed species surveys, preliminary site assessments, and environmental policy/regulation.</p>	<p>Aquatic Ecology, Botany</p>
<p>Derek Duquette <i>M.A. Public History, Temple University</i> <i>B.A. History, West Chester University of Pennsylvania</i></p>	<p>5 years of experience in cultural resources consultation including leading reconnaissance- and intensive-level historic architectural surveys, environmental consulting, historic preservation planning documentation, reporting, and Section 106 compliance.</p>	<p>Historic</p>
<p>Brent Handley <i>M.A. Anthropology, University of Connecticut</i> <i>B.A. Geography/Anthropology, University of Southern Maine</i></p>	<p>30 years of experience in academic research and cultural resource management projects. This experience includes supervising all phases of cultural resource assessment, including logistical organization, daily field operations, primary and background research, artifact analysis, and the writing of final reports. Mr. Handley is a Registered Professional Archaeologist (RPA) and exceeds the Secretary of the Interior's (SOI) standards for archaeology.</p>	<p>Archaeology</p>
<p>Allison McKenzie <i>M.S., Forestry, Mississippi State University</i> <i>B.A., Biological Sciences and Wildlife Conservation, University of Delaware</i></p>	<p>11 years of experience in the natural sciences, including environmental assessments, permitting, and compliance for various public and private sector clients as well as extensive fisheries, watershed, and forestry research. She has performed considerable work implementing and interpreting surveys and survey results, preparing EAs and reports, and providing project management and coordination.</p>	<p>Transportation</p>

Name/Education	Experience	Project Role
<p>Garet Openshaw <i>MLA, Landscape Architecture and Environmental Planning, Utah State University</i> <i>BLA, Landscape Architecture and Environmental Planning, Utah State University</i></p>	<p>6 years of experience in landscape architecture and environmental planning including visual resources. His area of expertise includes the inventory of visual resources, technical writing and authorship and analysis of impacts to visual resources associated with large scale solar, wind, mine, transmission, and other developments.</p>	<p>Visual</p>
<p>Sean Peacock <i>B.S., Environmental Science, Georgia College & State University</i></p>	<p>7 years of experience in the environmental consulting field. His primary responsibilities include preliminary site assessments, listed species surveys and permitting, biological monitoring, aquatic resource assessments, construction monitoring, wetland delineations and assessments, environmental permitting, and data management.</p>	<p>Groundwater, Surface Water and Soil Erosion, Wetlands</p>
<p>Hillary Skowronski <i>M.S., Environmental Biology, University of West Florida</i> <i>B.S., Marine Biology, Waynesburg University</i></p>	<p>9 years of experience in the natural sciences, including environmental surveys, reporting, and compliance for various public and private sector clients as well as extensive watershed, and aquatic habitat research. She has performed considerable work designing, implementing, and coordinating surveys and survey results, preparing EAs and reports, and providing project management and coordination.</p>	<p>Land Use and Recreation, Soils</p>
<p>Brad Sohm <i>B.S. Chemical Engineering w/ Environmental Engineering Option</i></p>	<p>19 years in air quality and environmental planning, including preparation of EAs and EISs, state and federal air quality permitting, and noise studies and analysis.</p>	<p>Air Quality and Climate Change, Noise</p>
<p>Tony Theis <i>M.S., Statistics, University of Minnesota</i> <i>B.S., Wildlife Ecology, University of Wisconsin-Madison</i></p>	<p>5 years in ecology, technical writing, and economics. He has experience conducting surveys and analyzing demographic data, experimental design, and statistical consulting. He has authored numerous socioeconomic, environmental justice, land use, recreational, and visual sections for a variety of EAs/EISs and Resource Reports.</p>	<p>Socioeconomics and Environmental Justice</p>

8.0 AGENCIES AND OTHERS CONSULTED

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

- Tennessee Historical Commission
- Federally Recognized Indian Tribes including Absentee Shawnee Tribe of Indians of Oklahoma, Alabama-Coushatta Tribe of Texas, Cherokee Nation, the Chickasaw Nation, Coushatta Tribe of Louisiana, Eastern Band of Cherokee Indians, Eastern Shawnee Tribe of Oklahoma, Jena Band of Choctaw Indians, Kialegee Tribal Town, the Muscogee (Creek) Nation, Shawnee Tribe, Thlopthlocco Tribal Town, and the United Keetoowah Band of Cherokee Indians in Oklahoma.

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