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ECONOMIC DEVELOPMENT GRANT PROPOSAL FOR THE BRISTOL SOUTH SITE
ENVIRONMENTAL ASSESSMENT

Sullivan County, Tennessee

EAXX-455-00-000-1756977077

PREPARED BY:
TENNESSEE VALLEY AUTHORITY
KNOXVILLE, TENNESSEE

MAY 2026

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FINDING OF NO SIGNIFICANT IMPACT

ECONOMIC DEVELOPMENT GRANT PROPOSAL FOR THE BRISTOL SOUTH SITE ENVIRONMENTAL ASSESSMENT

INTRODUCTION

An integral part of Tennessee Valley Authority's (TVA) mission is to promote economic development within the TVA service area. TVA provides financial assistance to help bring to market new or improved sites and facilities within the TVA service area and positions communities to compete successfully for new jobs and capital investment. TVA proposes to provide an economic development grant through InvestPrep funds to Bristol Tennessee Essential Services (BTES), to assist with the development of the Bristol South Site (BSS) in Sullivan County, Tennessee. TVA funds would be matched with non-TVA funds and used to assist with tree clearing, grading, sinkhole remediation, and berming/buffering of the site. Following the site improvements, the disturbed areas would be stabilized with seed and mulch. The area of TVA's Proposed Action (herein referred to as the Project Area) encompasses 60 acres of mostly open grassy land with some small, forested areas around the perimeter, in Bristol, Tennessee.

PURPOSE AND NEED FOR ACTION

The proposed grant to BTES would assist with site improvements to allow prospects to better envision the development potential of the site. The proposed improvements would lead to an increased probability of achieving TVA's core mission of job creation and capital investment. The purpose of the Project is to promote economic development within the TVA service area, more specifically in Sullivan County, Tennessee.

ALTERNATIVES

TVA evaluated potential impacts of the Proposed Action (i.e., the Action Alternative) as well as the alternative of not implementing the action (i.e., the No Action Alternative). Under the No Action Alternative, TVA would not provide InvestPrep funds to BTES. 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. BTES may seek alternate funding (if available) to combine with their existing funds to develop the site. Success in obtaining alternate funding would result in similar impacts and benefits as the Action Alternative. In the event the Project was postponed, any effects would be delayed for the duration of the postponement. If BTES were not able to secure the funding for the Proposed Action, the site would likely remain unchanged, no environmental impacts would be anticipated, and the economic benefits associated with the Action Alternative would not be accomplished.

Under the Action Alternative, TVA would provide InvestPrep funds to BTES, to be matched with non-TVA funds to facilitate the development of the BSS. TVA funds for the 60-acre Project Area would be used for sinkhole remediation, berming/buffering, and grading of the Project Area.

Clearing and stump removal of 0.55-acre of trees and grading of a 400,000 square foot compact dirt building pad is also proposed. Felled trees and stumps would be cut and burned on site. Following the site improvements, disturbed areas would be stabilized with seed and mulch. Activities required for the Action Alternative would occur over approximately six months and would require a small workforce that would most likely be assigned through a local contractor.

TVA's preferred alternative is the Proposed Action Alternative. This alternative would meet the purpose of the Project and would further TVA's mission to promote economic development in the TVA service area.

SUMMARY OF ENVIRONMENTAL IMPACTS

The potential impacts of the Action Alternative are described in detail in the EA. Implementation of the Action Alternative would have no impact on solid and hazardous materials, land use, floodplains, managed or natural areas, recreation, surface water, wetlands, aquatic zoology, and prime farmland resources.

Resources that could potentially be impacted (negatively or positively) by implementing the Action Alternative include air quality and climate change, groundwater, soils, terrestrial zoology including threatened and endangered species, and botany including threatened and endangered species. Implementation of the Action Alternative could also create potential impacts to the human environment, including cultural resources, visual resources, noise, socioeconomics, and transportation issues.

Construction-related activities, including generation of dust and the burning of trees and stumps, would result in minor and short-term impacts on air quality and climate change. With the use of best management practices (BMPs), impacts would be minimal, temporary, and localized; and would not be anticipated to result in any violation of applicable ambient air quality standards, impact regional air quality, or affect nearby persons.

Ground disturbances are not anticipated to be at depths that would intersect public groundwater supplies or result in significant impacts to groundwater resources.

Soils would be disturbed by the Proposed Action, including tree clearing, tree and stump burning, grading of a building pad, berming and buffering of the site to provide visual screening, and sinkhole remediation. Stabilization of disturbed soils following grading to sufficiently reduce sedimentation would occur by the implementation of erosion control measures in accordance with a project-specific construction general permit/stormwater pollution prevention plan. BMPs would be used during site development to avoid runoff of sediment downgradient of the Project Area. These factors would effectively avoid or minimize impacts on soils from soil erosion.

The Proposed Action would not be likely to affect populations of wildlife species common to the area, as the amount of habitat to be removed is relatively small, of lower quality, and similar herbaceous habitats and forested fragments exist in the surrounding landscape.

Given the distance of known nesting records from the Project Area, distance to water, and with the implementation of BMPs, the Action Alternative would have no effect on bald eagles. The Action Alternative would be in compliance with National Bald Eagle Management Guidelines. Due to the lack of suitable habitat and the distance from known records, we determine that the Proposed Action would have no effect on populations of common barn owl. Vegetation removal and grading across the Project Area could impact monarch butterfly foraging habitat. However, no milkweed plants were observed within the Project Area during a field survey in September 2025; as such, breeding habitat for this species would not be impacted. The Action Alternative would not jeopardize the continued existence of monarch butterfly. The Proposed Action would not significantly impact any federally listed threatened or endangered species.

No caves for gray bat, Indiana bat, northern long-eared bat, or tricolored bat have been documented within the Project Area and none were observed during field surveys. All caves exist 2.4 miles or farther from Project Actions. Known caves would not be affected by the Action Alternative. One open and expanding sinkhole was identified within the Project Area during field surveys. Based on the unstable nature and age of this open sinkhole, as well as completion of two emergence surveys and collection of roost logger data, this open sinkhole is believed to be unsuitable for use by roosting bats. BTES committed to filling the open sinkhole by June 30, 2026, at which time the open sinkhole will have been open for no longer than 12 months. Underground openings can be deemed unsuitable as hibernaculum and dismissed for further assessment if the openings occurred within the past 12 months due to human activity or subsidence (USFWS 2026). Determination of approximate age of the open sinkhole, which is estimated to have opened between June and September 2025, was based on site photos, field surveys, Google Earth historic imagery, and how quickly the open sinkhole is growing. Suitable summer roosting habitat (0.55 acre) for tricolored bat would be removed under the Proposed Action and 0.19 acre of suitable habitat for Indiana bat and northern long-eared bat would also be removed. In Tennessee, May 15–July 31 is considered pup season as newly born bat pups cannot yet fly during this timeframe. BTES would remove suitable habitat outside of pup season, when unflighted bat pups would be unable to escape from trees, in the event they are present in trees identified for removal in the Project Area. If trees are removed while bats are present across the landscape (April 1 to November 15) direct effects could occur to individuals if they are present within the Project Area at the time tree removal occurs. As such, TVA recommends that trees be removed during November 16 – March 31 to avoid impacts to listed bat species.

A number of activities associated with the Action Alternative were addressed in TVA's programmatic consultation with the USFWS on routine actions for federally listed bats in accordance with Endangered Species Act Section 7(a)(2), completed in April 2018 and revised in 2023 and 2024. For those activities with potential to affect bats, TVA committed to implement specific conservation measures. These activities and associated conservation measures are detailed in the TVA Bat Strategy Project Screening Form and must be reviewed and implemented as part of the Proposed Action. Given the implementation of these conservation measures, the Proposed Action would not significantly impact gray bat, northern long-eared

bat, or Indiana bat. In addition, the Proposed Action would not jeopardize the continued existence of the tricolored bat.

Approximately 0.55 acre of trees would be cleared in the Project Area. No habitat for uncommon or rare plant communities is present within the Project Area or would be affected by the Proposed Action. No plants protected under the Endangered Species Act, or habitat suitable for federally listed plants or state-listed plants are present in the Project Area.

A prior cultural resources survey covering a portion of the Area of Potential Effects (APE) did not identify any sites within the APE. In addition, Stantec performed a Phase I Archaeology survey of the remainder of the APE using shovel testing and visual survey in December 2025. Two archaeological sites, 40SL552 and 40SL553, were identified by Stantec, but both sites were recommended to be ineligible for the National Register of Historic Places and no avoidance or additional survey were recommended. As such, TVA finds that the proposed undertaking, as currently planned, would have no effect on historic properties. On February 25, 2026, TVA consulted with the Tennessee Historical Commission (THC)/State Historic Preservation Office (SHPO) and all federally recognized Tribes with an interest in the Project Area regarding TVA's NRHP eligibility determinations and findings of effect. The THC-SHPO concurred with TVA's finding of no effect to historic properties, on March 6, 2026. TVA received no objections from the consulted Tribes on the proposed undertaking.

Construction activities would have a minor visual impact over the temporary construction period due to the presence of construction vehicles and equipment, as well as a minor permanent impact due to tree cutting, removal of stumps, burning of woody debris, grading, berming/buffering, and sinkhole remediation. Drivers along surrounding roads and some homeowners may be able to view construction activity in the Project Area, although the activity would not be inconsistent with an industrial park and its development or with existing industrial and commercial facilities in the vicinity. Homeowners would maintain at least some visual screening due to some trees located along the southwest and southern border of the Project Area, most of which would remain after construction. BTES would construct a berm planted with vegetation along the western portion of the Project Area as part of the Proposed Action to provide visual screening from the adjacent residential subdivision. While motorists may notice a change in the viewshed, this change would be minor given the brief period that drivers would be in the area. Implementation of the Action Alternative would result in a minor, insignificant decrease in visual quality for residents in the viewshed.

Construction noise would be localized, intermittent, and temporary, and no receptor would be exposed to significant noise levels for an extended period. Further, construction activities would be expected to be conducted during daylight hours, when ambient noise levels are often higher, and most individuals are less sensitive to noise. The berm described above for visual screening would also provide adjacent homes some screening from construction noise as well. It is anticipated that sound levels would not exceed 85 decibels in the Project Area per Occupational Safety and Health Administration standards. Thus, noise-related impacts resulting from the implementation of the Action Alternative are anticipated to be temporary and minor.

Minor beneficial socioeconomic impacts during the construction of the Proposed Action would occur. No long-term impacts on community services are anticipated and there would be no impacts on low-income communities in the area.

Additional traffic would be generated during construction activities. Because of the anticipated limited volume of workers on the site required for tree clearing activities, grading, and sinkhole improvements, as well as the relatively short timeframe of the proposed work, direct or indirect impacts to local traffic and roadways are anticipated to be temporary and minor.

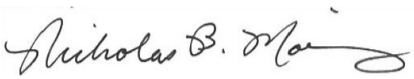
MITIGATION MEASURES

As the grantee of funding for the proposed action, TVA would require adherence to the routine environmental protection measures listed in Section 2.3.1 of the EA. The measures include Best Management Practices (BMPs), permit conditions in the associated stormwater permit issued by the Tennessee Department of Environment and Conservation.

BTES would avoid tree clearing between May 15-July 31 to reduce impacts to Indiana Bat and northern long-eared bat. BTES would also fill the open sinkhole by June 30, 2026. Other conservation measures required for this Project are identified on the TVA Bat Strategy Project Review Form (Appendix E) and would be implemented as part of the Proposed Action.

CONCLUSION AND FINDINGS

Based on the findings listed above and the analyses in the EA, we conclude that the Proposed Action of TVA funding to assist with the development of the BSS would not be a major federal action significantly affecting the environment. Accordingly, an environmental impact statement is not required.



Nicholas B. Morris on behalf of
Dawn Booker, Senior Manager
NEPA Compliance
Tennessee Valley Authority

May 11, 2026
Date Signed

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CHAPTER 1 PURPOSE AND NEED FOR ACTION

An integral part of the Tennessee Valley Authority's (TVA) mission is to promote economic development within the TVA service area. TVA provides financial assistance to help bring to market new or improved sites and facilities within the TVA service area and position communities to compete successfully for new jobs and capital investment. TVA proposes to provide an economic development grant through InvestPrep funds to Bristol Tennessee Essential Services (BTES), to assist with the development of the Bristol South Site (BSS) in Sullivan County, Tennessee (Figure 1) as described in more detail below.

The List of Preparers for this Environmental Assessment (EA) is presented in Appendix A and the List of Symbols, Acronyms, and Abbreviations is located in Appendix B.

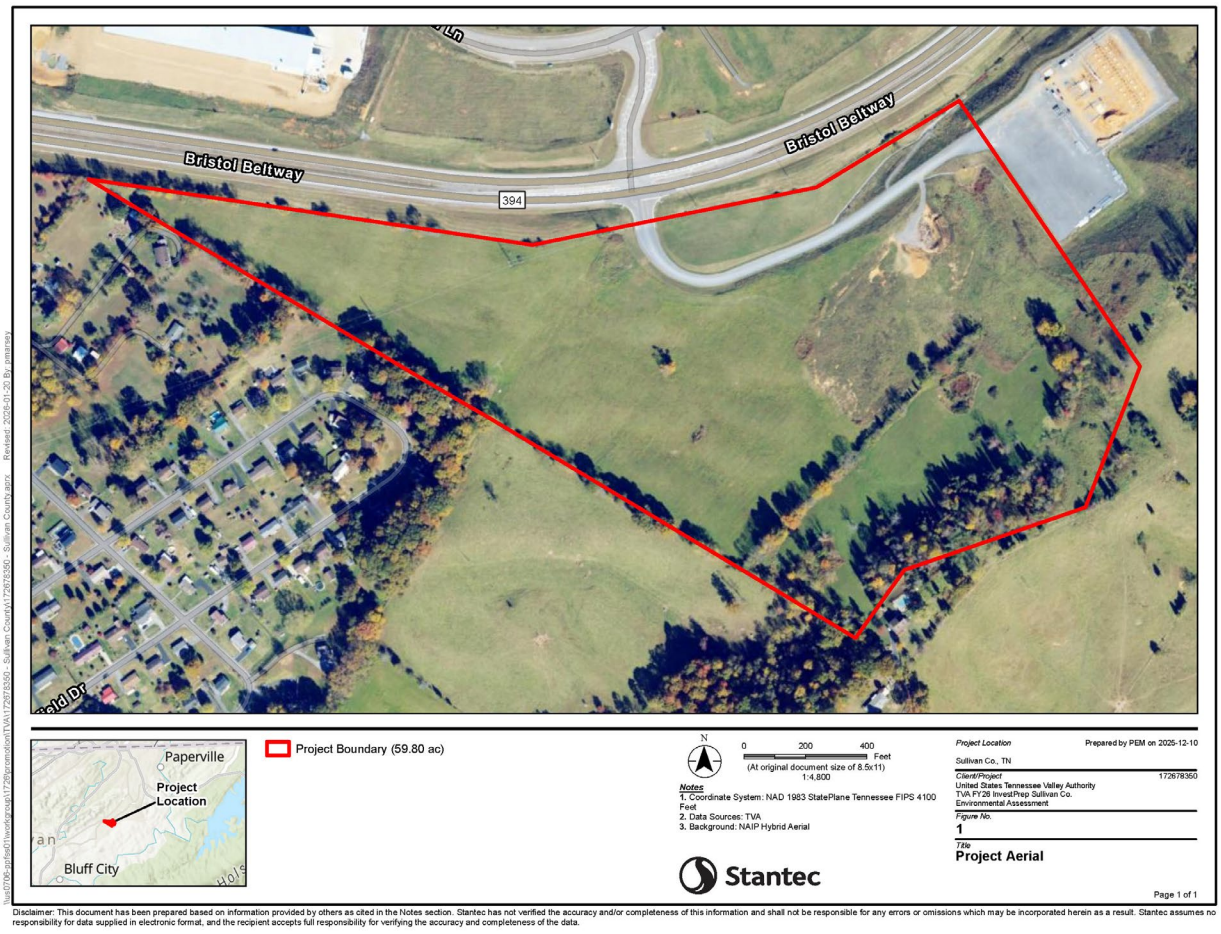

Figure 1. Project Aerial–Bristol South Site

1.1 BACKGROUND

BTES indicated that challenging topography (Appendix C, Figure 1-A) has limited marketability of the site. The Proposed Action would improve the BSS and put it into a more marketable position. The BSS was purchased by BTES in 2020 and historically used for agricultural purposes.

In 2023, a roadway providing access from Highway 394 to an adjacent electric substation, was constructed on the northeastern side of the Project Area (Cross Engineering, LLC, 2024a).

1.2 PURPOSE AND NEED

The area of TVA's Proposed Action (herein referred to as the Project Area) encompasses 60 acres of mostly open grassy land with some small, forested areas around the perimeter, in Bristol, Tennessee. TVA funds would be matched with non-TVA funds and used to assist with tree clearing, grading, sinkhole remediation, and berming/buffering of the site. Following the site improvements, disturbed areas would be stabilized with seed and mulch. These activities, herein referred to as the Proposed Action and/or Action Alternative, are further detailed in Section 2.1.2 below.

The proposed grant to BTES would assist with the above-mentioned site improvements to allow prospects to better envision the development potential of the site. The proposed improvements would lead to an increased probability of achieving TVA's core mission of job creation and capital investment. Developed industrial or commercial sites currently in the immediate vicinity of the Project Area include the Bristol Business Park which includes the Bristol Herald Courier Press Facility, A.Y. McDonald (a plumbing manufacturing company), Tri- City Extrusion, and a new electric substation (Google Earth Pro 2025; Drone Brothers 2024). Target industries include automotive suppliers, food and beverage production, plastic/metal extrusion, steel/alloy metals, and chemicals/special additives. Pursuant to the National Environmental Policy Act (NEPA) and TVA's implementing regulations 18 CFR 1318, this EA evaluates the environmental impacts that would potentially result from TVA's Proposed Action.

1.3 DECISION TO BE MADE

TVA's decision is whether to provide the requested funding to BTES.

1.4 RELATED ENVIRONMENTAL REVIEWS

In preparation for site development, other studies have been performed by BTES or others at the 60-acre Project Area. The various studies were performed in 2024 and 2025.

- A Geophysical Survey Report was prepared by Pyramid Geophysics (2024) dated July 17, 2024, including electrical resistivity studies of the Project Area.
- A Preliminary Geotechnical Evaluation Report – Bristol South Industrial Park was developed by Cross Engineering, LLC (2024b) in May 2024 for the Project Area. Ten soil test borings were collected.
- An Archaeological and Historic Resources Background Review – Highway 394 Bristol South Industrial Site was prepared by S&ME (2024a) in April 2024 for the Project Area.
- A Jurisdictional Waters Report prepared in May 2024 by S&ME (2024b) was submitted to the Tennessee Department of Environment and Conservation (TDEC) and the United States (U.S.) Army Corps of Engineers (USACE) on behalf of the Bristol Industrial Park Group.

1.5 NECESSARY PERMITS, LICENSES, AND CONSULTATIONS

The following permits, licenses, or consultations would be required for completion of the Project:

- Clearance for Section 106 of the National Historic Preservation Act (NHPA) was obtained from the THC-SHPO on March 6, 2026 (Appendix D).
- National Pollutant and Discharge Elimination System (NPDES) General Permit for Discharges Associated with Construction Activities (TNR100000).
- Section 7 of the Endangered Species Act, addressed in TVA's programmatic consultation with the United States Fish and Wildlife Service (USFWS).

CHAPTER 2 ALTERNATIVES

This chapter describes and compares the alternatives to be considered.

2.1 DESCRIPTION OF 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.

2.1.1 Alternative A–The No Action Alternative

Under the No Action Alternative, TVA would not provide InvestPrep funds to BTES. 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 BTES secured alternate funding and proceeded with its current plans, the overall environmental consequences would be similar to those expected from implementing the Action Alternative. In the event the Project was postponed, any environmental effects would be delayed for the duration of the postponement. If the Project was canceled, no direct environmental effects would be anticipated, as environmental conditions on the Project Area would remain essentially unchanged from the current conditions for the foreseeable future.

2.1.2 Alternative B–Proposed Action Alternative

Under the Action Alternative, TVA would provide InvestPrep funds to BTES for site improvements to the Project Area. The Action Alternative would include tree clearing, grading, sinkhole remediation, and berming/buffering. Details of the proposed Action include:

- Cutting of approximately 0.55 acre of trees, removal of stumps, and burning of the woody debris on-site.
- Grading of a 400,000 square foot (SF) compacted dirt building pad without the need for off-site borrow, then stabilization with seed and mulch. Berming/buffering of the site to provide visual screening from the adjacent neighborhood.
- Sinkhole remediation, which may include excavating the area down to bedrock, filling any exposed cavities with rocks, concrete, or other approved material, lining the excavation with geotextile materials, backfilling with stone and riprap, and capping the area with compacted clay to grade.

These improvements with TVA funds would be matched with non-TVA funds. Activities required for the Action Alternative would occur over approximately six months and would require a small workforce that would most likely be assigned through a local contractor. Work activities would not be anticipated at night, but work on weekends is possible. For ease of discussion in this EA, the Proposed Action is collectively described as construction.

BTES, or its contractors, would obtain all required permits and authorizations, and, in compliance with those permits, take appropriate feasible measures, such as implementing best management practices (BMPs) and best construction practices, to minimize or reduce the

potential environmental effects of the Proposed Action to insignificant levels. These practices would include the installation of erosion prevention and sediment control measures (silt fences, sediment traps, etc.), management of fugitive dust, and daytime work hours.

2.1.3 Alternatives Considered but Eliminated from Further Discussion

No other alternatives were considered for the Project.

2.2 COMPARISON OF ALTERNATIVES

A summary of the environmental impacts associated with the two alternatives is provided in Table 2-1. The environmental impacts are discussed in more detail in Chapter 3.

Table 2-1. Summary and Comparison of Alternatives by Resource Area

Resource Area	Impacts from No Action Alternative	Impacts from Proposed Action Alternative
Solid and Hazardous Materials	No Impacts Identified	No Impacts Identified
Land Use	No Impacts Identified	No Impacts Identified
Floodplains	No Impacts Identified	No Impacts Identified
Managed and Natural Areas	No Impacts Identified	No Impacts Identified
Recreation	No Impacts Identified	No Impacts Identified
Surface Water	No Impacts Identified	No Impacts Identified
Aquatic Zoology	No Impacts Identified	No Impacts Identified
Air Quality	No Impacts Identified	Minor
Groundwater	No Impacts Identified	Minor
Soils	No Impacts Identified	Minor
Prime Farmland	No Impacts Identified	No Impacts Identified
Wetlands	No Impacts Identified	No Impacts Identified
Terrestrial Zoology (Including Threatened and Endangered Species)	No Impacts Identified	Minor
Botany (Including Threatened and Endangered Species)	No Impacts Identified	Minor
Cultural Resources	No Impacts Identified	No Impacts Identified
Visual Resources	No Impacts Identified	Minor
Noise	No Impacts Identified	Minor
Socioeconomics	No Impacts Identified	Minor
Transportation	No Impacts Identified	Minor

2.3 IDENTIFICATION OF STANDARD PRACTICES AND MITIGATION MEASURES

2.3.1 Standard Practices and Routine Measures

To minimize or reduce the environmental effects of site activities associated with the Action Alternative, BTES, or its contractors, would ensure all grading activities conducted would be 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 would be handled outside of riparian areas and in such a manner as to prevent these items from reaching a watercourse. 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 would be collected and disposed of properly.

BTES, or its contractors, would be expected to comply with Tennessee Air Pollution Control Rule 1200-3-8, which requires reasonable precautions to prevent PM from becoming airborne. Such reasonable precautions include grading of roads and the use of water or chemicals for control of dust in construction operations on dirt roads and stockpiles, as needed.

2.3.2 Non-routine Mitigation Measures

Non-routine measures to mitigate adverse effects to insignificant levels would be utilized.to avoid direct adverse impacts to listed and proposed listed bats, BTES would avoid tree clearing between May 15-July 31, and fill in the identified open sinkhole no later than June 30, 2026. BTES would also implement the conservation measures identified in the TVA Bat Strategy Project Screening Form (Appendix E).

2.4 THE PREFERRED ALTERNATIVE

TVA’s preferred alternative is the Action Alternative.

CHAPTER 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the baseline environmental conditions (affected environment) of environmental resources in the Project Area and the anticipated environmental consequences (or impacts) that would occur from implementation of the alternatives described in Chapter 2. Within this chapter, the environmental impacts analyzed may be beneficial or adverse. Impact severity is dependent upon the relative magnitude and intensity and resource sensitivity. In this document, four descriptors are used to characterize the level of impacts as follows:

- No Impact–resource not present or affected by project alternatives under consideration.
- Minor (or Small)–environmental effects are not detectable or are so minor that they would neither destabilize nor noticeably alter any important attribute of the resource.
- Moderate–environmental effects are sufficient to alter noticeably, but not to destabilize, important attributes of the resource.
- Large–environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

3.1 SCOPE OF THE ENVIRONMENTAL REVIEW

Our review of the Proposed Action's affected environment and potential environmental consequences resulted in the identification of multiple resource areas or topics with no impacts including solid and hazardous materials, land use, floodplains, managed or natural areas, recreation, surface water, wetlands, aquatic zoology, and prime farmland resources as described further below.

- Solid and Hazardous Materials–The Proposed Action does not involve demolition or removal of aboveground structures. The Phase I ESA prepared by Cross Engineering, LLC (Cross Engineering 2024a) did not identify any hazardous materials, underground storage tanks, or evidence of recognized environmental conditions although Phase I ESAs are only considered valid for 180 days or 1 year (ASTM 2021) depending on the circumstances. Since the Proposed Action does not involve demolition or removal of aboveground structures, there are no known areas of hazardous waste, and the Project Area was used for agricultural purposes prior to development as an industrial park, solid and hazardous materials were excluded from further evaluation.
- Land Use–The Proposed Action would change the Project Area from a mostly open grassy field with some trees to a developed lot designed to attract industrial development. The BSS is zoned as General Industrial (M-2) land. Given the zoning as Industrial, BTES' planned development of the site, and existing industrial and commercial facilities located to the north and west of the Project Area, the Proposed Action would not cause a change in land use.
- Floodplains–Based on aerial photography of Sullivan County, Tennessee; the FEMA National Flood Hazard Panel 47163C0114D, effective 9/29/2006; and the FEMA Map

Service Center for Sullivan County, Tennessee for effective, pending, and preliminary products; the Proposed Action would not be located within either FEMA-identified or unmapped 1 percent annual chance (100-year) floodplains (see Appendix C, Figure 1-B), which would be consistent with Executive Order (EO) 11988. Therefore, there would be no direct or indirect impacts to floodplains and their natural and beneficial values.

- Managed or Natural Areas–A review of the TVA Natural Heritage Project database identified four managed and natural areas within three miles of the Project Area (Table 3-1). The Overmountain Victory Scenic Trail is located approximately 0.2 mile from the Project Area, however no significant or long-term impacts to this area are expected. Minor, temporary disturbances such as traffic and noise are possible but should be insignificant and would be limited to the construction phase. Given the scope of the Project, and since the identified natural areas do not abut or overlap with the Project Area, and the distances of the natural areas to the Project Area, no impacts to natural areas are anticipated.

Table 3-1. Managed/Natural Areas That Occur within, Adjacent to, or within Three Miles of the Proposed Project Area

Natural Area	Acres	County	State	Miles from Project Area
Overmountain Victory Scenic Trail	1,304.1	Multiple	Multiple	0.2
Slagle Hollow Knobbs/Steele Creek Park Registered State Natural Area	1,230.7	Sullivan (TN)	TN	2.8
Steele Creek Park Registered State Natural Area and Arboretum	1,268.1	Sullivan (TN)	TN	2.4
Conservation Easement – Land Trust for Tennessee	113.9	Sullivan (TN)	TN	0.62

- Recreation-TVA staff conducted a desktop-level review of all recreation areas within a 3-mile radius of the Project Area utilizing mapping databases such as ArcGIS, Google Earth, and TVA's EGIS. Table 3-2 depicts 10 developed recreation areas identified within a 3-mile radius. One of these areas was identified to be less than one mile away from the Project Area, however the identified area was the office for a fishing guide service, not an actual outdoor recreation area. Not including this office, the other areas were located at least 2.2 miles from the Project Area. None of the identified areas overlapped with the Project Area. Some informal dispersed recreational activities such as hunting, nature observation, hiking, and walking for pleasure may occur on some of the lands near the Project Area and related access routes.

Table 3-2. Recreation Areas Located within 3 Miles of the Project Area

Recreation Area	County	State	Distance/Direction from Project Area
High Flying Flies Guide Service (office)*	Sullivan	TN	0.1 mile (mi) south
Bristol Campground	Sullivan	TN	2.2 mi southwest
Shadrack Campground	Sullivan	TN	2.3 mi west
South Holston River Reservoir	Sullivan	TN	2.4 mi southeast
Pappaw's Fishing Pad	Sullivan	TN	2.6 mi south
Pole Position Campground	Sullivan	TN	2.6 mi northwest
Bristol Dragway	Sullivan	TN	2.6 mi southwest
Bristol Motor Speedway	Sullivan	TN	3.0 mi southwest
Hick's White Top Campground	Sullivan	TN	3.0 mi southwest
Earhart Campground	Sullivan	TN	3.0 mi southwest

* The office for High Flying Flies Guide Service is located 0.1 mi south of the Project Area. This business provides fly fishing guide services on the South Holston and Watauga Rivers (High Flying Flies Guide Service 2026).

None of these areas directly overlap with the Project Area, and given the scope of the Project and the distances of any recreation areas relative to the Project Area (i.e., at least 2.2 miles away, not including the identified office), no impacts to recreation areas are anticipated.

- Surface Water and Wetlands–A preliminary map of surface water and wetland features based on the United States Geological Survey (USGS) National Hydrography Dataset and USFWS National Wetland and Water Inventory (NWI) is provided in Appendix C, Figure 1-C. As noted above, S&ME performed a preliminary surface waters and wetlands delineation of the Project Area in May 2024 (S&ME 2024b). No streams or wetlands were identified by S&ME in the Project Area. One wet weather conveyance was documented. TDEC (2024) provided concurrence with S&ME's report in May 2024 concluding that there were no potentially jurisdictional waters of the State in the Project Area. The USACE (2024) determined that the Project Area did not contain waters of the U.S. subject to USACE jurisdiction.
- Aquatic Zoology–Because the Proposed Action would not affect a perennial flowing surface waterbody, and no fish, crayfish, bivalves or mussels, or aquatics insects were observed (S&ME 2024b), there would be no effects on aquatic zoology resources.
- Prime Farmland–Based on U.S. Department of Agricultural Soil Survey Geographic Database (SSURGO) data, prime farmlands are not located within the Project Area (Appendix C, Figure 1-D). In addition, the Project Area is zoned as General Industrial (M-2) and located within urban boundaries. Based on this information, the NRCS stated that

the Project would be exempt from the Farmland Protection Policy Act (FPPA) (Appendix D). Therefore, the Proposed Action would not impact prime farmlands.

TVA review of potential impacts resulted in the identification of multiple resources requiring a more detailed assessment. Resources that could potentially be impacted (negatively or positively) by implementing the Action Alternative include air quality and climate change, groundwater, soils, terrestrial zoology including threatened and endangered species, and botany including threatened and endangered species. Implementation of the Action Alternative could create potential impacts to the human environment, including cultural resources, visual effects, noise, socioeconomics, 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.

3.2 REASONABLY FORESEEABLE FUTURE ACTIONS

There are no known reasonably foreseeable future actions expected to occur for the Project Area or its immediate vicinity. The Action Alternative does not include the 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 defined. Given this uncertainty, an analysis of the potential impacts for the development of the adjacent lots or the eventual build-out, occupation, and future use is beyond the scope of this EA.

3.3 AIR QUALITY AND CLIMATE CHANGE

This section describes air quality in the Project Area and compares the alternatives considered as they relate to air quality and climate change.

3.3.1 Affected Environment–Air Quality and Climate Change

Federal and state regulations protect ambient air quality. With authority granted by the Clean Air Act (CAA) 42 US Code (USC) 7401 et seq., as amended in 1977 and 1990, the United States Environmental Protection Agency (USEPA) established National Ambient Air Quality Standards (NAAQS) to protect human health and public welfare. The USEPA codified NAAQS in 40 CFR 50 for the following “criteria pollutants:” nitrogen dioxide (NO_2), carbon monoxide (CO), ozone, sulfur dioxide (SO_2), lead, particulate matter (PM) with an aerodynamic diameter equal to or less than 10 microns (PM_{10}), and PM with an aerodynamic diameter equal to or less than 2.5 microns ($PM_{2.5}$). The NAAQS reflect the relationship between pollutant concentrations and health and welfare effects. Primary standards protect human health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards are designed to protect public welfare, including visibility, animals, crops, vegetation, and buildings. These standards reflect the latest scientific knowledge and have an adequate margin of safety intended to address uncertainties and provide a reasonable degree of protection. The air quality in Sullivan County, Tennessee, is designated as being in attainment with respect to the criteria pollutants (USEPA 2026). However, there is a small area in the western portion of the County, that is designated as non-attainment for SO_2. The non-attainment area is a 1.9-mile

radius centered on the B-253 powerhouse of the Eastman Chemical Company facility, which is located approximately 18 miles west of the Project Area, in Kingsport, Tennessee. As a result of this EPA designation (USEPA 2021), the State of Tennessee will submit a revision to the Tennessee State Implementation Plan (SIP) that would provide for the attainment of the 1-hour primary SO_2 NAAQS in the non-attainment area as expeditiously as practicable but no later than April 5, 2027 (Federal Register 2022).

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

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

3.3.2 Environmental Consequences–Air Quality and Climate Change

This section assesses the environmental consequences and impacts upon air quality and climate change resulting from the two alternatives considered.

Alternative A–The No Action Alternative

Under the No Action Alternative, TVA would not provide funding to BTES, emissions associated with equipment and ground disturbances would not occur, and there would be no impacts to air quality and climate change from the No Action Alternative.

Alternative B–Proposed Action

Under the Action Alternative, TVA would utilize InvestPrep funding matched with non-TVA funding to assist with the Proposed Action as described in Section 2.1.2. Air quality impacts associated with activities under the Action Alternative include emissions from fossil fuel-fired equipment and fugitive dust from ground disturbances and grading. Fossil fuel-fired equipment is a source of combustion emissions, including nitrogen oxides (NO_X), CO, volatile organic compounds (VOCs), SO_2, PM_{10}, $PM_{2.5}$, GHGs, and small amounts of HAPs. Gasoline and diesel engines used as a result of the Action Alternative would be expected to be in compliance 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 (ppm). Trees would also be cleared as part of the Proposed Action under the Action Alternative, and burning of trees and stumps is also anticipated on site. Burning of woody debris produces smoke containing CO, CO_2,

PM, NO_2, and VOCs (ORCAA 2024). Smoke inhalation can cause irritation, breathing issues, and respiratory diseases.

Fugitive dust is a source of respirable airborne PM, including PM_{10} 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. BTES, or its contractors, would be expected to comply with Tennessee Air Pollution Control Rule 1200-3-8, which requires reasonable precautions to prevent PM from becoming airborne. Such reasonable precautions include grading of roads and the use of water or chemicals for control of dust in construction operations on dirt roads and stockpiles, as needed.

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

Concerning climate change, trees, like other green plants, are carbon sinks that use photosynthesis to convert CO_2 into sugar, cellulose, and other carbon-containing carbohydrates that they use for food and growth. Carbon sequestration is the process by which carbon sinks remove CO_2 from the atmosphere. Although forests do release some CO_2 from natural processes such as decay and respiration, a healthy forest typically stores carbon at a greater rate than it releases carbon. Trees would be cleared by construction equipment as part of the Proposed Action, and since the Project Area is mostly pastureland with some trees, it contributes as a carbon sink. However, on a national or global scale, the Proposed Action of clearing 0.55 acre of trees, including the emissions caused by use of the construction equipment, would have little contribution to climate change.

3.4 GROUNDWATER

This section describes groundwater resources in the Project Area and compares the alternatives considered as they relate to groundwater.

3.4.1 Affected Environment–Groundwater

The Project Area is located within the Tennessee Section of the Valley and Ridge Province (USGS 2023). The Valley and Ridge Province extends southwest to northeast and is characterized by a sequence of folded and faulted, Paleozoic sedimentary rocks that form a series of alternating valleys and ridges that extend from Alabama and Georgia to New York (USGS 1995).

In the eastern part of Tennessee, the principal aquifers in the Valley and Ridge Province consist of carbonate rocks that are primarily Cambrian and Ordovician in age, with minor Silurian, Devonian, and Mississippian rocks also present (USGS 1995). Locally this system is referred to as the East Tennessee aquifer system and consists of soluble carbonate rocks and some easily

eroded shales underlie the valleys while more erosion-resistant siltstone, sandstone, and some cherty dolomite underlie ridges (USGS 1986). Underlying the Project Area as part of the East Tennessee aquifer system is a stratigraphic unit referred to as the Knox group which consists of several limestone and dolomite formations comprised of fine grained to granular gray and brown dolomite, white dense limestone and chert with a thickness of approximately 1,500 feet (Hardeman, 1966). These formations consist of the Jonesboro Limestone, Newala Formation, Mascot Dolomite, Kingsport Formation, Longview Dolomite, Chepultepec Dolomite, Copper Ridge Dolomite and Conococheague Limestone (Hardeman 1966; USGS 1995.) This unit is considered a main source of groundwater supply for the region (USGS 1986).

Water quality in the carbonate aquifers of the Valley and Ridge Province is characterized as hard, with dissolved solids concentrations of 170 milligrams per liter or less. Due to the complex network of fractures, bedding planes, and solution openings in the carbonate rocks in areas with thin residuum overlying the substrate, water recharges rapidly and, water quality in these aquifers is susceptible to contamination by human activities (USGS 1995). Recharge occurs primarily along the flanks of the ridges and groundwater flow is generally from the ridges (higher groundwater levels) toward major streams and center of the valleys where groundwater levels are lower (USGS 1995).

A preliminary geotechnical investigation was conducted on site in 2024 (Cross Engineering, LLC 2024b). The Cross Engineering, LLC report investigated subsurface conditions by summarizing the findings from 10 borings conducted within the Project Area. The borings ranged in depth from 27.5 feet below land surface (bls) to 40 feet bls. The geotechnical investigation indicated that subsurface conditions consisted of residuum or weathered rock components that include sand, silt, silty clay, clayey silt, and weathered rock. The geotechnical investigation also identified a possible sinkhole feature at one boring location.

An electrical resistivity geophysical survey was performed for the Project Area by Pyramid Geophysical Services Inc. (2024). The geophysical exploration consisted of nine linear electrical resistivity surveys. The report states that the electrical resistivity survey results indicate the subsurface materials underlying the Project Area consist of residual soils comprised of clay and silt and weathered to competent limestone. Additionally, the geophysical investigation identified a potential karst anomaly, approximately 1,200 feet long by approximately 200-300 feet wide, that extends across the central portion of the Project Area. The Cross Engineering, LLC (2024) report makes the following recommendations related to the potential karst anomaly:

- Excavate [the] area down to the surface of the bedrock.
- Place keystone rocks and concrete into open areas (throats) exposed during excavation.
- Line the excavated area with biaxial geogrid and geotextile fabrics.
- Backfill with stone and rip rap aggregate.
- Cap with 5 feet of compacted clay fill.

As part of general site development, the geotechnical investigation recommended compaction of all fill material, scarification and re-compaction of the upper 1 foot of subsurface material for building pad preparation in conjunction with proof rolling of all prepared subgrades under the observation of a geotechnical engineer for approval prior to fill placement.

3.4.2 Environmental Consequences–Groundwater

This section assesses the environmental consequences and impacts upon groundwater resulting from the two alternatives considered.

Alternative A–The No Action Alternative

Under the No Action Alternative, TVA would not provide funding to BTES, ground disturbance associated with tree clearing, grading, sinkhole remediation, and berming/buffering would not occur, and there would be no impacts to groundwater resources.

Alternative B–Proposed Action

Under the Action Alternative, TVA would utilize InvestPrep funding matched with non-TVA funding to assist with the Proposed Action as described in Section 2.1.2. Implementation of the Action Alternative would result in ground disturbance during construction activities. Tree clearing and subsequent tree and stump burning would result in minor ground disturbance at shallow depths. Site grading and compaction for a 400,000 SF dirt building pad, site stabilization, berming and buffering of the site to provide visual screening, and sinkhole remediation would result in greater ground disturbance at moderate depths. Ground disturbances are not anticipated to be at depths that would intersect public groundwater supplies (approximately 50 to 250 feet bls) (USGS 2016) 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, grading, and construction of a berm within the Project Area. 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 ESA completed by Cross Engineering (2024a), indicated that the Project Area previously consisted of farmland before being purchased in 2023 for development into an industrial park. This development consisted of the construction of a roadway and stormwater management system. The report states that there was no discovery of adverse environmental conditions in the Project Area, although Phase I ESAs are only considered valid for 180 days or 1 year (ASTM 2021) depending on the circumstances. Historical land use of the Project Area was primarily farmland before conversion to an industrial park. It is not anticipated that construction activities would encounter hazardous substances that could affect groundwater during the aforementioned site improvements.

3.5 SOILS

This section describes soils in the Project Area and compares the alternatives considered as they relate to soils.

3.5.1 Affected Environment–Soils

The Project Area is located within the Tennessee Section of the Valley and Ridge Province (USGS 2023). Soil types and descriptions were obtained from the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA NRCS 2025) (see Appendix C, Figure 1-D). Soil types found within the Project Area include Collegedale-Etowah complex (5 to 12 percent slopes, eroded), Collegedale-Etowah complex (12 to 20 percent slopes, severely eroded), Collegedale-Etowah complex (20 to 35 percent slopes, severely eroded), Steadman silty clay loam (0 to 2 percent slopes, occasionally flooded) and Talbott-Rock outcrop-Bradyville complex (12 to 20 percent slopes, eroded).

A geotechnical investigation was conducted on the Project Area in 2024 (Cross Engineering, LLC. 2024b). The 2024 investigation conducted ten auger borings within the Project Area. Borings were planned to be conducted to a depth of 40 feet, however due to auger refusal (a designation used to denote the inability of the power auger to penetrate underlying materials) the borings were conducted to depths ranging from 25 to 40 feet bls. The soil borings encountered sand, clayey sand, silty clay, silt, clayey silt, and weathered rock within the Project Area. The report recommends that:

- Controlled, compacted fill should consist of approved materials that are free of organic matter, debris, or particles greater than 4 inches.
- All areas requiring fill material be compacted plus 5 feet beyond the perimeter of any location supporting structures and driveway areas.
- Soil density testing should be conducted onsite by a qualified soil technician, under direction of a geotechnical engineer.
- Subgrade preparation for areas associated with building pads should be scarified and recompacted.
- The subgrades should then be proof rolled under the observation of a geotechnical engineer.

3.5.2 Environmental Consequences–Soils

This section assesses the environmental consequences and impacts upon soils resulting from the two alternatives considered.

Alternative A–The No Action Alternative

Under the No Action Alternative, TVA would not provide funding to BTES, disturbance associated with the Proposed Action would not occur, and there would be no impacts on soils or from soil erosion.

Alternative B–Proposed Action

Under the Action Alternative, TVA would utilize InvestPrep funding matched with non-TVA funding to assist with the Proposed Action as described in Section 2.1.2. The Proposed Action includes the stabilization of disturbed soils following grading as described in section 2.1.2. Further, BMPs would be required as part of the National Pollutant and Discharge Elimination System (NPDES) General Permit for Discharges Associated with Construction Activities (TNR100000). This permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP would identify specific BMPs to address construction-related activities that would be adopted to minimize erosion-related impacts. BMPs, as described in the Tennessee Erosion Prevention and Sediment Control Handbook (TDEC 2026) would be used during site development to avoid soil runoff contamination of surface water in the Project Area. These factors would effectively avoid or minimize impacts on soils and from soil erosion.

The removal of trees may result in a loss of soil structure and support in areas where tree and stump removal occurs. Soil structure and cohesion may also be impacted by the grading, addition of fill and compaction activities associated with the construction of the 400,000 SF building pad. If subsurface material is removed during sinkhole remediation, the structure and cohesiveness of soils may be impacted by these associated activities. However, the use of standard construction practices, supplemented by the recommendations discussed above as deemed necessary by BTES and its contractors, would result in minor effects on soils.

3.6 TERRESTRIAL ZOOLOGY

This section describes terrestrial zoology in the Project Area and compares the alternatives considered as they relate to terrestrial zoology.

3.6.1 Affected Environment–Terrestrial Zoology

The Project Area is composed primarily of overgrown agriculture fields with some bordering forested habitat comprised of mixed hardwoods. Features surrounding the Project Area consist of pasture, industry, and developed residential areas. A field survey of the Project Area was conducted on September 19, 2025, by TVA terrestrial zoologists.

Early-successional, herbaceous habitat (i.e., field and scrub-shrub) constitutes the majority of the Project Area. Common avian inhabitants of early-successional habitat include American crow, American robin, brown-headed cowbird, common grackle, northern cardinal, and wild turkey, all of which were observed during the field survey (National Geographic 2002). Mammalian species likely present in this habitat include eastern cottontail, hispid cotton rat, red fox, striped skunk, and white-tailed deer (Whitaker 1996). Common amphibian and reptile species of this habitat include Fowler's toad, upland chorus frog, and North American racer (Powell et al. 2016). When this habitat is bordered by forest, a more diverse array of common wildlife species can be found using edge habitat.

A small portion of the Project Area is forested. Forested habitat within the Project Area is composed of mixed deciduous forest. Deciduous tree species provide habitat for common birds

such as Carolina chickadee, Carolina wren, chipping sparrow, common yellowthroat, downy woodpecker, eastern towhee, northern mockingbird, tufted titmouse, and white-throated sparrow (National Geographic 2002). Mammals found in these habitats include common raccoon, eastern gray squirrel, white-tailed deer, and Virginia opossum (Whitaker 1996). Common amphibian and reptile species likely found in this habitat include American toad, eastern box turtle, eastern garter snake, and eastern copperhead (Powell et al. 2016).

No records of wading bird colonies or heronries were identified within 3 miles of the Project Area based on review of the TVA Regional Natural Heritage database on September 9, 2025. Further review of the USFWS' Information for Planning and Consultation (IPaC) tool identified ten migratory bird species of conservation concern (MBCC) having the potential to occur in the Project Area: bald eagle, black-billed cuckoo, bobolink, Canada warbler, cerulean warbler, chimney swift, prairie warbler, prothonotary warbler, red-headed woodpecker and rusty blackbird (USFWS 2023). See Section 3.7 for a full bald eagle impact analysis and effects determination.

The black-billed cuckoo prefers densely wooded forests and thickets in the U.S. (Cornell Lab 2026a). It nests in trees typically in Canada, the northern U.S., and in the Appalachian Mountains. Breeding habitat for this species occurs throughout east Tennessee and suitable nesting habitat is available in the forested sections of the Project Area.

Bobolink is a long-distance migratory bird that prefers large, older grass fields with low amounts of vegetative cover where it forages on grains, seeds, and invertebrates. This species nests in pastures and hayfields in the northeastern U.S.. This species has also been documented nesting in high elevation hayfields and meadows in western North Carolina (Renfrew et al. 2020). Suitable nesting habitat may exist for bobolink in early-successional habitat within the Project Area.

Canada warbler typically nests on or near the ground in moist, shady, and structurally complex habitat throughout Canada, the northern U.S., and the Appalachian Mountains (Cornell Lab 2026b). It can be found in mixed conifer and deciduous forest patches with a shrub understory. Suitable nesting habitat is available within forested portions of the project footprint for Canada warbler.

Cerulean warblers breed in the state of Tennessee. This species is most often found in tall deciduous trees in riparian bottomlands and on mountain ridges where they forage, primarily in the canopy, gleaning insects off leaf surfaces (Buehler et al. 2020). Neither breeding nor foraging habitat for this species is present within the Project Area.

Chimney swifts are summer residents in Tennessee and use chimneys in urban areas as nesting sites and communal roosts. When chimneys are unavailable, swifts may utilize tree cavities and other human-made structures, such as barns, silos, and vents made out of porous materials such as brick, stone, or mortar (Cornell Lab 2025). Chimney swifts forage for insects in a variety of habitats including forests, open areas, waterways, and suburban and urban areas (Steeves et

al. 2020). Suitable nesting habitat for chimney swift is not present but foraging habitat is available in the Project Area.

Prairie warblers are summer residents in Tennessee. They are forage gleaners that typically breed in early-successional shrubby habitats. This species nests in regenerating forests, overgrown fields, cedar glades, pine barrens, and utility rights-of-way in dense, low shrubs (Nolan et al. 2020).Breeding and foraging habitat for prairie warbler exists within the Project Area.

Prothonotary warblers are present in Tennessee during summer breeding season. This species nests in forested wetlands, wooded swamps, and flooded bottomland hardwoods, typically near slow-moving or standing water. This species feeds opportunistically on seeds, fruit, and even nectar, in addition to insects and spiders, throughout breeding and nonbreeding habitat (Petit 2020). Suitable breeding and foraging habitat for this species is not present within the Project Area.

Red-headed woodpeckers are found in a variety of habitats, typically with a certain degree of openness and presence of dead limbs or snags for nesting purposes. During breeding season individuals move from the interior of the forest to forest edge. This species excavates nest cavities in dead trees or in dead portions of live trees. These woodpeckers take a wide variety of food including seeds, nuts, crops, berries, fruit, insects, bird eggs, nestlings, mice and occasionally smaller adult birds (Frei et al. 2020). Suitable nesting and foraging habitat are present within the project footprint for this species.

Rusty blackbirds are winter residents in Tennessee. They utilize wet woods, pond edges, and other wet habitat during the winter (Avery 2020). This species feeds opportunistically year-round on both plant and animal matter. Winter foods include acorn mast, pine seeds, and fruit (Meanley 1995). Winter habitat was not identified for rusty blackbird within the Project Area.

3.6.2 Environmental Consequences–Terrestrial Zoology

This section assesses the environmental consequences and impacts upon terrestrial animals and their habitats resulting from the two alternatives considered.

Alternative A–The No Action Alternative

Under the No Action Alternative, TVA would not provide funding to BTES, disturbance associated with the Proposed Action would not occur, and there would be no impacts on terrestrial wildlife.

Alternative B–Proposed Action

Under the Action Alternative, TVA would utilize InvestPrep funding matched with non-TVA funding to assist with the Proposed Action as described in Section 2.1.2. The Action Alternative could result in the displacement of wildlife (primarily common, habituated species) currently using the area. Direct effects to some individuals could occur if those individuals are immobile during the time of habitat removal (e.g., during breeding, nesting or hibernation seasons). Habitat removal may disperse mobile wildlife into surrounding areas in attempts to find new

food sources, shelter, and to reestablish territories. Due to the extent of previous disturbance and the availability of similarly suitable habitat in areas throughout the surrounding landscape, impacts to populations of common wildlife species as a result of the Action Alternative are expected to be minor.

Suitable nesting habitat does not exist within the Project Area for cerulean warbler, chimney swift, prothonotary warbler or rusty blackbird. Suitable nesting habitat for black-billed cuckoo, Canada warbler and red-headed woodpecker may be available in the forested sections of the Project Area. Suitable nesting habitat for bobolink and prairie warbler exists in the early-successional habitat of the Project Area. The Action Alternative may destroy nests, eggs, or juveniles of these species if the Proposed Action occurs within the Project Area while nests are active. However, given the abundance of similar or superior habitat surrounding the Project Area, impacts to populations of these MBCC resulting from the Action Alternative would be minor.

The Proposed Action would not result in significant impacts to any common terrestrial species or their habitats.

3.7 TERRESTRIAL ZOOLOGY–THREATENED AND ENDANGERED SPECIES

This section describes threatened and endangered terrestrial wildlife species in the Project Area and compares the alternatives considered as they relate to threatened and endangered terrestrial species.

3.7.1 Affected Environment: Terrestrial Zoology–Threatened and Endangered Species

A review of the TVA Natural Heritage Database (NHD) on September 9, 2025, resulted in three caves, one federally protected species (bald eagle), and one species of state conservation concern (common barn owl) within 3 miles of the Project Area. Two federally listed species (gray bat and northern long-eared bat) and one species proposed for federal listing (tricolored bat) have been documented from Sullivan County, Tennessee. Further review of the USFWS's IPaC tool in 2026 indicated that one additional federally listed species (Indiana bat) and one species proposed for federal listing (monarch butterfly) could potentially occur in the Project Area (Table 3-3). Habitat suitability and potential impacts to these species are addressed below.

Table 3-3. Federally Listed or Protected Terrestrial Animal Species Reported from Sullivan County, Tennessee, and Other Species of Conservation Concern Documented within 3 Miles of the Project Area[1]

Scientific Name	Common Name	Federal Status[2]	TN State Status[2]	TN State Rank[3]
Birds				
Haliaeetus leucocephalus[4]	Bald eagle	DM	–	S3
Tyto alba[4]	Common barn owl	–	–	S3

Scientific Name	Common Name	Federal Status[2]	TN State Status[2]	TN State Rank[3]
Invertebrates				
Danaus plexippus[5, 6]	Monarch butterfly	PT	–	S4
Mammals				
Myotis grisescens[7]	Gray bat	LE	LE	S2
Myotis sodalis[7]	Indiana bat	LE	LE	S1
Myotis septentrionalis[7]	Northern long-eared bat	LE	LE	S1S2
Perimyotis subflavus[7]	Tricolored bat	PE	LT	S2S3

[1] Source: TVA Regional NHD and USFWS Ecological Conservation Online System (http://ecos.fws.gov/ipac) extracted September 9, 2025 and April 3, 2026.
[2] Status Codes: DM = Delisted but Being Monitored; E = Listed Endangered; PE = Proposed Endangered; PT = Proposed Threatened; T = Listed Threatened;
[3] Status Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; S4 = Apparently Secure.
[4] Found within 3 miles of the Project Area according to the TVA Regional NHD.
[5] Species proposed for listing under the Endangered Species Act. Historically this species has not been tracked by state or federal heritage programs.
[6] Federally listed or protected species that have not been documented within three miles of Project Area or within Sullivan County, Tennessee; USFWS has determined this species has potential to occur within Project Area.
[7] Federally listed or protected species that have not been documented within 3 miles of Project Area but has been documented in Sullivan County, Tennessee

Bald eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). This species is associated with large mature trees capable of supporting their nests, which can weigh several hundred pounds and are typically built near larger waterways where they forage primarily for fish (USFWS 2007a). One bald eagle nest record occurs within 3 miles of the Project Area, approximately 2.9 miles away. No eagle nests were observed during field survey of the Project Area in September 2025. Given the distance from waterways, neither suitable foraging nor nesting habitat exists for bald eagle within the Project Area.

Common barn owls have an extensive range and often prefer to nest close to human settlements. This species can nest in trees, barn lofts, nest boxes, and sometimes haystacks (Marti et al. 2024). The closest common barn owl record occurs approximately 2.5 miles from the Project Area. No barn owl nesting habitat was identified during a field survey of the Project Area in September 2025.

Monarch butterfly is a highly migratory species, with eastern 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 species, on which adults exclusively lay eggs and where larvae develop and feed. Adults will drink nectar from other blooming wildflowers when milkweeds are not in bloom (Schweitzer and Jepsen 2014). Flowering plants were observed in early-successional habitats within the Project Area, however, no milkweeds were observed during field surveys in September 2025. Three monarch butterflies were observed flying over the Project Area during the field survey. Suitable foraging habitat for monarch butterfly exists within the Project Area however, suitable egg laying habitat does not exist within the Project Area. 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.

Gray bats roost in caves year-round and migrate between summer and winter roosts during spring and fall (Brady et al. 1982, Tuttle 1976). Gray bats have also been documented roosting in manmade structures, such as on bridges and in abandoned buildings. Summer caves are typically located close to rivers or lakes. Bats disperse over bodies of water at dusk, where they forage for insects emerging from the surface of the water (Harvey et al. 2011, USFWS 1982). The closest known gray bat record was documented from a cave approximately 4.7 miles from the Project Area. Three caves are known within three miles of the Project Area, the closest of which occurs approximately 2.4 miles away. Additionally, one expanding and open sinkhole was documented during field surveys in December 2026. Aquatic foraging habitat is not present within the Project Area.

Indiana bats hibernate in caves and cave-like habitat in winter and use areas around them in fall and spring (for swarming and staging), prior to migration back to summer habitat. During summer, Indiana bats roost under the exfoliating bark of dead and living trees in mature forests with an open understory, often near sources 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. This species forages over forest canopies, along forest edges and tree lines, and occasionally over bodies of water (USFWS 2007b; USFWS 2024). While the USFWS has determined that Indiana bat has the potential to occur within the Project Area, no known records of Indiana bat have been documented from Sullivan County, Tennessee. Foraging habitat for this species exists in the Project Area over and around forested habitat. Potentially suitable summer roosting habitat is present within the forested acreage and within an open sinkhole identified within the Project Area during field surveys.

Northern long-eared bat predominantly overwinters in large hibernacula such as caves, abandoned mines, and cave-like structures. During fall and spring, this species utilizes entrances of caves and surrounding forested areas for swarming and staging. In summer, northern long-eared bats roost individually or in colonies beneath exfoliating bark or in crevices of both live and dead trees. 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 2024). The closest known northern long-eared bat record was documented approximately 4.8 miles from the Project Area. Three cave records have been documented within three miles of the Project Area, the nearest of which occurs approximately 2.4 miles away. One open and expanding sinkhole was identified within the Project Area during field surveys in December 2025.

Tricolored bats have been proposed for federal listing and are generally solitary or found in small groups. The closest known tricolored bat record was documented from a hibernaculum approximately 4.7 miles from the Project Area. This species is associated with forested landscapes where they forage near trees and along waterways, especially riparian areas.

Summer roosts are primarily in live and dead leaf clusters of live or recently dead deciduous hardwood trees, Spanish moss, and beard lichen. However, this species has also been documented roosting in artificial structures such as bridges and culverts, and occasionally in barns during summer months. In winter, this species is most commonly found in caves, mines, and cave-like habitat such as culverts, abandoned wells, tree cavities and rock shelters (USFWS 2021). Forested areas were deemed moderately suitable for tricolored bat summer roosting habitat due to the dense understory with some suitable trees rising above the clutter. One open and expanding sinkhole was identified within the Project Area during field surveys in December 2025.

The previously mentioned open sinkhole was first documented within the Project Area in December 2025. This open sinkhole was observed increasing from approximately three feet in diameter in January 2026 to 12 feet in diameter by April 2026. Based on historical aerial imagery available in Google Earth Pro, aerial photographs taken from a TVA helicopter, and photographs and field notes obtained during multiple field surveys spanning 2023 through 2026, it is estimated that this open sinkhole likely opened between June and September 2025. Despite the projected age of the open sinkhole, TVA Terrestrial Zoologists surveyed this karst feature for its potential suitability as a roost for the aforementioned bat species. Results are discussed below in 3.7.2.

Following the 2024 Range-Wide Indiana Bat Survey Guidelines (USFWS 2024), TVA surveyed the Project Area for the presence of potentially suitable habitat for federally listed bats in September 2025. Approximately 0.55 acres of mixed deciduous hardwood would be removed as part of the Proposed Action. Of the 0.55 acres of forested habitat, 0.19 acres were deemed suitable for Indiana bats or northern long-eared bats. All 0.55 acres of forested habitat were deemed moderately suitable roosting habitat for tricolored bat. Suitable foraging habitat was identified within the Project Area for Indiana bat, northern long-eared bat, and tricolored bat in and around forested areas and along forested edges.

3.7.2 Environmental Consequences: Terrestrial Zoology–Threatened and Endangered Species

This section assesses the environmental consequences and impacts upon threatened and endangered animal species and their habitats resulting from the two alternatives considered.

Alternative A–The No Action Alternative

Under the No Action Alternative, TVA would not provide funding to BTES, disturbance associated with the Proposed Action would not occur, and there would be no impacts on threatened and endangered terrestrial wildlife or their habitats.

Alternative B–Proposed Action

Under the Action Alternative, TVA would utilize InvestPrep funding matched with non-TVA funding to assist with the Proposed Action as described in Section 2.1.2. Given the distance between known nesting records from the Project Area, and absence of available foraging habitat within the Project Area, the Action Alternative would have no effect on bald eagles. The Action Alternative would be in compliance with National Bald Eagle Management Guidelines.

Due to the lack of suitable habitat and the distance from known records, the Proposed Action would have no effect on populations of common barn owls.

Vegetation removal and grading across the Project Area could impact monarch butterfly foraging habitat. However, no milkweed plants were observed within the Project Area during a field survey in September 2025; as such, breeding habitat for this species would not be impacted. The Action Alternative would not jeopardize the continued existence of monarch butterfly.

No caves for gray bat, Indiana bat, northern long-eared bat, or tricolored bat have been documented within the Project Area. All known caves exist 2.4 miles or farther from the Project Area. Documented caves would not be affected by the Action Alternative. Suitable aquatic foraging habitat is not present within the Project Area. Approximately 0.55 acre of suitable summer roosting habitat for tricolored bat would be removed under the Proposed Action and 0.19 acre of suitable habitat for Indiana bat and northern long-eared bat would also be removed. If clearing occurs during the non-winter season (April 1 – May 14, August 1 – November 15) direct effects to bats could occur if individuals are roosting in trees within the Project Area. However, individuals roosting during this time would be expected to be mobile and able to flush to nearby suitable habitat if disturbed. Direct adverse effects to non-volant pups could occur if tree removal were to occur during pup season (May 15 – July 31) (USFWS 2026). To avoid direct adverse impacts to listed and proposed listed bats, TVA recommends removing trees within the Project Area during the winter clearing window (November 16 – March 14) when these bat species are not present on the landscape.

An open and expanding sinkhole was first documented within the Project Area in December 2025. Based on observations made during several field surveys between 2023 through 2026, review of historical aerial imagery available on Google Earth Pro, as well as review of photographs of the project footprint, taken both from the ground and from a helicopter, this open sinkhole is likely to have opened between June and September 2025. Following the 2026 Rangewide Indiana Bat and Northern Long-eared Bat Survey Guidelines, underground openings can be deemed unsuitable as a hibernaculum and dismissed for further assessment and surveys if they have occurred within the past 12 months due to human activity or subsidence (USFWS 2026). Notwithstanding, TVA terrestrial zoologists performed two spring emergence surveys on April 2 and April 9, 2026. Following the 2026 Bat Survey Guidelines, surveys began one half hour before sunset and continued for one hour after sunset. The open sinkhole is located within approximately 120 feet of a TVA substation that is brightly illuminated throughout the night. As such, it is never too dark to see emerging bats at this location. No bats were observed emerging from the open sinkhole during either survey. Prior to the onset of the April 2 emergence survey, a Titley Roost Logger was deployed within the open sinkhole to monitor for bat activity for a period of one week. Biologists removed the roost logger the morning of April 10. Data from the Roost Logger was immediately processed and no evidence of roosting in the open sinkhole by an individual or a colony of bats was detected. Bat activity was documented in passing by the detector once on three separate occasions: once on April 3, 2026, at 1:48 am a bat was recorded for approximately 23 seconds; on April 5, 2026, at 08:43pm a potential bat

was recorded for approximately 22 seconds, though Kaleidoscope ruled this call out as noise; and on April 6, 2026, at 8:20pm a bat was recorded for approximately 25 seconds. No other bat calls were documented between April 2 and April 10, 2026. Permitted biologists used AnalookW to manually vet all recorded calls after running them through Kaleidoscope Pro. Given the warm, dry weather, at the time of and in the days leading up to surveys, had a colony been roosting in the open sinkhole, a noticeable egress and ingress of bats at dusk and post-foraging would have been expected. Roost Logger and emergence survey data, coupled with the instability and age of the open sinkhole, indicates it is unlikely that a summer colony of gray bats or any other threatened or endangered bat species utilizes this open sinkhole as a roost. On April 10, 2026, an exclusion device was fabricated using ¼" hardware cloth and landscaping pins and installed over the open sinkhole to prevent any potential ingress of bats until the sinkhole remediation would occur.

A number of activities associated with the Action Alternative were addressed in TVA's programmatic consultation with the USFWS on routine actions for federally listed bats in accordance with Endangered Species Act Section 7(a)(2), completed in April 2018 and revised in 2023 and 2024. During the 2024 update, USFWS issued a Conference Opinion for the proposed endangered tricolored bat. For those activities with the potential to affect bats, TVA committed to implement specific conservation measures. These activities and associated conservation measures are detailed in the TVA Bat Strategy Project Screening Form (Appendix E) and must be reviewed and implemented as part of the Proposed Action.

To avoid direct adverse impacts to listed and proposed listed bats, BTES would avoid tree clearing between May 15-July 31 and would fill in the identified open sinkhole no later than June 30, 2026. TVA recommends tree removal occur during November 16 – March 31 when these bat species are not present on the landscape.

Given the implementation of these conservation measures, the Proposed Action would not significantly impact gray bat, northern long-eared bat, or Indiana bat. In addition, the Proposed Action would not jeopardize the continued existence of the tricolored bat.

The Proposed Action would not result in significant impacts to any threatened or endangered terrestrial animal species or their habitats.

3.8 BOTANY

This section describes plant species in the Project Area and compares the alternatives considered as they relate to botany.

3.8.1 Affected Environment–Botany

The Project occurs within the Ridge and Valley (67) EPA Level III Ecoregion, a landscape of linear ridges and valleys underlain by folded and faulted Paleozoic sedimentary rocks that support a diverse mosaic of plant communities influenced by topography, soil depth, and karst processes (EPA 2013). Karst features, including sinkholes, caves, springs, and shallow rocky soils, are

numerous throughout the Ridge and Valley and create localized floristic variation and sustain habitat for calcareous and mesic- to xeric-adapted species (USGS 2021).

The Project also falls within two EPA Level IV ecoregions: the Southern Limestone/Dolomite Valleys and Low Rolling Hills (67f) and the Northern Limestone/Dolomite Valleys and Low Rolling Hills (67i). These ecoregions comprise low rolling plains, irregular karst depressions, and spring-fed, low-gradient streams that support mesic, dry-mesic, and xeric botanical habitats (Griffith et al. 2001; Woods et al. 2002). Both 67f and 67i extend across portions of East Tennessee near the Project Area and are underlain by limestone and dolomite bedrock, with abundant caves, springs, and surface and subsurface drainage networks. Streams in these ecoregions commonly flow over bedrock, cobble, gravel, and sand substrates (EPA 2013).

Dominant vegetative communities in this area include upland oak–hickory (*Quercus* sp.–*Carya* sp.) forest, mixed mesophytic forest in sheltered coves, and calcareous glades and barrens dominated by eastern red cedar (*Juniperus virginiana*) on shallow limestone-derived soils. Bottomland hardwood assemblages occur at lower elevations and along broad drainageways. Land use typically consists of pasture and cropland interspersed with secondary deciduous forest, eastern red cedar thickets, and small woodlots of both deciduous and evergreen species, which influence floral composition and support ruderal and edge-adapted species.

Field surveys were conducted by Stantec on December 10, 2025, to document plant communities, presence of invasive plants, and to search for possible threatened and endangered plant species within the Project Area. The Project Area contains approximately 59.8 acres of sparsely vegetated land. The dominant vegetative community is the Herbaceous Perennial Graminoid Vegetation (Mowed Field) Vegetative Community, , followed by the Herbaceous Perennial Graminoid and Forb (Old Field) Vegetative Community,. All remaining communities individually comprise less than 4 acres individually (less than 7 percent individually) of the vegetated Project Area. The majority of the Project Area has experienced extensive historical disturbance from activities such as mowing, livestock grazing, tree clearing, and filling/grading. As a result, the Project area is dominated by early-successional and invasive plant species, with limited native understory or mature forest conditions. Using the National Vegetation Classification System (Grossman et al. 1998), vegetation types observed during field surveys in addition to the two most prevalent types discussed above can be classified as hydromorphic rooted (herbaceous), disturbed, recently cleared trees, sparsely vegetated and recently disturbed, deciduous woodland, deciduous forest (early successional), deciduous forest (secondary growth), deciduous woodland (mature – fence row), and evergreen forest (secondary growth). The plant communities observed on site are common and well represented throughout the region and described below (Stantec 2026a).

The Herbaceous Perennial Graminoid and Forb (Mowed Field) Vegetative Community is represented by frequently mowed fields. The Mowed Field vegetative community comprises approximately 40.3 acres (67.4 percent) of the Project Area, and is characterized by maintained, mowed areas. The herbaceous and graminoid plants in this community include tall fescue, creeping buttercup (*Ranunculus repens*), ground ivy (*Glechoma hederacea*), common dandelion,

bluegrass (*Poa* sp.), bull thistle, prairie fleabane (*Erigeron strigosus*), white clover (*Trifolium repens*), lanceleaf plantain, blackseed plantain, purple deadnettle (*Lamium purpureum*), Queen Anne's lace (*Daucus carota*), red clover (*Trifolium pratense*), curly dock (*Rumex crispus*), green bristlegrass (*Setaria viridis*), poison hemlock (*Conium maculatum*), aster (*Aster* sp.), blackberry (*Rubus* sp.), common vetch (*Vicia sativa*), Carolina horsenettle (*Solanum carolinense*), rescue grass (*Bromus catharticus*), and broomsedge bluestem (*Andropogon virginicus*).

The Herbaceous Perennial Graminoid and Forb (Old Field) Vegetative Community is represented by old fields which are periodically mowed to maintain the community. This community is interspersed throughout the Project Area and makes up approximately 10.7 acres (17.9 percent). This community is characterized as old field and showed signs of significant previous disturbances. The herbaceous layer across the vegetation points included white vervain (*Verbena urticifolia*), carpenter's square (*Scrophularia marilandica*), chicory (*Cichorium intybus*), lanceleaf plantain, Carolina horsenettle, common mullein (*Verbascum thapsus*), spiny amaranth, beggar-ticks (*Bidens* sp.), autumn olive (*Elaeagnus umbellata*), beefsteak plant (*Perilla frutescens*), common burdock, rough cocklebur, multiflora rose (*Rosa multiflora*), and marsh elder (*Iva annua*).

The Hydromorphic Rooted (Herbaceous) Vegetative Community occurs within a recently constructed/disturbed stormwater detention pond in the Project Area where soils are seasonally to permanently saturated and support vegetation adapted to hydric conditions. This community comprises approximately 0.1 acre (0.1 percent) of the Project Area. Hydrophytic vegetation occurs primarily along the pond margins and is dominated by curly dock, swamp smartweed (*Persicaria hydropiperoides*), buttercup (*Ranunculus* sp.), and common rush (*Juncus effusus*).

The Disturbed, Recently Cleared Trees Vegetative Community could also be considered early-successional shrubland due to its early dominance of small woody vegetation. This community was affected by recent canopy and ground disturbance associated with tree clearing along an old fenceline within the Project and is characterized by a partially open canopy with regenerating woody vegetation and patchy herbaceous cover. This community comprises approximately 0.8 acre (1.4 percent) of the Project Area. The shrub layer is dominated by Amur honeysuckle, Japanese honeysuckle, Bradford pear (*Pyrus calleryana*), and eastern red cedar, while the herbaceous layer is composed of pokeweed (*Phytolacca americana*), jimsonweed (*Datura stramonium*), Canada horseweed (*Conyza canadensis*), common ragweed, Johnsongrass, rough cocklebur, tall fescue, green amaranth (*Amaranthus viridis*), Carolina horsenettle, common mullein, tall goldenrod (*Solidago altissima*), and Queen Anne's lace, reflecting a disturbance-driven, early-successional vegetative condition.

The Sparsely Vegetated and Recently Disturbed Vegetative Community is affected by recent disruption within the Project Area (i.e., tree clearing, addition of gravel, wood chips, or other materials) and is characterized by 20 percent or less vegetation. This community comprises approximately 2.9 acres (4.8 percent) of the Project Area. The herbaceous and graminoid plants in the community include velvetleaf (*Abutilon theophrasti*), bull thistle (*Cirsium vulgare*),

Johnson grass, lanceleaf plantain (*Plantago lanceolata*), tall fescue (*Schedonorus arundinaceus*), common dandelion (*Taraxacum officinale*), and blackseed plantain (*Plantago rugelii*).

The Deciduous Woodland Vegetative Community is characterized by a well-established woody overstory composed of 11 trees having diameters at breast height (DBH) ranging from 14 to 37 inches and having an open midstory and only a grassy forb understory. This vegetative community is approximately 0.1 acre (0.2 percent) of the Project Area. The overstory is comprised of scattered eastern red cedar, privet (*Ligustrum* sp.), common hackberry (*Celtis occidentalis*), and black walnut (*Juglans nigra*). Tree density within this community is low, reflecting secondary growth conditions and past disturbance associated with agricultural land use and clearing activities. The ground layer is dominated by pasture and disturbance-associated grasses, including tall fescue and Johnson grass (*Sorghum halepense*), with minimal native forb representation.

The Deciduous Forest (Early-Successional) Vegetative Community represents a developing forest condition associated with recent or ongoing disturbance and is characterized by relatively young deciduous canopy, a simple midstory structure, and a disturbance-adapted understory. This community comprised approximately 0.7 acre (1.1 percent) of the Project Area. The overstory is composed of oaks, including pin oak (*Quercus palustris*), red oak (Quercus spp.), and white oak (*Quercus alba*), with red hickory (*Carya ovalis*) also present. The midstory is moderately developed and includes tree-of-heaven *(Ailanthus altissima*) and red maple (*Acer rubrum*). The shrub layer is dominated by invasive and disturbance-associated species, including honeysuckle (Lonicera sp.), Bradford pear, and multiflora rose. The ground layer consists primarily of disturbance-tolerant species, including blackberry (*Rubus* sp.), English ivy (*Hedera helix*), and tall fescue, indicating altered site conditions and limited native herbaceous diversity.

The Deciduous Forest (Secondary Growth) Vegetative Community represents a maturing, previously disturbed forest condition within the Project Area and is characterized by an established deciduous canopy with a mixed native and non-native species composition. This community comprised approximately 3.7 acres (6.2 percent) of the Project Area. This community occurs along a fencerow within a pasture and on an adjacent upper slope. Trees within this community are generally scattered to moderately dense and range from approximately 14 to 37 inches DBH, reflecting secondary growth following past land use. The overstory is composed of common hackberry, black walnut, white ash (*Fraxinus americana*), tree-of-heaven, tulip poplar (*Liriodendron tulipifera*), American sycamore (*Platanus occidentalis*), and oaks (*Quercus* spp.). The midstory includes tree-of-heaven, red hickory, red maple, and boxelder (*Acer negundo*). The shrub and vine layer is composed of American holly (*Ilex opaca*), grapevine (*Vitis* sp.), English ivy, spicebush (*Lindera benzoin*), and multiflora rose. The herbaceous layer is dominated by tall fescue and Johnson grass, common chickweed (*Stellaria media*), white crownbread (*Verbesina virginica*), Japanese stiltgrass (*Microstegium vimineum*), Christmas fern (*Polystichum acrostichoides*) with portions of the understory exhibiting grazing disturbance.

The Deciduous Woodland (Mature – Fence Row) Vegetative Community is comprised of larger diameter woody overstory vegetation. It is characterized as mature deciduous forest and encompasses 0.1 acre (0.2 percent) of the Project Area. The overstory is composed of oak species including northern red oak (*Quercus rubra*), southern red oak (*Quercus falcata*), and white oak (*Quercus alba*), as well as red hickory, with trees exhibiting an average DBH of approximately 12 to 24 inches. Additional dominant overstory species include shagbark hickory (*Carya ovata*), red mulberry (*Morus rubra*), black cherry (*Prunus serotina*), and black locust (*Robinia pseudoacacia*). The midstory consists primarily of eastern redbud (*Cercis canadensis*), tree-of-heaven, red maple, and tuliptree. The shrub layer is dominated by Amur honeysuckle, Bradford pear, multiflora rose, eastern red cedar, and Chinese privet (*Ligustrum sinense*). Ground cover includes blackberry (*Rubus* sp.), English ivy and tall fescue.

The Evergreen Forest (Secondary Growth) Vegetative Community compromises approximately 0.5 acre (0.8 percent) of the Project Area. It is characterized by trees with a DBH between 8 to 12 inches. The overstory was dominated by Virginia pine (*Pinus virginiana*), sugar maple (*Acer saccharum*), and shortleaf pine (*Pinus echinata*). The midstory was composed of eastern red cedar, pawpaw (*Asimina triloba*), eastern redbud, and tree-of-heaven. The shrub layer included wine raspberry (*Rubus phoenicolasius*), Amur honeysuckle, Chinese privet, multiflora rose, English ivy, Japanese honeysuckle (*Lonicera japonica*), and grape vines growing over top of shrubs.

EO 13112 directed TVA and other federal agencies to prevent the introduction of invasive species (both plants and animals), control their populations, restore invaded ecosystems and take other related actions. EO 13751 amends EO 13112 and directs actions by federal agencies to continue coordinated federal prevention and control efforts related to invasive species. This order incorporates considerations of human and environmental health, climate change, technological innovation, and other emerging priorities into federal efforts to address invasive species; and strengthens coordinated, cost-efficient federal action. Some invasive plants have been introduced accidentally, but most were brought to the U.S. as ornamentals or for livestock forage. Because these robust plants arrived without their natural predators (insects and diseases), their populations spread quickly across the landscape, displacing native species and degrading ecological communities or ecosystem processes (Miller 2010). Several invasive plant species were documented within the Project, including tree-of-heaven, autumn olive, Bradford pear, Chinese privet, Japanese honeysuckle, Amur honeysuckle, multiflora rose, English ivy, Japanese stilt grass, and Johnson grass. These species are classified as “Established Threat” species in Tennessee, indicating they are widespread and pose significant ecological impacts to native plant communities (TN-IPC 2017). No federally listed noxious weeds were observed within the Project Area at the time of the survey (USDA 2010). No unique habitats or rare plant communities were observed within the Project Area.

3.8.2 Environmental Consequences–Botany

This section assesses the environmental consequences and impacts upon plants resulting from the two alternatives considered.

Alternative A–The No Action Alternative

Under the No Action Alternative, TVA would not provide funding to BTES, disturbance associated with the Proposed Action would not occur, and there would be no impacts to vegetation.

Alternative B–Proposed Action

Under the Action Alternative, TVA would utilize InvestPrep funding matched with non-TVA funding to assist with the Proposed Action as described in Section 2.1.2. Adoption of the Action Alternative would not significantly affect the botanical ecology of the region. Adoption of this alternative would require cutting 0.55 acre of trees including stump removal, grading a 400,000 SF dirt building pad, stabilization with seed and mulch, and sinkhole remediation. Most of the area is historically disturbed. The plant communities found in the Project Area are common and well represented throughout the region. Project-related effects to forest resources would be negligible compared to the total amount of forest land currently present in the region. Nearly the entire proposed Project Area currently is historically disturbed, dominated by early-successional and invasive terrestrial plants, with limited native understory or mature forest conditions. Adoption of the Action Alternative would not significantly affect the extent or abundance of these species at the county, regional, or state level.

3.9 BOTANY–THREATENED AND ENDANGERED SPECIES

This section describes threatened and endangered plant species in the Project Area and compares the alternatives considered as they relate to listed plant species.

3.9.1 Affected Environment: Botany–Threatened and Endangered Species

No federally listed plant species or critical habitat were identified within the Project Area based on the USFWS IPaC data accessed on January 10, 2026. In addition, no federally listed plants were identified within a 5-mile radius of the Project based on the TVA Regional NHD. This database did contain records for nine state-listed plant species within five miles of the Project Area. The species are listed in Table 3-4.

Table 3-4. State-listed Species within Five Miles of the Project Area

Species	EO Rank (2*)	State Rank (3*)	State Status (4*)	Federal Status (4*)	Preferred Habitat
American barberry *Berberis canadensis*	H-Historical	S2	S	–	Occurs in dry to mesic open woodlands, rocky slopes, bluffs, and streambanks on well-drained soils, often in glades or other open, fire-maintained habitats (NatureServe 2026; USDA NRCS 2024).
Crested woodfern *Dryopteris cristata*	E-Verified extant (viability not assessed)	S2	T	–	Grows in saturated to seasonally flooded forested wetlands such as swamps, bogs, seeps, and stream margins with hydric soils (NatureServe 2026; USDA NRCS 2024).

Species	EO Rank (2*)	State Rank (3*)	State Status (4*)	Federal Status (4*)	Preferred Habitat
Virginia heartleaf *Hexastylis virginica*	H-Historical	S2	S	–	Found in shaded, mesic deciduous forests on well-drained soils, typically on slopes, ravines, and rich forest understories (NatureServe 2026; USDA NRCS 2024).
Butternut *Juglans cinerea*	H-Historical	S3	T	–	Occurs on moist, well-drained soils of coves, lower slopes, and floodplain terraces in rich hardwood forests near streams (NatureServe 2026; USDA NRCS 2024).
Mountain honeysuckle *Lonicera dioica*	E-Verified extant (viability not assessed)	S2	S	–	Found in moist to mesic forests, forest edges, and rocky slopes, often along streams and in cool, shaded ravines (NatureServe 2026; USDA NRCS 2024).
American ginseng *Panax quinquefolius*	E-Verified extant (viability not assessed)	S3S4	S-CE	–	Occurs in rich, mesic hardwood forests on well-drained soils, especially on north- and east-facing slopes and in coves (NatureServe 2026; USDA NRCS 2024).
Clasping twisted-stalk *Streptopus amplexifolius*	E-Verified extant (viability not assessed)	S1	T	–	Grows in cool, moist deciduous or mixed forests on shaded slopes, ravines, and streamside areas (NatureServe 2026; USDA NRCS 2024).
Skunk cabbage *Symplocarpus foetidus*	D-Poor estimated viability	S1	E	–	Occurs in saturated to flooded soils of swamps, seeps, springs, floodplains, and forested wetlands (NatureServe 2026; USDA NRCS 2024).
Sand grape *Vitis rupestris*	H-Historical	S1	E	–	Found on dry to mesic sandy or rocky soils along riverbanks, gravel bars, bluffs, and open woodlands (NatureServe 2026; USDA NRCS 2024).

Key:
2* EO = Element Occurrence
3* State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; S4 = Apparently Secure; see Heritage Data Viewer Handbook for more ranks
4* Status Codes: E = Endangered; T = Threatened; S = Special Concern; S-CE = Special Concern/Commercially Exploited

American barberry (*Berberis canadensis*) is a Tennessee state-listed sensitive species with a limited and declining distribution across the southeastern U.S., primarily occurring in the Appalachian and Interior Plateau regions. Historically more widespread, the species has experienced significant range contraction due to fire suppression, canopy closure, and habitat conversion. It is typically found in dry to mesic open woodlands, on rocky slopes, bluffs, cliffs, and streambanks where soils are shallow, well drained, and often calcareous. American barberry was formerly associated with open savannas and glades and is now frequently restricted to disturbed or fire-maintained habitats that limit competition from woody

vegetation. The species is a deciduous shrub characterized by arching stems, sharp spines, and yellow flowers that appear in spring, followed by red berries that provide wildlife value (NatureServe 2026; USDA NRCS 2024).

Crested woodfern (*Dryopteris cristata*) is a Tennessee state-listed threatened fern with a disjunct distribution across eastern North America, where it occurs in specialized wetland habitats. The species is most commonly found in saturated to seasonally flooded soils within forested wetlands, including swamps, bogs, fens, seepage areas, and along stream margins. It typically occupies shaded environments with hydric soils influenced by consistent groundwater discharge. Crested woodfern is identifiable by its erect fronds forming narrow clumps and its preference for stable, undisturbed wetland conditions. Because it is sensitive to hydrologic alteration, drainage, and canopy removal, populations are often isolated and vulnerable to habitat modification (NatureServe 2026; USDA NRCS 2024).

Virginia heartleaf (*Hexastylis virginica*) is a Tennessee state-listed sensitive perennial herb native to the southeastern U.S. It occurs primarily in mesic deciduous forests on well-drained loamy soils and is most often associated with shaded slopes, ravines, and rich forest understories. The species favors mature forest interiors with deep leaf litter, minimal disturbance, and stable microclimatic conditions. Virginia heartleaf is a low-growing, evergreen plant with heart-shaped leaves and inconspicuous, ground-level flowers adapted for pollination by insects and ground-dwelling fauna. Its reliance on intact forest structure makes it vulnerable to timber harvest, soil disturbance, and development-related fragmentation (NatureServe 2026; USDA NRCS 2024).

Butternut (*Juglans cinerea*) is a Tennessee state-listed threatened deciduous tree native to eastern North America. It is typically found on moist, well-drained loamy soils of floodplain terraces, coves, lower slopes, and rich mixed hardwood forests, often near streams but outside areas subject to prolonged inundation. Butternut is a medium-sized tree valued historically for its edible nuts and rot-resistant wood. Across its range, the species has experienced severe population decline due primarily to butternut canker (*Ophiognomonia clavigignenti-juglandacearum*), a fungal disease that has caused widespread mortality. Remaining individuals are often scattered and occur in mixed forest settings with limited competition and good soil drainage (NatureServe 2026; USDA NRCS 2024).

Mountain honeysuckle (*Lonicera dioica*) is a Tennessee state-listed sensitive woody vine with a broad but patchy distribution in eastern North America. The species occurs in moist to mesic upland forests, forest edges, rocky slopes, and shaded thickets, frequently along stream corridors and in cool ravines. It prefers partially shaded environments with moderate soil moisture and is often associated with intact forest edges and transitional habitats. Mountain honeysuckle is a native twining vine characterized by paired leaves and tubular flowers that attract hummingbirds and pollinators. Unlike invasive honeysuckles, this species plays a beneficial ecological role and is sensitive to habitat disturbance and competition from non-native species (NatureServe 2026; USDA NRCS 2024).

American ginseng (*Panax quinquefolius*) is a Tennessee state-listed species with commercial exploitation concerns and is regulated due to overharvesting pressure. The species is native to eastern North America and is most commonly found in rich, mesic hardwood forests with deep, well-drained loamy soils. It is strongly associated with north- and east-facing slopes, coves, and mature forest interiors that provide cool temperatures, high soil fertility, and minimal disturbance. American ginseng is a slow growing perennial herb with a single stem bearing compound leaves and red berries. Because of its high economic value, populations are highly susceptible to illegal collection, habitat disturbance, and forest fragmentation (NatureServe 2026; USDA NRCS 2024).

Clasping twisted-stalk (*Streptopus amplexifolius*) is a Tennessee state-listed threatened perennial herb with a distribution centered in cool, moist forested regions of eastern North America. The species typically occurs in deciduous or mixed forests on shaded slopes, ravines, and streamside habitats with rich, mesic soils and consistent moisture availability. It is characterized by arching stems, clasping leaves, and solitary, nodding flowers that develop into red berries. Clasping twisted-stalk is sensitive to drying, canopy removal, and soil disturbance, making it an indicator of intact mesic forest conditions (NatureServe 2026; USDA NRCS 2024).

Skunk cabbage (*Symplocarpus foetidus*) is a Tennessee state-listed endangered perennial herb that occurs in saturated to inundated organic soils of swamps, forested wetlands, floodplains, seeps, springs, and stream margins. The species is strongly associated with hydric soils and groundwater influence and is often among the earliest flowering plants in late winter or early spring. Skunk cabbage is easily recognized by its large leaves and distinctive inflorescence enclosed in a mottled spathe, which emits a strong odor that attracts pollinators. Its dependence on stable wetland hydrology makes it particularly vulnerable to drainage, filling, and alterations to groundwater flow (NatureServe 2026; USDA NRCS 2024).

Sand grape (*Vitis rupestris*) is a Tennessee state-listed endangered woody vine with a limited distribution in the central and southeastern United States. It is typically found on dry to mesic sandy, gravelly, or rocky soils along riverbanks, gravel bars, bluffs, and open woodlands. The species often occurs in areas subject to periodic flooding or physical disturbance, where competition from other woody plants is reduced. Sand grapes are a low-growing, spreading vine with small leaves and are an important genetic resource as a rootstock for cultivated grapes. Its specialized habitat requirements and susceptibility to river modification and development contribute to its rarity within the state (NatureServe 2026; USDA NRCS 2024).

The Herbaceous Perennial Graminoid and Forb (Mowed Field) Vegetative Community has historic use and continuous frequent maintenance through mowing. It provides no habitat for the state listed species from Table 3-4.

The Herbaceous Perennial Graminoid and Forb (Old Field) Vegetative Community is open, periodically mowed fields, which do not provide potential habitat for any of the state listed species from Table 3-4.

The Hydromorphic Rooted (Herbaceous) Vegetative Community has hydric conditions within the constructed stormwater pond, but the disturbed soils and ruderal vegetation limit habitat quality; thus both skunk cabbage and crested woodfern would not be expected to occur in a non-natural habitat. No other state-listed plants below would occur in a hydric vegetative community.

The Disturbed, Recently Cleared Trees Vegetative Community has recent and continuous disturbance; it does not provide suitable habitat for the state-listed species from Table 3-4.

The Sparsely Vegetated and Recently Disturbed Vegetative Community has recent and continuous disturbance; it does not provide suitable habitat for the state-listed species from Table 3-4.

The Deciduous Woodland Vegetative Community has limited understory diversity, dominance of non-native species, and altered woodland structure. Habitat quality for state-listed plant species within this Deciduous Woodland Vegetative Community is low. Based on current vegetative conditions, state-listed species are not expected to occur within this community.

The Deciduous Forest (Early Successional) Vegetative Community is dominated by invasive species, has simplified vegetative structure, and early successional condition. Habitat suitability for state-listed plant species within this Deciduous Forest (Early Successional) Vegetative Community is low, and such species are not expected to occur.

The Deciduous Forest (Secondary Growth) Vegetative Community has invasive species presence, grazing disturbance, and altered understory vegetation. Suitability for state-listed species is low in the Deciduous Forest (Secondary Growth) Vegetative Community. Historically, the habitat may have provided appropriate conditions for the state listed American barberry, American ginseng, and butternut. However, current conditions within the Deciduous Forest (Secondary Growth) Vegetative Community provide low quality habitat for these species and as such listed species are not expected to occur.

The Deciduous Woodland (Mature – Fence Row) Vegetative Community has invasive species presence, grazing disturbance, and altered understory vegetation. Suitability for state-listed species is low in the Deciduous Woodland (Mature – Fence Row) Vegetative Community. Historically, the habitat may have provided appropriate conditions for the state listed American barberry, American ginseng, and butternut. However, current conditions within the Deciduous Woodland (Mature – Fence Row) Vegetative Community provides low quality habitat for these species and as such listed species are not expected to occur.

The Evergreen Forest (Secondary Growth) Vegetative Community has disturbed ground conditions and invasive species presence. Suitability for state-listed plant species is low in the Evergreen Forest (Secondary Growth) Vegetative Community and as such listed species are not expected to occur.

3.9.2 Environmental Consequences: Botany–Threatened and Endangered Species

This section assesses the environmental consequences and impacts upon threatened and endangered plants resulting from the two alternatives considered.

Alternative A–The No Action Alternative

Under the No Action Alternative, TVA would not provide funding to BTES, and there would be no impacts to listed plant species.

Alternative B–Proposed Action

Under the Action Alternative, TVA would utilize InvestPrep funding matched with non-TVA funding to assist with the Proposed Action as described in Section 2.1.2. Adoption of the Action Alternative would not impact federally listed species as none are known or expected to occur within the Project Area. No impacts on state-listed plant species would be expected from adoption of the Action Alternative as suitable habitat is not present in the Project Area. No populations of state-listed species were observed during field surveys of the Project Area and are not expected to be present in the various vegetative communities observed. Therefore, no impacts on endangered and threatened plant species and their critical habitats would be anticipated as a result of implementing the Action Alternative.

3.10 CULTURAL RESOURCES

This section describes cultural resources in the Project Area and compares the alternatives considered as they relate to cultural resources.

3.10.1 Affected Environment–Cultural Resources

Cultural resources include pre-contact and historic archaeological sites, districts, buildings, structures, and objects, as well as locations of important historic events that lack material evidence of those events. Historic architectural structures are also cultural resources and include standing structures (e.g., houses, barns, dams, power plants) that are usually at least 50 years of age and are considered eligible for listing on the NRHP. Cultural resources are considered historic properties if included in, or considered eligible for inclusion in, the NRHP maintained by the National Park Service. The eligibility of a resource for inclusion in the NRHP is based on the Secretary of the Interior's criteria for evaluation (36 CFR § 60.4), which state that significant cultural resources possess integrity of location, design, setting, materials, workmanship, feeling and association, and:

A. are associated with important historical events; or
B. are associated with the lives of significant historic persons; or
C. embody distinctive characteristics of a type, period, or method of construction or represent the work of a master, or have high artistic value; or
D. have yielded or may yield information (data) important in history or prehistory.

Because of their importance to the Nation's heritage, historic properties are protected by multiple laws. Federal agencies, including TVA, have a statutory obligation to facilitate the

preservation of historic properties, stemming primarily from NHPA (16 U.S.C. §§ 470 et seq.). Other relevant laws include the Archaeological and Historic Preservation Act (16 U.S.C. §§ 469-469c), Archaeological Resources Protection Act (16 U.S.C. §§ 470aa-470mm), and the Native American Graves Protection and Repatriation Act (25 U.S.C. §§ 3001-3013).

Section 106 of the NHPA requires federal agencies to consider the potential effects of their actions on historic properties and to allow the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the action. Section 106 involves four steps: 1) initiate the process; 2) identify historic properties; 3) assess adverse effects; and 4) resolve adverse effects. This process is conducted in consultation with the SHPO of the state in which the action would occur, all federally recognized Tribes with interest in the Project location, and with other interested consulting parties. Section 110 of the NHPA sets out the broad historic preservation responsibilities of federal agencies and is intended to ensure that historic preservation is fully integrated into their ongoing programs. Federal agencies are responsible for identifying and protecting historic properties and avoiding unnecessary damage to them. Section 110 also charges each federal agency with the affirmative responsibility for considering projects and programs that further the purposes of the NHPA, and it declares that the costs of preservation activities are eligible project costs in all undertakings conducted or assisted by a federal agency.

Given that the proposed Project does not involve the construction of permanent above-ground structures, the potential to impact historic architectural resources is low. Furthermore, background research indicates that there are no potential historic above-ground structures within the direct line of sight of the property, and that the property is partially surrounded by a vegetative buffer to the west and south. As such, TVA has determined, through consultation with the THC-SHPO and all Federally Recognized Tribes with an interest in Sullivan County, Tennessee, that the cultural resources area of potential effects (APE) is to be considered the Project footprint (51 acres), where physical effects would occur. Note that the APE of 51 acres is smaller than the Project Area of 60 acres assessed above due to consideration of a previous archaeology study completed within portions of the Project Area. There are also no known American Civil War sites or Native American Removal Routes in the APE or within a half-mile radius of the Project Area.

TVA Secretary of the Interior Qualified cultural resource specialists conducted a desktop review of the proposed Project. An archaeological and historic resources background review was prepared by S&ME (2024a) in April 2024 for BTES. S&ME examined records for approximately 60 acres in the Project Area. S&ME determined that there was one previously recorded archaeological site and two historic structures within 1 mile of the Project Area, but that the Project Area had not been previously surveyed (S&ME 2024a).

Stantec (2026b) then performed a Phase I cultural resources survey of the APE in December 2025. Stantec's background review identified one previously recorded archaeological site and two previous archaeological surveys within 1.6-kilometer (km) (1.0 mile) of the APE. One prior archaeological survey intersects with a portion of the APE. Stantec also reviewed records regarding the precontact and historic context of the region, as well as environmental

information, to assess the potential for unidentified cultural resources located within the APE. As a result of the cultural and environmental records review, it was determined that the APE has a moderate potential for prehistoric archaeological sites and a low potential for historic archaeological sites (Stantec 2026b).

The Stantec field survey consisted of systematic shovel testing at 30-meter (m) intervals with site bounding shovel tests at 10 m intervals. The archaeological survey consisted of shovel test excavations and visual inspections. A total of 281 potential shovel test locations were investigated, of which 185 were negative for cultural materials and 11 were positive for cultural materials. An additional 85 shovel tests were not excavated due to significant disturbances observed in the northern and eastern portions of the APE. The disturbances were a result of transmission corridors, access roads, and other terraforming. A pedestrian surface survey was conducted in disturbed portions of the APE where ground visibility permitted.

As a result of the Phase I investigation, two archaeological sites (40SL552 and 40SL553) were documented (Stantec 2026b). Archaeological site 40SL552 consisted of precontact lithic scatter (two flakes and one debitage undivided) of an unknown cultural-temporal affiliation. Archaeological site 40SL553 also consisted of a precontact lithic scatter (flakes, debitage undivided, amorphous, blank, unmodified-utilized flake, flake fragment, shatter, and tested cobble) of an unknown cultural-temporal affiliation. Both sites are recommended not eligible for listing in the NRHP and no avoidance is recommended. No additional work is recommended within the APE.

3.10.2 Environmental Consequences–Cultural Resources

This section assesses the environmental consequences and impacts upon cultural resources resulting from the two alternatives considered.

Alternative A–The No Action Alternative

Under the No Action Alternative, TVA would not provide funding to BTES, the proposed disturbances would not occur, and existing site conditions would likely be unchanged, resulting in no impacts to cultural resources.

Alternative B–Proposed Action

Under the Action Alternative, TVA would utilize InvestPrep funding matched with non-TVA funding to assist with the Proposed Action as described in Section 2.1.2. The undertaking would involve ground-disturbing activities in the APE.

Both the desktop review of the APE and the Stantec (2026b) survey revealed that no known, NRHP-eligible cultural resources are located within the Project Area or within direct line of sight of the Project Area. The prior cultural resources survey covering a portion of the Area of Potential Effects (APE) did not identify any sites within the APE. In addition, Stantec performed a Phase I Archaeology survey of the remainder of the APE using shovel testing and visual survey in December 2025. Two archaeological sites were identified by Stantec, but both sites were recommended to be ineligible for the National Register of Historic Places and no avoidance or additional survey were recommended. As such, TVA finds that the proposed undertaking, as currently planned, would have no effect on historic properties.

On February 25, 2026, TVA consulted with the THC-SHPO and all federally recognized Tribes with an interest in the Project Area regarding TVA's NRHP eligibility determinations and findings of effect (Appendix D). The THC-SHPO concurred with TVA's finding of no effect to historic properties, on March 6, 2026 (Appendix D). TVA received no objections from the consulted Tribes on the proposed undertaking.

3.11 VISUAL RESOURCES

This section describes visual resources in the Project Area and compares the alternatives considered as they relate to visual resources.

3.11.1 Affected Environment–Visual Resources

The Project Area consists of mostly open grassy land with some small forested or brushy areas around the perimeter. The Project Area is adjacent to Highway 394 to the north, a subdivision to the west, fields, trees, houses, and Weaver Pike (Highway 358) to the south and east, and an electrical substation to the northeast. A business park (Bristol Herald Courier Press Facility, A.Y. McDonald, Tri-City Extrusion) is located across Highway 394 to the north.

3.11.2 Environmental Consequences–Visual Resources

This section assesses the environmental consequences and impacts upon visual resources resulting from the two alternatives considered.

Alternative A–The No Action Alternative

Under the No Action Alternative, TVA would not provide funding to BTES, the proposed work would not occur, and existing site conditions would likely be maintained, resulting in no visual quality impacts.

Alternative B–Proposed Action

Under the Action Alternative, TVA would utilize InvestPrep funding matched with non-TVA funding to assist with the Proposed Action as described in Section 2.1.2. Construction vehicles and equipment visible during construction activities would have a minor visual impact over the temporary construction period, as well as a minor permanent impact due to tree cutting. Drivers along Highway 394 and Weaver Pike and some homeowners may be able to view construction activity along the west, south, and southeast portions of the Project Area, although the activity would not be inconsistent with an industrial park and its development or with existing industrial and commercial facilities in the vicinity. Homeowners would maintain at least some visual screening due to some trees that would remain located along the western, southern, and eastern perimeter of the Project Area. Pockets of trees would be cut along the western and southeastern portion of the Project Area. BTES would construct a berm planted with vegetation along the western portion of the Project Area as part of the Proposed Action to provide visual screening from the adjacent residential subdivision. Some trees would remain along the southeastern perimeter of the Project Area, providing continued visual screening in that location. While motorists may notice a change in the viewshed, this change would be minor given the brief period that drivers would be in the area. Implementation of the Action

Alternative would result in a minor, insignificant decrease in visual quality for residents in the viewshed.

3.12 NOISE

This section describes the noise environment in the Project Area and compares the alternatives considered as they relate to noise.

3.12.1 Affected Environment–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, and potential noise receptors such as homes, are primarily associated with traffic along the surrounding roads and the surrounding businesses and residences, particularly to the northeast as described above in section 3.11.

3.12.2 Environmental Consequences–Noise

This section assesses the environmental consequences and impacts upon the noise environment resulting from the two alternatives considered.

Alternative A–The No Action Alternative

Under the No Action Alternative, TVA would not provide funding to BTES, the proposed disturbances would not occur, and existing site conditions would likely be unchanged, resulting in no impacts to noise receptors.

Alternative B–Proposed Action

Under the Action Alternative, TVA would utilize InvestPrep funding matched with non-TVA funding to assist with the Proposed Action as described in Section 2.1.2. Noise impacts associated with construction activities would be primarily from the use of heavy equipment. Construction activities would likely involve the operation of an excavator, bulldozer, dump truck, or similar vehicles, and heavy machinery over the temporary duration of construction. Heavy equipment noise levels would fluctuate depending on the number and type of vehicles and equipment in use at any given time. The Action Alternative would be implemented over approximately 6 months, during which construction-related noise may be generated. 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. It is anticipated that sound levels would not exceed 85 decibels in the Project Area per Occupational Safety and Health Administration standards.

Primary sensitive noise receptors in the area include numerous homes located west, southwest, and south of the Project Area including some located less than 50 feet away. Additional homes are located east and southeast of the Project Area, but these are at least 900 feet away from

the Project Area. The construction noise would be localized, intermittent, and temporary, and no receptor would be exposed to significant noise levels for an extended period of time. Further, construction activities would be anticipated to be conducted during daylight hours, when ambient noise levels are often higher, and most individuals are less sensitive to noise. Most of the homes would have a forested buffer between the home and the Project Area, which would at least partially minimize construction noise for receptors. As noted in section 3.11, BTES would construct a berm planted with vegetation along the western portion of the Project Area as part of the Proposed Action to provide visual screening from the adjacent residential subdivision. This berm could also potentially provide the homes some screening from noise during future activities in the Project Area. The homes are also adjacent to Weaver Pike and Highway 394 would already be subject to ambient noise from traffic. Construction noise is possible on weekends. Industrial and commercial facilities adjacent to busy roads and highways are accustomed to noise. Overall, noise-related impacts resulting from the implementation of the Action Alternative would be anticipated to be temporary and minor.

3.13 SOCIOECONOMICS

This section describes socioeconomics in the Project Area and compares the alternatives considered as they relate to socioeconomics.

3.13.1 Affected Environment–Socioeconomics

This section evaluates the potential impact of the Action Alternative on socioeconomic resources. It also considers the range of communities impacted to determine whether the Action Alternative is likely to have impacts on minority and low-income populations. While socioeconomic analysis typically focuses on state, county, or block group level data, the scale of analysis is dependent on the specific type of impacts that are likely to occur. For this analysis, publicly available statistics generated by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics were used to characterize socioeconomic conditions in the host state (Tennessee), county (Sullivan), and locality (City of Bristol) (Table 3-5). Details of the Action Alternative were then used to evaluate likely effects on existing socioeconomic resources. The demographics and income of the host county were considered relative to the demographics and income levels at the state level, to identify the potential for impacts on minority and low-income populations.

Table 3-5. Population, Demographics, Income, and Employment in the Host State, County, and Locality

	Tennessee	Sullivan County	City of Bristol
Population[1]			
July 2024 Population	7,227,750	162,703	27,867
April 2020 Population	6,912,347	158,161	27,133
Population, Percent Change	4.6%	2.9%	2.7%
Population per Square Mile[2]	167.6	382.6	831.1

	Tennessee	Sullivan County	City of Bristol
Demographics[1]			
White Alone, not Hispanic or Latino	78.2%	94.0%	90.7%
Black or African American Alone	16.4%	2.6%	2.6%
American Indian and Alaska Native Alone	0.6%	0.5%	0.1%
Asian Alone	2.3%	1.0%	0.4%
Native Hawaiian and Other Pacific Islander Alone	0.1%	0.1%	0.0%
Two or More Races	2.4%	1.9%	5.5%
Hispanic or Latino	8.0%	3.0%	4.1%
Income[1]			
Median Household Income	$67,097	$56,802	$55,007
Per Capita Income	$37,866	$35,143	$34,650
Percent with Income Below the Poverty Level	13.5%	13.5%	14.1%
Employment (Not Seasonally Adjusted): September 2025[2]			
Labor Force	3,523,808	72,124	12,700
Employed	3,398,743	69,389	12,236
Unemployed	125,065	2,735	464
Unemployment Rate (%)	3.5	3.8	3.7

[1] Source: U.S. Census Bureau (2026)
[2] Source: U.S. Bureau of Labor Statistics (2026)

The evaluation determined the following:

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

There are seven residential subdivisions within 0.5 mile of the Project Area; however, there are approximately 435 residential homes within a 0.5-mile radius. The following demographic characteristics were identified for this area relative to the State of Tennessee: these census block groups in aggregate have two percent people of color, 20 percent of low-income population, 0 percent of linguistic isolation, and 10 percent of population with less than a high school education (PEDP 2026).

As described in Section 2.1.2 above, the Action Alternative would include tree clearing, grading of a compacted/seeded 400,000 SF building pad, sinkhole remediation, and berming/buffering for visual screening. Erosion prevention, sediment control, and stabilization measures would be implemented after grading is complete.

This effort is expected to take place over approximately 6 months and would require a small workforce, likely drawn from a local contractor.

3.13.2 Environmental Consequences–Socioeconomics

This section assesses the environmental consequences and impacts upon socioeconomics resulting from the two alternatives considered.

Alternative A–The No Action Alternative

Under the No Action Alternative, TVA would not provide funding to BTES and positive economic activity and socioeconomic changes would not be realized.

Alternative B–Proposed Action

Under the Action Alternative, TVA would utilize InvestPrep funding matched with non-TVA funding to assist with the Proposed Action as described in Section 2.1.2. Implementation of the Action Alternative is not anticipated to materially impact the local economy or the local workforce. In addition, no negative socioeconomic impacts would be anticipated from the Proposed Action; therefore, no negative impacts would be anticipated to minority or low-income populations as a result of the Action Alternative. Minor positive indirect impacts may be noted through the increase in employment as a result of the Action Alternative.

There is minimal potential that the Action Alternative would result in negative impacts on minority and low-income populations. This conclusion is based on two observations. First, the Action Alternative would have a minor positive effect on the local economy. Second, as described throughout this document, environmental effects associated with the Action Alternative would be minor, temporary, and would generally be constrained to the 60-acre Project Area.

3.14 TRANSPORTATION

This section describes transportation resources in the Project Area and compares the alternatives considered as they relate to transportation.

3.14.1 Affected Environment–Transportation

The Project Area can be accessed during construction activities from the west via a paved four lane entrance on an unnamed road. The unnamed road terminates to the west of the Project Area at the paved four lane entrance to Highway 394.

Aerial photography of the unnamed road indicates that it is a two-lane gravel road which provides access to an electrical substation and the Project Area. Google Street View images are not available for the unnamed road. The unnamed road is not defined by the Functional Classification System for Sullivan 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 Highway 394 from the Project Area. Necessary precautions would be taken during mobilization and demobilization, such as reduced speed in areas of poor visibility or poor road conditions, with other precautions such as a flagman or traffic control to be considered if required.

Highway 394 is a four-lane paved highway at the intersection with the unnamed road. Based on preliminary review of Google Street View images (recorded May 2024) and incidental observations by Stantec field teams, the road is in excellent condition with curbed and paved shoulders. Highway 394 is listed as part of the National Highway System and a principal arterial on the Functional Classification System for Bristol (Bluff City) (TDOT 2018). Normal care would be taken by workers entering or crossing Highway 394 regarding traffic safety.

Based on a review of TDOT historical traffic data (TDOT 2024), there are no traffic count stations on the unnamed road. The nearest traffic count stations are located on Highway 394 to the north and south of the Project Area. The 2024 annual average daily traffic count (AADT) for the relevant station is presented in Table 3-6 below.

Table 3-6. Tennessee Department of Transportation Traffic Count Data for the Project Area

Route Description	Location ID	Distance from Project Area (Miles)	Year	AADT
Highway 394	82000259	0.7	2024	1,176
Highway 394	82000238	1.2	2024	8,201

Source: Tennessee Department of Transportation 2026

3.14.2 Environmental Consequences–Transportation

This section assesses the environmental consequences and impacts upon transportation resources resulting from the two alternatives considered.

Alternative A–The No Action Alternative

Under the No Action Alternative, TVA would not provide funding to BTES, there would be no impact on overall traffic volumes and level of service.

Alternative B–Proposed Action

Under the Action Alternative, TVA would utilize InvestPrep funding matched with non-TVA funding to assist with the Proposed Action as described in Section 2.1.2. In the context of the existing AADT road volumes, the anticipated traffic generated by the Proposed Action would be minor. It is anticipated that existing traffic volumes for the unnamed road would be minor, as it provides access to only one other site, and any increase in traffic volumes for Highway 394 would be minor. Because of the anticipated limited volume of workers on the site required for tree clearing activities, grading, and sinkhole improvements, as well as the relatively short timeframe of the proposed work, direct or indirect impacts to local traffic and roadways are anticipated to be temporary and minor.

3.15 UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

Unavoidable adverse impacts are the effects of the Proposed Action on natural and human resources that would remain after mitigation measures or BMPs have been applied. Mitigation measures and BMPs are typically implemented to minimize and avoid potential impacts associated with Proposed Actions, which may still have the potential to cause unavoidable adverse effects on several environmental resources. Activities associated with the use of construction equipment may result in varying amounts of dust, air emissions, and noise that may potentially impact both onsite workers and nearby offsite residences and parks. Emissions from onsite construction activities and equipment would be minimized through implementation of BMPs including proper maintenance of construction equipment and vehicles. During construction, BMPs to minimize runoff would be implemented but there could still be some uncontrolled runoff that could affect nearby outfalls and water bodies. During construction, there would be an increase in traffic on public roads due to use by the construction workforce and construction-related equipment and materials being transported to the Project Area. This additional construction-related traffic would also increase noise and fugitive dust in areas proximate to these roads.

Emissions from construction equipment are minimized through implementation of BMPs including proper maintenance of construction equipment and vehicles.

There would be no unavoidable adverse impacts associated with the Proposed Action.

3.16 RELATIONSHIP OF SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

NEPA requires a discussion of the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity. This EA focuses on the analyses of environmental impacts associated with the Proposed Action. For the purposes of this section, activities associated with construction are considered short-term uses of the environment and the long-term impacts to site productivity are those from future development and activities beyond the life of the Project. The Proposed Action would have no effect on solid and hazardous materials, land use, floodplains, managed or natural areas, recreation, surface water, wetlands, aquatic zoology, and prime farmland. The Proposed Action could have a minor negative effect on identified environmental resources including air quality and climate change,

groundwater, soils, terrestrial zoology including threatened and endangered species, botany including threatened and endangered species, cultural resources, visual resources, noise, and transportation) based on short-term use as described above. Minor positive indirect impacts on socioeconomics may be noted through the increase in employment as a result of the Action Alternative. These impacts are anticipated to be temporary and/or minor.

Under the Proposed Action, TVA would provide InvestPrep funds to BTES for site improvements to the Project Area. This short-term investment could lead to industrial development resulting in long-term gains in economic prosperity in Sullivan County, Tennessee. If this goal is realized, implementation of the Proposed Action would help to fulfill one of TVA's missions, which is to promote economic development within the TVA service area.

3.17 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

A resource commitment is considered irreversible when impacts from its use would limit future use options and the change cannot be reversed, reclaimed, or repaired. Irreversible commitments generally occur to nonrenewable resources such as minerals or cultural resources and to those resources that are renewable only over long timespans, such as soil productivity. A resource commitment is considered irretrievable when the use or consumption of the resource is neither renewable nor recoverable for use by future generations until reclamation is successfully applied. Irretrievable commitments generally apply to the loss of production, harvest, or other natural resources and are not necessarily irreversible. Resources required for the Proposed Actions, including labor, materials, and fossil fuels would be irretrievably lost. Nonrenewable fossil fuels would be irretrievably lost by gasoline and diesel-powered equipment during construction. Although the Proposed Action would require irretrievable use of some resources, it is unlikely that their limited use would adversely affect the overall future availability of these resources.

Under the Proposed Action, TVA would provide InvestPrep funds to BTES for site improvements to the Project Area. The InvestPrep funds would be matched by non-TVA funds.

3.18 NEPA COMPLIANCE CERTIFICATION

Consistent with 18 CFR 1318.106(e) and 1318.301(f), the Tennessee Valley Authority certifies that this document represents TVA's good-faith effort to fulfill the requirements of NEPA within the Congressional timeline established at NEPA Section 107(g) and according to page limits established at NEPA Section 107(e) and that the NEPA process is substantially complete. In this document, TVA prioritizes documentation of the most important considerations required by NEPA within the Congressionally mandated page limits based on its expert judgement. Any considerations addressed briefly or unaddressed are, in TVA's judgment, comparatively not of a substantive nature that meaningfully informs the consideration of environmental effects and the resulting decision on how to proceed. In TVA's expert opinion, the factors mandated by NEPA have been thoroughly considered, and in TVA's judgement, the analysis contained in this document is adequate to inform and reasonably explain TVA's final decision regarding the proposed federal action.

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Appendix A – List of Preparers

NEPA PROJECT MANAGEMENT

Brittany Kunkle (TVA)
Education: B.S., Environmental and Soil Science
Project Role: Economic Development Grant Project NEPA Compliance Manager
Experience: 7 years in Project Management, managing and performing NEPA analyses.

OTHER CONTRIBUTORS

Julia Prins (TVA)
Education: M.S. Environmental Science; B.S. Environmental Science
Project Role: Threatened and Endangered Plants, Plant Ecology, Invasive Plant Species
Experience: 3 years in floristic surveys, threatened and endangered plant species, and invasive plant species. 1 year in ESA and NEPA compliance.

Zach Buecker (TVA)
Education: B.S., Biology
Project Role: Surface Water
Experience: 16 years of experience in stream/wetland assessment and CWA compliance.

Derek Reaux (TVA)
Education: Ph.D., Anthropology; M.A., Anthropology; B.A., Anthropology
Project Role: Cultural Resources, NHPA, Section 106 compliance
Experience: 13 years of experience in archaeological research, cultural resource management, and Section 106 compliance.

Matt Reed (TVA)
Education: M.S., Wildlife and Fisheries Science; QHP
Project Role: Aquatic Ecology, Aquatic T&E Species
Experience: 15 years working with threatened and endangered aquatic species in the southeastern U.S.; 8 years in Endangered Species Act, NEPA, and CWA compliance and stream assessments.

Guy Thomas "Tom" Zimmerman, P.E. (TN) (TVA)
Education: M.S. Environmental Engineering, Water Resources; B.S. Civil Engineering
Project Role: Floodplains and Flood Risk
Experience: 18 years water resources, civil, and environmental engineering including 13 years River Management and 0.5 year Floodplains and Flood Risk.

Carrie Williamson, P.E. (TN), CFM (TVA)
Education: M.S., Civil Engineering; B.S., Civil Engineering
Project Role: Floodplains QA/QC

Experience: 13 years in Floodplains and Flood Risk, 11 years in Compliance Monitoring, 3 years in River Forecasting.

Ryan Gupton (TVA)
Education: B.S. Environmental Science
Project Role: Recreation
Experience: 1 year in Public Land Management

Chloe Sweda (TVA)
Education: B.S., Earth and Environmental Sciences
Project Role: Managed and Natural Areas
Experience: 7 years in Natural Resource Management

Emily Doub (TVA)
Education: M.S. Comparative Biomedical Science,
B.S., Wildlife and Fisheries Science, B.S., Animal Science
Project Role: Terrestrial Zoology, T&E Species
Experience: 2 years in biological compliance, NEPA compliance, and Endangered Species Act consultation for T&E; 8 years in biological field studies.

Sara McLaughlin-Johnson (TVA)
Education: B.S., Wildlife and Fisheries Science
Project Role: Terrestrial Zoology, T&E Species
Experience: 13 years in biological compliance, NEPA compliance, and Endangered Species Act consultation for T&E; 18 years in biological field studies.

Fallon Parker Hutcheon (TVA)
Education: M.S., Environmental Studies; B.S., Biology
Project Role: Wetlands
Experience: 7 years in wetland delineation, wetland impact analysis, and NEPA and CWA compliance.

David Nestor (TVA)
Education: M.S., Botany; B.S., Aquaculture, Fisheries, and Wildlife Biology
Project Role: Botany, T&E Species, Invasive Plant Species
Experience: 21 years in biological compliance, NEPA and ESA compliance

Douglas Mooneyhan (Stantec)
Education: M.S., Biology; B.S., Wildlife and Fisheries Science
Project Role: EA Program and Project Manager, Purpose and Need for Action, Alternatives, QA/QC

Experience: 36 years in managing and performing environmental studies, Project Manager for a variety of different project types including NEPA, construction monitoring, natural resources, water resources, and fisheries biology.

Jaclyn Martin (Stantec)
Education: M.S., Environmental Sciences; B.S., Biology
Project Role: Air Quality and Climate Change, Visual, QA/QC
Experience: 11 years in environmental consulting in the preparation and review of NEPA compliance reports, environmental assessments, and permitting for a variety of telecommunication, alternative energy, and FERC-regulated projects.

Duane Simpson (Stantec)
Education: M.A., Anthropology; B.A., Anthropology
Project Role: Archaeology
Experience: 29 years in archaeological consulting, including management of projects across the Southeast and Mid-Atlantic regions. Principal Investigator for over 16 years.

Josh Yates, P.G. (Stantec)
Education: M.S., Geology; B.S., Natural Resources Management and Engineering
Project Role: Groundwater
Experience: 18 years of hydrogeologic assessments and water resources permitting experience. This experience includes water supply planning, hydrogeologic investigations, groundwater modeling, water use permitting, well construction oversight, EIS and EA preparation, minimum flow and level (MFL) impact analysis, monitoring well network design, aquifer performance tests, and GIS analysis.

Lavinia DiSanto (Stantec)
Education: B.A., Biological Science
Project Role: QA/QC
Experience: 26 years in environmental consulting, specializing in NEPA assessments.

Shane Kelley, TN-QHP (Stantec)
Education: B.S., Natural Resources & Environmental Science
Project Role: Aquatics, Wetlands
Experience: Biologist with 12 years of experience in multiple areas of the environmental field with a particular focus on USACE Section 404 permitting, Section 7 protected species consultation, and various ecological and biological field surveys. He is a Qualified Hydrologic Professional.

Brenton Jenkins, P.E. (Stantec)
Education: B.S., Environmental Engineering
Project Role: Transportation

Experience: 11 years in environmental consulting for various private and public sector clients, including engineering design, permitting, and assessments, primarily in the oil and gas sector.

Kathleen Pangan (Stantec)
Education: M.S., Biology; B.S., Biology: Ecology, Behavior and Evolution
Project Role: Surface Water, Aquatics, Wetlands
Experience: Biologist with more than 17 years of experience in ecology, technical analysis, and scientific fieldwork.

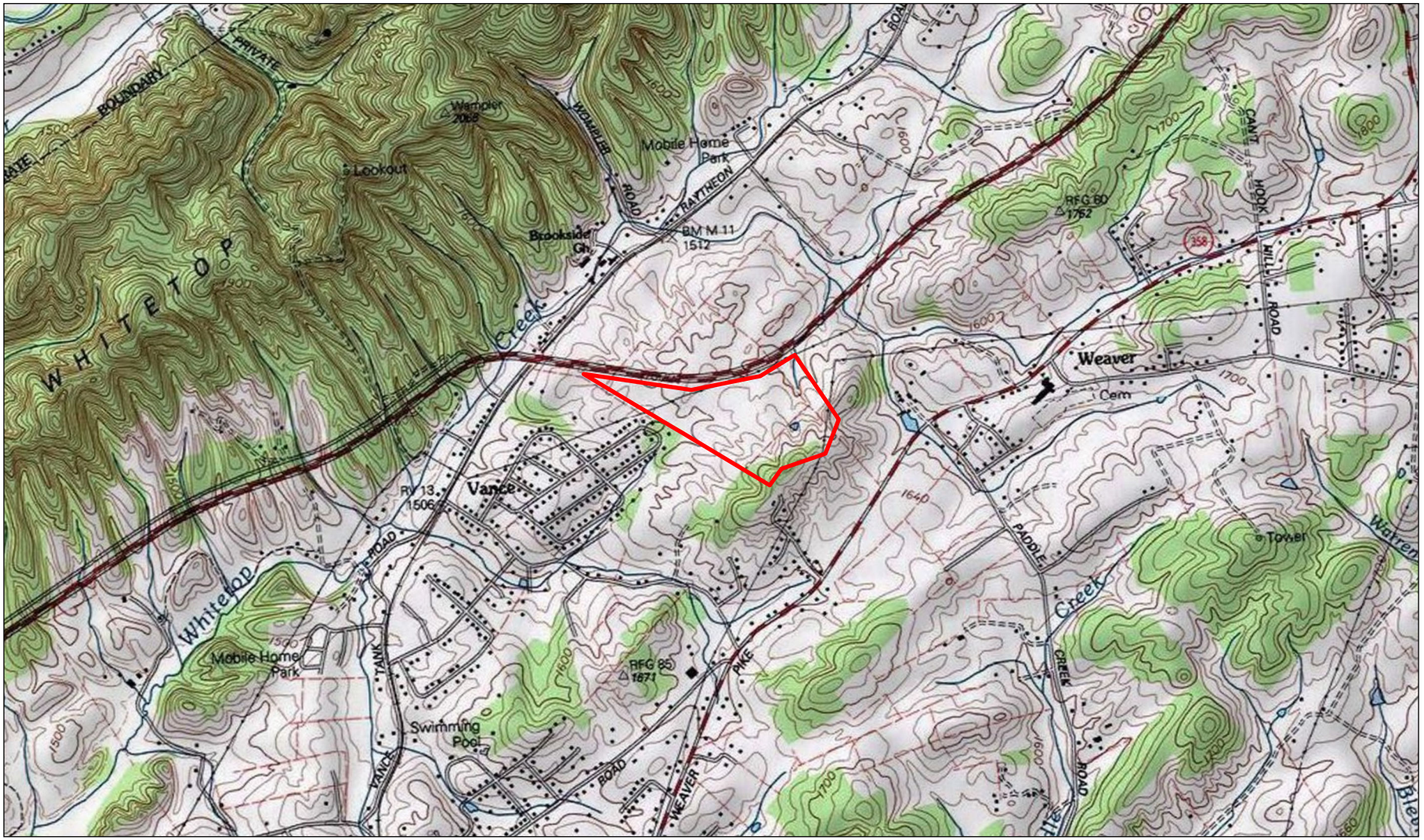
Afton Tankersley (Stantec)
Education: M.S., Environmental Science; B.S., Biology
Project Role: Air Quality and Climate Change, Noise, Visual Resources
Experience: Biologist with experience preparing multiple NEPA documents, including EISs for the FERC and the Nuclear Regulatory Commission.

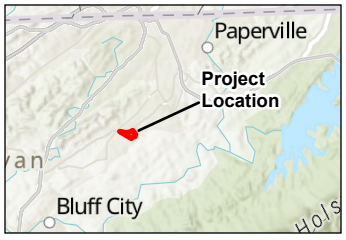
Appendix B – Symbols, Acronyms, and Abbreviations

Symbols, Acronyms, and Abbreviations

AADT	Annual Average Daily Traffic Count
AHC	Area of Potential Effects
APE	Alabama Historical Commission
BMP	Best Management Practices
CAA	Clean Air Act
DBH	Diameter at Breast Height
EA	Environmental Assessment
EO	Executive Order
ESA	Environmental Site Assessment
GHG	Greenhouse Gases
HAP	Hazardous Air Pollutants
IPaC	Information for Planning and Consultation
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHD	Natural Heritage Database
NHPA	National Historic Preservation Act
NPDES	National Pollutant and Discharge Elimination System
NRCS	Natural Resources Conservation Service
NWI	National Wetland and Water Inventory
SEDA	Shoals Economic Development Authority
SHPO	State Historic Preservation Office
SWPPP	Stormwater Pollution Prevention Plan
TVA	Tennessee Valley Authority
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
U.S.	United States
VOC	Volatile Organic Compound

Appendix C – Project Figures





Project Boundary (59.80 ac)

N

0 1,000 2,000 Feet

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

Notes
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Data Sources: TVA
3. Background: USGS Topographic

Stantec

Project Location
Sullivan Co., TN

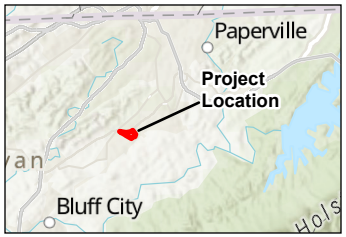
Prepared by PEM on 2025-12-10

Client/Project
United States Tennessee Valley Authority
TVA FY26 InvestPrep Sullivan Co.
Environmental Assessment

172678350

Figure No.
1A

Title
USGS Topographic



Project Boundary (59.80 ac)

1% Annual Chance Flood Hazard

FIRM Panel 47163C0114D, eff. 9/29/2006

N

0 300 600 Feet

(At original document size of 8.5x11)
1:7,200

Notes

1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet

2. Data Sources: TVA, FEMA

3. Background: NAIP Hybrid Aerial

Stantec

Project Location
Sullivan Co., TN

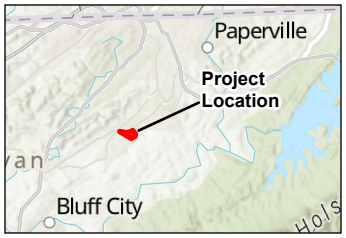
Prepared by PEM on 2025-12-10

Client/Project
United States Tennessee Valley Authority
TVA FY26 InvestPrep Sullivan Co.
Environmental Assessment

172678350

Figure No.
1B

Title
FEMA Floodplains



Project Boundary (59.80 ac)
NHDFlowline

NWI Wetlands

Freshwater Pond
Riverine

N

0 200 400 Feet
(At original document size of 8.5x11)
1:4,800

Notes

1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Data Sources: TVA, USGS, USFWS
3. Background: NAIP Hybrid Aerial

Stantec

Project Location
Sullivan Co., TN

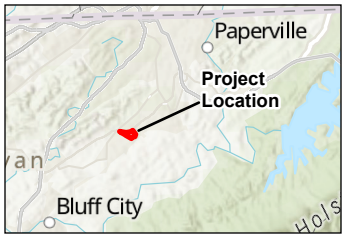
Prepared by PEM on 2025-12-10

Client/Project
United States Tennessee Valley Authority
TVA FY26 InvestPrep Sullivan Co.
Environmental Assessment

172678350

Figure No.
1C

Title
National Wetlands Inventory/ National Hydrography Dataset



- Project Boundary (59.80 ac)
- CeC2 - Collegedale-Etowah complex, 5 to 12 percent slopes, eroded (24.07 ac)
- CeD3 - Collegedale-Etowah complex, 12 to 20 percent slopes, severely eroded (24.73 ac)
- CeE3 - Collegedale-Etowah complex, 20 to 35 percent slopes, severely eroded (0.71 ac)
- St - Steadman silty clay loam, 0 to 2 percent slopes, occasionally flooded (1.49 ac)
- TbD2 - Talbott-Rock outcrop-Bradyville complex, 12 to 20 percent slopes, eroded (8.80 ac)
- All areas are prime farmland (1.49 ac)
- Not prime farmland (58.31 ac)

N

0 200 400 Feet

(At original document size of 8.5x11)
1:4,800

Notes

1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Data Sources: TVA, USDA
3. Background: NAIP Hybrid Aerial

Stantec

Project Location
Sullivan Co., TN

Prepared by PEM on 2025-12-10

Client/Project
United States Tennessee Valley Authority
TVA FY26 InvestPrep Sullivan Co.
Environmental Assessment

172678350

Figure No.
1D

Title
NRCS Soils

Appendix D – Agency of Correspondence

From:	Fedenko, Jennifer - FPAC-NRCS, TN
To:	Mooneyhan, Douglas
Cc:	Kunkle, Brittany Renee
Subject:	RE: [External Email]FY26 TVA InvestPrep project sites
Date:	Tuesday, January 13, 2026 3:57:58 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png

Hi Doug,

As you mentioned, the Knox County project boundary is just outside of what the US Census Bureau designates as urban. I don't see any information in our database about that area being zoned as industrial. I think that project will have to go through the FPPA review process.

The Sullivan County project however is within urban boundaries and therefore is exempt from FPPA.

Let me know if you have any questions.

Jennifer Fedenko
State Resource Soil Scientist
Natural Resources Conservation Service | Soils Staff
Tennessee State Office

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service
801 Broadway, 675 U.S. Courthouse, Nashville, TN 37203
p: (615) 277-2578 | c: (615) 856-2765

From: Mooneyhan, Douglas <douglas.mooneyhan@stantec.com>
Sent: Tuesday, January 13, 2026 9:26 AM
To: Fedenko, Jennifer - FPAC-NRCS, TN <Jennifer.Fedenko@usda.gov>
Cc: Kunkle, Brittany Renee <brkunkle@tva.gov>
Subject: RE: [External Email]FY26 TVA InvestPrep project sites

Hi Jennifer, thanks for checking. Here are the shapefiles (and KMZs if that helps) for both Knox County and Sullivan County.
We appreciate the assistance, please let me know if you need anything else.
thanks.

Doug Mooneyhan
Senior Associate, Scientist Management

Stantec

From: Fedenko, Jennifer - FPAC-NRCS, TN <Jennifer.Fedenko@usda.gov>
Sent: Tuesday, January 13, 2026 10:15 AM
To: Mooneyhan, Douglas <douglas.mooneyhan@stantec.com>
Cc: Kunkle, Brittany Renee <brkunkle@tva.gov>
Subject: RE: [External Email]FY26 TVA InvestPrep project sites

Hi Doug,

Thank you for sending over this project information. I have a feeling that yes, this might be exempt due to zoning, but I'd like to double-check on my end.

Can you send over a shapefile of the project area?

Thank you,

Jennifer Fedenko
State Resource Soil Scientist
Natural Resources Conservation Service | Soils Staff
Tennessee State Office

USDA U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service
801 Broadway, 675 U.S. Courthouse, Nashville, TN 37203
p: (615) 277-2578 | c: (615) 856-2765

From: Mooneyhan, Douglas <douglas.mooneyhan@stantec.com>
Sent: Monday, January 12, 2026 3:42 PM
To: Fedenko, Jennifer - FPAC-NRCS, TN <Jennifer.Fedenko@usda.gov>
Cc: Kunkle, Brittany Renee <brkunkle@tva.gov>
Subject: [External Email]FY26 TVA InvestPrep project sites

Good afternoon Jennifer, I hope you are doing well.

We coordinated last year regarding some FY 25 TVA InvestPrep prospective projects, and Stantec is glad to be assisting TVA again this year in evaluation of some new FY26 TVA InvestPrep project sites. The InvestPrep projects involve use of federal funds and the purpose of the TVA InvestPrep Program is to

promote economic development within the TVA region.

One site in Knox County, Tennessee may warrant coordination with NRCS regarding applicability of the FPPA due to its rural designation. We are attaching a soils map showing the extent of prime farmland and a map showing urban / rural areas as defined by the U.S. Census Bureau. The site is zoned as industrial. Further, the site was mass graded in the past, prior to TVA's involvement in this project.

A few notes about the Knox County site:

Name: Eastbridge Business Park (Sites 4, 5, and 6)
- **Address:** Holston Bend Drive, Mascot, TN
- **Lat/Long:** 36.079615° -83.724666°
- **Total Site Acreage:** 121 acres
- **InvestPrep Project Area:** 121 acres
- **Tree Clearing Acreage:** 1.5 acres
- **Current Zoning:** Industrial
- **Ownership:** Public (IDB of the County of Knox)

Project Scope: Utilize TVA InvestPrep funding matched with non-TVA funding to assist with the grading of a 500,000 SF building pad (with compacted crushed stone) on Site 6, rough grading for 120,000 SF on Site 4 and 340,000 SF on Site 5, sinkhole remediation, and the extension of Holston Bend Drive (with compacted crushed stone) in the Eastbridge Business Park.

We believe that the site in Sullivan County, Tennessee may be exempt from the FPPA due to its urban designation and we would greatly appreciate your review and program feedback. We are attaching a soils map showing the extent of prime farmland and a map showing urban / rural areas as defined by the U.S. Census Bureau. The site is zoned as general industrial (M-2).

A few notes about the Sullivan County site:

Name: Bristol South
- **Address:** Highway 394, Bristol, TN
- **Lat/Long:** 36.524682° -82.200439°
- **Total Site Acreage:** 60 acres
- **InvestPrep Project Area:** 60 acres
- **Tree Clearing Acreage:** 0.55 acres
- **Current Zoning:** General Industrial (M-2)
- **Ownership:** Public (BTES)

Project Scope: Utilize TVA InvestPrep funding matched with non-TVA funding to assist with the grading of a compacted/seeded 400,000 SF building pad, including sinkhole remediation and berming/buffering on the Bristol South site.
Project Goal: Bristol South has significant topographic challenges that have limited its marketability to date. In order to put this site in a more marketable position, tree clearing, sinkhole remediation, a 400,000 SF building pad, and berming/buffering are needed. Upon completion, this project will allow prospects to better envision the development potential of the Bristol South site. Proposed improvements will lead to an increased probability of achieving our core mission of job creation and capital investment. Target markets for Bristol South include automotive suppliers, food and beverage production, plastic/metal extrusion, steel/alloy metals, and chemicals/special additives.

Please let us know your thoughts about potential applicability of the FPPA to these two sites. We appreciate your time and assistance in navigating the FPPA program.

Please let me know if you have any additional questions about these sites or activities.

thanks

Doug Mooneyhan
Senior Associate, Scientist Management

Direct: (678) 433-1192
Mobile: (678) 462-8775
douglas.mooneyhan@stantec.com

Stantec

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Atención: Este correo electrónico proviene de fuera de Stantec. Por favor, tome precauciones adicionales.

TENNESSEE VALLEY AUTHORITY

400 West Summit Hill Drive, Knoxville, Tennessee 37902

February 25, 2026

Ms. Miranda Montgomery
State Historic Preservation Officer
Tennessee Historical Commission
2941 Lebanon Pike
Nashville, Tennessee 37243-0042

Dear Ms. Montgomery:

TENNESSEE VALLEY AUTHORITY (TVA), ECONOMIC DEVELOPMENT, BRISTOL SOUTH SITE, BRISTOL, SULLIVAN COUNTY, TENNESSEE (36.524682, -82.200439) (TVA TRACKING NUMBER – CRMS ID 143149337298)

TVA is providing financial assistance to support the grading and seeding of a 400,000 square foot building pad, sink hole remediation, and berming/buffering at the 60-acre Bristol South Site located along Highway 394, in Bristol, Sullivan County, Tennessee. TVA has determined that this project is an undertaking (as defined at 36 CFR § 800.16(y)) that has the potential to cause effects on historic properties. Given that the proposed project does not involve the construction of above-ground structures, visual impacts to historic architectural resources are unlikely. Therefore, TVA recommends that the Area of Potential Effects (APE) be considered the project footprint (60 acres) where physical effects could occur.

The project area primarily consists of pastureland with a rolling hill topography; however, portions have been recently disturbed and developed by the construction of an adjacent switching station. TVA surveyed a few linear segments of the property in 2023, and no cultural resources were identified during the survey. There are also no known cultural resources in the wider APE and no Native American Removal Routes within a mile radius. Given that only a portion of the APE had been previously surveyed, TVA contracted Stantec Consulting Services Inc. (Stantec) to conduct a full Phase I archaeological survey of the property.

As a result of the survey, Stantec recorded two new archaeological sites: 40SL552 and 40SL553. Both sites represent relatively low-density lithic scatters of indeterminate age. Stantec recommended both sites as not eligible for listing in the National Register of Historic Places. They also recommended no further work for the APE. TVA agrees with Stantec's recommendations. As such, TVA finds the proposed undertaking would have no effect on historic properties. Please find attached the Phase I report titled, *Phase I Archaeological Survey for the Bristol South Site, Bristol, Sullivan County, Tennessee.*

Pursuant to 36 CFR Part 800.3(f)(2), TVA is consulting with federally recognized Indian tribes regarding historic properties within the proposed project's APE that may be of religious and cultural significance and are eligible for the NRHP.

Pursuant to 36 CFR Part 800.4(d)(1) we are notifying you of TVA's finding of no historic properties affected; providing the documentation specified in § 800.11(d); and inviting you to review the finding. Also, we are seeking your agreement with TVA's finding that the undertaking as currently planned will have no effects on historic properties.

Please contact Derek Reaux by email, djreaux@tva.gov with your comments.

Sincerely,

Michaelyn Harle
Manager, Cultural Projects, Economic Development, and Environment
Deputy Federal Preservation Officer
Cultural Resources, External Strategy & Regulatory Oversight

DR:JMB
Enclosures
cc (Enclosures):
Ms. Jennifer Barnett
Tennessee Division of Archaeology
1216 Foster Avenue, Cole Bldg. #3
Nashville, Tennessee 37210

From: Reaux, Derek
To: Kunkle, Brittany Renee
Cc: Hubbard, Bess Rickman
Subject: FW: Bristol South Economic Development Site, CRMS 143149337298 - Project # SHPO0008476
Date: Friday, March 6, 2026 12:56:40 PM
Attachments: Miranda Sig.png
image

Concurrence from TN on the Sullivan County project.

From: TN Help <tnhelp@service-now.com>
Sent: Friday, March 6, 2026 12:56 PM
To: Barker, Jasmine Mae <jdreisler@tva.gov>; Harle, Michaelyn S <mharle@tva.gov>
Cc: Reaux, Derek <djreaux@tva.gov>
Subject: Bristol South Economic Development Site, CRMS 143149337298 - Project # SHPO0008476

TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON PIKE
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

03-06-2026 11:54:36 CST

Dr. Michaelyn Harle
Tennessee Valley Authority
mharle@tva.gov

RE: Tennessee Valley Authority (TVA), Bristol South Economic Development Site, CRMS 143149337298, Project#: SHPO0008476, Bristol, Sullivan County, TN

Dear Dr. Michaelyn Harle:

In response to your request, we have reviewed the cultural resources survey report and accompanying documentation submitted by you regarding the above-referenced undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures

for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Considering the information provided, we find that no historic properties eligible for listing in the National Register of Historic Places will be affected by this undertaking. If project plans are changed or archaeological remains are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. Please provide your Project # when submitting any additional information regarding this undertaking. Questions or comments may be directed to Jennifer Barnett, who drafted this response, at Jennifer.Barnett@tn.gov.

Sincerely,

Miranda Montgomery
State Historic Preservation Officer

Ref:MSG18095803_6FkQD3AySCTATfrMhxo

Appendix E – Project Review Form: TVA Bat Strategy

Project Review Form - TVA Bat Strategy *(04/2025)*

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

Project Name: Economic Development Gran Proposal for Bristol South **Date:** Sept 2, 2025

Contact(s): Brittany Kunkle **CEC#:** 2026-3 **Project ID:** 47042

Project Location (City, County, State): Sullivan County, TN

Project Description:

Bristol Tennessee Essential Services (BTES) would utilize TVA InvestPrep funding matched with non-TVA funding to assist with the development of the Bristol South Site (BSS) in Sullivan County, Tennessee. Proposed actions include grading of a compacted/seeded 400,000 SF building pad, including sinkhole remediation and berming/buffering on the Bristol South site.

SECTION 1: PROJECT INFORMATION - ACTION AND ACTIVITIES

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

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

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

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

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

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

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

STEP 3) Project includes one or more activities in Table 3? ◉ **YES (Go to Step 4)** ○ **NO (Go to Step 12)**

Project Review Form - TVA Bat Strategy *(04/2025)*

STEP 4) Answer questions *a* through *e* below (applies to projects with activities from Table 3 ONLY)

a) Will project involve continuous noise (i.e., ≥ 24 hrs) that is greater than 75 decibels measured on the A scale (e.g., loud machinery)?

◉ **NO** (NV2 does not apply)
○ **YES** (NV2 applies, subject to records review)

b) Will project involve entry into/survey of cave?

◉ **NO** (HP1/HP2 do not apply)
○ **YES** (HP1/HP2 applies, subject to review of bat records)

c) If conducting **prescribed burning** (**activity 23)**, estimated acreage**:** ☐ and timeframe(s) below; ■ **N/A**

STATE	Winter Hibernation	Winter Torpor	Spring Staging, Fall Swarming	Pup Season	Summer Gap	Year
VA, TN, NC	Nov 16 - Mar 31	N/A	Apr 1 - May 14, Aug 16 - Nov 15	May 15 - Jul 31	Aug 1 - Aug 15	
KY	Nov 16 - Mar 31	N/A	Apr 1 - May 14, Aug 16 - Nov 15	May 15 - Jul 31	Aug 1 - Aug 15	
AL, GA MS (Hibernation Range)*	Nov 16 - Mar 14	N/A	Mar 15 - Apr 30, Sept 1 - Nov 15	May 15 - Jul 31	Aug 1 - Aug 30	
MS (Year-round Range)*	N/A	Dec 15 - Feb 15	N/A	May 1 - Jul 15	Feb 16 - Apr 30, Jul 16 - Dec 14	

*MS (Year-round Range) = Attala, Wintson, Noxubee, Leake, Neshoba, Kemper, Rankin, Scott, and Newton Counties, Mississippi
*MS (Hibernation Range) = All MS counties in the TVA Region excluding those listed above in the Year-round Range

d) Will the project involve vegetation piling/burning?

○ **NO** (SSPC4/ SHF7/SHF8 do not apply)
◉ **YES** (SSPC4/SHF7/SHF8 applies, subject to review of bat records)

e) If **tree removal (activity 33 or 34)**, estimated amount: 0.55 ◉**ac** ○**trees** ○**N/A**

STATE	Winter Hibernation	Winter Torpor	Spring Staging, Fall Swarming	Pup Season	Summer Gap	Year
VA, TN, NC	Nov 16 - Mar 31	N/A	■ Apr 1 - May 14, Aug 16 - Nov 15	May 15 - Jul 31	Aug 1 - Aug 15	
KY	Nov 16 - Mar 31	N/A	Apr 1 - May 14, Aug 16 - Nov 15	May 15 - Jul 31	Aug 1 - Aug 15	
AL, GA MS (Hibernation Range)*	Nov 16 - Mar 14	N/A	Mar 15 - Apr 30, Sept 1 - Nov 15	May 15 - Jul 31	Aug 1 - Aug 30	
MS (Year-round Range)*	N/A	Dec 15 - Feb 15	N/A	May 1 - Jul 15	Feb 16 - Apr 30, Jul 16 - Dec 14	

*MS (Year-round Range) = Attala, Wintson, Noxubee, Leake, Neshoba, Kemper, Rankin, Scott, and Newton Counties, Mississippi
*MS (Hibernation Range) = All MS counties in the TVA Region excluding those listed above in the Year-round Range

If warranted, does project have flexibility for bat surveys (May 15-Aug 15): ○ **MAYBE** ○ **YES** ◉ **NO**

**** For **PROJECT LEADS** whose projects will be reviewed by a Heritage Reviewer (Natural Resources Organization only), **STOP HERE**. Click File/ Save As, name form as "ProjectLead_BatForm_CEC-or-ProjectIDNo_Date", and submit with project information. Otherwise continue to Step 5. ****

SECTION 2: REVIEW OF BAT RECORDS (applies to projects with activities from Table 3 ONLY)

STEP 5) **Review of bat/cave records conducted by Heritage Reviewer?** ○ **YES** ◉ **NO** (Go to Step 12)

Info below completed by: ☐ **Heritage Reviewer** (name) ☐ Date ☐

■ **Terrestrial Zoologist** (name) Emily Doub Date 9/9/25

Species	None	Within a Distance Of:	Cave/Winter Roost	Capture	Summer Roost / Roost Tree	Within the County
Gray Bat		3 mi	■		N/A	■
Indiana Bat	■	10 mi				
Northern Long-Eared Bat		■ 5 mi	■			
Tricolored Bat		3 mi	■	■		■
Virginia Big-Eared Bat	■	6 mi				

Amount of SUITABLE habitat to be removed/burned (may differ from STEP 4e): 0.19 **(**◉**ac** ○**trees)*** ○**N/A**

STEP 6) Provide any additional notes resulting from Heritage Reviewer records review in Notes box below then . . . . . Go to Step 12

Notes from Bat Records Review (e.g., historic record; bats not on landscape during action; DOT bridge survey with negative results):

STEPS 7-11 To be Completed by Terrestrial Zoologist (if warranted):

STEP 7) Project will involve removal of suitable trees within documented habitat? ◉ **YES** ○ **NO**

Hibernation Zone	Within Swarming Habitat	Near Post-WNS Captures	Near Post-WNS Summer Roosts
Indiana Bat	< 10 mi	< 5 mi	< 2.5 mi
Northern Long-Eared Bat	■ < 5 mi	< 1.5 mi	< 0.25 mi
Tricolored Bat	< 3 mi	< 1.5 mi	< 0.25 mi

Year-Round Zone	Near Post-WNS Captures	Near Post-WNS Summer Roost Trees
Northern Long-Eared Bat	< 1.5 mi	< 0.25 mi
Tricolored Bat	< 1.5mi	< 0.25 mi

STEP 8) Presence/absence surveys were/will be conducted: ○ **YES** ◉ **NO** ○ **TBD**

STEP 9) Presence/absence survey results, on ○ **NEGATIVE** ○ **POSITIVE** ◉ **N/A**

STEP 10) Project ◉ **WILL** ○ **WILL NOT** require use of Incidental Take in the amount of 0.19 ◉ **acres or** ○ **trees** proposed to be used during the ○ **WINTER** ◉ **VOLANT SEASON** ○ **NON-VOLANT SEASON** ○ **N/A**

STEP 11) Remaining Incidental Take (prior to accounting for this project) as of

Species	Total Suitable Habitat to be Removed	Winter Season Removal	Winter Season Take Remaining*	Volant Season Removal	Volant Season Take Remaining*	Pup Season Removal	Pup Season Take Remaining*
Indiana Bat	0.19	0	4265.26	0.19	419.73	0	0
NLEB	0.19	0	4550.38	0.19	463.46	0	0
Tricolored Bat	0.55	N/A	N/A	N/A	N/A	N/A	N/A

Take Estimates are for TVA Action 9 - Promote Economic Development

Amount contributed to TVA's Bat Conservation Fund upon activity completion: $ 142.50 **OR** ○ **N/A**

TERRESTRIAL ZOOLOGISTS, after completing SECTION 2, review Table 4, modify as needed, and then complete section for Terrestrial Zoologists at end of form.

SECTION 3: REQUIRED CONSERVATION MEASURES

STEP 12) Review Conservation Measures in Table 4 and ensure those selected are relevant to the project. If not, manually override and uncheck irrelevant measures, and explain why in ADDITIONAL NOTES below Table 4.

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

○ **NO** (Go to Step 13)

◉ **YES** (STOP HERE; Submit for Terrestrial Zoology Review. Click File/Save As, name form as "ProjectLead_BatForm_CEC-or-ProjectIDNo_Date", and submit with project information).

Manual Override

Emily Doub

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

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

Check if Applies to Project	Activities Subject To Conservation Measure	Conservation Measure Description
☑	15, 16, 17, 18, 22, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 45, 47, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 90, 91, 92, 93, 94, 95, 96	**NV1** - Noise will be short-term, transient, and not significantly different from urban interface or natural events (i.e., thunderstorms) that bats are frequently exposed to when present on the landscape.
☐	16, 25, 26, 37, 47, 52, 62, 63, 64, 65, 70, 71, 73, 78, 80, 82, 83, 86, 91	**NV2** - Drilling, blasting, or any other activity that involves continuous noise (i.e., longer than 24 hours) disturbances greater than 75 decibels measured on the A scale (e.g., loud machinery) **within a 0.5 mile radius of documented winter and/or summer roosts** (caves, trees, unconventional roosts) will be conducted when bats are absent from roost sites.
☐	16, 26, 62	**NV3** - Drilling or blasting **within a 0.5 mile radius of documented cave** (or unconventional) roosts will be conducted in a manner that will not compromise the structural integrity or alter the karst hydrology of the roost site.
☐	16, 26, 62	**NV4** - Drilling or blasting **within 0.5 miles of a documented roost site** (cave, tree, unconventional roost) that needs to occur when bats are present will first involve development of project-specific avoidance or minimization measures in coordination with the USFWS.
☐	15, 26, 92	**HP1** - Site-specific cases in which potential impact of human presence is heightened (e.g., conducting environmental or cultural surveys within a roost) will be closely coordinated with staff bat biologists to avoid/ minimize impacts below any potential adverse effect. Any take from these activities would be covered by TVA's Section 10 permit.
☐	15, 26, 92	**HP2** - Entry into roosts known to be occupied by federally listed bats will be communicated to the USFWS when impacts to bats may occur if not otherwise communicated (i.e., via annual monitoring reports per TVA's Section 10 permit). Any take from these activities would be covered by TVA's section 10 permit.
☐	23	**SHF1** - Fire breaks will be used to define and limit burn scope.
☐	17, 23, 34	**SHF2** - Site-specific conditions (e.g., acres burned, transport wind speed, mixing heights) will be considered to ensure smoke is limited and adequately dispersed away from caves so that smoke does not enter cave or cave-like structures.
☐	23	**SHF3** - Acreage will be divided into smaller units to keep amount of smoke at any one time or location to a minimum and reduce risk for smoke to enter caves.
☐	17, 23, 34	**SHF4** - If burns need to be conducted when there is some potential for bats to present on the landscape and more likely to enter torpor due to colder temperatures, burns will only be conducted if the air temperature is 55° or greater, and preferably 60° or greater.
☐	23	**SHF5** - Fire breaks will be plowed immediately prior to burning, will be plowed as shallow as possible, and will be kept to minimum to minimize sediment.
☐	23	**SHF6** - Tractor-constructed fire lines will be established **greater than 200 feet from cave entrances**. Existing logging roads and skid trails will be used where feasible to minimize ground disturbance and generation of loose sediment.
☐	17, 22, 23, 32, 33, 34, 35, 36	**SHF7** - Burning will only occur if site specific conditions (e.g. acres burned, transport wind speed, mixing heights) can be modified to ensure that smoke is adequately dispersed away from caves or cave-like structures. This applies to prescribed burns and burn piles of woody vegetation.
☐	17, 22, 23, 32, 33, 34, 35, 36	**SHF8** - Brush piles will be burned a **minimum of 0.25 mile from documented, known, or obvious caves or cave entrances** and otherwise in the center of newly established ROW when proximity to caves on private land is unknown.

☐	17, 23, 34	**SHF9** - A **0.25 mile buffer of undisturbed forest** will be maintained around documented or known gray bat maternity and hibernation colony sites, documented or known Virginia big-eared bat maternity, bachelor, or winter colony sites, Indiana bat hibernation sites, northern long-eared bat hibernation sites, and tricolored bat hibernation sites. Prohibited activities within this buffer include cutting of overstory vegetation, construction of roads, trails or wildlife openings, and prescribed burning. Exceptions may be made for maintenance of existing roads and existing ROW, or where it is determined that the activity is compatible with species conservation and recovery (e.g., removal of invasive species).
☐	33, 34	**TR1*** - Removal of potentially suitable summer roosting habitat during time of potential occupancy has been quantified and minimized programmatically. TVA will track and document alignment of activities that include tree removal (i.e., hazard trees, mechanical vegetation removal) with the programmatic quantitative cumulative estimate of seasonal removal of potential summer roost trees for Indiana bat and northern long-eared bat. Project will therefore communicate completion of tree removal to appropriate TVA staff.
☐	33, 34	**TR2** - Removal of suitable summer roosting habitat **within 0.5 mile of Priority 1/Priority 2 Indiana bat hibernacula, 0.25 mile of Priority 3/Priority 4 Indiana bat hibernacula, 0.25 miles of any northern long-eared bat hibernacula, or 0.25 miles of any tricolored bat hibernacula** will be prohibited, regardless of season, with very few exceptions (e.g., vegetation maintenance of TL ROW immediately adjacent to a known cave).
■	33, 34	**TR3*** - Removal of suitable summer roosting habitat within documented habitat (i.e., within 10 miles, 5 miles, and 3 miles of documented Indiana bat, northern long-eared bat, and tricolored bat hibernacula, respectively; within 5 miles, 1.5 miles, and 1.5 miles of documented post-white-nose syndrome Indiana bat, northern long-eared bat, and tricolored bat capture sites, respectively; and within 2.5 miles, 0.25, and 0.25 miles of documented Indiana bat northern long-eared bat, and tricolored bat post-white-nose syndrome summer roost trees, respectively) will be tracked, documented, and included in annual reporting.
☐	33, 34	**TR4*** - Removal of suitable summer roosting habitat within potential habitat for Indiana bat, northern long-eared bat, and tricolored bat will be tracked, documented, and included in annual reporting. Project will therefore communicate completion of tree removal to appropriate TVA staff.
☐	33, 34	**TR5*** - In areas where northern long-eared bat and tricolored bat remain active year-round, continuing to roost in trees, tree removal within documented habitat (1.5 miles of northern long-eared bat and tricolored bat post-white nose syndrome captures sites, and 0.25 miles of northern long-eared bat and tricolored bat post-white-nose syndrome roosts) will be tracked, documented, and included in annual reporting.
☐	33, 34	**TR6** - Removal of any trees within 0.25 miles of a documented Indiana bat maternity roost tree, or post-white nose syndrome northern long-eared bat or tricolored bat maternity summer roost tree or the roost tree itself during pup season, will first require a site-specific review and assessment. If pups are present in trees to be removed (determined either by mist netting and assessment of pregnant, lactating, or post lactating adult females, or by visual assessment of trees following evening emergence counts for Indiana bats and northern long-eared bats), TVA will coordinate with the USFWS to determine how to avoid direct and minimize indirect impacts to pups to the extent possible. This may include establishment of artificial roosts before loss of roost tree(s).
☐	33, 34	**TR7** - In areas where northern long-eared bat and tricolored bat remain active year-round, continuing to roost in trees, tree removal within 0.25 miles of documented post-white-nose syndrome northern long-eared bat or tricolored bat roosts during winter torpor TVA will coordinate with the USFWS to determine how to avoid direct and minimize indirect impacts to pups to the extent possible.
☐	33, 34	**TR8** (**Existing Transmission ROW only**) - **Tree removal within 100 feet of existing transmission ROWs will be limited to hazard trees**. On or adjacent to TLs, a hazard tree is a tree that is tall enough to fall within an unsafe distance of TLs under maximum sag and blowout conditions and/or are also dead, diseased, dying, and/or leaning. Hazard tree removal includes removal of trees that 1) currently are tall enough to threaten the integrity of operation and maintenance of a TL or 2) have the ability in the future to threaten the integrity of operation and maintenance of a TL.
☐	33, 34	**TR9** (**TVA Reservoir Land only**) - Requests for removal of hazard trees on or adjacent to TVA reservoir land will be inspected by staff knowledgeable in identifying hazard trees per International Society of Arboriculture and TVA's checklist for hazard trees. Approval will be limited to trees with a defined target.
■	33, 34	**TR10** - If removal of suitable summer roosting habitat occurs when bats are present on the landscape, a funding contribution (based on amount of habitat removed) towards future conservation and recovery efforts for federally listed bats would be carried out. Project can consider seasonal bat presence/absence surveys (mist netting or emergence counts) that allow for positive detections without resulting in increased constraints in cost and project schedule. This will enable TVA to contribute to increased knowledge of bat presence on the landscape while carrying out TVA's broad mission and responsibilities.

☐	69, 77, 89, 91	**AR1** - Projects that involve structural modification or demolition of buildings, bridges, and potentially suitable box culverts, will require assessment to determine if structure has characteristics that make it a potentially suitable unconventional bat roost. If so a survey to determine if bats may be present will be conducted following the USFWS Survey Guidelines. Structural assessment will include: o Visual check that includes an exhaustive internal/external inspection of building to look for evidence of bats (e.g., bat droppings, roost entrance/exit holes); this can be done at any time of year, preferably when bats are active. o Where accessible and health and safety considerations allow, a survey of roof space for evidence of bats (e.g., droppings, scratch marks, staining, sightings), noting relevant characteristics of internal features that provide potential access points and roosting opportunities. Suitable characteristic may include: gaps between tiles and roof lining, access points via eaves, gaps between timbers or around mortise joints, gaps around top and gable end walls, gaps within roof walling or around tops of chimney breasts, and clean ridge beams. o Features with high-medium likelihood of harboring bats but cannot be checked visually include soffits, cavity walls, space between roof covering and roof lining. o Applies to culverts that are at least 23 feet in length with one or more of the following characteristics that make the culvert potentially suitable: • Minimum culvert entrance height/diameter 3 feet • Openings protected from high winds • Not susceptible to enough flooding that the remaining unflooded space would be less than 3 feet. • Inner areas relatively dark with roughened walls or ceilings (this may include corrugated metal culverts with rusting walls) • Crevices, weep holes, imperfections, or swallow nests o Bridge survey protocols will be adapted from the latest USFSW Survey Guidelines. o Bat surveys usually are NOT needed in the following circumstances: • Domestic garages /sheds with no enclosed roof space (with no ceiling) • Modern flat-roofed buildings • Metal framed and roofed buildings • Buildings where roof space is regularly used (e.g., attic space converted to living space, living space open to rafters) or where all roof space is lit from skylights or windows. Large/tall roof spaces may be dark enough at apex to provide roost space
☐	69, 77, 89, 91	**AR2** - Additional bat P/A surveys (e.g., emergence counts) conducted if warranted (i.e., when AR1 indicates that bats may be present).
☐	91	**AR3** - Bridge survey protocols will be implemented, either by permittee (e.g., state DOT biologists) or qualified personnel. If a bridge is determined to be in use as an unconventional roost per the latest USFWS Guidelines, subsequent protocols will be implemented.
☐	69, 89	**AR4** - Removal of buildings with suitable roost characteristics within six miles of known or presumed occupied roosts for Virginia big-eared bat would occur between Nov 16 and Mar 31. Buildings may be removed other times of the year once a bat biologist evaluates a buildings' potential to serve as roosting habitat and determines that this species is not present and/or is not using structure(s).

☐	16, 17, 18, 21, 22, 24, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 36, 37, 38, 39, 48, 50, 51, 56, 61, 62, 63, 64, 65, 67, 69, 84, 89	**SSPC1** (**Transmission only**) - Transmission actions and activities will continue to Implement A Guide for Environmental Protection and Best Management Practices for Tennessee Valley Authority Construction and Maintenance Activities. This focuses on control of sediment and pollutants, including herbicides. Following are key measures: o BMPs minimize erosion and prevent/control water pollution in accordance with state-specific construction storm water permits. BMPS are designed to keep soil in place and aid in reducing risk of other pollutants reaching surface waters, wetlands and ground water. BMPs will undertake the following principles: • Plan clearing, grading, and construction to minimize area and duration of soil exposure. • Maintain existing vegetation wherever and whenever possible. • Minimize disturbance of natural contours and drains. • As much as practicable, operate on dry soils when they are least susceptible to structural damage and erosion. • Limit vehicular and equipment traffic in disturbed areas. Keep equipment paths dispersed or designate single traffic flow paths with appropriate road BMPs to manage runoff. • Divert runoff away from disturbed areas. • Provide for dispersal of surface flow that carries sediment into undisturbed surface zones with high infiltration capacity and ground cover conditions. • Prepare drainage ways and outlets to handle concentrated/increased runoff. • Minimize length and steepness of slopes. Interrupt long slopes frequently. • Keep runoff velocities low and/or check flows. • Trap sediment on-site. • Inspect/maintain control measures regularly & after significant rain. • Re-vegetate and mulch disturbed areas as soon as practical. o Specific guidelines regarding sensitive resources and buffer zones: • Extra precaution (wider buffers) within SMZs is taken to protect stream banks and water quality for streams, springs, sinkholes, and surrounding habitat. • BMPs are implemented to protect and enhance wetlands. Select use of equipment and seasonal clearing is conducted when needed for rare plants; construction activities are restricted in areas with identified rare plants. • Standard requirements exist to avoid adverse impacts to caves, protected animals, unique/ important habitat (e.g., cave buffers, restricted herbicide use, seasonal clearing of suitable habitat).
☒	16, 17, 18, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 48, 50, 51, 52, 53, 54, 55, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 70, 71, 73, 76, 77, 78, 80, 81, 82, 83, 86, 87, 88, 89, 90	**SSPC2** - Operations involving chemical/fuel storage or resupply and vehicle servicing will be handled outside of riparian zones (streamside management zones) in a manner to prevent these items from reaching a watercourse. Earthen berms or other effective means are installed to protect stream channel from direct surface runoff. Servicing will be done with care to avoid leakage, spillage, and subsequent stream, wetland, or ground water contamination. Oil waste, filters, other litter will be collected and disposed of properly. Equipment servicing and chemical/fuel storage will be limited to locations greater than 300-ft from sinkholes, fissures, or areas draining into known sinkholes, fissures, or other karst features.

☐	16, 17, 18, 21, 22, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 61, 62, 63, 64, 65, 66, 67, 69, 70, 71, 73, 76, 77, 80, 81, 82, 83, 84, 86, 87, 88, 89, 90, 91	**SSPC3** (**Power Plants only**) - Power Plant actions and activities will continue to implement standard environmental practices. These include: o Best Management Practices (BMPs) in accordance with regulations: • Ensure proper disposal of waste, ex: used rags, used oil, empty containers, general trash, dependent on plant policy • Maintain every site with well-equipped spill response kits, included in some heavy equipment • Conduct Quarterly Internal Environmental Field Assessments at each sight • Every project must have an approved work package that contains an environmental checklist that is approved by sight Environmental Health & Safety consultant. • When refueling, vehicle is positioned as close to pump as possible to prevent drips, and overfilling of tank. Hose and nozzle are held in a vertical position to prevent spillage o Construction Site Protection Methods • Sediment basin for runoff - used to trap sediments and temporarily detain runoff on larger construction sites • Storm drain protection device • Check dam to help slow down silt flow • Silt fencing to reduce sediment movement o Storm Water Pollution Prevention (SWPP) Pollution Control Strategies • Minimize storm water contact with disturbed soils at construction site • Protect disturbed soil areas from erosion • Minimize sediment in storm water before discharge • Prevent storm water contact with other pollutants • Construction sites also may be required to have a storm water permit, depending on size of land disturbance (>1ac) o Every site has a Spill Prevention and Control Countermeasures (SPCC) Plan and requires training. Several hundred pieces of equipment often managed at the same time on power generation properties. Goal is to • Minimize fuel and chemical use Ensure proper disposal of waste, ex: used rags, used oil, empty containers, general trash, dependent on plant policy • Maintain every site with well-equipped spill response kits, included in some heavy equipment • Conduct Quarterly Internal Environmental Field Assessments at each sight • Every project must have an approved work package that contains an environmental checklist that is approved by sight Environmental Health & Safety consultant. • When refueling, vehicle is positioned as close to pump as possible to prevent drips, and overfilling of tank. Hose and nozzle are held in a vertical position to prevent spillage o Construction Site Protection Methods • Sediment basin for runoff - used to trap sediments and temporarily detain runoff on larger construction sites • Storm drain protection device • Check dam to help slow down silt flow • Silt fencing to reduce sediment movement o Storm Water Pollution Prevention (SWPP) Pollution Control Strategies • Minimize storm water contact with disturbed soils at construction site • Protect disturbed soil areas from erosion • Minimize sediment in storm water before discharge • Prevent storm water contact with other pollutants • Construction sites also may be required to have a storm water permit, depending on size of land disturbance (>1ac) o Every site has a Spill Prevention and Control Countermeasures (SPCC) Plan and requires training. Several hundred pieces of equipment often managed at the same time on power generation properties. Goal is to minimize fuel and chemical use
☐	17, 22, 32, 33, 34, 35, 36	**SSPC4** (**Transmission only**) - Woody vegetation burn piles associated with transmission construction will be placed in the center of newly established ROWs to minimize wash into any nearby undocumented caves that might be on adjacent private property and thus outside the scope of field survey for confirmation. Brush piles will be burned a **minimum of 0.25 miles from documented caves** and otherwise in the center of newly established ROW when proximity to caves on private land is unknown.

▣	17, 18, 21, 22, 24, 25, 26, 30, 31, 33, 34, 35, 36, 40, 46, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 66, 67, 68, 69, 70, 72, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 87, 88, 91, 93, 95, 96	**SSPC5** (**26a, Solar, Economic Development only**) - Section 26a permits and contracts associated with solar projects, economic development projects or land use projects include standards and conditions that include standard BMPs for sediment and contaminants as well as measures to avoid or minimize impacts to sensitive species or other resources consistent with applicable laws and Executive Orders.
☐	21, 54	**SSPC6** - Herbicide use will be avoided **within 200 ft of portals associated with caves, cave collapse areas, mines and sinkholes** are capable of supporting cave-associated species. Herbicides are not applied to surface water or wetlands unless specifically labeled for aquatic use. Filter and buffer strips will conform at least to federal and state regulations and label requirements.
▣	17, 21, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 36, 37, 38, 54, 55	**SSPC7** - Clearing of vegetation **within a 200-ft radius of documented caves** will be limited to hand or small machinery clearing only (e.g., chainsaws, bush-hog, mowers). This will protect potential recharge areas of cave streams and other karst features that are connected hydrologically to caves.
▣	16, 26, 36, 37, 38, 39, 48, 50, 52, 59, 60, 62, 66, 67, 69, 72, 75, 77, 78, 79, 86	**L1** - Direct temporary lighting away from suitable habitat during the active season.
▣	16, 26, 36, 37, 38, 39, 48, 50, 52, 59, 60, 62, 66, 67, 69, 72, 75, 77, 78, 79, 86	**L2** - Evaluate the use of outdoor lighting during the active season and seek to minimize light pollution when installing new or replacing existing permanent lights by angling lights downward or via other light minimization measures (e.g., dimming, directed lighting, motion-sensitive lighting).

[1]Bats addressed in consultation (04/2018) and updates (05/2023 and 10/2024), which includes gray bat (listed in 1976), Indiana bat (listed in 1967), northern long-eared bat (listed in 2015), tricolored bat (anticipated listing in the future), and Virginia big-eared bat (listed in 1979).

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

STEP 13) Save completed form (Click File/Save As, name form as "ProjectLead_BatForm_CEC-or-ProjectIDNo_Date") in project environmental documentation (e.g. CEC, Appendix to EA) AND send a copy of form to batstrategy@tva.gov
Submission of this form indicates that Project Lead/Applicant:

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

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

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☑ For projects that require use of Take and/or contribution to TVA's Bat Conservation Fund, Terrestrial Zoologist acknowledges that Project Lead/Contact has been informed that project will result in use of Incidental Take 0.19 ○ ac ○ trees and that use of Take will require $ 142.50 contribution to TVA's Conservation Fund upon completion of activity (amount entered should be $0 if cleared in winter).

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

Terrestrial Zoologist Acknowledgment. Finalize and Print to Non-Editable PDF