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**INVESTPREP™ GRANT PROPOSAL FOR PROPOSED
OAKLAND PARKWAY SITE
FINAL ENVIRONMENTAL ASSESSMENT
Maury County, TN (Columbia)**

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1.0 PROPOSED ACTION AND NEED

An integral part of Tennessee Valley Authority's (TVA) mission is to promote economic development within the TVA service area. TVA provides financial assistance to help bring to market new and improved sites and facilities within the TVA service area and position communities to compete successfully for new jobs. The Proposed Action is comprised of TVA providing an economic development grant for \$500,000 of TVA InvestPrep™ funds to the Maury County Chamber and Economic Alliance to assist with the purchase of the Oakland Parkway Site. TVA InvestPrep™ funding would be matched with \$1,693,000 of non-TVA funding. The Proposed Action will promote economic development within Maury County, located within the TVA service area. The site of the Proposed Action is located southwest of the intersection of Hampshire Pike Road and Lawrenceburg Highway (see Figure 1 below and Attachment 1, Figure 1-A) and is comprised of approximately 129 acres, herein referred to as the Project Area.

The primary purpose of the Proposed Action is to enable the Maury County Chamber and Economic Alliance to purchase the Oakland Parkway Site from the Industrial Development Board of the City of Columbia, Tennessee for use as an industrial site. The proposed grant to the Maury County Chamber and Economic Alliance would help purchase a site that in the future would be suitable for industrial development. The Maury County Chamber and Economic Alliance will use non-TVA funding for approximately 77 percent of the total cost of the Proposed Action. TVA is proposing to fund approximately 23 percent of the cost of the Proposed Action and would, therefore, partially facilitate the Proposed Action. Aside from facilitating purchase of the site, no improvements to the site would occur using TVA funds. There will be no direct impacts as a result of the Proposed Action, but indirect and cumulative impacts could occur on the entirety of the 129-acre Project Area which is expected to experience future industrial development following implementation of the Proposed Action. TVA's decision is whether or not to provide the requested funding to the Maury County Chamber and Economic Alliance.

2.0 ALTERNATIVES

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

2.1 The No Action Alternative

Under the No Action Alternative, TVA would not provide TVA InvestPrep™ funds to the Maury County Chamber and Economic Alliance to purchase the Oakland Parkway Site from the Industrial Development Board of the City of Columbia, Tennessee for use as an industrial site. The No Action Alternative would result in TVA not providing InvestPrep™ funds and there would be no direct, indirect, or cumulative impacts due to a TVA action.

2.2 The Action Alternative

Under the Action Alternative, TVA would provide TVA InvestPrep™ funds to the Maury County Chamber and Economic Alliance for the purchase of the 129-acre Oakland Parkway Site for use as a proposed industrial site.

No plans currently exist for the eventual build-out, occupation, and future use of the site. After the purchase of the site, the Maury County Chamber and Economic Alliance could perform clearing and demolition activities to prepare the site for future industrial use. The three (3) existing farm structures and their contents are expected to be disposed of per federal and state regulations. Any marketable timber is expected to be removed from the site, the remaining woody debris is expected to be burned on-site in accordance with a local burn permit, obtained by the Maury County Chamber and Economic Alliance or its contractors. The Maury County Chamber and Economic Alliance or its contractors are expected to 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 project to insignificant levels as described in this EA. These practices are expected to include, but are not limited to, installation of sediment and erosion controls (silt fences, sediment traps, etc.) management of fugitive dust; and the restriction of only allowing work during day time working hours.

The amount of land required by future development is unknown and could vary from a few acres to the entire property. While it is unlikely that future industrial development would disturb (grading, vegetation removal, etc.) the entire project area, TVA assumed disturbance of the entire property following implementation of the Action Alternative as a conservative approach for purposes of this environmental assessment.

3.0 AFFECTED ENVIRONMENT AND ANTICIPATED IMPACTS

3.1 Site Description

The Project Area is located on approximately 129 acres in Maury County, Tennessee southwest of the intersection of Hampshire Pike Road and Lawrenceburg Highway in the City of Columbia. The current land use within the Project Area consists of agricultural farmland (pasture/hay) with few scattered trees (mixed-deciduous). East Fork Greenlick Creek flows through the northeastern border of the Project Area. Greenlick Creek is located outside of the Project Area but in close proximity (within 100 feet) to the western edge.

Single family residences are present on the north side of Hampshire Pike Road. A residential subdivision is on the east side of Lawrenceburg Highway. The Maury County Health

Department is located immediately northeast of the Project Area. Commercial and industrial operations are located to the southeast and south of the Project Area. The City of Columbia's Mahlon Ring Babe Ruth Field is located immediately adjacent to the Project Area to the southwest along with other agricultural fields to the west.

The topography in the proximity of the Project Area ranges from 620 to 680 feet above mean sea level (AMSL). Higher elevations are located in the central portion of the Project Area with elevations decreasing to the northwest and northeast approaching the two streams.

The Project Area is currently zoned as Rural Residential (A2) and the tax parcel classification is Farm (10) (Maury County 2019a and 2019b). The Maury County Chamber and Economic Alliance will request re-zoning the parcels for industrial use as part of implementing the Action Alternative.

3.2 Impacts Evaluated

TVA has determined that the Proposed Action would have no impact on natural areas, managed areas, solid and hazardous wastes, Nationwide Rivers Inventory streams, or Wild and Scenic Rivers, as discussed below. Therefore, potential impacts to these resources are not described in further detail in this Environmental Assessment.

A review of data from the TVA Natural Heritage Database indicated there are no Natural Areas (defined as places dominated by native vegetation that have various levels of potential for harboring high quality natural resources and unique features) within the Project Area. The nearest Natural Areas are associated with the Duck River located approximately two miles northeast of the Project Area. The Duck River is designated as the Duck River State Mussel Sanctuary and as critical habitat for the slabside pearl mussel (*Pleuronaia dolabelloides*), fluted kidneyshell (*Ptychobranthus subtentum*), and rabbitsfoot (*Quadrula cylindrica*). Natural Areas have also been identified at the Monsanto Ponds Wildlife Observation Area and Monsanto Ponds Protection Planning Site, both located along Monsanto Road approximately three miles north of the Project Area. The Natural Areas are of sufficient distance to have no impacts associated with the Action Alternative.

No demolition or waste disposal activities are associated with the Action Alternative.

No United States National Park Service, Nationwide River Inventory river segments (USNPS 2019) or Wild and Scenic River segments (WSR 2019) are located within the Project Area.

Resources that could potentially be impacted (negatively or positively) directly, indirectly or cumulatively by implementing the Action Alternative include public recreation opportunities, floodplains, air quality and climate change, biological resources (vegetation, wetlands, water resources and water quality, wildlife, aquatic ecology, threatened and endangered species), land use and prime farmland, archaeological and historical resources, visual resources, noise, socioeconomics and environmental justice, transportation, and safety. Potential impacts to these resources resulting from implementation of the Action Alternative are discussed in detail below.

3.2.1 Public Recreation Opportunities

The City of Columbia's Mahlon Ring Babe Ruth Field is located immediately adjacent to the Project Area to the southwest. Access to the ballfield is from Oakland Parkway. Access to the Project Area is currently not available from Oakland Parkway and a perimeter fence and trees provide a visual screen.

Implementation of the Action Alternative would have no direct impact on public recreation opportunities. Indirectly, future development could increase traffic on local roadways, including Oakland Parkway if access to the Project Area from this roadway is proposed. This could cause congestion at certain times when events are occurring at the ballfield. As discussed further below, any roadway changes, including those for access to the Project Area would need to be conducted in accordance with local rules and regulations including those of the Maury County Highway Department and City of Columbia, Tennessee. Compliance with the applicable rules and regulations would include proper setbacks and determining if a new entry/exit, if proposed, along Oakland Parkway is appropriate for the future industrial park. With adherence to these rules and regulations, adverse effect to the future use of the Mahlon Ring Babe Ruth Field would not be expected, should the Action Alternative be implemented.

Under the No Action Alternative, TVA would not be providing InvestPrep™ funds and there would be no direct or indirect impacts to public recreation opportunities, including the Mahlon Ring Babe Ruth Field, due to a TVA action.

3.2.2 Floodplains

A floodplain is the relatively level land area along a stream or river that is subject to periodic flooding. The area subject to a one-percent chance of flooding in any given year is normally called the 100-year floodplain. The area subject to a 0.2-percent chance of flooding in any given year is normally called the 500-year floodplain. It is necessary to evaluate development in the floodplain to ensure that the project is consistent with the requirements of Executive Order (EO) 11988, Floodplain Management.

As a federal agency, TVA adheres to the requirements of EO 11988, Floodplain Management. The objective of EO 11988 is "...to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative" (EO 11988, Floodplain Management). The EO is not intended to prohibit floodplain development in all cases, but rather to create a consistent government policy against such development under most circumstances (U.S. Water Resources Council, 1978). The EO requires that agencies avoid the 100-year floodplain unless there is no practicable alternative.

A small portion of the western most edge of the Project Area intersects the identified floodplain of Greenlick Creek (Attachment 1, Figure 1-D). The northeast corner of the Project Area intersects the unmapped floodplain of East Fork Greenlick Creek (Attachment 1, Figure 1-C).

Under the No Action Alternative, TVA would not provide InvestPrep™ funds to the Maury County Chamber and Economic Alliance; therefore, no TVA actions would affect floodplains and their natural and beneficial values.

Under the Action Alternative, TVA would provide TVA InvestPrep™ funds to the Maury County Chamber and Economic Alliance for the purchase of the 129-acre Oakland Parkway Site for use as a proposed industrial site. Although there are no plans for development at this time, development of the parcel is likely. Development could include construction in the floodplain of Greenlick Creek or East Fork Greenlick Creek, or both. Maury County participates in the National Flood Insurance Program and any development must be consistent with its floodplain ordinance. Future development within the floodplain would therefore be subject to the requirements of Maury County's floodplain ordinance. Compliance with the requirements of the floodplain ordinance would ensure that impacts on the floodplain, as well as to development constructed within the floodplain, would be minimized.

With implementation of the following mitigation measure, providing TVA InvestPrep™ funds to the Maury County Chamber and Economic Alliance for the purchase of the 129-acre Oakland Parkway Site for use as a proposed industrial site would have no significant impact on floodplains and their natural and beneficial values.

- Portions of the parcel contain floodplain resources; therefore, any future activities in the floodplain would be subject to all applicable federal, state or local floodplain regulations and ordinances

3.2.3 Air Quality and Climate Change

Ambient air quality is protected by federal and state regulations. With authority granted by the Clean Air Act (CAA) 42 U.S.C. 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 (primary standards) and public welfare (secondary standards)¹. The USEPA codified NAAQS in 40 CFR Part 50 for the following “criteria pollutants²”: nitrogen dioxide (NO₂), carbon monoxide (CO), ozone (O₃), sulfur dioxide (SO₂), lead (Pb), particulate matter (PM) with an aerodynamic diameter equal to or less than 10 microns (PM₁₀), and PM with an aerodynamic diameter equal to or less than 2.5 microns (PM_{2.5}). These NAAQS reflect the relationship between pollutant concentrations and health and welfare effects. The air quality in Maury County, Tennessee meets the ambient air quality standards and is designated attainment with respect to the criteria pollutants (USEPA 2019).

Hazardous air pollutants (HAPs) are those that are listed under Section 112(b) of the CAA because they present a threat of adverse human health effects or adverse environmental effects. The CAA requires the USEPA to regulate HAPs from listed categories of industrial facilities.

Greenhouse gases (GHGs) occur in the atmosphere both naturally and as a result of human activities, such as the burning of fossil fuels. GHG emissions due to human activity are the primary cause of increased atmospheric concentration of GHGs since the industrial age and are the primary contributor to climate change. The primary GHGs are carbon dioxide (CO₂), methane, and nitrous oxide. GHGs are non-toxic and non-hazardous at normal ambient concentrations, and there are no applicable ambient air quality standards or emission limits for GHGs under the CAA.

Trees, like other green plants, are carbon sinks that use photosynthesis to convert CO₂ into sugar, cellulose, and other carbon-containing carbohydrates that they use for food and growth. The process by which carbon sinks remove CO₂ from the atmosphere is known as carbon sequestration. Although forests do release some CO₂ from natural processes such as decay and respiration, a healthy forest typically stores carbon at a greater rate than it releases carbon.

Future activities that produce air pollutants, including site preparation and the siting of industrial or commercial tenants in the proposed industrial park would be subject to various applicable air quality regulations including Prevention of Significant Deterioration permits under the Clean Air Act. The future clearing and demolition activities would generate some air pollution in the form of fugitive dust, particulate matter in equipment exhaust, and possibly, smoke from burning

¹ Additional air pollutants such as VOCs and HAPs are regulated through other components of the CAA.

² The current NAAQS are listed on USEPA’s website at <https://www.epa.gov/criteria-air-pollutants/naaqs-table>.

debris. Additionally, carbon monoxide and sulfur dioxide would be generated by equipment exhaust. Because of the short time period required to complete this work, any effects to local air quality would be temporary and localized. These effects are expected to be minor and would not have a major influence on the air quality of Maury County. With regulatory measures in place, any reasonably foreseeable long-term effects, including cumulative effects, to local air quality are expected to be minor.

Fugitive dust is a source of respirable airborne PM, including PM₁₀ and PM_{2.5}, which could result from ground disturbances such as land clearing, grading, excavation, and travel on unpaved roads. The amount of dust generated is a function of the activity, silt and moisture content of the soil, wind speed, frequency of precipitation, vehicle traffic, vehicle types, and roadway characteristics. The Maury County Chamber and Economic Alliance and contractors would comply with Tennessee Department of Environment and Conservation (TDEC) Air Pollution Control Rule 1200-3-8, which requires reasonable precautions to prevent PM from becoming airborne. Such reasonable precautions include, but are not limited to the use of water or chemicals for control of dust in construction operations; grading of roads; clearing of land; and on dirt roads and stock piles as needed.

Ground-level open burning emissions are affected by many variables, including wind, ambient temperature, composition and moisture content of the debris burned, and compactness of the pile. In general, the relatively low temperatures associated with open burning increase emissions of NO_x, CO, VOCs, PM₁₀, PM_{2.5}, GHGs, and HAPs. The Maury County Chamber and Economic Alliance and its contractors are expected to obtain local burn permits and expected to comply with TDEC Air Pollution Control Rule 1200-3-2, which provides open burning prohibitions, exceptions, and certification requirements.

Implementation of the Action Alternative would have no direct impacts to air quality. Indirectly, some effects are expected to occur as a result of construction and operations within the Project Area. Due to the expected limited duration of equipment operations, ground disturbances, and burning activities, emissions following implementation of the Proposed Action would be minimal, temporary, and localized. Further, emissions during construction and operations of the future facilities would not be expected to impact regional air quality or result in any violation of applicable ambient air quality standards.

If removal of trees occurred following implementation of the Action Alternative, it is expected this would result in a minimal loss of carbon sequestration in the area.

Under the No Action Alternative, TVA would not be providing InvestPrep™ funds and there would be no direct or indirect impacts to air quality due to a TVA action.

3.2.4 Biological Resources

3.2.4.1 Vegetation

Aerial photographs, site photographs, and topographic maps, were reviewed to preliminarily identify the vegetative communities present within the Project Area. Following review of available data, field surveys were conducted on April 8 and 9, 2019, to verify these vegetative communities. The Project Area consists of two vegetative communities: open pasture land (123.31 acres) and Palustrine forested wetland (6.40 acres).

Vegetation within the open pasture land included grasses that are maintained either by mowing or tilling, possibly for hay production. Various species of the mint family, clover, wild leeks, dandelions, sensitive fern (*Onoclea sensibilis*), and broomsedge (*Andropogon* sp.) were also observed in this area. Patches of deciduous trees were also observed in the open pasture land.

The understory and vine stratum of the trees is comprised of greenbriers (*Smilax* sp.), blackberry (*Rubus* sp.), Virginia creeper (*Parthenocissus quinquefolia*), and poison ivy (*Toxicodendron radicans*) with the midstory dominated by Chinese privet (*Ligustrum sinense*) and eastern redbud (*Cercis canadensis*) trees. The tree stratum consists primarily of eastern red cedar (*Juniperus virginiana*), red oaks (*Quercus rubra*), hackberry (*Celtis occidentalis*), tulip poplar (*Liriodendron tulipifera*), black walnut (*Juglans nigra*), and black cherry (*Prunus serotina*).

Vegetation within the wetland was dominated by American sycamore (*Plantanus occidentalis*). Red maples (*Acer rubrum*) and poison ivy were also present.

No direct impacts to vegetation would occur as a result implementing the Action Alternative. Indirectly, impacts to vegetation following implementation of the Action Alternative could occur and may include removal of vegetation, including trees, dependent on the design of the future expansion. Review of aerial imagery shows that similar open pasture lands with deciduous trees are common and well represented throughout the region and in the immediate vicinity of the Project Area. Indirect impacts associated with the implementation of the Action Alternative would not have a sizeable impact on vegetation in the region.

Under the No Action Alternative, TVA would not be providing InvestPrep™ funds and there would be no direct or indirect impacts to vegetation due to a TVA action.

3.2.4.2 Wetlands

Aerial photographs, site photographs, topographic maps, the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI), the United States Geological Survey (USGS) National Hydrography Dataset (NHD), and the Natural Resource Conservation Service (NRCS) Soils and Soil Survey Geographic (SSURGO)/State Soil Geographic (STATSGO) databases were reviewed to determine if wetlands were potentially present within the Project Area. Attachment 1, Figure 1-E depicts NWI data for the Project Area. Following review of available data, field surveys were conducted to identify and delineate wetlands within the Project Area on April 8 and 9, 2019. The wetland identification/delineation was performed using the routine on-site determination methods described in the Corps of Engineers Wetlands Delineation Manual (United States Army Corps of Engineers [USACE], Environmental Laboratory 1987) and is consistent with the methods, guidelines, and indicators present in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region ([Regional Supplement] USACE 2012). One forested wetland (WMY001_PFO), described in Section 3.2.4.1 above, was identified. This wetland is directly abutting East Fork Greenlick Creek, described in Section 3.2.4.3 below and shown on Attachment 1, Figure 1-C, and would be considered a waters of the United States (WOTUS) by the United States Army Corps of Engineers (USACE).

No direct impacts would occur to the wetland as a result of implementation of the Action Alternative. Indirectly, impacts to the wetland could occur following implementation of the Action Alternative as a result of future development activities. Executive Order 11990 (Protection of Wetlands) requires avoidance, to the greatest extent possible, of both long and short-term impacts associated with the destruction, modification, or other disturbance of wetland habitats. Section 404 of the Clean Water Act (CWA) of 1972 regulates discharges of dredged and fill materials into waters of the U.S. and is administered by the USACE. The USACE makes the final determination as to the jurisdictional status of a wetland within a project area. Section 401 of the CWA regulates water quality and, in Tennessee, is administered by TDEC. If future development cannot avoid impact to the wetland, consultation and permitting with the USACE Nashville District and TDEC would be required prior to initiation of construction. Impacts would

require a Section 404 permit and a Section 401 Clean Water Act certification, which would include mitigation measures and possibly compensatory mitigation (e.g., purchase of mitigation credits or implementation of a permittee responsible mitigation plan).

Under the No Action Alternative, TVA would not be providing InvestPrep™ funds and there would be no direct or indirect impacts to wetlands due to a TVA action.

3.2.4.3 Water Resources and Water Quality

Aerial photographs, site photographs, topographic maps, the USFWS NWI, the USGS NHD, and the NRCS SSURGO/STATSGO databases were reviewed to determine the water resources potentially present within the Project Area. Following review of available data, field surveys were conducted to identify and delineate water resources present within the Project Area. Waterbodies within the Project Area were identified by the presence of an Ordinary High Water Mark (OHWM). The top of bank or the centerline of the channels or edge of ponds was geographically located by using global positioning systems (GPS) capable of sub-meter accuracy. Information was collected on each waterbody including flow type (e.g., perennial, intermittent, or ephemeral), substrate type (mud/silt, sand, gravel, large rock, boulder, and/or bedrock), and channel width and depth.

During the field surveys, waterbodies were evaluated to determine the waterbody type as defined in the following categories:

- Traditional Navigable Water (TNW) – All those waters that are subject to the ebb and flow of the tide, and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. For the purposes of this Project, TNWs are those identified in List of Navigable WOTUS within the USACE Nashville District;
- Perennial Stream – A waterbody expected to have continuous year-round flow, with a well-defined OHWM, and sometimes (but not always) indicated on the USGS Quadrangle as a solid blue line;
- Intermittent Stream – A waterbody expected to have seasonal flow with seasonal flow defined as continuous flow for a consecutive period of at least three months, with a defined OHWM, and sometimes (but not always) indicated on the USGS Quadrangle as a dashed blue line;
- Wet Weather Conveyance / Ephemeral Stream – A watercourse expected to only have flow of short duration after a rainfall event, often with an ill-defined OHWM and channel, usually not indicated on the USGS Quadrangles; and
- Pond – A basin or area of non-flowing water where water is expected to pool on at least a seasonal basis defined as pooling for a consecutive period of at least three months, with a well-defined OHWM, hydrophyte vegetation may be present, in some cases man-made or altered, and may be indicated on the USGS Quadrangles.

Flowing waterbodies were further classified in accordance with the USACE Jurisdictional Determination Form Instructional Guidebook as either relatively permanent waters (RPWs) or non-relatively permanent waters (NRPWs).

- Relatively Permanent Waters – A waterbody where flow is year-round or at least seasonal. Seasonal flow is typically defined as continuous flow for a consecutive period of at least three months. Intermittent streams would be identified as possessing seasonal flow. Perennial streams would be considered to have year-round flow.

- Non-relatively Permanent Waters – A non-navigable tributary that is not relatively permanent. Ephemeral streams meet this definition and would be considered NRPWs. In some cases (but not most), erosion gullies, ditches, and other types of water conveyances that allow for the non-continuous flow of water also meet the USACE definition for NRPWs. For the purposes of this report, NRPWs refers to all ephemeral stream segments, ditches, and other drainage conveyances identified within the study area.

Waterbodies were examined to determine if they were classified as WOTUS and thus regulated by the USACE under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act (RHA). Waterbodies were also investigated to determine if they were waters of the State of Tennessee (WOST), regulated by TDEC under the Tennessee Water Quality Control Act of 1977. A Tennessee Qualified Hydrologic Professional (TN-QHP) conducted a hydrologic determination of each linear watercourse in accordance with the Tennessee Department of Environment and Conservation Division of Water Pollution Control Guidance for Making Hydrologic Determinations (TDEC 2011).

Water resources identified within the Project Area comprised 3,548 linear feet of perennial stream and 144 linear feet of wet weather conveyance or ephemeral stream (Attachment 1, Figure 1-C). The perennial stream (SMY001), the East Fork Greenlick Creek, is a relatively permanent water (RPW) that eventually flows into the Duck River, a TNW, and is classified as a WOTUS and WOST. The wet weather conveyance (WWCMY001) has a direct connection to the East Fork Greenlick Creek and would potentially be considered an ephemeral stream, and classified as a non-RPW by the USACE; therefore a WOTUS. As a wet weather conveyance, WWCMY001 would not be regulated as a WOST.

All features identified were within the Lower Duck Watershed defined by the 8-digit Hydrologic Unit Code (HUC) 06040003. The Project is located within the Duck River-Poplar Creek Subwatershed defined by the 12-digit HUC 060400030507. The nearest named 303(d) water on the Final 2018 List of Impaired and Threatened Waters in Tennessee is the Duck River (Waterbody ID TN06040003026_1000) located 2.5 miles northeast of the Project Area. The Duck River is listed as impaired for Fish, Shellfish, and Wildlife Protection and Propagation caused by nutrients and organic enrichment / oxygen depletion due to stormwater urban-related runoff and sewage municipal discharges.

Implementation of the Action Alternative would not directly affect water resources. Following implementation, Maury County Chamber and Economic Alliance or the site developer(s) may propose disturbance to the riparian canopy, to East Fork Greenlick Creek (SMY001), or the ephemeral stream / wet weather conveyance (WWCMY001) due to stream crossings for site access during construction. Removal of riparian canopy would reduce shading of the waterbody channels resulting in increased water temperatures, and would potentially reduce species habitat and increase susceptibility to bank erosion and surface runoff. Although removal of riparian canopy would result in long-term reduced species habitat in the immediate areas of the crossings, these waterbodies receive runoff from surrounding industrial, commercial, and agricultural areas. Runoff from commercial, industrial, and agricultural areas may contain increased levels of sediment and contaminants that may result in reduced water quality in the receiving waterbodies.

If impacts to waters cannot be avoided, consultation and permitting with the USACE Nashville District and TDEC would be required prior to initiation of construction. Impacts to WOTUS would require a CWA Section 404 permit and a CWA Section 401 Water Quality Certification. Impacts to WOST would require an Aquatic Resource Alteration Permit (ARAP) from the TDEC,

which would also serve as the Section 401 Water Quality Certification. During construction activities, a TDEC General NPDES Construction Storm Water Permit would be required if more than one acre would be disturbed. A Storm Water Pollution Prevention Plan would also be required, which would detail applicable BMPs to be employed to minimize impacts, and activities. If proposed, these impacts would be expected to be conducted and mitigated in accordance with Section 404 and Section 401 permits and would be expected to have direct, but minor, temporary impacts to local surface water quality or groundwater supplies or quality.

Under the No Action Alternative, TVA would not be providing InvestPrep™ funds and there would be no direct or indirect impacts to water resources due to a TVA action.

3.2.4.1 Wildlife

Aerial photographs, site photographs, and topographic maps, were reviewed to preliminarily identify the habitat types potentially present within the Project Area. Following review of available data, field surveys were conducted on April 8 and 9, 2019, to verify these habitat types. The Project Area consists of two habitat types: open pasture land (123.31 acres) and forested wetland (6.40 acres).

Common inhabitants of open pasture land and maintained grass areas include brown-headed cowbird, song sparrow, common grackle, eastern bluebird, mourning dove, eastern meadowlark, and field sparrow (Cornell Lab of Ornithology 2019). Bobcat, coyote, eastern cottontail, hispid cotton rat, and red fox are mammals typical of fields and cultivated land (Kays and Wilson 2002). Reptiles including northern copperhead and southern black racer are also known to occur in this habitat type (Dorcas and Gibbons 2005). Species observed within the pasture areas during the field survey included mourning dove and black vulture.

Common bird species found in the patches of deciduous trees in the open pasture land include blue jay, Carolina wren, northern cardinal, brown thrasher, and eastern phoebe (Cornell Lab of Ornithology 2019). Deciduous forests in this region may also provide foraging and roosting habitat for several species of bat, particularly in areas where the forest understory is partially open. Common bat species found in forested habitats of this region include big brown bat, eastern red bat, evening bat, and silver-haired bat. Dense forests offer limited foraging and roosting opportunities for bats due to decreased accessibility to flight paths. Eastern chipmunk, gray fox, and woodland vole are other mammals likely to occur within this habitat (Kays and Wilson 2002). Black kingsnake, black rat snake, and northern ring-necked snake are common reptiles of deciduous forests in this region (Conant and Collins 1998, Dorcas and Gibbons 2005, Scott and Redmond 2008). Species or signs of their presence observed among the deciduous trees during the field survey included deer, raccoon, opossum, gray squirrel, blue jay, and northern cardinal.

Review of the TVA Regional Natural Heritage database in January 2019 indicated that no caves have been documented within three miles of the Project Area and no caves were identified during a bat habitat assessment field survey conducted on April 10, 2019 (Jackson Group 2019). In addition, no aggregations of migratory birds or wading bird colonies have been documented within three miles of the Project Area and none were observed during the field survey. The USFWS Information for Planning and Consultation (IPaC) report (USFWS 2019) identified the bald eagle (*Haliaeetus leucocephalus*), blue-winged warbler (*Vermivora pinus*), eastern whip-poor-will (*Antrostomus vociferus*), Kentucky warbler (*Oporornis formosus*), prairie warbler (*Dendroica discolor*), red-headed woodpecker (*Melanerpes erythrocephalus*), rusty blackbird (*Euphagus carolinus*), and wood thrush (*Hylocichla mustelina*) as potentially occurring within the Project Area. With the exception of the bald eagle, all are listed on the USFWS

Migratory Birds of Conservation Concern list. These species were not observed during the field survey, but could potentially occur among the deciduous trees of the Project Area.

There will be no direct impacts to wildlife as a result of implementation of the Action Alternative. Indirect impacts could occur following implementation of the Action Alternative if removal of deciduous trees and other vegetation within the Project Area is proposed as part of the future site development. Wildlife currently using these habitats would be displaced by habitat removal. Some immobile individuals may be lost during as a result of construction, particularly if clearing activities take place during breeding/nesting seasons. Mobile individuals are expected to disperse into similar habitats in the surrounding landscape. Due to the relatively small amount of deciduous trees that would be removed and the abundance of similarly suitable habitat in the surrounding landscape, construction following the Action Alternative is not expected to affect populations of species common to the area, including Migratory Birds of Conservation Concern.

Under the No Action Alternative, TVA would not be providing InvestPrep™ funds and there would be no direct or indirect impacts to wildlife due to a TVA action.

3.2.4.2 Aquatic Ecology

As described above, water resources identified within the Project Area consist of one perennial stream channel (SMY001, East Fork Greenlick Creek) and one ephemeral channel / wet weather conveyance (WWCMY001) (Attachment 1, Figure 1-C). These areas comprise 3,548 linear feet of perennial stream, and 144 linear feet of ephemeral stream / wet weather conveyance.

Aquatic species common to small, perennial streams within the region of the Project Area include several species of minnow (stonerollers, dace, shiners, chubs), suckers (hogsucker, buffalo, redhorse), sunfishes (bass, sunfish, and crappie), and darters (Etnier and Starnes 1993). No aquatic species were observed within the Project Area during the field survey. The lack of aquatic life could have been a factor of the time of year of the survey as well as the overall quality of the water resources due to adjacent land uses (industrial, commercial, and agricultural).

East Fork Greenlick Creek (SMY001) eventually flows in the Duck River, which is on the USEPA 303(d) list due to impaired water quality. Runoff from current industrial, commercial, and agricultural areas may contain increased levels of sediment and contaminants that may result in reduced water quality in the receiving waterbodies. Reduced water quality could influence the type and diversity of species present in the receiving waterbodies.

No direct impacts to aquatic ecology would result as of implementing the Action Alternative. Indirect impacts could occur following implementation of the Action Alternative, including clearing of vegetation and construction within East Fork Greenlick Creek (SMY001) and the ephemeral channel / wet weather conveyance (WWCMY001) which may potentially increase the amount of sediment discharged into them resulting in reduced water quality. In addition, work within the waterways may temporarily disturb non-mobile aquatic species (if present at the time of construction). During construction, applicable BMPs such as installation of sediment and erosion controls (silt fences, sediment traps, etc.) are expected to be employed and activities would be accomplished in compliance with the TDEC NPDES General Construction Storm Water Permit and would utilize applicable BMPs as described in the SWPPP to minimize and control erosion and fugitive dust during these actions. Mitigation measures to reduce permanent impacts to aquatic species may include construction of a culvert or similar structure that would allow the passage of aquatic species. As described in Section 3.2.4.3 above, impacts to waterbodies may also require authorization from the USACE Nashville District and

TDEC. Therefore, with implementation of applicable BMPs, mitigation measures, and adherence to agency permit stipulations, potential indirect impacts to aquatic species following the Action Alternative are anticipated to be temporary and minor.

Under the No Action Alternative, TVA would not be providing InvestPrep™ funds and there would be no direct or indirect impacts to aquatic ecology due to a TVA action.

3.2.4.3 Threatened and Endangered Species

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

Plant Species – A December 2018 review of the TVA Natural Heritage Database indicated that four state-listed or sensitive plant species, including one which is also federally listed, have been previously documented within a five-mile radius of the Project Area (Table 3-1). The TVA Natural Heritage Database also indicated two additional state and/or federally listed plant species in Maury County that have not been documented within a five-mile radius. These species are unlikely to be observed in the open pasture lands which are actively maintained. If present, these species would be limited to the area near or within the forested wetland abutting East Fork Greenlick Creek in the northeast corner of the Project Area.

Table 3-1: TVA Natural Heritage Database Plant Species of Conservation Concern Known within Five Miles and Federally Listed Plant Species Previously Reported from Maury County, Tennessee

Common Name	Scientific Name	Federal Status	State Status (Rank)	Documented within 5-miles of Project Area
Duck River Bladderpod	<i>Paysonia densipila</i>	None	SPCO (S3)	Yes
Lesquereux’s Mustard	<i>Physaria globosa</i>	END	END (S2)	Yes
Water Stitchwort	<i>Stellaria fontinalis</i>	None	SPCO (S3)	Yes
Tennessee Milk-vetch	<i>Astragalus tennesseensis</i>	None	SPCO (S3)	Yes
Leafy Prairie-clover	<i>Dalea foliosa</i>	END	END (S2S3)	No
Price’s Potato-bean	<i>Apios priceana</i>	THR	END (S3)	No
Status codes: THR = Threatened, END = Endangered; SPCO =Special Concern; PS = Potential Listing. Rank Codes: S1 = Extremely rare and critically imperiled in the state with 5 or fewer occurrences, or very few remaining individuals, or because of some special condition where the species is particularly vulnerable to extirpation;				

Table 3-1: TVA Natural Heritage Database Plant Species of Conservation Concern Known within Five Miles and Federally Listed Plant Species Previously Reported from Maury County, Tennessee

Common Name	Scientific Name	Federal Status	State Status (Rank)	Documented within 5-miles of Project Area
<p>S2 = Very rare and imperiled within the state, 6 to 20 occurrences; and</p> <p>S3 = Rare or uncommon with 21 to 100 occurrences;</p> <p>S#S# = Denotes a range of ranks because the exact rarity of the element is uncertain (e.g., S1S2).</p>				

An official species list was generated by the USFWS IPaC Environmental Conservation Online System on February 26, 2019 (USFWS 2019). Three potential plant species were identified by the IPaC including the endangered Leafy Prairie-clover, the threatened Price’s Potato-bean, and the endangered Short’s Bladderpod (also known as Lesquereux’s Mustard). No designated critical habitat for plant species occurs within or adjacent to the Project Area.

None of the six plant species were observed during the April 8 and 9, 2019 field survey. The Duck River Bladderpod is associated with cultivated fields and flowers from March to April and fruits from April to May. Cultivated fields are not present within the Project Area. Lesquereux’s Mustard is found on limestone talus slopes and cliffs, which are not present within the Project Area. Water Stichwort is found in seeps and limestone creek beds. It flowers during April to May and fruits May to June. Water Stichwort was not observed in the wetland (WMY001_PFO), stream (SMY001), ephemeral / wet weather conveyance (WWCMY001) complex. Tennessee Milk-vetch is found in glades which are not present in the Project Area. Leafy Prairie-clover is found in rocky washes in glades, which are not present in the Project Area. Price’s potato bean is found in openings in rich woods, often in forest gaps or along forest edges, sometimes in low areas near a stream or along the banks of streams and rivers. No specimens of Price’s Potato Bean were observed near the stream (SMY001), but the survey period did not coincide with the flowering window of June-August or fruiting window of July-August.

A project review was also conducted by the TDEC, Division of Natural Areas, Natural Heritage Program. TDEC determined that based on the lack of habitat within the project, they did not anticipate “any impacts to rare, threatened, or endangered plant species from this project” (TDEC 2019).

Implementation of the Action Alternative will have no direct impacts to federal or state-listed plant species. The USFWS may require a species specific survey for Price’s Potato Bean, conducted during its flowering or fruiting window, if Maury County Chamber and Economic Alliance or the site developer(s) propose impacts to the wetland (WMY001_PFO), stream (SMY001), and ephemeral / wet weather conveyance (WWCMY001) complex.

The No Action Alternative would result in TVA not providing InvesPrep funds and there would be no direct or indirect impacts to federal or state-listed plant species due to a TVA action.

Wildlife and Aquatic Species – A December 2018 review of the TVA Natural Heritage Database indicated that there are 22 state-listed animals, of which 12 are also federally listed, that have recorded occurrences within three-miles of the Project Area. The review also indicated that an additional nine state-listed and/or federally listed animals have been recorded in Maury County,

Tennessee or the HUC-10, but not within the three-mile radius (Table 3-2). The USFWS has determined that the federally threatened northern long-eared bat and the federally endangered Indiana bat have the potential to occur throughout the state of Tennessee; therefore, this species are also included in Table 3-2.

Table 3-2: Records of Federal and State-Listed Animal Species from Maury County, Tennessee and/or within the HUC of the Project Area¹

Common Name	Scientific Name	Element Rank ²	Status ³		Documented within 3-miles of Project Area
			Federal	State (Rank) ⁴	
Fishes					
Coppercheek Darter	<i>Etheostoma aquali</i>	H, E	None	THR (S2S3)	Yes
Golden Darter	<i>Etheostoma denoncourti</i>	AC, E	None	D (S2)	Yes
Redband Darter	<i>Etheostoma luteovinctum</i>	H, E	None	D (S4)	Yes
Flame Chub	<i>Hemitremia flammea</i>	H	None	D (S3)	Yes
Saddled Madtom	<i>Noturus fasciatus</i>	H	None	THR (S2)	Yes
Pygmy Madtom	<i>Noturus stanauli</i>	E	END	END (S1)	No
Slenderhead Darter	<i>Percina phoxocephala</i>	H, E	None	D (S3)	Yes
Mussels					
Cumberlandian Combshell	<i>Epioblasma brevidens</i>	H	END	END (S1)	Yes
Oyster Mussel	<i>Epioblasma capsaeformis</i>	E	END	END (S1)	Yes
Tan Riffleshell	<i>Epioblasma florentina walkeri</i>	H	END	END (S1)	Yes
Turgid Blossom Pearlymussel	<i>Epioblasma turgidula</i>	X	END	END (SX)	Yes
Cracking Pearlymussel	<i>Hemistena lata</i>	X	END	END (S1)	Yes
Pink Mucket	<i>Lampsilis abrupta</i>	B	END	END (S2)	No
Birdwing Pearlymussel	<i>Lemiox rimosus</i>	E, H	END	END (S1)	Yes
Orange-foot Pimpleback	<i>Plethobasus cooperianus</i>	H, X	END	END (S1)	Yes
Sheepnose	<i>Plethobasus cyphyus</i>	E	END	NONE (S2S3)	Yes
Pyramid Pigtoe	<i>Pleurobema rubrum</i>	E	None	None (S1S2)	Yes
Slabside Pearlymussel	<i>Pleuronaia dolabelloides</i>	E, H	END	None (S2)	Yes
Rabbitsfoot	<i>Quadrula cylindrica</i>	Not Ranked	THR	None (None)	No

Table 3-2: Records of Federal and State-Listed Animal Species from Maury County, Tennessee and/or within the HUC of the Project Area¹

Common Name	Scientific Name	Element Rank ²	Status ³		Documented within 3-miles of Project Area
			Federal	State (Rank) ⁴	
Smooth Rabbitsfoot	<i>Quadrula cylindrica cylindrica</i>	E, H	THR	None (S3)	Yes
Cumberland Monkeyface	<i>Quadrula intermedia</i>	E, H, X	END	END (S1)	Yes
Winged Mapleleaf	<i>Quadrula fragosa</i>	D	END	END (S1)	No
Pale Lilliput	<i>Toxolasma cylindrellus</i>	X, A	END	END (S1)	Yes
Snails					
Helmet Rocksnail	<i>Lithasia duttoniana</i>	H	None	None (S2)	Yes
Ornate Rocksnail	<i>Lithasia geniculata</i>	H	None	None (S2)	Yes
Rugose Rocksnail	<i>Lithasia jayana</i>	H	None	None (SX)	No
Muddy Rocksnail	<i>Lithasia salebrosa</i>	H	None	None (S2)	Yes
Amphibians					
Hellbender	<i>Cryptobranchus alleganiensis</i>	H	None	END (S3)	No
Mammals					
Gray Bat	<i>Myotis grisescens</i>	B, AC	END	END (S2)	No
Indiana Bat ⁵	<i>Myotis sodalis</i>	None	END	END (S1)	No
Northern Long-eared Bat ⁵	<i>Myotis septentrionalis</i>	None	THR	THR (S1S2)	No

¹Source: TVA Regional Natural Heritage Database, extracted January 2019; USFWS Ecological Conservation Online System (<http://ecos.fws.gov/ecos/home.action>) and Tennessee Bat Working Group species occurrence maps (<http://www.tnbgw.org/>), accessed 5/1/2019.

²Element Rank: E = Extant; H = Historical (Element occurrence is greater than 25 years old); A = Excellent viability; AC = Excellent, good, or fair estimated viability; B-Good estimated viability; X = Extirpated.

³Status Codes: END = Listed Endangered; THR = Threatened; TRKD = Tracked by State Natural Heritage program; D = Deemed In Need of Management; R = Rare; PS = Partial Status

⁴State Rank: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; SH = Historic SX = Presumed Extirpated; S#S# = denotes a range rank because the rarity of the species is uncertain

⁵Federally listed species thought to occur statewide though no records are known from Maury County, Tennessee.

An official species list was generated by the USFWS IPaC System on February 26, 2019 (USFWS, 2019). The USFWS identified three mammals (all bats), one fish, and eight clams as potentially occurring within the Project Area (Table 3-3). No designated critical habitat for plant or terrestrial animal species occurs within or adjacent to the Project Area.

Table 3-3: USFWS IPaC List of Federally Listed Terrestrial and Aquatic Species Potentially within the Project Area

Common Name	Scientific Name	Federal Status
Mammals		
Gray Bat	<i>Myotis grisescens</i>	Endangered
Indiana Bat	<i>Myotis sodalis</i>	Endangered
Northern long-eared bat	<i>Myotis septentrionalis</i>	Threatened
Fishes		
Pygmy Madtom	<i>Noturus stanauli</i>	Endangered
Clams		
Cracking Pearlymussel	<i>Hemistena lata</i>	Endangered
Cumberlandian Combshell	<i>Epioblasma brevidens</i>	Endangered
Orangefoot Pimpleback (pearlymussel)	<i>Plethobasus cooperianus</i>	Endangered
Oyster Mussel	<i>Epioblasma capsaeformis</i>	Endangered
Pale Lilliput (pearlymussel)	<i>Toxolasma cylindrellus</i>	Endangered
Slabside Pearlymussel	<i>Pleuronaia dolabelloides</i>	Endangered
Tan Riffleshell	<i>Epioblasma florentina walkeri</i> (=E. walkeri)	Endangered
Turgid Blossom (pearlymussel)	<i>Epioblasma turgidula</i>	Endangered

A project review was also conducted by the TDEC, Division of Natural Areas, Natural Heritage Program and did not identify any rare species within the Project Area (TDEC 2019).

No direct impacts to federal or state listed species is anticipated as a result of implementation of the Action Alternative. East Fork Greenlick Creek may provide habitat for coppercheek darter, golden darter, redband darter, flame chub, saddled madtom, pygmy madtom, and slenderhead darter. If impacts to East Fork Greenlick Creek are proposed following implementation of the Action Alternative, coordination with the USFWS would be required for compliance under the Endangered Species Act and Tennessee Wildlife Resources Agency (TWRA) for adherence to state rules and regulations. The agencies may require aquatic surveys to determine presence/absence of these species. If these species are assumed to be present or are found to be present, the USFWS and TWRA may require mitigative measures to ensure adverse effects to these species do not occur. Assuming any USFWS and TWRA mitigative measures are

enforced, the Action Alternative is not anticipated to indirectly adversely impact federal or state-listed aquatic species (e.g., fish, mussels/clams, amphibians, and snails).

No caves or other winter bat roosting habitat were identified on the Project Area or would be impacted by the Proposed Action. Buildings on site were surveyed for potential roosting use by bats. No evidence of use by bats (e.g. guano, staining) was observed. Forested areas on site offer foraging habitat for Indiana bat and northern long-eared bats. Aquatic resources also provide suitable foraging habitat for Indiana bat, northern long-eared bat, as well as gray bat. Approximately 4.14 acres of suitable summer roosting habitat for Indiana and northern long-eared bat were identified within the Project Area during a bat habitat assessment field survey conducted on April 10, 2019 (Jackson Group 2019).

TVA grants in support of economic development projects were addressed in TVA's programmatic consultation with the USFWS on routine actions and federally listed bats in accordance with ESA Section 7(a)(2) and completed in April 2018. TVA's action to purchase property (with no associated ground disturbance) is not expected to impact Indiana bat or northern long-eared bat. Development following the implementation of the Action Alternative could potentially remove potential roost trees and foraging habitat for Indiana bat and northern long-eared bat within the Project Area. If development of the Project Area cannot avoid removal of potential suitable summer roost trees, consultation with the USFWS under the Endangered Species Act by the action entity(s) would be required prior to initiation of construction. If development would potentially remove suitable summer roosting habitat for Indiana and northern long-eared bat, impacts would be expected to be conducted in consultation with the USFWS.

Under the No Action Alternative, TVA would not be providing InvestPrep™ funds and there would be no direct or indirect impacts to federal or state listed species due to a TVA action.

3.2.5 Land Use and Prime Farmland

Aerial photographs, site photographs, topographic maps, the USFWS NWI, and the NRCS SSURGO/STATSGO databases were reviewed to preliminarily identify the land use types and prime farmland present within the Project Area. Following review of available data, field surveys were conducted to confirm land use. The Project Area consists of two broad land use types: agricultural farmland (123.31 acres) and wetland (6.40 acres).

Prime farmland is land that is the most suitable for economically producing sustained high yields of food, feed, fiber, forage, and oilseed crops. Prime farmlands have the best combination of soil type, growing season, and moisture supply and are available for agricultural use. The Farmland Protection Policy Act (7 United States Code [U.S.C.] 4201 et seq.) requires Federal agencies to take into account the adverse effects of their actions on prime or unique farmlands. The purpose of the Act is "to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses." According to the NRCS, approximately 98.59 acres (76 percent) of the Project Area would be considered prime farmland or prime farmland if protected from flooding or not frequently flooded during the growing season.

There will be no direct prime farmland conversion as a result of implementing the Action Alternative. The Maury County Chamber and Economic Alliance will request re-zoning the parcels for industrial use as part of implementing the Action Alternative. According to the NRCS, there are approximately 113,752.92 acres of prime farmland in Maury County. The potential conversion of 98.59 acres would be a 0.09 percent decrease in prime farmland in Maury County. Since conversion, if proposed, would affect such a small proportion, there would

be only minor indirect impacts to prime farmland associated with implementing the Action Alternative.

Under the No Action Alternative, TVA would not be providing InvestPrep™ funds and there would be no direct or indirect impacts to prime farmland due to a TVA action.

3.2.6 Archaeological and Historical Resources

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

The Project setting consists of fallow pasture/former row crop agricultural land. The Project is located on the Columbia and Mt. Pleasant, Tennessee USGS 7.5' series quadrangle maps. The archaeological study area consisted of the entire 129-acre Project Area. The architectural study area consisted of the immediate area surrounding the Project Area and an unobstructed half-mile viewshed surrounding the Project Area. Background research revealed five archaeological sites, one NRHP listed historic district, four cemeteries, and eleven historic structures previously recorded within proximity of the study area, none of which are located within the Project Area.

A Phase I cultural resources investigation was performed that included both an assessment of standing structures as well as archaeological survey of the study area (Simpson et al., 2019). The architectural survey identified five newly recorded structures of over 50 years in age (HS-1 and HS-2 [both components of the S.T. Brown Farm], HS-3, HS-4, and HS-5) and four previously surveyed structures (MU-368, MU-369, MU-565, and MU-566) (Table 3-4). MU-369 was found to have been destroyed by a fire within the last decade and has therefore lost its integrity MU-369 appears to be ineligible for listing in the NRHP. MU-368 is located east of the current US-43 rural four-lane and falls within the 0.5-mile buffer; however, it is not within direct line of sight from the study area and would not be considered eligible for the NRHP. MU-565 and MU-566 are located to the south of the study area and could be included within the Ashwood Rural Historic District. Both farms have impaired, indirect views to the study area, and as such the proposed project will not adversely affect the aspects of integrity for which they are recommended eligible.

The five newly identified structures include an assortment of types from both the nineteenth and twentieth centuries. HS-1 is a single-pen log cabin located within the eastern boundary of the study area property. Cardno recommended that the cabin retained sufficient integrity of form and material to convey historical significance, and the property could be considered eligible for listing in the NRHP under Criterion A (Event) and Criterion C (Design/Construction). TVA disagreed with Cardno's recommendation, citing a lack of integrity of HS-1 due to its near ruinous condition, the construction of a rear addition, and the loss of all windows and doors. TVA argued that these deficiencies had diminished the ability of HS-1 to convey any significance under Criteria A or C as a settlement-era log house, as well as that better examples of settlement-era log houses remain within Maury County, and within the APE (MU-565). This recommendation was concurred with by Tennessee SHPO and HS-1 was determined to lack integrity to be eligible for listing on the NRHP. HS-2 is a log-crib barn located within the study area property to the northwest of HS-1. Likely constructed in the late nineteenth century, it was part of a later period of development of a farm complex under the supervision of Samuel Tennant (S.T.) Brown. With the development of modern outbuildings adjacent to the barn and the removal of the neighboring residence, HS-2 no longer conveys the feeling or sense of a nineteenth- or twentieth-century farm. HS-2 retains good integrity of form and materials, but it is

not an outstanding or unusual example of a common type found throughout the southeastern United States. Cardno recommended that HS-2 was not eligible for listing in the NRHP and TVA concurred with this recommendation.

Table 3-4. Cultural Resources Identified during the Archaeological and Built Environment Survey.

Cultural Resource Numer	Description	Eligibility Recommendation	Effect Determination
MU-3b68	ca.1850 one story Plain/Traditional log house, with frame additions	Ineligible	N/A
MU-369	ca.1900 dwelling, destroyed	Ineligible	N/A
MU-565	ca.1808-1812 Armstrong-George Farm Complex, two story Georgian Log house, with numerous outbuildings	Eligible	No Adverse Effect
MU-566	ca.1808 Frierson-McAnally Farm Complex, two story Georgian brick house, with numerous outbuildings	Eligible	No Adverse Effect
S.T. Brown Farm	129-acre property with assemblage of buildings constructed between the early 19th century to late-20th century	Ineligible	N/A
HS-1	Early-nineteenth century (ca. 1820-1840) single-pen log cabin with shed addition	Ineligible	N/A
HS-2	Late-nineteenth century (post 1866) single-crib log barn	Ineligible	N/A
HS-3	ca. 1935 frame, American Small House with rear garage addition	Ineligible	N/A
HS-4	Late-nineteenth century two story Georgian Revival, with one and a half story addition	Ineligible	N/A
HS-5	1930 one story Plain Traditional dwelling, with multiple additions	Ineligible	N/A
40MU611	Historic scatter related to the S.T. Brown Farm, late-nineteenth to mid-twentieth century	Ineligible	N/A

Additionally, the survey looked at the entirety of the 129-acre study area as a single resource, the S.T. Brown Farm, which includes both HS-1 and HS-2 in addition to two non-historic era buildings. The S.T. Brown Farm originally comprised over 180 acres and included a primary residence constructed in the mid-1800s as well as several outbuildings. Over the years, substantial portions of the land have been sold and the majority of original buildings removed, including the primary residence. Due to the loss of original buildings coupled with encroaching development, the S.T. Brown Farm lacks integrity for it to be considered for listing in the NRHP under any criteria. HS-3 (1989 Hampshire Pike) is a ca. 1935 American Small House, HS-4 (2003 Hampshire Pike) is a late-nineteenth/early-twentieth-century Georgian Revival house, and HS-5 (2008 Hampshire Pike) is a Plain/Traditional house built in 1930; all three are located within the 0.5-mi buffer. HS-3, HS-4, and HS-5 represent common architectural styles within the

twentieth century and have been significantly modified throughout their use. None of the three structures were recommended for listing in the NRHP by Cardno.

The archaeological survey resulted in the identification of one newly recorded archaeological site (40MU611), a late-nineteenth- to mid-twentieth-century historic scatter associated with HS-2 and the former location of a house. The site has marginal depositional integrity and is not likely to yield additional information important to the history of Maury County, Tennessee. Based upon the lack of integrity and research potential, this site was not recommended as eligible to the NRHP, and no additional work was recommended.

TVA consulted with the Tennessee SHPO in a letter dated May 13, 2019 regarding TVA's findings and recommendations. In a letter dated May 31, 2019 the Tennessee SHPO concurred with TVA's findings and recommendations that none of the five newly identified structures were eligible for listing on the NRHP, and the two previously identified structures MU-565 and MU-566 could be considered eligible for listing but would not be adversely affected by the current project (Attachment 2). Pursuant to 36 CFR Part 800.3(f) (2), TVA also consulted with federally recognized Indian tribes regarding properties that may have religious and cultural significance to their tribe and eligible for the NRHP.

TVA received one response from the federally recognized Indian tribes regarding the proposed undertaking. The Shawnee Tribe's Tribal Historic Preservation Department concurred that no known historic properties will be negatively impacted by the project (see Attachment 2).

Under the No Action Alternative, TVA would not be providing InvestPrep™ funds and there would be no direct or indirect impacts to cultural resources due to a TVA action.

3.2.7 Visual Resources

The visual landscape surrounding the Project Area consists primarily of flat to gently rolling open land. Low density residences are located to the north (north side of Hampshire Pike Road) and to the east (east side of Lawrenceburg Highway). Existing industrial complexes are located immediately to the southeast and south. A recreational ballfield is located to the southwest and a health center is located to the northeast. Trees are primarily located in the northeast corner of the Project Area, associated with the wetland complex, and around the perimeter of the property.

Hampshire Pike Road is a two lane paved road and resident houses are set back at least 150 feet from the roadway edge with trees on the residential properties providing some screening. Lawrenceburg Highway is a four lane divided highway with a grassed central median. Residences east of Lawrenceburg Highway are screened by trees within their subdivisions or by the trees on the Project Area associated with the wetland complex. The wetland complex trees also provide a visual screen for the health complex to the immediately northeast of the Project Area. The recreational ballfield is screened by shrubbery and trees on that site as well as perimeter trees on the Project Area. These perimeter trees extend along most of the south and southeastern border of the Project Area, offering some screening from the other industrial facilities.

No direct impacts to visual resources would occur as a result of implementing the Action Alternative. Following implementation of the Action Alternative, visual impacts could occur during development of the Project Area. These indirect visual impacts could include presence of vehicles and heavy equipment during clearing and grading and other construction related activities. Project related activity may be at least partially visible from residences, particularly if activities are proposed within the wetland complex in the northeast corner of the Project Area. Activities may also be visible to the other businesses, an additional recreational ballfield, and

health center in the nearby surrounding area, but would be partially blocked by the perimeter trees. Travelers along Hampshire Pike Road and Lawrenceburg Highway would also be able to view the activities. However, this represents a transient visual impact as the approximately 0.2 miles shared length along Hampshire Pike Road and 1.0 mile length along Lawrenceburg Highway is traversed in approximately 18 seconds and 90 seconds respectively at the posted 40 miles per hour speed limit. Indirect visual quality impacts resulting from implementation of the Action Alternative would therefore be temporary and minor.

Permanent visual changes in the landscape could also occur due to future industrial development as areas are converted from a predominantly agricultural setting with scattered forested areas to industrial areas, and the level of impact would depend on the design of the future expansion. Overall, it is expected that future expansion of the Project Area would result in minor temporary and permanent visual quality impacts.

Under the No Action Alternative, TVA would not be providing InvestPrep™ funds and there would be no direct or indirect impacts to visual resources due to a TVA action.

3.2.8 Noise

Noise impacts could occur following implementation of the Action Alternative. Existing sources of noise in the area are primarily associated with traffic along Hampshire Pike Road and Lawrenceburg Highway and surrounding industrial and agricultural activities. Primary sensitive noise receptors in the area include residents of homes along Hampshire Pike Road (located approximately 150 to 300 feet north of the Project Area) and Lawrenceburg Highway (approximately 500 feet or more east of the Project Area), a health center (approximately 50 feet northeast of the Project Area), a recreational ballfield (less than 50 feet southwest of the Project Area) and industrial businesses located within the south (less than 50 feet) and southeast (approximately 350 to 500 feet) of the Project Area .

No direct impacts due to noise are anticipated as a result of the implementation of the Action Alternative. Indirectly, future construction activities would be expected to generate increased noise from operation of equipment and construction of potential industrial buildings. However, the anticipated noise levels resulting from future operation of equipment and construction of potential industrial buildings would not differ significantly from equipment that is in regular use in the surrounding area from industrial and agricultural activities. In addition, it is expected that construction activities would be conducted during daylight hours only. Thus, noise quality impacts resulting from future development of the Project Area are anticipated to be minor and temporary.

Under the No Action Alternative, TVA would not be providing InvestPrep™ funds and there would be no direct or indirect impacts to noise due to a TVA action.

3.2.9 Socioeconomic Conditions and Environmental Justice

According to estimates from the United States Census Bureau (2019a and 2019b), population of Maury County, Tennessee is 92,163 (see Table 3-5). Maury County has a higher proportion of White alone, not Hispanic or Latino (84.4 percent), Hispanic or Latino (of any race) (5.8 percent), and two or more races (2.1 percent) than Tennessee and fewer or the same for other ethnicities. Overall, Maury County has somewhat lower levels of minority populations than the State of Tennessee. Maury County has a higher proportion of White Alone, not Hispanic or Latino, American Indian and Alaska Native Alone (0.5 percent), Asian Alone (1.0 percent), Native Hawaiian and Other Pacific Islander Alone (0.1 percent) than the City of Columbia and fewer or the same for other ethnicities.

Table 3-5: Project Region Race and Ethnicity ¹

	Tennessee	Maury County	City of Columbia
Population ²	6,715,984	92,163	34,681
White Alone, not Hispanic or Latino	73.9%	84.4%	75.4%
Black or African American Alone	17.1%	11.9%	19.1%
American Indian and Alaska Native Alone	0.5%	0.5%	0.1%
Asian Alone	1.9%	1.0%	0.9%
Native Hawaiian and Other Pacific Islander Alone	0.1%	0.1%	0.0%
Two or More Races	1.9%	2.1%	2.9%
Hispanic or Latino (of any race)	5.5%	5.8%	8.6%
1 - Source: United States Census Bureau (2019)			
2 - As of July 2017.			

Table 3-6 provides summary information on population, income, and employment in the region of the Project Area. The population in Maury County increased at more than double the rate of the State as a whole from 2010 to 2017. Information for 2017 is not available for the City of Columbia. The median household income in Maury County was \$52,080 which is higher than the State, but the per capita income was \$25,872 which is lower. The median household income in City of Columbia was \$41,673 and is lower than Maury County and the State as was the Per Capita Income of \$21,235. The percentage of people whose income is less than the poverty line, 10.4 percent, is lower in Maury County than the City of Columbia and State as a whole.

Table 3-6: Population, Income, and Employment in the Project Region

	Tennessee	Maury County	City of Columbia
Population ¹			
2010 Population ²	6,346,105	80,930	34,681
2017 Population ²	6,715,984	92,163	N/A
Percentage Change	+5.8%	+13.9%	N/A
People / Square Mile	153.9	132.0	1,099.7

Table 3-6: Population, Income, and Employment in the Project Region

	Tennessee	Maury County	City of Columbia
Income ¹			
Median Household Income	\$48,708	\$52,080	\$41,673
Per Capita Income	\$27,277	\$25,872	\$21,235
Percent of People Whose Income is Less Than the Poverty Level	15.0%	10.4%	19.5%
Employment (2017) ³			
Labor Force	3,253,200	46,930	N/A
Employed	3,154,700	45,700	N/A
Unemployed	98,500	1,230	N/A
Unemployment Rate (%)	3.0%	2.6%	N/A
<p>1 – Source: United States Census Bureau (2019a, 2019b)</p> <p>2 – 2010 Population as of April. 2017 Population as of July.</p> <p>3 – Employment data sources:</p> <ul style="list-style-type: none"> • Tennessee and Maury County data from TN.GOV (2019). • N/A: USCB and Bureau of Labor Statistics data are not available for City of Columbia 			

The unemployment rate for Maury County was estimated at 2.6 percent which is slightly lower than the statewide level of 3.0 percent.

No direct socioeconomic or environmental justice effects are anticipated as a result of implementing the Action Alternative. Indirectly, the proposed purchase of the property could lead to clearing and demolition activities following implementation of the Action Alternative, which would require a temporary workforce. The eventual development of the site for industrial purposes would create additional jobs and would likely have long-term beneficial effects to the local economy. In the near term and for the foreseeable future, no disproportionate effects are anticipated to any minority or economically disadvantaged populations.

Under the No Action Alternative, TVA would not be providing InvestPrep™ funds and there would be no direct or indirect socioeconomic or environmental justice effects due to a TVA action.

3.2.10 Transportation

The Project Area is currently accessed from two locations along the south side of Hampshire Pike Road. Based on the April 2019 field surveys, Hampshire Pike Road is currently in good condition. Hampshire Pike Road is paved, marked, and sufficiently wide for a signal lane of traffic in each direction. The posted speed limit on Hampshire Pike Road is 40 miles per hour.

Based on a review of the Tennessee Department of Transportation (TDOT) historical traffic data (2019) there is one nearby traffic count station on Hampshire Pike Road located west of the nearest entrance to the Project Area:

- Station 000227 on Hampshire Pike / State Road 99 – located 1,000 feet west of Project Area and 3,000 feet west of Lawrenceburg Highway. The 2016 annual average daily traffic count (AADT) for this station is 6,181, which has increased from the 2015 count of 5,894 and slightly decreased from the 2014 count of 6,191.

No direct transportation effects are anticipated upon implementation of the Action Alternative. Indirectly, in the context of the existing AADT volumes of this highway, it is anticipated that a small increase in traffic generated following implementation of the Action Alternative would have a negligible impact on overall traffic volumes and level of service for Hampshire Pike. In accordance with Section 2.2.5 of the TDOT Traffic Design Manual (2018), if the proposed development generates less than 50 new peak hour trips and 250 new daily trips, the impacts may be considered insignificant and a waiver may be granted. It is anticipated that the increase in traffic generated following implementation of the Action Alternative would result in less than 50 new peak hour trips and 250 new daily trips.

The degree of increased traffic would depend on the type and number of industrial facilities potentially constructed during future expansion. If the potential increase in traffic generated by future expansion would result in greater than 50 new peak hour trips and 250 new daily trips, consultation with the TDOT would be required during the design of these expansions.

Under the No Action Alternative, TVA would not be providing InvestPrep™ funds and there would be no direct or indirect transportation effects due to a TVA action.

4.0 CUMULATIVE AND REASONABLY FORESEEABLE IMPACTS

The potential impacts resulting from TVA's Proposed Action within the Project Area are discussed in Section 3.0. This section discusses effects of future activities on nearby parcels that could contribute to cumulative impacts in combination with the direct and indirect impacts from the Action Alternative. A review of available information from the TDOT and City of Columbia identified no other developments within one mile that could potentially contribute to cumulative impacts in combination with those from the Action Alternative. Information from the Maury County Chamber and Economic Alliance identified two existing industrial properties immediately to the southeast of the Project Area on the east side of Lewisburg Highway (hereafter referred to as adjacent properties). These adjacent properties are described as existing manufacturing buildings with utilities in place for sale or lease (Maury County Chamber and Economic Alliance 2019).

Resources that could potentially be cumulatively impacted by implementing the Proposed Action include public recreation opportunities, floodplains, air quality and climate change, biological resources (vegetation, wetlands, water resources and water quality, wildlife, aquatic ecology, threatened and endangered species), land use and prime farmland, archaeological and historical resources, visual resources, noise, socioeconomics and environmental justice, transportation, and safety. TVA has determined that the Proposed Action would have no impact (direct or indirect) on natural and managed areas, solid and hazardous wastes, Nationwide Rivers Inventory streams, or Wild and Scenic Rivers, as discussed in Section 3.2. Therefore, these resources are not considered in this cumulative impacts assessment.

4.1 Public Recreation Opportunities

Future activities that may occur at the Project Area that could affect public recreation opportunities are described in Section 3.2.1 above. Given that the two adjacent properties are existing developed lands zoned for industrial use, occupation or further development of these sites is not expected to adversely affect the future use of the Mahlon Ring Babe Ruth Field or public recreation opportunities. Cumulative effects to public recreation opportunities are not anticipated as a result of implementing the Action Alternative.

4.2 Floodplains

Future development outside the Project Area could occur as a result of the Proposed Action that could affect floodplains. Maury County participates in the National Flood Insurance Program and any development must be consistent with its floodplain ordinance. Future development within the floodplain would therefore be subject to the requirements of Maury County's floodplain ordinance. Compliance with the requirements of the floodplain ordinance would ensure that impacts on the floodplain, as well as to development constructed within the floodplain, would be minimized. The two adjacent properties are existing developed lands with existing facilities that are assumed to have complied with the requirements of the floodplain ordinance. Cumulative effects to floodplains are not anticipated as a result of implementing the Action Alternative.

4.3 Air Quality and Climate Change

Future activities that may occur at the Project Area that could affect air quality and climate change are described in Section 3.2.3 above. Future activities at the Project Area and adjacent properties would produce air pollutants during site preparation and development of new roads and buildings through the use of fossil fuel-fired equipment, fugitive dust from ground disturbances, and emissions associated with burning of wood debris. The use of BMPs and adherence to federal, state, and local regulations would minimize air emissions.

Individual sites would likely be developed in stages as new tenants are established, with associated short time periods for construction, resulting in minor, temporary, and localized adverse impacts to local air quality. Air emissions from development of future sites within the Project Area or adjacent properties are not expected to impact regional air quality or result in any violation of applicable ambient air quality standards.

Removal of trees could occur in the Project Area but is unlikely on the adjacent properties which are already developed. Removal of approximately 6.40 acres of forest (mostly within the wetland) on the Project Area would result in loss of carbon sequestration in the area through the removal of large trees. However, considering that the area proposed for development is predominantly cleared farmland, these effects are anticipated to be minor.

Temporary and minor cumulative impacts to air quality and climate change would occur if construction activities associated with the Proposed Action and adjacent properties were to occur during the same time period. However, with regulatory measures in place, reasonably foreseeable long-term and cumulative impacts to local air quality and climate change resulting from the Action Alternative and adjacent properties are anticipated to be temporary and minor.

4.4 Biological Resources

4.4.1 Vegetation

Development of the Project Area could convert vegetated areas containing open land pastures including some deciduous trees and wetland forest to an industrial or commercial setting,

resulting in potential indirect impacts as described in Section 3.2.4.1 above. The two adjacent properties have already been developed with vegetation consisting of landscaped lands with some shrubbery and trees. Given that the two adjacent properties have already been converted to an industrial or commercial setting, cumulative effects to vegetation are not anticipated as a result of implementing the Action Alternative.

4.4.2 Wetlands

Development of the Project Area could result in potential indirect impacts on wetlands resources as described in Section 3.2.4.2. It is unlikely that further development of the adjacent properties would impact wetland resources given their current build out condition. If impacts to wetland resources associated with future development cannot be avoided, consultation and permitting with the USACE Nashville District and TDEC would be required prior to initiation of construction. Impacts would require a Section 404 permit and a Section 401 Clean Water Act certification. While future development following the implementation of the Action Alternative could potentially result in cumulative impacts to wetland resources, impacts would be expected to be conducted and mitigated in accordance with CWA Section 404 and CWA Section 401 permits and are anticipated to be minor.

4.4.3 Water Resources

The Proposed Action could result in potential indirect impacts on water resources as described in Section 3.2.4.3 above. Similar to wetlands, it is unlikely that further development of the adjacent properties would impact water resources given their current build out condition. If proposed, site preparation of the adjacent properties, including filling and leveling, could cause minor changes in drainage patterns. Likewise, the placement of buildings and associated hard surfaces would likely increase the amount of impermeable surface and possibly lead to faster runoff of onsite precipitation. Activities that could impact surface water and groundwater resources are subject to state and federal regulations including consultation and permitting with the USACE Nashville District and TDEC under CWA Section 404 and 401, and state Aquatic Resource Alteration Permits. In the event that waterbodies are impacted, state and federal regulations would impose special conditions to avoid or minimize impacts to water resources. In addition, it is expected that applicable BMPs such as installation of sediment and erosion controls (silt fences, sediment traps, etc.) would be employed and activities would be accomplished in compliance with applicable stormwater permitting requirements. Therefore, cumulative impacts on water resources are anticipated to be temporary and minor.

4.4.4 Wildlife

The Proposed Action could result in potential indirect impacts to wildlife as described in Section 3.2.4.4 above. Future expansion within the adjacent properties is expected to have a minor potential to affect wildlife given their current build out condition. Mobile wildlife in these habitats would be displaced by habitat removal and noise, and immobile wildlife may be injured or destroyed by heavy machinery and construction, particularly if clearing activities take place during breeding/nesting seasons. However, considering that habitats available on the adjacent properties consists of maintained landscaping, cumulative effects to wildlife are anticipated to be minor.

4.4.5 Aquatic Ecosystems

The Proposed Action could result in indirect impacts to aquatic ecosystems as described in Section 3.2.4.5 above. As described in Section 4.4.3 above, it is unlikely that further development of the adjacent properties would impact aquatic ecosystems given their current build out condition. If proposed, aquatic ecosystem effects could potentially involve temporary

or permanent stream crossings during land development. It is expected that these actions would include BMPs (such as sediment and erosion controls) and compliance with applicable stormwater permitting requirements, which would minimize impacts to aquatic species. Cumulative effects to aquatic resources are not anticipated as a result of implementing the Action Alternative.

4.4.6 Threatened and Endangered Species

The Proposed Action would not directly impact federally or state-listed species. The Proposed Action could potentially result in indirect impacts to federally and state-listed as described in Section 3.2.4.6. Future development of the adjacent properties is not anticipated to affect any federal or state-listed species given their current build out condition. Cumulative effects to threatened and endangered species are not anticipated as a result of implementing the Action Alternative.

4.5 Land Use and Prime Farmland

The Proposed Action would result in negligible indirect impacts to land use of the region and potential minor indirect impacts to prime farmland as described in Section 3.2.5. Further development of the adjacent properties would not result in cumulative impacts to land use or prime farmland given that these sites are already developed and zoned for industrial use.

4.6 Archeological and Historical Resources

The Proposed Action would not result in potential impacts to archeological and historic resources as described in Section 3.2.6. Further development of the adjacent properties is not anticipated to affect archeological or historical resources given their current build out condition. Cumulative effects to archeological and historic resources are not anticipated.

4.7 Visual Resources

The Proposed Action would result in minor potential indirect visual quality impacts as described in Section 3.2.7. Future development of the adjacent properties is not anticipated to affect visual resources given their current build out condition. Cumulative effects to visual resources are not anticipated.

4.8 Noise

The Proposed Action could result in potential indirect noise quality impacts as described in Section 3.2.8. Temporary and minor noise-related cumulative impacts would occur if construction activities associated with the Proposed Action and further development of the adjacent properties were to occur during the same time period. If there were no overlap of construction activities, cumulative impacts would not occur.

Future development of the Project Area and further development of the adjacent properties could generate increased noise from operation of equipment and construction of potential industrial buildings. However, the anticipated noise levels resulting from future operation of equipment and construction of potential industrial buildings would not differ significantly from equipment that is in regular use in the surrounding area from industrial and agricultural activities. In addition, it is expected that construction activities would be conducted during daylight hours only. Thus, noise quality impacts resulting from future development of the Project Area or further development of the adjacent properties are anticipated to be minor and temporary.

4.9 Socioeconomic Conditions and Environmental Justice

Socioeconomic conditions would continue to be impacted by general population increases and development growth in the area. The Proposed Action is not anticipated to negatively impact the local economy or workforce or result in displacement or inconvenience to minority populations, and would be expected to result in indirect beneficial economic impacts to the local economy and workforce by improving the marketability of a future industrial development as described in Section 3.2.9. Cumulatively, future development within the Project Area and further development of the adjacent properties would provide jobs, generate revenue within the local economy, and would likely have long-term beneficial impacts to the local economy, resulting in beneficial impacts to socioeconomic conditions.

The Action Alternative and further development of adjacent properties are not anticipated to result in adverse cumulative impacts to socioeconomic conditions in the area, and would be expected to result in beneficial economic impacts to the local economy and workforce. These developments would provide jobs and generate revenue within the local economy. Since no negative socioeconomic impacts are expected from the Proposed Action and further development of the adjacent properties, no disproportionate negative cumulative impacts would occur to disadvantaged populations.

4.10 Transportation

The Proposed Action would have potential temporary and permanent indirect impacts to traffic as described in Section 3.2.10. Similar to the Proposed Action, further development of the adjacent properties would need to be conducted in accordance with Section 2.2.5 of the TDOT Traffic Design Manual (2018).

Temporary and permanent increases in traffic associated with the Proposed Action and further development of the adjacent properties could result in cumulative impacts. It is expected that future development would be conducted in consultation with TDOT if anticipated traffic increases would be significant. Therefore, potential traffic-related cumulative impacts are anticipated to be minor.

5.0 PERMITS, LICENSES, AND APPROVALS

Assuming compliance with the Mitigation Measures listed below, implementation of the Action Alternative as the Proposed Action is not anticipated to directly require additional permits, licenses and approvals. The Maury County Chamber and Economic Alliance or its contractors would be required to obtain additional environmental permits, reviews, and consultations as necessary and required based on the future development design of the industrial park.

6.0 BEST MANAGEMENT PRACTICES AND MITIGATION MEASURES

To minimize or reduce the environmental effects of site activities associated with the Proposed Action, the Maury County Chamber and Economic Alliance or its contractors would ensure all clearing and grading activities conducted are in compliance with stormwater permitting requirements in the TDEC NPDES General Construction Storm Water Permit and would utilize applicable BMPs as described in the SWPPP 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. Earthen berms, buffer zones or other effective means would be installed to protect stream channels from direct surface runoff. Servicing of equipment and vehicles would

be done with care to avoid leakage, spillage, and subsequent surface or ground water contamination. Oil waste, filters, and other litter would be collected and disposed of properly.

Any future activities in the floodplain of Greenlick Creek or East Fork Greenlick Creek would be subject to all applicable federal, state or local floodplain regulations and ordinances. If future development cannot avoid impact to the wetland or perennial stream (East Fork Greenlick Creek) consultation and permitting with the USACE Nashville District and TDEC would be required prior to initiation of construction. Impacts would require a USACE Section 404 permit and a TDEC ARAP/ Section 401 Water Quality Certification, which would include mitigation measures and possibly compensatory mitigation (e.g., purchase of mitigation credits or implementation of a permittee responsible mitigation plan).

Similarly, if impacts are proposed to the perennial stream (East Fork Greenlick Creek), these actions are expected to be conducted in consultation with the USFWS and TWRA to determine if mitigation measures are necessary to protect species under the Endangered Species Act or state rules and regulations. Impacts to suitable summer roosting habitat for Indiana bat or northern long-eared bat are also expected to be conducted in consultation with USFWS. Measures to minimize potential impacts may be required, such as seasonal restrictions on tree. It is assumed the Maury County Chamber and Economic Alliance would institute the mitigation measures recommended by the agencies.

If the potential increase in traffic generated by future expansion would result in greater than 50 new peak hour trips and 250 new daily trips, consultation with the TDOT would be required during the design of these expansions.

7.0 LIST OF PREPARERS

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

Table 7-1: Environmental Assessment Project Team

Name/Education	Experience	Project Role
TVA		
Bill Adams <i>M.S., Public Policy and Administration</i> <i>B.A., Political Science</i>	25 years in economic development, including federal grants management, industrial recruitment, property positioning for industrial development (product development), and federal-level project reviews, including NEPA	Economic Development
Elizabeth Smith <i>B.A, Environmental Studies and Geography</i>	10 years in NEPA compliance, federal environmental regulations and permitting, project management, land reclamation, and water quality monitoring.	NEPA Compliance
Liz Hamrick <i>M.S., Wildlife and Fisheries Science, University of Tennessee; B.A. Biology, B.A. Anthropology, Grinnell College</i>	19 years in biological field studies, 8 years in biological compliance, NEPA compliance, and ESA consultation for T&E terrestrial animals.	Implementation of ESA Section 7 Programmatic Consultation for federally listed bats and routine actions

Table 7-1: Environmental Assessment Project Team

Name/Education	Experience	Project Role
Ruth Horton <i>B. A History[insert degree]</i>	24 year experience in environmental compliance and policy, and NEPA compliance	Environmental Program Manager
Kerry Nichols <i>Ph.D. Anthropology, University of Missouri-Columbia, M.A. Anthropology, University of Colorado-Denver, B.A. Political Science, University of Northern Colorado</i>	20 years of experience as a field archaeologist and SHPO project reviewer.	Cultural resources, NHPA Section 106 compliance
Ashley A. Pilakowski <i>B.S., Environmental Management</i>	8 years in environmental planning and policy and NEPA compliance.	NEPA Compliance
Carrie Williamson, P.E., CFM <i>B.S. and M.S., Civil Engineering</i>	6 years in floodplains and flood risk	Floodplains
Cardno		
Jason Sean Lancaster, CEP, CE, PWS, TN-QHP <i>MPH, Epidemiology, University of South Florida</i>	22 years in natural resources planning and NEPA compliance, including project management and biological and environmental studies and analysis.	EA Project Manager Public Recreation Opportunities Floodplains Air Quality and Climate Biological Resources Land Use and Prime Farmland Visual Resources Noise Socioeconomic Conditions Transportation
Duane Simpson <i>MA, Anthropology, University of Arkansas BA, Anthropology, Ohio University</i>	25 years in archaeological consulting including management of projects across the southeast and midatlantic regions. Principal Investigator for over 15 years.	Archaeological and Historical Resources
Rachel Bell, PMP <i>B.S., Environmental Science</i>	13 years in natural resources planning and NEPA compliance, including project management and biological and environmental studies and analysis.	EA QA/QC Reviewer
Allen Jacks, CE <i>M.S., Coastal Zone Studies, University of West Florida B.S., Biology, Georgia College and State University</i>	15 years in natural resources planning and NEPA compliance, including project management and biological and environmental studies and analysis.	EA QA/QC Reviewer

Table 7-1: Environmental Assessment Project Team

Name/Education	Experience	Project Role
Yosef Shirazi <i>M.S., Marine Science, University of North Carolina-Wilmington</i> <i>B.S., Environmental Science and Policy, University of Maryland</i>	11 years in assessing ecosystem services, conducting cost benefit analyses, and conducting economic impact analyses.	EA QA/QC Reviewer
Alison Uno <i>MS, Sustainable Environmental Management, University of Plymouth, UK</i> <i>BS, Marine Biology, University of Liverpool, UK</i>	12 years in NEPA compliance and biological and environmental analyses. Conducted many cumulative impacts assessments for various EA and EIS projects including land development and coastal restoration.	EA QA/QC Reviewer

8.0 AGENCIES AND OTHERS CONSULTED

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

- Tennessee Historical Commission
- Shawnee Tribe – Tribal Historic Preservation Department
- Tennessee Department of Environment and Conservation, Division of Natural Areas

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United States National Park Service (USNPS) 2019. Nationwide Rivers Inventory. Available online: <https://www.nps.gov/subjects/rivers/nationwide-rivers-inventory.htm>. Accessed February 27, 2019.

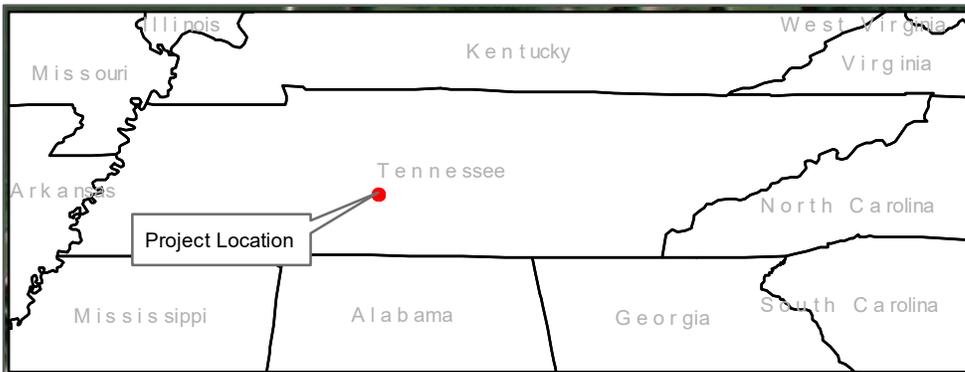
U.S. Water Resources Council. 1978. Guidelines for Implementing Executive Order 11988, Floodplain Management. FR Vol. 43, No. 29—Friday, February 10, 1978. pp. 6030-6054.

Wild & Scenic Rivers (WSR). 2019. National Wild and Scenic Rivers System. Available online: <https://www.rivers.gov/>. Accessed February 27, 2019.

ATTACHMENT 1
PROJECT FIGURES

Figure 1-A

Aerial



Legend

 Project Boundary - 129.71 ac. ±

Image:2015
Data Source:



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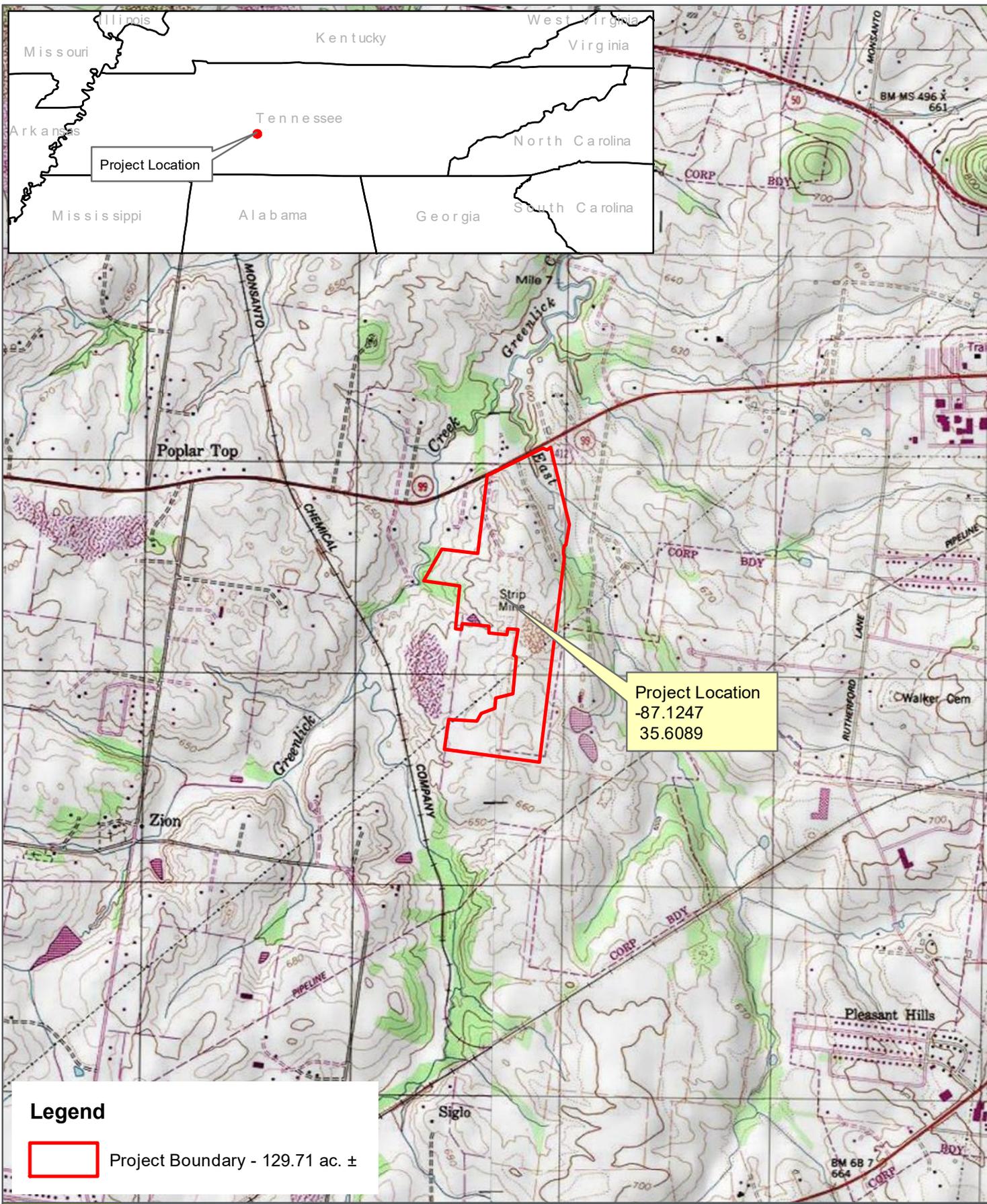
Aerial Map

TVA FY19 Economic Development Projects
Maury County, Tennessee




3905 Crescent Park Drive, Riverview, FL 33578 USA
Phone (+1) 813-664-4500 Fax (+1) 813-664-0440
www.cardno.com

Figure 1-B
USGS Quadrangle



Project Location
 -87.1247
 35.6089

Legend

 Project Boundary - 129.71 ac. ±



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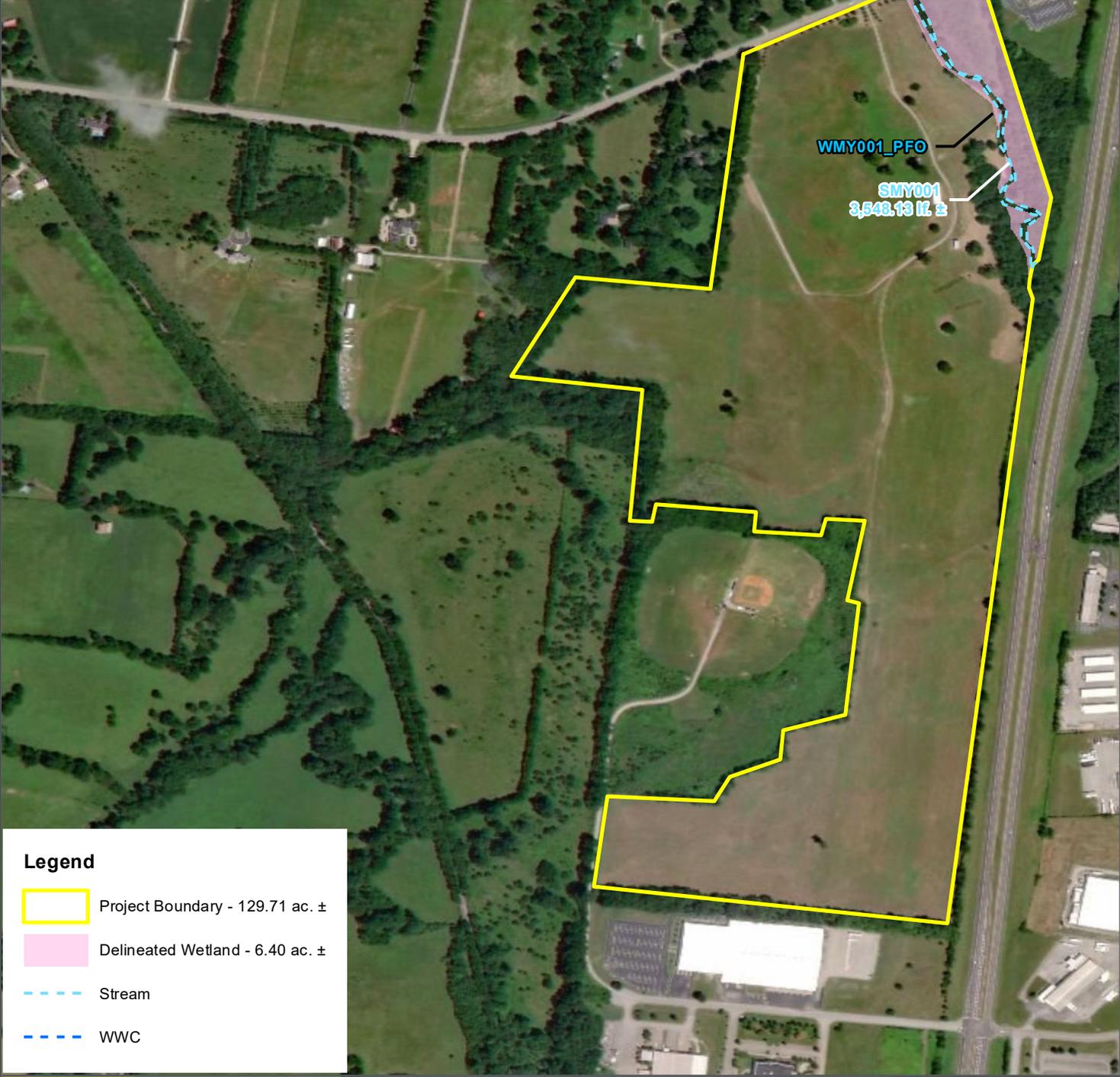
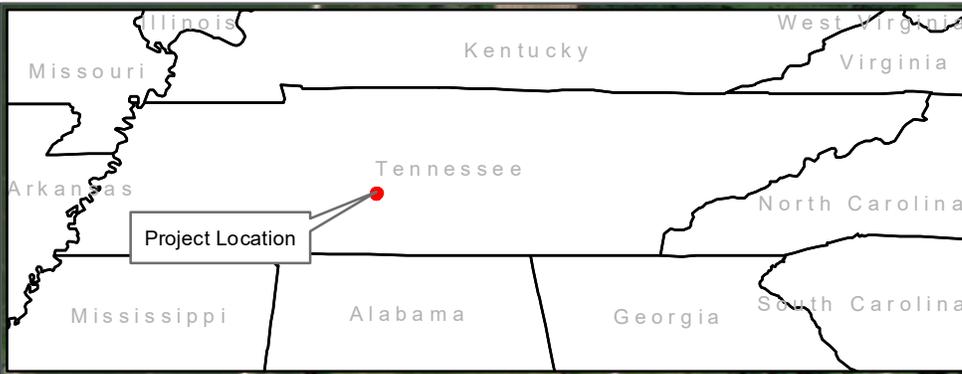
USGS Quadrangle Map
 TVA FY19 Economic Development Projects
 Maury County, Tennessee



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Figure 1-C

Potential Jurisdictional Waters of the United States and the State of Tennessee



Legend

- Project Boundary - 129.71 ac. ±
- Delineated Wetland - 6.40 ac. ±
- Stream
- WWC

Image: 2015
Data Source:

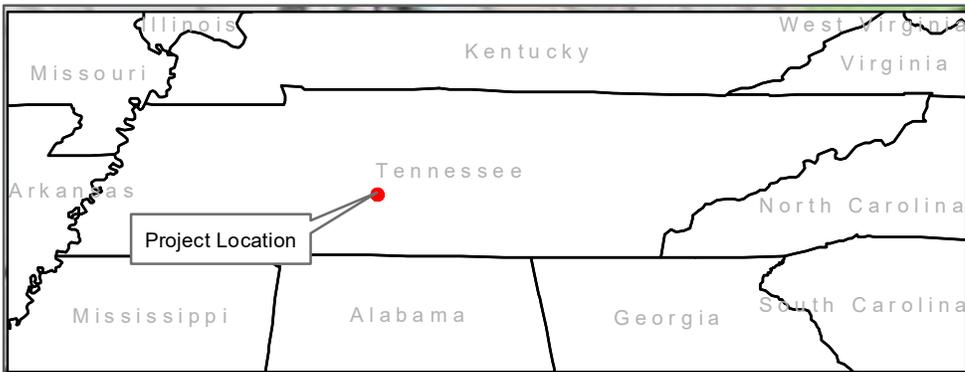
This map and all data contained within are supplied as is with no warranty. Cardno Inc. expressly disclaims responsibility for damages or liability from any claims that may arise out of the use or misuse of this map. It is the sole responsibility of the user to determine if the data on this map meets the user's needs. This map was not created as survey data, nor should it be used as such. It is the user's responsibility to obtain proper survey data, prepared by a licensed surveyor, where required by law.

Jurisdictional Waters of the United States and the State of Tennessee Map
 TVA FY19 Economic Development Projects
 Maury County, Tennessee

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Figure 1-D

FEMA Floodplain



Legend

-  Project Boundary - 129.71 ac. ±
-  With BFE or Depth Zone AE, AO, AH, VE, AR - 1.3 ac. ±
-  0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X - 0.26 ac. ±

Map Panels

-  Digital Data Available



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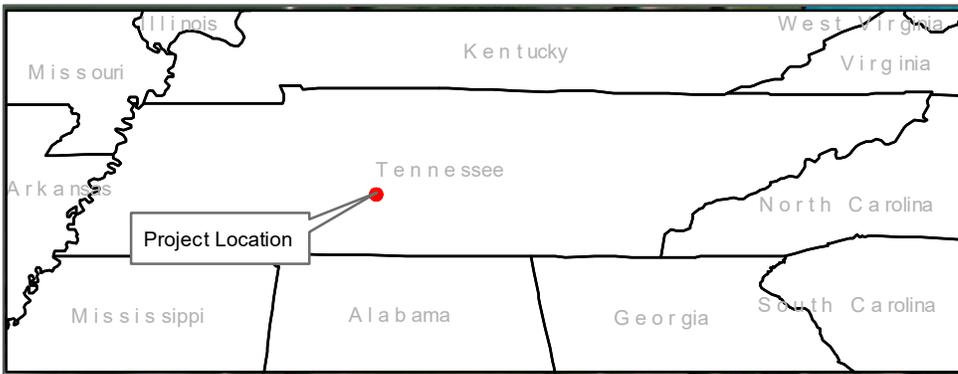
FEMA Floodplain Map
 TVA FY19 Economic Development Projects
 Maury County, Tennessee



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Figure 1-E

USFWS NWI



Legend

- Project Boundary - 129.71 ac. ±
- USFWS NWI



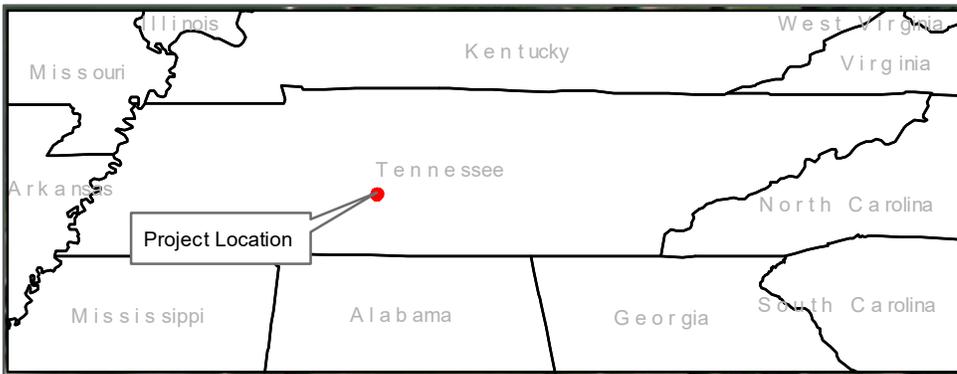
This map and all data contained within are supplied as is with no warranty. Cardno Inc. expressly disclaims responsibility for damages or liability from any claims that may arise out of the use or misuse of this map. It is the sole responsibility of the user to determine if the data on this map meets the user's needs. This map was not created as survey data, nor should it be used as such. It is the user's responsibility to obtain proper survey data, prepared by a licensed surveyor, where required by law.

USFWS NWI Map
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Maury County, Tennessee

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Figure 1-F

NRCS Soils



Legend

- Project Boundary - 129.71 ac. ±
- Ae - Armour silt loam, eroded gently sloping phase - 6.43 ac. ±
- Af - Armour silt loam, eroded gently sloping terrace phase - 1.58 ac. ±
- Bf - Braxton cherty silty clay, severely eroded moderately steep phase - 2.74 ac. ±
- Bg - Braxton cherty silty clay loam, severely eroded sloping phase - 25.07 ac. ±
- Bk - Braxton silty clay loam, eroded sloping phase - 3.31 ac. ±
- Dg - Dunning silty clay loam, phosphatic phase - 5.28 ac. ±
- Hp - Huntington silt loam, depressional phosphatic phase - 5.61 ac. ±
- Hr - Huntington silt loam, local alluvium phosphatic phase - 11.09 ac. ±
- Lc - Lindell silt loam, 0 to 2 percent slopes, frequently flooded - 6.51 ac. ±
- Mb - Maury silt loam, eroded gently sloping phase - 62.09 ac. ±

Image: 2015
Data Source:

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NRCS Soils Map

TVA FY19 Economic Development Projects Maury County, Tennessee

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ATTACHMENT 2
AGENCY CORRESPONDENCE

2-A

Tennessee Historical Commission



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

May 31, 2019

Mr. Clinton E. Jones
Tennessee Valley Authority
400 West Summit Hill Drive
Knoxville, TN 37902

RE: TVA / Tennessee Valley Authority, Oakland Parkway Project, Maury County, TN

Dear Mr. Jones:

Pursuant to your request, this office has reviewed documentation concerning 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).

Based on the information provided, we concur that MU-565 appears to be eligible for the National Register as part of a theoretical boundary expansion for the Ashwood Rural Historic District or potentially under the Historic Family Farms of Middle Tennessee MPS. We also find that MU-566 is not eligible under Criterion A for association with Settlement due to integrity, but it appears to be eligible under Criterion C for architecture. We found no other resources eligible. We further concur that the project as currently proposed will not adversely affect these historic properties.

This office has no objection to the implementation of this project as currently planned. If project plans are changed or previously unevaluated archaeological resources 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. Questions and comments may be directed to Casey Lee (615 253-3163). We appreciate your cooperation.

Sincerely,

E. Patrick McIntyre, Jr.
Executive Director and
State Historic Preservation Officer

EPM/cjl

2-B

Federally Recognized Indian Tribes

From: Shuler, Marianne M <mmshuler@tva.gov>
Sent: Thursday, May 16, 2019 3:07 PM
To: 106NAGPRA@astribe.com; 'Bryant Celestine (celestine.bryant@mail.actribe.org)'
<celestine.bryant@mail.actribe.org>; Elizabeth Toombs <elizabeth-toombs@cherokee.org>;
'HPO@chickasaw.net' <HPO@chickasaw.net>; Linda Langley <LLangley@coushatta.org>; Stephen
Yerka <syerka@nc-cherokee.com>; Brett Barnes <BBarnes@estoo.net>; 'ashively@jenachoctaw.org'
<ashively@jenachoctaw.org>; 'dc13.dc4@gmail.com' <dc13.dc4@gmail.com>; Section106
<Section106@mcn-nsn.gov>; Tonya Tipton <tonya@shawnee-tribe.com>; THPO
<thpo@ttown.org>; Erin Thompson <ethompson@ukb-nsn.gov>
Cc: pbarton@estoo.net; Corain Lowe <CLowe@mcn-nsn.gov>; cwolfe@ukb-nsn.gov
Subject: TVA-Investprep Oakland Parkway Project-MauryCoTN-TRIBAL-16May2019

Good Afternoon

By this email I am sending that attached letter regarding TVA's proposal to provide financial assistance to Maury County to assist with the purchase of the 129-acre Oakland Parkway Site in Maury County, Tennessee.

Please let me know by June 15, 2019 if you have any questions or comments on the proposed undertaking.

Thanks

Marianne

Marianne Shuler

Senior Specialist, Archaeologist & Tribal Liaison
Cultural Compliance

Tennessee Valley Authority
400 W. Summit Hill Drive
Knoxville, TN 37902

865-632-2464 (w)
mmshuler@tva.gov



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From: Tonya Tipton <tonya@shawnee-tribe.com>
Sent: Thursday, June 06, 2019 3:38 PM
To: Shuler, Marianne M <mmshuler@tva.gov>
Subject: RE: TVA-Investprep Oakland Parkway Project-MauryCoTN-TRIBAL-16May2019

TVA External Message. Please use caution when opening.

This letter is in response to the above referenced project.

The Shawnee Tribe's Tribal Historic Preservation Department concurs that no known historic properties will be negatively impacted by this project.

We have no issues or concerns at this time, but in the event that archaeological materials are encountered during construction, use, or maintenance of this location, please re-notify us at that time as we would like to resume immediate consultation under such a circumstance.

If you have any questions, you may contact me via email at tonya@shawnee-tribe.com

Thank you for giving us the opportunity to comment on this project.

Sincerely,

Tonya Tipton

Shawnee Tribe-THPO



29 S Highway 69A
Miami, OK 74354
Phone:(918)542-2441
Fax: (918)542-2922
tonya@shawnee-tribe.com

From: Alina Shively <ashively@jenachoctaw.org>

Sent: Friday, June 14, 2019 10:24 AM

To: Shuler, Marianne M <mmshuler@tva.gov>

Subject: RE: TVA-Investprep Oakland Parkway Project-MauryCoTN-TRIBAL-16May2019

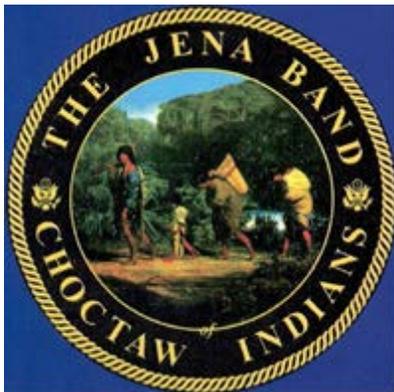
TVA External Message. Please use caution when opening.

Marianne,

Regarding the above-mentioned project, the Jena Band of Choctaw Indians' hereby defers to the additional Tribes with interest in this area. This deference does not preclude future consultation with the Jena Band of Choctaw Indians. Thank you.

Sincerely,

Alina J. Shively
Jena Band of Choctaw Indians
Tribal Historic Preservation Officer
P.O. Box 14
Jena, LA 71342
(318) 992-1205
ashively@jenachoctaw.org



2-C

**Tennessee Department of Environment and Conservation, Division of
Natural Areas, Natural Heritage Program**

Jason Lancaster

To: Stephanie.Ann Williams
Subject: RE: Environmental Review Submitted For TVA - Proposed Oakland Parkway Site: Maury County, TN (Columbia)

From: Stephanie.Ann Williams <Stephanie.Ann.Williams@tn.gov>
Sent: Friday, April 26, 2019 12:59 PM
To: Jason Lancaster <jason.lancaster@cardno.com>
Subject: Environmental Review Submitted For TVA - Proposed Oakland Parkway Site: Maury County, TN (Columbia)

Mr. Lancaster-

Thank you for your correspondence requesting a rare species database review for the proposed Oakland Parkway Site, located in Maury County, Tennessee. The site is approximately 129-acres of grass fields and some wooded land.

The Division of Natural Areas - Natural Heritage Program has reviewed the location of the proposed site with respect to rare plant species. Based on the habitat within the project area, we do not anticipate any impacts to occurrences of rare, threatened, or endangered plant species. There are no known critical habitats, natural areas, or wildlife management areas near the project area.

Please contact me should you have any questions.

Kind regards-
Stephanie



Stephanie Williams | Data Manager
Division of Natural Areas – Natural Heritage Program
Tennessee Tower, 2nd Floor
312 Rosa L. Parks Avenue, Nashville, TN 37243 [MAP](#)
p. 615-532-4799 c. 256-337-3858
stephanie.ann.williams@tn.gov
TN.Gov/environment/natural-areas
[Natural Areas Facebook](#)

From: Stephanie.Ann Williams
Sent: Thursday, April 25, 2019 1:26 PM

To: Environmental Review

Subject: Re: Environmental Review Submitted For TVA – Proposed Oakland Parkway Site: Maury County, TN (Columbia)

Mr. Lancaster-

Thank you for your correspondence requesting a rare species database review for the proposed Allen Springs Site, located in Maury County, Tennessee. The site is approximately 129-acres of grass fields and some wooded land.

The Division of Natural Areas - Natural Heritage Program has reviewed the location of the proposed site with respect to rare plant species. Based on the habitat within the project area, we do not anticipate any impacts to occurrences of rare, threatened, or endangered plant species. There are no known critical habitats, natural areas, or wildlife management areas near the project area.

Please contact me should you have any questions.

Kind regards-

Stephanie



Stephanie Williams | Data Manager

Division of Natural Areas – Natural Heritage Program

Tennessee Tower, 2nd Floor

312 Rosa L. Parks Avenue, Nashville, TN 37243 [MAP](#)

p. 615-532-4799 c. 256-337-3858

stephanie.ann.williams@tn.gov

TN.Gov/environment/natural-areas

[Natural Areas Facebook](#)

From: Environmental Review

Sent: Tuesday, April 16, 2019 1:40 PM

To: jason.lancaster@cardno.com

Subject: Environmental Review Submitted For TVA - Proposed Allen Springs Site: Maury County, TN (Columbia)

Hi Jason Sean Lancaster:

Thank you for your environmental review submission. We will email you our comments within 15 business days. If you have any questions about your review please email: environmental.review@tn.gov.

Kind regards-

Environmental Review Coordinator

Division of Natural Areas

TN Natural Heritage Program
Williams R. Snodgrass TN Tower
312 Rosa L. Parks Ave. 2nd Floor
Nashville, TN 37243