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ECONOMIC DEVELOPMENT GRANT PROPOSAL FOR THE CENTRE 75 BUSINESS PARK

ENVIRONMENTAL ASSESSMENT

Loudon County, Tennessee (Loudon)

Prepared by:

TENNESSEE VALLEY AUTHORITY
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1.0 PROPOSED ACTION AND NEED

An integral part of the Tennessee Valley Authority's (TVA) mission is to promote economic development within the TVA service area. TVA provides financial assistance to help bring to market new/improved sites and facilities within the TVA service area and position communities to compete successfully for new jobs and capital investment. TVA proposes to provide an economic development grant through Invest Ready funds to the Loudon County Economic Development Agency (LCEDA) to assist with the development of a portion of the Centre 75 Business Park (Centre 75) in Loudon County, Tennessee. The area of TVA's Proposed Action (herein referred to as the Project Area) encompasses approximately 43.4 acres of open grassy land located immediately east of Interstate 75, about one mile southwest of Tennessee Highway 72 (TN Hwy 72), and about 3 miles west of the City of Loudon, Tennessee (see **Figure 1** below and Attachment 1, Figure 1-A). TVA funds would be used for rough grading of a 350,000 square foot building pad (including parking lots and truck aprons), construction of an access road, and site stabilization after grading is complete (Attachment 1, Figure 1-B). These activities, herein referred to as the Proposed Action, are further detailed in Section 3.2 below.

The proposed grant to the LCEDA would assist with grading and access to allow prospects to better envision the development potential of the site. The proposed improvements would lead to an increased probability of achieving TVA's core mission of job creation and capital investment. Multiple industrial or commercial sites exist within one mile northwest, north, and northeast of the Project Area including a CVS Caremark Distribution Center, Buckeye Corrugated, Inc., Loudon County Trucking, and American Honda Parts. Target industries include advanced manufacturers. Pursuant to the National Environmental Policy Act (NEPA) and its implementing regulations 40CFR 1500 – 1508 and TVA's implementing regulations 18 CFR 1318, this Environmental Assessment (EA) evaluates the environmental impacts that would potentially result from TVA's Proposed Action. TVA's decision is whether to provide the requested funding to the LCEDA.

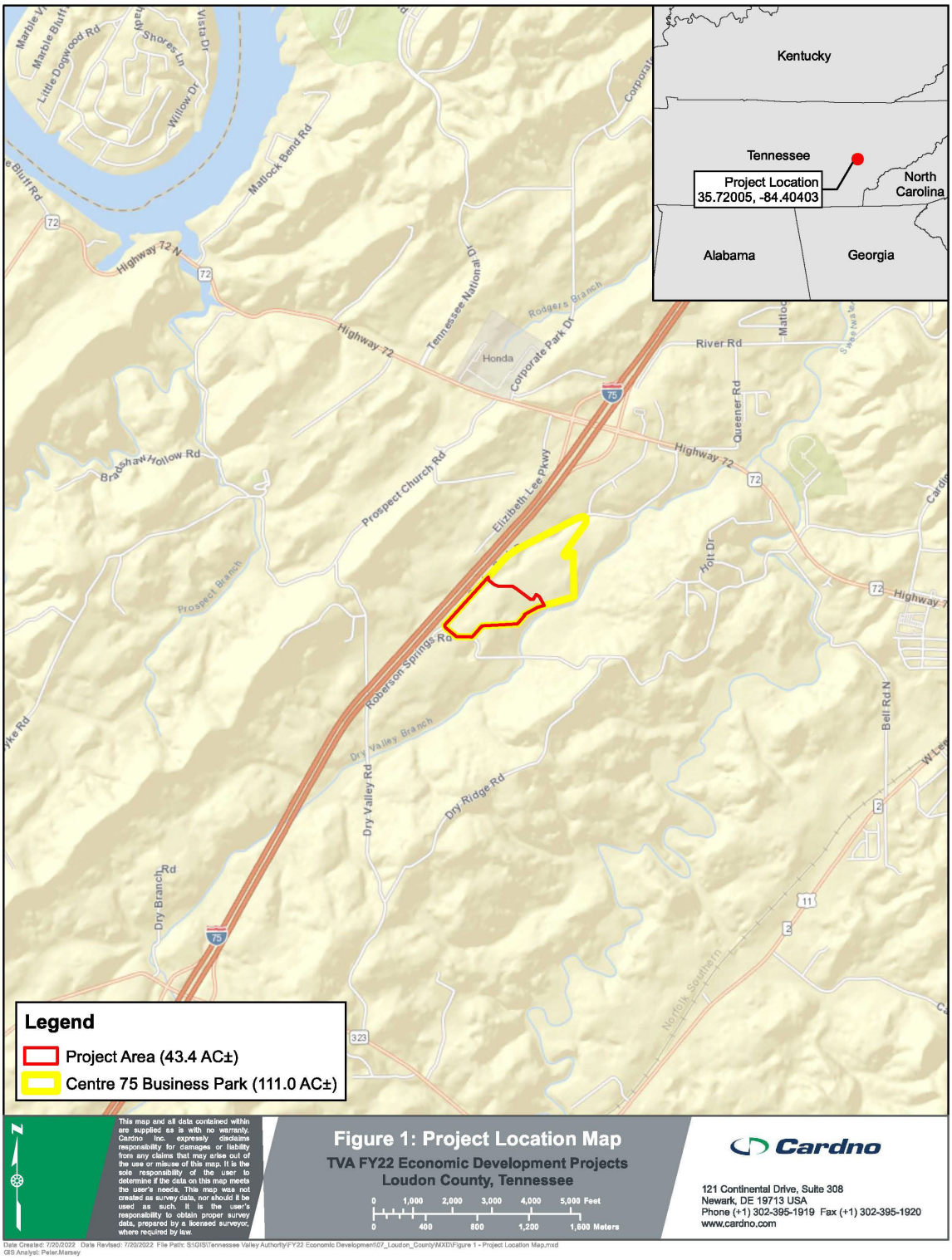

Figure 1. Project Location Map

2.0 OTHER ENVIRONMENTAL REVIEWS AND DOCUMENTATION

In preparation for site development, other studies have been performed by the LCEDA at the 43.4-acre Project Area. The various studies were performed at different times.

Two Phase I Environmental Site Assessments (Phase I ESA) of the Project Area were performed consistent with the procedures included in ASTM E 1527-05 and E 1527-13 (Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process). The first Phase I ESA was conducted by S&ME, Inc. (S&ME) in October 2011 (S&ME 2011a) on approximately 90 acres of the Centre 75 site including the Project Area. The second Phase I ESA was conducted in July 2016 by S&ME (S&ME 2016), also on approximately 90 acres including the Project Area. The purpose of the Phase I ESAs was to identify the presence of recognized environmental conditions (REC) or controlled recognized environmental conditions (CREC) or other environmental liabilities within the Project Area. The Tennessee Department of Environment and Conservation (TDEC) issued a letter in December 2016 (TDEC 2016) indicating that based on a review of their database, the Division of Remediation was not aware of any changes in the vicinity of the Centre 75 site.

A report of geotechnical exploration of a 90-acre portion of the Centre 75 site, including the Project Area was performed by S&ME in December 2011 (S&ME 2011b). The purpose of the geotechnical investigation was to characterize site subsurface conditions for design and construction of projects within the Centre 75 site including the Project Area.

In April 2013, United States Army Corps of Engineers (USACE 2013) issued a letter to the LCEDA regarding a preliminary jurisdictional determination for the Centre 75 site. The USACE letter was based on field investigations and information provided by TDEC.

In June 2022, Cardno, now Stantec (Cardno) prepared a draft Phase I Cultural Resource Investigation report (Cardno 2022). The investigation included field assessments for both archaeological resources and a historic architectural survey for the Project Area.

In February 2013, S&ME (2013) prepared a report evaluating the Centre 75 site including the Project Area for habitat for the federally endangered Indiana bat. The Tennessee Wildlife Resources Agency (TWRA 2016) issued a letter in November 2016 regarding rare and listed species. The TWRA recommended follow-up coordination with the United States Fish and Wildlife Service.

The Phase I ESAs, TDEC letter, geotechnical investigation report, USACE letter, Cardno cultural resources survey report, Indiana bat habitat report, and the TWRA letter were used in the preparation of this EA.

3.0 ALTERNATIVES

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

3.1 The No Action Alternative

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

3.2 The Action Alternative

Under the Action Alternative, TVA would provide TVA InvestReady funds to the LCEDA for site improvements to the Project Area. These improvements would include the rough grading of a 350,000 square foot building pad (including parking lots and truck aprons), construction of an access road, and site stabilization after grading is complete, all within the Project Area (Attachment 1, Figure 1-B). The grading of the Project Area and development of an access road would improve the marketability of the Centre 75 site. The final Project Area elevation of the building pad would crown at approximately 875 feet above mean sea level (msl). Approximately 124,800 cubic yards of cut and fill would be required. No off-site borrow would be needed. The access road would be 24 feet wide, approximately 1,500 feet long, and would connect the proposed building pad to Centre Park Drive. No trees would be cleared. A portion of an existing wooden fence would be removed to construct the access road. Erosion prevention, sediment control, and stabilization measures such as seeding, straw mulch, and turf reinforcement mats would be implemented after grading is complete. Activities required for the Action Alternative would occur over approximately 6 months and would require a small workforce that would most likely be assigned from a local contractor. For ease of discussion in this EA, the proposed actions are collectively described as grading and/or construction.

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

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

4.0 AFFECTED ENVIRONMENT AND ANTICIPATED IMPACTS

4.1 Site Description

The 43.4-acre Project Area encompasses a portion of the vacant, undeveloped Centre 75 site in Loudon County, Tennessee, on agricultural uplands immediately east of Interstate 75, 0.9 mile south of TN Hwy 72, 2.3 miles south of the Tennessee River, and approximately 3 miles west of the City of Loudon, Tennessee (Attachment 1, Figure 1-A).

The Project Area is situated within a mixed agricultural, industrial/commercial, and light residential area of Loudon, Tennessee, and is located in zone M-2 (Heavy Manufacturing). Existing land use within the Project Area is classified as Business/Manufactory Center (Loudon 2022). Industrial and or commercial neighbors located within approximately one mile of the Project Area include CVS Caremark Distribution Center, Buckeye Corrugated, Inc., Loudon County Trucking, and American Honda Parts. Site access is from Centre Park Drive, which parallels Interstate 75, and is located immediately west of the Project Area. The land use surrounding the Project Area includes roads, Interstate 75, patchy forested areas, and agricultural lands to the west, agricultural areas, patchy forest, and scattered residences to the south and east, and agricultural areas, patchy forest, and commercial/industrial areas to the north. Permanent structures or utilities located within the Project Area include a wooden fence, TVA 500-kilovolt (kV) transmission lines (150-foot-wide easement) in the southern part of the Project Area, and a Colonial Pipeline petroleum transmission pipeline (50-foot-wide easement) in the eastern portion of the Project Area. Adjacent utilities along Centre Park Drive include 8-inch-diameter water and sewer lines, a 3-phase overhead electric distribution line, and a 4-inch-diameter natural gas distribution line.

The land types identified in the Tennessee Real Estate Assessment Database include Exempt as assessed using land use data derived from the Computer Assisted Appraisal System property assessment data maintained by the State of Tennessee's Comptroller of the Treasury (Tennessee 2022).

The Project Area ranges from approximately 830 to 900 feet above msl (Attachment 1, Figure 1-C). In the past, the Project Area has been used for farming with row crops including soybeans (S&ME 2011a), but now consists of undeveloped pasture (Cardno 2022). A small strip of trees and shrubs occurs along Centre Park Drive in the northwest part of the Project Area, but no tree clearing is proposed by the LCEDA. The Project Area previously contained additional tree lines and patches based on historical aerial photography, but these trees were cleared between 2015 and 2017.

4.2 Impacts Evaluated

As stated previously, two Phase I ESAs were conducted in the Project Area. Neither Phase I ESA identified any RECs or current or historical chemical, petroleum, or hazardous substance operations or storage areas or locations within the Project Area that would indicate the presence of solid or hazardous wastes (S&ME 2011a; S&ME 2016). Based on the 2016 Phase I ESA, there is no evidence that historical use of pesticides/herbicides at the Project Area was conducted outside of standard practices. Therefore, the possible long-term use of agricultural grade pesticides or herbicides that may persist in the soils at the subject Property does not represent a REC. No demolition or construction waste activities are associated with the Action Alternative.

Therefore, the Proposed Action is not expected to result in significant impacts from the creation or disposal of solid and hazardous wastes.

The Federal Emergency Management Agency (FEMA) flood insurance rate maps for Loudon County, Tennessee (Attachment 1, Figure 1-D), (panel numbers 47105C0157D, 47105C0175D, and 47105C0159D, effective 05/16/2007) indicate the Project Area would not be located within an identified 100-year floodplain. The 2013 USACE Preliminary Jurisdictional Determination Letter identified no perennial streams within the Project Area. Therefore, the Proposed Action would be consistent with EO 11988 and would have no impact on floodplains or their natural and beneficial values.

The Preliminary Jurisdictional Determination letter issued by the USACE (2013) identified a single ephemeral channel approximately 3,200 feet in length within the Centre 75 site. The ephemeral channel is connected to Dry Valley Branch, a tributary of Sweetwater Creek, which flows into the Tennessee River. A portion of the ephemeral channel would be located within the Project Area. The channel was observed in the field by USACE and was considered to be jurisdictional waters of the United States. The ephemeral channel is located within the strip of shrubs and small trees in the northwest portion of the Project Area (Cardno 2022) (Attachment 1, Figures 1-E and 1-F). Impacts to the ephemeral channel would be avoided, although a bridge over the ephemeral channel may be required for the proposed access road connecting to Centre Park Drive. Additionally, there are no wetlands located in the Project Area; therefore, the Proposed Action would not result in impacts to surface waters or wetlands. The Proposed Action would have no effect to surface waters, and because the ephemeral channel does not support aquatic life, there would be no effects for aquatic zoology.

The Proposed Action would not cause alteration in land use or have negative impacts on prime farmland. The Project Area is located within a property zoned for Heavy Manufacturing, and would not result in a change to the zoned land use.

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

A review of data from the TVA Regional Natural Heritage Database indicated that there are three managed/natural areas within three miles of the Project Area: Watts Bar Reservoir and Dam Reservation (TVA Asset), a 218-acre Land Trust for Tennessee Conservation Easement, and Polecat Creek Slopes TVA Habitat Protection Area. None of these resources overlap with the Project Area. Given the distance and nature of these resources relative to the Project Area, no impacts to natural areas are anticipated from the Proposed Action.

There are no developed parks or outdoor recreation areas in the immediate vicinity of the Project Area. The closest park is Loudon Municipal Park located about 1.4 miles northeast of the Project

Area. Loudon Municipal Park includes baseball fields, disc golf, soccer field, volleyball court, walking track, hiking trail, and a picnic shelter (Visit Loudon County 2022). Given the distances between the Project Area and the developed recreation area (TVA 2022), and the fact that the Project Area is zoned for Heavy Manufacturing and is located in a primarily industrialized area, implementation of the Action Alternative would not result in significant impacts to recreational opportunities near the Project Area.

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

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

4.2.1 *Air Quality and Climate Change*

Federal and state regulations protect ambient air quality. With authority granted by the Clean Air Act (CAA) 42 United States Code (USC) 7401 et seq. as amended in 1977 and 1990, the United States Environmental Protection Agency (USEPA) established National Ambient Air Quality Standards (NAAQS) to protect human health and public welfare. The USEPA codified NAAQS in 40 CFR 50 for the following "criteria pollutants:" nitrogen dioxide (NO_2), carbon monoxide (CO), ozone, sulfur dioxide (SO_2), lead, particulate matter (PM) with an aerodynamic diameter equal to or less than 10 microns (PM_{10}), and PM with an aerodynamic diameter equal to or less than 2.5 microns ($PM_{2.5}$). The NAAQS reflect the relationship between pollutant concentrations and health and welfare effects. Primary standards protect human health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards are designed to protect public welfare, including visibility, animals, crops, vegetation, and buildings. These standards reflect the latest scientific knowledge and have an adequate margin of safety intended to address uncertainties and provide a reasonable degree of protection. The air quality in Loudon County, Tennessee is designated as being in attainment with respect to the criteria pollutants (USEPA 2022a).

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

GHGs are gases that trap heat in the atmosphere, are non-toxic and non-hazardous at normal ambient concentrations. At this time, there are no applicable ambient air quality standards or emission limits for GHGs under the CAA. GHGs occur in the atmosphere both naturally and resulting from human activities, such as the burning of fossil fuels. GHG emissions due to human

activity are the main cause of increased atmospheric concentration of GHGs since the industrial age and are the primary contributor to climate change. The principal GHGs are carbon dioxide (CO_2), methane, and nitrous oxide.

Air quality impacts associated with activities under the Action Alternative include emissions from fossil fuel-fired equipment and fugitive dust from ground disturbances. Fossil fuel-fired equipment are a source of combustion emissions, including nitrogen oxides (NO_X), CO, VOCs, SO_2, PM_{10}, $PM_{2.5}$, GHGs, and small amounts of HAPs. Gasoline and diesel engines used as a result of the Action Alternative are expected to be in compliance with the USEPA mobile source regulations in 40 CFR Part 85 for on-road engines and 40 CFR Part 89 for non-road engines. These regulations are designed to minimize emissions and require a maximum sulfur content in diesel fuel of 15 parts per million (ppm). No trees would be cleared as part of the Proposed Action, so no burning of woody debris is anticipated.

Fugitive dust is a source of respirable airborne PM, including PM_{10} and $PM_{2.5}$, which could result from ground disturbances such as land clearing, grading, excavation, and travel on unpaved roads. The amount of dust generated is a function of the activity, silt and moisture content of the soil, wind speed, frequency of precipitation, vehicle traffic, vehicle types, and roadway characteristics. The LCEDA, or its contractors, would be expected to comply with TDEC Air Pollution Control Rule 1200-3-8, which requires reasonable precautions to prevent PM from becoming airborne. Such reasonable precautions include grading of roads, clearing of land, and the use of water or chemicals for control of dust in construction operations on dirt roads and stockpiles, as needed.

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

Concerning climate change, no trees would be cleared as a part of the Proposed Action. Since the Project Area is agricultural land, it contributes very little as a carbon sink. Therefore, the project would have little contribution to climate change.

Under the No Action Alternative, if the LCEDA were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar emissions associated from equipment and ground disturbances would occur, resulting in similar air quality and climate change impacts as those described above for the Action Alternative. If the LCEDA were not able to secure the funding for the actions described in this EA, emissions associated from equipment and ground disturbances would not occur and there would be no impacts to air quality and climate change from the No Action Alternative.

4.2.2 Groundwater

The Project Area is located within the Valley and Ridge Province (National Park Service [NPS] 2017). The Valley and Ridge Province extends southwest to northeast and is characterized by a sequence of folded and faulted, Paleozoic sedimentary rocks that form a series of alternating valleys and ridges that extend from Alabama and Georgia to New York (USGS 1995).

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

as the East Tennessee aquifer system and consists of soluble carbonate rocks and some easily eroded shales underlie the valleys while more erosion-resistant siltstone, sandstone, and some cherty dolomite underlie ridges (USGS 1986).

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

Implementation of the Action Alternative would result in ground disturbance during construction activities. Removal of a linear fence would result in minor ground disturbance at shallow depths. Existing topography ranges from approximately 830 feet MSL to 900 feet MSL. Site improvements consisting of rough grading of a 350,000 square foot building pad (including parking lots and truck aprons) would result in greater ground disturbance at moderate depths resulting in proposed final grade elevations that would crown at approximately 875 feet MSL. To achieve these elevations, it is expected that earthwork cuts of up to 20 feet and earthwork fill of up to 25 feet will be required. In addition, construction of a 24-foot-wide, 1,500-foot-long access road connecting the proposed building pad to Centre Park Drive resulting in ground disturbance at moderate depths. Geotechnical borings were conducted on the Project Area in 2011. The “Report of Geotechnical Exploration Project Tango – Centre 75 Business Park” conducted by SME, Inc. indicates the overburden at the project site consists mostly of clay from depths ranging 9 feet to 52 feet below land surface (maximum depth of conducted borings). Groundwater was not encountered during any of the geotechnical borings. These minor impacts would be temporary and would not significantly affect groundwater resources.

Shallow aquifers could sustain minor impacts from changes in overland water flow and recharge caused by grading and construction of an access road within the Project Area. Water infiltration, which is normally enhanced by vegetation, would be reduced until vegetation is re-established. In addition, near-surface soil compaction caused by heavy construction vehicles could reduce the ability of soil to absorb water. These minor impacts would be temporary and would not significantly affect groundwater resources.

Phase I Environmental Site Assessments were completed in October 2011 and July 2016 by SME, Inc., which indicated that the Project Area was cultivated farmland and there was no discovery of adverse environmental conditions on the Project Area. Historical land use of the Project Area was primarily farmland or residential/commercial. As such, it is not anticipated that construction activities would encounter hazardous substances during the aforementioned site improvements. Furthermore, it is expected that the LCEDA, or its contractors, would conduct operations involving chemical or fuel storage or resupply and equipment and vehicle servicing with care to avoid leakage, spillage, and subsequent ground water contamination.

Under the No Action Alternative, if the LCEDA were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar ground disturbance would occur, resulting in similar impacts to groundwater resources as those described above for the Action Alternative. If the LCEDA were not able to secure the funding for the actions described in

this EA, ground disturbance associated with fence removal, grading, and construction of an access road would not occur and there would be no impacts to groundwater resources.

4.2.3 Soil Erosion

The Project Area is in Loudon County, Tennessee in the Valley and Ridge Province within the Appalachian Highlands physiographic region of Tennessee. The Project Area contains an ephemeral channel approximately 3,200 feet in length that connects to Dry Valley Branch, a tributary of Sweetwater Creek, within the Sweetwater Creek watershed (Hydrologic Unit Code [HUC]-12 060102010301).

Precipitation in the vicinity of the Project Area averages about 51 inches per year. The average monthly air temperature ranges from a high of 89 degrees Fahrenheit in July to a low of 28 degrees Fahrenheit in January (United States Climate Data 2022).

Soil types and descriptions were obtained from the Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2022) (see Attachment 1, Figure 1-G). Soil types found within the Project Area include Dewey silty clay loam (6-15 and 15-25 percent slopes), Dewey Silty Clay, severely eroded, Emory silt loam (0-4 percent slopes), Fullerton silt loam, and Lindside silt loam.

A geotechnical investigation was conducted on the Project Area in 2011 (SM&E Inc. 2011). The 2011 investigation found cultivated soil and alluvial soil 0 to 9 feet in the approximately 50-foot borings. The remainder of the borings were comprised of reddish brown or reddish yellow clay. The report recommends that initially the Project Area should be cleared of all vegetation and rock fragments should be stripped to prepare the area for construction (S&ME 2011a).

Under the Action Alternative, soils in the Project Area would be disturbed by widespread grading for the rough grading of a 350,000 square foot building pad, 24-foot-wide by 1,500-foot-long access road and site stabilization. Additionally, 124,800 cubic yards of cut and fill would be required and procured on-site for grading of the building pad. The Proposed Action includes the stabilization of disturbed soils following grading as described in section 3.2. Further, BMPs would be required as part of the National Pollutant and Discharge Elimination System (NPDES) General Permit for Discharges Associated with Construction Activities (TNR100000). This permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP would identify specific BMPs to address construction-related activities that would be adopted to minimize erosion-related impacts. BMPs, as described in the Tennessee Erosion and Sediment Control Handbook (TDEC 2012) would be used during site development to avoid contamination of surface water in the Project Area. These factors would effectively avoid or minimize impacts on soils and from soil erosion.

Under the No Action Alternative, if the LCEDA were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar site activities would occur, resulting in similar impacts on soils as those described above for the Action Alternative. If the LCEDA were not able to secure the funding for the actions described in this EA, disturbance associated with the Proposed Action would not occur and there would be no impacts on soils or from soil erosion.

4.2.4 *Terrestrial Zoology*

4.2.4.1 ***Wildlife***

The Center 75 site includes agricultural fields, deciduous forest, and one ephemeral stream. The Project Area is comprised primarily of agricultural fields with a small area of shrubs and young trees, and a small section of the stream.

Deciduous forests within the Center 75 site provide habitat for an array of terrestrial animal species; however no forested habitat occurs in the Project Area. Birds typical of deciduous forests in this region include eastern whip-poor-will (*Antrostomus vociferus*), Kentucky warbler (*Geothlypis formosa*), pileated woodpecker (*Dryocopus pileatus*), red-bellied woodpecker (*Melanerpes carolinus*), red-eyed vireo (*Vireo olivaceus*), red-tailed hawk (*Buteo jamaicensis*), scarlet tanager (*Piranga olivacea*), summer tanager (*Piranga rubra*), wild turkey (*Meleagris gallopavo*), and wood thrush (*Hylocichla mustelina*)(National Geographic 2002; Sibley 2003). This area also provides foraging and roosting habitat for several species of bat, particularly in areas where the forest understory is partially open. Bat species likely found within this habitat include big brown bat (*Eptesicus fuscus*), eastern red bat (*Lasiurus borealis*), and evening bat (*Nycticeius humeralis*). Eastern chipmunk (*Tamias striatus*), eastern woodrat (*Neotoma floridana*), and white-tailed deer (*Odocoileus virginianus*) are other mammals likely to occur within this habitat (Kays and Wilson 2002; Whitaker 1996). Broad-headed skink (*Plestiodon laticeps*), eastern box turtle (*Terrapene carolina carolina)*, five-lined skink (*Plestiodon fasciatus*), gray ratsnake (*Pantherophis spiloides*), and smooth earth snake (*Virginia valeriae*) are common reptiles of eastern deciduous forests (Powell et al. 2016; Dorcas and Gibbons 2005). Forested streams in this region likely provide habitat for amphibians including Cope's gray treefrog (*Dryophytes chrysoscelis*), dusky salamander (*Desmognathus fuscus*), northern slimy salamander (*Plethodon glutinosus*), spring peepers (*Pseudacris crucifer*), and two-lined salamanders (*Eurycea bislineata*) (Powell et al. 2016).

Agricultural fields comprise over 75 percent of the Center 75 site and 100 percent of the Project Area. Common inhabitants of agricultural fields include American goldfinch (*Spinus tristis*), brown-headed cowbird (*Molothrus ater*), blue-winged warbler (*Vermivora cyanoptera*), brown thrasher (*Toxostoma rufum*), eastern bluebird (*Sialia sialis*), eastern meadowlark (*Sturnella magna*), indigo bunting (*Passerina cyanea*), killdeer (*Charadrius vociferus*), and mourning dove (*Zenaida macroura*) (National Geographic 2002; Sibley 2003). Bobcat, (*Lynx rufus*), coyote (*Canis latrans*), eastern cottontail (*Sylvilagus floridanus*), groundhog (*Marmota monax*), red fox (*Vulpes vulpes*), and white tailed deer (*Odocoileus virginianus*) are mammals typical of fields and cultivated land (Kays and Wilson 2002; Whitaker 1996). Amphibians such as eastern narrow-mouthed toad (*Gastrophryne carolinensis*) and reptiles including black racer (*Coluber constrictor*) and ring-necked snake (*Diadophis punctatus*) are also known to occur in this habitat type (Powell et al. 2016; Dorcas and Gibbons 2005). Pollinators such as eastern tiger swallowtail (*Papilio glaucus*), great spangled fritillary (*Speyeria cybele*), and red-spotted purple butterfly (*Limenitis arthemis*) occur in this region (Brock and Kaufman 2003) though flowering herbaceous vegetation at the Site, if present at all, would be limited to small remnants of natural vegetation under fences and along field edges and the stream where field plows and mowers cannot easily reach.

No cave records were identified within three miles of the Project Area during a review of the TVA Regional Natural Heritage Database in March 2022. Caves were not observed during a field survey of the site.

One heronry has been documented within three miles of the Project Area. This record is approximately 2.62 miles away. No additional heronries or aggregations of migratory birds were observed during field surveys of the site. Due to the distance of proposed actions from the

documented colony, no impacts would occur. Review of the U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) tool in March 2022 identified two migratory bird species of conservation concern that could occur within the Project Area: prairie warbler (*Setophaga discolor*) and wood thrush (*Hylocichla mustelina*). The mature deciduous trees and its corresponding edge habitat within the Center 75 site would provide suitable nesting and foraging habitat for these species. Mature forested habitat for woodthrush does not occur in the Project Area. A small area of shrubs and saplings along the ephemeral stream does occur in the Project Area. No forested habitat would be removed in association with the proposed actions and no impacts to the ephemeral stream would occur where brushy habitat exists. Therefore, no impacts to these migratory bird species are anticipated.

Under Action Alternative, TVA would fund the construction of a dirt pad, access roads and stabilization after grading activities. No tree removal would occur. No impacts to the ephemeral stream would occur. Nonetheless, proposed actions would remove wildlife habitat in the form of agricultural fields. This would result in the displacement of any wildlife (primarily common, habituated species) currently using the area.

Direct effects to some individuals may occur, particularly if those individuals are immobile during the time of habitat removal. This could be the case if activities took place during winter or breeding/nesting seasons when animals are burrowed underground and/or too young to flee. Habitat removal likely would disperse mobile wildlife into surrounding areas in an attempt to find new food sources, shelter sources, and to re-establish territories. Best Management Practices (BMPs) must be used along bodies of water to minimize potential impacts to stream banks and water quality in the proposed action area. Due to the lower quality of the habitat due to previous disturbance and the amount of similarly suitable habitat in areas in the surrounding the Project Area, populations of common wildlife species likely would not be impacted by the proposed actions. Following the proposed actions, those species of animal that can utilize developed areas are expected to return to the Project Area.

Cumulative effects of the project on common wildlife species are expected to be negligible. Most of the proposed project footprint has previously been heavily impacted by agriculture leaving only one small area of natural vegetation around the ephemeral stream and along the property edge. These natural areas would not be impacted. Proposed actions in the agricultural fields across the Project Area would permanently remove existing habitat for common wildlife.

Under the No Action Alternative, if the LCEDA were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar site activities would occur, resulting in similar impacts on terrestrial wildlife or their habitats as those described above for the Action Alternative. If the LCEDA were not able to secure the funding for the actions described in this EA, disturbance associated with the Proposed Action would not occur and there would be no impacts on terrestrial animals or their habitats.

4.2.4.2 ***Threatened and Endangered Species (Wildlife)***

Review of the TVA Regional Heritage Database in March 2022 resulted in records of one state-listed species (osprey (*Pandion haliaetus*)) within a three-mile radius of the Project Area. Records of two federally listed species (gray bat (*Myotis grisescens*) and rusty-patched bumblebee (*Bombus affinis*)) and one federally protected species (bald eagle (*Haliaeetus leucocephalus*)) are known from Loudon County, Tennessee. Review of the USFWS IPaC tool in March 2022 identified two additional federally listed species (Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*)) and one candidate species for federal listing (monarch butterfly

(*Danaus plexippus*)) that could be expected to occur within the Project Area. A full species list and conservation statuses can be found in Table 4-1. Species-specific information and habitat suitability within the Project Area are discussed below.

Table 4-1. Federally listed terrestrial animal species reported from Loudon County, Tennessee and other species of conservation concern documented within three miles of Invest Ready, Loudon County, TN[1]

Common Name	Scientific Name	Status[2]	
		Federal	State (Rank[3])
Invertebrates			
Monarch butterfly[4]	*Danaus plexippus*	C	-(S4)
Rusty-patched Bumble Bee[5]	*Bombus affinis*	E	-(S1)
Birds			
Bald eagle[5]	*Haliaeetus leucocephalus*	DM	D(S3)
Osprey	*Pandion haliaetus*	-	-(S3)
Mammals			
Gray bat[5]	*Myotis grisescens*	E	E(S2)
Indiana bat[6]	*Myotis sodalis*	E	E(S1)
Northern long-eared bat[6]	*Myotis septentrionalis*	T	T(S1S2)

[1] Source: TVA Regional Natural Heritage Database, extracted 03/16/2022 and USFWS Information for Planning and Consultation (https://ecos.fws.gov/ipac/), accessed 03/16/2022.
[2] Status Codes: C = Candidate species for federal listing; D = Deemed in Need of Management; DM = Delisted and Being Monitored; E = Endangered; T = Threatened.
[3] State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; S4 = Apparently Secure.
[4] Historically, this species has not been tracked by state or federal heritage programs.
[5] Federally listed or protected species known from Loudon County, but not within three miles of the Project Area.
[6] Species that have not been documented within three miles of the project footprint or within Loudon County, Tennessee; USFWS has determined this species could occur within the Project Area.

The monarch butterfly is a highly migratory species, with eastern United States (U.S.) populations overwintering in Mexico. Monarch populations typically return to the eastern U.S. in April (Davis and Howard 2005). Summer breeding habitat requires milkweed plant species, on which adults exclusively lay eggs for larvae to develop and feed on. Adults will drink nectar from other blooming wildflowers when milkweeds are not in bloom (NatureServe 2022). The early successional field within the Project Area consists primarily of tall grasses. Scattered stems of flowering plants may exist occasionally throughout the field and at field edges, particularly along the ephemeral stream. However, none of these areas provide a significant amount of foraging habitat. Milkweed was not noted in field survey reports. Though this species has not been historically tracked by state or federal heritage programs, the USFWS IPaC tool determined that this species could occur within the Project Area.

Rusty-patched bumblebee inhabits grasslands, prairies, woodlands, marshes, agricultural landscapes, and residential parks and gardens. They require both diverse, abundant flowers from April to September and undisturbed nesting sites nearby in order to have sufficient food and

overwintering sites for queens. They often build nests in abandoned, underground rodent cavities of large clumps of grass (USFWS 2016). One record of rusty-patched bumblebee is present in Loudon County approximately 13.4 miles away from the proposed action area. This record is listed as possibly historical due to the age of the record (1966). Ample habitat for this species is not present within the Center 75 site.

Bald eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). This species is associated with large mature trees capable of supporting their nests that can weigh several hundred pounds and are typically built near larger waterways where they forage primarily for fish (USFWS 2007a). Bald eagles are most reproductively successful in areas where human disturbance is minimized (Wilson et. al. 2018). Adults exhibit high pair and nest site fidelity throughout their lifetime (Jenkins and Jackman 1993). Eight bald eagle records are known from Loudon County, the nearest of which is approximately 5.7 miles from the proposed project. No suitable nesting or foraging habitat for bald eagle is present within the Center 75 site.

Osprey can be found near rivers, lakes and other large bodies of water. Osprey primarily nest over water, constructing large stick nests on trees or non-natural objects like poles or transmission structures (TWRA 2022). Four osprey nests have been reported within three miles of the action area, the closest of which is approximately 2.4 miles from the project footprint. No suitable habitat for osprey exists within t

Gray bats roost in caves year-round and migrate between summer and winter roosts during spring and fall (Brady et al. 1982, Tuttle 1976a). Bats disperse over bodies of water at dusk where they forage for insects emerging from the surface of the water (Tuttle 1976b). One record of gray bat is from Loudon County, approximately 12.3 miles away. No caves are known three miles. No hibernacula or other roosting habitat exists in the Center 75 site. One ephemeral stream in the Project Area would provide temporary foraging habitat for gray bats.

Indiana bats hibernate in caves in winter and use areas around them for swarming (mating) in the fall and staging in the spring, prior to migration back to summer habitat. During the summer, Indiana bats roost under the exfoliating bark of dead snags and living trees in mature forests with an open understory and a nearby source of water (Pruitt and TeWinkel 2007, Kurta et al. 2002). Indiana bats are known to change roost trees frequently throughout the season, while still maintaining site fidelity, returning to the same summer roosting areas in subsequent years (Pruitt and TeWinkel 2007). This species forages over forest canopies, along forest edges and tree lines, and occasionally over bodies of water (Pruitt and TeWinkel 2007, Kurta et al. 2002, USFWS 2019a). There are no records of Indiana bat in Loudon County; however, the USFWS has determined they have the potential to occur here. No caves are known three miles. No hibernacula or other winter roosting habitat exists in the Center 75 site. One ephemeral stream in the Project Area would provide temporary foraging habitat for Indiana bats. Additional foraging habitat occurs over the mature forested habitat within the Center 75 site. This forested habitat also provides suitable summer roosting habitat for Indiana bat. All areas of mature forested habitat have been excluded from the Project Area.

The northern long-eared bat predominantly overwinters in large hibernacula such as caves, abandoned mines, and cave-like structures. During the fall and spring they utilize entrances of caves and the surrounding forested areas for swarming and staging. In the summer, northern long-eared bats roost individually or in colonies beneath exfoliating bark or in crevices of both live and dead trees (typically greater than 3 inches in diameter). Roost selection by northern long-

eared bat is similar to that of Indiana bat; however, northern long-eared bats are thought to be more opportunistic in roost site selection. This species also roosts in abandoned buildings and under bridges. Northern long-eared bats emerge at dusk to forage below the canopy of mature forests on hillsides and roads, and occasionally over forest clearings and along riparian areas (USFWS 2014). There are no records of Indiana bat in Loudon County; however, the USFWS has determined they have the potential to occur here. No caves are known three miles. No hibernacula or other winter roosting habitat exists in the Center 75 site. One ephemeral stream in the Project Area would provide temporary foraging habitat for northern long-eared bats. Additional foraging habitat occurs over the mature forested habitat within the Center 75 site. This forested habitat also provides suitable summer roosting habitat for northern long-eared bat. All areas of mature forested habitat have been excluded from the Project Area.

Under the Action Alternative, no tree removal would occur and no impacts to the ephemeral stream would occur. Nonetheless proposed actions would remove terrestrial animal habitat in the form of agricultural fields.

Six state or federally listed or protected species were addressed based on the potential for the species to occur in the project footprint (monarch, rusty-patched bumblebee, osprey, bald eagle, gray bat, Indiana bat, and northern long-eared bat). Of these, three federally listed species (gray bat, Indiana bat, and northern long-eared bat) have the potential to be minorly impacted by the proposed actions. No osprey or bald eagle nests or foraging habitat would be impacted by the proposed actions. Actions are in compliance with the National Bald Eagle Management Guidelines. Limited monarch butterfly foraging habitat could occur in the Project Area. However, no host plant habitat would be impacted. This species is currently listed under the Endangered Species Act (ESA) as a candidate species and is not subject to Section 7 consultation under the ESA. Significant impacts to the monarch butterfly are not anticipated as a result of this project. Finally, based on guidance provided by the US Fish and Wildlife Service, the rusty-patched bumblebee was not identified as having the potential to occur in the Center 75 site during a query of IPaC in March 2022. Therefore this species is not likely to be present in the Project Area and would not be impacted by proposed actions.

No caves or other hibernacula for gray bat, Indiana bat, or northern long-eared bat exist in the project footprint or would be impacted by the proposed actions. Foraging habitat for all three species occurs over the stream in the Project Area. Impacts to this stream would not occur. No mature forest occurs in the Project Area. No tree removal would occur in association with the proposed actions.

A number of activities associated with the proposed project were addressed in TVA's programmatic consultation with the U.S. Fish and Wildlife Service on routine actions and federally listed bats in accordance with ESA Section 7(a)(2). For those activities with potential to affect bats, TVA committed to implementing specific conservation measures. These activities and associated conservation measures are identified in the TVA Bat Strategy Project Screening Form (attached) and need to be reviewed/implemented as part of the proposed project. With adherence to the identified conservation measures, proposed actions would not significantly impact gray bat, Indiana bat, or northern long-eared bat.

Under the No Action Alternative, if the LCEDA were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar site activities would occur, resulting in similar impacts on Threatened and Endangered terrestrial animals or their habitats as

those described above for the Action Alternative. If the LCEDA were not able to secure the funding for the actions described in this EA, disturbance associated with the Proposed Action would not occur and there would be no impacts on Threatened and Endangered terrestrial animals or their habitats.

4.2.5 *Botany*

4.2.5.1 ***Vegetation***

The Project Area is located in the Eastern Temperate Forests Ecoregion, which covers much of the eastern United States, Ridge and Valley sub-region (USEPA 2022b). The sub-region consists primarily of ridges, valleys, and hills, with oak-hickory-pine natural vegetation. Today, the sub-region typically contains a mixture of forest, pasture, and croplands (USEPA 2011).

Based on existing studies and a desktop review of past and current conditions, the Project Area has been in use for agricultural crops or pasture. According to the 2011 Phase I ESA, based on a review of nine historic aerial photographs (ranging from 1973 to 2008) and anecdotal information collected during the assessment, the Project Area appears to have been cultivated farmland for decades (S&ME 2011a). The Project Area was used to grow a soybean crop in 2011 (S&ME 2011a). Most recently, the Project Area was described as tall grasses and weeds, with narrow tree lines present along the northern and southern borders during the 2022 cultural resources survey (Cardno 2022).

Implementation of the Action Alternative would not result in negative impacts to native vegetation on any appreciable scale. Tree clearing is not part of the Proposed Action. Adoption of this alternative would result in disturbance of most of the Project Area. Vegetation would be removed, and the area would be graded. Impacts to vegetation may be permanent, but the vegetation found within the Project Area is comprised of non-native weeds and early successional plants that have little conservation value and was previously comprised of mono-cultured row crops.

Under the No Action Alternative, if the LCEDA were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar site activities would occur, resulting in similar impacts to vegetation as those described above for the Action Alternative. If the LCEDA were not able to secure the funding for the actions described in this EA, disturbance associated with the Proposed Action would not occur and there would be no impacts to vegetation.

4.2.5.2 ***Threatened and Endangered Species***

A May 2022 query of the TVA Regional Natural Heritage Database indicated that no federally listed plant species have been previously reported from within a five-mile vicinity of the proposed Project Area or within Loudon County, Tennessee. An August 2022 query of the USFWS IPaC did not indicate the presence of federally listed plant species (USFWS 2022).

A total of two state-listed plant species have been previously reported within Loudon County, both of which are also within a five-mile vicinity of the proposed Project Area. These species include American barberry (*Berberis canadensis*) and spreading false-foxglove (*Aureolaria patula*). **Table 4-2** shows the State listing and ranking of the species occurring within Loudon County.

Table 4-2 Plant Species of Conservation Concern Previously reported within Loudon County, Tennessee within 3 Miles of the Project Area[1]

Common Name	Scientific Name	Federal Status[2]	TN State Status[2]	State Rank[3]	Habitat[4]
PLANTS					
American barberry	*Berberis canadensis*	–	S	S2	Banks of streams and dry woods
Spreading false-foxglove	*Aureolaria patula*	–	S	S3	Upland woods, parasitic on the roots of oaks, also parasitic on other woody host plants such as sweetgum, red bud, ironwood, and flowering dogwood

[1] Source: TVA and Tennessee Natural Heritage Database, queried May 2022

[2] Status Codes: S = Special Concern

[3] State Ranks: S2 = Very rare and Imperiled; S3 = Rare and uncommon

[4] Habitat: PFAF 2022; GADNR 2022

Based on previous reports and studies detailing on-site conditions, the entirety of the Project Area has been highly disturbed by agricultural activity and is populated primarily with non-native plant species. No designated critical habitat for plants occurs in the Project Area. Previous agricultural activities within the Project Area have resulted in significant disturbance that makes the parcel unsuitable for threatened or endangered plant species. Perennial streams do not occur in the Project Area and tree clearing is not part of the Proposed Action; therefore, suitable habitat for the American barberry and spreading false-foxglove, if it existed, would not be affected by the Proposed Action. In 2016, a rare species review was conducted by the TWRA (TWRA 2016) for the Centre 75 site including the Project Area. TWRA indicated that it had no concerns for listed plant species. Therefore, impacts to sensitive botanical species are expected to be insignificant.

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

4.2.6 *Archaeology and Historic Structures and Sites*

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

TVA determined that the Proposed Action Alternative is an “undertaking” as defined by the regulations under NHPA. Once an action is determined to be an undertaking, the regulations require agencies to consider whether the proposed activity has the potential to impact historic

properties. If the undertaking is such an activity, then the agency must follow the following steps: (1) involve the appropriate consulting parties; (2) define the Area of Potential Effect (APE); (3) identify historic properties in the APE; (4) evaluate possible effects of the undertaking on historic properties in the APE; and (5) resolve adverse effects (36 CFR § 800.4 through 800.13). An APE is defined as the "geographic area or areas within which the undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist" (36 CFR § 800.16). TVA recommends that the APE be considered as the total area within which the proposed grading would take place (43.4 acres), where physical effects could occur as well as areas within a half-mile radius of the project within which the project would be visible where visual effects on historic structures could occur.

TVA contracted with Cardno to carry out an archaeological and architectural survey for the project APE, which was conducted on May 9-10, 2022, and to write a report titled, *Phase I Cultural Resource Investigations of the Centre 75 Business Park, Loudon County, Tennessee*. TVA determined that the survey and the report are consistent with the *Secretary of Interior's Standards and Guidelines for Identification* (National Park Service [NPS] (1983).

4.2.6.1 ***Archaeology***

Cardno's background research did not identify any previously known archaeological sites within the APE. The Phase I archaeological survey completed of the APE did not identify any archaeological sites. Cardno recommended no further archaeological work within the APE. TVA received concurrence from the Tennessee Historical Commission (THC) on August 11, 2022, with the report's findings.

Under the No Action Alternative, if the LCEDA were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar site activities would occur, resulting in similar impacts on archaeological resources as those described above for the Action Alternative. If the LCEDA were not able to secure the funding for the actions described in this EA, disturbance associated with the Proposed Action would not occur and there would be no impacts on archaeological resources.

4.2.6.2 ***Historic Structures and Sites***

Cardno documented and evaluated twelve newly recorded architectural resources (HS-1 through HS-12) and three previously recorded resources (LD-103, LD-107, and LD-126) 50 years in age or older in the project APE and half-mile viewshed. Cardno recommends that HS 1 – HS 12, LD-103, and LD-126 are Not Eligible for the NRHP. This recommendation was made for the following reasons:

- alterations and deteriorations that seriously undermine architectural integrity;
- lack of documented architectural significance; and
- lack of documented historic significance.

Cardno recommended LD-107 Eligible for the NRHP. However, Cardno withdrew this recommendation upon further discussions with the THC/SHPO. Although the northwestern property boundary of LD-107 is adjacent to the southeast boundary of the APE, there is minimal visibility of the project's viewshed upon this resource. Also, due to the nature of the project scope, the tree line along this northern section of the property's parcel, and the surrounding topography,

the visibility of this project is even more limited. Therefore, there are no associated effects upon this NRHP eligible property.

TVA agrees with the findings and recommendations of Cardno's survey report. TVA received concurrence from the Tennessee Historical Commission on August 11, 2022, with the report's findings. TVA therefore finds that the proposed undertaking would result in no effects to historic properties included in, or eligible for inclusion in, the NRHP.

Under the No Action Alternative, if the LCEDA were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar site activities would occur, resulting in similar impacts on historic structures and sites as those described above for the Action Alternative. If the LCEDA were not able to secure the funding for the actions described in this EA, disturbance associated with the Proposed Action would not occur and there would be no impacts on historic structures and sites.

4.2.7 *Visual Resources*

The Project Area is approximately 43 acres consisting mainly of agricultural land. The Project Area is bordered by Interstate Highway 75 to the west, forested areas and industrial development to the north, and rural residences and agricultural lands to the south and east. The visual landscape consists of rural, flat areas with primarily agricultural land, as well as industrial development and rural residential areas adjacent to the Project Area. The Clinch River, a Tennessee Scenic River, is approximately 12 miles northeast of the Project Area.

The Project Area would be directly adjacent to Interstate 75 to the west-northwest and Roberson Spring Road to the south. There are sparse trees and little visual screening between Interstate 75 and the Project Area. Residences occur sporadically, primarily to the south and southeast of the Project Area. There is no visual screening between the Roberson Spring Road and the Project Area. Two residences immediately east of Roberson Spring Road near the southeastern corner of the Project Area would have a direct line of sight to the Project Area.

Construction vehicles and equipment visible during construction activities would have a minor visual impact over the temporary construction period as well as a minor permanent impact due to rough grading. Drivers along Interstate 75 would have direct views of the Project Area; however, there are other industrial areas along the roadway within 0.5 mile, and any changes to the views would be similar to other areas along the road. The land along Roberson Spring Road is dominated by agricultural/pastureland and rural residential areas. While motorists using Roberson Spring Road may notice a change in the viewshed, this change would be minor given the brief period that drivers would be in the area. The views from the residences south and southeast of the Project Area would experience a minor change. Current views from those areas would change from open agricultural land including pasture and row crops to developed industrial land available for development, but with other industrial facilities already located in the immediate vicinity. Implementation of the Action Alternative would result in a minor decrease in visual quality for residents in the viewshed.

Under the No Action Alternative, if the LCEDA were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, the proposed work would occur, resulting in similar direct and indirect visual quality impacts as described above for the Action Alternative. If the LCEDA were not able to secure the funding for the actions described in this EA,

the proposed work would not occur, and existing site conditions would likely be maintained resulting in no visual quality impacts.

4.2.8 *Noise*

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

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

Primary sensitive noise receptors in the area include the businesses directly north adjacent to the Project Area (Buckeye Corrugated, Inc.), as well as the residences south and southeast of the Project Area. The noise would be localized and temporary, and no receptor would be exposed to significant noise levels for an extended period of time. Further, construction activities would be conducted during daylight hours and only when ambient noise levels are often higher, and most individuals are less sensitive to noise. Thus, noise-related impacts resulting from implementation of the Action Alternative are anticipated to be temporary and minor.

If the LCEDA were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, there would be impacts to noise receptors similar to those described above for the Action Alternative. If the LCEDA were not able to secure the funding for the actions described in this EA, the proposed disturbances would not occur and existing site conditions would likely be unchanged, resulting in no impacts to noise receptors.

4.2.9 *Socioeconomics and Environmental Justice*

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

This analysis focuses on the state, county, and locality within which the Action Alternative would occur. Publicly available statistics generated by the United States Census Bureau and the United States Bureau of Labor Statistics were used to characterize socioeconomic conditions in the host state (Tennessee), county (Loudon), and locality (City of Loudon, Tennessee) (**Table 4-3**). Details of the Action Alternative were then used to evaluate likely effects on existing socioeconomic resources. The demographics and income of the host county and locality were considered, relative to the demographics and wealth levels at the state level, to identify the potential for a disproportionate and adverse impact on minority and low-income populations, which is commonly referred to as an evaluation of Environmental Justice.

Table 4-3. Population, Demographics, Income, and Employment in the Host State, County and Locality

	Tennessee	Loudon County	City of Loudon, Tennessee
Population [1]			
July 2021 Population	6,975,218	56,690	6,235
April 2010 Population	6,346,105	48,556	5,381
Population, Percent Change	9.9%	16.8%	15.9%
Population per Square Mile	167.6	239.4	473.7
Demographics [1]			
White Alone, not Hispanic or Latino	73.1%	86.5%	76.2%
Black or African American Alone	17.0%	1.6%	0.9%
American Indian and Alaska Native Alone	0.5%	0.6%	0.6%
Asian Alone	2.0%	0.9%	0.0%
Native Hawaiian and Other Pacific Islander Alone	0.1%	0.2%	0.0%
Two or More Races	2.2%	1.5%	1.6%
Hispanic or Latino (of any race)	6.1%	9.8%	21.4%
Income [1]			
Median Household Income	$54,833	$61,664	$46,148
Per Capita Income	$30,869	$34,158	$27,384
Percent with Income Below the Poverty Level	13.6%	10.6%	11.7%
Employment (Not Seasonally Adjusted): April 2022 [2]			
Labor Force	3,410,667	24,754	(Not Available)
Employed	3,306,042	24,072	(Not Available)
Unemployed	104,635	682	(Not Available)
Unemployment Rate (%)	3.1%	2.8%	(Not Available)

[1] Source: United States Census Bureau (2022)
[2] Source: United States Bureau of Labor Statistics (2022)

The evaluation of Environmental Justice determined the following:

- Relative to the average Tennessee resident, the residents of Loudon County live at a higher population density and higher population growth. Relative to the average Tennessee resident, the residents of the City of Loudon, Tennessee, also live at a higher population density and higher population growth.

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

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

As described in Section 1.0 (Proposed Action and Need), the Action Alternative would include rough grading of a 350,000 square foot building pad (including parking lots and truck aprons), construction of an access road, and partial removal of an existing wooden fence. Erosion prevention, sediment control, and stabilization measures such as seeding, straw mulch, and turf reinforcement mats would be implemented after grading is complete,

This effort is expected to take place over a 6-month period and would require a small workforce, likely drawn from a local contractor. Implementation of the Action Alternative is not anticipated to materially impact the local economy nor the local workforce. In addition, no negative socioeconomic impacts are anticipated from the Proposed Action; therefore, no disproportionate negative impacts are anticipated to minority or economically disadvantaged populations as a result of the Action Alternative. Minor positive indirect impacts may be noted through the increase in employment as a result of the Action Alternative.

There is minimal potential that the Action Alternative would result in a disproportionate and adverse impact on minority and low-income populations. This conclusion is based on two observations. First, the Action Alternative would have a minor positive effect on the local economy. Second, as described throughout this document, environmental effects associated with the Action Alternative would be minor, temporary, and would generally be constrained to the approximate 43.4-acre Project Area.

Under the No Action Alternative, if LCEDA was able to secure the funding for the actions described in this EA from outside sources, similar activities would occur resulting in socioeconomic impacts similar to those described in the preceding paragraphs. If LCEDA was not able to secure the funding for the action, the economic activity and socioeconomic changes would not occur.

4.2.10 *Transportation*

The Project Area would be accessed during construction activities from Centre Park Drive. The site entrance would be located on the western side of the Project Area and would require installation of an improved entrance from Centre Park Drive as part of the proposed access road.

Centre Park Drive is a local road that provides access to industrial developments, rural properties, and residential properties east and south of the Project Area via Roberson Spring Road. Centre Park Drive is paved along its length and is sufficiently wide for a single lane of traffic in each direction. Based on review of Google Street View images (recorded November 2007), and supplemented by field observations in May 2022, the road is in good condition and curbed with narrow grassy verges. The site entrance location and configuration should consider safe sight distances and other safety concerns for the traffic that would enter Centre Park Drive from the property. Necessary precautions would be taken during mobilization and de-mobilization such as reduced speed in areas of poor visibility or poor road condition, with other precautions such as a flagman or traffic control to be considered if required. Centre Park Drive terminates to the north at TN Hwy 72 and Roberson Spring Road to the southwest.

TN Hwy 72 provides access to multiple commercial and residential properties to the east and west. Based on a review of Google Street View images (recorded January 2022), and supplemented by field observations in May 2022, the road is in good condition, has wide vegetated verges, is sufficiently wide for one lane of traffic in each direction, and provides a dedicated central turning lane. TN Hwy 72 is defined as a Minor Arterial by the Tennessee Functional Classification System for Knoxville (Lenoir City, Loudon) (Tennessee Department of Transportation [TDOT] 2018). Normal care would be taken by workers entering TN Hwy 72 with regards to traffic safety. TN Hwy 72 intersects and provides access to Interstate 75.

Based on a review of TDOT historical traffic data (TDOT 2021), there are no traffic count stations located on Centre Park Drive. It is anticipated that existing traffic volumes would be minor as it provides access to a limited number of other sites. Because of the anticipated limited volume of workers on the site required for land improvements and grading, and the short timeframe of the proposed work, direct or indirect impacts to local traffic are anticipated to be temporary and minor.

TDOT historical traffic data indicate the nearest traffic count stations are located on TN Hwy 72 and the ramps to Interstate 75. The 2021 annual average daily traffic count (AADT) for the relevant stations are presented in **Table 4-4** below.

Table 4-4 Tennessee Department of Transportation Traffic Count Data for the Project Area[1]

Route Description	Location ID	Distance from Project Area (Miles)	Year	AADT
TN Hwy 72	53000073	1.5	2021	12,168
Interstate 75 ramp (north)	53000018R	1.6	2021	5,892
Interstate 75 ramp (south)	53000020R	1.8	2021	2,602

[1] Source: Tennessee Department of Transportation (Annual Average Daily Traffic (AADT) (tn.gov)), extracted 7/25/2022.

In the context of the existing AADT road volumes of these highways, the anticipated traffic generated by the proposed activities would be minor. It is anticipated that implementation of the Action Alternative would generate minor traffic associated with construction activities for Centre Park Drive and have a temporary and negligible impact on overall traffic volumes and level of service of TN Hwy 72.

Under the No Action Alternative, if the LCEDA were to obtain alternate funding and proceed with its current plans, the grading and construction activities would also result in temporary and negligible impact on overall traffic volumes and level of service. In the event the project is postponed, any effects would be delayed for the duration of the postponement. If LCEDA were not able to secure any funding for the actions described in this EA, there would be no impact to overall traffic volumes and level of service.

5.0 PERMITS, LICENSES, AND APPROVALS

The Action Alternative would result in greater than one acre of earth disturbing activities; therefore, it would be necessary for the LCEDA, or its contractors, to obtain local, state, or federal permits, licenses, and approvals necessary for the project for coverage under the applicable NPDES General Permit for Discharges Associated with Construction Activity (TNR100000). Coverage would require submittal of a Notice of Intent (NOI) and development of a site-specific SWPPP.

6.0 BEST MANAGEMENT PRACTICES AND MITIGATION MEASURES

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

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

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

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		
Brooke Davis B.S. Forestry/ Wildlife Biology and B.S. Environmental Science	22 years in Project Management, Managing and Performing NEPA Analyses; ESA Compliance; CWA Evaluations; NHPA Compliance	Economic Development Grant Project NEPA Compliance Manager
Brittany Kunkle B.S., Environmental and Soil Science	3 years in Project Management, Managing and Performing NEPA Analyses	Economic Development Grant Project NEPA Compliance Manager
Adam Dattilo M.S., Forestry; B.S., Natural Resource Conservation Management	21 years in ecological restoration and plant ecology, 16 years in botany	Botany, Threatened and Endangered Species QA/QC
Kerry Nichols *Ph.D. Anthropology, M.A. Anthropology, B.A. Political Science*	21 years of experience as a field archaeologist and SHPO project reviewer	Cultural resources, NHPA Section 106 compliance
Craig Phillips *M.S., and B.S., Wildlife and Fisheries Science*	15 years Sampling and Hydrologic Determinations for Streams and Wet-Weather Conveyances; 10 years in Environmental Reviews	Aquatic Ecology
Carrie Williamson, P.E., CFM *B.S. and M.S., Civil Engineering*	9 years in Floodplain and Flood Risk; 11 years in Compliance Monitoring; 3 years in River Forecasting	Floodplains QA/QC
Elizabeth Burton Hamrick *M.S., Wildlife and Fisheries Science, University of Tennessee* *B.A., Biology, B.A., Anthropology, Grinnell College*	22 years in biological field studies, 9 years in biological compliance, NEPA compliance, and ESA consultation for T&E terrestrial animals.	Terrestrial zoology, threatened and endangered species
Cardno		
Douglas Mooneyhan *M.S., Biology, Tennessee Technological University* *B.S., Wildlife and Fisheries Science, University of Tennessee*	31 years in managing and performing environmental studies, Project Manager for a variety of different project types including NEPA, construction monitoring, natural resources, water resources, and fisheries biology.	EA Program Manager QA/QC
Jaclyn Martin *M.S., Environmental Sciences, Swedish University of Agricultural Sciences, Uppsala, Sweden* *M.S., Environmental Sciences, University of Natural Resources and Life Sciences, Vienna, Austria* *B.S., Biology, Winthrop University, South Carolina*	8 years in environmental consulting in the preparation and review of NEPA compliance reports, environmental assessments, and permitting for a variety of telecommunication, alternative energy, and FERC-regulated projects.	Air Quality and Climate Change, Visual
Duane Simpson *M.A., Anthropology, University of Arkansas* *B.A., Anthropology, Ohio University*	27 years in archaeological consulting including management of projects across the southeast and Mid-Atlantic regions. Principal Investigator for over 15 years.	Archaeology

Name/Education	Experience	Project Role
Rachel Kennedy *M.H.P., Historic Preservation, University of Kentucky* B.A., Political Science and History, University of Kentucky	21 years of experience working in non-profit, governmental, and private sectors with all aspects of preservation planning, from interpretation of the Secretary of the Interior's Standards for the Treatment of Historic Properties to cultural landscape examinations to identifying, evaluating, and listing properties to the NRHP. Meets the Secretary of the Interior's Professional Qualifications Standards for History and Architectural History, per 36 Code of Federal Regulations (CFR), Part 61.	Historic Structures and Sites
Josh Yates, P.G. *M.S., Geology, University of South Florida* *B.S. Natural Resources Management and Engineering, University of Connecticut*	16 years of hydrogeologic assessments and water resources permitting experience. This experience includes water supply planning, hydrogeologic investigations, groundwater modeling, water use permitting, well construction oversight, EIS and EA preparation, minimum flow and level (MFL) impact analysis, monitoring well network design, aquifer performance tests, and GIS analysis.	Groundwater
Sam Waltman *B.S., Marine Biology, Texas A&M University*	13 years in natural resource surveys and permitting, including EIS and EA preparation, field sampling, GIS analysis, USACE jurisdictional delineations, T&E species surveys, hydrogeomorphic assessments, NRDA, Phase 1 ESAs, and environmental compliance monitoring.	Prime Farmland, Managed and Natural Areas, Recreation
Yosef Shirazi, Ph.D. *Ph.D., Marine Policy, University of Delaware* *M.S., Marine Science, University of North Carolina at Wilmington* *B.S., Biology, University of Maryland* *B.S., Environmental Science and Policy, University of Maryland*	11 years of experience in the fields of ecology and economics. He has performed extensive work implementing and interpreting surveys and survey results, valuing ecosystem services, and evaluating the socioeconomic impacts of infrastructure projects. His areas of technical knowledge include welfare economics, biophysical relationships in coastal environments, and regional economics modeling.	Socioeconomics and Environmental Justice
Brenton Jenkins, P.E. *B.S. Environmental Engineering, Louisiana State University*	9 years in environmental consulting for various private and public sector clients, including engineering design, permitting, and assessments, primarily in the oil and gas sector.	Transportation

8.0 AGENCIES AND OTHERS CONSULTED

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

- Tennessee Historical Commission
- Absentee Shawnee Tribe of Indians of Oklahoma,
- Alabama-Coushatta Tribe of Texas,
- Cherokee Nation,
- Coushatta Tribe of Louisiana,

- Eastern Band of Cherokee Indians,
- Eastern Shawnee Tribe of Oklahoma,
- Jena Band of Choctaw Indians,
- Kialegee Tribal Town,
- The Muscogee (Creek) Nation,
- Shawnee Tribe,
- Thlopthlocco Tribal Town, and
- United Keetoowah Band of Cherokee Indians of Oklahoma.

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ATTACHMENT 1

PROJECT FIGURES

Figure 1-A

Aerial

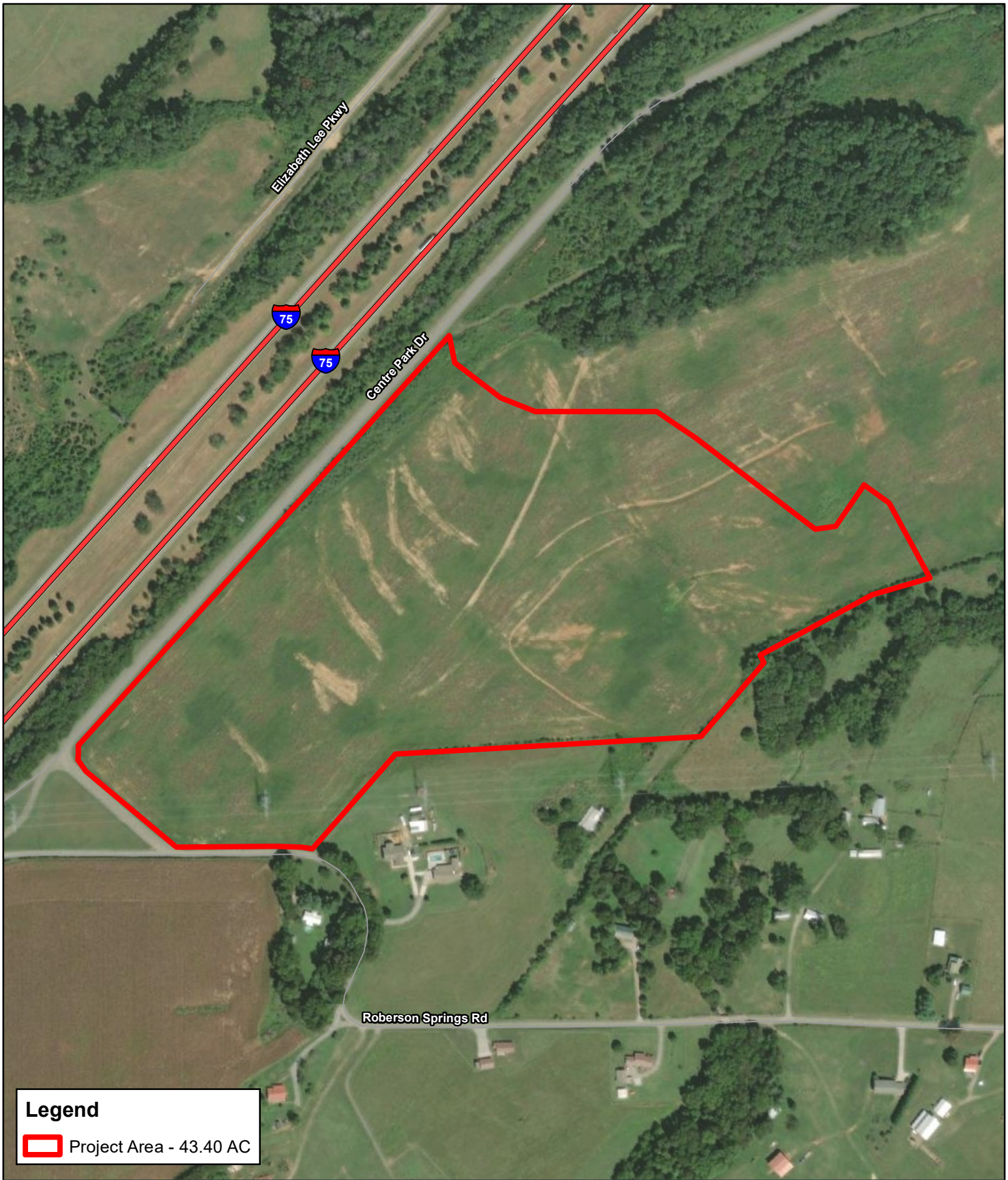

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Figure 1-A: Aerial Map

TVA FY22 Economic Development Projects
Loudon County, Tennessee

0 200 400 600 Feet

0 50 100 150 200 Meters

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GIS Analyst: Peter.Marsey

Figure 1-B

Proposed Activities

Conceptual

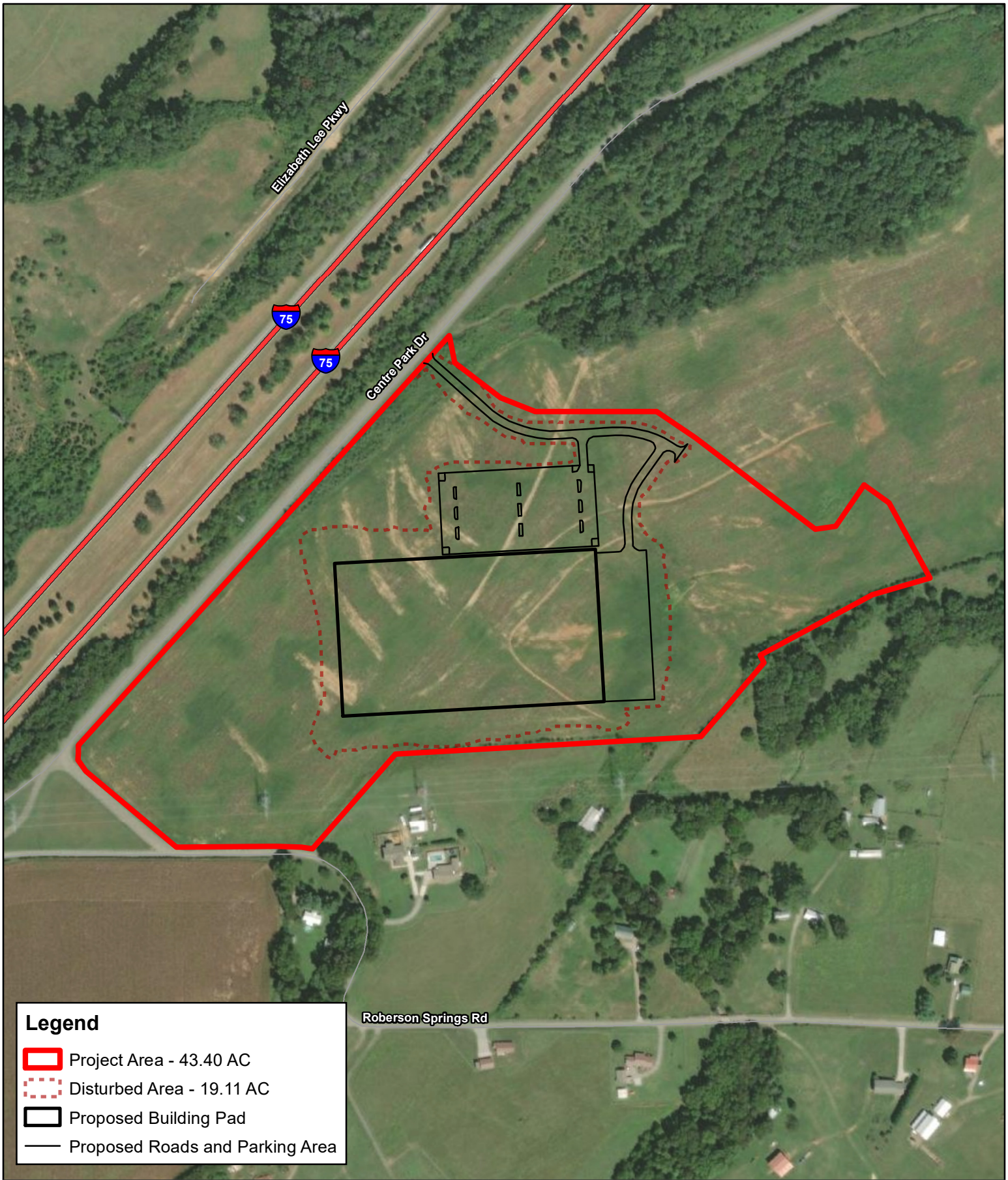

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Figure 1-B: Conceptual Proposed Activities Map

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GIS Analyst: Peter.Marsey

Figure 1-C

USGS Quadrangle

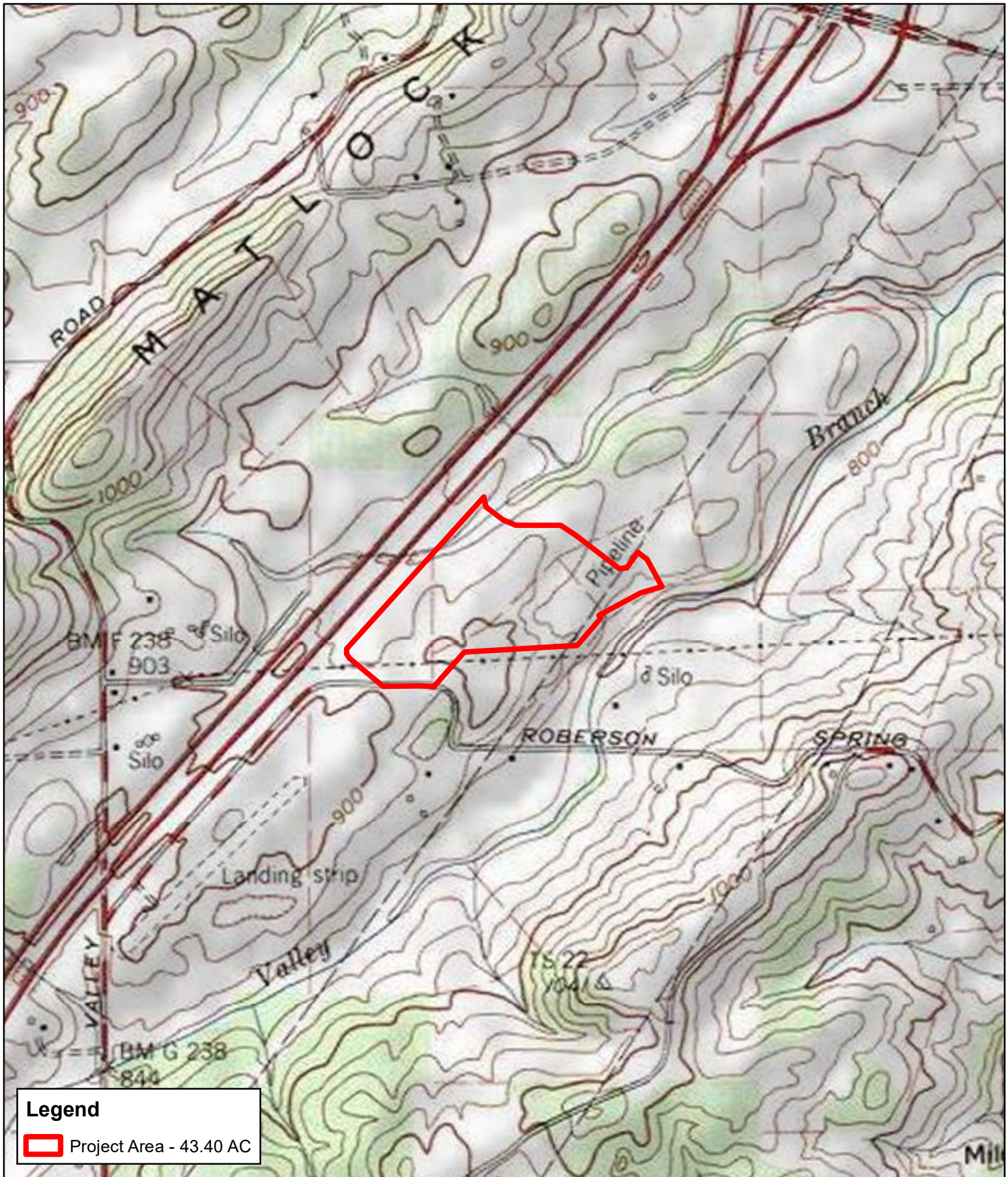

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Figure 1-C: USGS Quadrangle Map

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Figure 1-D

FEMA Floodplain

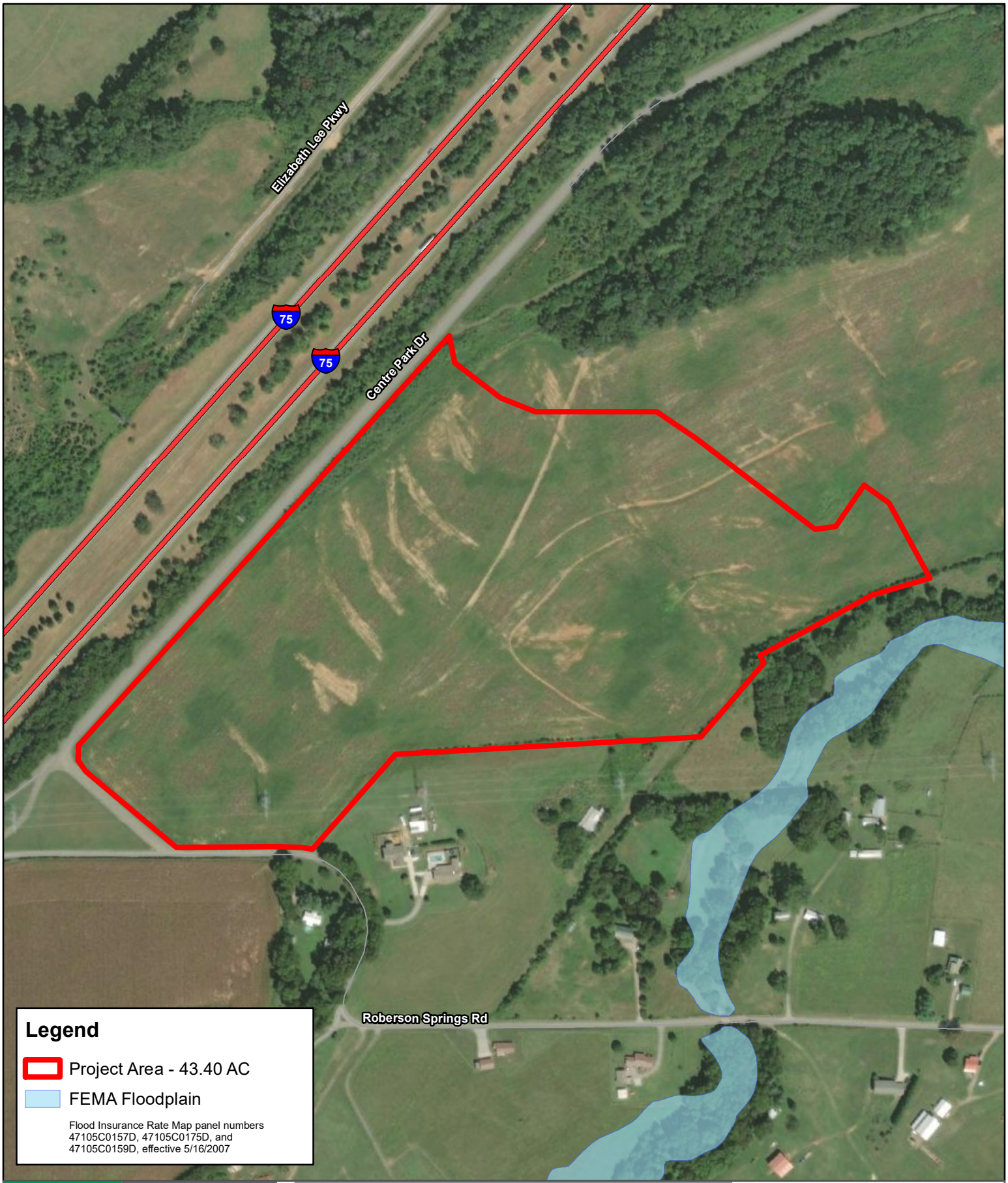

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Figure 1-D: FEMA Floodplain Map

TVA FY22 Economic Development Projects
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Date Created: 5/31/2022 Date Revised: 5/31/2022 File Path: S:\GIS\Tennessee Valley Authority\FY22 Economic Development\07_Loudon_County\MXD\Figure 1-D - FEMA Floodplain Map.mxd
GIS Analyst: Peter.Marsey

Figure 1-E

USFWS NWI and Water Resources Inventory Map

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Figure 1-E: USFWS NWI and Water Inventory Map

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Loudon County, Tennessee

0 200 400 600 800 1,000 Feet

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GIS Analyst: Peter.Marsey

Figure 1-F

Wetlands and Waterbodies Map

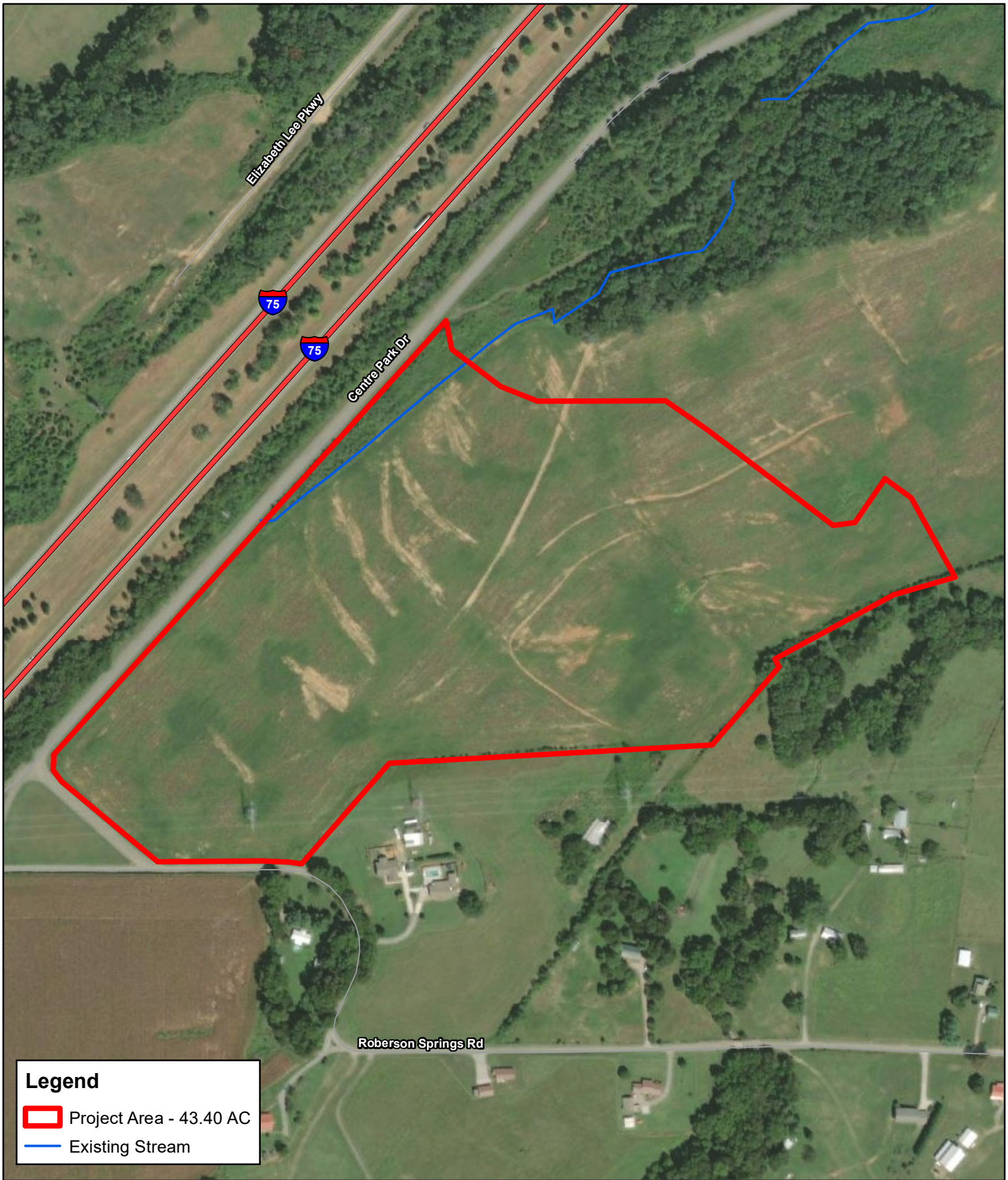

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Figure 1-F: Wetlands and Waterbodies

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Loudon County, Tennessee

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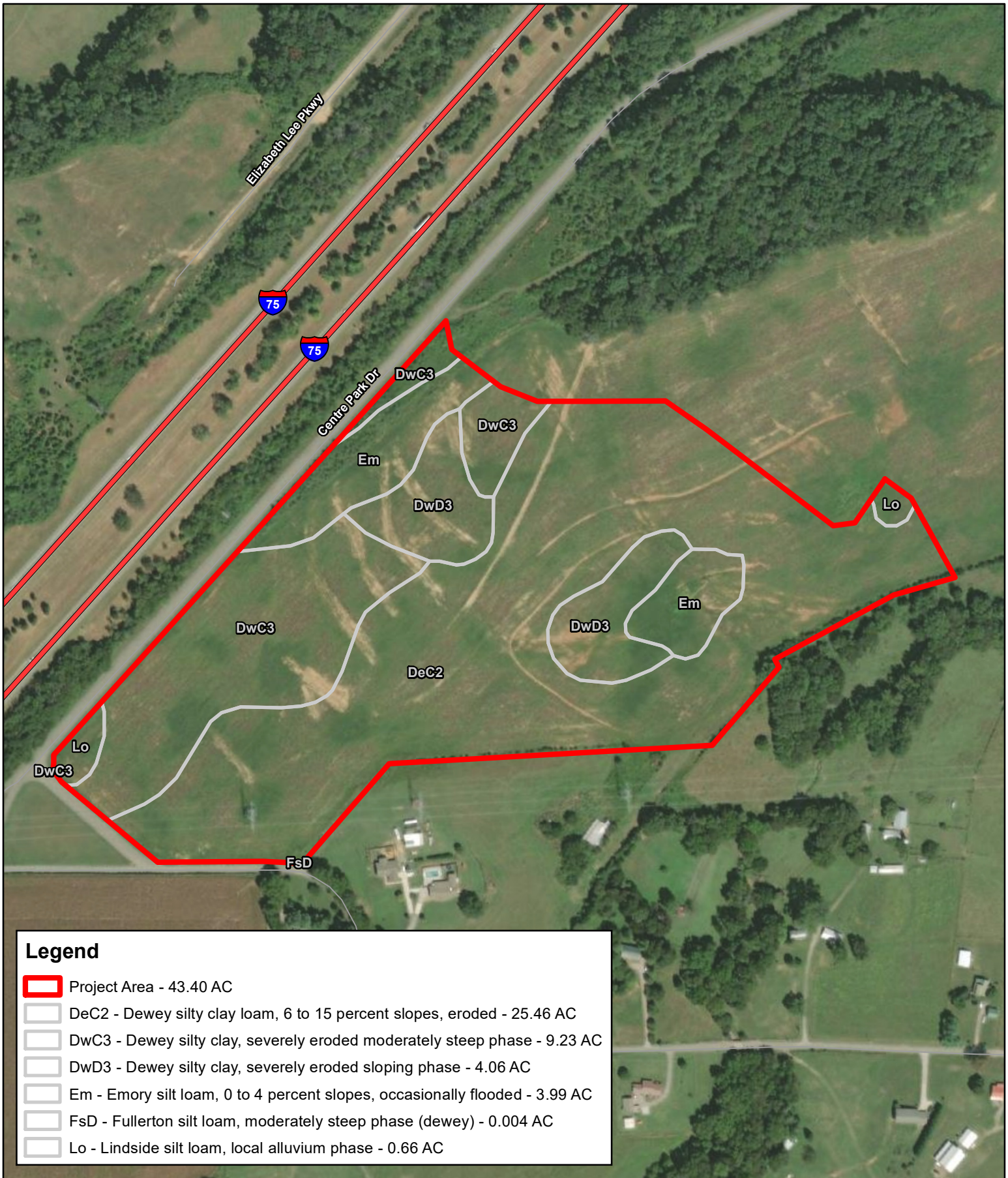
GIS Analyst: Peter.Marsey

Figure 1-G

NRCS Soils Map



Legend

- Project Area - 43.40 AC
- DeC2 - Dewey silty clay loam, 6 to 15 percent slopes, eroded - 25.46 AC
- DwC3 - Dewey silty clay, severely eroded moderately steep phase - 9.23 AC
- DwD3 - Dewey silty clay, severely eroded sloping phase - 4.06 AC
- Em - Emory silt loam, 0 to 4 percent slopes, occasionally flooded - 3.99 AC
- FsD - Fullerton silt loam, moderately steep phase (dewey) - 0.004 AC
- Lo - Lindside silt loam, local alluvium phase - 0.66 AC

N

Figure 1-G: NRCS Soils

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Loudon County, Tennessee

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GIS Analyst: Peter.Marsey

ATTACHMENT 2

TVA Bat Strategy Project Screening Form

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

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

Project Name: Loudon County InvestPrep "Centre 75 Business Park" **Date:** Jun 13, 2022

Contact(s): Brooke Davis **CEC#:** **Project ID:** 40506

Project Location (City, County, State): Loudon, Loudon County, Tennessee

Project Description:

Utilize TVA InvestReady funding, matched with non-TVA funding to assist with the rough grading of a 350,000 square foot dirt building pad (including parking lots and truck aprons) and construction of a gravel access road.

SECTION 1: PROJECT INFORMATION - ACTION AND ACTIVITIES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

STATE	SWARMING	WINTER	NON-WINTER	PUP
GA, KY, TN	☐ Oct 15 - Nov 14	☐ Nov 15 - Mar 31	☐ Apr 1 - May 31, Aug 1- Oct 14	☐ Jun 1 - Jul 31
VA	☐ Sep 16 - Nov 15	☐ Nov 16 - Apr 14	☐ Apr 15 - May 31, Aug 1 – Sept 15	☐ Jun 1 - Jul 31
AL	☐ Oct 15 - Nov 14	☐ Nov 15 - Mar 15	☐ Mar 16 - May 31, Aug 1 - Oct 14	☐ Jun 1 - Jul 31
NC	☐ Oct 15 - Nov 14	☐ Nov 15 - Apr 15	☐ Apr 16 - May 31, Aug 1 - Oct 14	☐ Jun 1 - Jul 31
MS	☐ Oct 1 - Nov 14	☐ Nov 15 - Apr 14	☐ Apr 15 - May 31, Aug 1 – Sept 30	☐ Jun 1 - Jul 31

d) Will the project involve vegetation piling/burning?

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

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

STATE	SWARMING	WINTER	NON-WINTER	PUP
GA, KY, TN	☐ Oct 15 - Nov 14	☐ Nov 15 - Mar 31	☐ Apr 1 - May 31, Aug 1- Oct 14	☐ Jun 1 - Jul 31
VA	☐ Sep 16 - Nov 15	☐ Nov 16 - Apr 14	☐ Apr 15 - May 31, Aug 1 – Sept 15	☐ Jun 1 - Jul 31
AL	☐ Oct 15 - Nov 14	☐ Nov 15 - Mar 15	☐ Mar 16 - May 31, Aug 1 - Oct 14	☐ Jun 1 - Jul 31
NC	☐ Oct 15 - Nov 14	☐ Nov 15 - Apr 15	☐ Apr 16 - May 31, Aug 1 - Oct 14	☐ Jun 1 - Jul 31
MS	☐ Oct 1 - Nov 14	☐ Nov 15 - Apr 14	☐ Apr 15 - May 31, Aug 1 – Sept 30	☐ Jun 1 - Jul 31

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

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

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

STEP 5) **Review of bat/cave records conducted by Heritage/OSAR reviewer?**

◉ **YES** ○ **NO** (Go to Step 13)

Info below completed by:				
☐ **Heritage Reviewer**	(name)		Date	
☐ **OSAR Reviewer**	(name)		Date	
▣ **Terrestrial Zoologist**	(name)	Elizabeth Hamrick	Date	Aug 18, 2022

Gray bat records: ☐ None ☐ Within 3 miles* ☐ Within a cave* ☒ Within the County

Indiana bat records: ☒ None ☐ Within 10 miles* ☐ Within a cave* ☐ Capture/roost tree* ☐ Within the County

Northern long-eared bat records: ☒ None ☐ Within 5 miles* ☐ Within a cave* ☐ Capture/roost tree* ☐ Within the County

Virginia big-eared bat records: ☒ None ☐ Within 6 miles* ☐ Within the County

Caves: ☒ None within 3 mi ☐ Within 3 miles but > 0.5 mi ☐ Within 0.5 mi but > 0.25 mi* ☐ Within 0.25 mi but > 200 feet* ☐ Within 200 feet*

Bat Habitat Inspection Sheet completed? ◉ **NO** ○ **YES**

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

STEP 6) Provide any additional notes resulting from Heritage Reviewer records review in Notes box below then . . . . . Go to Step 13

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

STEPS 7-12 To be Completed by Terrestrial Zoologist (if warranted):

STEP 7) Project will involve:

- ☐ Removal of suitable trees within 0.5 mile of P1-P2 Indiana bat hibernacula or 0.25 mile of P3-P4 Indiana bat hibernacula or any NLEB hibernacula.
- ☐ Removal of suitable trees within 10 miles of documented Indiana bat (or within 5 miles of NLEB) hibernacula.
- ☐ Removal of suitable trees > 10 miles from documented Indiana bat (> 5 miles from NLEB) hibernacula.
- ☐ Removal of trees within 150 feet of a documented Indiana bat or northern long-eared bat maternity roost tree.
- ☐ Removal of suitable trees within 2.5 miles of Indiana bat roost trees or within 5 miles of Indiana bat capture sites.
- ☐ Removal of suitable trees > 2.5 miles from Indiana bat roost trees or > 5 miles from Indiana bat capture sites.
- ☐ Removal of documented Indiana bat or NLEB roost tree, if still suitable.
- ☒ N/A

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

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

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

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

TVA Action	Total 20-year	Winter	Volant Season	Non-Volant Season

STEP 12) Amount contributed to TVA's Bat Conservation Fund upon activity completion: $ _____ OR ○ **N/A**

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

SECTION 3: REQUIRED CONSERVATION MEASURES

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

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

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

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

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

Manual Override

Name: Elizabeth Hamrick

Check if Applies to Project	Activities Subject To Conservation Measure	Conservation Measure Description
		NV1 - Noise will be short-term, transient, and not significantly different from urban interface or natural events (i.e., thunderstorms) that bats are frequently exposed to when present on the landscape.
		NV2 - Drilling, blasting, or any other activity that involves continuous noise (i.e., longer than 24 hours) disturbances greater than 75 decibels measured on the A scale (e.g., loud machinery) **within a 0.5 mile radius of documented winter and/or summer roosts** (caves, trees, unconventional roosts) will be conducted when bats are absent from roost sites.
		SSPC2 - Operations involving chemical/fuel storage or resupply and vehicle servicing will be handled outside of riparian zones (streamside management zones) in a manner to prevent these items from reaching a watercourse. Earthen berms or other effective means are installed to protect stream channel from direct surface runoff. Servicing will be done with care to avoid leakage, spillage, and subsequent stream, wetland, or ground water contamination. Oil waste, filters, other litter will be collected and disposed of properly. Equipment servicing and chemical/fuel storage will be limited to locations greater than 300-ft from sinkholes, fissures, or areas draining into known sinkholes, fissures, or other karst features.
		SSPC5 (**26a, Solar, Economic Development only**) - Section 26a permits and contracts associated with solar projects, economic development projects or land use projects include standards and conditions that include standard BMPs for sediment and contaminants as well as measures to avoid or minimize impacts to sensitive species or other resources consistent with applicable laws and Executive Orders.
		L1 - Direct temporary lighting away from suitable habitat during the active season.
		L2 - Evaluate the use of outdoor lighting during the active season and seek to minimize light pollution when installing new or replacing existing permanent lights by angling lights downward or via other light minimization measures (e.g., dimming, directed lighting, motion-sensitive lighting).

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

Hide All Unchecked Conservation Measures

- (•) HIDE
- ( ) UNHIDE

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

- (•) HIDE
- ( ) UNHIDE

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

No tree removal. Impacts to ephemeral stream would be avoided.

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

[ ] (name) is (or will be made) aware of the requirements below.

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

For Use by Terrestrial Zoologist Only

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

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

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

ATTACHMENT 3

Agency Correspondence

3-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

2022-08-11 10:19:35 CDT

James Osborne, Jr.
Tennessee Valley Authority
jwosborn@tva.gov

RE: Tennessee Valley Authority (TVA), InvestPrep Centre 75 Business Park Building Pad and Access Road, CRMS 28317000840, Project#: SHPO0001289, Loudon County, TN

Dear Mr. Osborne:

In response to your request, we have reviewed the cultural resources survey report and accompanying documentation submitted by you regarding the above-referenced undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Considering the information provided, we find that no historic properties eligible for listing in the National Register of Historic Places will be affected by this undertaking. If project plans are changed or archaeological remains are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. Please provide your Project # when submitting any additional information regarding this undertaking. Questions or comments may be directed to Kelley Reid, who drafted this response, at Kelley.Reid@tn.gov, +16157701099.

Sincerely,

E. Patrick McIntyre, Jr.

E. Patrick McIntyre, Jr.

Executive Director and
State Historic Preservation Officer

Ref:MSG6930188_8RA6F2w10RT94ZLMqxaL

3-B

Federally Recognized Indian Tribes Consulted

Absentee Shawnee Tribe of Indians of Oklahoma
Alabama-Coushatta Tribe of Texas
Cherokee Nation,
Coushatta Tribe of Louisiana,
Eastern Band of Cherokee Indians
Eastern Shawnee Tribe of Oklahoma
Jena Band of Choctaw Indians
Kialegee Tribal Town
The Muscogee (Creek) Nation
Shawnee Tribe
Thlopthlocco Tribal Town
United Keetoowah Band of Cherokee Indians of Oklahoma