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ECONOMIC DEVELOPMENT GRANT PROPOSAL FOR PROPOSED INDUSTRIAL SITE PURCHASE ENVIRONMENTAL ASSESSMENT

Bedford County, Tennessee

Prepared by:
TENNESSEE VALLEY AUTHORITY
Knoxville, Tennessee

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The Proposed Action and Need

An integral part of Tennessee Valley Authority's (TVA) mission is to promote the economic development of 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. TVA proposes to provide an economic development grant to the Shelbyville-Bedford County Chamber of Commerce (SBCOC) for the purchase of an 86.5-acre tract of land for use as a proposed industrial site. This site is located on the north side of Frank Martin Road in or near Shelbyville, Bedford County, Tennessee (Figure 1).

The primary purpose of TVA's proposal is to enable the City of Shelbyville and Bedford County to purchase the project area for use as an industrial site. The proposed grant to the SBCOC would help purchase a site that in the future would be suitable for potential industrial development. The City of Shelbyville and Bedford County have committed to provide funds for the project, but do not have sufficient funds to complete the purchase of the subject property. TVA is proposing to fund approximately 35 percent of the property purchase and would, therefore, facilitate the purchase of the site for potential future development.

Other Environmental Reviews and Documentation

An All Appropriate Inquiry (Phase I Environmental Site Assessment) of the project area was performed consistent with the procedures included in ASTM E 1527-05 (Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process) by Griggs & Maloney, Inc. (2012). The primary purpose of this study was to determine the presence of any recognized environmental concerns or other environmental liabilities on the subject property. As part of the inquiry, Griggs & Maloney also conducted a limited review for the presence of threatened and endangered species and a cursory onsite assessment of waters of the United States, including wetlands.

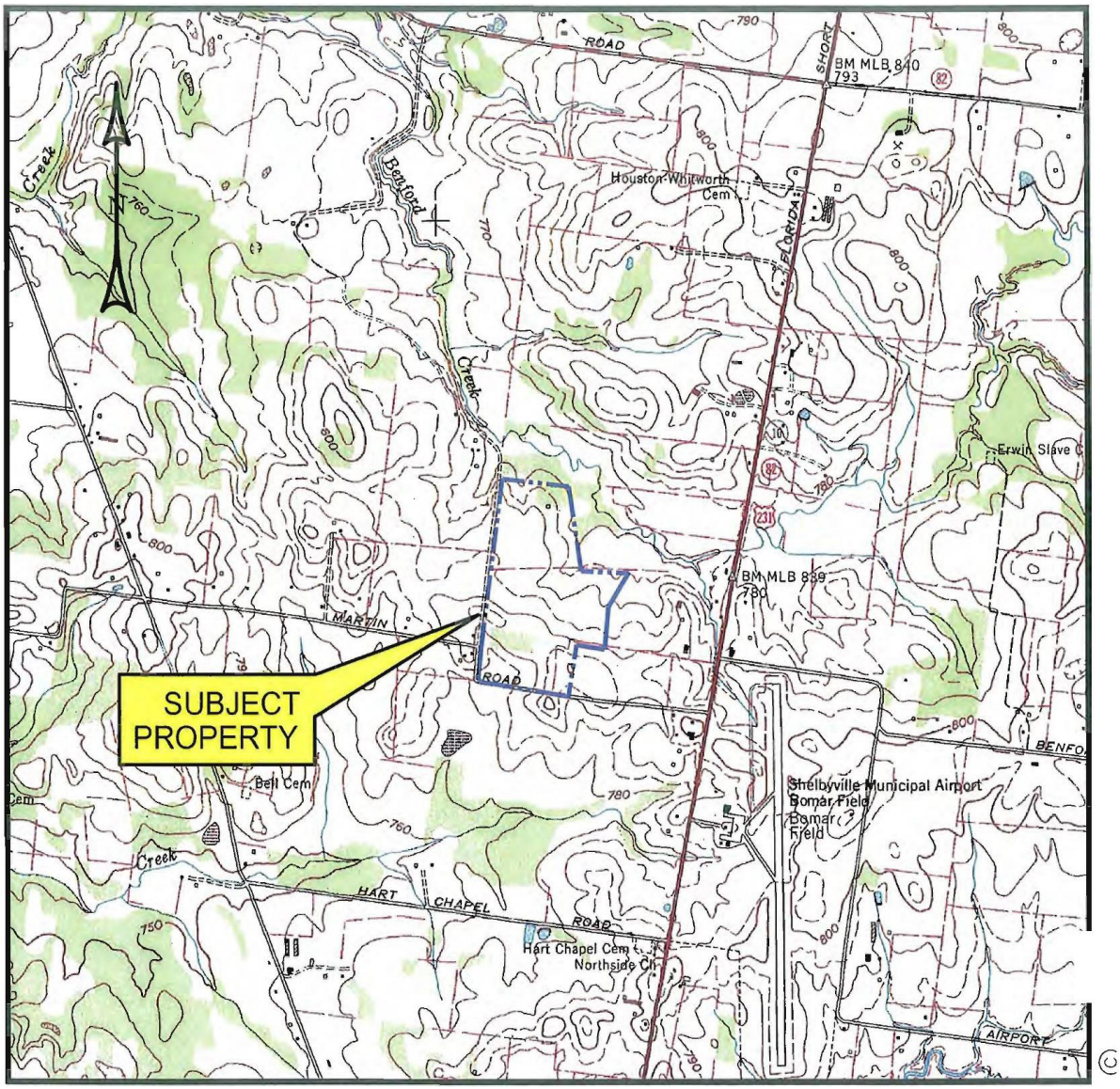

Figure 1 Location Map

Alternatives

Preliminary internal scoping by TVA has determined that from the standpoint of National Environmental Policy Act (NEPA), there are two feasible alternatives to TVA. These are the No Action Alternative and the Action Alternative, which are described below.

The No Action Alternative

Under the No Action Alternative TVA would not provide funding. In this event, the SBCOC could seek alternate funding for purchase of the project area. If the SBCOC 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 Alternative. 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 current condition for the foreseeable future.

The Action Alternative

Under the Action Alternative, TVA would provide funding to the SBCOC for the purchase of an 86.5-acre tract of land for use as a proposed industrial site. After the purchase of the site, the SBCOC would perform clearing and demolition activities to prepare the site for future light industrial use. The one onsite farm building and its contents would be disposed of per federal and state regulations. Any marketable timber would be removed from the site, the remaining woody debris would be burned on-site in accordance with a local burn permit,obtained by the SBCOC. The SBCOC would take appropriate feasible measures, such as implementing best management practices (BMPs) and best construction practices, to minimize or reduce the potential environmental effects of the proposed project to insignificant levels. These practices would include but are not limited to installation of sediment and erosion controls (silt fences, sediment traps, etc.); management of fugitive dust; and day time work hours. No plans currently exist for any activities associated with the eventual build-out, occupation, and future use of the site.

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

Affected Environment and Anticipated Impacts

Site Description

The 86.5-acre proposed project area is located north of Frank Martin Road near Shelbyville in Bedford County, Tennessee. The property consists of farmland and woods. One barn is located on the northern portion of the property. The immediately surrounding properties consist of a residence and pasture areas to the east; a recently constructed medical office building and associated paved parking to the southeast; a recently constructed Emergency Medical Services (EMS) building, a water tower and a Wal-Mart warehouse facility to the south; residences and pastures areas to the west and densely wooded areas and pasture to the north. The project area is located approximately 1 mile northwest of Bomar Field-Shelbyville Municipal Airport.

The property consists of three parcels. Approximately 20 acres of the project area, located within the city limits of Shelbyville on Frank Martin Road (Figure 1), is zoned as I-2 Light Industrial. The remaining 65 acres are located outside the city and are zoned for Agricultural use. The property is currently being used for cattle management.

The central portions of the property have higher elevation surfaces and the southern, northeastern and northern areas are at lower elevations. Two farm ponds and no streams are located on the property. The topography of the general vicinity of the property includes level to slightly rolling surfaces. The project area does not receive significant stormwater runoff from any adjacent property. Benford Creek flows northwestward within a few hundred feet of the northern portion of the property.

Impacts Evaluated

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, 47003C0200E, the project area is not within a 100-year or 500-year floodplain (FEMA 2007). No hazardous materials were observed on the property during the 2012 Phase 1 Environmental Site Assessment. A review of data from the TVA Natural Heritage Database indicated that there are no natural areas within the proposed project area. Two natural areas, the Vanatta Farm conservation easement and the Duck River State Mussel Sanctuary, are located 1.9 and 3.9 miles from the site respectively. These areas are of sufficient distance such that there would be no impacts to them associated with the proposed property purchase.

According to the U.S. Department of Agriculture, Natural Resources Conservation Service, approximately 37 acres (42 percent) of the 86.5-acre site are considered prime farmland (Attachment 1). There are approximately 42,675 acres of prime farmland in Bedford County. The conversion of the 37 acres within the project area would be a 0.09 percent decrease in prime farmland in the County. Since the conversion would affect such a small proportion, there would be only minor impacts to prime farmland associated with the proposed action.

There are no developed public outdoor recreation areas in the vicinity of the project area. The property may currently receive a limited amount of use for dispersed outdoor recreation activities such as nature observation and walking for pleasure. However, the extent of any such recreational use is likely minimal. The future industrial development on the property could cause some minor shifts in dispersed outdoor recreation activity on and immediately adjacent to the site but the extent of any impacts would be insignificant. According to the All Appropriate Inquiry (Phase 1 Environmental Site Assessment), no hazardous waste substances or petroleum projects were found on the project area. All demolition and disposal activities associated with the onsite farm building would follow applicable state and federal regulations to ensure proper handling and disposal of all waste.

The project area is situated to the west of State Route 10 (U.S. Highway 231), to the north of Frank Martin Road, and to the east of Midland Road (Figure 1). According to Tennessee Department of Transportation data (2015), the 2014 annual average daily traffic count (AADT) for the closest traffic station on State Route 10 (Main Street, South of the Airport) in the vicinity of the project area is 17,547. The AADT on State Route 10, 3 miles southeast of the project area, is 15,947. There are no traffic stations located on Frank Martin Road or Midland Road. Because of the limited number of workers on the site required for future clearing and demolition activities and the short timeframe of the proposed work, any direct or indirect effects to local traffic are expected to be temporary and minor. Because the site is close to the State Route 10 (U.S. Highway 231) and because AADT levels are relatively low, any foreseeable long-term effects to local vehicular traffic and the level of service provided by local roadways are expected to be minor.

TVA has determined that the proposed actions, subsequent to TVA's selection of the Action Alternative, would have no impact on floodplains, natural areas, public recreation opportunities, managed areas, solid and hazardous wastes, Nationwide Rivers Inventory streams or Wild and Scenic Rivers. Therefore, potential effects to these resources are not described further in this EA.

Resources that could potentially be affected directly, indirectly or cumulatively by implementing the proposed action include air quality, water quality, aquatic resources,

aesthetic resources (noise and visual), terrestrial ecology, socioeconomics and environmental justice, threatened and endangered wildlife, plant and aquatic species, wetlands, and cultural resources. Potential impacts to these resources resulting from the implementation of the Proposed Action Alternative are discussed in detail below.

Air Quality

The U.S. Environmental Protection Agency uses an Air Quality Index (AQI) to characterize air quality at a given location. AQI categories range from Good (i.e., values from 0 to 50) to Hazardous (values from 301 to 500). Between 1999 and 2009 (the latest year data are available), the AQI for Bedford County improved, dropping from a high of about 59 in 1999 to about 41 in 2009 (USA.Com 2015).

A nonattainment area is an area where air pollution levels exceed the National Ambient Air Quality Standards promulgated under the federal Clean Air Act Amendments of 1970. The criteria air pollutants considered in determining nonattainment include ozone, sulfur dioxide, carbon monoxide, particulate matter, lead, and nitrogen dioxide. Bedford County is in attainment for all these criteria air pollutants (U.S. Environmental Protection Agency 2015).

Future activities that produce air pollutants, including additional site preparation and the siting of industrial or commercial tenants in the proposed industrial park would be subject to various applicable air quality regulations including Prevention of Significant Deterioration permits under the Clean Air Act. The future clearing and demolition activities would generate some air pollution in the form of fugitive dust, particulate matter in equipment exhaust, and possibly, smoke from burning debris. Additionally, carbon monoxide and sulfur dioxide would be generated by equipment exhaust. Because of the short time period required to complete this work, any effects to local air quality would be temporary and localized. These effects are expected to be minor and would not have a major influence on the air quality of Bradford County. With regulatory measures in place, any reasonably foreseeable long-term effects, including cumulative effects, to local air quality are expected to be minor.

Socioeconomic Conditions and Environmental Justice

According to estimates from the U.S. Census Bureau (2015), the population of Shelbyville, as of 2010, is 20,335 while the population of Bedford County is 45,058. Within Shelbyville, whites comprise approximately 68.3 percent of the population, and blacks or African Americans comprise approximately 14.1 percent. In the County, whites and blacks or African Americans comprise approximately 81.8 percent and 7.9 percent of the population, respectively. Hispanics account for approximately 11.3 percent of the County population and about 20.3 percent of Shelbyville's population.

Within Shelbyville, the median and mean household incomes are $27,846 and $41,263 respectively. The per capita income for Shelbyville is $14,360, which is lower than that of the state ($20,670) and the national average of $28,051. As of 2013, approximately 32.9 percent of all persons and 28.2 percent of families living within Shelbyville are considered to be living on incomes below the poverty level. The unemployment rate for persons over the age of 16 years in Shelbyville is 11.3 percent.

For Bedford County, the unemployment rate is 9.9 percent, while 20 percent of the county population lives below the poverty level. Estimated mean and median household incomes for Bedford County are $51,860 and $40,759, respectively. Per capita income in Bedford

County is $19,303, which is lower than that of the state ($20,670) and the national average of $28,051.

The proposed purchase of the property would lead to clearing and demolition activities, which would require a workforce of 15 or less and would last for about 6 months. Thus, the proposed actions are expected to have only minor direct, indirect or cumulative effects to the local economy or workforce. The eventual development of the site for commercial purposes would create additional jobs and would likely have long-term beneficial effects to the local economy. In the near term and for the foreseeable future, no disproportionate effects are anticipated to any minority or economically disadvantaged populations.

Aesthetic Resources

The project area consists of farmland and woods. One barn is located on the northern portion of the property. The immediately surrounding properties consist of a residence and pasture areas to the east; a recently constructed medical office building and associated paved parking to the southeast; a recently constructed EMS building, a water tower and a Wal-Mart warehouse facility to the south; residences and pastures areas to the west and densely wooded areas and pasture to the north. The project area is located approximately one mile northwest of Bomar Field-Shelbyville Municipal Airport.

The site is generally visible to highway motorists only from County Road 10 (U.S. Highway 231). There are residences adjacent to the site (southwest corner) and any future development would be visible to these structures. Future clearing of onsite vegetation, especially along the western border of the site could create some temporary minor visual discord during clearing operations. However, once clearing and demolition operations are complete, the overall visual character of the site would be comparable with other nearby areas (i.e., EMS facility, Wal-mart, offices, etc.). Thus, any changes in visual quality would be minor.

The proposed purchase of the property would lead to clearing and demolition activities that would create some noise, mainly from construction equipment. However, noise levels are not expected to be excessive, and work would be conducted during normal working hours. Thus, noise-related effects are expected to be minor. The proposed clearing activities are not expected to generate any noxious odors.

The eventual development of the industrial park expansion could cause localized visual changes as the site is converted from a predominantly agricultural setting with scattered wooded areas to a commercial or industrial area. Motorists on County Road 10 currently have open views of various commercial and industrial facilities west of the roadway and to the east of the roadway (i.e., the airport). From a visual standpoint, the development of the site for industrial or commercial use would be consistent with the visual character of nearby properties and would constitute a minor cumulative long-term effect to the visual character of the area.

Water Resources and Water Quality

The Phase I Environmental Site Assessment provided by the applicant identified two farm ponds with earthen dam/berms located on the subject property; one is located on the southern portion of the property and one to the north, but neither pond is indicated on the topographic maps. The cattle pond located on the southern portion of the project area was identified as a wetland by TVA staff (see Wetland Section). Bedford Creek, a “blue-line” surface stream flows northwestward within a few hundred feet of the northern portion of the

project area. The topographic map review for the vicinity of the project area and site surface conditions indicate that the project area does not receive significant stormwater runoff from any adjacent property. Regional groundwater flow is likely northwestward toward Benford Creek and Fall Creek from northern portions of the project area and southward or southwestward from southern portions of the project area toward tributaries of Parch Corn Creek located approximately 2,300 feet away.

The project area drains to Fall Creek and Parch Corn Creek of Hurricane Creek in the Upper Duck River Watershed. All of the streams are classified by the state (TDEC, 2013) for Fish and Aquatic Life, Recreation, Livestock Watering and Wildlife, and Irrigation. In addition, Hurricane Creek is classified as a Trout Stream. Fall Creek is on the state 303 (d) list (TDEC, 2014) as impaired (i.e., not fully supporting its designated uses) due to *E. Coli* from pasture grazing.

During the proposed clearing, standard BMPs would be employed and activities would be accomplished in compliance with applicable storm water permitting requirements. Therefore, any direct, indirect or cumulative effects to local surface water quality or groundwater supplies or quality from the proposed clearing and demolitions are expected to be temporary and minor.

Over the long-term, the site is likely to be developed. The presence of buildings and associated hard surfaces on the property could increase the amount of impermeable surface and possibly lead to faster runoff of onsite precipitation. Any activities that could affect surface water and groundwater quality would be subject to state and federal regulations. Water and sewer service at the site would be supplied by the local utility company; thus, extraction of groundwater for future water supplies is unlikely. Thus, foreseeable long-term effects to water resources are expected to be minor.

Aquatic Resources

A May 2015 field survey of the project area identified two farm ponds and no streams. Cattle currently use the ponds as a water source and have impacted the banks and substrate of the ponds. Aquatic life could be affected by the proposed action either directly by the alteration of habitat conditions or indirectly due to modification of the riparian zone and storm water runoff resulting from construction activities associated with the site preparation.

Impacts to the aquatic community within the pond would occur should the pond need to be drained and removed. However, removal of the livestock and implementation of best management practices (BMP) would likely result in beneficial impacts from reduced nutrient loading and increased bank stabilization.

Terrestrial Life (Plants)

Aerial photos, site photos, topographic maps, and a site visit indicates that the project area is comprised of agricultural land and forest in various stages of succession. The entirety of the site has been previously cleared and heavily disturbed by previous land use. The majority of the site is dominated by herbaceous vegetation comprised primarily of non-native plants, but several forested areas have a canopy composed of mainly native species. Even though the forested areas are slightly less disturbed than the adjacent areas of herbaceous vegetation, these areas are also heavily grazed and do not support native plant communities with conservation value.

Executive Order (EO) 13112 serves to prevent the introduction of invasive species and provides for their control to minimize the economic, ecological, and human health impacts that those species potentially cause. In this context, invasive species are nonnative species that invade natural areas, displace native species, and degrade ecological communities or ecosystem processes (Miller 2010). Much of the project area is dominated by invasive species, which reflects the frequency and magnitude of disturbance present on site. Disturbances associated with activities, such as agriculture, often encourage invasion and establishment of weedy plants.

Adoption of the Action Alternative would not significantly affect the terrestrial ecology of the region. Forested and herbaceous communities currently found on the site do not support native plant communities with conservation value. These habitats are common and are well represented throughout the region. Portions of the project area would be permanently converted, but these areas do not support unique plant communities. The implementation of the proposed project would have a negligible impact on the terrestrial ecology of the region.

Terrestrial Life (Wildlife)

Habitat assessments for terrestrial animal species were conducted in the field on May 13, 2015, on the 86.5-acre tract of land proposed for purchase by the SBCOC. Landscape features within and surrounding the project area consist of a variety of fragmented forest habitat, wetlands, stream crossings, and early successional habitat (i.e., pasture and agricultural), and residential or otherwise disturbed areas.

Approximately 18 acres of the total project area are forested. Forest types present within the project area include deciduous and mixed deciduous-evergreen forests. These forest types provide habitat for an array of terrestrial animal species. Birds typical of this habitat include Acadian fly-catcher, chuck-will's-widow, downy and hairy woodpecker, eastern screech-owl, eastern wood-pewee, great horned-owl, indigo bunting, red-breasted nuthatch, red-headed woodpecker, red-tailed hawk, summer tanager, wood thrush, wild turkey, and yellow-billed cuckoo (National Geographic, 2002). This area also provides foraging and roosting habitat for several species of bat, particularly in areas where the forest understory is partially open. Common bat species likely found within this habitat include big brown bat, eastern red bat, evening bat, silver-haired bat, and tricolored bat. Eastern chipmunk, gray fox, and woodland vole are other mammals likely to occur within this habitat (Kays and Wilson 2002). Eastern black kingsnake, black rat snake, northern ring-necked snake and are common reptiles of deciduous forests in this region (Conant and Collins 1998, Dorcas and Gibbons 2005, Scott and Redmond 2008).

Pastures and agricultural fields comprise approximately 68 acres of the project area. Common inhabitants of this type of early successional habitat include brown-headed cowbird, brown thrasher, common yellowthroat, dickcissel, eastern bluebird, eastern kingbird, eastern meadowlark, field sparrow, and grasshopper sparrow (National Geographic 2002). Bobcat, coyote, eastern cottontail, hispid cotton rat and red fox are mammals typical of fields and cultivated land (Kays and Wilson 2002). Reptiles including northern copperhead and southern black racer are also are known to occur in this habitat type (Dorcas and Gibbons 2005).

Developed areas and areas otherwise previously disturbed by human activity are home to a large number of common species. American robin, Carolina chickadee, blue jay, European starling, house sparrow, mourning dove, northern cardinal, northern mockingbird, black vulture and turkey vulture are birds commonly found along road edges, industrial properties

and residential neighborhoods (National Geographic 2002). Mammals found in this community type include eastern gray squirrel, northern raccoon, and Virginia opossum (Kays and Wilson 2002). Road-side ditches provide potential habitat for amphibians including American toad, upland chorus frog and spring peeper. Reptiles potentially present include gray rat snake and yellow-bellied kingsnake (Conant and Collins 1998, Dorcas and Gibbons 2005).

Forested wetlands (approximately 5 acres, see Wetland Section for more details) and aquatic habitat occurs within the project area. Such habitat provides resources for birds including, northern harrier, red-winged blackbird, song sparrow, swamp sparrow, and white-throated sparrow (National Geographic 2002). American beaver, golden mouse, and muskrat are common mammals in emergent wetland and aquatic communities. Eastern garter snake, midland brown snake, rough green snake, and timber rattlesnake are common reptiles likely present within this habitat (Dorcas and Gibbons 2005). Amphibians likely found in forested wetlands in this area include marbled, mole, northern slimy and spotted salamander, eastern narrowmouth toad, eastern spadefoot toad, Fowler's toad, gray treefrog and southern leopard frog (Conant and Collins 1998, Scott and Redmond 1996).

Review of the TVA Regional Natural Heritage database in May 2015 indicated that no caves have been documented within three miles of the project area and no caves were identified during the field review on May 13, 2015. No other unique or important terrestrial habitats were identified within the project area. In addition, no aggregations of migratory birds or wading bird colonies have been documented within three miles of the project area and none were observed during field surveys.

Under the Action Alternative, 18 acres of forested habitat would be cleared. Vegetation removal may also occur on the other 68 acres of pastures and cultivated fields. Impacts to wildlife habitat are based on the assumption that disturbance would occur across the entire property for industrial development (grading, vegetation removal, etc.). Proposed actions would result in ground disturbance throughout the proposed property. Any wildlife (primarily common species) currently using these already heavily disturbed areas would be displaced by habitat removal. Direct effects to some individuals that may be immobile during the time of construction may occur, particularly if construction activities took place during breeding/nesting seasons. However, the actions are not likely to affect populations of species common to the area, as similarly forested and herbaceous habitat exists in the surrounding landscape.

Construction-associated disturbances and habitat removal would disperse wildlife into surrounding areas in an attempt to find new food and shelter sources and to reestablish territories, potentially resulting in added stress or energy use to these individuals. In the event that surrounding areas are already overpopulated, further stress to wildlife populations could occur to those individuals presently utilizing these areas, as well as those attempting to relocate. The landscape on which the project occurs is already highly fragmented and impacted by human activity (i.e. forestry practices, agricultural fields, animal holding facilities, farm ponds and roads). Thus, it is unlikely that surrounding landscapes are already overpopulated with wildlife and that species currently occupying these adjacent habitats would be negatively impacted by the influx of new residents.

Threatened and Endangered Species

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

Aquatic Species

A June 2015 review of the TVA Natural Heritage Database indicated that four federally listed endangered and 15 additional state-listed aquatic animals are currently known from Bedford County, Tennessee and/or within a ten-mile radius of the proposed property for purchase (Table 1). Freshwater mussels listed as historical (>25 years old) suggests these species are very rare or no longer occur in this area of their former range. Habitat for aquatic species (fish, mussels, snails, and insects) listed in Table 1 does not occur within the project area.

No federal or state-listed aquatic species are known from the proposed subject property for purchase. Impacts to the remaining state-listed fishes and mollusks within the watershed could occur from future alteration of habitat conditions indirectly due to modification of the riparian zone and storm water runoff resulting from construction activities associated with site preparation. The future owners would need to follow applicable state and federal regulations and implement BMPs, which would minimize any indirect potential impacts to nearby surface water.

Table 1 Records of federal and state-listed aquatic animal species from Bedford County, Tennessee and/or within a 10-mile radius of the project area[1]

Common Name	Scientific Name	Element Rank[2]	Status[3]	
			Federal	State (Rank)[4]
Fishes				
Ashy Darter	*Etheostoma cinereum*	E		THR (S2S3)
Bedrock Shiner	*Notropis rupestris*	E		NMGT (S2)
Coppercheek Darter	*Etheostoma aquali*	E		THR (S2S3)
Flame Chub	*Hemitremia flammea*	E		NMGT (S3)
Golden Darter	*Etheostoma denoncourti*	E		NMGT (S2)
Redband Darter	*Etheostoma luteovinctum*	E		NMGT (S4)
Saddled Madtom	*Noturus fasciatus*	E		THR (S2)
Slenderhead Darter	*Percina phoxocephala*	E		NMGT (S3)
Striated Darter	*Etheostoma striatulum*	E		NMGT (S3)
Insects				
TN Clubtail Dragonfly	*Gomphus sandrius*	E		TRKD (S1)
Mussels				
Birdwing Pearlymussel	*Lemiox rimosus*	H	END	END (S1)
Fluted Kidneyshell	*Ptychobranchus subtentum*	E	END	TRKD (S2)
Round Hickorynut	*Obovaria subrotunda*	E		TRKD (S2S3)
Slabside Pearlymussel	*Pleuronaia dolabelloides*	E	END	TRKD (S2)
Tennessee Heelsplitter	*Lasmigona holstonia*	E		TRKD (S2)
Turgid Blossom	*Epioblasma turgidula*	E	END	EXTI (SX)
Snails				
Helment Rocksnail	*Lithasia duttoniana*	E		TRKD (S2)
Ornate Rocksnail	*Lithasia geniculata*	E		TRKD (S2)
Rugose Rocksnail	*Lithasia jayana*	H		TRKD (SX)

[1]Source: TVA Natural Heritage Database, queried on 6/2/15
[2]Element Rank: E = Extant; H = Historical; Element occurrence is greater than 25 years old.
[3]Status Codes: END = Listed Endangered; THR = Threatened; NMGT = In Need of Management; EXTI = Extirpated or Presumed Extinct; TRKD = Tracked by State Natural Heritage program
[4]State Rank: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; SX = Presumed Extirpated

Plant Species

A June 2015 review of the TVA Natural Heritage Database indicated that two state-listed plant species have been previously documented within a five-mile vicinity of the project area (Table 2). The site does not support these or other state-listed plants because of the predominance of non-native plants and the on-going disturbance of cattle grazing. Three

federally listed plants occur in Bedford County, but the very specific habitats required by these plant species do not occur within the project area. No designated critical habitat for plant species occurs within or adjacent to the project area. Adoption of the Action Alternative would not impact federal or state-listed plants species because no individual plants or habitat capable of supporting listed species occurs in the project area.

Table 2 Species of conservation concern known from within five miles of the Project Area and federally listed plant species previously reported from Bedford County, Tennessee.

Common Name	Scientific Name	Federal Status	State Status (Rank)
Braun's Rock-cress1	*Arabis perstellata*	END	END(S1)
Pyne's Ground Plum1	*Astragalus bibullatus*	END	END(S1)
Leafy Prairie-clover1	*Dalea foliosa*	END	END(S2S3)
Duck River Bladderpod	*Paysonia densipila*	-	SPCO(S3)
Virginia Rose	*Rosa virginiana*	-	SPCO(SH)

Status codes: **END** = Endangered; **SPCO** =Special Concern.
Rank Codes:**S1** = Extremely rare and critically imperiled in the state with 5 or fewer occurrences, or very few remaining individuals, or because of some special condition where the species is particularly vulnerable to extirpation; **S2** = Very rare and imperiled within the state, 6 to 20 occurrences; **S3** = Rare or uncommon with 21 to 100 occurrences; **SH** = Historical in Tennessee; **S#S#** = Denotes a range of ranks because the exact rarity of the element is uncertain (e.g., S1S2).
[1]Federally listed species occurring within the county where work would occur, but not within 5 miles of the project area.

Wildlife Species

A May 2015 review of the TVA Regional Heritage Database indicated that no state-listed or federally listed terrestrial animal records are within three miles of the project area. Two federally endangered species (gray bat and Indiana bat) are known from Bedford County. In addition, the US Fish and Wildlife Service (USFWS) has determined that the federally threatened northern long-eared bat has the potential to occur throughout the state of Tennessee. Thus, habitat suitability and potential impacts to this species also will be addressed (Table 3).

Table 3 Federally Listed Terrestrial Animal Species located within Bedford County, Tennessee[1]

Common Name	Scientific Name	Federal Status	State Status[2] (Rank[3])
Gray bat*	*Myotis grisescens*	LE	END(S2)
Northern long-eared bat[4]	*Myotis septentrionalis*	LT	--(S1S2)
Indiana bat*	*Myotis sodalis*	LE	END(S1)

[1] Source: TVA Regional Natural Heritage Database, extracted 5/11/2015; USFWS Ecological Conservation OnlineSystem (http://ecos.fws.gov/ecos/home.action) and Tennessee Bat Working Group species occurrence maps (http://www.tnbwg.org/), accessed 5/11/2015.
[2] Status Codes: END = Endangered; LE = Listed Endangered; LT = Listed Threatened.
[3] State Rank: S1 = Critically Imperiled; S2 = Imperiled.
* Federally listed species know from Bedford County, TN but not within three miles of the project area.
[4] Federally threatened species thought to occur statewide though no records are known from Bedford County, Tennessee.

Gray bats are associated with caves year-round, migrating between different roosts in winter and summer. This species emerges at dusk to forage for insects along waterways. The nearest gray bat record is known from a cave approximately 4 miles from the project area. Only four additional caves are known from Bedford County. These occur between 9 and 16 miles from the project area. No additional caves were observed during field surveys in May 2015. Foraging habitat for gray bat may exist over forested wetlands within the project area.

The Indiana bat hibernates in caves during winter and inhabits forest areas around these caves for swarming (mating) in the fall and staging in the spring, prior to migration to summer habitat. During summer, Indiana bats roost under exfoliating bark, and within cracks and crevices of trees, typically located in mature forests with an open understory and a nearby source of water. Indiana bats are known to change roost trees frequently throughout the season, yet still maintain site fidelity, returning to the same summer roosting areas in subsequent years (Pruitt and TeWinkel 2007, Kurta et al. 2002). The closest documented occurrence of Indiana bat is from a cave approximately 16.3 miles away from the project area. There are no documented caves within three miles of the project area and none were observed during field surveys in May 2015. Foraging habitat for Indiana bat exists throughout the project area over forested wetlands, forest fragments and fence rows. Suitable summer roosting habitat for Indiana bat exists within the forested blocks of the project area. Suitability was determined by the presence of trees with exfoliating bark and relatively open understory.

The northern long-eared bat predominantly overwinters in large hibernacula such as caves, abandoned mines, and cave-like structures. During the fall and spring they utilize entrances of caves and the surrounding forested areas for swarming and staging. In the summer, northern long-eared bats roost individually or in colonies beneath exfoliating bark or in crevices of both live and dead trees. Roost selection by northern long-eared bat is similar to Indiana bat; however, it is thought that northern long-eared bats are more opportunistic in roost site selection. This species also roosts in abandoned buildings and under bridges. Northern long-eared bats emerge at dusk to forage below the canopy of mature forests on hillsides and roads, and occasionally over forest clearings and along riparian areas (USFWS 2014). The USFWS has determined that this species has the potential to occur statewide in Tennessee; however, no records are known from Bedford County, Tennessee (USFWS 2014, 2015b, TNBWG 2015). There are no documented caves within three miles of the project area. No caves or other roosting structures were observed during field surveys of the project area in May 2015. Foraging habitat exists throughout the proposed project area in forest fragments and over forested wetlands. Suitable summer roosting habitat for northern long-eared bat exists within forested blocks of the project area. Suitability was determined by the presence of trees with exfoliating bark and proximity to water.

TVA completed a bat habitat assessment of the project area to identify summer roosting habitat for Indiana bat and northern long-eared bat following federal guidance; twenty suitable roost trees were identified scattered across two forest fragments, totaling 9.85 acres (USFWS 2014, 2015, Attachment 2). Habitat quality ranged from moderate to high, based on the presence of trees with exfoliating bark (i.e., 12 snags and 8 live trees) in the proposed project area. Suitable summer roosting areas were comprised of both forested wetland and mixed evergreen-deciduous mature hardwood stands dominated by a mixture of American elm, eastern red cedar, hackberry, shagbark hickory and northern red oak.

Foraging habitat along fence rows in forest fragments would be removed in association with the proposed actions; however, similarly suitable foraging habitat is plentiful in the surrounding landscape. Therefore, minor impacts to foraging habitat would occur as a result of the Action Alternative. In its grant providing financial assistance, TVA would require that no tree clearing will occur in those areas identified by TVA as suitable habitat unless the impact of any such clearing is assessed in coordination with the USFWS under the Endangered Species Act. With the implementation of this mitigation measure, there would be no potential impacts to Indiana and Northern long-eared bats.

Wetlands

Wetlands are areas inundated by surface or groundwater such that vegetation adapted to saturated soil conditions is prevalent. Examples include swamps, marshes, bogs, and wet meadows. Wetland fringe areas are also found along the edges of most watercourses and impounded waters (both natural and man-made). Wetland habitat provides valuable public benefits including flood/erosion control, water quality improvement, wildlife habitat, and recreation opportunities.

Field surveys were conducted in May 2015, to delineate wetland areas within the project area. Wetland determinations were performed according to the U.S. Army Corps of Engineers (USACE) standards, which require documentation of hydrophytic (wet-site) vegetation, hydric soil, and wetland hydrology (USACE 2010; Environmental Laboratory 1987; Lichvar and Kartesz 2009; U.S. Department of Defense and USEPA 2003). Broader definitions of wetlands, such as that used by the USFWS (Cowardin et al. 1979), the Tennessee definition (Tennessee Code 11-14-401), and the TVA Environmental Review Procedures definition (TVA 1983), were also considered in this review. A TVA-developed modification of the Ohio Rapid Assessment Method (Mack 2001) specific to the TVA region (TVA Rapid Assessment Method or "TVARAM") was used to categorize wetlands by their functions, sensitivity to disturbance, rarity, and ability to be replaced.

During the May 2015 field survey, TVA identified three wetland areas totaling 5.15 acres within the project area (Figure 3 and Table 4).

Table 4 Wetlands within the Project Area

Wetland Identifier	Type[1]	TVARAM Category (score)	Wetland Acreage
W001	PUB/PEM/ PSS/PFO1H	1 (20)	0.11
W002	PEM1E	2 (32)	2.34
W003	PFO1E	2 (38)	2.70
		Total Acres	**5.15**

[1]Classification codes as defined in Cowardin et al. (1979): H = artificially diked/impounded; E = Seasonally flooded/saturated; Palustrine unconsolidated bottom (pond); PEM1 = Palustrine emergent, persistent vegetation; PFO1=Palustrine forested, broadleaf deciduous vegetation; PSS1 = Palustrine scrub-shrub, broadleaf deciduous vegetation.

Wetland 001 (W001) comprises 0.11 acre of a mix of emergent, scrub-shrub, forested, and open water habitat. This wetland is an isolated wetland feature (cattle pond) excavated in upland soil and is heavily impacted/used by cattle. The area receives water via

precipitation and no outlet is evident. W001 contained water at the time of the site visit, and exhibited hydric soil. W001 was dominated by hydrophytic vegetation that included hackberry, winged elm, green ash, black willow, blunt spikerush, seedbox, and false nutsedge. Wetland 001 is a Category 1 wetland, which is considered to have limited quality waters and represent degraded aquatic resources having limited potential for restoration with such low functionality that lower standards for avoidance, minimization, and mitigation could be applied.

Wetland 002 (W002) totals 2.34 acres of emergent wetland. Formed in a cattle pasture, this area is heavily grazed and is part of a larger 30-acre wetland complex associated with Bedford Creek (offsite). The wetland was saturated at the time of the site visit, and exhibited hydric soils. Dominant vegetation included giant ironweed, soft path rush, slender spikerush, fox sedge, and woodland bluegrass. Wetland 003 (W003) consists of 2.70 acres of forested wetland that is also a component of the larger wetland complex described above. W003 exhibited evidence of inundation and hydric soils. W003 was dominated by medium-aged forest comprised of hydrophytic species including hackberry, sycamore, and American elm in the overstory, and soft pathrush, jewelweed, fox sedge, and blunt broom sedge in the understory. Wetlands 002 and 003 are Category 2 wetlands, which are of moderate quality and degraded but have reasonable potential for restoration. Avoidance and minimization are the preferred mitigation measures for Category 2 wetlands.

Activities in wetlands are regulated under Section 401 and 404 of the Clean Water Act (CWA) and are addressed by EO 11990 (Protection of Wetlands). Section 401 requires water quality certification by the state for projects permitted by the federal government (Strand 1997). Section 404 implementation requires activities resulting in the discharge of dredge or fill into waters of the U. S. to be authorized through a Nationwide General Permit or Individual Permit issued by the USACE. EO 11990 requires federal agencies to minimize wetland destruction, loss, or degradation, and preserve and enhance natural and beneficial wetland values, while carrying out agency responsibilities.

Under the Action Alternative, project engineering and site constraints will determine the degree of wetland impacts. If it is feasible from an economic and engineering standpoint to avoid the wetlands onsite, wetland impacts could be minor and indirect. Indirect impacts would include potential for sedimentation and impacts to water quality due to increased stormwater input, and alteration of hydrologic regime. If it is necessary to develop the property such that all 5.15-acres (or any portion thereof) of wetlands are impacted, state and federal wetland regulatory requirements would likely require mitigation at a minimum of 2:1 ratio. This level of mitigation is expected to minimize wetland impacts to an insignificant level. As a condition of the funding grant, TVA will require that no activities will occur in wetlands identified by TVA without the prior written approval of TVA. Any proposed construction or fill will be evaluated at that time for the project-specific impacts to wetlands. With this restriction in place, there would no impacts to wetlands, consistent with EO 11990.

The proposed project would have no significant direct, indirect, and/or cumulative impacts to wetland areas and the associated wetland functions and values provided within the project area and general watershed.

Figure 2 Wetlands within the Project Area

Archaeological and Historical Resources

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

TVA determined the Area of Potential Effect (APE) to be the entire 86.5-acre site. No previously recorded archaeological sites or historic structures were identified within the APE.

TVA contracted with Tennessee Valley Archaeological Research (TVAR) to conduct a Phase I archaeological survey of the APE (Dadiego et al., 2015). As a result of the archaeological survey, one historic locus (SHB001), five isolated finds, and one archaeological site (40BD244) were identified within the APE. 40BD244 is a medium-sized, moderate density historical artifact scatter. The USGS 1936 Deason 7.5-minute topographic quadrangle depicts a structure at this location. Based on TVA's review of the survey results, TVA finds 40BD244 ineligible for the National Register of Historic Places.

TVA determined that no historic properties would be affected by the proposed action. TVA consulted with the Tennessee SHPO in a letter dated July 15, 2015 regarding TVA's findings of no effect. In a letter dated July 22, 2015 the Tennessee SHPO concurred with TVA's finding of no effect (Attachment 3). Pursuant to 36 CFR Part 800.3(f) (2), TVA also consulted with federally recognized Indian tribes regarding properties that may have religious and cultural significance to their tribe and eligible for the National Register of Historic Places. TVA received no responses from the federally recognized Indian tribes regarding the proposed undertaking.

Mitigation Measures

To minimize or reduce the environmental effects of future clearing and demolition activities associated with the Proposed Action, the SBCOC or its contractors will ensure all clearing and grading activities are in compliance with storm water permitting requirements and will utilize applicable BMPs to minimize and control erosion and fugitive dust during these actions.

TVA would include the commitments prescribed below in in its financial assistance grant to SBCOC in order to reduce, minimize or mitigate environmental impacts associated with the future construction and demolition activities.

- No tree clearing will occur in those areas identified by TVA as suitable habitat (9.85 acres, Attachment 2) unless the impact of any such clearing is assessed in coordination with the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act.

- No activities will occur in the 5.15 acres of wetlands identified by TVA in this assessment without the prior written approval of TVA.

Preferred Alternative

TVA's preferred alternative is the Proposed Action Alternative. Under this alternative, TVA would provide funding to the SBCOC for the purchase of an 86.5-acre tract of land for use as a proposed industrial site.

TVA Preparers

Rachel B. Crickmar, Program Manager - Project Management

Adam J. Dattilo, Botanist, Biological Resources - Terrestrial Ecology and Threatened and Endangered Species

Patricia B. Ezzell, Program Manager - Tribal Relations

Kim Pilarski-Hall, Wetlands and Natural Areas Specialist - Wetlands

Elizabeth Burton Hamrick, Zoologist - Terrestrial Animals, and Threatened and Endangered Species

Michaelyn Harle, PhD; Archaeologist - Cultural Resources, National Historic Preservation Act Compliance

Andrew R. Henderson, Aquatic Endangered Species Biologist - Aquatic Resources and Threatened and Endangered Species

Robert Marker, Contract Recreation Specialist - Recreation

Loretta A McNamee, Contract NEPA Specialist - NEPA Compliance and Document Preparation

Agencies and Others Consulted

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

Tennessee Historical Commission
Absentee Shawnee Tribe of Oklahoma
Alabama-Coushatta Tribe of Texas
Cherokee Nation
Eastern Band of Cherokee Indians
Eastern Shawnee Tribe of Oklahoma
Kialegee Tribal town
Muscogee (Creek) Nation
Shawnee Tribe
Thlopthlocco Tribal Town
United Keetoowah Band of Cherokee Indians in Oklahoma

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Attachments

Attachment 1 – Project Area Prime Farmland Map

Attachment 2 – Potentially Suitable Bat Habitat Map

Attachment 3 – State Historic Preservation Officer Correspondence

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Attachment 1

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Soil Rating Lines

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Soil Rating Points

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Water Features

MAP INFORMATION

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bedford County, Tennessee
Survey Area Data: Version 12, Sep 17, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 17, 2011—May 5, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Farmland Classification

Farmland Classification— Summary by Map Unit — Bedford County, Tennessee (TN003)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
BdB2	Bradyville silt loam, 2 to 5 percent slopes	Not prime farmland	6.1	7.1%
BdC2	Bradyville silt loam, 5 to 12 percent slopes	Not prime farmland	8.5	9.8%
CaA	Capshaw silt loam, 0 to 2 percent slopes	All areas are prime farmland	11.6	13.4%
CaB	Capshaw silt loam, 2 to 5 percent slopes	All areas are prime farmland	25.7	29.7%
Go	Godwin silt loam, frequently flooded	Not prime farmland	3.1	3.6%
TaB2	Talbott silt loam, 2 to 5 percent slopes, eroded	Not prime farmland	27.6	31.8%
TrC	Talbott-Rock outcrop complex, 2 to 15 percent slopes	Not prime farmland	3.9	4.5%
Totals for Area of Interest			**86.5**	**100.0%**

Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Rating Options

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

Attachment 2

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Attachment 3

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

Recd. 7/28/15

July 22, 2015

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

RE: TVA, ARCHAEOLOGICAL ASSESSMENT, INVESTPREP FUNDS FOR 86.5 ACRES, UNINCORPORATED, BEDFORD COUNTY, TN

Dear Mr. Jones:

At your request, our office has reviewed the above-referenced archaeological survey report in accordance with regulations codified at 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739). Based on the information provided, we concur that the project area contains no archaeological resources eligible for listing in the National Register of Historic Places.

If project plans are changed or archaeological remains are discovered during 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.

Your cooperation is appreciated.

Sincerely,

E. Patrick McIntyre, Jr.

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

EPM/jmb

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