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ECONOMIC DEVELOPMENT GRANT PROPOSAL FOR THE GREENFIELD PENTECOST PROPERTY

ENVIRONMENTAL ASSESSMENT

Weakley County, Tennessee (Greenfield)

EAXX-455-00-000-1737714589

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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 InvestPrep funds to the City of Greenfield, Tennessee (Greenfield), in partnership with the Weakley County Joint Economic Development Corporation (WC-JEDC), to assist with the development of a portion of the Greenfield Pentecost Property (GPP) in Weakley County, Tennessee. The area of TVA's Proposed Action (herein referred to as the Project Area) encompasses 17.8 acres of mostly open grassy land with some small, forested areas located adjacent to Bean Switch Lane and Highway 43/45E, in Greenfield, Tennessee (Figure 1 below and Attachment 1, Figure 1-A). TVA funds would be matched with non-TVA funds and used to assist with purchase and demolition of the P&J Petroleum Building and signage, installation of new signage (with associated lighting and landscaping), clearing and grubbing of trees and a fence line, grading of a berm, and tree planting for visual screening of Brock Cemetery (cemetery). Following the site improvements, the disturbed areas would be stabilized. These activities, herein referred to as the Proposed Action and/or Action Alternative, are further detailed in Section 3.2 below.

The proposed grant to Greenfield would assist with the above-mentioned site improvements to allow prospects to better envision the development potential of the site. The proposed improvements would lead to an increased probability of achieving TVA's core mission of job creation and capital investment. There are two developed sites in the immediate vicinity of the Project Area: an industrial Parker-Hannifin Sporlan Division to the south and a commercial agricultural equipment and supply facility to the west. Greenfield and the associated development are located approximately 1.5 miles to the south. Target industries include automotive, transportation, metal fabrication, plastics, rubber, and ceramic products. Pursuant to the National Environmental Policy Act (NEPA) 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 Greenfield.

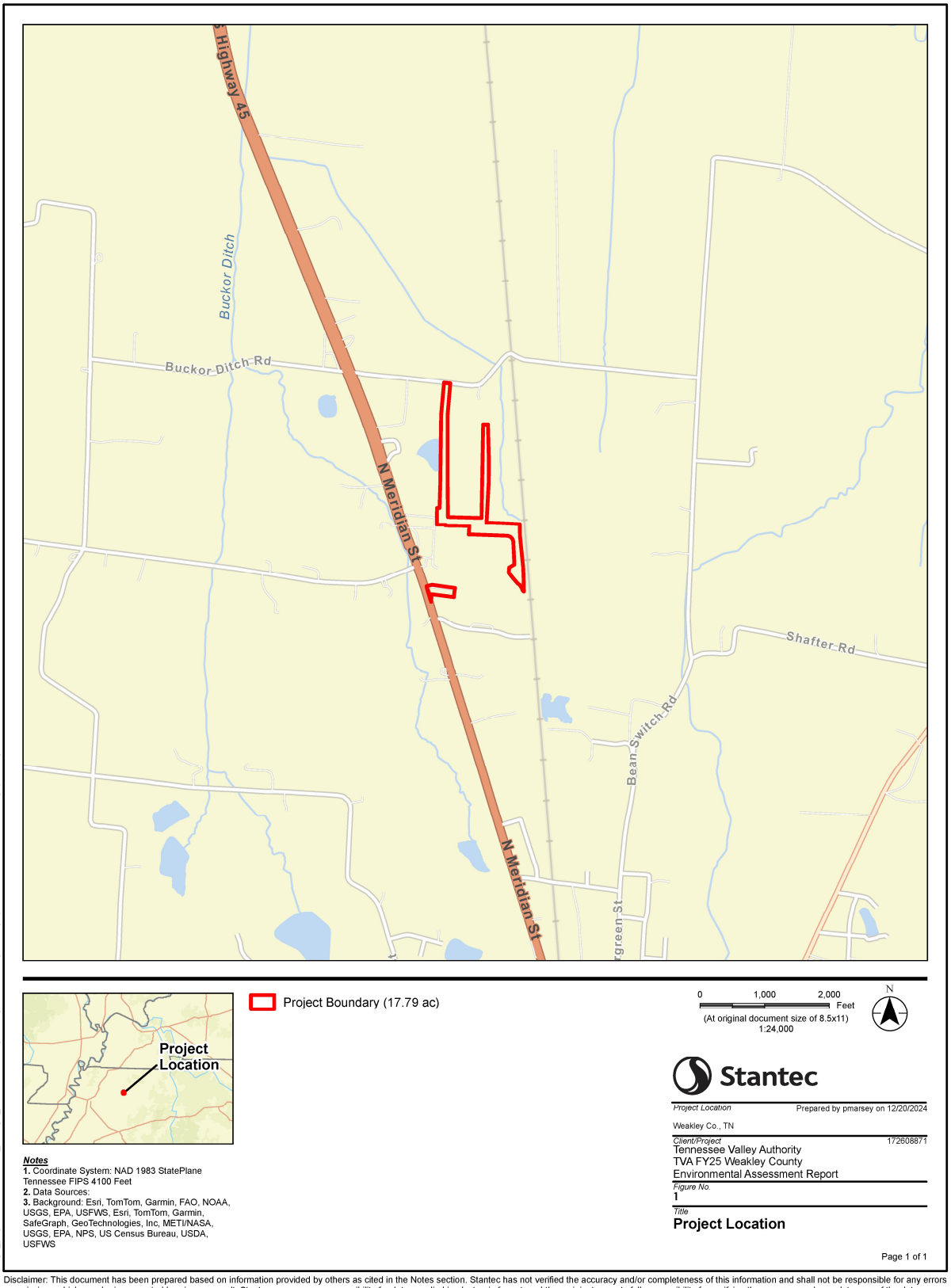

Figure 1. Project Location Map

2.0 OTHER ENVIRONMENTAL REVIEWS AND DOCUMENTATION

In preparation for site development, other studies have been performed by Greenfield or the WC-JEDC at the GPP including the 17.8-acre Project Area. The various studies were performed at different times and sometimes included areas beyond the Project Area.

- A Phase I Environmental Site Assessment (Phase I ESA) of the Project Area was performed by Intertek PSI (IPSI) in January 2020 (IPSI 2020a) on approximately 85 acres of the GPP. The Phase I ESA included the Project Area except for the P&J Petroleum property. The P&J Petroleum property is a separate segment of the Project Area located 0.2 mile southwest of the main segment. The purpose of the Phase I ESA was to identify the presence of recognized environmental conditions (REC), including controlled and historical RECs, or other environmental liabilities within the Project Area.
- IPSI also completed a Preliminary Geotechnical Exploration and Desktop Geotechnical Engineering Report at the GPP in February 2020 (IPSI 2020b). The survey area included the Project Area. Data was collected using non-destructive means, and no soil borings were conducted.
- Brophy-Heineke & Associates, Inc. (BHAI) prepared an Environmental Investigation covering the Project Area except for a small portion of the southwest corner in January 2020 (BHAI 2020). The study was conducted to assess surface waters and wetlands that could be found on site.
- Stantec performed a delineation of surface waters and wetlands of the Project Area in January 2025 (Stantec 2025a).
- Panamerican Consultants, Inc. (PCI) conducted a Phase I Archaeological Assessment of the Greenfield Pentecost Tract, Weakley County, Tennessee, in January 2020 (PCI 2020). The PCI assessment covered the Project Area.
- TVA contacted the Tennessee Historical Commission (THC) / State Historic Preservation Office (SHPO) regarding cultural resources in the Project Area and referenced the PCI study in a letter dated October 28, 2024 (TVA 2024). The THC-SHPO concurred that no historic properties would be affected by the Proposed Action in a letter also dated October 28, 2024 (THC 2024).
- TVA staff biologists performed field surveys for terrestrial zoology in October 2024 and these surveys also included assessments for the presence of federally or state-listed animal species and their habitats.
- Stantec botanists completed field surveys for vegetation found in the Project Area in January 2025, including assessment for the presence of federally or state-listed plant species and their habitats, and prepared the associated report (Stantec 2025b).

3.0 ALTERNATIVES

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

3.1 The No Action Alternative

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

3.2 The Action Alternative

Under the Action Alternative, TVA would provide InvestPrep funds to Greenfield for site improvements to the Project Area. The Action Alternative would include the purchase of the 1.42-acre P&J Petroleum property, followed by demolition of the existing P&J Petroleum building and signage, with debris disposal at a local landfill. Following the demolition, the Project would install new signage with associated lighting and landscaping. The P&J Petroleum asphalt parking lot and driveway would remain. Grading of a berm and planting of vegetation on top of the berm for visual screening of the cemetery would also be accomplished. Clearing and grubbing of 1.57 acres of trees located in the central part of the Project Area along a fence line is also proposed. Felled trees and stumps would be cut and burned on site. Following the site improvements, the disturbed areas would be stabilized with seed and mulch. These improvements with TVA funds would be matched with non-TVA funds. Activities required for the Action Alternative would occur over approximately nine months and would require a small workforce that would most likely be assigned through a local contractor. Work activities would not be anticipated at night or on weekends. For ease of discussion in this EA, the Proposed Action is collectively described as demolition and/or construction.

Greenfield, or its contractors, would obtain all required permits and authorizations, and, in compliance with those permits, take appropriate feasible measures, such as implementing best management practices (BMPs) and best construction practices, to minimize or reduce the potential environmental effects of the Proposed Action to insignificant levels. These practices would include the installation of erosion prevention and sediment control measures (silt fences, sediment traps, etc.), management of fugitive dust, and daytime work hours.

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 defined. Given this uncertainty, an analysis of the potential impacts for the development of the adjacent lots or the eventual build-out, occupation, and future use is beyond the scope of this EA.

4.0 AFFECTED ENVIRONMENT AND ANTICIPATED IMPACTS

4.1 Site Description

The 17.8-acre Project Area is located within the GPP in Weakley County, Tennessee, with small, forested areas and open grass/pastureland located west of Bean Switch Road paralleling the West Tennessee Railroad, and 0.1 mile east of Highway 45E/43, in the City of Greenfield, Tennessee (Attachment 1, Figure 1-A).

The Project Area is situated within a broader area of mixed agriculture (e.g., hay fields), scattered forest, and some light residential area, and is partially zoned as Industrial, with the remainder not zoned. Site access is from Bean Switch Lane, located immediately north of the Project Area, which connects to Highway 45E/43 to the west. Highway 45E/43 also connects directly to the P&J Petroleum building. The land use surrounding the Project Area includes pasture, farms, and scattered forest. Permanent utilities located adjacent to the Project Area include a 4-inch natural gas line, 8-inch water line, 10-inch sewer line, and overhead electric distribution lines.

The Project Area ranges from approximately 348 to 406 feet above mean sea level (msl) (Attachment 1, Figure 1-B). In the past, the Project Area has been used mostly for agriculture and hay production.

4.2 Impacts Evaluated

As stated previously, a Phase I ESA was conducted in the Project Area, but its study area did not include the additional P&J Petroleum property intended for purchase as part of the Action Alternative. Demolition of the existing P&J Petroleum LLC building is also associated with the Action Alternative.

Based on aerial photography, Weakley County, Tennessee, Flood Insurance Rate Map panel 47183C0325D, effective 11/5/2008, and the 2025 Weakley County Wetlands and Aquatics Report (Stantec 2025a), the Proposed Action would not be located within either FEMA-identified or unmapped 100-year floodplains (see Attachment 1, Figure 1-C), which would be consistent with Executive Order (EO) 11988, Floodplain Management. Therefore, there would be no direct or indirect impacts to floodplains and their natural and beneficial values.

A preliminary map of waters and wetland features based on the United States Geological Survey (USGS) National Hydrography Dataset (NHD) and United States Fish and Wildlife Service (USFWS) National Wetland and Water Inventory (NWI) is provided in Attachment 1, Figure 1-D. As noted above, BHAI performed a preliminary surface waters and wetlands delineation of approximately 80 acres of the GPP including most of the Project Area except for a small portion of the southwest corner, in January 2020 (BHAI 2020). No surface waters or wetlands were identified by BHAI in the area overlapping with the Project Area. Given that the P&J Petroleum property was not included in the BHAI study and that the BHAI study is nearly five years old, Stantec performed a delineation for surface waters and wetlands in the 17.8-acre Project Area in January 2025 (Stantec 2025a). Stantec identified one palustrine emergent wetland (PEM), and no streams, ponds, or wet weather conveyances were observed in the Project Area (see Attachment 1, Figure 1-E).

Because the Proposed Action would not affect a perennial flowing surface waterbody or a pond, and no fish, crayfish, bivalves or mussels, or aquatics insects were observed (Stantec 2025a), there would be no effects on aquatic zoology resources.

The Proposed Action would change the Project Area from a mostly open hay field with some trees to a developed lot designed to attract industrial development. The GPP is currently partially zoned as Industrial and partially not zoned. Given the partial zoning as Industrial, Greenfield's planned development of the GPP as an industrial park, and existing industrial and commercial facilities located immediately west and south of the Project Area, the Proposed Action would not cause a change in land use.

The Proposed Action could result in irreversible conversion of up to 4.74 acres of Prime Farmland located in multiple locations within the Project Area (Attachment 1; Figure 1-F).

As noted above, PCI conducted a Phase I Archaeological Assessment of the GPP in January 2020 (PCI 2020). TVA provided a letter in October 2024 to THC-SHPO indicating that there would be no effects upon significant cultural resources at the Project Area (TVA 2024). Subsequently, and in response to the coordination letter submitted by TVA, the THC-SHPO indicated that the Proposed Action would not affect historic properties eligible for listing in the National Register of Historic Places (NRHP) in a letter dated October 28, 2024 (Attachment 2) (THC 2024).

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

A review of TVA's Regional Natural Heritage database identified four managed/natural areas within three miles of the proposed Project Area (Table 4-1). None of these areas directly overlap with the proposed area, and no direct impacts from work within this area would be expected.

Table 4-1. Managed or Natural Areas Located within Three Miles of the Project Area

Natural Area	Acres	County
Bean Switch Refuge	731.7	Weakley (TN)
Obion River State Wildlife Management Area	8,859.5	Multiple
J. Clark Akers Wildlife Complex - TWRA	22,344.4	Multiple
Agricultural Conservation Easement Program - Wetlands Reserve Easement (ACEP-WRE)	40.4	Weakley (TN)

Based on a review of Google Earth aerial imagery and data, a number of parks or outdoor recreation areas are located near the Project Area. Sites within three miles of the Project Area include the Preserve at Darby Brothers Farm (private hunting preserve, 2.6 miles west), Greenfield School's Yellowjacket football stadium (1.7 miles south), and Callins Field (baseball fields, 0.4 mile south). Given the distances between the outdoor recreation areas and the Project Area, and the fact that the Project Area is partially zoned as Industrial, 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 floodplains, surface water, aquatic zoology, land use, managed and natural areas, and 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, solid and hazardous waste, groundwater, soils, prime farmland, wetlands, terrestrial zoology, and botany. Implementation of the Action Alternative could create potential impacts to the human environment, including cultural resources, visual effects, noise, socioeconomics, and transportation issues. Potential impacts to resources and impacts to the human environment resulting from implementation of the Action Alternative are discussed in detail below.

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 Weakley County, Tennessee, is designated as being in attainment with respect to the criteria pollutants (USEPA 2025).

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 and building demolition. Fossil fuel-fired equipment is a source of combustion emissions, including nitrogen oxides (NO_X), CO, volatile organic compounds (VOCs), SO_2, PM_{10}, $PM_{2.5}$, GHGs, and small amounts of HAPs.

Gasoline and diesel engines used as a result of the Action Alternative would be expected to be in compliance with the USEPA mobile source regulations in 40 CFR Part 85 for on-road engines and 40 CFR Part 89 for non-road engines. These regulations are designed to minimize emissions and require a maximum sulfur content in diesel fuel of 15 parts per million (ppm). Trees would also be cleared as part of the Proposed Action under the Action Alternative, and burning of trees and stumps is also anticipated on site. Burning of woody debris produces smoke containing CO, CO_2, PM, NO_2, and VOCs (ORCAA 2024). Smoke inhalation can cause irritation, breathing issues, and respiratory diseases.

Fugitive dust is a source of respirable airborne PM, including PM_{10} and $PM_{2.5}$, which could result from building demolition and 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. Greenfield, or its contractors, would be expected to comply with Tennessee Air Pollution Control Rule 1200-3-8, which requires reasonable precautions to prevent PM from becoming airborne. Such reasonable precautions include grading of roads and the use of water or chemicals for control of dust in construction operations on dirt roads and stockpiles, as needed.

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

Concerning climate change, trees, like other green plants, are carbon sinks that use photosynthesis to convert CO_2 into sugar, cellulose, and other carbon-containing carbohydrates that they use for food and growth. Carbon sequestration is the process by which carbon sinks remove CO_2 from the atmosphere. Although forests do release some CO_2 from natural processes such as decay and respiration, a healthy forest typically stores carbon at a greater rate than it releases carbon. Trees would be cleared as a part of the Proposed Action, and since the Project Area is mostly pastureland with some trees, it contributes as a carbon sink. However, on a national or global scale, the Proposed Action of clearing 1.57 acres of trees would have little contribution to climate change.

Under the No Action Alternative, if Greenfield is able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar emissions associated with equipment and ground disturbances would occur, resulting in similar air quality and climate change impacts as those described above for the Action Alternative. In the event the Project was postponed, any effects would be delayed for the duration of the postponement. If Greenfield is not able to secure the funding for the Proposed Action described in this EA, emissions associated with equipment and ground disturbances would not occur, and there would be no impacts to air quality and climate change from the No Action Alternative.

4.2.2 Solid and Hazardous Waste

The Phase I ESA report (IPSI 2020a) indicated no evidence of RECs, controlled RECs, or historical RECs from the study area. As noted above, demolition of the existing P&J Petroleum LLC building is a component of the Action Alternative. The Phase 1 ESA briefly discusses the P&J Petroleum LLC site as identified within the 2014 City Directory search results as a south adjoining, off-site property. The 2019 report states, “However, the Google Maps [*Sic*] Street View from 2012 indicated the [P&J Petroleum] property was developed with the same Care All facility [*Sic*] that was observed during the site reconnaissance. PSI believes the P&J Petroleum LLC

listing is an anomaly and therefore does not appear to represent evidence of a REC in connection with the subject property at this time."

Further, observations made during the field efforts for waters and wetlands delineation (Stantec 2025a), confirmed by use of Google Earth aerial imagery (imagery from January 2024) including Google Street View (imagery from July 2024), indicated that the P&J Petroleum building appears to be an office with no visible signs of actual petroleum infrastructure such as tanks, barrels, pipes, or pumps. On behalf of Greenfield, the WC-JEDC confirmed that no petroleum facilities were present at the site.

Based on the 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.

Implementation of the Action Alternative would result in generation of solid waste and could result in hazardous waste if unknown hazardous materials are present inside the P&J Petroleum building. Waste materials would be properly disposed of per state and federal guidelines. Prior to demolition, the building would be tested for asbestos. If asbestos is present, a 10-day demolition notice would be required to be submitted to the Tennessee Department of Environment and Conservation (TDEC) and other appropriate regulatory authorities. Greenfield would also need to obtain an asbestos demolition or removal permit, if present. BMPs would be implemented to control asbestos emissions. These include removing all asbestos-containing materials, adequately wetting all regulated asbestos-containing materials, sealing the material in leak-tight containers, and disposing of the asbestos-containing waste material as expediently as practicable. These BMPs are designed to minimize the release of asbestos fibers during building demolition, waste packaging, transportation, and disposal. With the implementation of the BMPs and 10-day demolition notice, any effects related to hazardous waste associated with the proposed demolition activities are expected to be minor.

The trucks and construction equipment for the Proposed Action have the potential for leaks or spills of oil and could generate used oil if servicing onsite is required. BMPs such as spill absorbent pads, containment equipment, and other similar materials are expected to be available onsite during work activities. Any used oil generated by the machinery is expected to be contained, handled, and managed in accordance with applicable used oil regulations and removed from the site upon completion. Spills and leaks are expected to be promptly cleaned up, and any oily debris disposed of in a landfill approved to accept such materials.

Greenfield would be required to obtain a special waste permit from the Tennessee Division of Solid Waste Management to transport and dispose of asbestos (if applicable), lead paint which is a hazardous waste (if applicable), and any other materials defined by TDEC as special waste, per T.C.A. § 68-211-102(b). All projects involving the demolition of a structure, regardless of whether or not regulated asbestos-containing material is present, require a Notification of Demolition to the TDEC Division of Air Pollution Control. There would be temporary minor solid waste impacts as a result of the Proposed Action.

Under the No Action Alternative, if Greenfield is able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar demolition and transport of waste debris would occur, resulting in similar impacts for solid and hazardous waste as those described above for the Action Alternative. In the event the Project was postponed, any effects would be

delayed for the duration of the postponement. If Greenfield is not able to secure the funding for the actions described in this EA, demolition and transport of waste would not occur, and there would be no impacts for solid and hazardous waste.

4.2.3 Groundwater

The Project Area is located within the East Gulf Coastal Plain Section of the Coastal Plain Province (USGS 2023). The East Gulf Coastal Plain Section extends from Eastern Louisiana and includes parts of Mississippi, Alabama, western Tennessee, western Georgia, and the Florida panhandle. The East Gulf Coastal Plain Section in the vicinity of the Project Area is characterized by unconsolidated to semi-consolidated sediments, silts, and clay (USGS 1995).

In western Tennessee, the principal aquifer system in the East Gulf Coastal Plain Section is the Mississippi embayment aquifer system and consists of sediments that include sand, silt, lignite, and clay that are primarily Late Cretaceous through late Eocene (USGS 1995). The Mississippi embayment aquifer system is comprised of several named aquifers. The local aquifer systems underlying Weakley County include: (in descending order) the upper Claiborne aquifer, middle Claiborne aquifer, lower Claiborne-upper Wilcox aquifer, Middle Wilcox aquifer, lower Wilcox aquifer, and the McNairy-Nacatoch aquifer (USGS 1995). The upper Claiborne aquifer consists of interbedded silt, fine sand, and sporadic lignite. The middle Claiborne aquifer consists of thick sand sequences with few or no clay layers. The lower Claiborne-upper Wilcox aquifer consists of thick beds of coarse to fine sand interbedded with thin layers of silt, clay, and lignite. The middle Wilcox aquifer is made up of thin, interbedded silt, fine sand, and clay layers. The lower Wilcox aquifer consists primarily of fluvial deposited sands. The bottom-most aquifer that comprises the Mississippi embayment aquifer system is the McNairy-Nacatoch aquifer, which consists of a single thick sand bed or two or more sand beds separated by thinner marl or clay layers (USGS 1995). Weakley County and the Project Area are located in an area of hydrogeologic transition, as several of the aquifers that comprise the eastern extent of the Mississippi embayment aquifer system are not horizontal and bend upward toward land surface (referred to as an up-dip) causing the formation associated with these aquifers to outcrop in this area. As such, the geologic formations that comprise the upper Claiborne aquifer and the middle Claiborne confining unit do not appear to be present in the vicinity of the Project Area. Instead, it appears as though the middle Claiborne aquifer outcrops within the region are associated with the Project Area. The remaining aquifers described above are still present below the middle Claiborne aquifer (i.e., lower Claiborne-upper Wilcox aquifer, Middle Wilcox aquifer, lower Wilcox aquifer, and the McNairy-Nacatoch aquifer) (USGS 1995).

The water quality in the Mississippi embayment aquifer system is considered soft to moderately hard with a calcium bicarbonate type near outcrop areas of the aquifer and transitions to a sodium bicarbonate type as it flows deeper into the aquifers. The dissolved solids concentrations for the Mississippi embayment aquifer system are typically less than 250 milligrams per liter (mg/L) in the vicinity of the Project Area. The principal aquifers used for water supply in the Mississippi embayment aquifer system are the middle Claiborne, lower Wilcox, and the McNairy-Nacatoch aquifers. The middle Claiborne and lower Wilcox receive recharge via precipitation in aquifer outcrops and downward leakage from the above overlying aquifers. The McNairy-Nacatoch receives recharge primarily from precipitation infiltration in aquifer outcrop areas, and a small portion of recharge is upward from the underlying aquifers (USGS 1995).

Implementation of the Action Alternative would result in ground disturbance during construction activities. Tree clearing and subsequent tree and stump burning would result in minor ground disturbance at shallow depths. The demolition of P&J Petroleum building and signage, as well as site grading for the construction of a berm for cemetery screening, would result in greater ground disturbance at moderate depths. Ground disturbances are not anticipated to be at depths that would intersect public groundwater supplies (approximately 200 to 1,500 feet beneath the land surface) (USGS 1995) or result in significant impacts to groundwater resources. A preliminary geophysical investigation conducted onsite in the 2020 report "Preliminary Geophysical Exploration and Desktop Geotechnical Engineering Report" conducted by IPSI consisted of four linear electrical resistivity surveys. The report states that the electrical resistivity survey results are typical of soils that contain the following: clay, gravel, sand, and silt. The electrical resistivity surveys produced results that extended to approximately 80 feet below land surface at each of the linear survey locations. Shallow aquifers could sustain minor impacts from changes in overland water flow and recharge caused by clearing, grading, and construction of a berm within the Project Area. Water infiltration, which is normally enhanced by vegetation, would be reduced until vegetation is re-established. In addition, near-surface soil compaction caused by heavy construction vehicles could reduce the ability of soil to absorb water. These minor impacts would be temporary and would not significantly affect groundwater resources. A Phase I ESA was completed in January 2020 by IPSI, which indicated that the Project Area consists of agricultural land and forested areas. The report states that there was no discovery of adverse environmental conditions in the Project Area. Historical land use of the Project Area was primarily agriculture, with wooded areas. As such, it is not anticipated that construction activities would encounter hazardous substances during the aforementioned site improvements. As noted above, there are no petroleum facilities associated with the P&J Petroleum building, and its demolition does not pose a risk to groundwater resources.

Under the No Action Alternative, if Greenfield is 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. In the event the Project was postponed, any effects would be delayed for the duration of the postponement. If Greenfield is not able to secure the funding for the actions described in this EA, ground disturbance associated with tree clearing, building, signage demolition, and site grading for construction of a berm would not occur, and there would be no impacts to groundwater resources.

4.2.4 Soils

The Project Area is located within the East Gulf Coastal Plain Section of the Coastal Plain Province (USGS 2023).

Soil types and descriptions were obtained from the Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2025) (see Attachment 1, Figure 1-F). Soil types found within the Project Area include: Calloway silt loam, Loring silt loam (2 to 5 percent slopes, moderately eroded), Loring silt loam (5 to 8 percent slopes, severely eroded), Loring silt loam (8 to 12 percent slopes, severely eroded), and Routon silt loam (0 to 2 percent slopes).

A geophysical investigation was conducted on the Project Area in 2020 (IPSI 2020b). The 2020 investigation conducted four linear electrical resistivity surveys within the Project Area that produced data to a depth of 80 feet below land surface. The data received from the surveys produced results typically associated with the presence of clay, gravel, sand, and silts within the

Project Area. The electrical resistivity results also indicated that the soils appear to increase in density with depth due to increasing resistivity values. Regarding future development, the report recommends that initially, the Project Area should be cleared of vegetation, organic soil, old fill, roots, and stripped of soft soils in any construction areas. Once the area has been excavated or stripped of materials to the proposed subgrade levels, the report also states that these exposed areas should be proof rolled. During this process, any soils that are observed to deflect or rut more than one inch should be processed and re-compacted or undercut and replaced. These proof rolling and potential undercutting activities should be observed by the geotechnical engineer and performed during dry weather, according to the report (IPSI 2020b).

Under the Action Alternative, soils in the Project Area would be disturbed by tree clearing, tree and stump burning, demolition of P&J Petroleum building and signage, as well as site grading for the construction of a berm. 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 soil erosion and sedimentation into 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 Greenfield is 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. In the event the Project was postponed, any effects would be delayed for the duration of the postponement. If Greenfield is 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.

4.2.5 Prime Farmland

Prime farmland is defined by the U.S. Department of Agriculture NRCS as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. Of the five soil map units in the Project Area, two (LoB2 - Loring silt loam, 2 to 5 percent slopes moderately eroded, and Ca - Calloway silt loam) are considered prime farmland (see Attachment 1, Figure 1-F for soil unit descriptions and locations) and account for 5.57 acres. However, because a portion of the Project Area is zoned as Industrial, the amount of applicable prime farmland would be reduced to 4.74 acres or approximately 27 percent of the Project Area. Of this area, 0.30 acre would be converted directly by grading for a berm for visual screening.

The Farmland Protection Policy Act (FPPA) discourages federal activities that would convert farmland to nonagricultural purposes (7 CFR Part 658). The Proposed Action would result in disturbance within the Project Area. The Proposed Action could result in the conversion of 4.74 acres of Prime Farmland pending confirmation by the NRCS.

Completion of NRCS Form AD-1006, “Farmland Conversion Impact Rating”, Parts VI and VII was required prior to proceeding with the Proposed Action. Form AD-1006’s impact rating serves as

a reporting mechanism to track loss of prime farmland by projects funded by federal dollars. For project sites where the total points equal or exceed 160, NRCS may prompt consideration of alternative actions, as appropriate, that could reduce adverse impacts (e.g., alternative sites, modifications, or mitigation).

Under the Action Alternative, 4.74 acres of prime farmland in the Project Area could be disturbed by the Proposed Action. The completion of the NRCS documentation described above was required. TVA staff submitted the final AD-1006 form to NRCS on May 21, 2025, with a score of 158. The impacts to prime farmland would be considered minor on a county level, as based on available data, the Action Alternative would convert only 0.003 percent of the prime farmland in Weakley County, Tennessee (NRCS 2025a, NRCS 2025b; USDA 2025).

Under the No Action Alternative, if Greenfield is 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 prime farmland as those described above for the Action Alternative. In the event the Project was postponed, any effects would be delayed for the duration of the postponement. If Greenfield is 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 prime farmland.

4.2.6 Wetlands

Stantec performed field surveys of the entire Project Area on January 2, 2025, to document wetlands (Stantec 2025a). A map of features based on the USGS NHD and USFWS NWI is provided in Attachment, Figure 1-D. One palustrine emergent wetland (W001) that is potentially regulated by the United States Army Corps of Engineers (USACE) and/or TDEC was identified during the field survey (Attachment 1, Figure 1-E).

W001, 0.019 acre in size, is a palustrine emergent wetland (PEM) in the southern portion of the study area. Water is received by a seep and runoff from the adjacent field, after which it flows through an upland drainage area into a culvert system off the Project Area to the north and connects to the greater watershed. A Tennessee Rapid Assessment Method score of 17 was given to this wetland, which indicates that this wetland has “low resource value”.

Under the Action Alternative, the wetland could be disturbed by grading and site stabilization. Coordination with the USACE and TDEC regarding wetland W001 has not yet occurred, and its jurisdictional status is undetermined at this time. It is possible that Greenfield may be able to avoid the wetland during site development. If potential impacts to the regulated wetland cannot be avoided, coordination with the USACE and TDEC would be required. Greenfield would ensure compliance with required permits authorizing disturbance to the wetland, including provision of impact minimization measures and compensatory mitigation, as necessary. Given these factors, impacts on the wetland would not be significant. Implementation of the Proposed Action would be consistent with EO 11990 and the Clean Water Act Sections 401 and 404.

Under the No Action Alternative, if Greenfield is 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 the wetland as those described above for the Action Alternative. In the event the Project was postponed, any effects would be delayed for the duration of the postponement. If Greenfield is 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 the wetland.

4.2.7 Terrestrial Zoology

4.2.7.1 Wildlife

The GPP is approximately 74 acres, 17.8 of which make up the Project Area that would be altered using TVA InvestPrep funding. The Project Area is composed primarily of a former agriculture field with two small strips of forested habitat. One building is present within the Project Area and would be demolished as part of the Proposed Action. Features surrounding the Project Area consist of pasture, cropland, the Brock Cemetery, and the West Tennessee Railroad. A field survey of the Project Area was conducted on October 15, 2024, by TVA terrestrial zoologists.

Early-successional, herbaceous habitat (i.e., pasture) composes most of the Project Area. Common avian inhabitants of early-successional habitat include American crow, American robin, brown-headed cowbird, common grackle, eastern bluebird, field sparrow, northern cardinal, and red-tailed hawk, among others (National Geographic 2002). Additional species, such as eastern meadowlark, were observed using this habitat during field survey. Mammalian species likely present in this habitat include cotton rat, eastern cottontail, red fox, striped skunk, and white-tailed deer (Whitaker 1996). Early-successional areas also provide habitat for additional common species, such as eastern raccoon, which were also observed during field survey. Common amphibian and reptile species to this habitat include Fowler's toad, southern black racer, and upland chorus frog, among others (Powell et al. 2016).

Approximately 1.57 acres of the Project Area are forested habitat. One parcel is a small tree line separating two fields in the center of the property. This area includes young trees, based on small diameters at breast height (DBH), such as sweetgum. The other forested area is larger and includes many large DBH trees such as oak, maple, and elm species. Birds typical of this habitat include downy woodpecker, red-shouldered hawk, red-eyed vireo, red-bellied woodpecker, white-breasted nuthatch, wild turkey, wood thrush, and yellow-breasted chat (National Geographic 2002). Common amphibian and reptile inhabitants include copperhead, Dekay's brownsnake, gray rat snake, and spotted salamander (Powell et al. 2016). Many previously listed mammalian species also utilize deciduous habitat, in addition to herbaceous habitat. Some additional mammal species include eastern chipmunk, Virginia opossum, and numerous bat species, such as the eastern red bat (Whitaker 1996).

Review of the United States Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) tool on October 2, 2024, identified nine migratory birds of conservation concern having the potential to occur in the Project Area: American kestrel, bald eagle, cerulean warbler, chimney swift, Kentucky warbler, prothonotary warbler, red-headed woodpecker, rusty blackbird, and wood thrush. See Section 4.2.7.2 for a full bald eagle impact analysis.

American kestrel is a small falcon that has experienced widespread declines across North America (Bird and Smallwood 2023). American kestrel utilizes cavities for nesting and inhabits open areas containing short vegetation, grasslands, and agricultural fields (Smallwood and Bird 2020). Habitat for American kestrel exists in the Project Area.

Cerulean warbler utilizes closed-canopy habitat within forested stands containing numerous well-spaced, large trees. These areas are typically found within old-growth deciduous communities,

particularly in floodplains or other areas of mesic condition (Buehler et al. 2020). Suitable nesting habitat is not present in the Project Area.

Chimney swift is a summer resident in Tennessee that uses chimneys and other human-made structures, such as barns, silos, and vents in urban areas as nesting sites and communal roosts, and large hollow trees (e.g., mature bald cypress) in more natural areas. Chimney swifts forage for insects in a variety of habitats, including forests, open country, waterways, suburban and urban areas (Steeves et al. 2020). One building is proposed for removal but is not suitable for chimney swift roosting or nesting. Suitable nesting habitat for chimney swift is not present in the Project Area.

Kentucky warbler establishes nests at the base of plants in lowland hardwood forests in areas of dense understory. This species requires large tracts of forest for breeding (McDonald 2020). Suitable habitat for Kentucky warbler is not present in the Project Area.

Prothonotary warbler nests in tree cavities or nest boxes in wooded areas near bodies of water (Petit 2020). Although tree cavities exist in the Project Area, suitable bodies of water were not identified within the Project Area. Breeding habitat does not exist in the Project Area.

Red-headed woodpecker is a summer resident in Tennessee. This species utilizes a variety of forested habitat, typically with the presence of snags and dead limbs, which are utilized for nesting (Frei et al. 2020). Breeding habitat for red-headed woodpecker exists in the Project Area.

Rusty blackbird is a winter resident in Tennessee that utilizes wet woods, pond edges, and other wet habitat during the winter (Avery 2020). Suitable habitat for rusty blackbird is not present within the Project Area.

Wood thrush is a summer resident in Tennessee associated with larger tracts of mature mixed-deciduous forests with an open forest floor. It tends to nest in the lower forked branches of saplings or shrubs (Evans et al. 2020). Breeding habitat for wood thrush exists in the Project Area.

Under the Action Alternative, Greenfield would utilize TVA InvestPrep funding matched with non-TVA funding to assist with development of the Project Area, including tree clearing and grading of a berm. This would result in the displacement of wildlife (primarily common, habituated species) currently using the Project Area. Direct effects to some individuals may occur if those individuals are immobile during the time of habitat removal. This could be the case if activities took place during breeding/nesting/hibernation seasons. Habitat removal would likely disperse mobile wildlife into surrounding areas in an attempt to find new food sources, shelter, and to reestablish territories. However, the Proposed Action is not likely to affect populations of species common to the area, as the amount of habitat to be modified is relatively small, and similar herbaceous habitats and forested fragments exist in the surrounding landscape.

A review of the TVA Regional Natural Heritage Database resulted in one recorded wading bird colony within three miles of the Project Area, approximately 2.04 miles away. No additional wading bird colonies were observed during a field survey in 2024. Given the distance from known colonies and the relatively small scope of the Proposed Action, known wading bird colonies would not be impacted. No caves are known within three miles of the Project Area, and no caves were observed during the October 2024 field survey of the Project Area. Based on the distance to documented caves, the Proposed Action is unlikely to affect unique or important karst habitat. Of the nine migratory birds of conservation concern that were identified using USFWS' IPaC tool, suitable habitat exists within the Project Area for American kestrel, red-headed woodpecker, and

wood thrush. Cerulean warbler, chimney swift, Kentucky warbler, prothonotary warbler, and rusty blackbird would be unaffected by the Action Alternative.

Suitable nesting habitat is present for American kestrel, red-headed woodpecker, and wood thrush within the Project Area where tree removal would occur. If nests are active while proposed tree removal is ongoing, activities could destroy nests, eggs, or altricial juveniles. Greenfield prefers that tree removal occur in May and June during the nesting season for these species, but has flexibility to modify its schedule to accommodate regulatory requirements. TVA recommends that tree removal occur outside of the tricolored bat pup season (May 15–July 31), as described in more detail in Section 4.2.7.2 below. This recommended conservation measure could also be beneficial for migratory birds of conservation concern, potentially nesting within the Project Area. Due to the relatively small size of the proposed tree removal area and availability of similarly suitable habitat in adjacent areas, the Action Alternative is not expected to impact populations of migratory birds.

Under the No Action Alternative, if Greenfield is 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 species as those described above for the Action Alternative. In the event the Project is postponed, any effects would be delayed for the duration of the postponement. If Greenfield is not able to secure the funding for the actions described in this EA, disturbance associated with the Proposed Action would not occur, habitats would remain in their current state, and there would be no direct, indirect, or reasonably foreseeable impacts on wildlife or wildlife habitat.

4.2.7.2 Threatened and Endangered Species (Terrestrial Animals)

A review of terrestrial animal species in the TVA Regional Natural Heritage Database (RNHD) on October 2, 2024, resulted in one species of state conservation concern (southeastern shrew) within three miles of the Project Area. No additional federally or state-listed species are known from the RNHD. The USFWS' IPaC tool determined three species proposed for federal listing (alligator snapping turtle, monarch butterfly, and tricolored bat) and one federally listed species (whooping crane) have the potential to occur in the Project Area. Habitat suitability and potential impacts to these species are addressed below Table 4-2.

Table 4-2. Federally Listed Terrestrial Animal Species Reported from Weakley County, Tennessee, and Other Species of Conservation Concern Documented Within Three Miles of the Greenfield Pentecost Property

Common Name	Scientific Name	Status	
		Federal	State (Rank)
Birds			
Bald eagle[1]	*Haliaeetus leucocephalus*	DL	D(S3)
Whooping crane[1]	*Grus americana*	EXPN	-(SX)
Invertebrates			
Monarch butterfly [1]	*Danaus plexippus*	PT	-(S4)
Mammals			
Southeastern shrew	*Sorex longirostris*	-	-(S4)
Tricolored bat[1]	*Perimyotis subflavus*	PE	T(S2S3)
Reptiles			
Alligator snapping turtle[1]	*Macrochelys temminckii*	PT	T(S2S3)

Source: TVA Regional Natural Heritage Database extracted October 10, 2024. USFWS Ecological Conservation Online System (http://ecos.fws.gov/ecos/home.action) extracted March 18, 2025.

[1] Federally listed or protected species that have not been documented within three miles of the Project Area or within Weakley County, Tennessee; USFWS has determined this species has the potential to occur within the Project Area.

Key: EXPN = Experimental Population, Non-essential
PE =Proposed Endangered
PT = Proposed Threatened
S2 = Imperiled
S3 = Vulnerable
S4 = Apparently Secure
SX = Presumed Extirpated.
T = Threatened.

Alligator snapping turtle is a large freshwater turtle that is confined to river systems that flow into the Gulf of America, formerly known as the Gulf of Mexico and renamed by EO 14172. This species is typically associated with deep water of large rivers where they feed on fish and other small invertebrates and vertebrates that they can scavenge. These turtles can also be found in small streams, floodplain swamps, and oxbow lakes associated with large rivers. Only females and juveniles spend time inland as they move from nest to water. Females are more generalists when it comes to nest site selection; however, they appear to like some canopy cover. Nest sites are typically found between 8 to 72 feet from water but have also been found more than 500 feet away. Nesting occurs from May to July, and hatchlings emerge about 100 to 150 days later, depending on temperature (USFWS 2021). Nesting habitat for alligator snapping turtle does not exist in the Project Area.

Bald eagle is federally 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 its nests, which can weigh several hundred pounds and are typically built near larger waterways where it forages primarily for fish (USFWS 2007). No suitable foraging or breeding habitat for bald eagle exists within the Project Area, and Cornell Lab's eBird program did not have any bald eagle observation records from Weakley County, Tennessee at the time of access in April 2025 (Cornell Lab 2025a).

Monarch butterfly is a highly migratory species, with eastern U.S. populations overwintering in Mexico. Monarch populations typically return to the eastern U.S. in April (Davis and Howard 2005). Summer breeding habitat requires milkweed species, on which adults exclusively lay eggs and where larvae develop and feed. Adults will drink nectar from other blooming wildflowers when milkweeds are not in bloom (NatureServe 2023). Though this species has not been historically tracked by state or federal heritage programs, the USFWS IPaC tool determined that this species has potential to occur within the Project Area. The field within the Project Area has been used for agriculture in the past, and the plants present are not typically used for monarch foraging. Some flowering plants may occur in the field, primarily along edges less affected by agricultural practices, however, significant breeding or foraging habitat is not present within the Project Area. Monarchs were not observed during field survey of the Project Area in October 2024.

Southeastern shrew is known from various habitats including woodlands, damp woods, and grasslands with heavy ground cover. This species has been known to create nests under or within decaying logs (French 1980). Suitable habitat for southeastern shrew is present within the Project Area.

Tricolored bat has been proposed for federal listing under the ESA and is generally solitary or found in small groups. This bat is associated with forested landscapes where it forages near trees and along waterways, especially riparian areas. Maternity and other summer roosts are typically in clumps of dead or live tree foliage or tree cavities. Caves, mines, culverts, and rock crevices may be used as night roosts and winter hibernacula (McCoshum et al. 2023). The USFWS' IPaC tool has determined that tricolored bat has potential to occur in the Project Area. As mentioned previously, there are no cave records within three miles of the Project Area. One building is proposed for demolition as part of Proposed Actions. This building was reviewed during the field survey and found to be unsuitable for roosting bat species. No additional potential winter roosting habitat was observed near the Project Area by TVA terrestrial zoologists during field surveys in October 2024. The wooded areas where tree removal is proposed were assessed for potential summer roosting and foraging habitat for tricolored bat following the 2024 Range-Wide Indiana Bat and Northern Long-eared Bat Survey Guidelines (USFWS 2024). Suitable summer roosting areas were comprised of deciduous hardwood patches dominated by a mixture of white oak, red oak, red maple, and Chinese privet. Areas with low suitability were comprised of tree lines with small, young saplings. Within the Project Area, approximately 1.57 acres of trees would be removed, 0.91 acre of which are considered suitable roosting trees for tricolored bat.

Whooping cranes migrate through Tennessee twice per year. Migrating birds feed in croplands and roost in shallow, freshwater wetlands. In the Eastern U.S., a small captive-raised population breeds in Wisconsin and overwinters in Florida. Since 2007, a small group of atypical individuals has come to winter in Tennessee, in a rural area on the Cumberland River. The whooping crane is listed as Endangered in the Southwest (USFWS Region 2). Outside of this region, the whooping crane is categorized as a non-essential experimental population. For the purposes of consultation, non-essential experimental populations are treated as threatened species on National Wildlife Refuge and National Park land (require consultation under 7(a)(2) of the ESA) and as a proposed species on private land (no Section 7(a)(2) requirements, but Federal agencies must not jeopardize their existence (Section 7(a)(4))) (USFWS 2023). The Project Area does not provide suitable habitat for the whooping crane, and no records are known from the Project Area.

Under the Action Alternative, TVA would utilize InvestPrep funding matched with non-TVA funding to assist with the development of the Project Area, including tree clearing and grading of a berm. The Project Area lacks suitable habitat characteristics for alligator snapping turtle, bald eagle, monarch butterfly, and whooping crane. The Action Alternative would have no effect on bald eagle and would not jeopardize the continued existence of alligator snapping turtle, monarch butterfly, or whooping crane. The Proposed Action's potential impacts on southeastern shrew and tricolored bat are discussed below.

Southeastern shrew habitat can be found throughout most of the forested portions of the Project Area. Ample suitable habitat for this species can be found throughout the adjacent landscape. The Action Alternative could result in the loss of individuals, nests, or burrows within the Project Area; however, significant impacts to populations of southeastern shrew are not expected.

No caves or other hibernacula for tricolored bat exist in the Project Area or would be impacted by the Action Alternative. The Project Area lacks surface waters that could serve as suitable aquatic foraging habitat for tricolored bat. BMPs would be used around one small wetland identified within the Project Area, minimizing any impacts to this foraging resource. Approximately 0.91 acre of suitable summer roosting habitat for tricolored bat would be removed under the Action Alternative. TVA recommends that tree removal occur outside of the tricolored pup season (May 15–July 31), when flightless juvenile bats that may be present in trees would be unable to escape during tree removal. While conservation measures are recommended to minimize impacts to tricolored bat, based on the scale of the Proposed Action and amount of available suitable habitat, impacts of the Action Alternative would not jeopardize the continued existence of the tricolored bat.

Under the No Action Alternative, if Greenfield is able to secure 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 threatened and endangered species as those described above for the Action Alternative. In the event the Project is postponed, any effects would be delayed for the duration of the postponement. If Greenfield is not able to secure the funding for the actions described in this EA, disturbance associated with the Proposed Action would not occur, the Project Area would likely remain in its current condition, and there would be no direct, indirect, or reasonably foreseeable impacts on threatened and endangered terrestrial animals and their habitat.

Neither the Action Alternative nor the No Action Alternative would result in significant impacts on any terrestrial species or their habitats.

4.2.8 Botany

4.2.8.1 Vegetation

The proposed project would occur in the Mississippi Valley Loess Plains (74) USEPA Level III Ecoregion (Griffith et al. 1997), which is made up of irregular plains with oak-hickory and oak-hickory-pine natural vegetation. Thick loess is the most distinguishing characteristic of the region. The Project Area also occurs in the Loess Plains (74b) USEPA Level IV Ecoregion, which is characterized by gently rolling, irregular plains dominated by productive agricultural land. Most of the forest in this region has been removed for cropland; what remains is made up of oak-hickory and southern floodplain forests. Several large river systems with wide floodplains cross this region (Griffith et al. 1997).

Field surveys were conducted by Stantec on January 13, 2025, to document plant communities, presence of invasive plants, and to search for possible threatened and endangered plant species in areas where construction would occur. Using the National Vegetation Classification System (Grossman et al. 1998), vegetation types observed during field surveys can be classified primarily as old field/pasture with areas of mature forest, sparsely vegetated and recently disturbed, mowed field, deciduous shrubland, early-successional deciduous forest, and wetland. No forested areas in the proposed Project Area had structural characteristics indicative of old-growth forest stands (Leverett 1996). The plant communities observed on site are common and well represented throughout the region and described below (Stantec 2025b).

The herbaceous perennial graminoid and forb (old field/pasture) vegetative community is represented by old fields or pastures, which are periodically mowed, and scrub-shrub vegetation is likely cut back and/or sprayed with herbicide to maintain the community. This vegetative community accounts for 14.8 acres (82.9 percent) of the Project Area. This community is characterized as old field and pastureland and showed signs of significant previous disturbances (mowing and agricultural use). The herbaceous layer across the vegetation points was dominated by meadow fescue, Johnsongrass, broomsedge, and lanceleaf plantain. Due to the high presence of invasive species and previous disturbance, the suitability for rare and protected plant species is low in the herbaceous perennial graminoid and forb vegetative community. Halberd-leaf tearthumb would not be expected in this habitat type.

The mature deciduous forest vegetative community is characterized from data collected at one vegetation data collection point, V-08, and accounts for 1.3 acres (7.3 percent) of the Project Area. This vegetative community is found primarily in undisturbed areas and is characterized by large growth trees. The mature deciduous forest vegetative community is the highest quality of plant communities present within the Project Area. The overstory is somewhat dense and is comprised of 12- to 28-inch DBH sweetgum, black cherry, southern red oak, pecan, and sugar maple. The midstory was moderately closed and dominated by 3- to 9-inch DBH sassafras, black cherry, eastern red cedar, pin oak, black locust, and southern hackberry. The shrub layer contains Chinese privet, eastern red cedar, multiflora rose, and meadow holly. Ground cover was dominated by Japanese honeysuckle, roundleaf greenbrier, and poison ivy. This vegetative community is found along an old fence row separating two fields and is relatively narrow.

The sparsely vegetated and recently disturbed community accounts for approximately 0.7 acre (3.8 percent) of the Project Area and is represented by impervious surfaces located in the southern portion of the Project Area along the driveway and asphalt parking of the P&J Petroleum building and road shoulder of N. Meridian Street and is characterized by 20 percent or less vegetation. The remaining herbaceous and graminoid plant communities included Bermuda grass, purple dead nettle, and meadow fescue.

Four other vegetation types were observed in the Project Area: herbaceous perennial graminoid (mowed field), deciduous shrubland (scrub shrub), deciduous forest (early-successional trees), and hydromorphic rooted vegetation (emergent wetland). However, all four of these vegetation types were each present at less than 0.5 acre of the Project Area.

EO 13112 directed TVA and other federal agencies to prevent the introduction of invasive species (both plants and animals), control their populations, restore invaded ecosystems and take other related actions. EO 13751 amends EO 13112 and directs actions by federal agencies to continue coordinated federal prevention and control efforts related to invasive species. This order

incorporates considerations of human and environmental health, climate change, technological innovation, and other emerging priorities into federal efforts to address invasive species; and strengthens coordinated, cost-efficient federal action. Some invasive plants have been introduced accidentally, but most were brought here as ornamentals or for livestock forage. Because these robust plants arrived without their natural predators (insects and diseases), their populations spread quickly across the landscape, displacing native species and degrading ecological communities or ecosystem processes (Miller 2010). No federal-noxious weeds were observed, but many non-native invasive plant species were observed throughout the proposed Project Area. Invasive species, as designated by the Tennessee Invasive Plants Council (2025), that were present across significant portions of the landscape include Chinese privet, Japanese honeysuckle, Johnson grass, and multiflora rosa. During field surveys, invasive plants were prevalent in sections of herbaceous vegetation types.

Adoption of the Action Alternative would not significantly affect the botanical ecology of the region. Converting forest land via tree clearing would be long-term in duration, but insignificant. Adoption of this alternative would require clearing of approximately 1.57 acres of trees, most of the forest type being deciduous forest. Virtually all forest in the proposed Project Area has been previously cleared, and the plant communities found there are common and well represented throughout the region. Project-related effects to forest resources would be negligible compared to the total amount of forest land currently present in the region. Also, project-related work would temporarily affect herbaceous plant communities, but these areas would likely recover to their pre-project condition in less than one year.

Nearly the entire proposed Project Area currently has a substantial component of invasive terrestrial plants, and adoption of the Action Alternative would not significantly affect the extent or abundance of these species at the county, regional, or state level.

Under the No Action Alternative, if Greenfield is 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 botanical species as those described above for the Action Alternative. In the event the Project is postponed, any effects would be delayed for the duration of the postponement. If Greenfield is not able to secure the funding for the actions described in this EA, disturbance associated with the Proposed Action would not occur, the Project Area would likely remain in its current condition, and there would be no direct, indirect, or reasonably foreseeable impacts on plants and their habitats.

4.2.8.2 Threatened and Endangered Species (Botany)

Review of the TVA Natural Heritage Database indicated that one record of a state-listed plant, halberd-leaf tearthumb, was reported within a five-mile radius of the proposed Project Area. No federally endangered or threatened plant species were identified within Weakley County. No designated critical habitat for plants occurs in the Project Area.

State-listed halberd-leaf tearthumb's preferred habitat includes wet, rather nutrient-rich soils of freshwater marshes, brackish and fresh-tidal marshes, beaver ponds, margins of swamps and bottomlands, or roadside ditches (Vascular Plants of North Carolina 2024). The only wetland community in the Project Area is too disturbed and frequently mowed to provide habitat for the halberd-leaf tearthumb species; therefore, no suitable habitat was identified within the Project Area.

Adoption of the Action Alternative would not impact federal or state-listed plant species. Adoption of the Action Alternative would have no effect on listed plant species because no federally listed plant species occur in the Project Area. Also, no populations of state-listed species were observed during field surveys of the Project Area. Therefore, no direct, indirect, or reasonably foreseeable impacts on endangered and threatened species and their critical habitats would be anticipated as a result of implementing the Action Alternative.

Under the No Action Alternative, if Greenfield is 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 plants as those described above for the Action Alternative. In the event the Project is postponed, any effects would be delayed for the duration of the postponement. If Greenfield is not able to secure the funding for the actions described in this EA, disturbance associated with the Proposed Action would not occur, the Project Area would likely remain in its current condition, and there would be no direct, indirect, or reasonably foreseeable impacts on threatened and endangered plants and their habitats. No federally listed plants or designated critical habitat occur within the Project Area. Changes to local plant communities resulting from natural ecological processes and human-related disturbance would continue to occur. These changes may benefit or negatively affect plants present in the Project Area, but the changes would be unrelated to the Proposed Action.

4.2.9 Cultural 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 that the 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 disturbance could take place (17.8 acres), where physical effects could occur, as well as areas within a half-mile radius of the Project Area within which the project would be visible or where visual effects on historic structures could occur.

Given that there are no known historic structures within the Project Area and that the Proposed Action would not involve the construction of above-ground resources beyond the installation of new signage, no historic architectural resources would be impacted by the Action Alternative, directly or visually. Therefore, a Phase I historic structures survey was not required, and impacts to historic structures and sites would not be anticipated to be impacted.

PCI (2020) conducted a Phase I archaeological survey of the GPP. PCI's literature and records search did not identify any previously recorded cultural resources within one mile of the APE. The field survey, consisting of systematic shovel testing of 252 excavated locations, covered a 91-acre parcel that includes the entirety of the APE. No cultural resources were identified during the survey. The 2020 survey report, titled, Phase I Archaeological Survey of the Greenfield Pentecost Tract, Weakley County, Tennessee. PCI (2020), recommended no further archaeological work within the APE. TVA agrees with the methodology and recommendations in the report. TVA also determined that the survey and the report are consistent with the *Secretary of Interior's Standards and Guidelines for Identification* (NPS 1983).

Brock Cemetery is located directly west and southwest of the APE. This cemetery is in active use and contains a mixture of historic and modern burials. The cemetery is well delineated and fenced. The previous survey indicated that no burials were likely located in the adjacent agricultural fields. The Proposed Action includes the construction of an earthen berm with trees planted on the top along the fence line adjacent to the cemetery to provide a visual screen between the Project Area and the cemetery. The Proposed Action would have no effect on the cemetery.

TVA contacted the THC - SHPO regarding cultural resources in the Project Area and referenced the PCI study in a letter dated October 28, 2024 (TVA 2024). The THC-SHPO concurred that no historic properties would be affected by the Proposed Action in a letter also dated October 28, 2024 (THC 2024) (Attachment 2). TVA received no comments regarding the proposed undertaking from the consulted federally recognized Tribes.

Implementation of the Action Alternative would not result in any impacts on cultural resources because no archaeological sites were present within the APE, and there would be no effects on historic structures and sites.

Under the No Action Alternative, if Greenfield is able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar site activities would occur, also resulting in no impacts on cultural resources as described above for the Action Alternative. In the event the Project was postponed, any effects would be delayed for the duration of the postponement. If Greenfield is 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 cultural resources.

4.2.10 Visual Resources

The Project Area is 17.8 acres, consisting mainly of agricultural land with some forested areas. The Project Area is bordered by Bean Switch Lane to the north and with Highway 45E located as close as 0.1 mile to the west. The visual landscape setting adjacent to the Project Area consists of agricultural land to the south, east, and west, agricultural land and residential homes to the north, Brock Cemetery to the west and southwest, train tracks to the east, and a business (Parker-Hannifin Sporlan Division) to the south and southeast.

Under the Action Alternative, construction vehicles and equipment visible during construction activities would have a minor visual impact over the temporary construction period as well as a minor permanent impact due to tree clearing, demolition of the P&J Petroleum building, and grading of a berm. Drivers along Highway 45E/43 and Bean Switch Lane would view construction activity, although the activity would not be inconsistent with an industrial park and its development or with existing industrial and commercial facilities in the vicinity. Drivers along Bean Switch Road may

have some direct views of the Project Area; however, there are other industrial and commercial areas along the roadway immediately adjacent to the Project Area, and any changes to the views would be similar to other areas along the road. While motorists using the roads may notice a change in the viewshed, this change would be minor given the brief period that drivers would be in the area. Implementation of the Action Alternative would result in a minor decrease in visual quality for residents in the viewshed.

As noted above in Section 4.2.9, Brock Cemetery is located directly west and southwest of the Project Area. The Proposed Action includes the construction of an earthen berm with trees planted on the top along the fence line adjacent to the cemetery to provide a visual screen between the Project Area and the cemetery.

Under the No Action Alternative, if Greenfield is able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, activities similar to the Action Alternative would occur, resulting in similar direct and indirect visual quality impacts as described above for the Action Alternative. In the event the Project was postponed, any effects would be delayed for the duration of the postponement. If Greenfield is 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.

4.2.11 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.

Under the Action Alternative, noise impacts associated with construction activities would be primarily from the heavy equipment used. Construction activities would likely involve the operation of an excavator, bulldozer, dump truck, or similar vehicles, and heavy machinery over the temporary duration of construction. Heavy equipment noise levels would fluctuate depending on the number and type of vehicles and equipment in use at any given time. The Action Alternative would be implemented over nine months, during which construction-related noise may be generated. In addition, construction-related sound levels experienced by a noise-sensitive receptor in the vicinity of construction activity would be a function of distance, other noise sources, and the presence and extent of vegetation, structures, and intervening topography between the noise source and receptor. It is anticipated that sound levels would not exceed 85 decibels at the Project Area boundary per Occupational Safety and Health Administration standards.

Primary sensitive noise receptors in the area include Brock Cemetery to the south and southwest, three residential homes located 310- to 480-feet to the north, a house 300-feet to the northwest, and a residential home located 420-feet to the west. 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 anticipated to be conducted during daylight hours, when ambient noise levels are often higher, and most individuals are less sensitive to noise. Industrial and commercial facilities adjacent to busy roads and highways are accustomed to noise. Overall, noise-related impacts resulting from the implementation of the Action Alternative would be anticipated to be temporary and minor.

Under the No Action Alternative, if Greenfield is 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. In the event the Project was postponed, any effects would be delayed for the duration of the postponement. If Greenfield is 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.

4.2.12 Socioeconomics

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

This analysis focuses on the state, county, and locality within which the Action Alternative would occur. Publicly available statistics generated by the U. S. Census Bureau and the U. S. Bureau of Labor Statistics were used to characterize socioeconomic conditions in the host state (Tennessee), county (Weakley), and locality (City of Greenfield, 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 impacts on minority and low-income populations.

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

	Tennessee	Weakley County	City of Greenfield, Tennessee
Population [1]			
July 2023 Population	6,986,082	32,959	2,085
April 2021 Population	6,859,497	32,948	2,361
Population, Percent Change	1.85%	0.03%	-11.70%
Population per Square Mile [2]	173	57	600
Demographics [1]			
White Alone, not Hispanic or Latino	4,994,428	28,067	1,830
Black or African American Alone	1,099,942	2,446	103
American Indian and Alaska Native Alone	6,914	77	0
Asian Alone	127,497	372	6
Native Hawaiian and Other Pacific Islander Alone	3,783	15	0
Some Other Race Alone	25,909	99	31
Two or More Races	231,152	906	55
Hispanic or Latino (of any race)	496,457	977	60
Income [1]			
Median Household Income	$67,097	$49,502	$41,798
Per Capita Income	$37,866	$26,807	$21,236
Percent with Income Below the Poverty Level	14.0%	18.6%	17.2%

	Tennessee	Weakley County	City of Greenfield, Tennessee
Employment (Not Seasonally Adjusted): April 2023 [3]			
Labor Force	3,407,350	14,984	N/A
Employed	3,296,778	14,382	N/A
Unemployed	110,572	603	N/A
Unemployment Rate (%)	3.2	4.0	N/A

[1] Source: United States Census Bureau (2025)
[2] Source: United States Census Reporter (2025)
[3] Source: United States Bureau of Labor Statistics (2025)

Key: N/A = not available

The evaluation determined the following:

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

There are no residential subdivisions within 0.5 mile of the Project Area; however, there are approximately 27 residential homes within a 0.5-mile radius. The U.S. Census Bureau 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 lower rate of linguistic isolation, and a higher level of population with less than a high school education.

As described in Section 1.0 (Proposed Action and Need), the Action Alternative would include the purchase of the 1.42-acre P&J Petroleum property, demolition of the existing P&J Petroleum building and signage, tree clearing, tree and stump burning, installation of new signage with associated lighting and landscaping, grading of a berm for cemetery screening, and site stabilization. Erosion prevention, sediment control, and stabilization measures would be implemented after grading is complete.

This effort is expected to take place over a 9-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 or the local workforce. In addition, no negative socioeconomic impacts would be anticipated from the Proposed Action; therefore, no negative impacts would be anticipated to minority or 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 negative impacts on minority and low-income populations. This conclusion is based on two observations. First, the Action Alternative would have a minor positive effect on the local economy. Second, as described throughout this document, environmental effects associated with the Action Alternative would be minor, temporary, and would generally be constrained to the 17.8-acre Project Area.

Under the No Action Alternative, if Greenfield is able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar activities would occur, resulting in socioeconomic impacts similar to those described in the preceding paragraphs. In the event the Project was postponed, any effects would be delayed for the duration of the postponement. If Greenfield is not able to secure the funding for the actions described in this EA, the economic activity and socioeconomic changes would not occur.

4.2.13 Transportation

The Project Area can be accessed during construction activities from the north via a gravel entrance on Bean Switch Lane or from the southwest via Tennessee State Highway 43/U.S. Highway 45E (TN-43). Bean Switch Lane intersects TN-43 to the west and transitions to Bean Switch Road to the east.

Bean Switch Lane is a local road that provides access to one commercial property west of the Project Area and multiple rural and residential properties north and east of the Project Area. Bean Switch Lane is a paved, two-lane road that is sufficiently wide for a single lane of traffic in each direction. Based on preliminary review of Google Street View images (recorded May 2024), as well as incidental observations made during waters and wetlands delineations, the road is in good condition with narrow grassy swales on each side of the road. Bean Switch Lane is not defined by the Functional Classification System for Greenfield (Tennessee Department of Transportation [TDOT] 2019). The site entrance location and configuration should consider safe sight distances and other safety concerns for the traffic that would enter Bean Switch Lane from the Project Area. Necessary precautions would be taken during mobilization and demobilization, such as reduced speed in areas of poor visibility or poor road conditions, with other precautions such as a flagman or traffic control to be considered if required.

TN-43 is a four-lane paved highway with a dedicated turning lane at the southwest entrance to the Project Area and the intersection of Bean Switch Lane. Based on preliminary review of Google Street View images (recorded July 2024), as well as incidental observations made during waters and wetlands delineations, the road is in good condition with curbed and paved shoulders. TN-43 is listed as part of the National Highway System and a principal arterial on the Functional Classification System for Weakley County (TDOT 2019). Normal care would be taken by workers entering or crossing TN-43 regarding traffic safety.

Based on a review of TDOT historical traffic data (TDOT 2025), there are no traffic count stations on Bean Switch Lane or Bean Switch Road. The nearest traffic count station is located on TN-43

south of the southwest site entrance. The 2024 annual average daily traffic count (AADT) for the relevant station is presented in Table 4-4 below.

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

Route Description	Location ID	Distance from Project Area (Miles)	Year	AADT
TN-43	92000080	0.3	2024	7,181

Source: Tennessee Department of Transportation 2025 (Annual Average Daily Traffic (AADT) (tn.gov)), extracted 03/07/2025.

As noted above in Section 4.2.2, Greenfield would be required to obtain a special waste permit from the Tennessee Division of Solid Waste Management to transport and dispose of asbestos (if applicable), lead paint (if applicable), and any other materials defined by TDEC as special waste.

Under the Action Alternative and in the context of the existing AADT road volumes, the anticipated traffic generated by the Proposed Action would be minor. It is anticipated that existing traffic volumes for Bean Switch Lane would be minor, as it provides access to limited other sites, and any increase in traffic volumes for TN-43 would be minor. Because of the anticipated limited volume of workers on the site required for tree clearing activities, and grading of a berm, the relatively short timeframe of the proposed work, and measures to contain waste during transportation, direct or indirect impacts to local traffic and roadways are anticipated to be temporary and minor.

Under the No Action Alternative, if Greenfield is able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, the grading and construction activities would also result in a 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 Greenfield is not able to secure the funding for the actions described in this EA, there would be no impact on overall traffic volumes and level of service.

5.0 PERMITS, LICENSES, AND APPROVALS

The Action Alternative would result in greater than one acre of earth disturbing activities; therefore, it would be necessary for Greenfield, 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. Depending on eventual jurisdictional determinations, Greenfield may be required to obtain permitting from the USACE and/or TDEC for impacts to the identified wetland, if unavoidable.

6.0 BEST MANAGEMENT PRACTICES AND MITIGATION MEASURES

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

Operations involving chemical or fuel storage or resupply, and vehicle servicing would be handled outside of riparian areas and in such a manner as to prevent these items from reaching a

watercourse. Earthen berms or other effective means would 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 would be collected and disposed of properly.

The transport and disposal of debris associated with the demolition of the P&J Petroleum building would be conducted in accordance with state and federal guidelines.

Coordination with the NRCS was completed regarding potential impacts on prime farmland. Greenfield would comply with NRCS requirements if applicable.

Measures, such as compensatory mitigation, may be required in coordination with the USACE and/or TDEC and associated permitting based on impacts to the identified wetland, if unavoidable.

Specific avoidance and conservation measures would be recommended as a part of the Action Alternative to reduce effects to the tricolored bat.

The Proposed Action includes the construction of an earthen berm with trees planted on the top along the fence line adjacent to Brock Cemetery to provide a visual screen for the Project Area.

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		
Brittany Kunkle *B.S. Environmental and Soil Science*	6 years in Project Management, Managing and Performing NEPA Analyses	Economic Development Grant Project NEPA Compliance Manager
David Mitchell *M.S. Soil and Water Science* *B.S. Horticulture*	18 years in ecological restoration and plant ecology, 6 years of environmental program management	Threatened and Endangered Plants, Plant Ecology, Invasive Plant Species
Zach Buecker *B.S. Biology*	15 years in water/wetland assessment and compliance	Surface Water
Derek Reaux *Ph.D. Anthropology, University of Nevada, Reno* *M.A. Anthropology, University of Nevada, Reno* *B.A. Anthropology, University of Kentucky*	12 years of experience in archaeological research, cultural resource management, and Section 106 compliance	Cultural resources, NHPA Section 106 compliance
Matt Reed *M.S. Wildlife and Fisheries Science; QHP*	14 years working with threatened and endangered aquatic species in the southeastern United States; 8 years in ESA, NEPA, and CWA compliance and stream assessments	Aquatic Ecology, Aquatic T&E Species
Carrie Williamson, P.E.(TN), CFM *B.S. and M.S. Civil Engineering*	12 years in Floodplains and Flood Risk; 11 years in Compliance Monitoring; 3 years in River Forecasting	Floodplains QA/QC

Name/Education	Experience	Project Role
Emily Doub *M.S. Biology, University of Georgia,* *B.S. Wildlife and Fisheries Science, University of Tennessee*	2 years in biological compliance, NEPA compliance, and ESA consultation for T&E. 7 years in biological field studies.	Terrestrial Zoology, Threatened and Endangered Species
Sara McLaughlin-Johnson *B.S. Wildlife and Fisheries Science*	12 years in biological compliance, NEPA compliance, and ESA consultation for T&E. 18 years in the biological field studies.	Terrestrial Zoology, Threatened and Endangered Species
Fallon Parker Hutcheon *M.S. Environmental Studies* *B.S. Biology*	6 years in wetland delineation, wetland impact analysis, and NEPA/CWA compliance	Wetlands
Stantec		
Douglas Mooneyhan *M.S. Biology, Tennessee Technological University* *B.S. Wildlife and Fisheries Science, University of Tennessee*	35 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*	9 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, QA/QC
Duane Simpson *M.A. Anthropology, University of Arkansas* *B.A. Anthropology, Ohio University*	28 years in archaeological consulting, including management of projects across the Southeast and Mid-Atlantic regions. Principal Investigator for over 16 years.	Archaeology
Rachel Kennedy *M.H.P. Historic Preservation, University of Kentucky* *B.A. Political Science and History, University of Kentucky*	22 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 National Register of Historic Places. 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*	17 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

Name/Education	Experience	Project Role
Ellen Mullins *M.S. Forestry, Mississippi State University, Starkville, Mississippi, 2015* *B.S. Forestry, University of Kentucky, Lexington, Kentucky, 2011*	Ms. Ellen Mullins is a project manager with 15 years of experience in environmental consulting and government. Ellen currently provides support and leadership for environmental planning and the NEPA permitting process. She prepares application packages and manages agency coordination efforts related to Threatened and Endangered Species, Clean Water Act (CWA) Section 404/401, and Section 106 Cultural Resources. She serves as a technical expert for natural resource projects for documents that are used in regulatory submissions.	Deputy Project Manager, QA/QC, Prime Farmland, Air Quality and Climate Change, Noise
Chris Knabel, TN-QHP *B.S. Natural Resources and Environmental Science, University of Kentucky*	Mr. Knabel is a biologist with 7 years of experience conducting wetland delineations, hydrologic determinations, threatened and endangered species surveys, and various other ecological and biological field surveys. He has personally conducted numerous Hydrologic Determinations throughout Tennessee and conducted thousands of acres of wetland delineations throughout Tennessee and Kentucky. Additionally, he has extensive knowledge of USACE Section 404 permitting and Section 7 protected species consultation.	Aquatics, Wetlands
Shane Kelley, TN-QHP *B.S. Natural Resources & Environmental Science, University of Kentucky*	Mr. Kelley is a biologist with 11 years of experience in multiple areas of the environmental field with a particular focus on USACE Section 404 permitting, Section 7 protected species consultation, and various ecological and biological field surveys. He is a Qualified Hydrologic Professional and has personally conducted numerous Hydrological Determinations throughout Tennessee and North Carolina and completed thousands of acres of wetland delineations throughout Kentucky, Tennessee, and Mississippi. Mr. Kelley has conducted various endangered plant species surveys throughout Kentucky, Tennessee, and North Carolina, including Short's goldenrod (*Solidago shortii*), Virginia spiraea (*Spiraea virginiana*), and small whorled pogonia (*Isotria medeoloidies*). Additionally, he is a federally permitted bat biologist for all listed bat species throughout the TVA service area.	Aquatics, Wetlands
Iris Eschen *Heald Business College, San Francisco, CA*	As Document Production Manager, Ms. Eschen has more than 36 years of experience coordinating the production of large, complex documents for engineering and environmental consulting firms in California. She has overseen the technical editing, quality assurance, quality check, and production, submission, and distribution of countless reports and written products, including environmental impact statements/reports (EISs/EIRs), license applications, pre-application documents (PADs), wetland delineations, initial studies, mitigated negative declarations (MNDs), biological opinions (BOs), environmental assessments (EAs), and habitat conservation plans (HCPs).	Editor, Document Production

Name/Education	Experience	Project Role
Brenton Jenkins, P.E. *B.S. Environmental Engineering, Louisiana State University*	10 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
Emily Smith *M.S. Lipscomb University* *B.S. University of Tennessee at Chattanooga*	She has worked extensively on NEPA documents, including Categorical Exclusions, EAs, and Comprehensive Impact Analyses.	Socioeconomics, Recreation
Kathleen Pangan M.S. *Biology, University of California – San Diego* *B.S. Biology: Ecology, Behavior, and Evolution, University of California – San Diego*	A biologist with more than 16 years of experience in ecology, technical analysis, and scientific fieldwork.	Surface Water, Aquatics, Wetlands
Afton Tankersley *M.S. Environmental Science, Columbus State University* *B.S. Biology, Bethel College*	A biologist with experience preparing multiple NEPA documents, including EISs for the FERC and the Nuclear Regulatory Commission.	Air Quality and Climate Change, Noise, Visual Resources

8.0 AGENCIES AND OTHERS CONSULTED

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

- Tennessee Historical Commission / State Historic Preservation Office
- Natural Resources Conservation Service
- Absentee Shawnee Tribe of Indians of Oklahoma, Cherokee Nation, The Chickasaw Nation, Eastern Shawnee Tribe of Oklahoma, Jena Band of Choctaw Indians, The Osage Nation, Shawnee Tribe, and the United Keetoowah Band of Cherokee Indians in Oklahoma.

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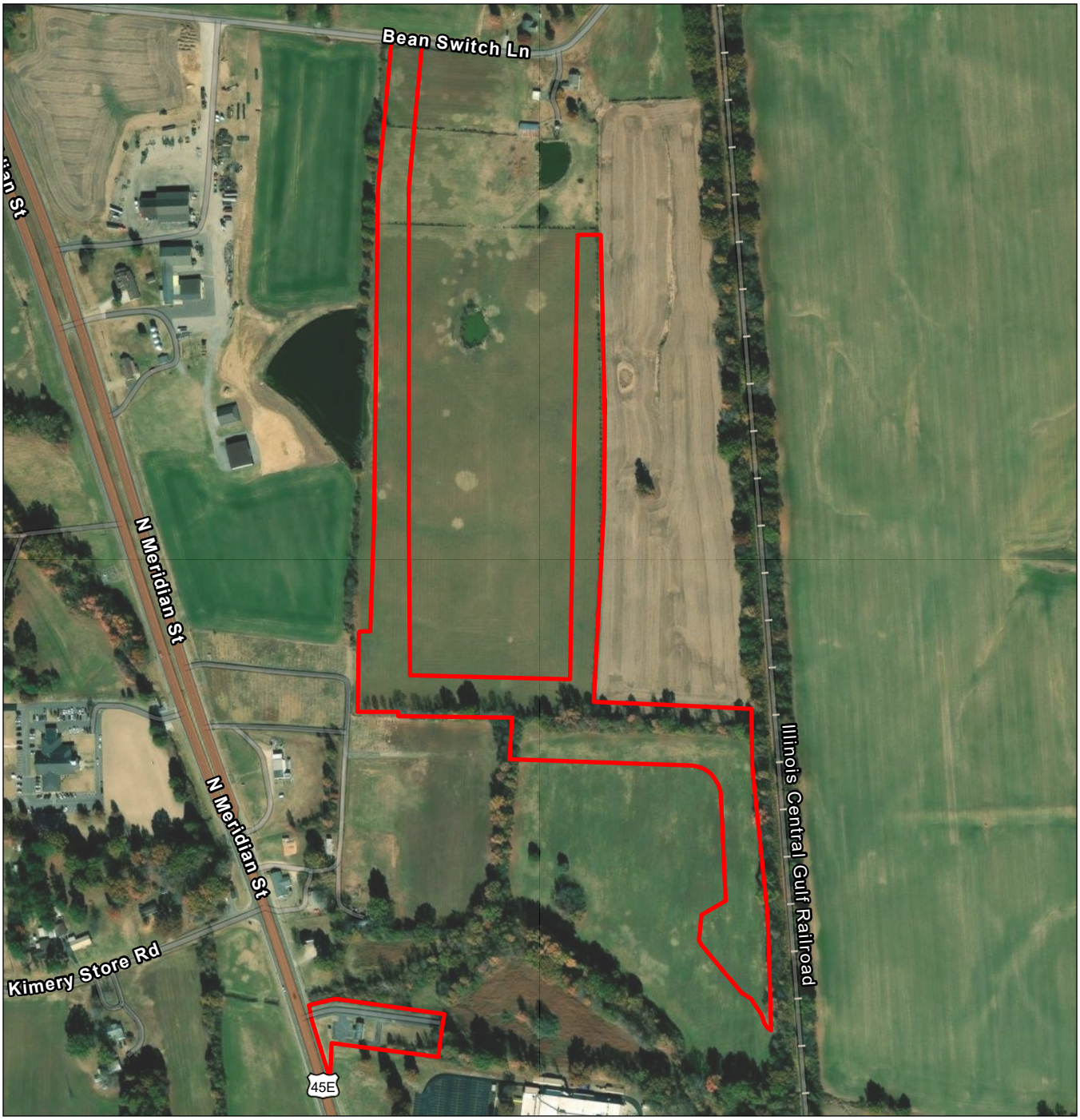
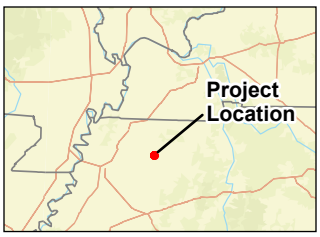
Attachment 1

Project Figures





Project Boundary (17.79 ac)

0 250 500 Feet

(At original document size of 8.5x11)
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N

Stantec

Notes
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Data Sources:
3. Background: Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census

Project Location
Weakley Co., TN

Prepared by pmarsey on 12/20/2024

Client/Project
Tennessee Valley Authority
TVA FY25 Weakley County
Environmental Assessment Report

172608871

Figure No.
1A

Title
Project Aerial

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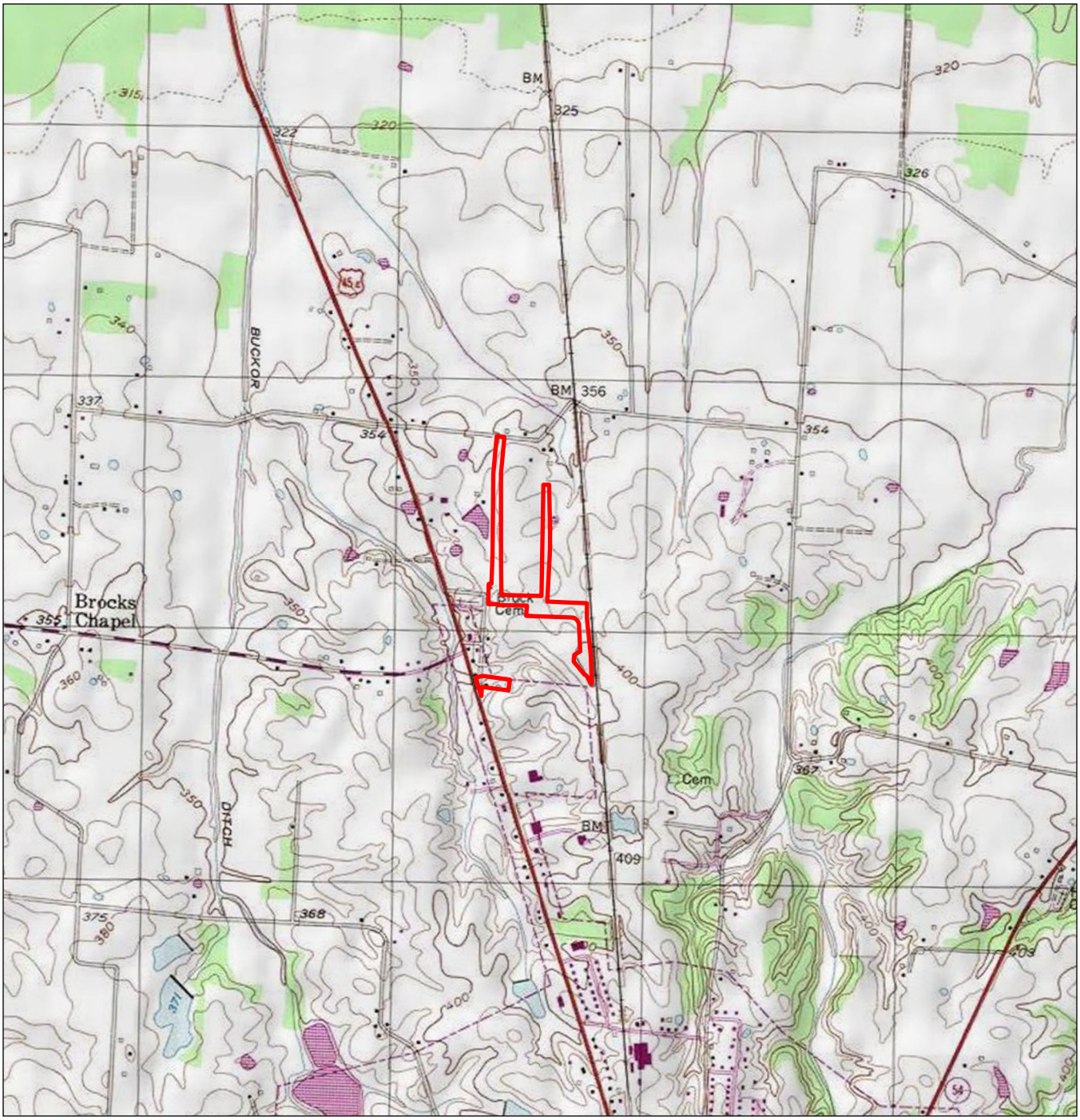

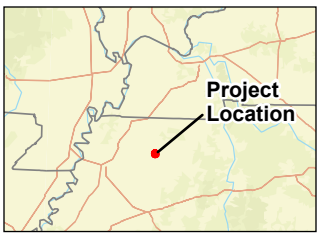

Project Boundary (17.79 ac)

0 1,000 2,000 Feet

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

N

Stantec

Project Location
Weakley Co., TN

Prepared by pmarsey on 12/20/2024

Client/Project
Tennessee Valley Authority
TVA FY25 Weakley County
Environmental Assessment Report

172608871

Figure No.
1B

Title
USGS Quadrangle

Notes
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Data Sources:
3. Background: Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Copyright:© 2013 National Geographic Society, i-cubed

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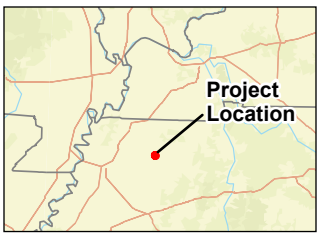

Project Boundary (17.79 ac)
FEMA Floodplain (0.00 ac)

0 750 1,500 Feet
(At original document size of 8.5x11)
1:18,000

N

Notes
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Data Sources: FEMA
3. Background: Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Esri Community Maps Contributors, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Maxar

Stantec

Project Location
Weakley Co., TN

Prepared by pmarsey on 12/20/2024

Client/Project 172608871
Tennessee Valley Authority
TVA FY25 Weakley County
Environmental Assessment Report

Figure No.
1C

Title
FEMA Floodplain

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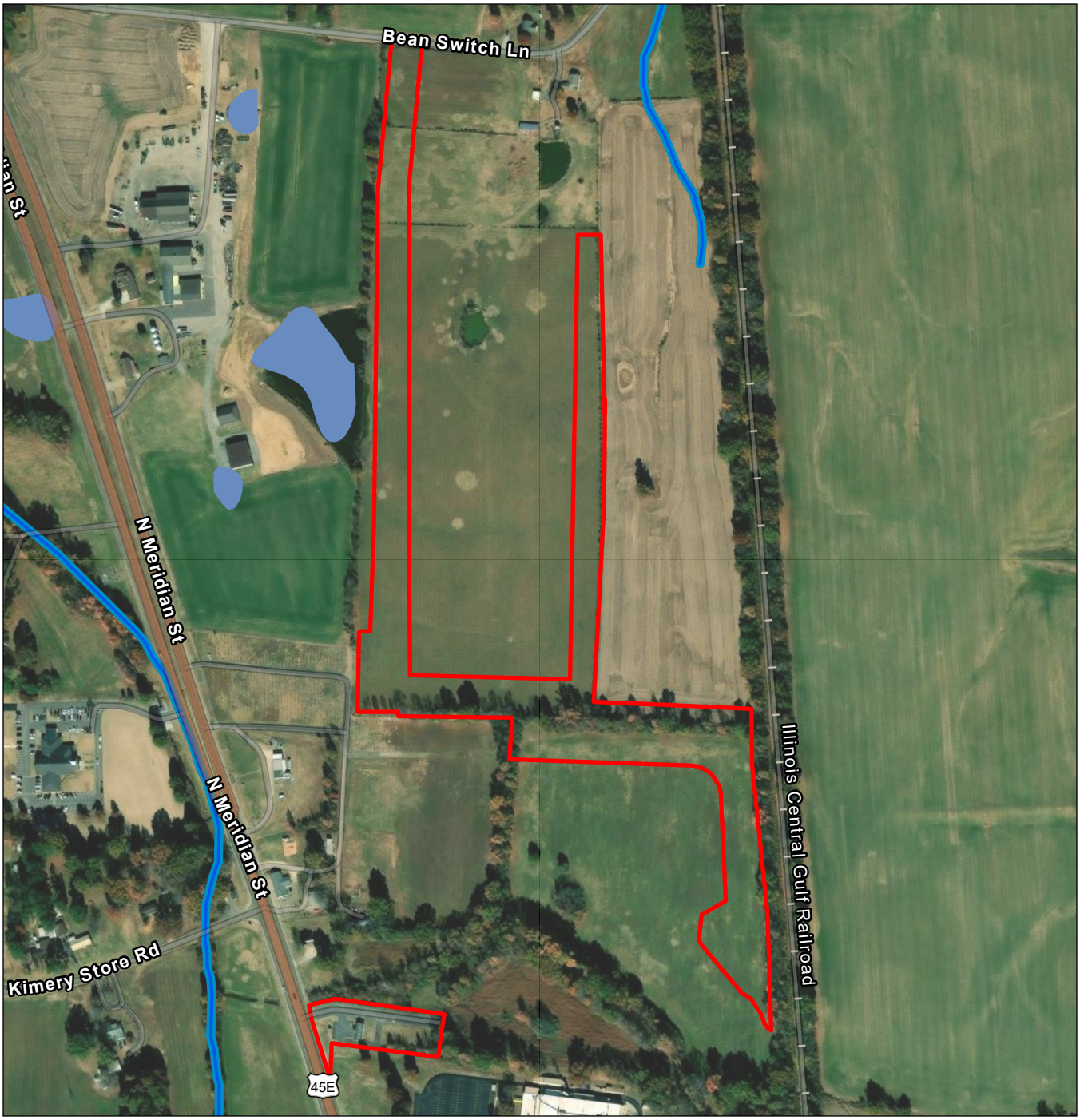

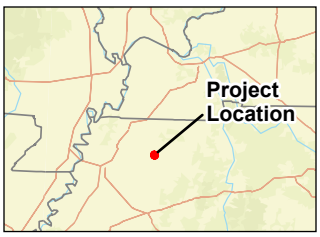

Project Boundary (17.79 ac)

NHD Flowline

NWI Wetlands

Freshwater Pond

Riverine

0 250 500 Feet

(At original document size of 8.5x11)
1:6,000

N

Stantec

Project Location
Weakley Co., TN

Prepared by pmarsey on 12/20/2024

Client/Project
Tennessee Valley Authority
TVA FY25 Weakley County
Environmental Assessment Report

172608871

Figure No.
1D

Title
USFWS NWI Wetland and Water Inventory

Notes
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Data Sources: USGS, USFWS
3. Background: Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census

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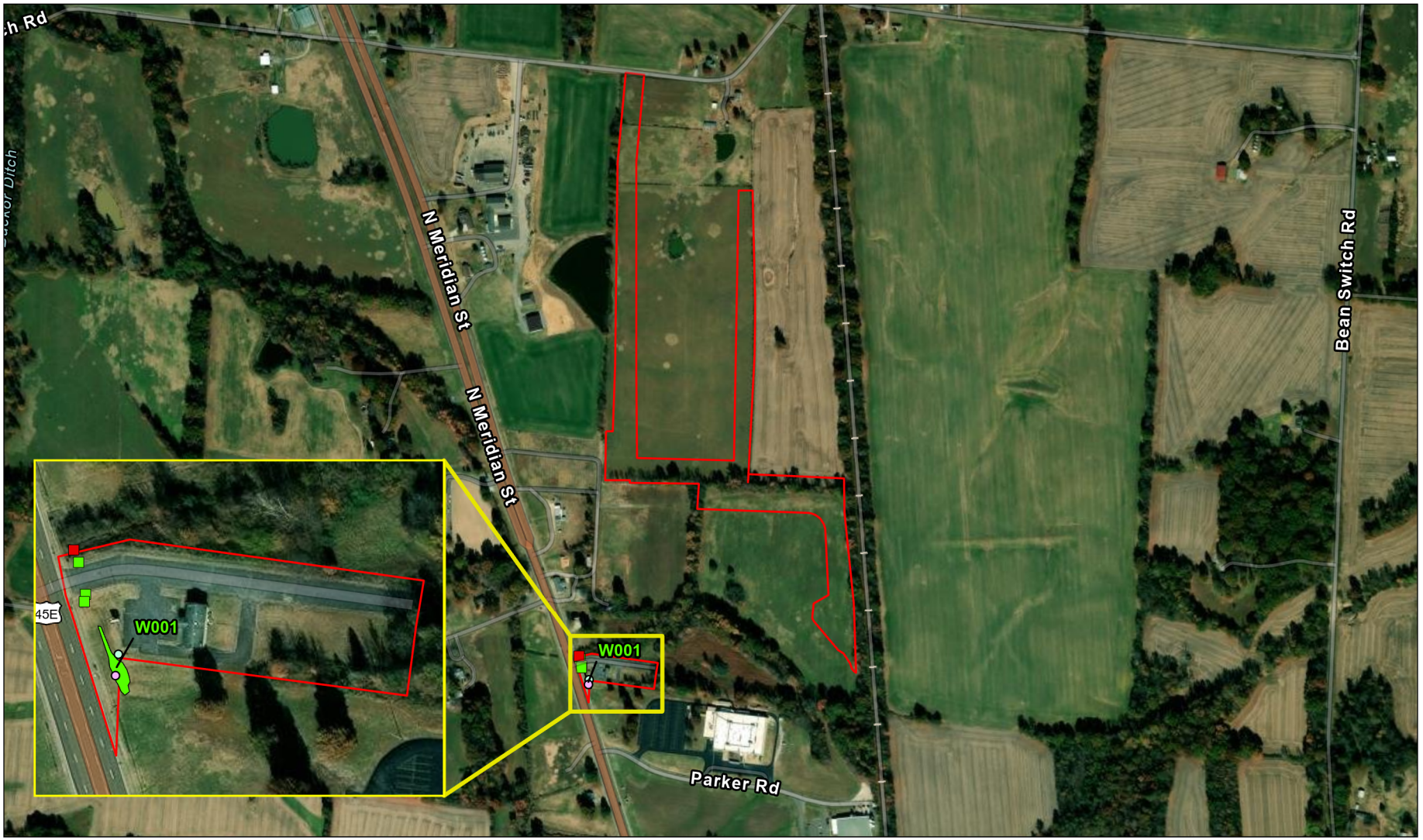

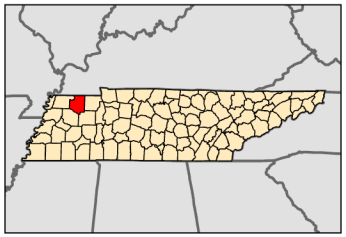

Legend

- Project Boundary
- Delineated Wetlands

Soil Data Points

- Upland
- Wetland

Culverts

- Inlet
- Outlet

N

0 400 800 Feet

(At original document size of 8.5x11)
1 inch = 800 feet

Notes

1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Data Sources: TVA, Stantec
3. Background: Esri Aerial Imagery Hybrid Basemap

Stantec

Project Location
Weakley County,
Tennessee

Prepared by MNA on 2025-01-31
TR by CK on 2025-01-31
IR by SPK on 2025-01-31

Client/Project
Tennessee Valley Authority
TVA InvestPrep 2025
Wetland and Waterbody Delineation Report

172608872

Figure No.
1E

Title
Delineated Wetlands and Waterbodies Map

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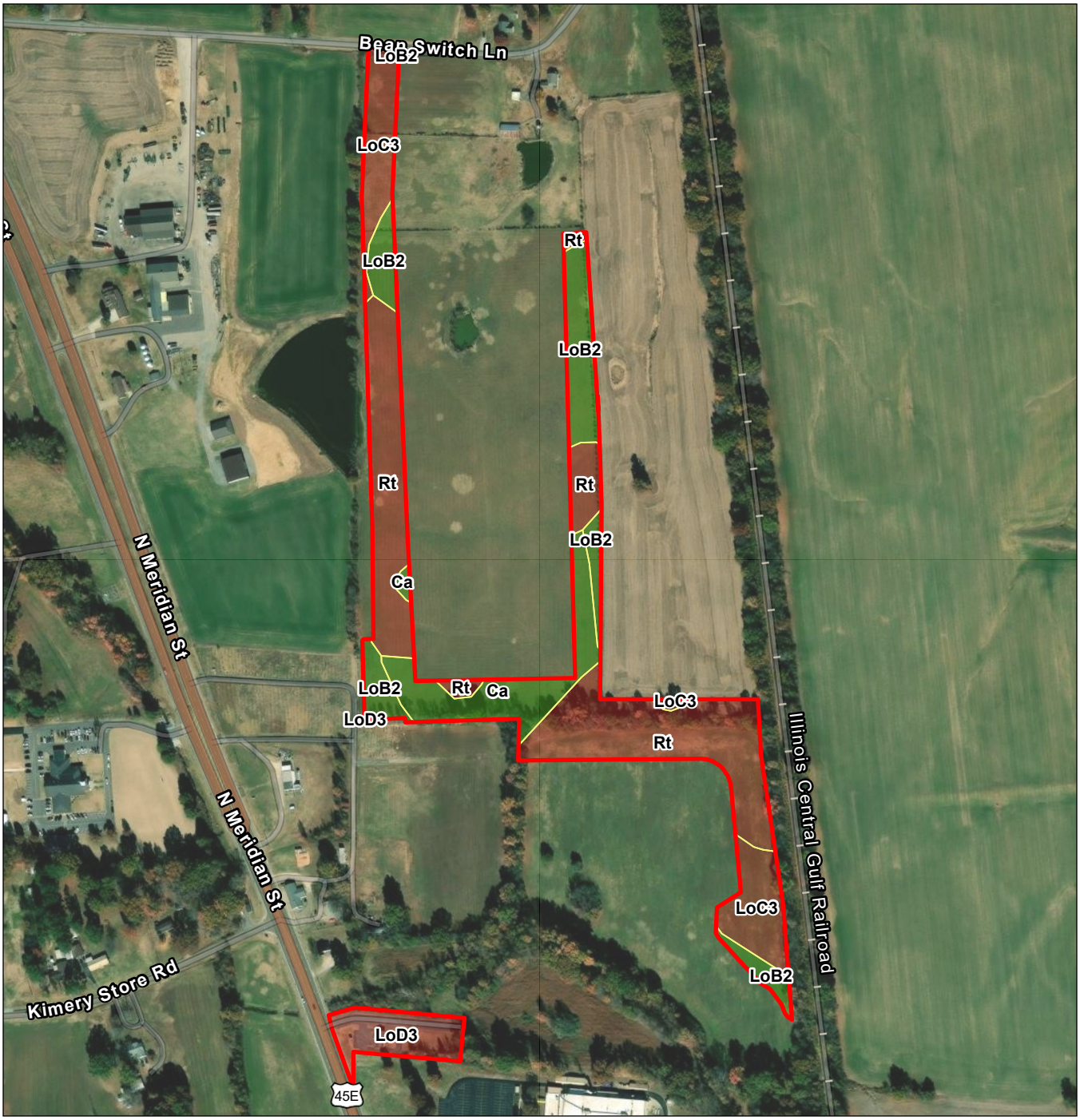

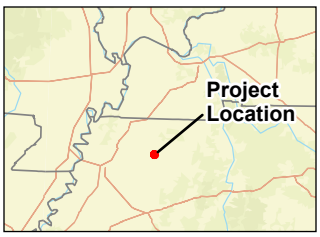

- Project Boundary (17.79 ac)
- Ca - Calloway silt loam (2.46 ac)
- LoB2 - Loring silt loam, 2 to 5 percent slopes, moderately eroded (3.10 ac)
- LoC3 - Loring silt loam, 5 to 8 percent slopes, severely eroded (2.85 ac)
- LoD3 - Loring silt loam, 8 to 12 percent slopes, severely eroded (1.42 ac)
- Rt - Routon silt loam, 0 to 2 percent slopes (7.96 ac)
- All areas are prime farmland (5.57 ac)
- Not prime farmland (12.22 ac)

0 250 500 Feet

(At original document size of 8.5x11)
1:6,000

N

Notes

1. Coordinate System: NAD 1983 StatePlane Mississippi West FIPS 2302 Feet
2. Data Sources: USDA-NRCS
3. Background: Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census

Stantec

Project Location
Weakley Co., TN

Prepared by pmarsey on 12/20/2024

Client/Project
Tennessee Valley Authority
TVA FY25 Weakley County
Environmental Assessment Report

172608871

Figure No.
1F

Title
NRCS Soils

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Attachment 2

Agency Correspondence

From:	TN Help
To:	Beliles, Emily
Cc:	Reaux, Derek; Harle, Michaelyn S
Subject:	InvestPrep Program, Greenfield Pentecost Property, TVA Tracking Number- CRMS 100707777566 - Project # SHPO0005906
Date:	Monday, October 28, 2024 2:29:57 PM
Attachments:	image image

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

10-28-2024 13:28:46 CDT

Dr. Michaelyn Harle
Tennessee Valley Authority

RE: Tennessee Valley Authority (TVA), InvestPrep Program, Greenfield Pentecost Property, TVA Tracking Number- CRMS 100707777566, Project#: SHPO0005906, greenfield, Weakley County, TN

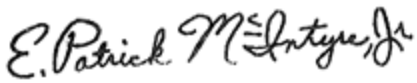
Dear Dr. Michaelyn Harle:

In response to your request, we have reviewed the cultural resources 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 concur with your agency that no historic properties eligible for listing in the National Register of Historic Places will be affected by this undertaking. If project plans are changed or archaeological remains are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National

Historic Preservation Act. Please provide your Project # when submitting any additional information regarding this undertaking. Questions or comments may be directed to Jennifer Barnett, who drafted this response, at Jennifer.Barnett@tn.gov, +16156874780.

Sincerely,



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

Ref:MSG16022495_1NcBCqgpcfDecLFDxX2

TENNESSEE VALLEY AUTHORITY

400 West Summit Hill Drive, Knoxville, Tennessee 37902

October 28, 2024

Mr. E. Patrick McIntyre, Jr.
Executive Director
and State Historic Preservation Officer
Tennessee Historical Commission
2941 Lebanon Pike
Nashville, Tennessee 37243-0442

Dear Mr. McIntyre:

TENNESSEE VALLEY AUTHORITY (TVA), ECONOMIC DEVELOPMENT, GREENFIELD PENTECOST PROPERTY, WEAKLY COUNTY, TENNESSEE (36.176135, -88.808551) (TVA TRACKING NUMBER – CRMS 100707777566)

TVA is providing financial assistance, through the TVA Economic Development InvestPrep program, to Weakly County, Tennessee to help place the Greenfield Pentecost Property in a more desirable state for attracting prospective developers. The project is located along North Meridian Street (U.S. Highway 45E) in Greenfield, Weakly County, Tennessee. The project includes the purchase of the approximately 1.42-acre P&J Petroleum property, installation of temporary marketing signage and lighting, grading of a berm for cemetery screening, planting of trees on the berm for cemetery screening, and the removal of 1.57 acres of trees (Figures 1 and 2). The P&J Petroleum building, constructed in 2002, will be demolished but the existing driveway and parking lot will be kept intact.

TVA has determined that this project is an undertaking (as defined at 36 CFR § 800.16(y)) that has the potential to cause effects on historic properties. Given that the proposed project does not involve the construction of permanent above-ground structures, the potential to impact historic architectural resources is low. Therefore, TVA recommends that the Area of Potential Effects (APE) be considered the project footprint (17.8 acres), where physical effects may occur.

Prior to TVA's involvement, Panamerican Consultants conducted a Phase I archaeological survey of the Greenfield Pentecost property. The survey, consisting of systematic shovel testing, covered a 91-acre parcel that includes the entirety of the APE. No cultural resources were identified during the survey. Please find attached a copy of the 2020 survey report titled, *Phase I Archaeological Survey of the Greenfield Pentecost Tract, Weakly County, Tennessee.* TVA agrees with the methodology and recommendations in the report.

Brock Cemetery is located directly west of the APE. This cemetery is in active use and contains a mixture of historic and modern burials. The cemetery is well delineated and fenced and the previous survey indicated that no burials were likely located in the adjacent agricultural fields. The project plans include the construction of an earthen berm with trees planted on the top

along the fence line adjacent to the cemetery to provide a visual screen between the property and the cemetery. The proposed undertaking would have no effect on the cemetery.

TVA finds the proposed undertaking, as currently planned, would have no effects on historic properties.

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

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

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

Sincerely,

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

DJR:ERB
Enclosure
cc (Enclosure):
Ms. Jennifer Barnett
Tennessee Division of Archaeology
1216 Foster Avenue, Cole Bldg. #3
Nashville, Tennessee 37210

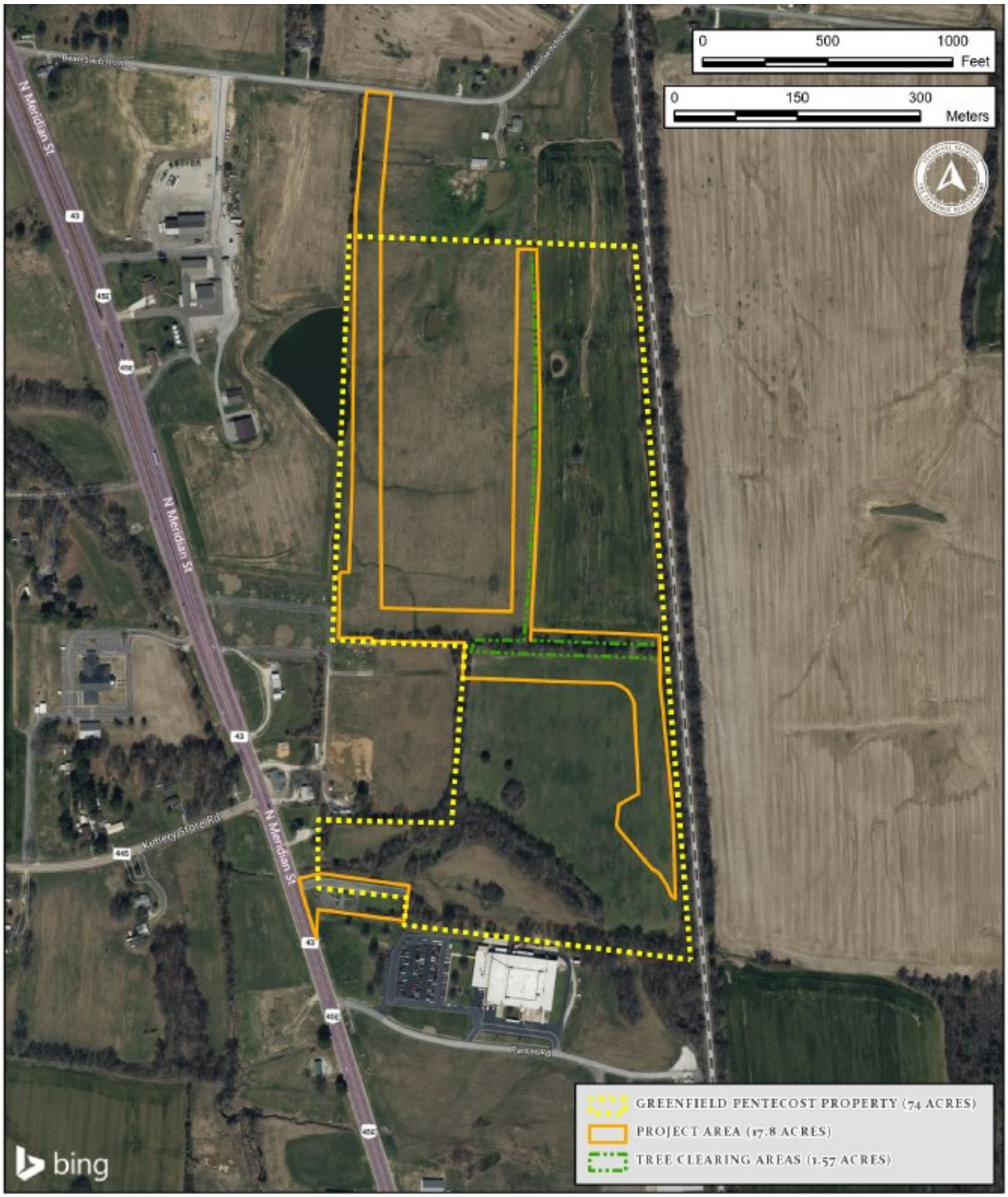


Figure 1. Project area map (APE in orange).

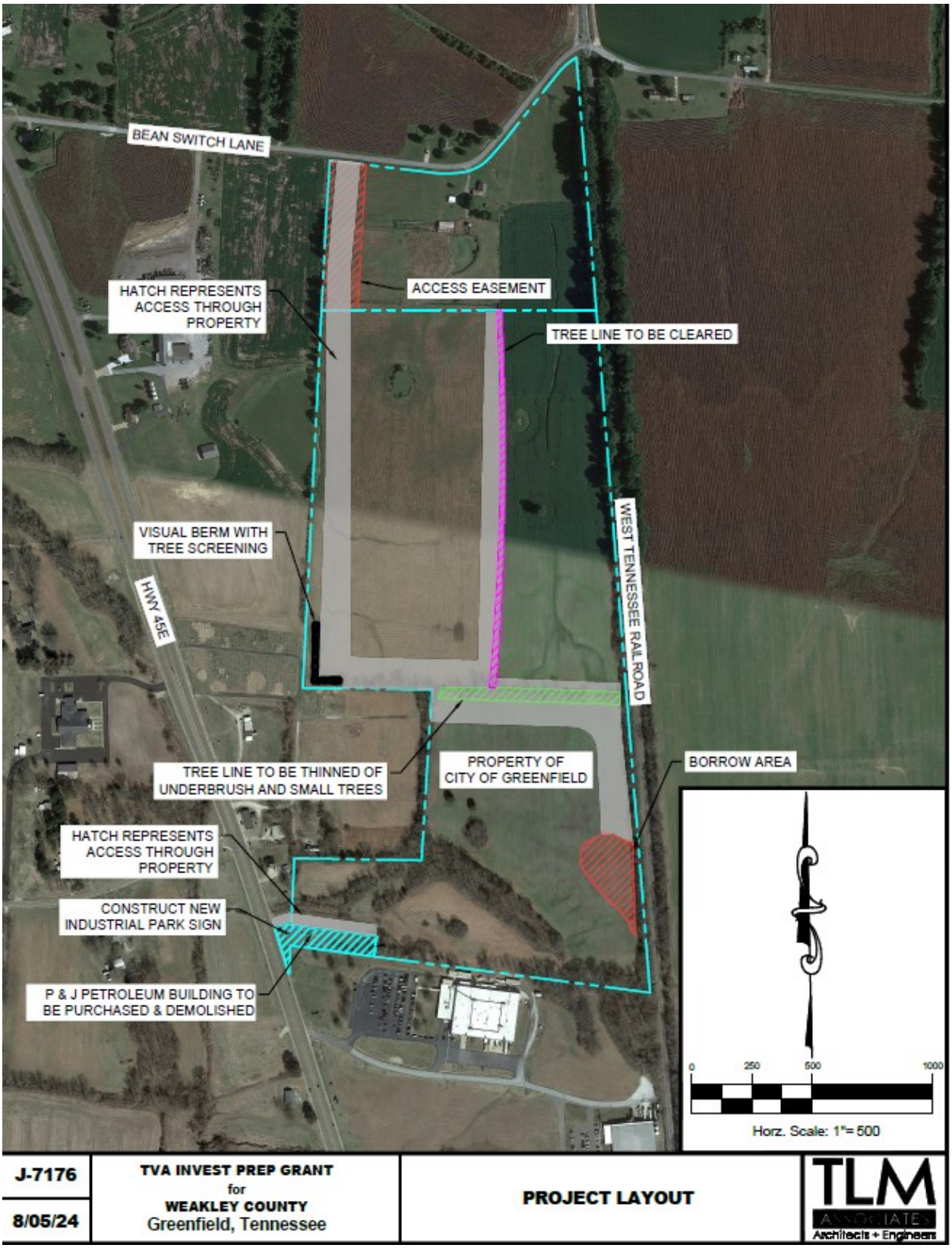


Figure 2. Proposed project plans.