

KY 90 SCOPING STUDY
BARREN COUNTY
KYTC ITEM NO. 3-8819.00

APPENDIX D – ENVIRONMENTAL OVERVIEW

**ENVIRONMENTAL OVERVIEW
KY 90 SCOPING STUDY
KYTC ITEM #3-8819.00**

Barren County: From Sanders Street in Cave City (MP 0.160) to US 68 (Veterans Outer Loop) in Glasgow (MP 8.574)



Prepared for:
Kentucky Transportation Cabinet
Central Office
Highway District 3

Prepared by:
Stantec Consulting Services Inc.

March 28, 2016

Executive Summary

This Environmental Overview has been prepared for the KY 90 Scoping Study in Barren County, Kentucky (KYTC Item #3-8819.00). The purpose of the Scoping Study is to identify and evaluate improvements to the KY 90 corridor between Cave City and US 68 (the Veterans Outer Loop) in Glasgow. The purpose of this Environmental Overview is to identify environmental resources of significance, potential jurisdictional features, and other environmental areas of concern that should be considered during project development. Natural and human environment resources within the study area were identified from secondary sources, as well as a pedestrian survey conducted on January 14, 2016. Based on this information, the key environmental features within the study area include:

Surface Streams: Beaver Creek and its associated 100-year floodplain crosses the study area near the south end of the study area. Additional 100-year floodplain areas associated with larger sinkholes/depressions are also present in the center and south portions of the study area.

Wetlands: Twelve (12) NWI wetlands are mapped in the study area, with extensive wetland complexes mapped adjacent to the study area south of Pace Quarry Road.

Threatened and Endangered Species: Seven (7) federal-listed endangered and one threatened species have the potential to occur in the study area, with three federal-endangered species recorded within 5-miles of the study area. Potential summer roost and foraging habitat for the federal endangered Indiana bat (*Myotis sodalis*) and Gray myotis (*Myotis grisescens*) and the federal threatened northern long-eared bat (*Myotis septentrionalis*) occur in the narrow riparian corridor along Beaver Creek. Beaver Creek may provide suitable habitat for Kentucky Creekshell (*Villosa ortmanni*, federal-species of management concern), rabbitsfoot (*Quadrula cylindrica cylindrica*, federal-threatened) and snuffbox (*Epioblasma triquetra*, federal-endangered) mussels, three small to medium creek species. Suitable habitat for the Kentucky cave shrimp (*Palaemonias ganteri*; AKA Mammoth Cave Shrimp, federal-endangered) is known to be present within 1-mile, as several cave entrances are located in the study area vicinity.

Groundwater: The central portion of the study area contains extensive sub-surface drainage associated with the Turnhole Spring karst basin, with underground flow to the northwest. This basin is listed as a Kentucky Division of Water (KDOW) Outstanding State Resource Water (OSRW) and Cold Water Habitat (CAH) designated use, and is known to harbor the federal-endangered Kentucky cave shrimp outside of the study area.

Karst: 116 sinkholes are mapped underlying the study area, accounting for approximately 14% of the area, being most prominent in the north half. Eight cave entrances are known within 1-mile of the study area, 4 of which are within 1,500-feet.

Farmland: Over 90% of the soils in the study area and vicinity are identified as Prime Farmland and Farmland of Statewide Importance. Outside of existing right-of-way, extensive portions of the study area are currently utilized as farmland.

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Hazardous Materials Concerns: 26 potential hazardous materials sites are in or immediately adjacent to the study area, including 5 UST sites, 1 RCRA site, 5 automotive sales/service sites, and several additional sites of potential concern (including 1 SHWS record, 5 SPILLS sites and 1 electrical substation). Sites of potential concern are concentrated in Cave City and the KY 90/US 68 intersection at the south end of the study area.

Environmental Justice (EJ): Based on a review of available census data, the study area and vicinity has a minority resident percentage greater than the county but less than state levels. The percentage of low income population in the study area is less than both county and state levels.

Cultural and Historic Resources: No NRHP-listed cultural-historic resources were identified in the study area or vicinity. Four previously surveyed cultural-historic resources, NRHP status undetermined, are located in the study area, with an additional seven previously surveyed cultural-historic resources in the vicinity. Additional resources are likely present in the study area and vicinity based on historical and land use context of the study area, and additional investigations may be required. No NRHP-listed archaeological sites are located within the study area. Previous surveys have identified six recorded archaeological sites within and/or adjacent to the study area. Very little of the study area has been surveyed for archeological resources, but based on a review of historical maps it is likely that work proposed outside of existing right-of-way will require archaeological surveys and may encounter additional resources.

Community Resources: Community resources and sensitive noise receptors in the study area include several single and multi-family residential housing developments and 2 churches. One cemetery, a small family plot dating to the late 19th and early 20th centuries, is present in the study area.

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Environmental Overview

Stantec Consulting Services, Inc. has prepared this Environmental Overview as part of the KY 90 Scoping Study (KYTC Item #3-8819.00) being conducted for the Kentucky Transportation Cabinet (KYTC). This overview identifies known natural and human features which occur within the study area that should be considered during project development. The KY 90 alignment under review begins at the intersection with Sanders Street in Cave City and proceeds to the south to the intersection with US 68 (the Veterans Outer Loop) in Glasgow, Kentucky (see **Figure 1**), a total length of 8.4-miles. The study area extends as a 500-foot wide corridor centered on the existing KY 90 alignment from begin point to end point, for a total area of 516 acres (0.8 square mile), running between Cave City and Glasgow in Barren County (see **Figure 2**).

Table 1 below provides a summary of the features that were identified within the study area. Natural environment features within the study area are identified on **Figures 3.1, 3.2** and **3.3**, and human environment features are identified on **Figures 4.1** and **4.2**. The information listed in Table 1 and shown on the attached mapping was obtained from secondary sources and a pedestrian survey conducted on January 14, 2016. A photo inventory of the study area also is attached (**Attachment 8**), which highlights environmental features throughout the study area and shows representative views of land uses in the study area. This information provides an overview of resources of significance within the study area as well as other environmental issues of potential concern. More detailed environmental studies may be required as the project is further developed in accordance with the National Environmental Policy Act (NEPA).

Table 1: Environmental Resources/Features in the KY 90 Study Area Barren County, KY		
Environmental Category	Resource/Feature	Source/Information
USGS Streams	<p>Beaver Creek and one intermittent stream (unnamed tributary to Turnhole Spring) are the only USGS streams located within the study area.</p> <p>Beaver Creek is not classified as Special Use Waters within the study area as defined by the KDOW. It is designated as fully supporting WAH (warmwater aquatic habitat) and DWS (drinking water supply).</p> <p>Watersheds in the study area include Duff Branch-Green River (HUC-12: 051100010804), Park City-Barren River (HUC-12: 051100020702) and Little Beaver Creek-Beaver Creek-Barren River (HUC-12: 051100020306), from north to south, respectively.</p> <p>The study area lies within two Source Water Assessment and Protection Program (SWAPP) areas; the north portion associated with the Green River Valley Water District (Duff Branch watershed), and the south portion associated with the Glasgow Water Company (Little Beaver Creek-Beaver Creek watershed).</p>	<p>Source: USGS 24K NHD dataset (2004a), USGS 12-Digit HUC (2004b), ESRI USGS map service layer, KDOW 305b and 303(d) tables (2012a), KDOW (2016a and 2016b), KDOW SWAPP (2013)</p>

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<p align="center">Table 1: Environmental Resources/Features in the KY 90 Study Area Barren County, KY</p>		
<p align="center">Environmental Category</p>	<p align="center">Resource/Feature</p>	<p align="center">Source/Information</p>
Other Streams	No additional surface streams are mapped or evident in the study area due to the karst plain features of the area, including sinkholes, sinking creeks and caverns.	Source: USGS topographic maps, KDOW (2016b), Carey and Stickney (2002), field survey
Wetlands	<p>Twelve (12) NWI wetlands are mapped in the study area including 2 emergent, 1 forested and 9 ponds. Extensive wetland complexes are mapped adjacent to the study area south of Pace Quarry Road. Additional wetland areas were observed in select low-lying areas of the study area.</p> <p>Hydric soils occur across approximately 5% of the study area, concentrated south of Pace Quarry Road and around the US 68 intersection. This soil type indicates the potential for additional non-NWI mapped wetlands to be present in the study area.</p>	Source: KEPPC 24K NWI map dataset (2002), USDA SSURGO KY646 (2014), field survey
Ponds	Nine (9) ponds are mapped (NWI) within the study area. Several appear to be intermittent, occurring in sinkhole depressions and do not appear to hold water permanently.	Source: KEPPC 24K NWI map dataset (2002), ESRI Aerial map service layer, aerial photo review (USGS, 2014), KGS (2003)
USFWS Species List	<p>Indiana bat (endangered), gray bat (endangered), and northern long-eared bat (threatened) are known to occur in Barren County. Three endangered mussels (fanshell, sheepnose, and snuffbox) and one threatened mussel (rabbitsfoot) may or could potentially occur in the study area. Kentucky cave shrimp (endangered) is known to occur in Barren County and could potentially occur in the study area.</p> <p>The entire study area lies within a Known Summer 1 + Swarming 1 habitat designated area for Indiana bat. The north portion of the study area (north of Pace Quarry Road) lies within a Known Summer 1 + Swarming 2 habitat designated area for Northern long-eared bat. These designated habitat types refer to mitigation measures required for impacts to potential habitat. The nearest sensitive area for either species is located approximately 3.5 miles west of the north project terminus. Potential summer roost and foraging habitat for Indiana bat and northern long-eared bat (woodlots and riparian woodlands) is present mostly in scattered woodlots south of Cave City. More extensive woodlots are present in the vicinity of Harry King Road and near Beaver Creek at the south end of the study area.</p> <p>Of the four federally-listed mussel species included in the IPaC report for the study area, only snuffbox and rabbitsfoot have the potential to occur as Beaver Creek may provide suitable habitat for these species that prefer small to medium sized creeks.</p> <p>Habitat for gray bat and Kentucky cave shrimp may be present as several cave entrances are known in the study area vicinity.</p>	Source: USFWS IPaC Trust Resource Report (2016), USFWS Kentucky Ecological Services Field Office, Indiana bat and northern long-eared bat habitat areas map (2015), KYTC Environmental Overview web map (2016), KYTC Programmatic Biological Assessment (2012), ESRI Aerial map service layer, NatureServe (2016), KSS (2016)

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<p align="center">Table 1: Environmental Resources/Features in the KY 90 Study Area Barren County, KY</p>		
<p align="center">Environmental Category</p>	<p align="center">Resource/Feature</p>	<p align="center">Source/Information</p>
<p>KDFWR Species List</p>	<p>KDFWR lists 50 additional State Threatened, Endangered, and Special Concern Species (beyond the 9 species listed by USFWS, above) as occurring (either recently or historically) in Barren County. These include:</p> <ul style="list-style-type: none"> • 9 state endangered species (1 fish, 1 amphibian, 6 birds, 1 reptile) • 20 state threatened species (10 birds, 1 mussel, 6 invertebrates, 1 gastropod, 1 reptile, 1 mammal) • 19 state special concern species (5 fish, 6 birds, 1 reptile, 3 crustaceans, 1 gastropod, 1 mussel, 2 mammals) • 2 historical records of state listed Upland Sandpiper and American Bittern 	<p>Source: KDFWR - Species List for Barren County (2016)</p>
<p>KSNPC Species Database</p>	<p>KSNPC provided 10 records for 8 federal or state endangered, threatened, or special concern listed species within 1-mile of the study area. These include:</p> <ul style="list-style-type: none"> • 3 plants (1 each state-endangered, -threatened and -species of concern); • 1 mussel (federal-species of management concern); • 1 aquatic snail (state-species of concern); • 1 fish (federal-species of management concern); and • 2 crustaceans (1 federal-endangered, 1 federal-species of management concern). <p>Occurrence records for the snail, fish and crustaceans all related to cave-dwelling species. Additional federal listed species known within 5-miles include Indiana bat and Gray Myotis (gray bat), both listed as federal-endangered.</p> <p>The KSNPC data response specifically highlights the project lies within the Green River Biosphere Reserve, associated with the Green River and the Mammoth Cave Systems, with emphasis upon prevention of erosion and sedimentation. Several cave-obligate organisms are known within 5-miles of the project. Due to the occurrence of numerous records of six bat species in the study area vicinity (capture and hibernacula), KSNPC mentions any project should include a thorough bat survey to avoid impacts to bats. American chestnut (state-threatened) is also specifically identified as known to occur within 0.5-mile of the study area.</p>	<p>Source: KSNPC Natural Heritage Database response (February 11, 2016)</p>

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<p align="center">Table 1: Environmental Resources/Features in the KY 90 Study Area Barren County, KY</p>		
<p align="center">Environmental Category</p>	<p align="center">Resource/Feature</p>	<p align="center">Source/Information</p>
<p align="center">Groundwater</p>	<p>No water wells or springs are mapped within the study area, and no wellhead protection areas occur in the study area.</p> <p>The central portion of the study area contains extensive subsurface drainage associated with the Turnhole Spring karst basin, containing subsurface flow to the northwest. This basin is listed as a KDOW Outstanding State Resource Water (OSRW) and Cold Water Habitat (CAH) designated use, and is known to harbor the federal-endangered Kentucky cave shrimp outside of the study area.</p>	<p>Source: KGS Water Wells and Springs GIS map, data repository and dataset layer (2015a), KDOW Exceptional Use Waterbodies (2008), KDOW Wellhead Protection Areas data download (2012b)</p>
<p align="center">Karst</p>	<p>The project area is underlain by bedrock with moderate to high potential for karst. 116 sinkholes are mapped underlying the study area, accounting for approximately 14% of the area. Sinkholes are most prominent in the northern half of the study area, north of Lee Fendell Road.</p> <p>Eight cave entrances are known within 1-mile of the study area, 4 of which are within 1,500-feet. Due to the sensitive nature of this resource, location information is not included in this report.</p> <p>KYTC has a karst policy for use of specific drainage design (grass swales and detention basins) in roadway improvement projects.</p>	<p>Source: Karst Occurrence in Kentucky map (Paylor and Currens 2002), KGS (2003), KSS Data Request response (January 27, 2016), KYTC-DEA (2016)</p>
<p align="center">Floodplain</p>	<p>FEMA 100-Year floodplain occurs along Beaver Creek and within two sinkhole areas in the central part of the study area, one occurring around the Lee Fendell Road intersection and the other south of Pace Quarry Road.</p>	<p>Source: FEMA National Flood Hazard Layers for Barren County, Kentucky (2013)</p>
<p align="center">Floodway</p>	<p>No FEMA designated floodway occurs in the study area or vicinity.</p>	<p>Source: FEMA National Flood Hazard Layers for Barren County, Kentucky (2013)</p>
<p align="center">Farmlands</p>	<p>Over 90% of the soils in the study area and vicinity are identified as Prime Farmland (43%), Farmland of Statewide Importance (37%), and Prime farmland if drained or protected from flooding (11%). Extensive portions of the study area are currently utilized as farmland including row crop and pasture. Multiple active farms were observed in and around the study area.</p>	<p>Source: USDA SSURGO KY646 (2014), field survey</p>

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Table 1: Environmental Resources/Features in the KY 90 Study Area Barren County, KY		
Environmental Category	Resource/Feature	Source/Information
Hazardous Materials	<p>Database records review summary: 21 sites of potential concern (with a total of 32 records) occur within the study area, including 1 state hazardous waste (SHWS) record, 3 AIRS air emission records (manufacturing sites), 6 SPILLS records (at 5 locations), 1 RCRA record, 6 UST sites (3 active), and 1 EDR historical auto station record. An additional 20 records are mapped within 0.25 mile of the study area including 5 RCRA records.</p> <p>Field survey indicated 5 additional potential hazardous materials concern sites including 4 automotive sales and service businesses and one electrical substation.</p> <p>Summary: Database records and field survey indicate 26 potential hazardous materials sites are in or immediately adjacent to the study area, including 5 UST sites, 1 RCRA site, 5 automotive sales/service sites, and several additional sites of potential concern (including 1 SHWS record, 5 SPILLS sites and 1 electrical substation). Sites of potential concern are concentrated in Cave City and the KY 90/US 68 intersection at the south end of the study area.</p>	<p>Source: Environmental Data Resources (EDR 2016), USEPA Envirofacts (2016), KDWM (2016), aerial photo review (USGS 2014), ESRI USGS map service layer, field survey</p>
Oil and Gas Wells	<p>Two oil/gas wells are mapped within the study area, both indicated as being dry and abandoned. An additional 18 wells are located within 0.25-mile of the study area, 7 producing oil or gas and all located in the south half of the study area.</p>	<p>Source: KGS (2015b)</p>
Section 4(f)	<p>No Section 4(f) resources were identified in the study area through secondary source information or during field survey. No public use recreational facilities are present in the study area.</p>	<p>Source: ESRI USA Parks dataset (2015), KGN LocalParks dataset (2007), field survey</p>
Section 6(f)	<p>Based on current Land and Water Conservation Fund (LWCF) records, there are no Section 6(f) resources in the study area.</p>	<p>Source: NPS LWCF list (2015), ESRI USA Parks dataset (2015), ESRI Aerial map service layer, field survey</p>
Air Quality	<p>The study area is not located in a Non-attainment Area for 8-hour ozone (2008 standard) or a Maintenance area for PM 2.5 (1997 standard) for the transportation-related criteria pollutants for which the EPA has established National Ambient Air Quality Standards (NAAQS). Two USEPA air emissions facilities are located within the study area, one each in Cave City and Glasgow.</p>	<p>Source: KYTC (2013), USEPA Green Book (2015), USEPA Envirofacts (2016)</p>

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Table 1: Environmental Resources/Features in the KY 90 Study Area Barren County, KY		
Environmental Category	Resource/Feature	Source/Information
Noise	<p>Noise sensitive land use areas are few and scattered through the study area (Activity Category “B” and “C” land uses – consisting of several single and multi-family residences and 2 houses of worship).</p> <p>The study area is primarily rural and dominated by agricultural land uses, with commercial land uses concentrated at the north and south endpoints.</p>	Source: KYTC Noise Policy (2011), field survey
Environmental Justice	<p>The project area includes portions of Census Tracts 9501, 9502, 9503, and 9505 in Barren County. Based on the most recent U.S. Census American Community Survey (ACS) data available (2008-2014), the percentage of minority population in the project area is 10.4%, which is slightly higher than the percentage of minority population in Barren County (9.2%) but less than the percentage of minority population in the Commonwealth of Kentucky (14.6%). In addition, the percentage of low income population in the project area is 18.4%, which is lower than the percentages of low income population for both Barren County (19.5%) and Kentucky (19.1%). As both minority and low income populations occur in the project area, environmental justice is a potential issue in the study area.</p>	Source: US Census Bureau, ACS 5-year data 2010-2014, KYTC Environmental Justice Analysis (2014)
Cultural - Archaeology	<p>Based on a review of National Register of Historic Places (NRHP) and Office of State Archaeology (OSA) records, no archaeological sites listed on the NRHP are located in the study area. However, four previous archaeological surveys conducted in or adjacent to the study area have recorded six archaeological sites within 500-feet of the study area. Of the six sites, two were not evaluated for NRHP listing, and four were considered to be ineligible for NRHP.</p> <p>Historical map review indicated a number of structures located in or directly adjacent to the study area may be associated with unrecorded historic archaeological sites. The integrity of such sites may have been compromised by past roadway construction activities.</p> <p>Less than 2% of the study area has been previously surveyed for archaeological resources. With the known presence of several archaeological sites in close proximity, it is likely that work proposed outside of existing right-of-way will require archaeological surveys and may encounter additional resources.</p>	Source: <i>An Archaeological Overview for the Proposed KY 90 Improvements Project in Barren County, Kentucky (Item No. 3-8819.00)</i> , prepared by CRA (2016a)

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Table 1: Environmental Resources/Features in the KY 90 Study Area Barren County, KY		
Environmental Category	Resource/Feature	Source/Information
Cultural - Historic	<p>Based on a review of Kentucky Heritage Council (KHC) records the following resources were identified in the study area vicinity:</p> <ul style="list-style-type: none"> • 4 sites within the study area, NRHP status undetermined • 7 sites adjacent to the study area, NRHP status undetermined • No NRHP listed resources <p>Due to the presence of previously surveyed historic resources in and adjacent to the study area and the significant number of rural agricultural properties in the study area vicinity, additional cultural historic properties with large potential boundaries are likely to be present. Existing historic properties should be avoided and additional cultural historic investigations are recommended for any proposed project activities.</p>	<p>Source: <i>A Cultural Historic Records Review for the KY 90 Scoping Study, Barren County, Kentucky</i>, prepared by CRA (2016b)</p>
Houses of Worship	<p>Two houses of worship (church, mosque, synagogue, etc.) were identified within the study area: Cave City Tabernacle and Caveland Baptist Church, both located in Cave City.</p>	<p>Source: ESRI USA topo map service layer, Google Maps, KDOW Watershed Viewer (2016b), field survey</p>
Schools	<p>There are no primary or secondary schools located within the study area.</p>	<p>Source: ESRI USA topo map service layer, ESRI Aerial map service layer, Google Maps, KDOW Watershed Viewer (2016b), field survey</p>
Cemeteries	<p>One cemetery is located within the study area. It is a small family cemetery (Gardner/Harlow) located in an agricultural field in the center of the study area. Grave markers listed years from 1885 to 1934.</p>	<p>Source: ESRI USA topo map service layer, ESRI Aerial map service layer, Google Maps, KDOW Watershed Viewer (2016b), field survey</p>
Public Services	<p>Public service and utility facilities located within the study area include:</p> <ul style="list-style-type: none"> • CSX Railroad Underpass just south of the north endpoint • Electric substation, intersection of KY 90 and Estes Road, Cave City • 2 pipeline crossings marked at Dripping Springs Road (a total of 5 are indicated on USGS mapping), south portion of study area • Glasgow Municipal Airport in Glasgow 	<p>Source: ESRI USA topo map service layer, ESRI Aerial map service layer, Google Maps, KDOW Watershed Viewer (2016b), field survey</p>
Residences and Businesses	<p>Residential land use in the study area includes two apartment complexes in Cave City, scattered rural residential homes along KY 90, a few suburban residential developments on side roads in the center of the study area, and one mobile home park at Prewitts Knob Road.</p> <p>Commercial businesses are concentrated in Cave City, with two industrial facilities present in Glasgow. Individual business structures are scattered along the KY 90 corridor.</p>	<p>Source: ESRI Aerial map service layer, field survey</p>

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ENVIRONMENTAL OVERVIEW

KY 90 SCOPING STUDY

KYTC ITEM #3-8819.00

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ENVIRONMENTAL OVERVIEW

KY 90 SCOPING STUDY

KYTC ITEM #3-8819.00

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FIGURES

1. Study Area Map
2. Project Location Map
- 3.1 Environmental Footprint: Natural Environment – North Section
- 3.2 Environmental Footprint: Natural Environment – South Section
- 3.3 Environmental Footprint: Natural Environment – Farmland
Classification of Soils
- 4.1 Environmental Footprint: Human Environment – North Section
- 4.2 Environmental Footprint: Human Environment – South Section

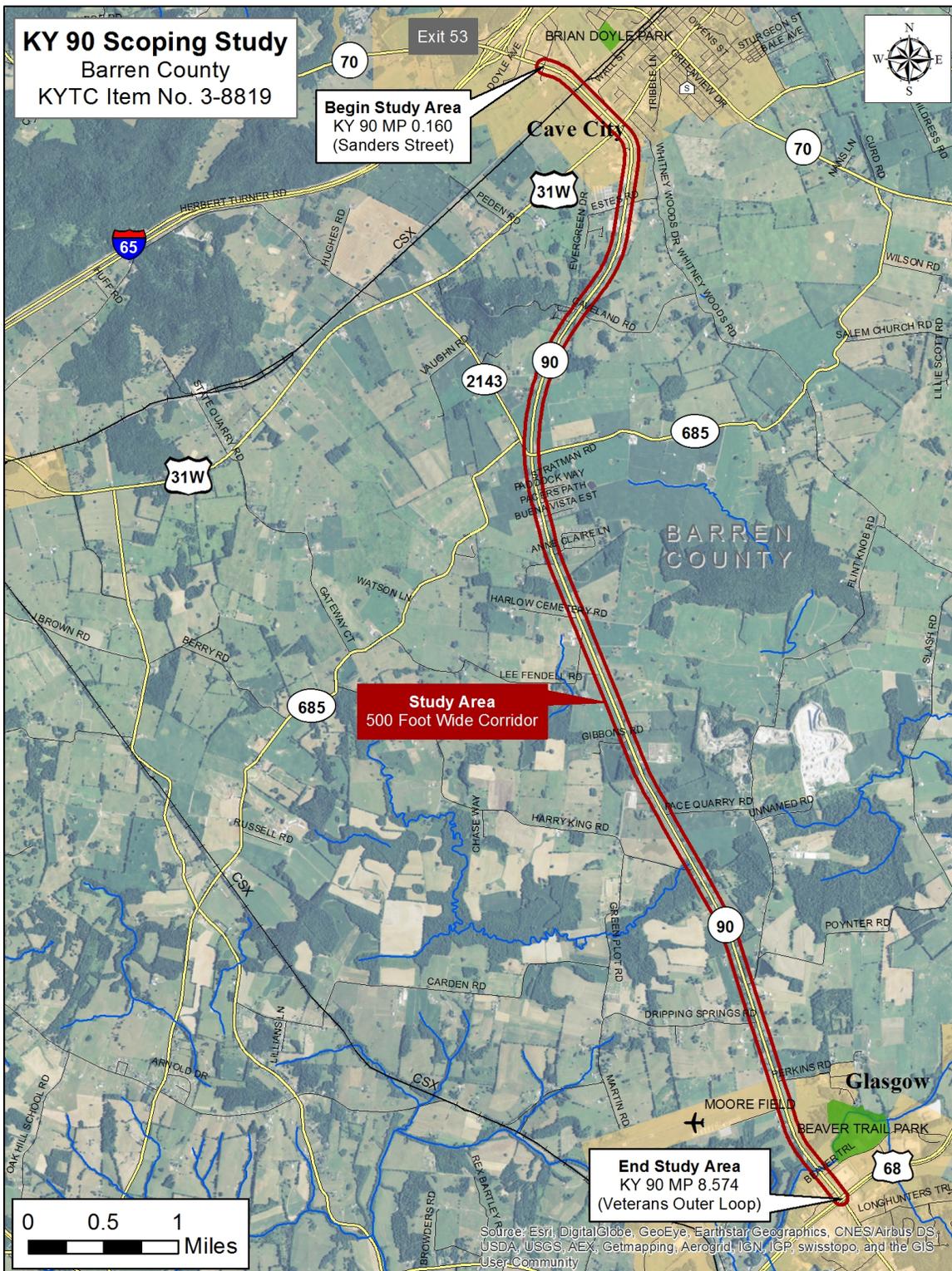
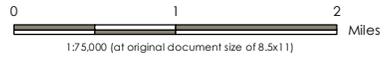
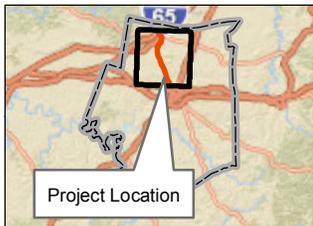
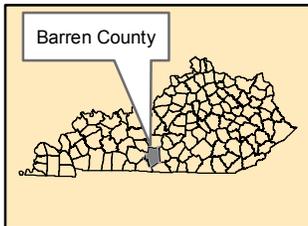
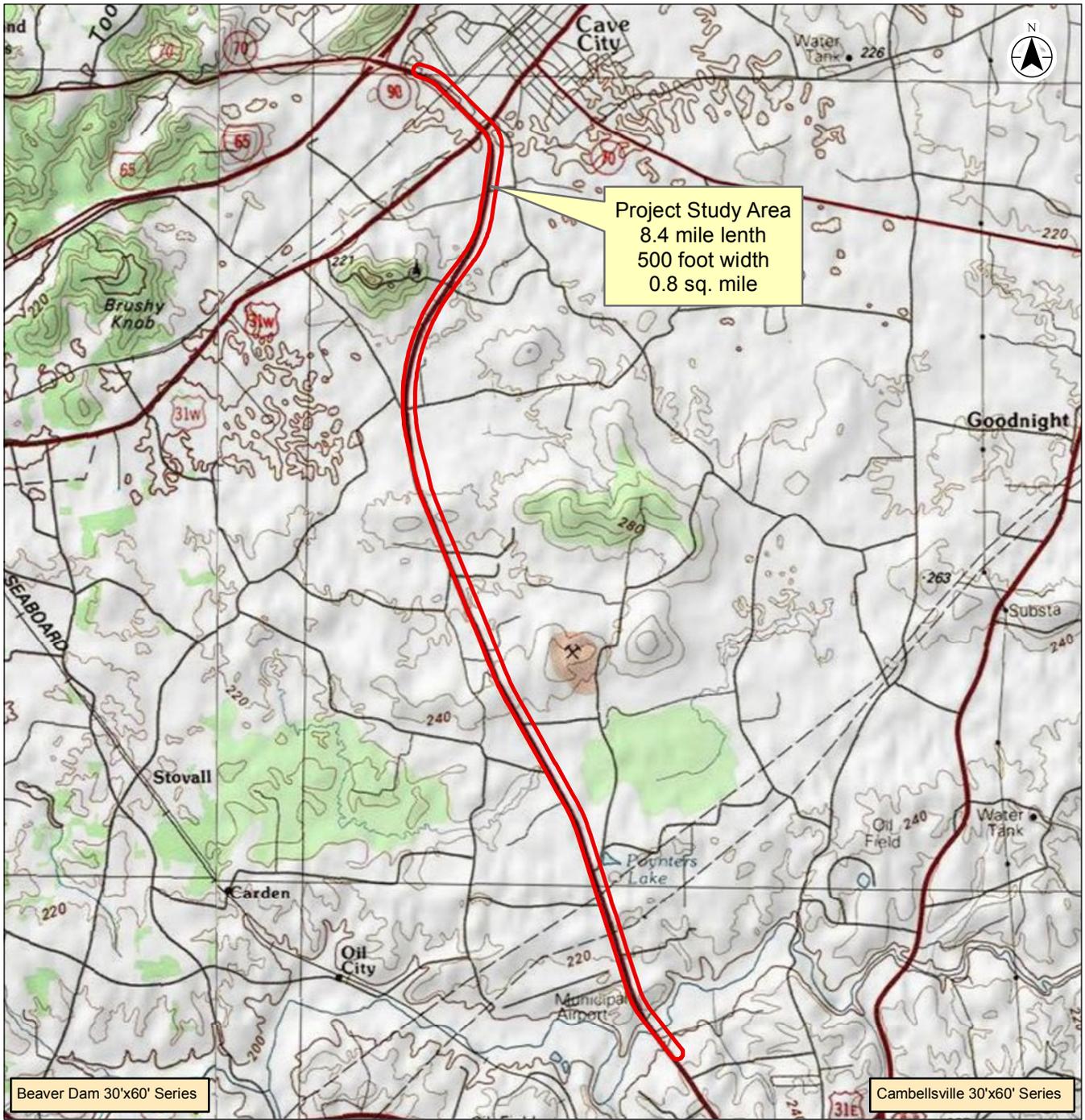


Figure 1: Study Area for the KY 90 Scoping Study



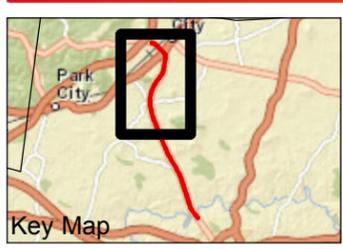
Project Location: KY 90, Barren County, Kentucky
 178554021
 Prepared by BL on 2015-10-15

Client/Project: KYTC District 3
 Environmental Overview
 KY 90 Scoping Study, KYTC Item # 3-8819-00

Figure No. **2**

Project Location Map

Notes
 1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
 2. Base features produced from project design elements.
 3. Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
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- Legend**
- Study Area
 - 3 Photograph Number, Location and Direction
 - Streams (NHD)
 - 100-Year Flood Zone (FEMA)
 - Sinkhole (KGS)
 - Hydric Soils (USDA)
 - Parks
 - NWI Wetland (USFWS)
 - City Boundary
 - Water Well (KDOW)**
 - + Domestic Use
 - Other

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Notes

1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
2. Base Features: see Sources and References.
3. Base Imagery: USGS-NAIP, 2014.

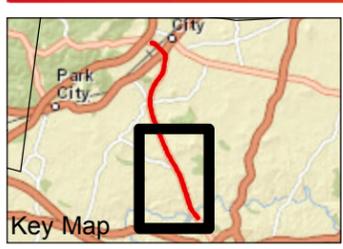
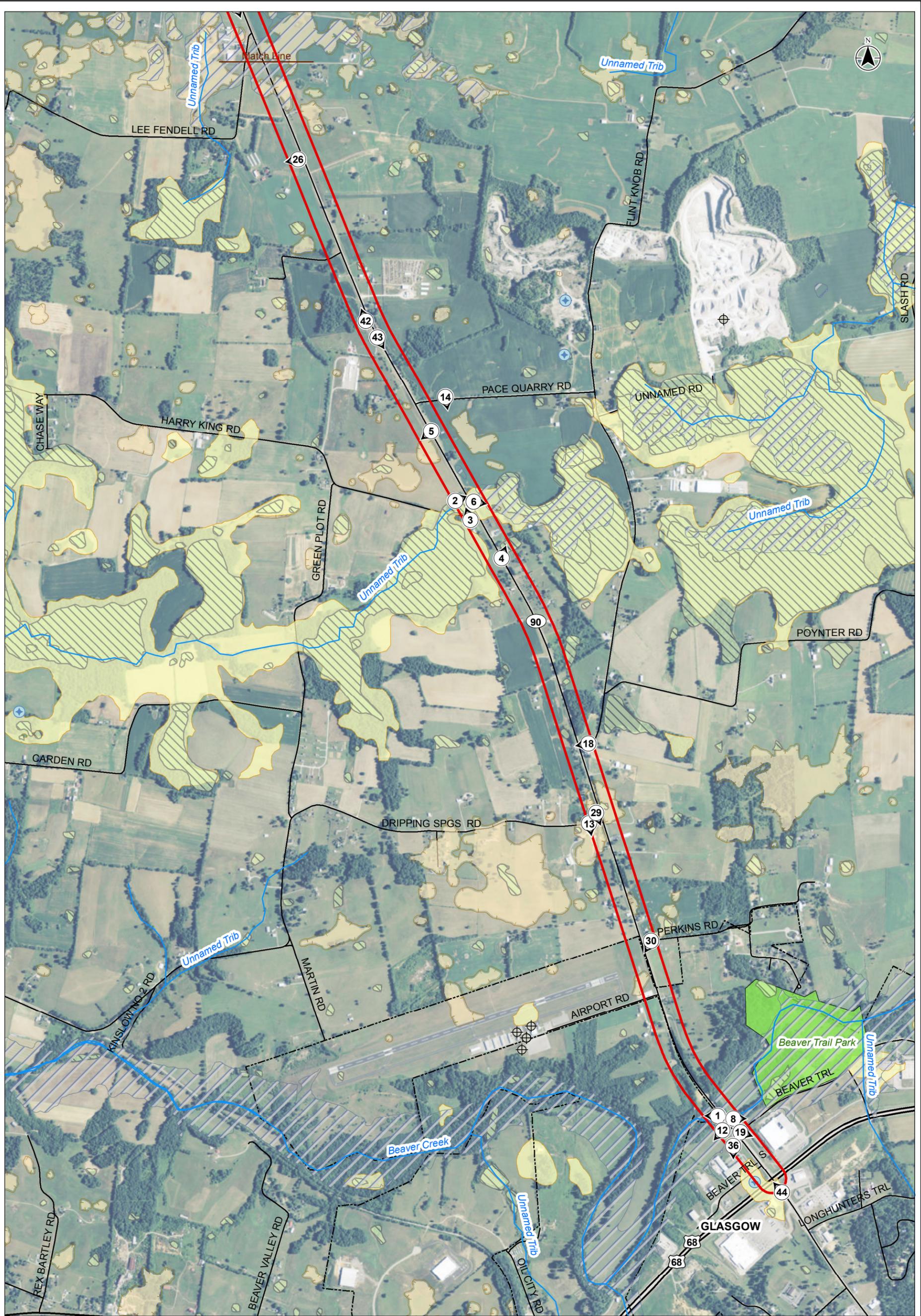
Project Location
KY 90
Barren County, Kentucky
178554021
Prepared by Bl on 2016-01-15

Client/Project
KYTC District 3
Environmental Overview
KY 90 Scoping Study, KYTC Item # 3-8819.00

Figure No.
3.1

Title
**Environmental Footprint
Natural Environment**

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- Legend**
- Study Area
 - 3 Photograph Number, Location and Direction
 - Streams (NHD)
 - 100-Year Flood Zone (FEMA)
 - Sinkhole (KGS)
 - Hydric Soils (USDA)
 - Parks
 - NWI Wetland (USFWS)
 - City Boundary
 - Water Well (KDW)**
 - + Domestic Use
 - ⊕ Other

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Notes

1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
2. Base Features: see Sources and References.
3. Base Imagery: USGS-NAIP, 2014.

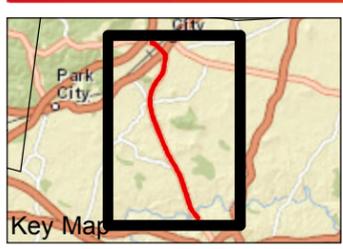
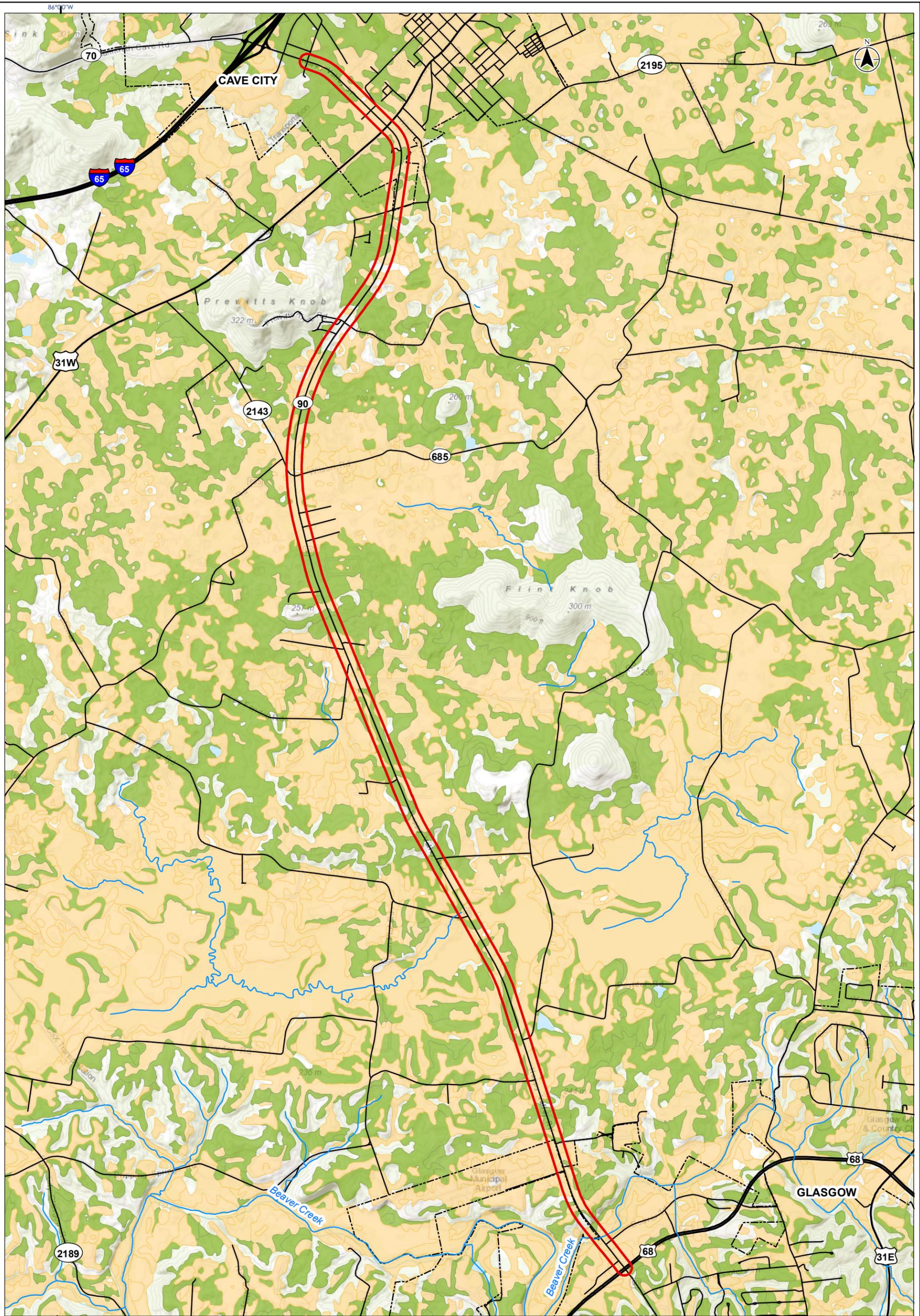
Project Location
KY 90
Barren County, Kentucky
178554021
Prepared by BL on 2016-01-15

Client/Project
KYIC District 3
Environmental Overview
KY 90 Scoping Study, KYIC Item # 3-8819.00

Figure No.
3.2

Title
**Environmental Footprint
Natural Environment**

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- Legend**
- Study Area
 - Streams (NHD)
 - City Boundary
 - Farmland Classification (USDA-NRCS)**
 - Prime Farmland
 - Statewide Importance



- Notes**
1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
 2. Base Features: see Sources and References.
 3. Base Imagery: Service Layer Credits: ESRI Map Services.

Project Location
 KY 90
 Barren County, Kentucky
 178554021
 Prepared by Bl on 2016-01-15

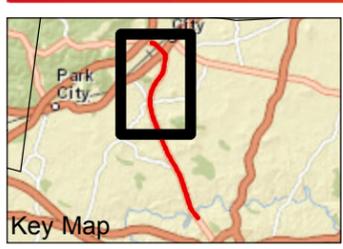
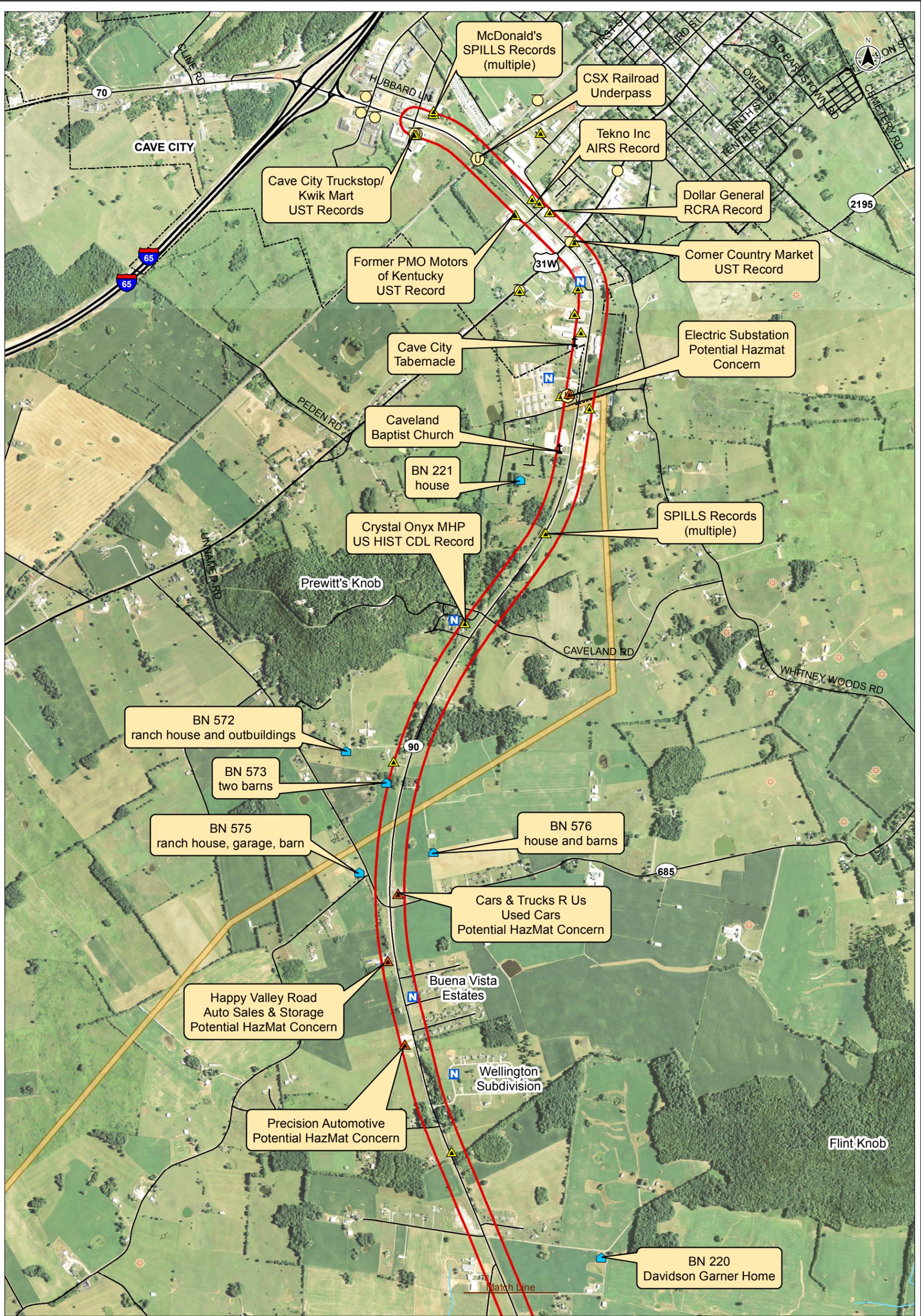
Client/Project
 KYTC District 3
 Environmental Overview
 KY 90 Scoping Study, KYTC Item # 3-8819.00

Figure No.
3.3



**Environmental Footprint
 Natural Environment-Farmland
 Classification of Soils**

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- Legend**
- Study Area
 - City Boundary
 - HazMat Record (EDR/USEPA)
 - UST Record (KDWM)
 - Archaeology Surveyed Area (KYOSA)
 - Previously Surveyed CH Site (KHC)
 - Streams (NHD)
 - Cemetery
 - House of Worship
 - Noise Receptor
 - Utility
 - Potential HazMat Site
 - Oil/Gas Well (KGS)
 - Well Other

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Notes

1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
2. Base Features: see Sources and References.
3. Base Imagery: USGS-NAIP, 2014.



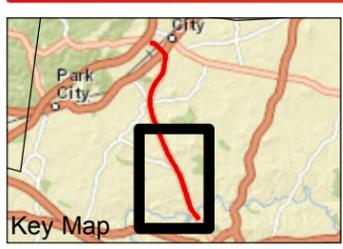
Project Location
KY 90
Barren County, Kentucky
178554021
Prepared by Bl on 2016-01-15

Client/Project
KYTC District 3
Environmental Overview
KY 90 Scoping Study, KYTC Item # 3-8819.00

Figure No.
4.1

Title
**Environmental Footprint
Human Environment**

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- Legend**
- Study Area
 - City Boundary
 - ▲ HazMat Record (EDR/USEPA)
 - UST Record (KDWM)
 - Archaeology Surveyed Area (KYOSA)
 - Previously Surveyed CH Site (KHC)
 - Streams (NHD)
 - + Cemetery
 - ⚓ House of Worship
 - N Noise Receptor
 - Utility
 - ▲ Potential Hazmat Site
 - * Oil/Gas Well (KGS)
 - ⊕ Well Other

0 1,000 2,000 Feet
1:19,000 (At original document size of 11x17)

Notes
 1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
 2. Base Features: see Sources and References.
 3. Base Imagery: USGS-NAIP, 2014.



Project Location
 KY 90
 Barren County, Kentucky
 178554021
 Prepared by BL on 2016-01-15

Client/Project
 KYTC District 3
 Environmental Overview
 KY 90 Scoping Study, KYTC Item # 3-8819.00

Figure No.
4.2

Title
**Environmental Footprint
 Human Environment**

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ATTACHMENTS

1. Threatened and Endangered Species
2. Karst
3. Hazardous Materials Concerns
4. National Park Service LWCF (Section 6(f)) List for Barren County
5. Areas of Air Quality Concern in Kentucky
6. Environmental Justice
7. Cultural and Historic Resources
8. Photo Log

ATTACHMENT 1

THREATENED AND ENDANGERED SPECIES

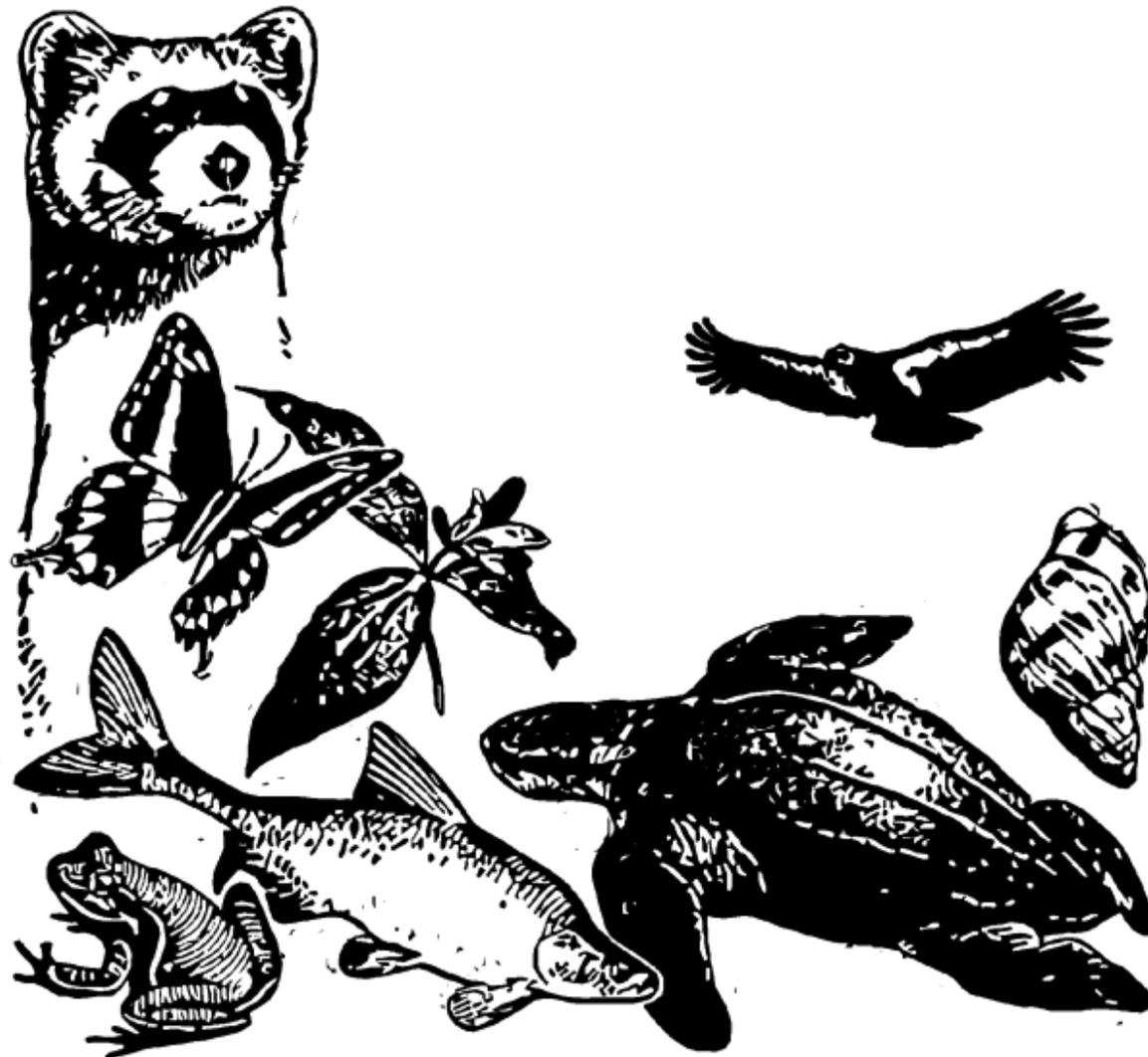
- USFWS KY 90 IPaC Trust Resource Report
- USFWS Maps of Known Indiana and Northern Long-eared Bat Habitat
- KYTC Online Environmental Overview: Sensitive Resources in Project Vicinity
- KDFWR State-Listed Species, Barren County
- KSNPC Natural Heritage Database Response (redacted)

KY90 Environmental Overview

IPaC Trust Resource Report

Generated January 13, 2016 09:18 AM MST, IPaC v2.3.2

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.



US Fish & Wildlife Service

IPaC Trust Resource Report



NAME

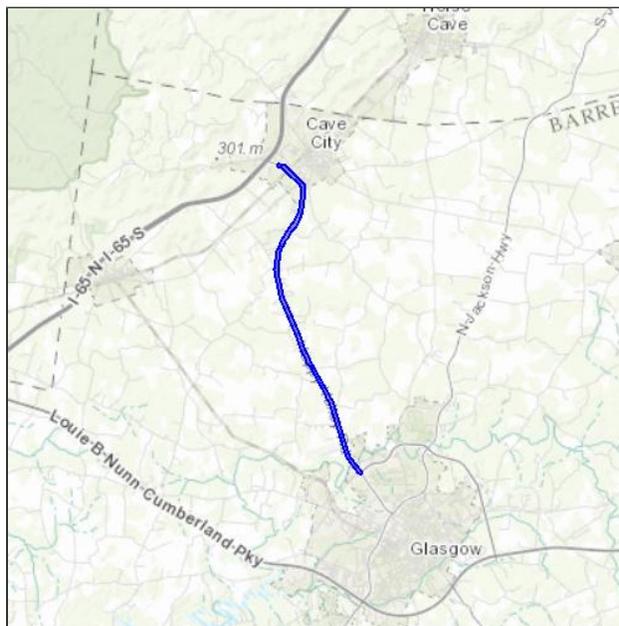
KY90 Environmental Overview

LOCATION

Barren County, Kentucky

IPAC LINK

<http://ecos.fws.gov/ipac/project/CIGYF-VMMOR-HDLGN-QB5DE-IEWMCU>



U.S. Fish & Wildlife Contact Information

Trust resources in this location are managed by:

Kentucky Ecological Services Field Office

J C Watts Federal Building, Room 265

330 West Broadway

Frankfort, KY 40601-8670

(502) 695-0468

Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the [Endangered Species Program](#) of the U.S. Fish & Wildlife Service.

This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.

For project evaluations that require FWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

[Section 7](#) of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list from the Regulatory Documents section in IPaC.

The list of species below are those that may occur or could potentially be affected by activities in this location:

Clams

Fanshell <i>Cyprogenia stegaria</i>	Endangered
CRITICAL HABITAT	
No critical habitat has been designated for this species.	
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=F02H	
Rabbitsfoot <i>Quadrula cylindrica cylindrica</i>	Threatened
CRITICAL HABITAT	
There is final critical habitat designated for this species.	
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=F03X	
Sheepnose Mussel <i>Plethobasus cyphus</i>	Endangered
CRITICAL HABITAT	
No critical habitat has been designated for this species.	
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=F046	
Snuffbox Mussel <i>Epioblasma triquetra</i>	Endangered
CRITICAL HABITAT	
No critical habitat has been designated for this species.	
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=F03J	

Crustaceans

Kentucky Cave Shrimp *Palaemonias ganteri* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=K01X

Mammals

Gray Bat *Myotis grisescens* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A04J

Indiana Bat *Myotis sodalis* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A000

Northern Long-eared Bat *Myotis septentrionalis* Threatened

CRITICAL HABITAT

No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A0JE

Critical Habitats

There are no critical habitats in this location

Migratory Birds

Birds are protected by the [Migratory Bird Treaty Act](#) and the [Bald and Golden Eagle Protection Act](#).

Any activity which results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service (1). There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

Additional information can be found using the following links:

- Birds of Conservation Concern
<http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Conservation measures for birds
<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Year-round bird occurrence data
<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/akn-histogram-tools.php>

The following species of migratory birds could potentially be affected by activities in this location:

Bald Eagle <i>Haliaeetus leucocephalus</i> Year-round https://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B008	Bird of conservation concern
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> Season: Breeding https://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0HI	Bird of conservation concern
Blue-winged Warbler <i>Vermivora pinus</i> Season: Breeding	Bird of conservation concern
Chuck-will's-widow <i>Caprimulgus carolinensis</i> Season: Breeding	Bird of conservation concern
Dickcissel <i>Spiza americana</i> Season: Breeding	Bird of conservation concern
Fox Sparrow <i>Passerella iliaca</i> Season: Wintering	Bird of conservation concern
Henslow's Sparrow <i>Ammodramus henslowii</i> Season: Breeding https://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B09D	Bird of conservation concern
Kentucky Warbler <i>Oporornis formosus</i> Season: Breeding	Bird of conservation concern

Least Bittern <i>Ixobrychus exilis</i> Season: Breeding	Bird of conservation concern
Loggerhead Shrike <i>Lanius ludovicianus</i> Year-round https://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0FY	Bird of conservation concern
Prairie Warbler <i>Dendroica discolor</i> Season: Breeding	Bird of conservation concern
Prothonotary Warbler <i>Protonotaria citrea</i> Season: Breeding	Bird of conservation concern
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> Year-round	Bird of conservation concern
Rusty Blackbird <i>Euphagus carolinus</i> Season: Wintering	Bird of conservation concern
Sedge Wren <i>Cistothorus platensis</i> Season: Migrating	Bird of conservation concern
Short-eared Owl <i>Asio flammeus</i> Season: Wintering https://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0HD	Bird of conservation concern
Willow Flycatcher <i>Empidonax traillii</i> Season: Breeding https://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0F6	Bird of conservation concern
Wood Thrush <i>Hylocichla mustelina</i> Season: Breeding	Bird of conservation concern
Worm Eating Warbler <i>Helmitheros vermivorum</i> Season: Breeding	Bird of conservation concern

Refuges

Any activity proposed on [National Wildlife Refuge](#) lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuges in this location

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

This location overlaps all or part of the following wetlands:

Freshwater Emergent Wetland

PEM1A	0.446 acre
PEM1F	0.349 acre

Freshwater Forested/shrub Wetland

PFO1A	75.7 acres
-----------------------	------------

Freshwater Pond

PUBHh	2.86 acres
PUBF	1.75 acres
PUBHx	1.54 acres

PUBFh

0.709 acre

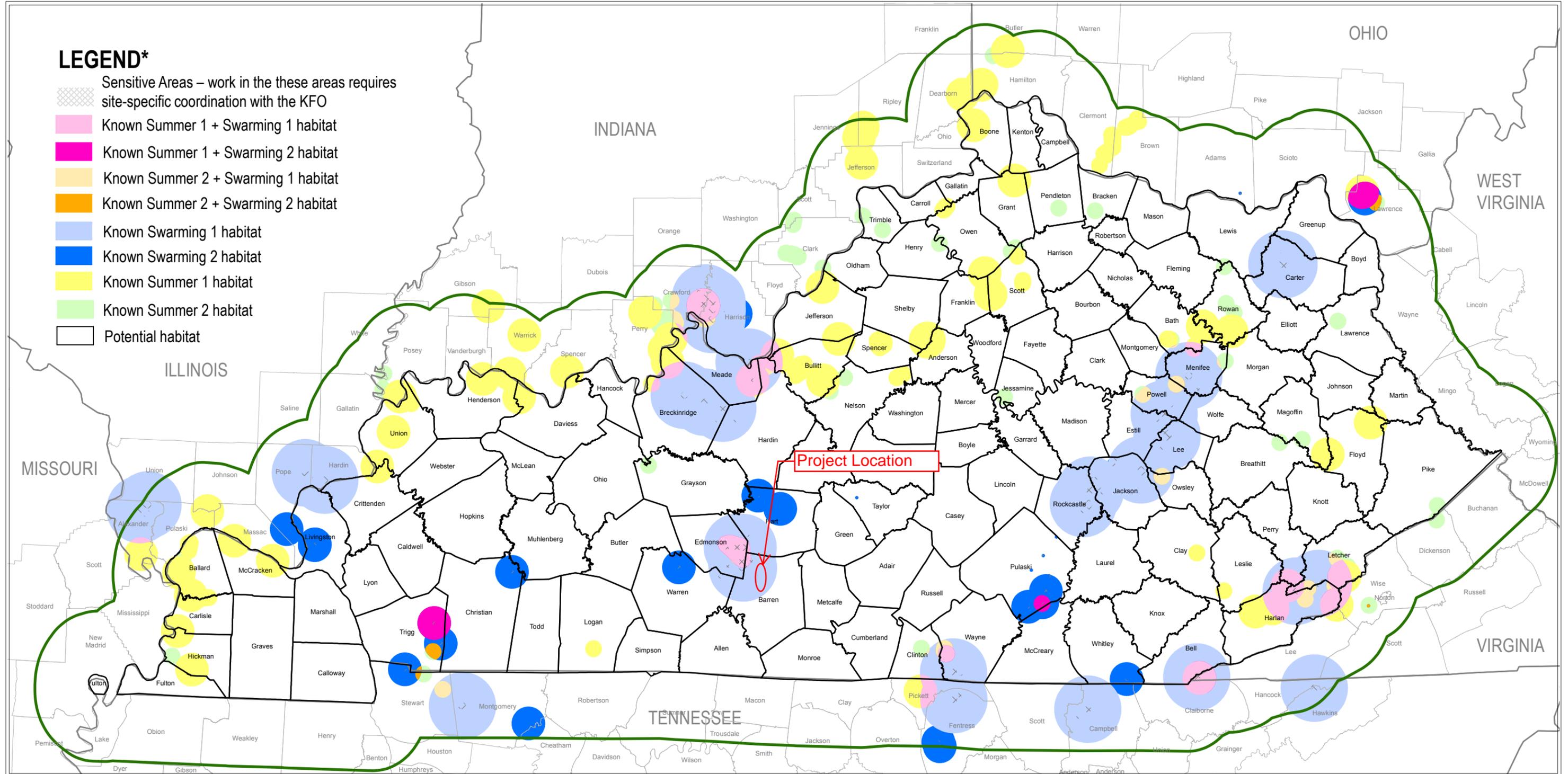
PUBH

0.464 acre

A full description for each wetland code can be found at the National Wetlands Inventory website: <http://107.20.228.18/decoders/wetlands.aspx>



Known Indiana bat habitat in Kentucky and within 20 miles (March 2015)



NOTE: This map is based on species occurrence information and is subject to change as new data become available. Please contact our office at 502/695-0468 to ensure you are working with the most current version.

*For an explanation of terms, please see the Conservation Strategy for Forest-Dwelling Bats in the Commonwealth of Kentucky.

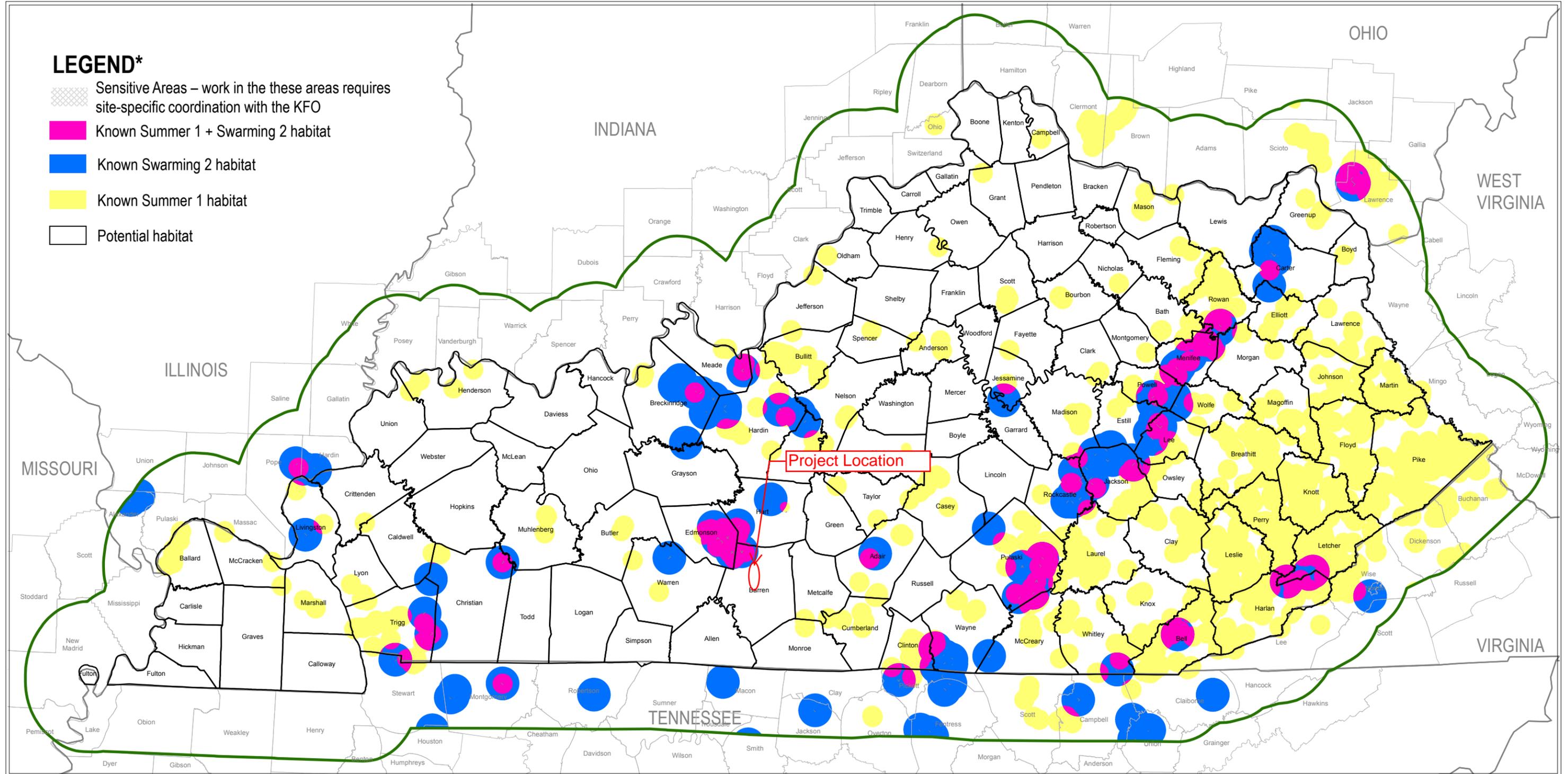


The USFWS makes no warranty for use of this map and cannot be held liable for actions or decisions based on map content. This map was produced as an appendix to the Conservation Strategy for Forest-Dwelling Bats in the Commonwealth of Kentucky and should only be used in the context of this Strategy.





Known northern long-eared bat habitat in Kentucky and within 20 miles (March 2015)



NOTE: This map is based on species occurrence information and is subject to change as new data become available. Please contact our office at 502/695-0468 to ensure you are working with the most current version.

*For an explanation of terms, please see the Conservation Strategy for Forest-Dwelling Bats in the Commonwealth of Kentucky.



The USFWS makes no warranty for use of this map and cannot be held liable for actions or decisions based on map content. This map was produced as an appendix to the Conservation Strategy for Forest-Dwelling Bats in the Commonwealth of Kentucky and should only be used in the context of this Strategy.

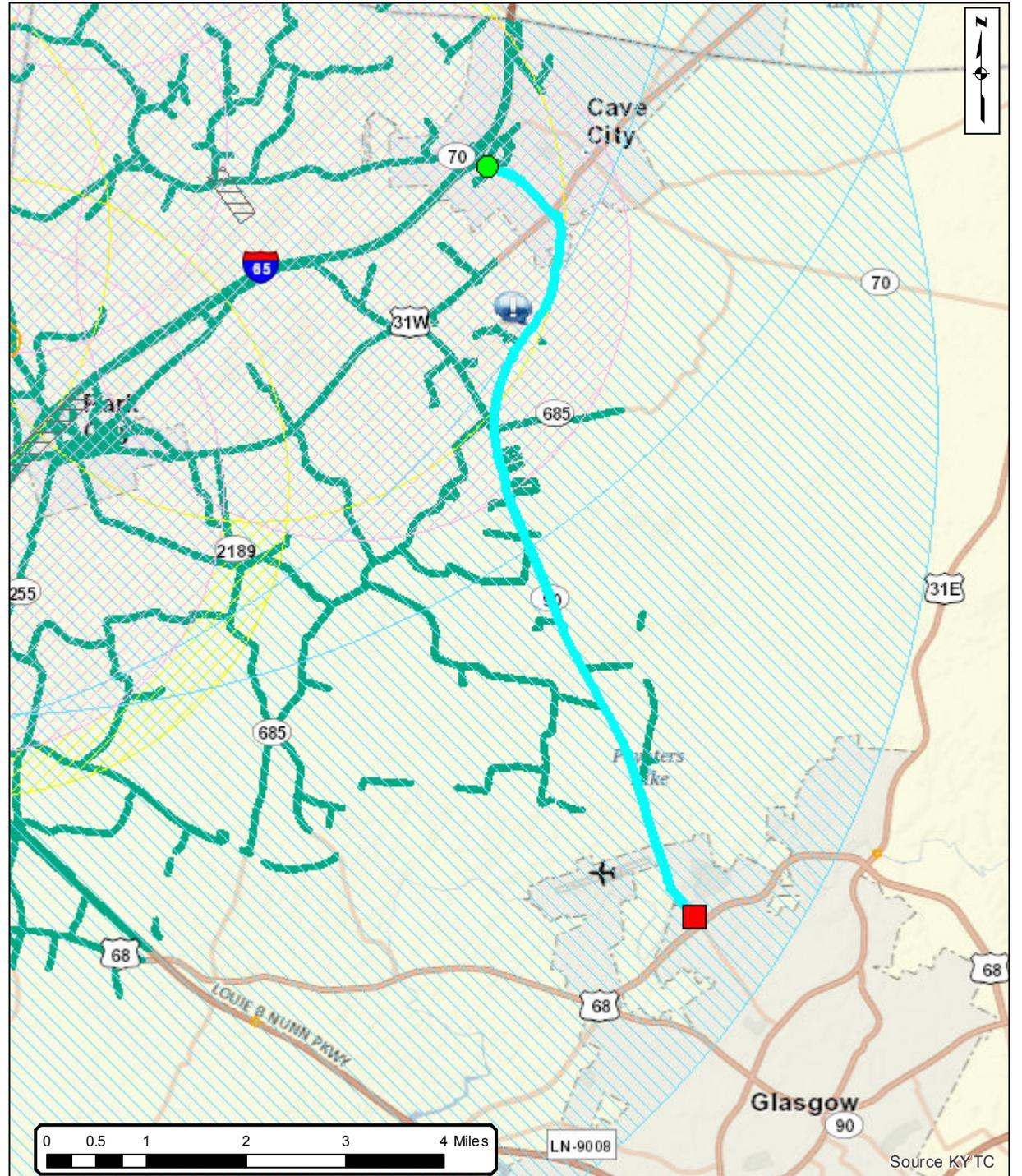
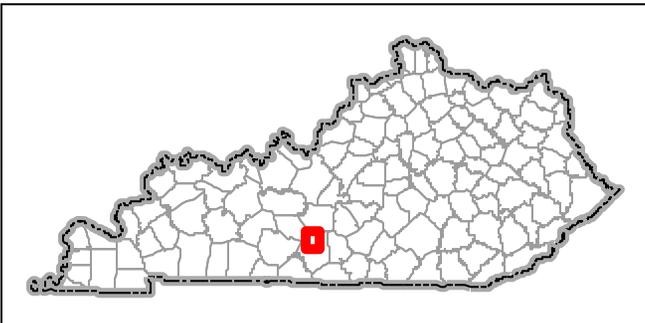


KYTC Online Environmental Overview: Sensitive Resources in Project Vicinity

Date: 1/25/2016



Kentucky Transportation Cabinet
200 Mero St, Suite W-5
Frankfort, KY 40601
Phone: (502) 564-4890



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Environmental Overview

- Sensitive Water Area None present in study area
-  Deed Restricted Properties None present in study area
-  DEA Managed Areas None present in study area
-  2015 Known Forest Dwelling Bat Habit
-  Sensitive Areas - Requires
Coordination with KFO
-  Overlap: Summer 1 - Swarming 1 Present in study area
-  Overlap: Summer 1 - Swarming 2
-  Overlap: Summer 2 - Swarming 1
-  Overlap: Summer 2 - Swarming 2
-  Known Swarming 2 Habitat
-  Known Swarming 1 Habitat Present in study area
-  Known Summer 1 Habitat Present in study area
-  Known Summer 2 Habitat
- DEA Special Use Water Compliance Multiple instances
present in study area
(thick green lines
around roadways)

Layer: 2015 Known Forest Dwelling Bat Habit

Swarming 1

OBJECTID	1802
Shape	Polygon
RECORD_TYP	Known Swarming 1 Habitat
Name	Swarming 1
diameter	Null
actual_diameter	Null
radius	Null
Latitude	37.097425
longitude	-86.071273
Shape.STArea()	8522044050.051931
SHAPE_AREA	8522044050.051931

Swarming 1

Swarming 1

Summer 1

Summer 1/Swarming 1

Layer: DEA Special Use Water Compliance

TURNHOLE

OBJECTID	4533
FID_Road30	10992
LOCAL_KEY	009-01495
RT_UNIQUE	005-CR-1365 -000
LRS_ID	005 CR-1365
BEGIN_MP	0
END_MP	0.948
RD_NAME	CAVELAND RD
SURFTYPE	52
DMI_LEN_MI	0.948
COM_LEVEL	00

TURNHOLE

TURNHOLE

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TURNHOLE



Species Information

State Threatened, Endangered, and Special Concern Species observations for selected counties

Linked life history provided courtesy of [NatureServe Explorer](#).

Records may include both recent and historical observations.

[US Status Definitions](#) [Kentucky Status Definitions](#)

List State Threatened, Endangered, and Special Concern Species observations in 1 selected county.

Selected county is: Barren.

Scientific Name and Life History	Common Name and Pictures	Class	County	US Status	KY Status	WAP	Reference
<i>Accipiter striatus</i>	Sharp-shinned Hawk	Aves	Barren	N	S	Yes	Reference
<i>Ammodramus henslowii</i>	Henslow's Sparrow	Aves	Barren	N	S	Yes	Reference
<i>Anas clypeata</i>	Northern Shoveler	Aves	Barren	N	E		Reference
<i>Anas discors</i>	Blue-winged Teal	Aves	Barren	N	T		Reference
<i>Ardea alba</i>	Great Egret	Aves	Barren	N	T	Yes	Reference
<i>Arrhopalites bimus</i>	A Cave Obligate Springtail	Elliplura	Barren	N	T		Reference
<i>Asio flammeus</i>	Short-eared Owl	Aves	Barren	N	E	Yes	Reference
<i>Barbicambarus cornutus</i>	Bottlebrush Crayfish	Malacostraca	Barren	N	S	Yes	Reference

<i>Bartramia longicauda</i>	Upland Sandpiper	Aves	Barren	N	H	Yes	Reference
<i>Batrisodes henroti</i>	A Cave Obligate Beetle	Insecta	Barren	N	T		Reference
<i>Batrisodes hubrichti</i>	A Cave Obligate Beetle	Insecta	Barren	N	T		Reference
<i>Botaurus lentiginosus</i>	American Bittern	Aves	Barren	N	H	Yes	Reference
<i>Bubulcus ibis</i>	Cattle Egret	Aves	Barren	N	S		Reference
<i>Certhia americana</i>	Brown Creeper	Aves	Barren	N	E	Yes	Reference
<i>Chondestes grammacus</i>	Lark Sparrow	Aves	Barren	N	T	Yes	Reference
<i>Circus cyaneus</i>	Northern Harrier	Aves	Barren	N	T	Yes	Reference
<i>Corynorhinus rafinesquii</i>	Rafinesque's Big-eared Bat	Mammalia	Barren	N	S	Yes	Reference
<i>Crangonyx longidactylus</i>	An Amphipod (<i>Crangonyx longidactylus</i>)	Malacostraca	Barren	N	T		Reference
<i>Cryptobranchus alleganiensis alleganiensis</i>	Eastern Hellbender	Amphibia	Barren	N	E	Yes	Reference
<i>Elaphe guttata</i>	Eastern Corn Snake	Reptilia	Barren	N	S	Yes	Reference
<i>Fulica americana</i>	American Coot	Aves	Barren	N	E		Reference
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Aves	Barren	N	T	Yes	Reference
<i>Helicodiscus notius specus</i>	A Terrestrial Snail	Gastropoda	Barren	N	T		Reference
<i>Ixobrychus exilis</i>	Least Bittern	Aves	Barren	N	T	Yes	Reference
<i>Junco hyemalis</i>	Dark-eyed Junco	Aves	Barren	N	S		Reference
<i>Kleptochthonius hubrichti</i>	A Cave Obligate Pseudoscorpion	Arachnida	Barren	N	T		Reference

<i>Lophodytes cucullatus</i>	Hooded Merganser	Aves	Barren	N	T	Yes	Reference
<i>Myotis grisescens</i>	Gray Myotis	Mammalia	Barren	E	T	Yes	Reference
<i>Myotis leibii</i>	Eastern Small-footed Myotis	Mammalia	Barren	N	T	Yes	Reference
<i>Myotis septentrionalis</i>	Northern Myotis	Mammalia	Barren	T	E		Reference
<i>Myotis sodalis</i>	Indiana Bat	Mammalia	Barren	E	E	Yes	Reference
<i>Notropis hudsonius</i>	Spottail Shiner	Actinopterygii	Barren	N	S		Reference
<i>Nyctanassa violacea</i>	Yellow-crowned Night-heron	Aves	Barren	N	T	Yes	Reference
<i>Nycticeius humeralis</i>	Evening Bat	Mammalia	Barren	N	S	Yes	Reference
<i>Ophisaurus attenuatus longicaudus</i>	Eastern Slender Glass Lizard	Reptilia	Barren	N	T	Yes	Reference
<i>Orconectes pellucidus</i>	Mammoth Cave Crayfish	Malacostraca	Barren	N	S	Yes	Reference
<i>Palaemonias ganteri</i>	Mammoth Cave Shrimp	Malacostraca	Barren	E	E	Yes	Reference
<i>Pandion haliaetus</i>	Osprey	Aves	Barren	N	S	Yes	Reference
<i>Passerculus sandwichensis</i>	Savannah Sparrow	Aves	Barren	N	S	Yes	Reference
<i>Percina macrocephala</i>	Longhead Darter	Actinopterygii	Barren	N	E	Yes	Reference
<i>Percopsis omiscomaycus</i>	Trout-Perch	Actinopterygii	Barren	N	S		Reference
<i>Peucaea aestivalis</i>	Bachman's Sparrow	Aves	Barren	N	E	Yes	Reference
<i>Phalacrocorax auritus</i>	Double-crested Cormorant	Aves	Barren	N	T		Reference
<i>Phenacobius uranops</i>	Stargazing Minnow	Actinopterygii	Barren	N	S	Yes	Reference
<i>Pituophis melanoleucus melanoleucus</i>	Northern Pine Snake	Reptilia	Barren	N	E	Yes	Reference

<i>Pleurocera alveare</i>	Rugged Hornsnail	Gastropoda	Barren	N	S		Reference
<i>Pseudanophthalmus pubescens intrepidus</i>	A Cave Obligate Beetle	Insecta	Barren	N	T		Reference
<i>Quadrula cylindrica cylindrica</i>	Rabbitsfoot	Bivalvia	Barren	T	T	Yes	Reference
<i>Setophaga fusca</i>	Blackburnian Warbler	Aves	Barren	N	T	Yes	Reference
<i>Sitta canadensis</i>	Red-breasted Nuthatch	Aves	Barren	N	E	Yes	Reference
<i>Stygobromus vitreus</i>	An Amphipod (<i>Stygobromus vitreus</i>)	Malacostraca	Barren	N	S	Yes	Reference
<i>Thoburnia atripinnis</i>	Blackfin Sucker	Actinopterygii	Barren	N	S	Yes	Reference
<i>Typhlichthys subterraneus</i>	Southern Cavefish	Actinopterygii	Barren	N	S	Yes	Reference
<i>Villosa lienosa</i>	Little Spectaclecase	Bivalvia	Barren	N	S	Yes	Reference
<i>Villosa ortmanni</i>	Kentucky Creekshell	Bivalvia	Barren	N	T	Yes	Reference

55 species are listed

Matt Bevin
Governor



Charles G. Snavey
Secretary
Energy and Environment Cabinet

Commonwealth of Kentucky
Kentucky State Nature Preserves Commission
Teton Trail
Frankfort, Kentucky 40601-1403
502-573-2886 Voice
502-573-2355 Fax

Donald S. Dott, Jr.
Director

February 11, 2016

Michael David de Villiers
Stantec Consulting Services, Inc.
11687 Lebanon Road
Cincinnati OH 45241

Data Request 16-063

Dear Mr. de Villiers,

This letter is in response to your data request of January 11, 2016 for the scoping study project of the KY 90 corridor located north of Glasgow in Barren County, Kentucky. We have reviewed our Natural Heritage Program Database to determine if any of the endangered, threatened, or special concern plants and animals or exemplary natural communities monitored by the Kentucky State Nature Preserves Commission occur within the general area of the KY 90 Corridor as indicated in the shapefile provided to us. Please see the attached reports for more information.

1-mile for all records – 10 records
5-mile for aquatic records – 29 records
5-mile for federally listed species – 9 records
10-mile for mammals and birds – 76 records

Approximately 80% of the study area lies within the boundaries of the Green River Bioreserve, a system of surface and subterranean aquatic habitats comprising the recharge area of the Green River and associated Mammoth Cave Systems. This is the fourth most important site nationally for the conservation of rare aquatic organisms and biodiversity. It includes the largest number of imperiled aquatic organisms in Kentucky. Federal, state, private entities, and the public are working together to protect this important area. Because of the importance of the Green River Biosphere Reserve, we recommend strict monitoring of all practices with potential for impacts to streams, wetlands, and sinkholes to prevent erosion and sedimentation.

Three aquatic species and three plant species (see attached report DR16-063 1 mile for

full list) including federally listed *Palaemonias ganteri* (Mammoth Cave shrimp, federally listed endangered, KSNPC endangered) occurs near this project. This species is endemic to the Mammoth Cave/Flint Ridge Cave system in Kentucky. Designated Critical habitat for Mammoth Cave Shrimp occurs approximately 4.5 mi to the northwest of the study area.

American Chestnut (*Castanea dentata* a state threatened species) occurs in a small forest block (<200 acres) in the northwest section of the corridor within 0.5 mi of the study area. Although this species has no federal protection, the lack of viable specimens not affected by the chestnut-blight underline the importance of this record. If the study were to deviate from the 500 ft buffer provided in the data request, a thorough investigation of forested areas would be recommended.

There are several KSNPC- monitored cave obligate organisms known from within one mile of the project that occur in the subterranean habitats common to this area, including: *Typhlichthys subterraneus* (Southern Cavefish, federal species of management concern, KSNPC special concern), *Palaemonias ganteri* (Mammoth Cave shrimp, federally listed endangered, KSNPC endangered), *Orconectes pellucidus* (Mammoth Cave crayfish, USFWS Species of Management Concern, KSNPC Special Concern), and *Antroselates spiralis* (Shaggy Cavesnail, KSNPC Special Concern). Several other species are known from the one- to five mile buffer; please see the aquatics report for more information. The site is located within a karst landscape characterized by numerous sinkholes, underground conduits, or caves, which are heavily dependent on water quality and subject to impacts from activities that may contaminate groundwater many miles from the original disturbance. Caves in this area are sensitive ecosystems and are known to provide habitat for a number of rare or endangered species.

Myotis sodalis (Indiana myotis, federally listed endangered, KSNPC endangered) and *Myotis grisescens* (Gray myotis, federally listed endangered, KSNPC threatened) hibernacula and former roost sites occur within five miles of the project corridor. In addition to these federally listed species, *Myotis leibii* (Eastern small-footed myotis, federal species of management concern, KSNPC threatened), *Myotis austroriparius* (Southeastern myotis, federal species of management concern, KSNPC endangered), *Nycticeius humeralis* (Evening Bat, KSNPC special concern), and *Corynorhinus rafinesquii* (Rafinesque's big-eared bat, federal species of management concern, KSNPC special concern) occur within five miles of the study area.

In order to avoid impacts to bats, a thorough survey should be conducted by a qualified biologist. The survey should include a search for potential roost and winter sites, and a mist-netting census at numerous points within the proposed corridor, particularly in preferred summer habitat. Summer foraging habitats include upland forests, bottomland forests and riparian corridors. Suitable roost and winter sites include sandstone and limestone caves, rockhouses, cliffhines, auger holes, and abandoned mines. In order to avoid impacts to bats, bottomland forests and riparian corridors, particularly near caves, should not be disturbed.

I would like to take this opportunity to remind you of the terms of the data request license, which you agreed upon in order to submit your request. The license agreement states "Data and data

products received from the Kentucky State Nature Preserves Commission, including any portion thereof, may not be reproduced in any form or by any means without the express written authorization of the Kentucky State Nature Preserves Commission." The exact location of plants, animals, and natural communities, if released by the Kentucky State Nature Preserves Commission, may not be released in any document or correspondence. These products are provided on a temporary basis for the express project (described above) of the requester, and may not be redistributed, resold or copied without the written permission of the Kentucky State Nature Preserves Commission's Data Manager (801 Schenkel Lane, Frankfort, KY, 40601. Phone: (502) 573-2886).

Please note that the quantity and quality of data collected by the Kentucky Natural Heritage Program are dependent on the research and observations of many individuals and organizations. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in Kentucky have never been thoroughly surveyed, and new plants and animals are still being discovered. For these reasons, the Kentucky Natural Heritage Program cannot provide a definitive statement on the presence, absence, or condition of biological elements in any part of Kentucky. Heritage reports summarize the existing information known to the Kentucky Natural Heritage Program at the time of the request regarding the biological elements or locations in question. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. We would greatly appreciate receiving any pertinent information obtained as a result of on-site surveys.

If you have any questions or if I can be of further assistance, please do not hesitate to contact me.

Sincerely,

Sara Hines
Data Manager

RIH/SGH

Enclosures: Data Report and Interpretation Key

Standard Occurrence Report
KSNPC monitored species within 1 mile of the 8.4 mile KY 90 corridor planning study buffer zone in Barren County, Kentucky

EOCODE EOID	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USES	OTHER STATUS	IDENT	LASTOBS	PREC	EOORANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
Extant in Kentucky																		
Vascular Plants																		
PDFAG01020*001 1189	<i>Castanea dentata</i>	American Chestnut	G4	S1?	E			Y	1998-06-28	S	D	Barren	Glasgow North			051100020701 - Park City		Acidic upland soils (Gleason and Cronquist); mesic and xeric forests (Weakley 2011).
PDFAB27030*002 3711	<i>Lespedeza capitata</i>	Round-head Bush-clover	G5	S3	S			Y	1979-08-17	M	H	Barren	Glasgow North			051100020701 - Park City 051100010803 - Duff Branch		Prairie patches on limestone.
PMPOA5V050*010 5564	<i>Sporobolus clandestinus</i>	Rough Dropseed	G5	S2S3	T			Y	1996-09-20	S	E	Barren	Glasgow North			051100020701 - Park City 051100010803 - Duff Branch		Prairies, limestone glades, limestone cliff edges, along railroads.
Aquatic Snails																		
IMGASJ8010*001 8796	<i>Antroselates spiralis</i>	Shaggy Cavesnail	G3	S2	S			Y	1993-pre	G	B	Hart Edmonson Barren	Mammoth Cave Horse Cave Glasgow North Rhoda Cub Run Park City			051100020702 - Little Sinking Creek 051100011302 - Buffalo Creek-Green River 051100011301 - Echo River-Green River 051100010808 - Ugly Creek-Green River 051100010807 - Waterloo Valley-Green River 051100010803 - Duff Branch 051100020701 - Park City		Found on the undersides of large stones in running water of springs and streams in caves (Hubricht 1963, Burch 1989). Occurs only in base-level cave streams and their spring orifices, and was taken on the undersides of submerged planks and slabs of breakdown in deep water (Lewis 1993a).
Freshwater Mussels																		

Standard Occurrence Report
KSNPC monitored speices within 1 mile of the 8 4 mile KY 90 corridor planning study buffer zone in Barren County, Kentucky

EOCODE EOID	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USES	OTHER STATUS	IDENT	LASTOBS	PREC	EO RANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
IMBIV47100*070 1871	<i>Villosa ortmanni</i>	Kentucky Creekshell	G2	S2	T	SOMC		Y	1993-09-24	S	F	Barren	Glasgow North			051100020305 - Little Beaver Creek-Beaver Creek		Free-flowing, upland rivers that range in size from small (1st order) spring fed streams to the Green River (Cicerello 1994). Many flow permanently, but others sometimes have no flow. Substrates range from cobble and boulder with mixed gravel and sand over bedrock to clayey-mud. Depths range from less than 6 inches to more than 2 meters.
Crustaceans																		
ICMAL12010*008 4772	<i>Palaemonias ganteri</i>	Mammoth Cave Shrimp	G1	S1	E	LE		Y	1994-08-19	M	D	Barren Edmonson Hart Warren	Park City Rhoda Mammoth Cave Smiths Grove Horse Cave Glasgow North			051100020306 - South Fork Beaver Creek-Beaver Creek 051100020705 - Smiths Grove 051100020305 - Little Beaver Creek-Beaver Creek 051100011301 - Echo River-Green River 051100011303 - Beaverdam Creek-Green River 051100010808 - Ugly Creek-Green River 051100020703 - Sinking Creek 051100010803 - Duff Branch 051100020701 - Park City 051100020702 - Little Sinking Creek	Turnhole Spring Basin.	Large base level stream passages (i.e., lowest level) and associated tributaries characterized by slow flow, coarse to fine grain sand and coarse silt sediments, and abundant quantities of organic material (USFWS 1988).

Fishes

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Standard Occurrence Report
KSNPC monitored speices within 1 mile of the 8.4 mile KY 90 corridor planning study buffer zone in Barren County, Kentucky

EOCODE EIOD	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USES	OTHER STATUS	IDENT	LASTOBS	PREC	ERANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
AFCLA04010*011 2479	<i>Typhlichthys subterraneus</i>	Southern Cavefish	G4	S2S3	S	SOMC		Y	1955-09-18	G	H	Hart Barren	Horse Cave			051100010804 - Lemon Branch 051100010807 - Waterloo Valley-Green River 051100010808 - Ugly Creek-Green River 051100010803 - Duff Branch		Subterranean waters where limestone bedrocks are honeycombed by subsurface drainages. Occurs in cave streams, most frequently over mixed gravel, sand, and mud, or rubble substrates and may occur at springs and wells (Cooper 1980, Cooper and Beiter 1972, Pflieger 1975, Starnes and Etnier 1980, Burr and Warren 1986).
AFCLA04010*013 10459	<i>Typhlichthys subterraneus</i>	Southern Cavefish	G4	S2S3	S	SOMC		Y	1905-	G	H	Barren	Glasgow South Hiseville Glasgow North			051100020306 - South Fork Beaver Creek-Beaver Creek 051100020305 - Little Beaver Creek-Beaver Creek 051100020307 - Boyds Creek-Skaggs Creek		

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Extant in Kentucky

Crustaceans

ICMAL11070*006 9249	<i>Orconectes pellucidus</i>	Mammoth Cave Crayfish	G4	S3	S	SOMC		Y	1994-10-18	S	A	Barren				CONTACT KSNPC	CONTACT KSNPC	SENSITIVE ELEMENT-CONTACT KSNPC	Subterranean waters (Hobbs 1976).
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Fishes

Standard Occurrence Report

KSNPC monitored speices within 1 mile of the 8 4 mile KY 90 corridor planning study buffer zone in Barren County, Kentucky

EOCODE EOID	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USES	OTHER STATUS	IDENT	LASTOBS	PREC	EOURANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
AFCLA04010*023 5458	<i>Typhlichthys subterraneus</i>	Southern Cavefish	G4	S2S3	S	SOMC		Y	1994-10-18	S	B	Barren		CONTACT KSNPC	CONTACT KSNPC		SENSITIVE ELEMENT- CONTACT KSNPC	Subterranean waters where limestone bedrocks are honeycombed by subsurface drainages. Occurs in cave streams, most frequently over mixed gravel, sand, and mud, or rubble substrates and may occur at springs and wells (Cooper 1980, Cooper and Beiter 1972, Pflieger 1975, Starnes and Etnier 1980, Burr and Warren 1986).

Standard Occurrence Report

KSNPC federally monitored threatened and endangered species within 5 miles of the 8.4 mile KY 90 corridor planning study buffer zone in Barren County, Kentucky

EOCODE EOID	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USESA	OTHER STATUS	IDENT	LASTOBS	PREC	EOURANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
Extant in Kentucky																		
Crustaceans																		
ICMAL12010*003 7715	<i>Palaemonias ganteri</i>	Mammoth Cave Shrimp	G1	S1	E	LE		Y	1983-09-11	G	D	Hart	Munfordville Cub Run Mammoth Cave	[REDACTED]	[REDACTED]	051100011102 - Lower Bacon Creek 051100010807 - Waterloo Valley-Green River 051100010808 - Ugly Creek-Green River 051100011104 - Cane Run-Nolin River	[REDACTED]	Large base level stream passages (i.e., lowest level) and associated tributaries characterized by slow flow, coarse to fine grain sand and coarse silt sediments, and abundant quantities of organic material (USFWS 1988).
ICMAL12010*008 4772	<i>Palaemonias ganteri</i>	Mammoth Cave Shrimp	G1	S1	E	LE		Y	1994-08-19	M	D	Barren Edmonson Hart Warren	Park City Rhoda Mammoth Cave Smiths Grove Horse Cave Glasgow North	[REDACTED]	[REDACTED]	051100020306 - South Fork Beaver Creek-Beaver Creek 051100020705 - Smiths Grove 051100020305 - Little Beaver Creek-Beaver Creek 051100011301 - Echo River-Green River 051100011303 - Beaverdam Creek-Green River 051100010808 - Ugly Creek-Green River 051100020703 - Sinking Creek 051100010803 - Duff Branch 051100020701 - Park City 051100020702 - Little Sinking Creek	Turnhole Spring Basin. [REDACTED]	
Mammals																		
AMACC01040*121 11982	<i>Myotis grisescens</i>	Gray Myotis	G3	S2	T	LE		Y	2005-07-20	S	E	Barren	Glasgow North	[REDACTED]	[REDACTED]	051100020701 - Park City	Flint Knob [REDACTED]	
AMACC01040*123 11986	<i>Myotis grisescens</i>	Gray Myotis	G3	S2	T	LE		Y	2005-08-09	S	E	Barren	Park City	[REDACTED]	[REDACTED]	051100020702 - Little Sinking Creek	[REDACTED]	

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Standard Occurrence Report

KSNPC federally monitored threatened and endangered species within 5 miles of the 8.4 mile KY 90 corridor planning study buffer zone in Barren County, Kentucky

EOCODE EOID	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USES	OTHER STATUS	IDENT	LASTOBS	PREC	EOORANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
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Extant in Kentucky

Crustaceans

ICMAL12010*007 358	<i>Palaemonias ganteri</i>	Mammoth Cave Shrimp	G1	S1	E	LE		Y	1994-10-02	M	A	Barren Edmonson	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Large base level stream passages (i.e., lowest level) and associated tributaries characterized by slow flow, coarse to fine grain sand and coarse silt sediments, and abundant quantities of organic material (USFWS 1988).
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Mammals

AMACC01040*039 10427	<i>Myotis grisescens</i> Transient roost site?	Gray Myotis	G3	S2	T	LE		Y	1985-03-20	M	E	Barren Edmonson	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Primarily use caves throughout the year, although they move from one cave to another seasonally. Males and young of the year use different caves in summer than females. Smaller colonies also occasionally roost under bridge structures.
AMACC01040*058 7029	<i>Myotis grisescens</i> Former roost site	Gray Myotis	G3	S2	T	LE		Y	1985-03	S	H	Barren	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	
AMACC01100*046 5367	<i>Myotis sodalis</i> Hibernaculum	Indiana Bat	G2	S1S2	E	LE		Y	2006-02-04	S	C	Hart	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Primarily use caves for hibernacula, although they are occasionally found in old mine portals. During summer, colonies are found behind slabs of exfoliating bark of dead trees, often in bottomland or floodplain habitats, but also in upland situations.

Standard Occurrence Report

KSNPC federally monitored threatened and endangered species within 5 miles of the 8.4 mile KY 90 corridor planning study buffer zone in Barren County, Kentucky

EOCODE EIOD	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USES	OTHER STATUS	IDENT	LASTOBS	PREC	EO RANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
AMACC01100*068 7184	<i>Myotis sodalis</i> Hibernaculum	Indiana Bat	G2	S1S2	E	LE		Y	1988-01	S	F	Barren						Primarily use caves for hibernacula, although they are occasionally found in old mine portals. During summer, colonies are found behind slabs of exfoliating bark of dead trees, often in bottomland or floodplain habitats, but also in upland situations.

Standard Occurrence Report

02/11/2016KSNPC monitored aquatic species within 5 miles of the 8 4 mile KY 90 corridor planning study buffer zone in Barren County, Kentucky

EOCODE EOID	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USESA	OTHER STATUS	IDENT	LASTOBS	PREC	EORANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
Extant in Kentucky																		
Aquatic Snails																		
IMGASJ8010*001 8796	<i>Antroselates spiralis</i>	Shaggy Cavesnail	G3	S2	S			Y	1993-pre	G	B	Hart Edmonson Barren	Mammoth Cave Horse Cave Glasgow North Rhoda Cub Run Park City	██████	██████	051100020702 - Little Sinking Creek 051100011302 - Buffalo Creek-Green River 051100011301 - Echo River-Green River 051100010808 - Ugly Creek-Green River 051100010807 - Waterloo Valley-Green River 051100010803 - Duff Branch 051100020701 - Park City	████████████████████	Found on the undersides of large stones in running water of springs and streams in caves (Hubricht 1963, Burch 1989). Occurs only in base-level cave streams and their spring orifices, and was taken on the undersides of submerged planks and slabs of breakdown in deep water (Lewis 1993a).
IMGASJ8010*002 6340	<i>Antroselates spiralis</i>	Shaggy Cavesnail	G3	S2	S			Y	1994-10-17	G	B	Edmonson Barren Hart	Mammoth Cave Rhoda Smiths Grove Park City Horse Cave	██████	██████	051100011303 - Beaverdam Creek-Green River 051100020701 - Park City 051100010803 - Duff Branch 051100010808 - Ugly Creek-Green River 051100011301 - Echo River-Green River 051100011302 - Buffalo Creek-Green River 051100020702 - Little Sinking Creek	████████████████████	

Freshwater Mussels

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Standard Occurrence Report

02/11/2016KSNPC monitored aquatic species within 5 miles of the 8.4 mile KY 90 corridor planning study buffer zone in Barren County, Kentucky

EOCODE EOID	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USES	OTHER STATUS	IDENT	LASTOBS	PREC	EO RANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
IMBIV47100*056 237	<i>Villosa ortmanni</i>	Kentucky Creekshell	G2	S2	T	SOMC		Y	1993-07-23	S	H	Barren	Glasgow North			051100020305 - Little Beaver Creek-Beaver Creek		Free-flowing, upland rivers that range in size from small (1st order) spring fed streams to the Green River (Cicerello 1994). Many flow permanently, but others sometimes have no flow. Substrates range from cobble and boulder with mixed gravel and sand over bedrock to clayey-mud. Depths range from less than 6 inches to more than 2 meters.
IMBIV47100*070 1871	<i>Villosa ortmanni</i>	Kentucky Creekshell	G2	S2	T	SOMC		Y	1993-09-24	S	F	Barren	Glasgow North			051100020305 - Little Beaver Creek-Beaver Creek		
Crustaceans																		
ICMAL06250*001 12920	<i>Crangonyx longidactylus</i>	An Amphipod	G2	S2	T			Y	1956-03-20	M	H	Barren	Park City			051100020305 - Little Beaver Creek-Beaver Creek 051100020702 - Little Sinking Creek		
ICMAL11070*021 9184	<i>Orconectes pellucidus</i>	Mammoth Cave Crayfish	G4	S3	S	SOMC		?	1975-03-01	G	H	Barren Edmonson	Park City			051100020702 - Little Sinking Creek 051100020701 - Park City		Subterranean waters (Hobbs 1976).
ICMAL12010*003 7715	<i>Palaemonias ganteri</i>	Mammoth Cave Shrimp	G1	S1	E	LE		Y	1983-09-11	G	D	Hart	Munfordville Cub Run Mammoth Cave			051100011102 - Lower Bacon Creek 051100010807 - Waterloo Valley-Green River 051100010808 - Ugly Creek-Green River 051100011104 - Cane Run-Nolin River		Large base level stream passages (i.e., lowest level) and associated tributaries characterized by slow flow, coarse to fine grain sand and coarse silt sediments, and abundant quantities of organic material (USFWS 1988).

Standard Occurrence Report

02/11/2016KSNPC monitored aquatic species within 5 miles of the 8.4 mile KY 90 corridor planning study buffer zone in Barren County, Kentucky

EOCODE EOID	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USES	OTHER STATUS	IDENT	LASTOBS	PREC	EO RANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
AFCLA04010*011 2479	<i>Typhlichthys subterraneus</i>	Southern Cavefish	G4	S2S3	S	SOMC		Y	1955-09-18	G	H	Hart Barren	Horse Cave	[REDACTED]	[REDACTED]	051100010804 - Lemon Branch 051100010807 - Waterloo Valley-Green River 051100010808 - Ugly Creek-Green River 051100010803 - Duff Branch	[REDACTED]	Subterranean waters where limestone bedrocks are honeycombed by subsurface drainages. Occurs in cave streams, most frequently over mixed gravel, sand, and mud, or rubble substrates and may occur at springs and wells (Cooper 1980, Cooper and Beiter 1972, Pflieger 1975, Starnes and Etnier 1980, Burr and Warren 1986).
AFCLA04010*013 10459	<i>Typhlichthys subterraneus</i>	Southern Cavefish	G4	S2S3	S	SOMC		Y	1905-	G	H	Barren	Glasgow South Hiseville Glasgow North	[REDACTED]	[REDACTED]	051100020306 - South Fork Beaver Creek-Beaver Creek 051100020305 - Little Beaver Creek-Beaver Creek 051100020307 - Boyds Creek-Skaggs Creek	[REDACTED]	

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Extant in Kentucky

Crustaceans

ICCOP08012*001 1292	<i>Bryocamptus morrisoni elegans</i>	A Copepod	G3G4T3 T4	S1	T			Y	1968-pre	M	H	Hart	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Troglobitic copepod that inhabits pools (Lewis 1993).
ICMAL11031*001 9100	<i>Orconectes inermis inermis</i>	Ghost Crayfish	G5T4	S3	S			Y	1963-11-02	M	H	Hart Barren	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Subterranean waters (Hobbs 1989) in cave streams. This species is often found in larger base-level pools where mud and silt substrates predominate (Taylor and Schuster, 2004).

Standard Occurrence Report
02/11/2016KSNPC monitored aquatic species within 5 miles of the 8.4 mile KY 90 corridor planning study buffer zone in Barren County, Kentucky

EOCODE EOID	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USESA	OTHER STATUS	IDENT	LASTOBS	PREC	EOURANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
ICMAL11070*003 381	<i>Orconectes pellucidus</i>	Mammoth Cave Crayfish	G4	S3	S	SOMC		Y	1964-04	M	H	Barren Edmonson Hart	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Subterranean waters (Hobbs 1976).
ICMAL11070*006 9249	<i>Orconectes pellucidus</i>	Mammoth Cave Crayfish	G4	S3	S	SOMC		Y	1994-10-18	S	A	Barren	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	
ICMAL11070*007 793	<i>Orconectes pellucidus</i>	Mammoth Cave Crayfish	G4	S3	S	SOMC		Y	1964-07-25	M	H	Barren Edmonson	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	
ICMAL11070*013 1631	<i>Orconectes pellucidus</i>	Mammoth Cave Crayfish	G4	S3	S	SOMC		Y	1994-10-17	S	B	Hart	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	
ICMAL11070*044 6326	<i>Orconectes pellucidus</i>	Mammoth Cave Crayfish	G4	S3	S	SOMC		Y	1994-11-12	S	A	Edmonson	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	
ICMAL11070*045 8715	<i>Orconectes pellucidus</i>	Mammoth Cave Crayfish	G4	S3	S	SOMC		Y	1994-08-16	S	A	Barren	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	
ICMAL11070*048 838	<i>Orconectes pellucidus</i>	Mammoth Cave Crayfish	G4	S3	S	SOMC		Y	1991-04-12	S	C	Edmonson	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	
ICMAL12010*007 358	<i>Palaemonias ganteri</i>	Mammoth Cave Shrimp	G1	S1	E	LE		Y	1994-10-02	M	A	Barren Edmonson	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Large base level stream passages (i.e., lowest level) and associated tributaries characterized by slow flow, coarse to fine grain sand and coarse silt sediments, and abundant quantities of organic material (USFWS 1988).
ICMAL05720*001 2563	<i>Stygobromus vitreus</i>	An Amphipod	G4	S1	S			Y	1990-12-05-pre	S	E	Barren	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Small drip and seep pools in caves, but occasionally is found in surface seeps in the Mammoth Cave area (Holsinger 1976).
ICMAL05720*005 9833	<i>Stygobromus vitreus</i>	An Amphipod	G4	S1	S			Y	1987	M	E	Edmonson Barren Hart	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	

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Standard Occurrence Report

02/11/2016KSNPC monitored aquatic species within 5 miles of the 8.4 mile KY 90 corridor planning study buffer zone in Barren County, Kentucky

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Fishes																		
AFCLA01020*029 1064	<i>Amblyopsis spelaea</i>	Northern Cavefish	G3G4	S3	S	SOMC	Y	1993-09-01	S	D	Edmonson	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Subterranean streams with consolidated mud-rock substrates in shoals and silt-sand substrates in pools (Kuehne 1962, Poulson 1963, Clay 1975, Cooper 1980).
AFCLA01020*033 1695	<i>Amblyopsis spelaea</i>	Northern Cavefish	G3G4	S3	S	SOMC	?	197-	S	H	Hart	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	
AFCLA04010*007 7311	<i>Typhlichthys subterraneus</i>	Southern Cavefish	G4	S2S3	S	SOMC	Y	1994-10-17	S	C	Hart	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Subterranean waters where limestone bedrocks are honeycombed by subsurface drainages. Occurs in cave streams, most frequently over mixed gravel, sand, and mud, or rubble substrates and may occur at springs and wells (Cooper 1980, Cooper and Beiter 1972, Pflieger 1975, Starnes and Etnier 1980, Burr and Warren 1986).
AFCLA04010*023 5458	<i>Typhlichthys subterraneus</i>	Southern Cavefish	G4	S2S3	S	SOMC	Y	1994-10-18	S	B	Barren	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	
AFCLA04010*024 4443	<i>Typhlichthys subterraneus</i>	Southern Cavefish	G4	S2S3	S	SOMC	Y	1994-11-12	S	A	Edmonson	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	
AFCLA04010*029 10068	<i>Typhlichthys subterraneus</i>	Southern Cavefish	G4	S2S3	S	SOMC	Y	1994-08-16	S	B	Barren	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	

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Standard Occurrence Report

KSNPC avian and mammalian species within 10 miles of the 8 4 mile KY 90 corridor planning study buffer zone in Barren County, Kentucky

EOCODE EOID	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USES	OTHER STATUS	IDENT	LASTOBS	PREC	EO RANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
Extant in Kentucky																		
Breeding Birds																		
ABNKC12020*015 1801	<i>Accipiter striatus</i>	Sharp-shinned Hawk	G5	S3B,S4 N	S			Y	1985-07-14	M	E	Barren	Glasgow South	██████	██████	051100020307 - Boyds Creek-Skaggs Creek	Brigadoon State Nature Preserve, ██████ ██████	Forest and open woodland, coniferous, mixed, or deciduous, primarily in conif. In more northern and mountainous portion of range (B83COM01NA). Migrates through various habitats, mainly along ridges, lakeshores, & coastlines (B83NAT01NA).
ABPBX91050*025 4893	<i>Aimophila aestivalis</i>	Bachman's Sparrow	G3	S1B	E	SOMC		Y	1959-pre	G	X	Edmonson Hart Barren	Mammoth Cave Rhoda Park City Brownsville Bee Spring Cub Run Smiths Grove Nolin Lake	██████	██████	051100011303 - Beaverdam Creek-Green River 051100020701 - Park City 051100011107 - Bylew Creek-Nolin River 051100010808 - Ugly Creek-Green River 051100011301 - Echo River-Green River 051100011302 - Buffalo Creek-Green River 051100020702 - Little Sinking Creek	Mammoth Cave National Park.	Early successional areas with scattered saplings (often pines), bushes, or understory, brushy or overgrown hillsides, overgrown fields with thickets and brambles.
ABPBG10010*011 7302	<i>Cistothorus platensis</i>	Sedge Wren	G5	S3B	S			Y	1934	M	H	Edmonson	Mammoth Cave	██████	██████	051100011301 - Echo River-Green River	██████████████████ Mammoth Cave National Park.	Grasslands and savanna, especially where wet or boggy, sedge marshes, locally in dry cultivated grainfields. In migration and winter also in brushy grasslands. (B83COM01NA)

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ABNSA01010*032 808	<i>Tyto alba</i>	Barn Owl	G5	S3	S			Y	1998-03	M	E	Hart	Munfordville			051100010804 - Lemon Branch 051100010807 - Waterloo Valley-Green River 051100010806 - Boiling Springs Hollow-Green River		Open and partly open country in a wide variety of situations, often around human habitation (B83COM01NA). In northern winter often roosts in dense conifers; also roosts in nest boxes if available (A85MAR01NA).
Mammals																		
AMACC08020*003 8048	<i>Corynorhinus rafinesquii</i> Summer roost site	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	1935-06-29	S	H	Edmonson	Mammoth Cave			051100011301 - Echo River-Green River	Mammoth Cave	This bat uses a variety of sites for roosting including caves, protected sites along clifflines, large, hollow trees, old mine portals, abandoned tunnels, cisterns, old or seldom used buildings, etc.
AMACC08020*267 12422	<i>Corynorhinus rafinesquii</i> Maternity site	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	2007	S	E	Barren	Mammoth Cave			051100011301 - Echo River-Green River		
AMACC08020*270 12425	<i>Corynorhinus rafinesquii</i> Maternity colony	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	2007-07-12	S	B	Edmonson	Mammoth Cave			051100010808 - Ugly Creek-Green River		
AMACC08020*271 12426	<i>Corynorhinus rafinesquii</i> Maternity colony	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	2008-06-19	S	C	Edmonson	Mammoth Cave			051100011301 - Echo River-Green River		
AMACC08020*293 12633	<i>Corynorhinus rafinesquii</i> Summer mist-net record	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	2007-08-08	S	E	Edmonson	Mammoth Cave			051100011301 - Echo River-Green River		
AMACC08020*294 12634	<i>Corynorhinus rafinesquii</i> Post-summer mist-net record	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	2007-08-07	S	E	Hart	Mammoth Cave			051100010808 - Ugly Creek-Green River		

Standard Occurrence Report

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AMACC01040*019 7987	<i>Myotis grisescens</i> Former maternity site?	Gray Myotis	G3	S2	T	LE		Y	1979-08-25	M	X	Edmonson	Mammoth Cave	██████	██████	051100011301 - Echo River-Green River	██████████	Primarily use caves throughout the year, although they move from one cave to another seasonally. Males and young of the year use different caves in summer than females. Smaller colonies also occasionally roost under bridge structures.
AMACC01040*121 11982	<i>Myotis grisescens</i> Summer mist-net record	Gray Myotis	G3	S2	T	LE		Y	2005-07-20	S	E	Barren	Glasgow North	██████	██████	051100020701 - Park City	Flint Knob, ██████████	
AMACC01040*122 11984	<i>Myotis grisescens</i> Summer mist-net record	Gray Myotis	G3	S2	T	LE		Y	2005-08-10	S	E	Barren	Park City	██████	██████	051100020702 - Little Sinking Creek	██████████	
AMACC01040*123 11986	<i>Myotis grisescens</i> Summer mist-net record	Gray Myotis	G3	S2	T	LE		Y	2005-08-09	S	E	Barren	Park City	██████	██████	051100020702 - Little Sinking Creek	██████████	
AMACC01100*203 12640	<i>Myotis sodalis</i> Summer mist-net record	Indiana Bat	G2	S1S2	E	LE		Y	2004-07-01	S	E	Edmonson	Mammoth Cave	██████	██████	051100010808 - Ugly Creek-Green River	██████████	
AMACC06010*002 10028	<i>Nycticeius humeralis</i> Summer collection record	Evening Bat	G5	S3	S			Y	1929-07-25	M	H	Edmonson	Mammoth Cave	██████	██████	051100011301 - Echo River-Green River	██████████	The evening bat is a colonial species that roosts in trees and houses. It apparently migrates southward in winter.
AMACC06010*012 958	<i>Nycticeius humeralis</i> Summer collection record	Evening Bat	G5	S3	S			Y	1934-07-14	M	H	Edmonson Barren	Mammoth Cave	██████	██████	051100011301 - Echo River-Green River	██████████	
AMACC06010*037 4392	<i>Nycticeius humeralis</i> Transient mist-net record	Evening Bat	G5	S3	S			Y	1998-09-12	S	E	Edmonson	Mammoth Cave	██████	██████	051100011301 - Echo River-Green River	██████████	

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AMACC06010*058 11985	<i>Nycticeius humeralis</i> Summer mist-net record	Evening Bat	G5	S3	S			Y	2005-08-03	S	E	Barren	Park City	[REDACTED]	[REDACTED]	051100020702 - Little Sinking Creek	[REDACTED]	
AMACC06010*059 11988	<i>Nycticeius humeralis</i> Summer mist-net record	Evening Bat	G5	S3	S			Y	2005-08-10	S	E	Barren	Park City	[REDACTED]	[REDACTED]	051100020702 - Little Sinking Creek	[REDACTED]	
AMACC06010*066 12440	<i>Nycticeius humeralis</i> Summer mist-net record	Evening Bat	G5	S3	S			Y	2006-06-15	S	E	Edmonson	Mammoth Cave	[REDACTED]	[REDACTED]	051100011301 - Echo River-Green River	[REDACTED]	
AMACC06010*068 12442	<i>Nycticeius humeralis</i> Summer mist-net record	Evening Bat	G5	S3	S			Y	2007-08-04	S	E	Edmonson	Mammoth Cave	[REDACTED]	[REDACTED]	051100011301 - Echo River-Green River	[REDACTED] Mammoth Cave National Park.	
AMACC06010*069 12443	<i>Nycticeius humeralis</i> Maternity area mist-net record	Evening Bat	G5	S3	S			Y	2007-08-05	S	E	Hart	Mammoth Cave	[REDACTED]	[REDACTED]	051100010808 - Ugly Creek-Green River	[REDACTED] Mammoth Cave National Park.	

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Extant in Kentucky

Mammals

AMACC08020*014 2949	<i>Corynorhinus rafinesquii</i> Hibernaculum	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	1988-01	S	F	Barren	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	This bat uses a variety of sites for roosting including caves, protected sites along clifflines, large, hollow trees, old mine portals, abandoned tunnels, cisterns, old or seldom used buildings, etc.
AMACC08020*017 7293	<i>Corynorhinus rafinesquii</i> Hibernaculum	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	1985-01-20	S	C	Edmonson	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	
AMACC08020*021 5951	<i>Corynorhinus rafinesquii</i> Summer roost site	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	2002-04-16	S	C	Edmonson	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	
AMACC08020*029 8341	<i>Corynorhinus rafinesquii</i> Hibernaculum	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	1983-01	S	C	Edmonson	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	

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Standard Occurrence Report
 KSNPC avian and mammalian species within 10 miles of the 8.4 mile KY 90 corridor planning study buffer zone in Barren County, Kentucky

EOCODE EIOD	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USESA	OTHER STATUS	IDENT	LASTOBS	PREC	EORANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
AMACC08020*030 8342	<i>Corynorhinus rafinesquii</i> Hibernaculum	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	2005-01-26	S	D	Edmonson						This bat uses a variety of sites for roosting including caves, protected sites along clifflines, large, hollow trees, old mine portals, abandoned tunnels, cisterns, old or seldom used buildings, etc.
AMACC08020*047 1182	<i>Corynorhinus rafinesquii</i> Roost site	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	2003-04-15	S	C	Hart						
AMACC08020*048 8162	<i>Corynorhinus rafinesquii</i> Roost site	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	1960-01	M	H	Edmonson						
AMACC08020*076 12	<i>Corynorhinus rafinesquii</i> Summer roost site	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	1984-06	S	C	Barren						
AMACC08020*077 10249	<i>Corynorhinus rafinesquii</i> Roost site	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	1983-05	S	C	Edmonson						
AMACC08020*182 6561	<i>Corynorhinus rafinesquii</i> Hibernaculum	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	1991-12-27	S	C	Edmonson						
AMACC08020*202 1562	<i>Corynorhinus rafinesquii</i> Year-round roost site; maternity site	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	2003-01-17	S	B	Edmonson						
AMACC08020*210 2126	<i>Corynorhinus rafinesquii</i> Maternity site	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	1995-07-08	S	C	Edmonson						
AMACC08020*231 7976	<i>Corynorhinus rafinesquii</i> Maternity area record	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	1999-09-10	S	E	Edmonson						
AMACC08020*250 11546	<i>Corynorhinus rafinesquii</i> Hibernaculum	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	2006-02-07	S	CD	Edmonson						
AMACC08020*251 11547	<i>Corynorhinus rafinesquii</i> Hibernaculum	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	2006-02-06	M	D	Hart						
AMACC08020*253 11672	<i>Corynorhinus rafinesquii</i> Hibernaculum; year-round roost site?	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	2008-02-15	S	A	Edmonson						

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EOCODE EOID	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USESA	OTHER STATUS	IDENT	LASTOBS	PREC	EO RANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
AMACC08020*260 12408	<i>Corynorhinus rafinesquii</i> Hibernaculum	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	2007-05-01	S	E	Edmonson						
AMACC08020*263 12416	<i>Corynorhinus rafinesquii</i> Maternity site	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	1987-07-21	S	AB	Edmonson						
AMACC08020*266 12419	<i>Corynorhinus rafinesquii</i> Maternity site	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	2007	S	E	Edmonson						
AMACC08020*296 13458	<i>Corynorhinus rafinesquii</i> Hibernaculum	Rafinesque's Big-eared Bat	G3G4	S3	S	SOMC		Y	2010-02-04	S	B	Edmonson						
AMACC01030*001 5989	<i>Myotis austroriparius</i> Hibernaculum?	Southeastern Myotis	G3G4	S1S2	E	SOMC		Y	1982-02-16	S	D	Edmonson						Primarily uses caves for hibernacula and uses caves, bridges, and hollow trees as summer maternity and roosting sites.
AMACC01030*004 4691	<i>Myotis austroriparius</i> Hibernaculum	Southeastern Myotis	G3G4	S1S2	E	SOMC		Y	1985-01-21	S	C	Edmonson						
AMACC01040*001 7957	<i>Myotis grisescens</i> Hibernaculum; former maternity site?	Gray Myotis	G3	S2	T	LE		Y	2009-02-05	S	C	Edmonson						Primarily use caves throughout the year, although they move from one cave to another seasonally. Males and young of the year use different caves in summer than females. Smaller colonies also occasionally roost under bridge structures.
AMACC01040*016 6166	<i>Myotis grisescens</i> Hibernaculum	Gray Myotis	G3	S2	T	LE		Y	2009-02-19	S	A	Edmonson						
AMACC01040*017 8717	<i>Myotis grisescens</i> Hibernaculum	Gray Myotis	G3	S2	T	LE		Y	2009-02-19	S	A	Edmonson						
AMACC01040*018 2151	<i>Myotis grisescens</i> Hibernaculum; former maternity site?	Gray Myotis	G3	S2	T	LE		Y	2007-01-24	S	C	Edmonson						

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EOCODE EOID	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USESA	OTHER STATUS	IDENT	LASTOBS	PREC	EOURANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
AMACC01040*024 5849	<i>Myotis grisescens</i> Former maternity site?	Gray Myotis	G3	S2	T	LE	Y	1977	S	H	Edmonson						SENSITIVE ELEMENT- CONTACT KSNPC	Primarily use caves throughout the year, although they move from one cave to another seasonally. Males and young of the year use different caves in summer than females. Smaller colonies also occasionally roost under bridge structures.
AMACC01040*039 10427	<i>Myotis grisescens</i> Transient roost site?	Gray Myotis	G3	S2	T	LE	Y	1985-03-20	M	E	Barren Edmonson							
AMACC01040*049 246	<i>Myotis grisescens</i> Maternity site	Gray Myotis	G3	S2	T	LE	Y	2009-06-08	S	C	Barren							
AMACC01040*053 1739	<i>Myotis grisescens</i> Hibernaculum	Gray Myotis	G3	S2	T	LE	Y	2005-02-03	S	D	Edmonson							
AMACC01040*057 3592	<i>Myotis grisescens</i> Former maternity site?	Gray Myotis	G3	S2	T	LE	Y	1977	S	H	Edmonson							
AMACC01040*058 7029	<i>Myotis grisescens</i> Former roost site	Gray Myotis	G3	S2	T	LE	Y	1985-03	S	H	Barren							
AMACC01040*078 4678	<i>Myotis grisescens</i> Transient roost site?	Gray Myotis	G3	S2	T	LE	Y	2004-02-25	S	C	Edmonson							
AMACC01040*088 6209	<i>Myotis grisescens</i> Hibernaculum	Gray Myotis	G3	S2	T	LE	Y	2009-02-18	S	D	Hart							

Standard Occurrence Report

KSNPC avian and mammalian species within 10 miles of the 8 4 mile KY 90 corridor planning study buffer zone in Barren County, Kentucky

EOCODE EOID	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USES	OTHER STATUS	IDENT	LASTOBS	PREC	EOURANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
AMACC01130*001 796	<i>Myotis leibii</i> Post-summer mist-net record; hibernaculum?	Eastern Small-footed Myotis	G1G3	S2	T	SOMC		Y	2004-07-16	S	E	Edmonson						These bats use a wide variety of habitats for roosting. They occur in caves, mines, protected sites along clifflines, abandoned buildings, and are occasionally found roosting under rocks on the ground or on the floors of caves. Summer habitat is currently unknown, but may be similar sites.
AMACC01130*005 3988	<i>Myotis leibii</i> Post-summer roost site	Eastern Small-footed Myotis	G1G3	S2	T	SOMC		Y	2005-09-26	S	E	Edmonson						
AMACC01130*009 5718	<i>Myotis leibii</i> Transient roost site; hibernaculum?	Eastern Small-footed Myotis	G1G3	S2	T	SOMC		Y	2005-07-27	S	E	Edmonson						
AMACC01130*010 5719	<i>Myotis leibii</i> Transient roost site; hibernaculum?	Eastern Small-footed Myotis	G1G3	S2	T	SOMC		Y	2005-07-28	S	E	Edmonson						
AMACC01150*051 13741	<i>Myotis septentrionalis</i> hibernaculum	Northern Long-Eared Bat	G2G3	S3	E	LT		Y	1980	S	C	Edmonson						
AMACC01100*005 2917	<i>Myotis sodalis</i> Hibernaculum; maternity area	Indiana Bat	G2	S1S2	E	LE		Y	2007-05-01	S	C	Edmonson						Primarily use caves for hibernacula, although they are occasionally found in old mine portals. During summer, colonies are found behind slabs of exfoliating bark of dead trees, often in bottomland or floodplain habitats, but also in upland situations.
AMACC01100*006 7604	<i>Myotis sodalis</i> Hibernaculum; maternity area	Indiana Bat	G2	S1S2	E	LE		Y	2009-02-05	S	B	Edmonson						
AMACC01100*012 3990	<i>Myotis sodalis</i> Hibernaculum	Indiana Bat	G2	S1S2	E	LE		Y	2009-02-10	S	C	Edmonson						

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EOCODE EOID	SNAME EO Type	SCOMNAME	GRANK	SRANK	SPROT	USES	OTHER STATUS	IDENT	LASTOBS	PREC	EO RANK	COUNTY	7.5 MINUTE QUADRANGLE	LAT	LONG	EPA WATERBODY	DIRECTIONS	HABITAT
AMACC01100*013 8203	<i>Myotis sodalis</i> Former hibernaculum	Indiana Bat	G2	S1S2	E	LE		Y	1935	S	X	Edmonson						Primarily use caves for hibernacula, although they are occasionally found in old mine portals. During summer, colonies are found behind slabs of exfoliating bark of dead trees, often in bottomland or floodplain habitats, but also in upland situations.
AMACC01100*015 9648	<i>Myotis sodalis</i> Hibernaculum	Indiana Bat	G2	S1S2	E	LE		Y	1997-01-29	S	F	Edmonson						
AMACC01100*016 2432	<i>Myotis sodalis</i> Hibernaculum	Indiana Bat	G2	S1S2	E	LE		Y	2007-01-25	S	D	Edmonson						
AMACC01100*027 8510	<i>Myotis sodalis</i> Hibernaculum	Indiana Bat	G2	S1S2	E	LE		Y	2009-02-18	S	C	Hart						
AMACC01100*046 5367	<i>Myotis sodalis</i> Hibernaculum	Indiana Bat	G2	S1S2	E	LE		Y	2006-02-04	S	C	Hart						
AMACC01100*068 7184	<i>Myotis sodalis</i> Hibernaculum	Indiana Bat	G2	S1S2	E	LE		Y	1988-01	S	F	Barren						
AMACC01100*120 9947	<i>Myotis sodalis</i> Hibernaculum	Indiana Bat	G2	S1S2	E	LE		Y	2004-02-25	S	CD	Edmonson						
AMACC01100*176 11496	<i>Myotis sodalis</i> Maternity area mist-net record; maternity site	Indiana Bat	G2	S1S2	E	LE		Y	2007-08-04	S	E	Edmonson						
AMACC01100*183 11674	<i>Myotis sodalis</i> Hibernaculum	Indiana Bat	G2	S1S2	E	LE		Y	2006-02-01	S	D	Edmonson						
AMACC01100*198 12404	<i>Myotis sodalis</i> Summer mist-net record; roost site	Indiana Bat	G2	S1S2	E	LE		Y	2008-05-22	S	E	Hart						

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AMACC06010*003 2772	<i>Nycticeius humeralis</i> Transient mist-net record	Evening Bat	G5	S3	S			Y	1974-pre	S	H	Edmonson						The evening bat is a colonial species that roosts in trees and houses. It apparently migrates southward in winter.

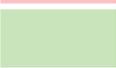
ATTACHMENT 2

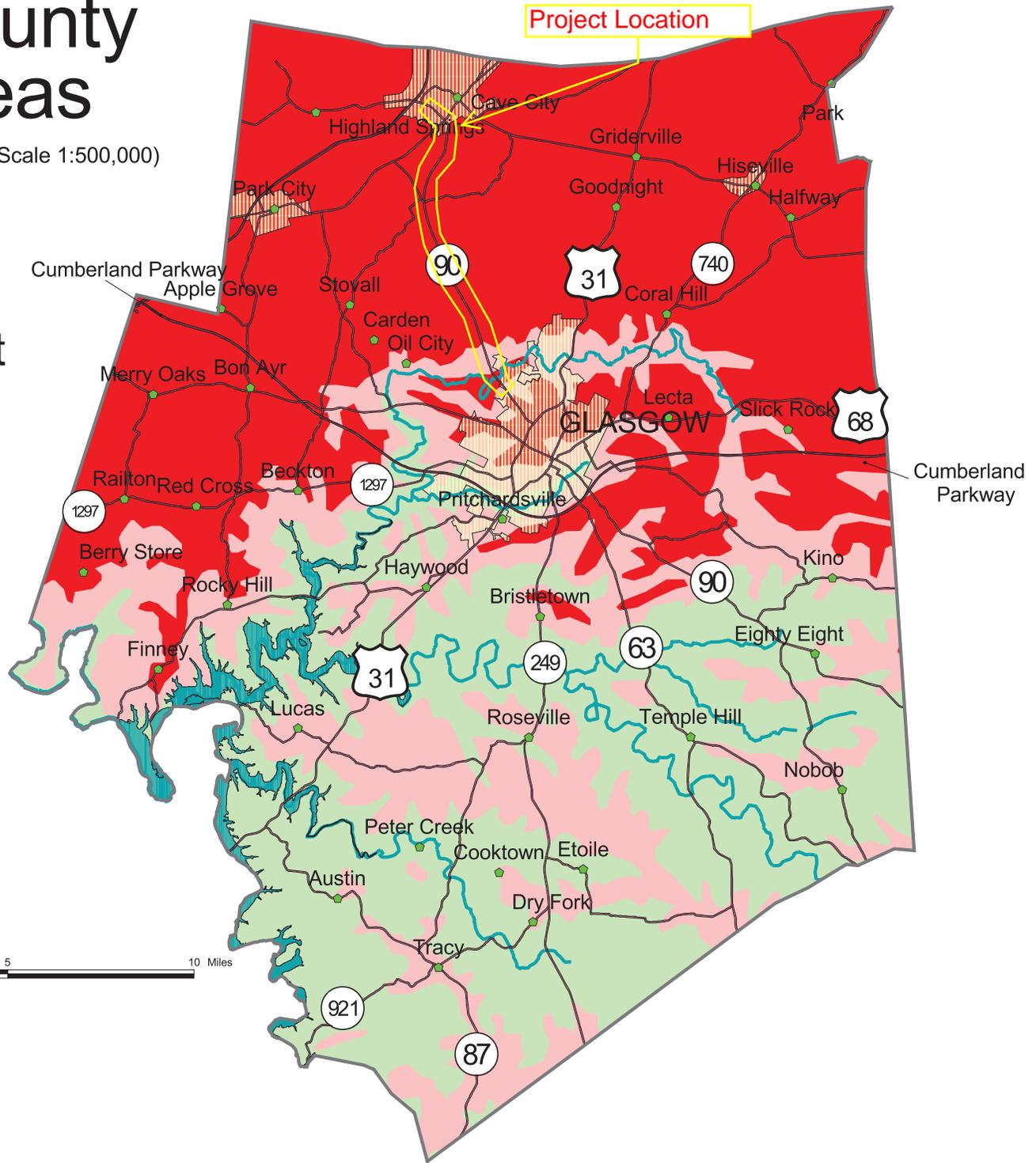
KARST

- Barren County Karst Areas Map
- KSS Cave Data Request Response (redacted)
- KDOW Resources Reference Map for Study Area

Barren County Karst Areas

(Source: Geologic Map of Kentucky, Scale 1:500,000)

-  Intense Karst
-  Karst Prone
-  Non-karst

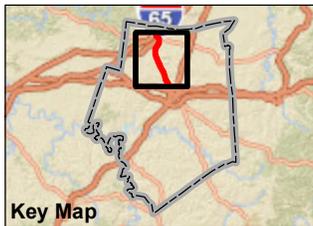
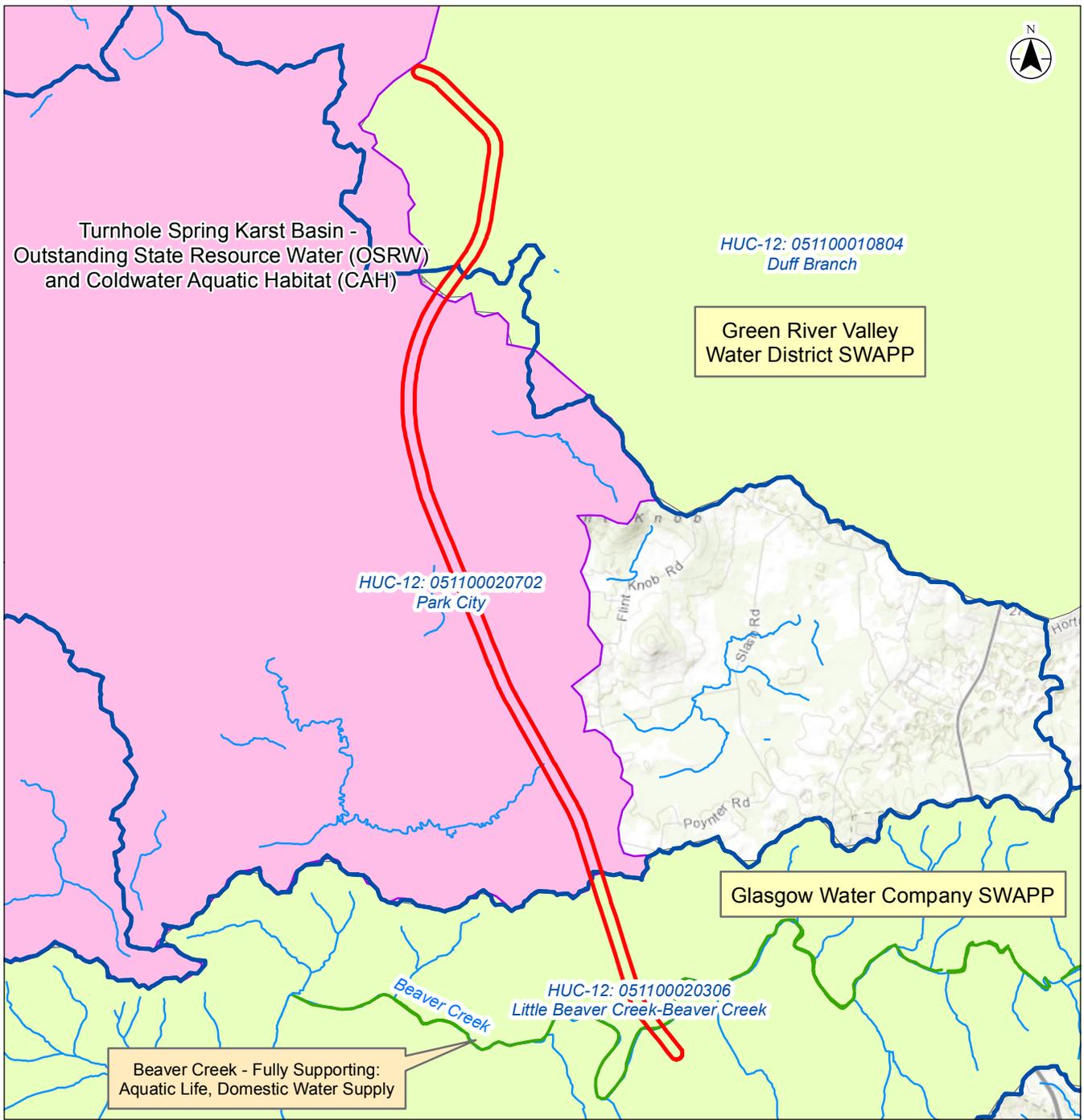


KSS_ID	CAVE NAME	X (Dec_Lon)	Y (Dec_Lat)	COUNTY	7.5 minute quadrangle	Duplicate ID Number	Alternate Name
8	L & N Cave			BARREN			Same as Cave City Cave ????
11	GERALDS CAVE			BARREN	PARK CITY		
58	HUCKLEBERRY KNOB CAVE, Otr# 18			BARREN	TRACY		
59	ONYX CAVE, 211			BARREN	HORSE CAVE		
74	CAVE A			BARREN	GLASGOW NORTH		
114	POWER POLE PIT			BARREN	GLASGOW NORTH		
140	ROOKIE DROP			BARREN	GLASGOW NORTH		
157	CRYSTAL ONYX CAVE			BARREN	GLASGOW NORTH		
162	CAVE			BARREN	LUCAS		
212	CAVE CITY CAVE			BARREN	PARK CITY	Was # 0005-0008	Same as L & N ????

DISCLAIMER:

The coordinate locations of caves provided by the KSS are not warranted but are thought generally correct. The locations provided may not exhaustively locate every cave entrance in the requested search area, but are only those recorded in the Kentucky Speleological Survey files. A minimum search fee of \$50.00, and an additional fee of \$10.00 for each location provided, partly defrays the cost of providing this service.

The KSS is a private non-profit and is not under the management of the University of Kentucky or the Kentucky Geological Survey. Location data provided by KSS should not become public domain, that is copies of the cave locations should not be widely distributed.



- Legend**
- Study Area
 - HUC-12 Boundary (USGS)
 - Special Use Waterbody/Basin
 - SWAPP
 - Streams (NHD)
 - **Designated Stream (305b)**
 - Fully Supporting



Project Location: KY 90, Barren County, Kentucky
 178554021
 Prepared by BL on 2016-02-17

Client/Project: KYTC District 3
 Environmental Overview
 KY 90 Scoping Study, KYTC Item # 3-8819.00

Figure No.: **Attachment 2**

KDOW Resources Reference Map for Study Area

Notes

- Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
- Base features: KDOW 2008, 2012a, 2013, 2016a and 2016b, USGS 2004a and 2004b.
- Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Sources: Esri, DeLorme, HERE, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community

ATTACHMENT 3

HAZARDOUS MATERIALS CONCERNS

- EDR Radius Atlas™ Report Summary
- Table 2: KY 90 Hazmat Sites Identified by EDR
- Table 3: KY 90 UST Sites

KY 90 Environmental Overview

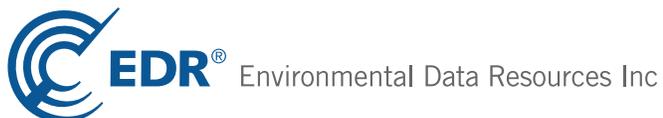
KY 90 Environmental Overview

Cave City, KY 42127

Inquiry Number: 4509942.2s

January 11, 2016

The EDR Radius Atlas™ with GeoCheck®



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

KY 90 ENVIRONMENTAL OVERVIEW
CAVE CITY, KY 42127

COORDINATES

Latitude (North): 37.0901000 - 37° 5' 24.36"
Longitude (West): 85.9724000 - 85° 58' 20.64"
Universal Transverse Mercator: Zone 16
UTM X (Meters): 591327.4
UTM Y (Meters): 4105158.0
Elevation: 683 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 5940085 GLASGOW NORTH, KY
Version Date: 2013

North Map: 5939801 HORSE CAVE, KY
Version Date: 2013

West Map: 5940319 PARK CITY, KY
Version Date: 2013

Northwest Map: 5940313 MAMMOTH CAVE, KY
Version Date: 2013

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List

EXECUTIVE SUMMARY

Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY..... Federal Facility Site Information listing
CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators

Federal institutional controls / engineering controls registries

LUCIS..... Land Use Control Information System
US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROL..... Sites with Institutional Controls

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Solid Waste Facilities List

State and tribal leaking storage tank lists

PSTEAF..... Facility Ranking List
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land
SB193..... SB193 Branch Site Inventory List

State and tribal registered storage tank lists

FEMA UST..... Underground Storage Tank Listing
INDIAN UST..... Underground Storage Tanks on Indian Land

State and tribal institutional control / engineering control registries

ENG CONTROLS..... Engineering Controls Site Listing
INST CONTROL..... State Superfund Database

State and tribal voluntary cleanup sites

INDIAN VCP..... Voluntary Cleanup Priority Listing

EXECUTIVE SUMMARY

VCP..... Voluntary Cleanup Program Sites

State and tribal Brownfields sites

BROWNFIELDS..... Kentucky Brownfield Inventory

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

HIST LF..... Historical Landfills

SWRCY..... Recycling Facilities

INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

ODI..... Open Dump Inventory

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations

Local Land Records

LIENS 2..... CERCLA Lien Information

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System

Other Ascertainable Records

FUDS..... Formerly Used Defense Sites

DOD..... Department of Defense Sites

SCRD DRYCLEANERS..... State Coalition for Remediation of Drycleaners Listing

US FIN ASSUR..... Financial Assurance Information

EPA WATCH LIST..... EPA WATCH LIST

2020 COR ACTION..... 2020 Corrective Action Program List

TSCA..... Toxic Substances Control Act

TRIS..... Toxic Chemical Release Inventory System

SSTS..... Section 7 Tracking Systems

ROD..... Records Of Decision

RMP..... Risk Management Plans

RAATS..... RCRA Administrative Action Tracking System

PRP..... Potentially Responsible Parties

PADS..... PCB Activity Database System

FTTS..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

MLTS..... Material Licensing Tracking System

COAL ASH DOE..... Steam-Electric Plant Operation Data

COAL ASH EPA..... Coal Combustion Residues Surface Impoundments List

PCB TRANSFORMER..... PCB Transformer Registration Database

RADINFO..... Radiation Information Database

HIST FTTS..... FIFRA/TSCA Tracking System Administrative Case Listing

DOT OPS..... Incident and Accident Data

CONSENT..... Superfund (CERCLA) Consent Decrees

EXECUTIVE SUMMARY

INDIAN RESERV.	Indian Reservations
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
COAL ASH	Coal Ash Disposal Sites
DRYCLEANERS	Drycleaner Listing
LEAD	Environmental Lead Program Report Tracking Database
UIC	UIC Information

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR Hist Cleaner	EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS	Recovered Government Archive State Hazardous Waste Facilities List
RGA LF	Recovered Government Archive Solid Waste Facilities List

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-CESQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

A review of the RCRA-CESQG list, as provided by EDR, and dated 06/09/2015 has revealed that there is 1 RCRA-CESQG site within approximately 3.125 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>DOLLAR GENERAL STORE</i>	<i>299 HAPPY VALLEY ST</i>	<i>N >2 (2.783 mi.)</i>	<i>66</i>	<i>87</i>

EXECUTIVE SUMMARY

Federal ERNS list

ERNS: The Emergency Response Notification System records and stores information on reported releases of oil and hazardous substances. The source of this database is the U.S. EPA.

A review of the ERNS list, as provided by EDR, and dated 06/22/2015 has revealed that there is 1 ERNS site within approximately 3.125 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
Not reported	826 OLD HAPPY VALLEY	NNW 1 - 2 (1.233 mi.)	6	33

State- and tribal - equivalent CERCLIS

SHWS: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Environmental Protection's Uncontrolled Site Branch List.

A review of the SHWS list, as provided by EDR, and dated 09/18/2015 has revealed that there are 3 SHWS sites within approximately 3.125 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
LILE TRUCKING DIESEL Facility Id: 52536 Facility Status: Closed	HWY 68	NNE 1 - 2 (1.727 mi.)	A10	34
HEERS PROPERTY Facility Id: 110142 Facility Status: Closed	104 C JULIAN LANE	NNE >2 (2.106 mi.)	27	49
<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
ROLCO MANUFACTURING Facility Id: 53153 Facility Status: Closed	HWY 31W	NNE >2 (2.837 mi.)	K71	96

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Environmental Protection's Owner/Facility Report of All Tanks Regardless of Status list.

A review of the UST list, as provided by EDR, and dated 08/06/2015 has revealed that there are 12 UST sites within approximately 3.125 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
J F PACE QUARRY Tank Status: TRM	KY 90	SE >2 (2.047 mi.)	19	40

EXECUTIVE SUMMARY

Facility Id: 65954				
SCOTTYS CONTRACTING Tank Status: TAC Facility Id: 44735	1762 FLINT KNOB RD	SE >2 (2.053 mi.)	C22	44
BOBBY MONROE BEEF FA Tank Status: TRM Facility Id: 9251	THORNY RIDGE	WNW >2 (2.709 mi.)	54	78
FIVESTAR 2215 Tank Status: TAC Tank Status: TRM Facility Id: 57188	1004 DOYLE AVE	N >2 (3.057 mi.)	N86	113
<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
COUNTRY CORNER MARKE Tank Status: TRM Facility Id: 65700	JCT OF US 31W & KY 9	NNE >2 (2.614 mi.)	50	71
CAVE CITY SPUR Tank Status: TR8 Facility Id: 69395	31 W	NNE >2 (2.659 mi.)	53	74
FORMER PMO MOTORS OF Tank Status: TCP Tank Status: TRM Facility Id: 125142	302 E HAPPY VALLEY S	N >2 (2.750 mi.)	H59	81
CAVE CITY TRUCKSTOP Tank Status: TRM Facility Id: 67375	1001 GARDENER LN	N >2 (2.933 mi.)	76	100
CAVE CITY Tank Status: TTC Facility Id: 57145 Closed In Place Date: 12/31/2012	1001 GARDNER LN	N >2 (2.969 mi.)	78	103
POYNTERS CHEVRON Tank Status: TR8 Facility Id: 64273	KY 90 & I65	N >2 (3.000 mi.)	79	105
TERI'S STOP N GO Tank Status: TTC Facility Id: 57500 Closed In Place Date: 01/31/2006	409 S DIXIE HWY	NNE >2 (3.016 mi.)	82	110
UPTON QUICK STOP Tank Status: TRM Tank Status: TAC Facility Id: 57161	1001 DOYLE AVE	N >2 (3.066 mi.)	N90	120

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

EXECUTIVE SUMMARY

US HIST CDL: A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

A review of the US HIST CDL list, as provided by EDR, and dated 08/12/2015 has revealed that there is 1 US HIST CDL site within approximately 3.125 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
9187 W HAPPY VALLEY	9187 W HAPPY VALLEY	NNE 1 - 2 (1.633 mi.)	8	34

CDL: Clandestine drug lab site locations.

A review of the CDL list, as provided by EDR, and dated 09/18/2015 has revealed that there is 1 CDL site within approximately 3.125 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
HEERS PROPERTY Closure Date: 12/09/2010 Site Status: Closed Agency Interest Id Number: 110142	104 C JULIAN LANE	NNE >2 (2.106 mi.)	27	49

US CDL: A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

A review of the US CDL list, as provided by EDR, and dated 08/12/2015 has revealed that there is 1 US CDL site within approximately 3.125 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
441 LEE FENDEL ROAD	441 LEE FENDEL ROAD	S 1 - 2 (1.109 mi.)	5	33

Records of Emergency Release Reports

SPILLS: A listing of spill and/or release related incidents.

A review of the SPILLS list, as provided by EDR, and dated 08/10/2015 has revealed that there are 28 SPILLS sites within approximately 3.125 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
Not reported Facility Status: Env. Closed		SSE 1/4 - 1/2 (0.406 mi.)	1	31

EXECUTIVE SUMMARY

Inc ID: 2340944			
Not reported	NNW 1 - 2 (1.009 mi.)	4	32
Facility Status: Env. Closed			
Inc ID: 186319			
Not reported	SW 1 - 2 (1.326 mi.)	7	33
Facility Status: Env. Closed			
Inc ID: 2259336			
Not reported	NNW 1 - 2 (1.772 mi.)	14	37
Facility Status: Env. Closed			
Inc ID: 180008			
Not reported	NNW 1 - 2 (1.780 mi.)	15	37
Facility Status: Env. Closed			
Inc ID: 2284495			
Not reported	ENE 1 - 2 (1.987 mi.)	16	38
Facility Status: Env. Closed			
Inc ID: 175544			
Not reported	SW 1 - 2 (1.991 mi.)	17	39
Facility Status: Forwarded to Outside Agency			
Inc ID: 2253707			
Not reported	SSW >2 (2.015 mi.)	18	39
Facility Status: Env. Closed			
Inc ID: 195806			
Not reported	SE >2 (2.080 mi.)	D25	48
Facility Status: Env. Closed			
Inc ID: 2264930			
Not reported	SE >2 (2.080 mi.)	D26	48
Facility Status: Env. Closed			
Inc ID: 2260069			
Not reported	ESE >2 (2.188 mi.)	29	50
Facility Status: Env. Closed			
Inc ID: 193001			
Not reported	NNW >2 (2.253 mi.)	32	52
Facility Status: Env. Closed			
Inc ID: 2259469			
Not reported	WNW >2 (2.547 mi.)	49	71
Facility Status: Env. Closed			
Inc ID: 2265201			
Not reported	NNW >2 (2.616 mi.)	51	73
Facility Status: Env. Closed			
Inc ID: 191385			
Not reported	NW >2 (2.719 mi.)	55	79
Facility Status: Env. Closed			
Inc ID: 2255408			
Not reported	NW >2 (2.756 mi.)	161	84
Facility Status: Env. Closed			
Inc ID: 191197			
Not reported	NNW >2 (2.809 mi.)	69	95
Facility Status: Env. Closed			
Inc ID: 2359672			
Not reported	N >2 (3.092 mi.)	95	127

EXECUTIVE SUMMARY

Facility Status: Env. Closed
Inc ID: 2351389

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
Not reported Facility Status: Env. Closed Inc ID: 2338135		NNE >2 (2.177 mi.)	28	50
Not reported Facility Status: Env. Closed Inc ID: 2278105		NNW >2 (2.220 mi.)	31	52
Not reported Facility Status: Env. Closed Inc ID: 2274830		NNE >2 (2.539 mi.)	48	70
Not reported Facility Status: Env. Closed Inc ID: 199855		NNE >2 (2.741 mi.)	58	81
Not reported Facility Status: Env. Closed Inc ID: 2251951		NNE >2 (2.766 mi.)	64	86
Not reported Facility Status: Response/Investigate Inc ID: 2360020		NNW >2 (2.838 mi.)	72	96
Not reported Facility Status: Env. Closed Inc ID: 2261698		N >2 (3.005 mi.)	80	109
Not reported Facility Status: Env. Closed Inc ID: 2274401		N >2 (3.013 mi.)	L81	109
Not reported Facility Status: Env. Closed Inc ID: 2342828		N >2 (3.053 mi.)	M85	112
Not reported Facility Status: Env. Closed Inc ID: 191375		N >2 (3.061 mi.)	M87	119

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 06/09/2015 has revealed that there are 3 RCRA NonGen / NLR sites within approximately 3.125 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
SUNOCO SERVICE STATI	I-65 & KY HWYS 90 &	N >2 (3.078 mi.)	N94	126
<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
MOONSHINE BOAT TRAIL	15 WALL ST	N >2 (2.790 mi.)	J68	90

EXECUTIVE SUMMARY

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
CHEVRON USA PRODUCTS	I-64 & HWY 70	N >2 (3.075 mi.)	N92	124

ICIS: The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

A review of the ICIS list, as provided by EDR, and dated 01/23/2015 has revealed that there is 1 ICIS site within approximately 3.125 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
BARREN COUNTY PLT	1140 FLINT KNOB RD	SE >2 (2.392 mi.)	E36	57

US MINES: Mines Master Index File. The source of this database is the Dept. of Labor, Mine Safety and Health Administration.

A review of the US MINES list, as provided by EDR, and dated 08/18/2015 has revealed that there is 1 US MINES site within approximately 3.125 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
GLASS AGGREGATES		SE >2 (2.477 mi.)	45	63

FINDS: The Facility Index System contains both facility information and "pointers" to other sources of information that contain more detail. These include: RCRIS; Permit Compliance System (PCS); Aerometric Information Retrieval System (AIRS); FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]; CERCLIS; DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes); Federal Underground Injection Control (FURS); Federal Reporting Data System (FRDS); Surface Impoundments (SIA); TSCA Chemicals in Commerce Information System (CICS); PADS; RCRA-J (medical waste transporters/disposers); TRIS; and TSCA. The source of this database is the U.S. EPA/NTIS.

A review of the FINDS list, as provided by EDR, and dated 07/20/2015 has revealed that there are 28 FINDS sites within approximately 3.125 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
BUNNELL BEEF FARM 2	8171 HAPPY VALLEY RD	N 1/2 - 1 (0.757 mi.)	2	31
LILE TRUCKING DIESEL	KY 90 (RIGHT SIDE)	NNE 1 - 2 (1.726 mi.)	A9	34
CAVELAND WOOD PRODUC	9376 HAPPY VALLEY RD	NNE 1 - 2 (1.754 mi.)	B12	36
HENNION DAIRY FARM	28405 LOUISVILLE RD	NNW 1 - 2 (1.756 mi.)	13	36
SCOTTYS CONTRACTING	1762 FLINT KNOB RD	SE >2 (2.053 mi.)	C23	46
SCOTTYS CONTRACTING	1140 FLINT KNOB ROAD	SE >2 (2.392 mi.)	E35	56
BARREN COUNTY PLT	1140 FLINT KNOB RD	SE >2 (2.392 mi.)	E36	57
GLASS AGGREGATES LLC	1140 FLINT KNOB RD	SE >2 (2.392 mi.)	E38	59
LARRY GLASS CONST CO	1762 FLINT KNOB RD	SE >2 (2.406 mi.)	E40	61
LARRY GLASS CONST CO	1762 FLINT KNOB RD	SE >2 (2.406 mi.)	E41	61
JEFF SCOTT	NONE	SW >2 (2.524 mi.)	47	70
HERBERT TURNER ROAD	HERBERT TURNER RD	NW >2 (2.756 mi.)	I60	83
CLAUDE RAY	NONE	SW >2 (3.023 mi.)	83	112
<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
BRIAN TURNER BEEF FA	OLD KY 90	NNW 1 - 2 (1.007 mi.)	3	32

EXECUTIVE SUMMARY

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
PIER NINETEEN WHOLES	506 E HAPPY VALLEY S	NNE >2 (2.426 mi.)	42	62
FREDS DISCOUNT STORE	502 E HAPPY VALLEY S	NNE >2 (2.453 mi.)	F43	62
CAVE CITY DOLLAR GEN	305 HAPPY VALLEY STR	N >2 (2.730 mi.)	G57	80
TEKNO INC	1 WALL STREET	N >2 (2.759 mi.)	H62	84
MAMMOTH RESOURCES PA	ONE WALL ST BUILDING	N >2 (2.767 mi.)	65	87
DOLLAR GENERAL STORE	299 HAPPY VALLEY ST	N >2 (2.783 mi.)	66	87
MOONSHINE BOAT TRAIL	15 WALL STREET AND M	N >2 (2.790 mi.)	J67	89
ROLCO MANUFACTURING	US 31 W	NNE >2 (2.837 mi.)	K70	95
CAVELAND ENVIRONMENT	508 S DIXIE HWY	NNE >2 (2.846 mi.)	K75	99
KWIK MART	1001 GARDNER LN	N >2 (2.962 mi.)	77	103
PARKHAVEN RENTALS	115 WALL ST	N >2 (3.029 mi.)	L84	112
TERI S STOP N GO	409 S DIXIE HWY	NNE >2 (3.063 mi.)	88	120
HIGDONS SERVICE CENT	1001 DOYLE AVE	N >2 (3.066 mi.)	N91	124
HIGHLAND GLEN INDUST	JCT OF KY 68 & US 80	NNE >2 (3.099 mi.)	96	127

AIRS: A listing of permitted Airs facilities.

A review of the AIRS list, as provided by EDR, and dated 09/04/2015 has revealed that there are 4 AIRS sites within approximately 3.125 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
SCOTTYS CONTRACTING Facility Id: 2100900086 Facility Id: 2100900101	1762 FLINT KNOB RD	SE >2 (2.053 mi.)	C20	41
GLASS AGGREGATES LLC Facility Id: 2100909058 Facility Id: 2100900096	1140 FLINT KNOB RD	SE >2 (2.392 mi.)	E33	53

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
TEKNO INC Facility Id: 2100900075	1 WALL ST	N >2 (2.759 mi.)	H63	85
MOONSHINE BOAT TRAIL Facility Id: 2100900074	15 WALL ST	N >2 (2.790 mi.)	J68	90

Financial Assurance: A listing of financial assurance information.

A review of the Financial Assurance list, as provided by EDR, and dated 08/24/2015 has revealed that there is 1 Financial Assurance site within approximately 3.125 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
CHEVRON USA PRODUCTS AI: 64707	KY HWY 70 & 90	N >2 (3.075 mi.)	N93	125

EXECUTIVE SUMMARY

NPDES: A listing of permitted wastewater facilities.

A review of the NPDES list, as provided by EDR, and dated 09/02/2015 has revealed that there are 14 NPDES sites within approximately 3.125 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
CAVELAND WOOD PRODUC Facility Status: Effective KY DES #: KYR003951	9376 HAPPY VALLEY RD	NNE 1 - 2 (1.754 mi.)	B11	35
SCOTTYS CONTRACTING Facility Status: Terminated KY DES #: KYR003323	1762 FLINT KNOB RD	SE >2 (2.053 mi.)	C21	42
SCOTTYS CONTRACTING Facility Status: Effective KY DES #: KYG110036	1762 FLINT KNOB RD	SE >2 (2.053 mi.)	C24	46
GLENWOOD INC Facility Status: INACTIVE KY DES #: KYR10E149	9451 HAPPY VALLEY RD	N >2 (2.206 mi.)	30	51
GLASS AGGREGATES LLC Facility Status: ACTIVE KY DES #: KYG840003	1140 FLINT KNOB RD	SE >2 (2.392 mi.)	E33	53
GLASS AGGREGATES LLC Facility Status: Effective KY DES #: KYG840339	1140 FLINT KNOB RD	SE >2 (2.392 mi.)	E34	55
SCOTTYS CONTRACTING Facility Status: Terminated KY DES #: KYR003322	1140 FLINT KNOB RD	SE >2 (2.392 mi.)	E37	58
SCOTTYS CONTRACTING Facility Status: Effective KY DES #: KYG110035	1140 FLINT KNOB RD	SE >2 (2.392 mi.)	E39	60
I 65 IN BARREN CO KY Facility Status: Effective KY DES #: KY0109835	I 65 IN BARREN COUNT	NW >2 (2.657 mi.)	52	74
<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
FREDS DISCOUNT STORE Facility Status: ACTIVE KY DES #: KYR10E254	502 E HAPPY VALLEY S	NNE >2 (2.453 mi.)	F44	62
CAVE CITY DOLLAR GEN Facility Status: ACTIVE KY DES #: KYR10F077	305 HAPPY VALLEY STR	N >2 (2.730 mi.)	G56	80
TEKNO INC Facility Status: INACTIVE KY DES #: KYR001869	1 WALL ST	N >2 (2.759 mi.)	H63	85
CAVELAND ENVIRONMENT Facility Status: ACTIVE KY DES #: KY0091561	508 S DIXIE HWY	NNE >2 (2.846 mi.)	K73	97
CAVE CITY WATER IMPR Facility Status: Expired KY DES #: KYR10I061	508 S DIXIE HWY	NNE >2 (2.846 mi.)	K74	98

EXECUTIVE SUMMARY

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR Hist Auto: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Auto list, as provided by EDR, has revealed that there are 2 EDR Hist Auto sites within approximately 3.125 miles of the target property.

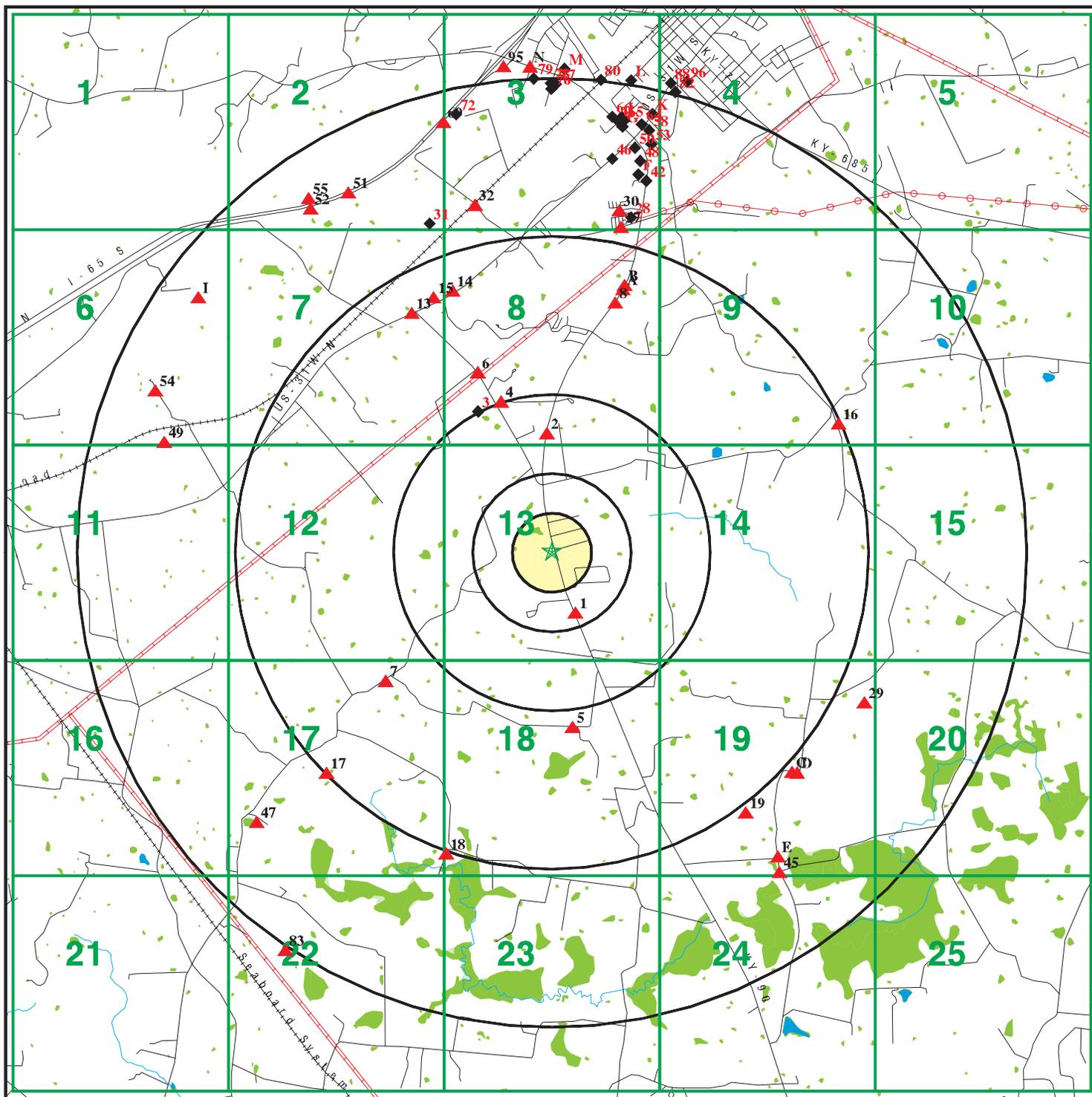
<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
Not reported	1207 S DIXIE HWY	N >2 (2.520 mi.)	46	69
Not reported	1001 DOYLE AVE	N >2 (3.066 mi.)	N89	120

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 34 records.

<u>Site Name</u>	<u>Database(s)</u>
BOBBY MARTIN PROPERTY	SHWS, CDL
CAVERNA INDEP. SCHOOL DIST.	FTTS, HIST FTTS
EATON CORP./AXLE & BRAKE DIV.	FTTS, HIST FTTS
SKF BEARING INDUSTRIES, INC.	FTTS, HIST FTTS
KENTUCKY TOBACCO SALES	SHWS
PARK CITY STONE	AIRS
CHEVRON 49073	UST
SPRADLIN GROC	UST
WESTERN DIST WAREHOUSE	UST
JR FOOD STORE 15	UST
AT & T	RCRA NonGen / NLR
BARREN CO. AREA VOCATIONAL CTR.	RCRA NonGen / NLR
KEY GROCERY & HARDWARE	RCRA NonGen / NLR
CENTRAL SOYA COMPANY INC	RCRA NonGen / NLR
WOODS GROCERY	RCRA NonGen / NLR
KY 90 - BARREN CO	NPDES
KY 90 SEC2 RECONSTRUCTION AND WIDE	NPDES
LONGHUNTERS SQUARE	NPDES
LONGHUNTERS SQUARE	NPDES
KY HWY 70/90 UTILITY RELOCATION	NPDES
GLASGOW STATE NURSING FACILITY	NPDES
MURPHY OIL USA WAL-MART #711	NPDES
KYTC PCN 071158	NPDES
RITE AID PHARMACY	NPDES
KY PCN 09 1040	NPDES
CAVE CITY TRUCK STOP	Financial Assurance
GRIZZEL WORK SHOP	Financial Assurance
LAKESIDE TIRE	Financial Assurance
KEY GROCERY & HARDWARE	Financial Assurance
SOUTH CENTRAL RTC	Financial Assurance
GLASGOW KY BULK PLANT 261	Financial Assurance
ROLCO MANUFACTURING	RGA HWS
LILE TRUCKING DIESEL SPILL	RGA HWS
LILE TRUCKING DIESEL SPILL	RGA HWS

OVERVIEW MAP - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- ▨ Indian Reservations BIA
- ⚡ Power transmission lines
- ⚡ Pipelines
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory
- State Wetlands

SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2S
 DATE: January 11, 2016 1:48 pm

DETAIL MAP 1 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- ☠ National Priority List Sites
- ☠ Dept. Defense Sites



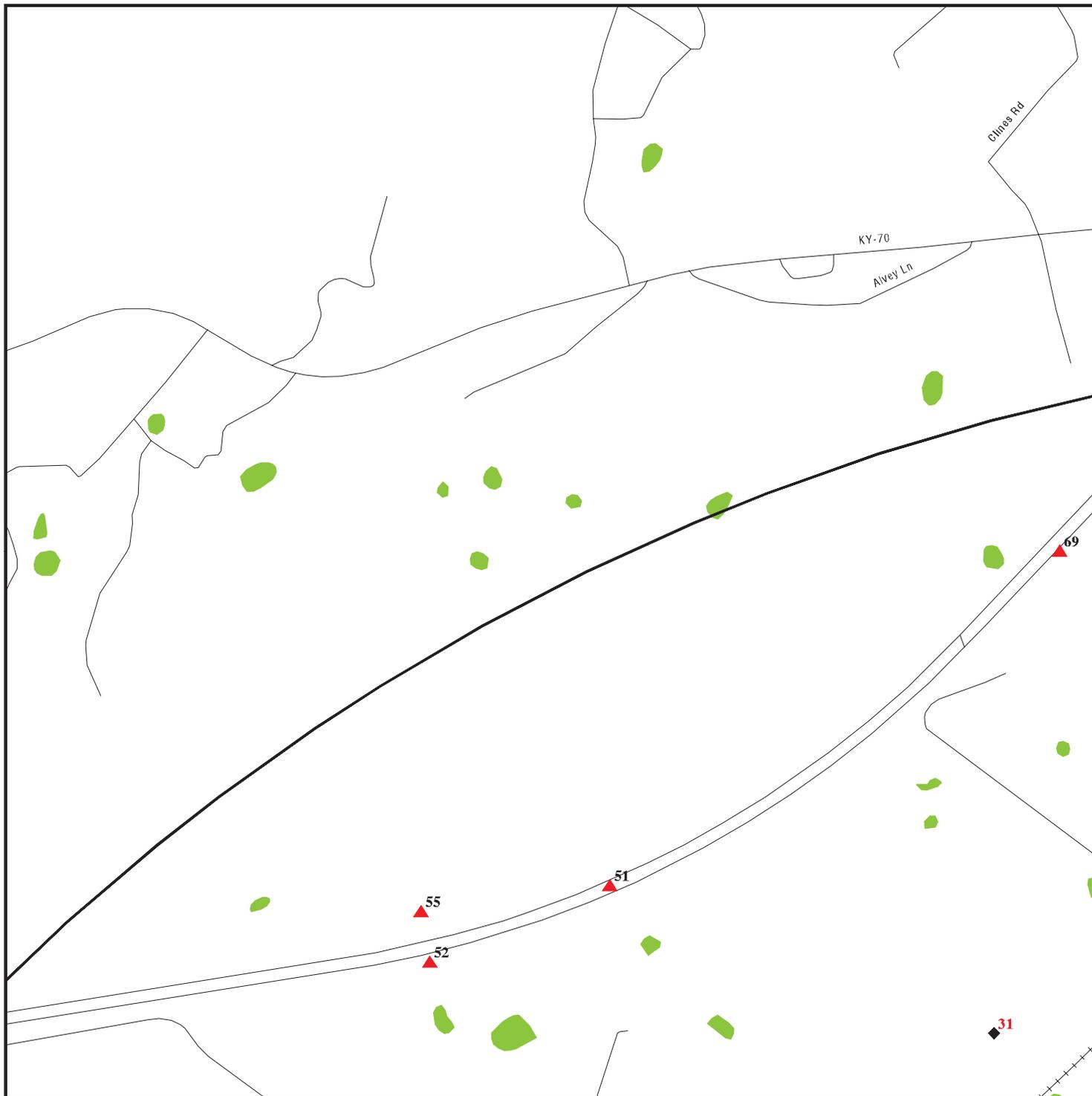
- ☞ Indian Reservations BIA
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory
- State Wetlands



SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2s
 DATE: January 11, 2016 1:48 pm

DETAIL MAP 2 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites
- ▨ Indian Reservations BIA
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory
- State Wetlands

<p>SITE NAME: KY 90 Environmental Overview ADDRESS: KY 90 Environmental Overview Cave City KY 42127 LAT/LONG: 37.0901 / 85.9724</p>	<p>CLIENT: Stantec CONTACT: Bill Leopold INQUIRY #: 4509942.2s DATE: January 11, 2016 1:49 pm</p>
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DETAIL MAP 3 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- 🏠 National Priority List Sites
- 🏢 Dept. Defense Sites
- 🏠 Indian Reservations BIA
- ⚡ Power transmission lines
- 📡 Pipelines
- 🌊 100-year flood zone
- 🌊 500-year flood zone
- 🌿 National Wetland Inventory
- 🌿 State Wetlands

SITE NAME: KY 90 Environmental Overview ADDRESS: KY 90 Environmental Overview Cave City KY 42127 LAT/LONG: 37.0901 / 85.9724	CLIENT: Stantec CONTACT: Bill Leopold INQUIRY #: 4509942.2s DATE: January 11, 2016 1:49 pm
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DETAIL MAP 4 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚠ Sensitive Receptors
- 🚚 National Priority List Sites
- 🏠 Dept. Defense Sites
- 🇺🇸 Indian Reservations BIA
- ⚡ Power transmission lines
- 🛢 Pipelines
- 🌊 100-year flood zone
- 🌊 500-year flood zone
- 🌿 National Wetland Inventory
- 🌿 State Wetlands

<p>SITE NAME: KY 90 Environmental Overview ADDRESS: KY 90 Environmental Overview Cave City KY 42127 LAT/LONG: 37.0901 / 85.9724</p>	<p>CLIENT: Stantec CONTACT: Bill Leopold INQUIRY #: 4509942.2s DATE: January 11, 2016 1:49 pm</p>
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DETAIL MAP 5 OF 25 - 4509942.2S

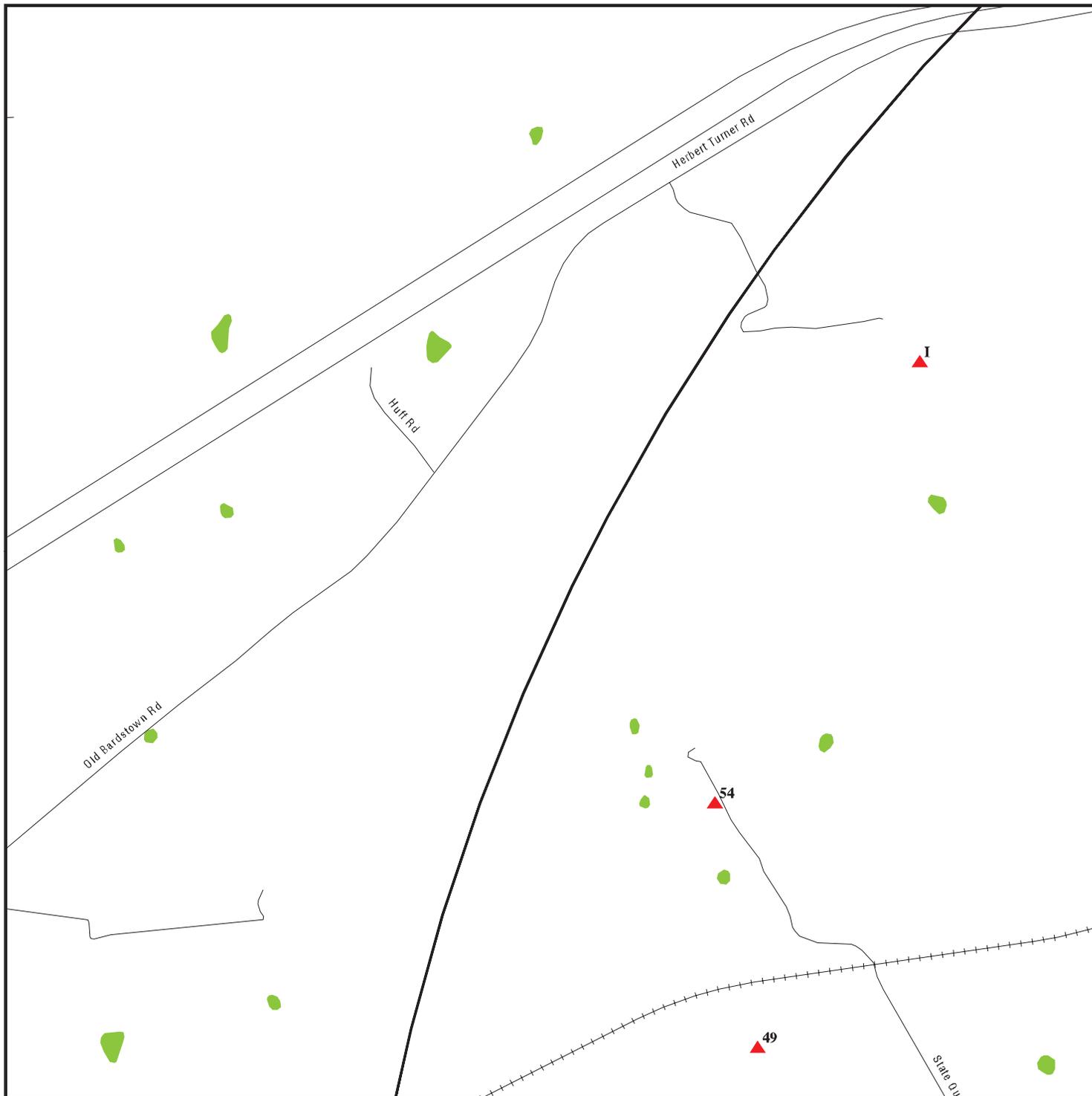


- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- 🚚 National Priority List Sites
- 🏠 Dept. Defense Sites

- 0 1/8 1/4 1/2 Miles
- Indian Reservations BIA
- Power transmission lines
- Pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands

SITE NAME: KY 90 Environmental Overview ADDRESS: KY 90 Environmental Overview Cave City KY 42127 LAT/LONG: 37.0901 / 85.9724	CLIENT: Stantec CONTACT: Bill Leopold INQUIRY #: 4509942.2s DATE: January 11, 2016 1:50 pm
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DETAIL MAP 6 OF 25 - 4509942.2S



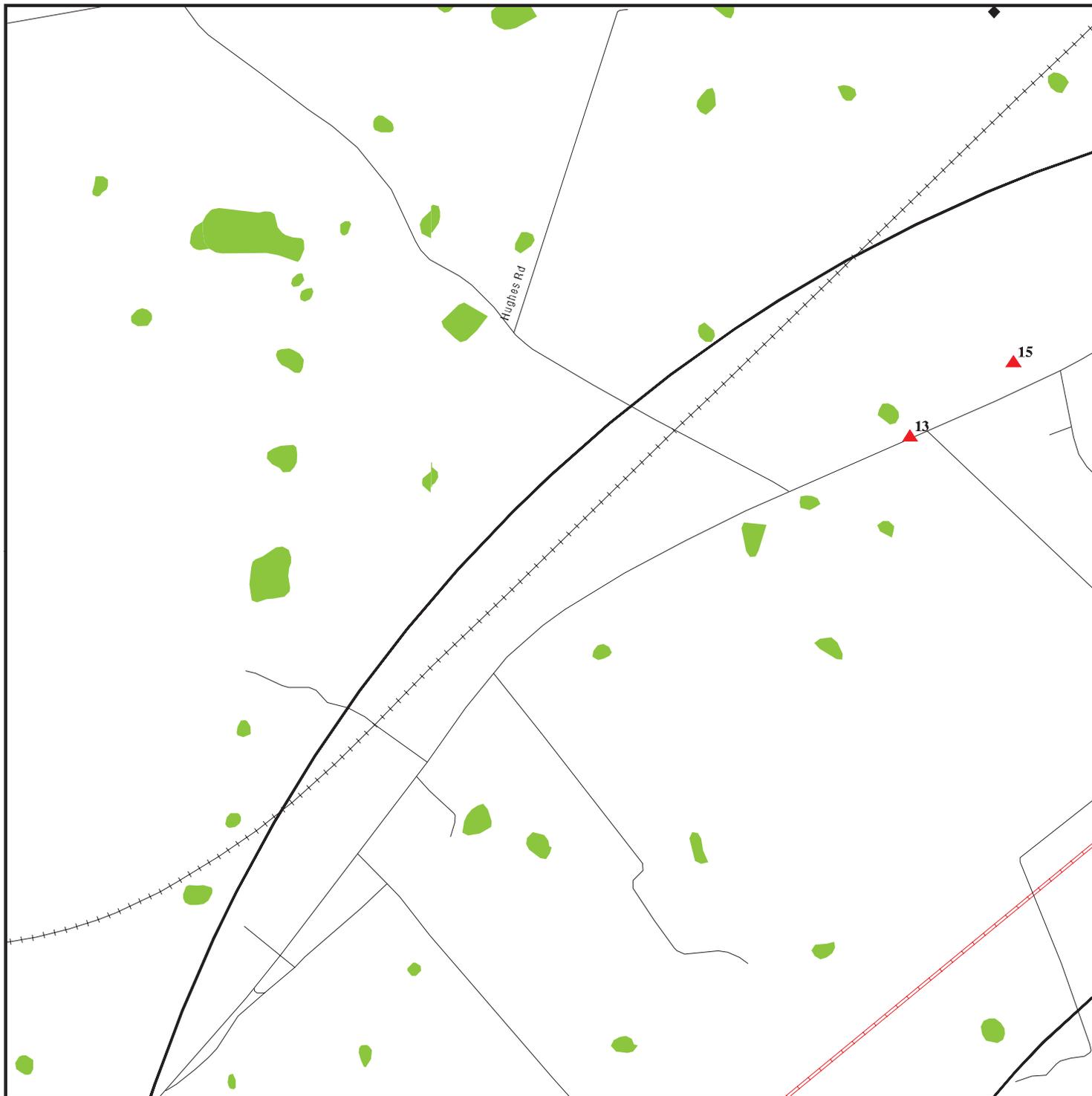
- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites

- ☒ Indian Reservations BIA
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory
- State Wetlands

SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2s
 DATE: January 11, 2016 1:50 pm

DETAIL MAP 7 OF 25 - 4509942.2S



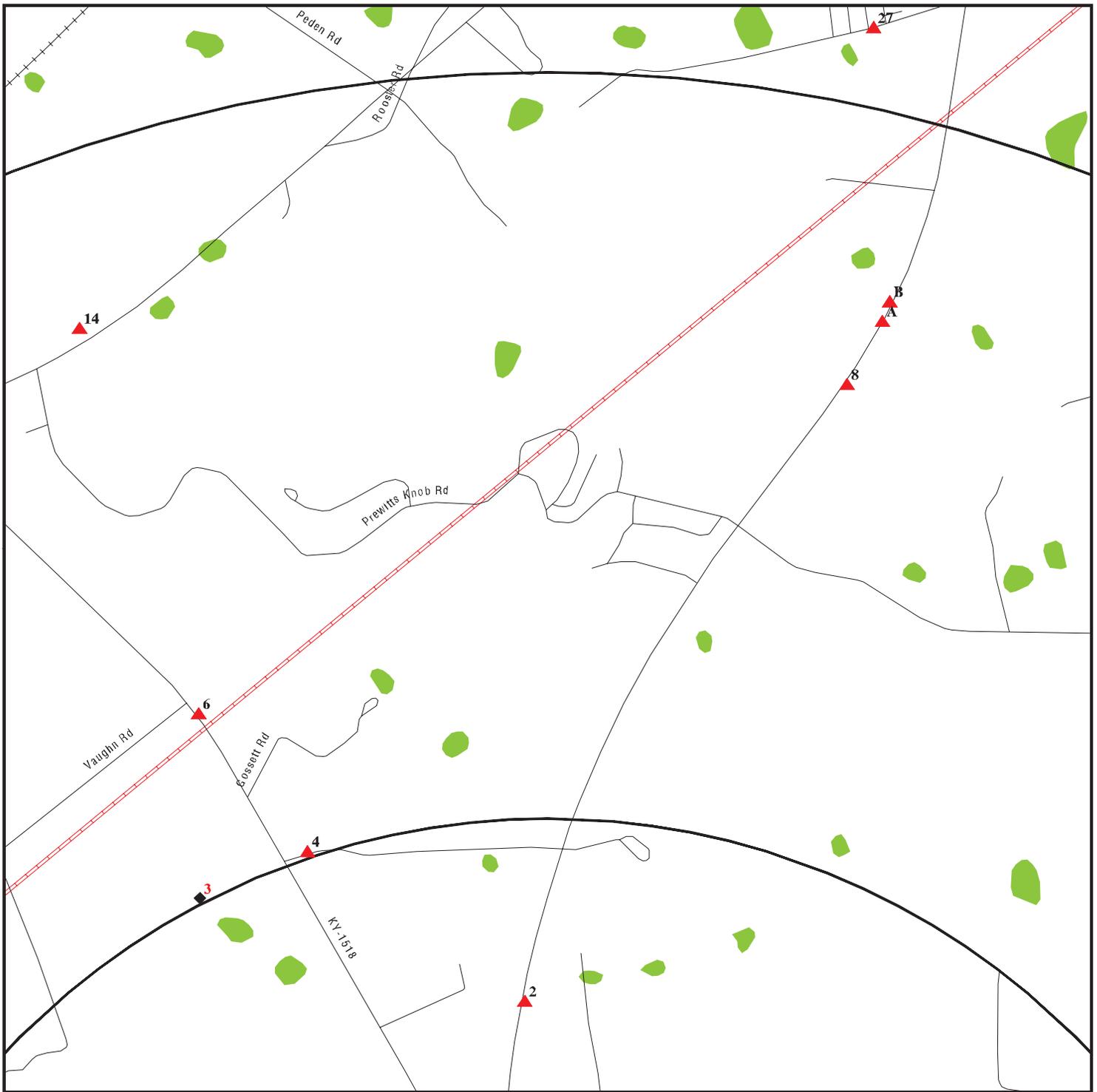
- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites

- 0 1/8 1/4 1/2 Miles
- ▨ Indian Reservations BIA
- ⚡ Pipelines
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory
- State Wetlands

SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2s
 DATE: January 11, 2016 1:51 pm

DETAIL MAP 8 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites

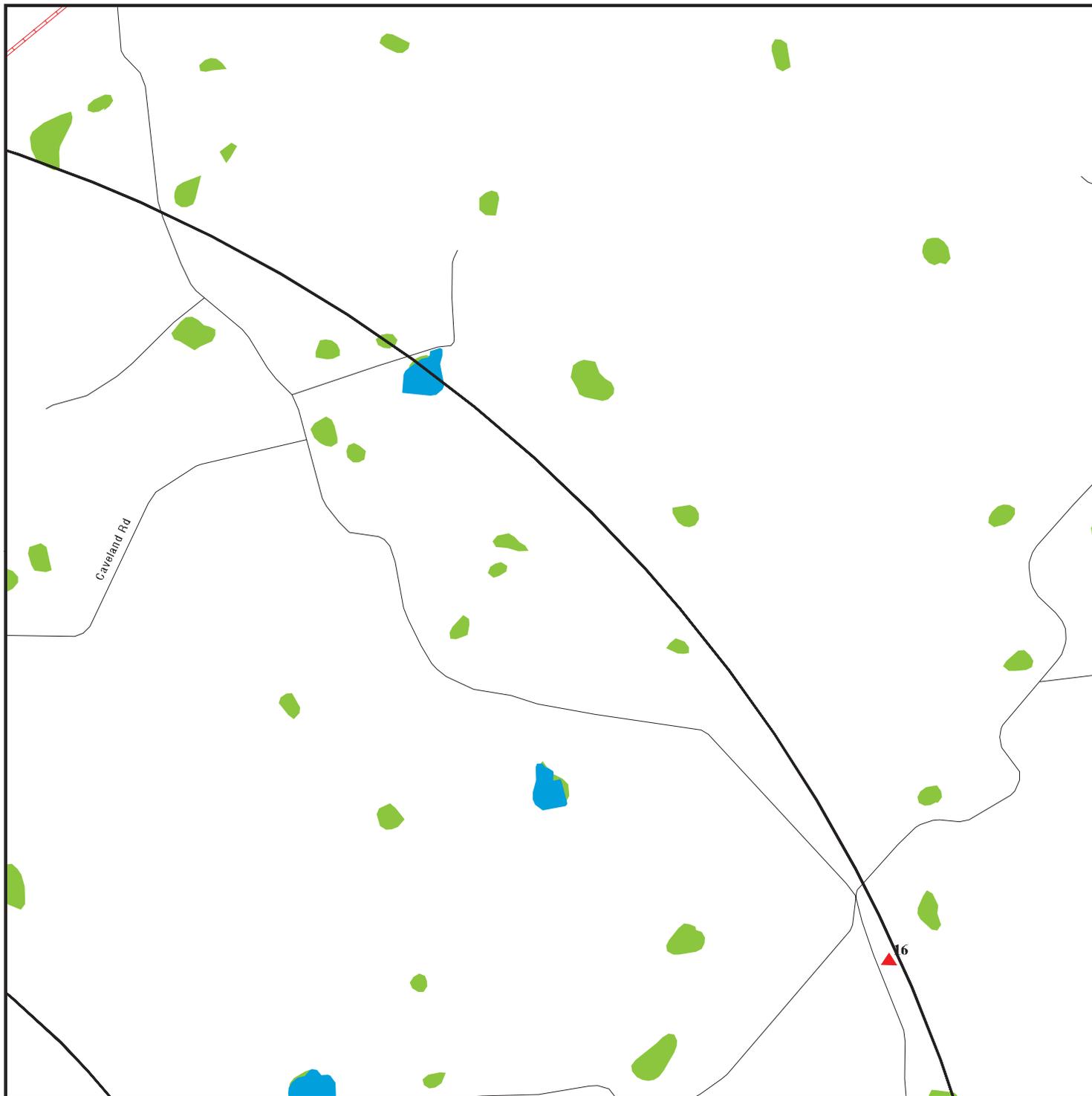
- 0 1/8 1/4 1/2 Miles
- Indian Reservations BIA
- Pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands



SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2s
 DATE: January 11, 2016 1:51 pm

DETAIL MAP 9 OF 25 - 4509942.2S



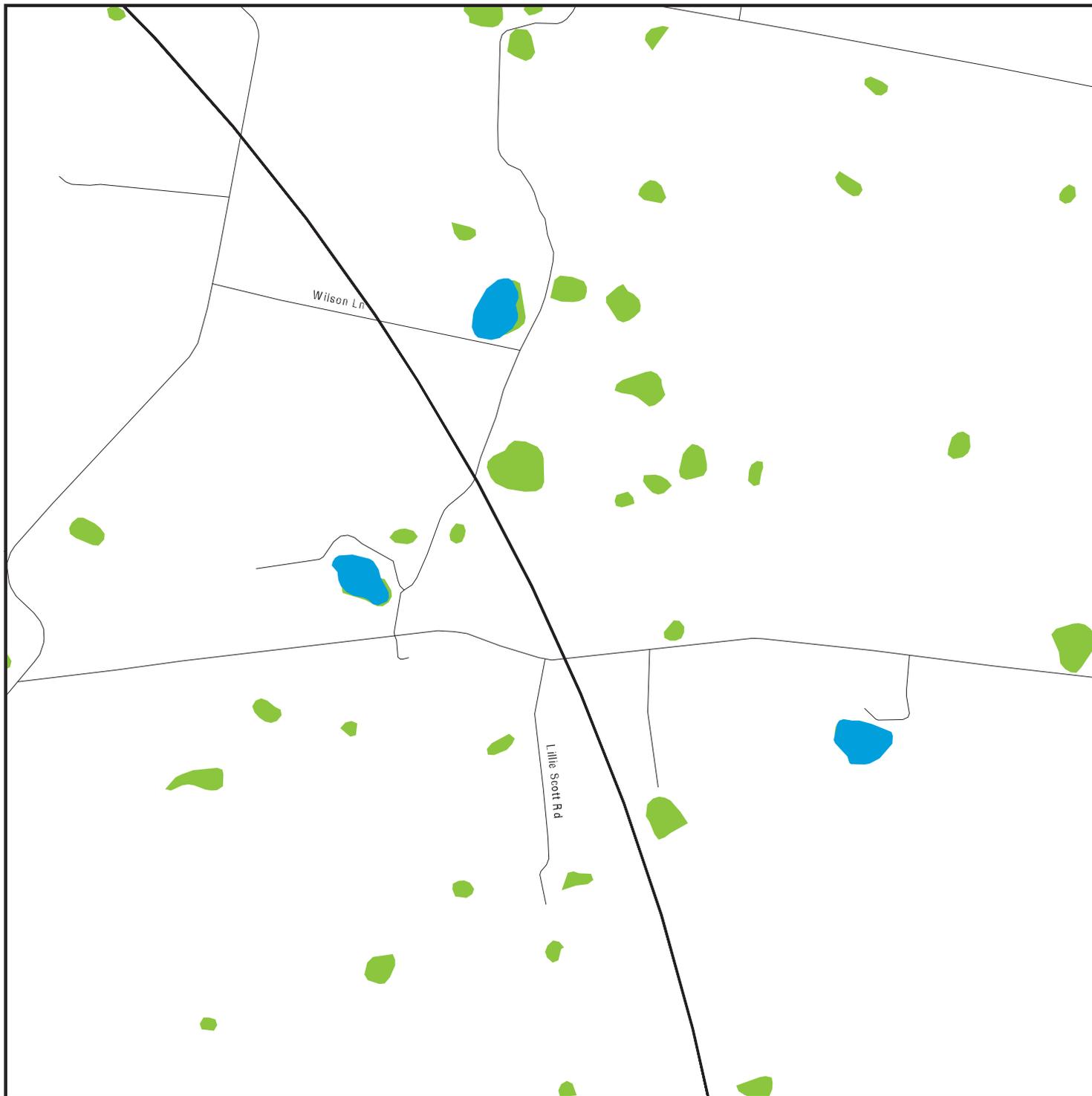
- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites

- 0 1/8 1/4 1/2 Miles
- ☒ Indian Reservations BIA
- ⚡ Pipelines
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory
- State Wetlands

SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2s
 DATE: January 11, 2016 1:52 pm

DETAIL MAP 10 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- ☠ National Priority List Sites
- ☠ Dept. Defense Sites

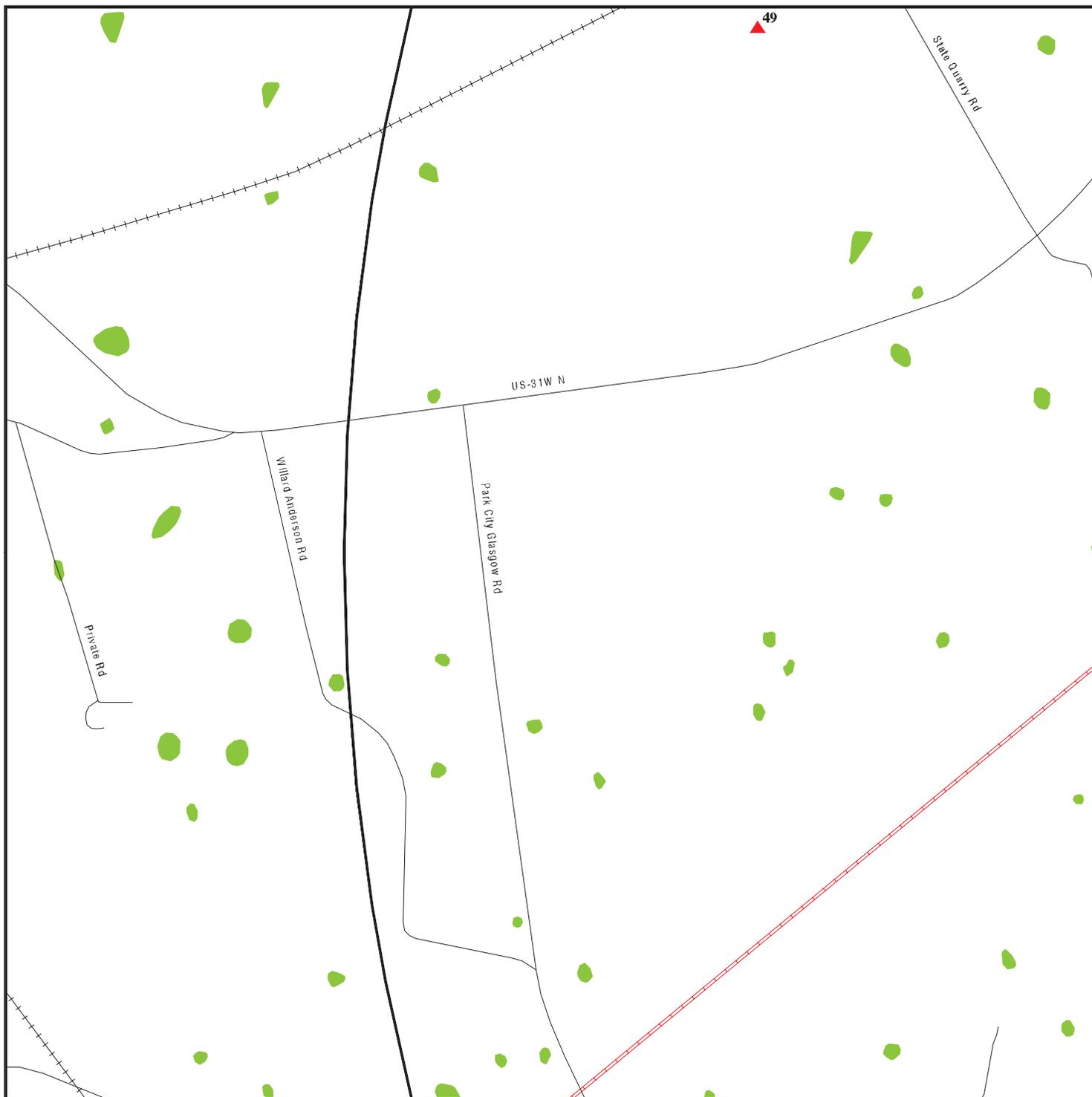
- 0 1/8 1/4 1/2 Miles
- Indian Reservations BIA
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands



SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2s
 DATE: January 11, 2016 1:53 pm

DETAIL MAP 11 OF 25 - 4509942.2S



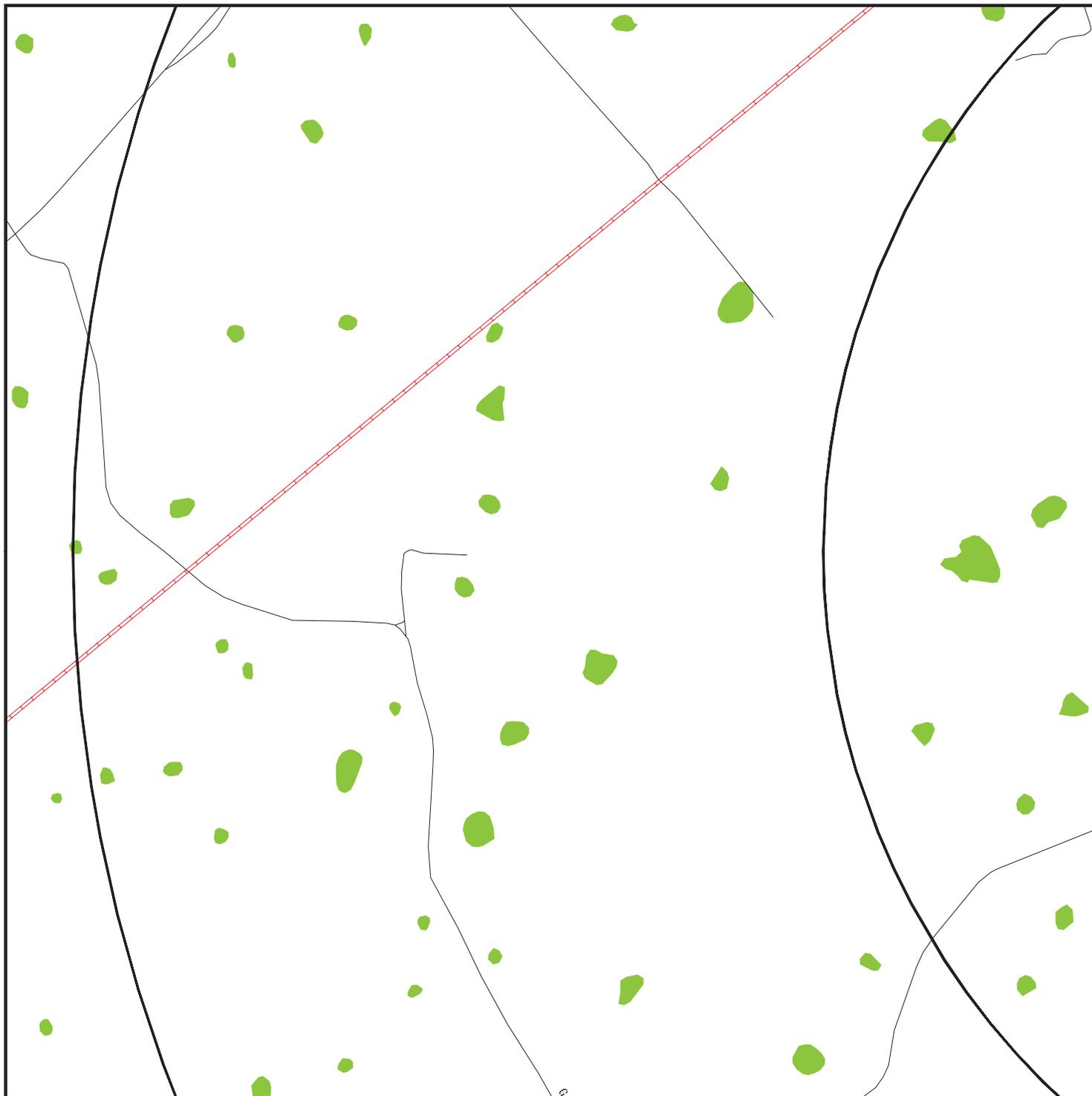
- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

- 0 1/8 1/4 1/2 Miles
- ▨ Indian Reservations BIA
- ⚡ Pipelines
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory
- State Wetlands

SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2s
 DATE: January 11, 2016 1:53 pm

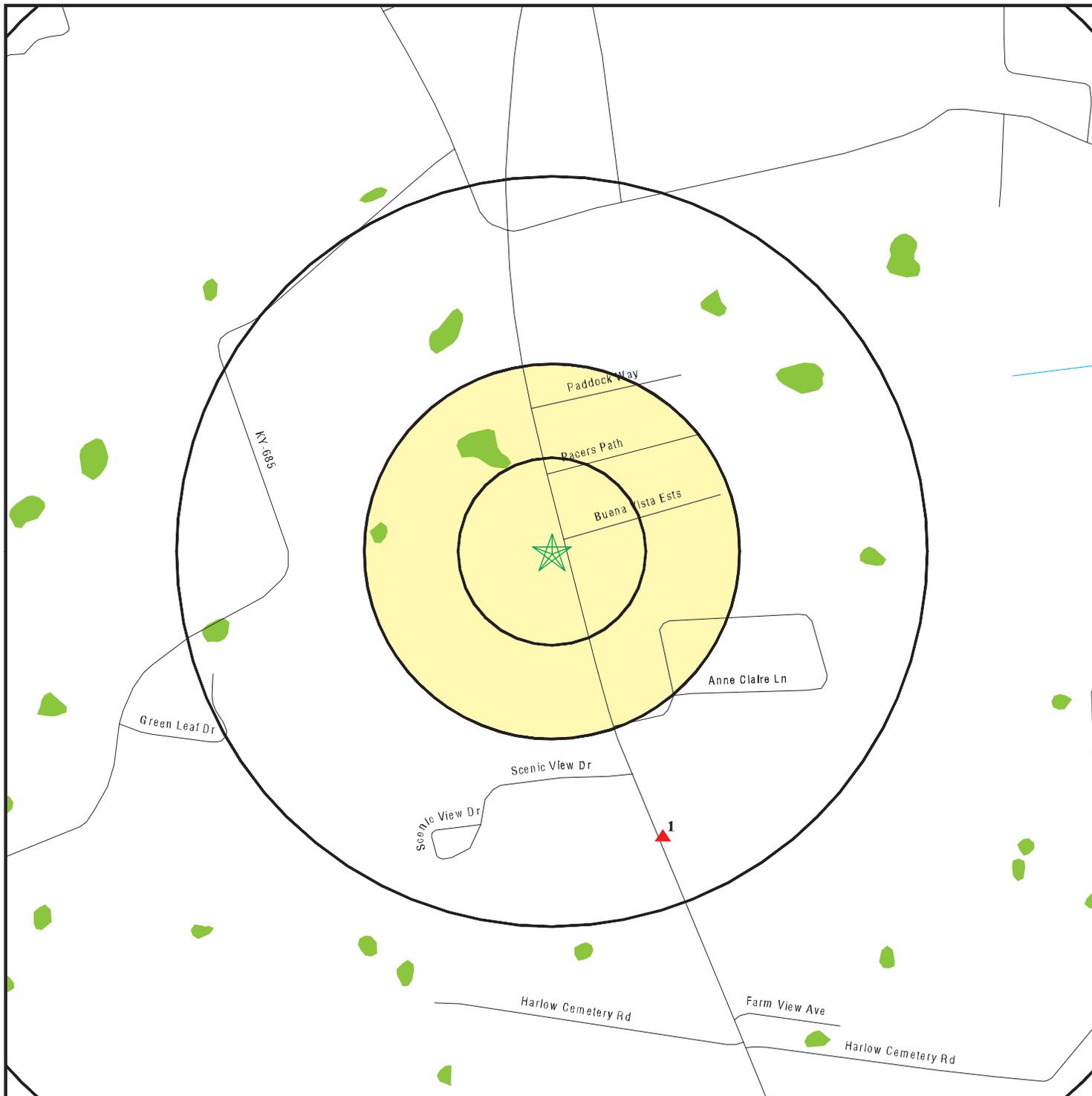
DETAIL MAP 12 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- 🚧 National Priority List Sites
- 🏠 Dept. Defense Sites
- 🏠 Indian Reservations BIA
- 📡 Pipelines
- 🌊 100-year flood zone
- 🌊 500-year flood zone
- 🌿 National Wetland Inventory
- 🌿 State Wetlands

<p>SITE NAME: KY 90 Environmental Overview ADDRESS: KY 90 Environmental Overview Cave City KY 42127 LAT/LONG: 37.0901 / 85.9724</p>	<p>CLIENT: Stantec CONTACT: Bill Leopold INQUIRY #: 4509942.2s DATE: January 11, 2016 1:54 pm</p>
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DETAIL MAP 13 OF 25 - 4509942.2S



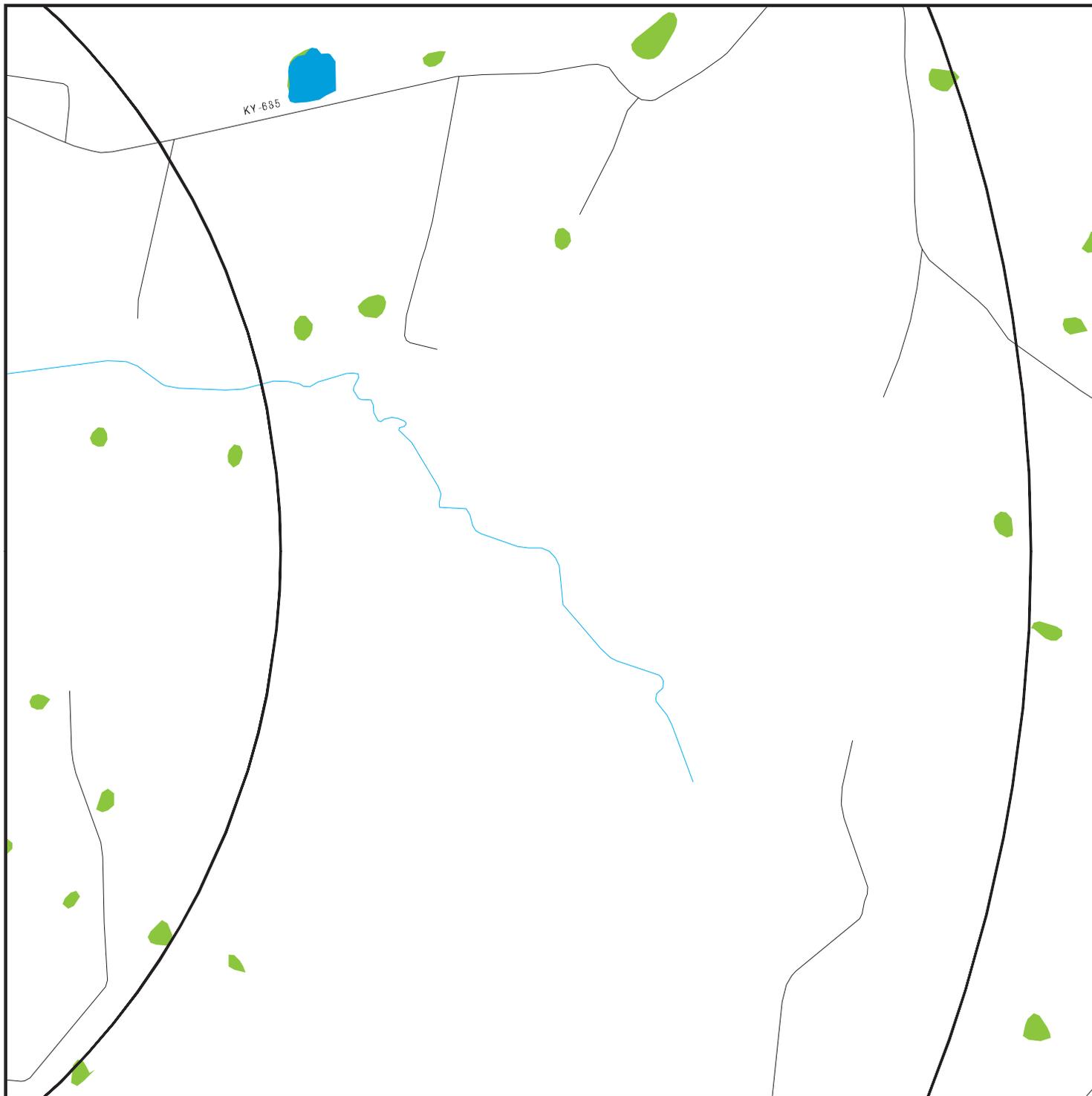
- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

- 0 1/8 1/4 1/2 Miles
- Indian Reservations BIA
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands

SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2s
 DATE: January 11, 2016 1:55 pm

DETAIL MAP 14 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites



- Indian Reservations BIA
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands



SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2s
 DATE: January 11, 2016 1:55 pm

DETAIL MAP 15 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites



- ☐ Indian Reservations BIA
- ☐ 100-year flood zone
- ☐ 500-year flood zone
- ☐ National Wetland Inventory
- ☐ State Wetlands



SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2s
 DATE: January 11, 2016 1:56 pm

DETAIL MAP 16 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- 🚚 National Priority List Sites
- 🏠 Dept. Defense Sites



- 🏠 Indian Reservations BIA
- 📡 Pipelines
- 🌊 100-year flood zone
- 🌊 500-year flood zone
- 🌿 National Wetland Inventory
- 🌿 State Wetlands



SITE NAME: KY 90 Environmental Overview
ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
CONTACT: Bill Leopold
INQUIRY #: 4509942.2s
DATE: January 11, 2016 1:56 pm

DETAIL MAP 17 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- 🚚 National Priority List Sites
- 🏠 Dept. Defense Sites



- 🏠 Indian Reservations BIA
- 🌊 100-year flood zone
- 🌊 500-year flood zone
- 🌿 National Wetland Inventory
- 🌿 State Wetlands



SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2s
 DATE: January 11, 2016 1:57 pm

DETAIL MAP 18 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites

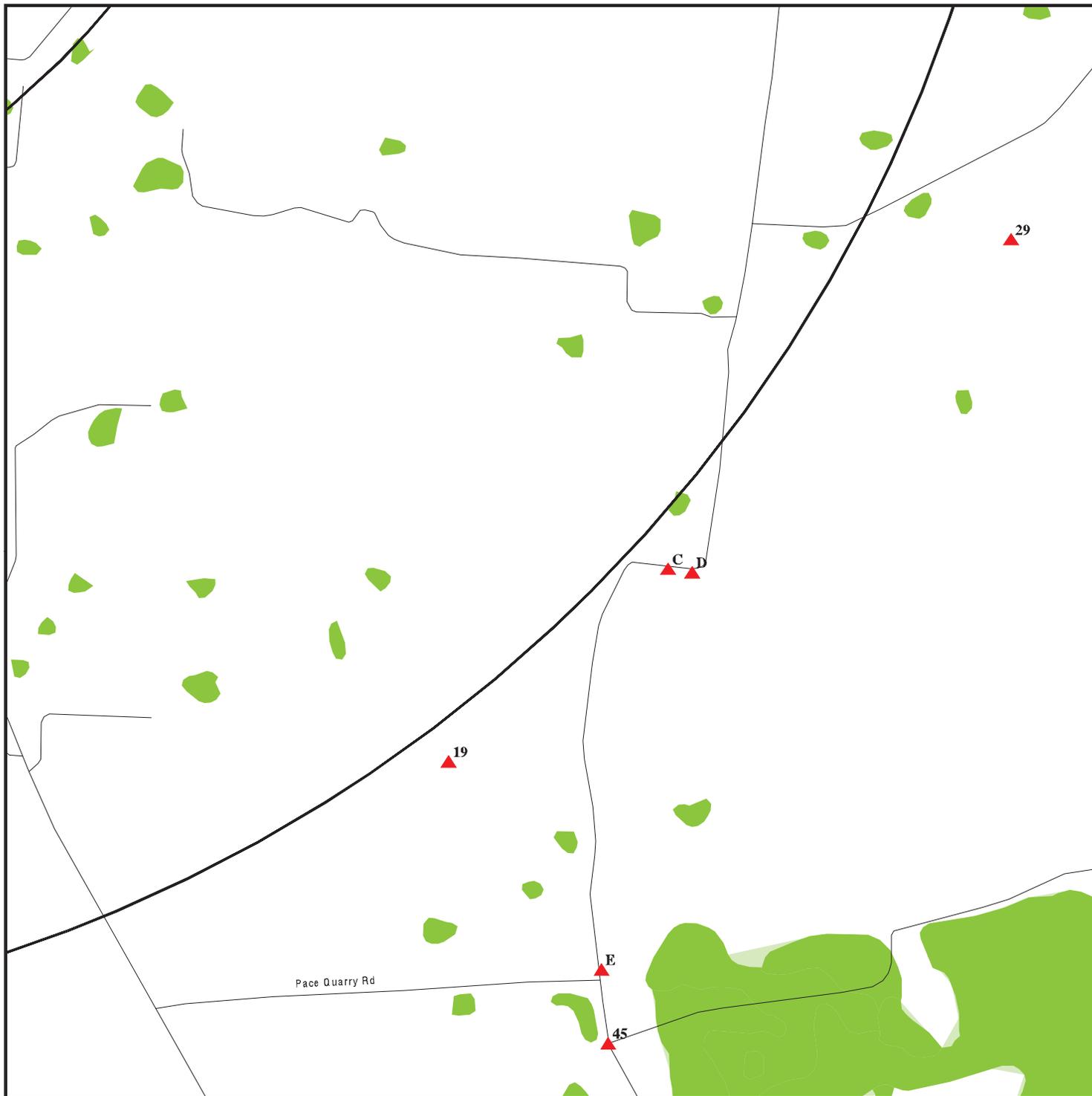
- ☐ Indian Reservations BIA
- ▨ 100-year flood zone
- ▧ 500-year flood zone
- National Wetland Inventory
- State Wetlands



SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2s
 DATE: January 11, 2016 1:57 pm

DETAIL MAP 19 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites
- ▨ Indian Reservations BIA
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory
- State Wetlands

SITE NAME: KY 90 Environmental Overview ADDRESS: KY 90 Environmental Overview Cave City KY 42127 LAT/LONG: 37.0901 / 85.9724	CLIENT: Stantec CONTACT: Bill Leopold INQUIRY #: 4509942.2s DATE: January 11, 2016 1:58 pm
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DETAIL MAP 20 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites

- 0 1/8 1/4 1/2 Miles
- Indian Reservations BIA
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands



SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2s
 DATE: January 11, 2016 1:58 pm

DETAIL MAP 21 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites



- Indian Reservations BIA
- Pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands



SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2s
 DATE: January 11, 2016 1:59 pm

DETAIL MAP 22 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

- 0 1/8 1/4 1/2 Miles
- Indian Reservations BIA
- Pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands

SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2s
 DATE: January 11, 2016 2:00 pm

DETAIL MAP 23 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚡ Manufactured Gas Plants
- ⚠ Sensitive Receptors
- 🚚 National Priority List Sites
- 🏠 Dept. Defense Sites



- Indian Reservations BIA
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands



SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2s
 DATE: January 11, 2016 2:00 pm

DETAIL MAP 24 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚡ Manufactured Gas Plants
- ⚠ Sensitive Receptors
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites



- ☐ Indian Reservations BIA
- ▨ 100-year flood zone
- ▧ 500-year flood zone
- National Wetland Inventory
- State Wetlands



SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2s
 DATE: January 11, 2016 2:01 pm

DETAIL MAP 25 OF 25 - 4509942.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚡ Manufactured Gas Plants
- ⚠ Sensitive Receptors
- 🚚 National Priority List Sites
- 🏠 Dept. Defense Sites



- 🏠 Indian Reservations BIA
- 🌊 100-year flood zone
- 🌊 500-year flood zone
- 🌿 National Wetland Inventory
- 🌿 State Wetlands



SITE NAME: KY 90 Environmental Overview
 ADDRESS: KY 90 Environmental Overview
 Cave City KY 42127
 LAT/LONG: 37.0901 / 85.9724

CLIENT: Stantec
 CONTACT: Bill Leopold
 INQUIRY #: 4509942.2s
 DATE: January 11, 2016 2:02 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
<i>Federal NPL site list</i>								
NPL	3.125		0	0	0	0	0	0
Proposed NPL	3.125		0	0	0	0	0	0
NPL LIENS	3.125		0	0	0	0	0	0
<i>Federal Delisted NPL site list</i>								
Delisted NPL	3.125		0	0	0	0	0	0
<i>Federal CERCLIS list</i>								
FEDERAL FACILITY	3.125		0	0	0	0	0	0
CERCLIS	3.125		0	0	0	0	0	0
<i>Federal CERCLIS NFRAP site List</i>								
CERCLIS-NFRAP	3.125		0	0	0	0	0	0
<i>Federal RCRA CORRACTS facilities list</i>								
CORRACTS	3.125		0	0	0	0	0	0
<i>Federal RCRA non-CORRACTS TSD facilities list</i>								
RCRA-TSDF	3.125		0	0	0	0	0	0
<i>Federal RCRA generators list</i>								
RCRA-LQG	3.125		0	0	0	0	0	0
RCRA-SQG	3.125		0	0	0	0	0	0
RCRA-CESQG	3.125		0	0	0	0	1	1
<i>Federal institutional controls / engineering controls registries</i>								
LUCIS	3.125		0	0	0	0	0	0
US ENG CONTROLS	3.125		0	0	0	0	0	0
US INST CONTROL	3.125		0	0	0	0	0	0
<i>Federal ERNS list</i>								
ERNS	3.125		0	0	0	0	1	1
<i>State- and tribal - equivalent CERCLIS</i>								
SHWS	3.125		0	0	0	0	3	3
<i>State and tribal landfill and/or solid waste disposal site lists</i>								
SWF/LF	3.125		0	0	0	0	0	0
<i>State and tribal leaking storage tank lists</i>								
PSTEAF	3.125		0	0	0	0	0	0
INDIAN LUST	3.125		0	0	0	0	0	0
SB193	3.125		0	0	0	0	0	0
<i>State and tribal registered storage tank lists</i>								
FEMA UST	3.125		0	0	0	0	0	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
UST	3.125		0	0	0	0	12	12
INDIAN UST	3.125		0	0	0	0	0	0
State and tribal institutional control / engineering control registries								
ENG CONTROLS	3.125		0	0	0	0	0	0
INST CONTROL	3.125		0	0	0	0	0	0
State and tribal voluntary cleanup sites								
INDIAN VCP	3.125		0	0	0	0	0	0
VCP	3.125		0	0	0	0	0	0
State and tribal Brownfields sites								
BROWNFIELDS	3.125		0	0	0	0	0	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	3.125		0	0	0	0	0	0
Local Lists of Landfill / Solid Waste Disposal Sites								
HIST LF	3.125		0	0	0	0	0	0
SWRCY	3.125		0	0	0	0	0	0
INDIAN ODI	3.125		0	0	0	0	0	0
ODI	3.125		0	0	0	0	0	0
DEBRIS REGION 9	3.125		0	0	0	0	0	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	3.125		0	0	0	0	1	1
CDL	3.125		0	0	0	0	1	1
US CDL	3.125		0	0	0	0	1	1
Local Land Records								
LIENS 2	3.125		0	0	0	0	0	0
Records of Emergency Release Reports								
HMIRS	3.125		0	0	0	0	0	0
SPILLS	3.125		0	0	1	0	27	28
Other Ascertainable Records								
RCRA NonGen / NLR	3.125		0	0	0	0	3	3
FUDS	3.125		0	0	0	0	0	0
DOD	3.125		0	0	0	0	0	0
SCRD DRYCLEANERS	3.125		0	0	0	0	0	0
US FIN ASSUR	3.125		0	0	0	0	0	0
EPA WATCH LIST	3.125		0	0	0	0	0	0
2020 COR ACTION	3.125		0	0	0	0	0	0
TSCA	3.125		0	0	0	0	0	0

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BARREN COUNTY	S117569365	KY 90 - BARREN CO	KY 90	42141	NPDES
BARREN COUNTY	S117570757	KY 90 SEC2 RECONSTRUCTION AND WIDE	KY 90	42141	NPDES
BARREN COUNTY	S109093339	LONGHUNTERS SQUARE	HAPPY VALLEY RD	42141	NPDES
BARREN COUNTY	S117569541	LONGHUNTERS SQUARE	HAPPY VALLEY RD	42141	NPDES
BARREN COUNTY	S117570718	KY HWY 70/90 UTILITY RELOCATION	KY HWY 70/90	42127	NPDES
BARREN COUNTY	S117571462	GLASGOW STATE NURSING FACILITY	STATE AVE	42141	NPDES
CAVE CITY	1004504208	CAVERNA INDEP. SCHOOL DIST.	HWY 31 WEST	42127	FTTS, HIST FTTS
CAVE CITY	S115715665	ROLCO MANUFACTURING	HWY 31W		RGA HWS
CAVE CITY	S115713768	LILE TRUCKING DIESEL SPILL	HWY 68		RGA HWS
CAVE CITY	U003989807	CHEVRON 49073	KY 70 & KY 90	42127	UST
CAVE CITY	S115713769	LILE TRUCKING DIESEL SPILL	KY 90 (RIGHT SIDE)		RGA HWS
CAVE CITY	S108012525	CAVE CITY TRUCK STOP	HWY 90	42127	Financial Assurance
GAME	1000863948	AT & T	HWY 225 - 6 MI NORTH OF GAME	42141	RCRA NonGen / NLR
GLASGOW	U001185041	SPRADLIN GROC	RT 1	42141	UST
GLASGOW	S108015110	GRIZZEL WORK SHOP	HWY 249 2500 ROSEVILLE ROAD	42141	Financial Assurance
GLASGOW	S118153726	KENTUCKY TOBACCO SALES	US 31 E N	42141	SHWS
GLASGOW	U003415830	WESTERN DIST WAREHOUSE	HWY 31E N	42141	UST
GLASGOW	S108016806	LAKESIDE TIRE	HIGHWAY 31E SOUTH	42141	Financial Assurance
GLASGOW	1000355897	BARREN CO. AREA VOCATIONAL CTR.	RT. 6, ROSEVILLE RD.	42141	RCRA NonGen / NLR
GLASGOW	1006817049	KEY GROCERY & HARDWARE	HIGHWAY 63	42141	RCRA NonGen / NLR
GLASGOW	S108016571	KEY GROCERY & HARDWARE	HWY. 63	42141	Financial Assurance
GLASGOW	1006285764	EATON CORP./AXLE & BRAKE DIV.	RT 68	42141	FTTS, HIST FTTS
GLASGOW	S108082611	MURPHY OIL USA WAL-MART #711	HWY 68 BYPASS & HWY 90	42141	NPDES
GLASGOW	S108019847	SOUTH CENTRAL RTC	HIGHWAY 90 WEST, 13989 HAPPY V	42141	Financial Assurance
GLASGOW	1009523314	SKF BEARING INDUSTRIES, INC.	P.O. BOX 728, 1001 HAPPY VALLE	42141	FTTS, HIST FTTS
GLASGOW	U003990545	JR FOOD STORE 15	HAPPY VALLEY RD	42141	UST
GLASGOW	S110491754	KYTC PCN 071158	KY HWY 255	42141	NPDES
GLASGOW	S109495328	RITE AID PHARMACY	US HWY 31 & HWY 90	42141	NPDES
GLASGOW	S108014923	GLASGOW KY BULK PLANT 261	W MAIN & SAMPSON ST	42141	Financial Assurance
GLASGOW	S110777683	KY PCN 09 1040	US68/KY80 TO LOUIE B NUNN PKWY	42141	NPDES
PARK CITY	1000418708	CENTRAL SOYA COMPANY INC	HIGHWAY 255	42160	RCRA NonGen / NLR
PARK CITY	S116676369	BOBBY MARTIN PROPERTY	6100 DRIPPING SPRINGS ROAD	42160	SHWS, CDL
PARK CITY	S111834880	PARK CITY STONE	STATE QUARRY RD	42160	AIRS
RAILTON	1001219554	WOODS GROCERY	HWY 1297	42160	RCRA NonGen / NLR

Table 2: ky90 hazmat sites identified by EDR, 1/25/2016, Page 1-1

FID	Shape	DBACRON	DATAKEY	REFNO	FACILITY	STREET
25	Point	AIRS	DG 613	S109089595	N AMERICAN CAPACITOR	2601 HAPPY VALLEY RD
56	Point	AIRS	H 63	S108083563	TEKNO INC	1 WALL ST
37	Point	EDR Hist Auto	EU 873	1015443967		3515 HAPPY VALLEY RD
31	Point	Financial Assurance	EB 741	U001181318	GLASGOW AIRPORT MOORE FIELD	390 AIRPORT RD
20	Point	FINDS	CW 562	1015973582	MURPHY OIL USA INC 7206	2345 HAPPY VALLEY RD
24	Point	FINDS	DG 614	1004507643	MALLORY AC CAPACITOR LLC	2601 HAPPY VALLEY RD.
34	Point	FINDS	793	1011980017	GLASGOW MUNI	UNKNOWN
39	Point	FINDS	2	1015908511	BUNNELL BEEF FARM 2	8171 HAPPY VALLEY RD
41	Point	FINDS	A 9	1015891217	LILE TRUCKING DIESEL SPILL	KY 90 (RIGHT SIDE)
43	Point	FINDS	B 12	1016871559	CAVELAND WOOD PRODUCTS LLC	9376 HAPPY VALLEY RD
46	Point	FINDS	42	1015875890	PIER NINETEEN WHOLESALE	506 E HAPPY VALLEY ST
48	Point	FINDS	F 43	1012308195	FREDS DISCOUNT STORE	502 E HAPPY VALLEY STREET
53	Point	FINDS	G 57	1014716588	CAVE CITY DOLLAR GENERAL	305 HAPPY VALLEY STREET
55	Point	FINDS	H 62	1016180480	TEKNO INC	1 WALL STREET
58	Point	FINDS	65	1011971861	MAMMOTH RESOURCES PARTNERS INC	ONE WALL ST BUILDING B
60	Point	FINDS	66	1016676006	DOLLAR GENERAL STORE #3493	299 HAPPY VALLEY ST
65	Point	FINDS	77	1016364191	KWIK MART	1001 GARDNER LN
59	Point	RCRA-CESQG	66	1016676006	DOLLAR GENERAL STORE #3493	299 HAPPY VALLEY ST
42	Point	SHWS	A 10	S106884055	LILE TRUCKING DIESEL SPILL	HWY 68
8	Point	SPILLS	534	S117092471		
38	Point	SPILLS	1	S111458820		
45	Point	SPILLS	28	S111312035		
49	Point	SPILLS	48	S117129461		
67	Point	SPILLS	M 85	S111458945		
68	Point	SPILLS	M 87	S117086810		
40	Point	US HIST CDL	8	1009622817	9187 W HAPPY VALLEY RD	9187 W HAPPY VALLEY RD
23	Point	UST	CW 559	U003990914	MURPHY OIL USA INC 7206	2345 HAPPY VALLEY RD
32	Point	UST	EB 741	U001181318	GLASGOW AIRPORT MOORE FIELD	390 AIRPORT RD
50	Point	UST	50	U000811151	COUNTRY CORNER MARKET	JCT OF US 31W & KY 90
54	Point	UST	H 59	U004228224	FORMER PMO MOTORS OF KENTUCKY	302 E HAPPY VALLEY ST
64	Point	UST	76	U000206890	CAVE CITY TRUCKSTOP	1001 GARDNER LN
66	Point	UST	78	U003180077	CAVE CITY	1001 GARDNER LN

Table 2: ky90 hazmat sites identified by EDR, 1/25/2016, Page 1-2

CITY	STATE	ZIP	COUNTY	DISTANCE	DIRECTION	HIGHLOW	LON	LAT	ELEV
GLASGOW	KY	42141	BARREN	1.943802	NNW	L	-85.937843	37.025233	725.02618
CAVE CITY	KY	42127	BARREN	2.758602	North	L	-85.964618	37.130096	650.03168
GLASGOW	KY	42141	BARREN	3.024681	NNW	L	-85.947559	37.045124	765.11823
GLASGOW	KY	42141	BARREN	2.328517	NW	L	-85.950289	37.031349	700.40729
GLASGOW	KY	42141	BARREN	1.702323	NNW	L	-85.93647	37.022783	637.85663
GLASGOW	KY	421419063	BARREN	1.943802	NNW	L	-85.937843	37.025233	725.02618
GLASGOW	KY	00000	BARREN	2.403579	NW	L	-85.950289	37.031349	705.93011
CAVE CITY	KY	42127	BARREN	0.757006	North	H	-85.973249	37.103302	684.6806
CAVE CITY	KY	42129	BARREN	1.726323	NNE	H	-85.964286	37.114279	708.90698
CAVE CITY	KY	42127	BARREN	1.754131	NNE	H	-85.9616	37.12026	701.15729
CAVE CITY	KY	42127	BARREN	2.425862	NNE	L	-85.962126	37.123901	659.96558
CAVE CITY	KY	42127	BARREN	2.452626	NNE	L	-85.962499	37.124773	665.74542
CAVE CITY	KY	42127	BARREN	2.73031	North	L	-85.966073	37.129516	650.03149
CAVE CITY	KY	42127	BARREN	2.758602	North	L	-85.964618	37.130096	650.03168
CAVE CITY	KY	42127	CLINTON	2.766995	North	L	-85.965053	37.130289	651.03168
CAVE CITY	KY	42127	BARREN	2.782574	North	L	-85.963993	37.129647	651.64258
CAVE CITY	KY	42127	BARREN	2.962315	North	S	-85.971971	37.133332	679.84961
CAVE CITY	KY	42127	BARREN	2.782574	North	L	-85.963993	37.129647	651.64258
CAVE CITY	KY	42127	BARREN	1.727556	NNE	H	-85.964201	37.114279	707.36462
GLASGOW	KY		BARREN	1.63082	NNW	L	-85.937057	37.026751	651.39612
CAVE CITY	KY		BARREN	0.406212	SSE	H	-85.969721	37.084612	765.96112
GLASGOW	KY		BARREN	2.177478	NNE	L	-85.963334	37.120833	671.27228
CAVE CITY	KY		BARREN	2.538575	NNE	L	-85.962317	37.126018	666.20312
CAVE CITY	KY		BARREN	3.053286	North	L	-85.970943	37.134361	651.42328
CAVE CITY	KY		BARREN	3.060847	North	L	-85.970943	37.134471	651.08252
CAVE CITY	KY		BARREN	1.632817	NNE	H	-85.969006	37.109959	714.99731
GLASGOW	KY	42141	BARREN	1.702323	NNW	L	-85.93647	37.022783	637.85663
GLASGOW	KY	42141	BARREN	2.328517	NW	L	-85.950289	37.031349	700.40729
CAVE CITY	KY	42127	BARREN	2.613805	NNE	L	-85.962529	37.128234	660.01971
CAVE CITY	KY	42127	BARREN	2.749794	North	L	-85.966073	37.129516	649.60138
CAVE CITY	KY	42127	BARREN	2.932707	North	L	-85.972095	37.133352	664.00262
CAVE CITY	KY	42127	BARREN	2.968647	North	S	-85.972095	37.133352	675.65771

Table 3: ky90 UST sites, Page 1-1

FID	Shape *	LONG_DD	LAT_DD	COUNTY	SITE_SEQ_I	MASTER_AI_	MASTER_AI1	ADDRESS_1
0	Point	-85.95	37.029444	Barren	2705005	4541	Glasgow Airport Moore Field	390 Airport Rd
1	Point	-85.95	37.029444	Barren	2705005	4541	Glasgow Airport Moore Field	390 Airport Rd
2	Point	-85.95	37.029444	Barren	2705005	4541	Glasgow Airport Moore Field	390 Airport Rd
3	Point	-85.95	37.029444	Barren	2705005	4541	Glasgow Airport Moore Field	390 Airport Rd
4	Point	-85.95	37.029444	Barren	2705005	4541	Glasgow Airport Moore Field	390 Airport Rd
5	Point	-85.95	37.029444	Barren	2705005	4541	Glasgow Airport Moore Field	390 Airport Rd
6	Point	-85.95	37.029444	Barren	2705005	4541	Glasgow Airport Moore Field	390 Airport Rd
7	Point	-85.971944	37.133056	Barren	1012005	57145	Kwik Mart	1001 Gardner Ln
8	Point	-85.971944	37.133056	Barren	1012005	57145	Kwik Mart	1001 Gardner Ln
33	Point	-85	38	Barren	8428005	65700	Country Corner Market	Us 31 & Hwy 90
34	Point	-85	38	Barren	8428005	65700	Country Corner Market	Us 31 & Hwy 90
39	Point	-85.97245	37.13263	Barren	345005	67375	Cave City Truckstop	1001 Gardener Ln
40	Point	-85.97245	37.13263	Barren	345005	67375	Cave City Truckstop	1001 Gardener Ln
41	Point	-85.97245	37.13263	Barren	345005	67375	Cave City Truckstop	1001 Gardener Ln
42	Point	-85.97245	37.13263	Barren	345005	67375	Cave City Truckstop	1001 Gardener Ln
52	Point	-85.936333	37.022556	Barren	0	70943	Murphy Oil USA Inc 7206	2345 Happy Valley Rd
53	Point	-85.936333	37.022556	Barren	0	70943	Murphy Oil USA Inc 7206	2345 Happy Valley Rd
54	Point	-85.936333	37.022556	Barren	0	70943	Murphy Oil USA Inc 7206	2345 Happy Valley Rd

Table 3: ky90 UST sites, Page 1-2

ADDRESS_2	ADDRESS_3	MAILING_AD	MAILING__1	MAIL_ADD_Z	SUBJECT_IT	TANK_STATU	INSTALL_DA	CLOSED_IN_	REMOVAL_DA
		Glasgow	KY	42141	1	TRM	1/1/1974		8/22/1990
		Glasgow	KY	42141	2	TRM	1/1/1974		5/5/1991
		Glasgow	KY	42141	4	TRM	1/1/1974		3/13/1992
		Glasgow	KY	42141	5	TRM	1/1/1980		3/13/1992
		Glasgow	KY	42141	6	TAC	9/20/1991		<Null>
		Glasgow	KY	42141	7	TAC	3/15/1992		<Null>
		Glasgow	KY	42141	3	TRM	1/1/1974		5/17/1991
		Cave City	KY	42127	1	TAC	8/1/1996		<Null>
		Cave City	KY	42127	1	TAC	8/1/1996		<Null>
		Cave City	KY	42127	1	TRM	1/1/1972		2/23/1993
		Cave City	KY	42127	2	TRM	1/1/1972		2/23/1993
		Cave City	KY	42127	1	TRM	1/1/1979		5/4/1995
		Cave City	KY	42127	2	TRM	1/1/1979		5/4/1995
		Cave City	KY	42127	3	TRM	1/1/1979		5/4/1995
		Cave City	KY	42127	4	TRM	1/1/1979		5/4/1995
		Glasgow	KY	42141	1	TAC	2/16/2005		<Null>
		Glasgow	KY	42141	2	TAC	2/16/2005		<Null>
		Glasgow	KY	42141	2	TAC	2/16/2005		<Null>

Table 3: ky90 UST sites, Page 1-3

COMPARTMEN	TANK_SUBST	OWNER_NAME	OWNER_ADDR	OWNER_AD_1	OWNER_AD_2	OWNER_CITY
1	GAS	Glasgow Airport Board	390 AIRPORT RD			Glasgow
1	GAS	Glasgow Airport Board	390 AIRPORT RD			Glasgow
1	JET	Glasgow Airport Board	390 AIRPORT RD			Glasgow
1	JET	Glasgow Airport Board	390 AIRPORT RD			Glasgow
1	GAS	Glasgow Airport Board	390 AIRPORT RD			Glasgow
1	JET	Glasgow Airport Board	390 AIRPORT RD			Glasgow
1	GAS	Glasgow Airport Board	390 AIRPORT RD			Glasgow
2	GAS	Jeb Development Inc	430 COMMERCE DR			Elizabethtown
1	GAS	Jeb Development Inc	430 COMMERCE DR			Elizabethtown
1	GAS	Jr Food Stores Inc	PO Box 90009			Bowling Green
1	GAS	Jr Food Stores Inc	PO Box 90009			Bowling Green
1	DSL	Mark Strother	803 MAMMOTH CAVE RD	Box 114	Rt 2	Cave City
1	GAS	Mark Strother	803 MAMMOTH CAVE RD	Box 114	Rt 2	Cave City
1	GAS	Mark Strother	803 MAMMOTH CAVE RD	Box 114	Rt 2	Cave City
1	DSL	Mark Strother	803 MAMMOTH CAVE RD	Box 114	Rt 2	Cave City
1	GAS	Murphy Oil USA Inc	200 Peach St			Eldorado
1	GAS	Murphy Oil USA Inc	200 Peach St			Eldorado
2	DSL	Murphy Oil USA Inc	200 Peach St			Eldorado

Table 3: ky90 UST sites, Page 1-4

OWNER_STAT	OWNER_ZIP	F27	F28	F29	F30	F31	LONG_DD_1	LAT_DD_1
KY	42142		85.95	37.029444	85.95	37.029444	-85.95	37.029444
KY	42142		85.95	37.029444	85.95	37.029444	-85.95	37.029444
KY	42142		85.95	37.029444	85.95	37.029444	-85.95	37.029444
KY	42142		85.95	37.029444	85.95	37.029444	-85.95	37.029444
KY	42142		85.95	37.029444	85.95	37.029444	-85.95	37.029444
KY	42142		85.95	37.029444	85.95	37.029444	-85.95	37.029444
KY	42701		85.971944	37.133056	85.971944	37.133056	-85.971944	37.133056
KY	42701		85.971944	37.133056	85.971944	37.133056	-85.971944	37.133056
KY	421029023		0	0	85	38	-85	38
KY	421029023		0	0	85	38	-85	38
KY	42127		85.97245	37.13263	85.97245	37.13263	-85.97245	37.13263
KY	42127		85.97245	37.13263	85.97245	37.13263	-85.97245	37.13263
KY	42127		85.97245	37.13263	85.97245	37.13263	-85.97245	37.13263
KY	42127		85.97245	37.13263	85.97245	37.13263	-85.97245	37.13263
AR	71730		85.936333	37.022556	85.936333	37.022556	-85.936333	37.022556
AR	71730		85.936333	37.022556	85.936333	37.022556	-85.936333	37.022556
AR	71730		85.936333	37.022556	85.936333	37.022556	-85.936333	37.022556

ATTACHMENT 4

**NATIONAL PARK SERVICE
LWCF (SECTION 6(f)) LIST FOR BARREN COUNTY**

**United States Department of the Interior
National Park Service
Land & Water Conservation Fund**

Detailed Listing of Grants Grouped by County

Today's Date: 10/14/2015

Page: 4

KENTUCKY - 21

Grant ID & Element	Type	Grant Element Title	Grant Sponsor	Amount	Status	Date Approved	Exp. Date	Cong. District
BARREN								
2 - XXX	D	BARREN RIVER STATE PARK	DEPT. OF PARKS	\$1,734,500.00	C	12/17/1966	12/31/1972	2
10 - XXX	A	BARREN RIVER STATE PARK ADDITION	DEPT. OF PARKS	\$182,920.00	C	10/22/1968	6/30/1973	2
65 - XXX	D	GLASGOW MINI PARK	DEPT. OF HIGHWAYS	\$27,151.95	C	12/30/1969	12/31/1971	2
179 - XXX	D	GORIN PARK TENNIS COURTS	CITY OF GLASGOW	\$15,699.26	C	7/10/1972	12/31/1973	2
239 - XXX	C	AMERICAN LEGION PARK	CITY OF GLASGOW	\$68,357.25	C	3/1/1974	6/30/1976	2
293 - XXX	D	AMERICAN LEGION PARK POOL	CITY OF GLASGOW	\$40,109.95	C	12/6/1972	12/31/1976	2
449 - XXX	D	BARREN RIVER ST. PK. BICYCLE TRAILS	DEPT. OF PARKS	\$23,974.21	C	3/17/1977	6/30/1979	2
476 - XXX	D	GORIN PARK TENNIS COURTS	CITY OF GLASGOW	\$26,436.01	C	8/10/1977	12/31/1979	2
587 - XXX	D	BARREN RIVER GOLF COURSE EXPANSION	DEPT. OF PARKS	\$306,230.80	C	3/7/1979	3/31/1984	2
646 - XXX	D	GORIN PARK FENCING	CITY OF GLASGOW	\$36,166.71	C	3/3/1980	1/31/1985	2
877 - XXX	A	BRIGADOON NATURE PRESERVE	NATURE PRESERVE COMM.	\$42,029.28	C	9/5/1984	8/31/1986	2
1101 - XXX	D	BRIAN DOYLE PARK IMPROVEMENTS	CITY OF CAVE CITY	\$22,281.82	C	7/31/1991	7/31/1993	2
1135 - XXX	R	GORIN PARK	CITY OF GLASGOW	\$23,000.00	C	6/22/1993	6/30/1995	2
1196 - XXX	D	BEAVER CREEK PARK LIGHTS	CITY OF GLASGOW	\$16,373.14	C	4/22/1997	3/31/1999	2
1220 - XXX	R	CAVE CITY - CAVERNA SCHOOL PARK	CITY OF CAVE CITY	\$22,145.00	C	12/31/2001	9/30/2006	2
1249 - XXX	D	BARREN COUNTY LITTLE LEAGUE FOOTBALL FIELD	BARREN COUNTY FISCAL COURT	\$61,950.00	C	8/8/2002	9/30/2007	2
BARREN County Total:				\$2,649,325.38	County Count:	16		

ATTACHMENT 5

AREAS OF AIR QUALITY CONCERN IN KENTUCKY

- PM 2.5 [1997 Standard] and 8-Hour Ozone [2008] (2013)
- SO₂ [2010] (2015)

Areas of Air Quality Concern in KY: Nonattainment and Maintenance Areas

1997 PM 2.5:

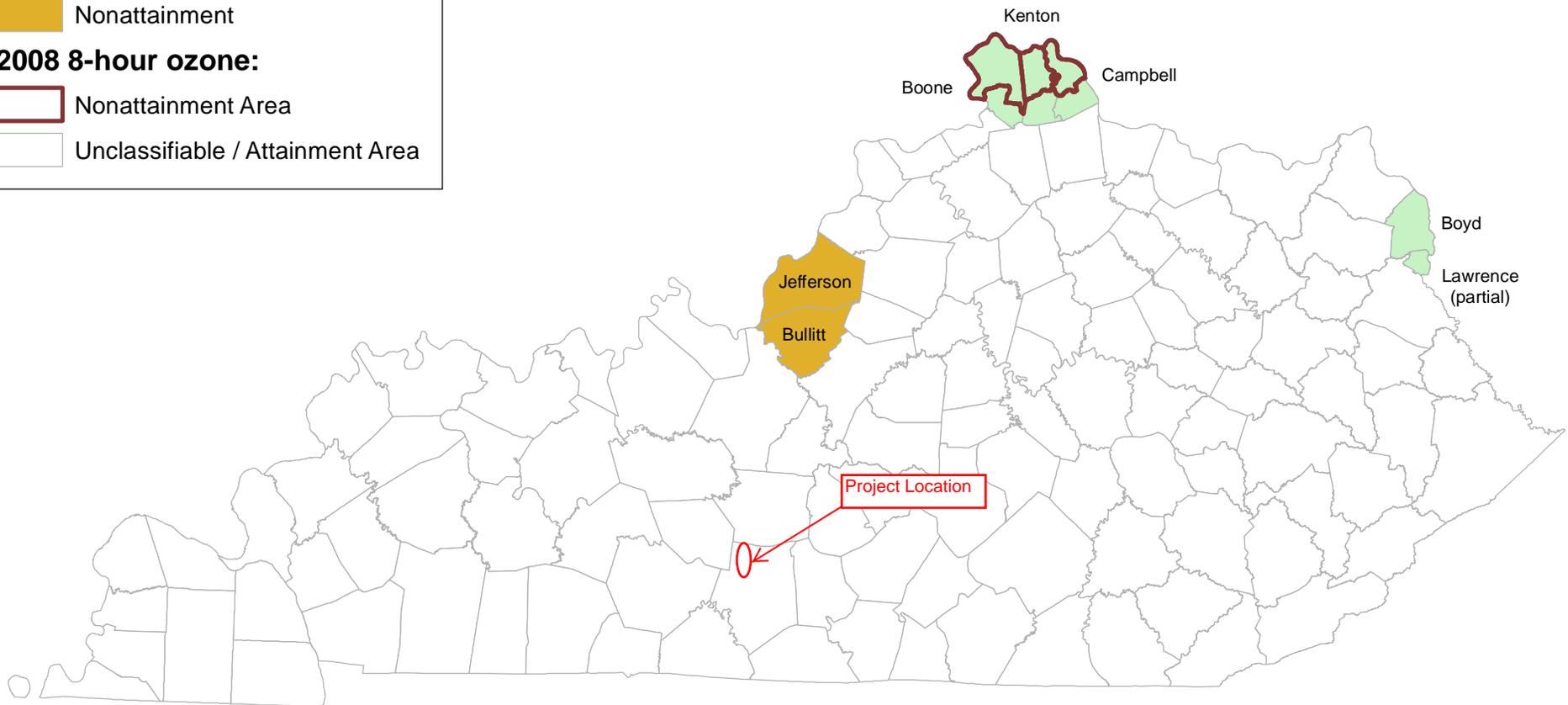
 Maintenance

 Nonattainment

2008 8-hour ozone:

 Nonattainment Area

 Unclassifiable / Attainment Area



As of October 2013

Kentucky SO2 Nonattainment Areas (2010 Standard)



 SO2 Nonattainment Areas



ATTACHMENT 6

ENVIRONMENTAL JUSTICE

- EJ Analysis
- 2010 Census – Census Tract Reference Map for Study Area and Vicinity

**KY 90 Scoping Study
EJ Write-Up**

The project area includes portions of Census Tracts 9501, 9502, 9503, and 9505 in Barren County. Based on the most recent U.S. Census American Community Survey (ACS) data available (2010-2014), the percentage of minority population in the project area is 10.4%, which is slightly higher than the percentage of minority population in Barren County (9.2%) but less than the percentage of minority population in the Commonwealth of Kentucky (14.6%). The percentage of low income population in the project area is 18.4%, which is lower than the percentages of low income population for both Barren County (19.5%) and Kentucky (19.1%).

Environmental Justice Analysis

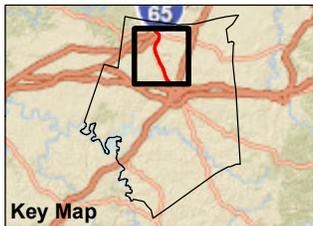
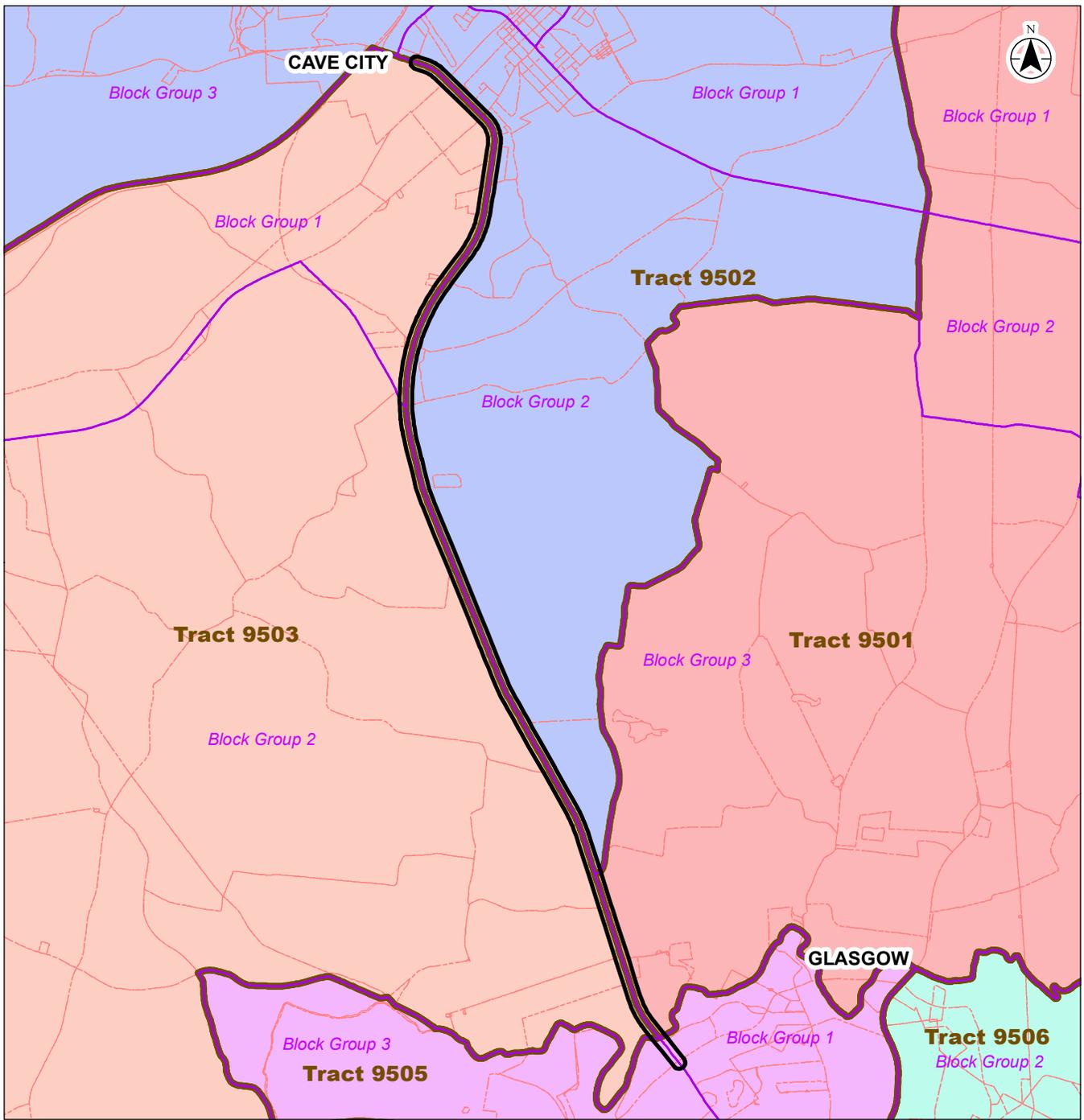
The following Environmental Justice Analysis was completed utilizing the socioeconomic data from the most recent U.S. Census American Community Survey (ACS). The most current data set is the 2008-2014 ACS.

Table 4. EJ Populations

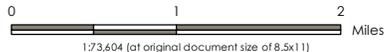
EJ Population	Kentucky	Barren County	Barren County Census Tracts
			Census Tracts 9501, 9502, 9503, and 9505
Minority	14.6%	9.2%	10.4%
Low Income	19.1%	19.5%	18.4%

Sources: US Census 2015, American Community Survey (ACS) 2010-2014

Prepared February 2016



- Legend**
- Study Area
 - Census 2010 Boundary**
 - Block
 - Blockgroup (labelled)
 - Tract (labelled)



Project Location: KY 90, Barren County, Kentucky
 178554021
 Prepared by BL on 2014-01-27

Client/Project: KYTC District 3
 Environmental Overview
 KY 90 Scoping Study, KYTC Item # 3-8819.00

Figure No.: **Attachment 6**
 Title:

2010 Census - Census Tract Reference Map for Study Area

Notes
 1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1400 Feet
 2. Base features produced from project design elements, US Census Bureau TIGER/Shapefiles, 2010.
 3. Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

ATTACHMENT 7

CULTURAL AND HISTORIC RESOURCES

- An Archaeological Overview for the Proposed KY 90 Improvements Project in Barren County, Kentucky (Item No. 3-8819.00); CRA Project No.: K16S003, Prepared by Cultural Resource Analysts, Inc. (CRA), February 5, 2016 [excludes sensitive location information]
- A Cultural Historic Resource Records Review for the KY 90 Scoping Study, Barren County, Kentucky; CRA Project No.: K16S004, Prepared by Cultural Resource Analysts, Inc. (CRA), February 16, 2016

Contract Publication Series 16-020

An Archaeological Overview for the Proposed KY 90 Improvements Project in Barren County, Kentucky (Item No. 3-8819.00)

By:
James Heideman
With a contribution by Heather Barras

Prepared by:



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Prepared for:



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February 5, 2016

Project Description

In January 2016, Cultural Resource Analysts, Inc. (CRA), personnel completed an archaeological records review for the proposed KY 90 Improvements project in Barren County, Kentucky (Item No. 3-8819.00). The review was conducted at the request of Bill Leopold of Stantec Consulting Services, Inc., on behalf of the Kentucky Transportation Cabinet (KYTC). The study area is generally located between Sanders Street in Cave City, and the intersection with U.S. 68 (the Glasgow Outer Loop) in Barren County. The basic goals for the project area are as follows:

- a. Evaluate crash history and geometric deficiencies to identify possible safety improvements.
- b. Use the traffic forecast, completed by KYTC, for evaluation of the capacity of the corridor.
- c. Evaluate possible improvement concepts for KY 90, including corridor wide improvements and spot improvements. Determine potential impacts and costs for improvement options.
- d. Determine which improvements, if any, should move forward to design.

Proposed study activities include, but may not be limited to, an inventory of existing conditions, establishing project purpose and goals, proposing and analyzing alternate improvement options, developing practical solutions and cost estimates, conducting public involvement activities throughout the study process, prioritizing improvements, and writing a technical report(s) to document the study process and results.

The area of potential effect (APE) has been defined as an approximately 152 m (500 ft) wide corridor centered on existing KY 90 (76 m [250 ft] on either side of the highway centerline) for approximately 13.82 km (8.59 mi). In total, the study area encompasses approximately 208.88 ha (516.16 acres) of land. The study area only has one major drainage crossing in the southern portion where it crosses over Beaver Creek. Elevations throughout the study area range from approximately 192 m (630 ft) above mean sea level (AMSL) along the floodplains of Beaver Creek to approximately 253 m (830 ft) AMSL in the uplands of the central portion of the study area.

Records Review

A search of records maintained by the National Register of Historic Places (NRHP) (available at: <http://nrhp.focus.nps.gov/natreghome.do?searchtype=natreghome>) and the Office of State Archaeology (OSA, number not assigned) was conducted to: 1) determine if the study area had been previously surveyed for archaeological resources; 2) identify any previously recorded archaeological sites that were situated within the study area; 3) provide information concerning what archaeological resources could be expected within the study area; and 4) provide a context for any archaeological resources recovered within the study area. The NRHP records indicated that no archaeological sites listed on the NRHP were situated within the current study area.

OSA Geographic Information Systems data requested by CRA on January 13, 2016, was returned on January 20, 2016. The results were researched by Heather Barras of CRA at the OSA between January 21 and 26, 2016. The results of the OSA records review are depicted in Figure 1 (see electronic file). The work at the OSA consisted of a review of professional survey reports and records of archaeological sites located within and/or adjacent to the study area. The study area is within the Glasgow North (United States Geological Survey [USGS] 1973 [Photoinspeted 1979]) and Horse Cave (USGS 1966), Kentucky, 7.5-minute series topographic quadrangles.

Archaeological Resource Review Results

Heather Barras

OSA records revealed that four previous professional archaeological surveys have been conducted within, or adjacent to, the current study area. Six archaeological sites have been recorded in this area also. The records review revealed that all six sites in the file search area (15Bn40, 15Bn41, 15Bn79, 15Bn96, 15Bn161, and 15Bn165) are prehistoric open habitations without mounds.

On April 23 and 24, 1975, Ohio Valley Archaeological Research Associates personnel completed an archaeological survey of the proposed expansion to the Glasgow Municipal Airport in Barren County, Kentucky (Turnbow and Allen 1975). At the request of John Talbert & Associates, Inc., an area of unspecified size was investigated by pedestrian survey. Six archaeological sites were documented within the project area (15Bn40–15Bn45).

Of these, Sites 15Bn40 and 15Bn41 are located within the current file search area. Site 15Bn40 is a large prehistoric open habitation without mounds consisting of three areas of concentration (A–C). The site contains Middle to Late Archaic and Early Woodland occupations. Site 15Bn41 is a large prehistoric open habitation without mounds with a possible Middle Archaic occupation. Further archaeological work in the form of test pits was recommended for both sites (Turnbow and Allen 1975).

Between June 8 and 26, 1995, Cultural Horizons, Inc., personnel conducted an archaeological survey at the request of American Engineers for the proposed construction of a bypass around the town of Glasgow in Barren County, Kentucky (Stallings and Ross-Stallings 1996). The entire length of Alternate A, 9.9 km (6.15 mi) with a 90 m (300 ft) wide corridor, was surveyed. Only high probability areas along Alternate B were surveyed. Field methods consisted of pedestrian survey supplemented with screened shovel testing. Twenty-one archaeological sites (15Bn77–15Bn97) were documented during the survey.

Of these, two are located within the current file search area (15Bn79 and 15Bn96). Site 15Bn79 is a prehistoric open habitation without mounds of indeterminate temporal affiliation. The site was disturbed by the construction of the Beaver Trail. It was considered ineligible for NRHP inclusion, and no further work was recommended. Site 15Bn96 is a large prehistoric open habitation without mounds containing a high density of lithic material dating to the Early Woodland period. Most of the site, however, had been largely destroyed by earth moving equipment and the artifacts were redeposited over a large area. The site was considered ineligible for NRHP inclusion, and no further work was recommended (Stallings and Ross-Stallings 1996).

On June 17, 2004, Arrow Enterprises personnel completed an archaeological survey of .4 ha (1.0 acre) for the proposed Cave City Fire Department sub-station in Barren County, Kentucky (Schock 2004). At the request of Mayor Bob Hunt of Cave City, Kentucky, the project area was investigated by pedestrian survey supplemented with screened shovel testing. No archaeological sites were documented, and project clearance was recommended.

Between May 2 and May 17, 2012, CRA personnel conducted an archaeological survey of a proposed 69kV overhead transmission line between the communities of Cave City and Bon Ayr in Barren County, Kentucky (Kelley and Calhoun 2012). At the request of Josh Young on behalf of East Kentucky Power Cooperative, 43 ha (107 acres) were investigated by intensive pedestrian survey, screened shovel testing, and auger testing. Six archaeological sites (15Bn160–15Bn165) and two isolated finds were documented during the survey.

Sites 15Bn161 and 15Bn165 are located within the current file search area. Both sites are prehistoric open habitations without mounds of indeterminate temporal affiliation. No evidence of intact subsurface features or deposits was found on either site. They were considered ineligible for NRHP inclusion, and no further work was recommended (Kelley and Calhoun 2012).

Archaeological Site Data

The OSA records show that prior to this records review, 291 archaeological sites had been recorded in Barren County (Table 1). The site data indicate that the majority of archaeological sites recorded in Barren County consist of prehistoric open habitations without mounds (n = 126; 43.3 percent) and undetermined site types (n = 108; 37.11 percent). The only other site types recorded in substantial numbers are historic farms/residences (n = 23; 7.9 percent) and caves (n = 16; 5.5 percent). Additional site types recorded in the county include industrial, isolated find, military, mound complex, non-mound earthwork, open habitation with mounds, other, other special activity area, quarry, rockshelter, and workshop.

Table 1. Summary of Selected Information for Previously Recorded Archaeological Sites in Barren County, Kentucky. Data Obtained from OSA and May Contain Coding Errors.

Site Type:	N	%
Cave	16	5.5
Historic Farm/Residence	23	7.9
Industrial	1	0.34
Isolated Find	2	0.69
Military	1	0.34
Mound Complex	2	0.69
Non-mound Earthwork	2	0.69
Open Habitation with Mounds	1	0.34
Open Habitation without Mounds	126	43.3
Other	1	0.34
Other Special Activity Area	1	0.34
Quarry	2	0.69
Rockshelter	4	1.37
Undetermined	108	37.1
Workshop	1	0.34
Total	291	100
Time Periods Represented	N	%
Archaic	36	9.86
Woodland	33	9.04
Late Prehistoric	27	7.4
Indeterminate Prehistoric	223	61.1
Historic	39	10.7
Unspecified	7	1.92
Total	365*	100
Landform	N	%
Dissected Upland	56	19.2
Floodplain	72	24.7
Hillside	37	12.7
Other	1	0.34
Terrace	78	26.8
Undissected Upland	37	12.7
Unspecified	10	3.44
Total	291	100

**One site may represent more than one time period.*

Temporal periods recorded for sites in Barren County consisted of Archaic (n = 36; 9.86 percent), Woodland (n = 33; 9.04 percent), Late Prehistoric (n = 27; 7.4 percent), Indeterminate Prehistoric (n = 223; 61.1 percent), and Historic (n = 39; 10.68 percent). Seven sites recorded in the county are from an unspecified temporal period.

The most common landform locations for sites in Barren County are terraces (n = 78; 26.8 percent) and floodplains (n = 72; 24.74 percent). Sites also are commonly located on dissected uplands (n = 56; 19.24 percent), undissected uplands (n = 37; 12.71 percent), and hillsides (n = 37; 12.71 percent). The 11 remaining sites recorded in the county have been located on other/unspecified landforms.

Map Data

In addition to the file search, a review of the 1879 Barren County atlas (Beers and Lanagan) and the 1938 Horse Cave topographic quadrangle (USGS) was initiated to help identify potential historic properties (structures) or historic archaeological site locations within the proposed study area. The historic maps indicate a number of map structures are located within and/or directly adjacent to the study area. The 1879 county atlas indicated that 19 structures (18 residential, 1 school) are depicted in the vicinity of the study area (Figure 2; see electronic file). The majority of the structures are located along old county roads that have since been rerouted to follow the current KY 90.

The 1938 USGS Horse Cave topographic quadrangle depicts 30 structures (27 residential, 2 schools, 1 church) in the vicinity of the study area (Figure 3; see electronic file). Again, the majority of the structures are located along old county roads that have since been rerouted to follow the current KY 90.

In summary, at least 30 historic structures are located within or directly adjacent to the current study area. The structures depicted were primarily residential, but several schools and one church were also present. The locations depicting historic structures may contain intact archaeological remains associated with historic occupations of the structures. The location depicting a church (Mt. Tabor Church) on the 1938 quadrangle may contain an associated cemetery on the property.

Soil Review

The soils mapped within the study area were also reviewed in order to define areas that may contain intact cultural deposits. The review indicated that a total of 20 soil series were mapped in the study area. These included Baxter, Christian, Crider, Cumberland, Dickson, Garmon, Hamblen, Humphreys, Melvin, Needmore, Newark, Nolichucky, Pembroke, Ramsey, Roellen, Staser, Taft, Talbott, Tarklin, and Weikert series soils. The soil series are classified by the amount of time it has taken them to form and the landscape position they are found on (Birkeland 1984; Soil Survey Staff 1999). This information can provide a relative age of the soils and can express the potential for buried archaeological deposits within them (Stafford 2004). The soil order and group classifications for each soil series are used to assist with determining this potential.

The Baxter (mesic Typic Paleudalfs), Crider (mesic Typic Paleudalfs), Cumberland (thermic Rhodic Paleudalfs), Humphreys (thermic Ultic Hapludalfs), Needmore (mesic Ultic Hapludalfs), Pembroke (mesic Mollic Paleudalfs), and Talbott (thermic Typic Hapludalfs) soil series are classified as Alfisols, which are found on landforms that formed during the late Pleistocene or earlier (Soil Survey Staff 1999:163–167). Archaeological deposits would only be found on or very near the ground surface on landforms mapped with these soils.

The Christian (mesic Typic Hapludult), Dickson (thermic Glossic Fragiudults), Nolichucky (mesic Typic Paleudults), Taft (thermic Glossaquic Fragiudults), and Tarklin (mesic Typic Fragiudults) series soils are classified as Ultisols. These soils can be found on landforms that formed during the late Pleistocene or earlier (Soil Survey Staff 1999:721–726). Archaeological deposits would only be found on or very near the ground surface on landforms mapped with these soils.

The Garmon (mesic Dystric Eutrudepts), Hamblen (thermic Fluvaquentic Eutrudepts), Melvin (mesic Fluvaquentic Endoaquepts), Newark (mesic Fluventic Endoaquepts), Ramsey (mesic Lithic Dystrudepts), and Weikert (mesic Lithic Dystrudepts) soil series are classified as Inceptisols that are found on landforms that formed during the late Pleistocene or Holocene time periods (Soil Survey Staff 1999:489–493). These may have deeply buried and intact archaeological deposits, depending upon the landform on which they formed (e.g., sideslope vs. alluvial terrace).

The Roellen (thermic Vertic Epiaquolls) and Staser (thermic Cumulic Hapludolls) series soils are classified as Mollisols that are found on landforms that formed during the late Pleistocene to Holocene or even earlier (Soil Survey Staff 1999:555–557). They have the potential to contain deeply buried and intact archaeological deposits on level floodplain or terrace landforms.

The Hamblen, Melvin, Newark, Roellen, and Staser series soils have been defined as alluvial soils and encompass 17.95 ha (44.36 acres) of the entire 208.88 ha study area (Figure 4, see electronic file; Table 2). With less than 10 percent of the study area known to contain alluvial soils, the potential for intact deeply buried cultural deposits to be present is low when considering the entire study area.

Table 2. Alluvial soils in the study area.

Soil Symbol	Soil Name	Drainage Class	Soil Family	Age	Acres in APE
Ha	Hamblen silt loam	moderately well drained	thermic Fluvaquentic Eutrudepts	developed in Holocene or late Pleistocene age deposits	7.57
Me	Melvin silt loam	poorly drained	mesic Fluvaquentic Endoaquepts	developed mostly in Holocene deposits	6.26
Nn	Newark silt loam	somewhat poorly drained	mesic Fluventic Endoaquepts	typically developed in Holocene deposits	4.67
Rs	Roellen silty clay loam	poorly drained	thermic Vertic Epiaquaolls	developed in Holocene or late Pleistocene age deposits	3.25
St	Staser silt loam	well drained	thermic Cumulic Hapludolls	developed in Holocene or late Pleistocene age deposits	22.61
Total:					44.36

Summary

The OSA and archaeological resource review indicated that approximately 3.88 ha (9.59 acres) of the entire 208.88 ha study area have been previously surveyed. However, approximately 2.50 ha (6.17 acres) of the previously surveyed study area would need to be resurveyed in order to meet current State Historic Preservation Office (SHPO) specifications for conducting archaeological surveys. No previously recorded archaeological sites have been recorded in and/or directly adjacent to the current study area. A historic maps review indicated that a number of structures were located within and/or directly adjacent to the study area from the mid- to late nineteenth century into the early to mid-twentieth century. These structures may be associated with unrecorded historic archaeological sites; however, the majority of the historic structures are depicted in locations that appear to possibly have been disturbed to an unknown extent by road construction activities associated with rerouting old county roads to follow the current route of KY 90. As a result of the low percentage (8.59 percent) of alluvial soils mapped within the study area, the potential for intact deeply buried cultural deposits to be present throughout the study area is relatively low.

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1879 Map of Barren County, Kentucky. Beers and Lanagan, Philadelphia, Pennsylvania.

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1975 A Survey of the Cultural Resources of the Proposed Airport Expansion Project Area, Glasgow, Kentucky. Ohio Valley Archaeological Research Associates, Lexington, Kentucky. Manuscript on file, Office of State Archaeology, University of Kentucky, Lexington.

United States Geological Survey

1938 Horse Cave, Kentucky, 15-minute series topographic quadrangle. United States Department of the Interior. Washington, D.C.

1966 Horse Cave, Kentucky, 7.5-minute series topographic quadrangle. United States Department of the Interior. Washington, D.C.

1973 (Photorevised 1979) Glasgow North, Kentucky, 7.5-minute series topographic quadrangle. United States Department of the Interior. Washington, D.C.

Figure 1 excluded due to containing sensitive location information.
See Environmental Overview **Figures 4.1 and 4.2** for mapping of previously surveyed archaeological areas.

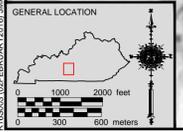
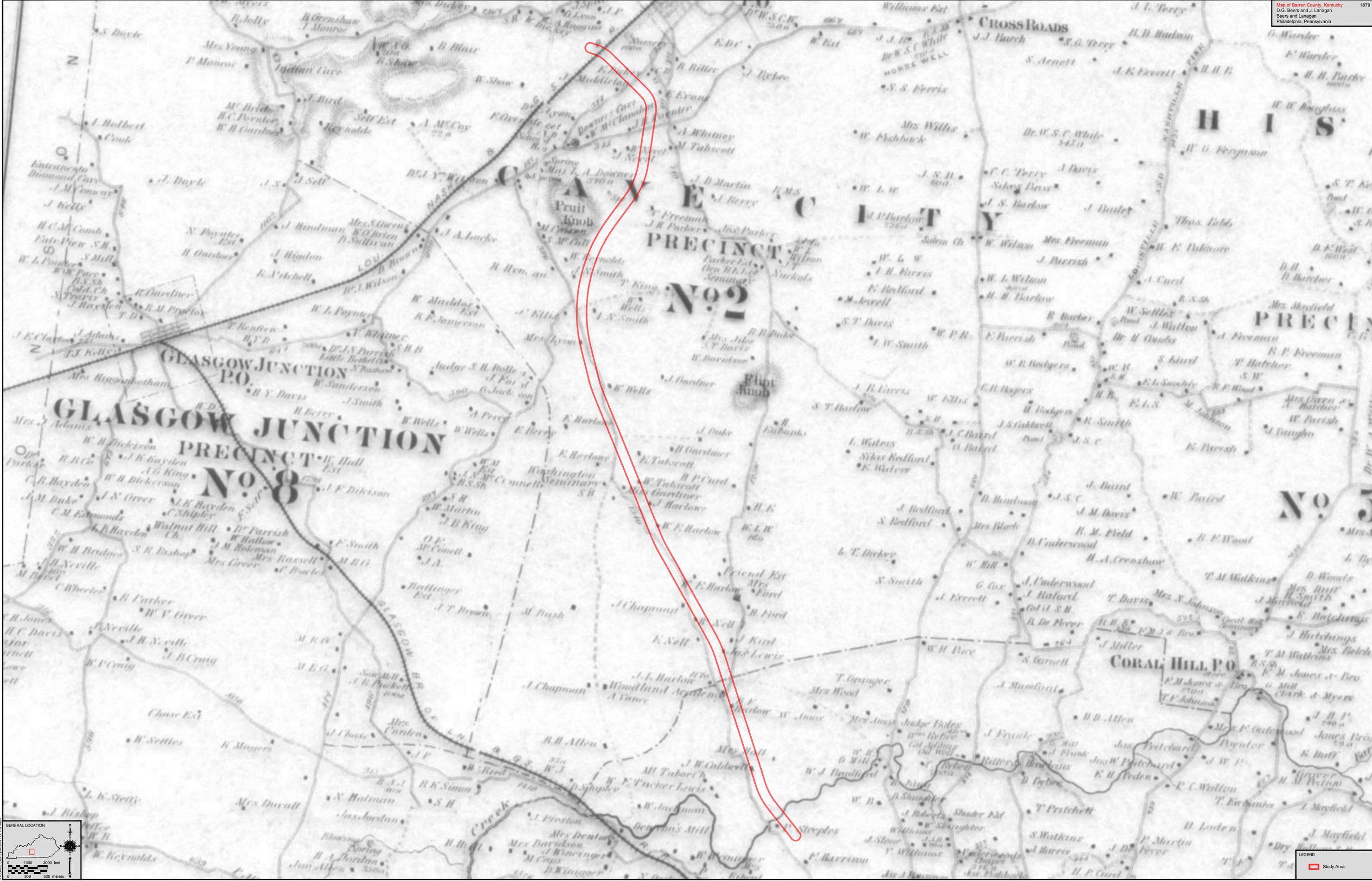
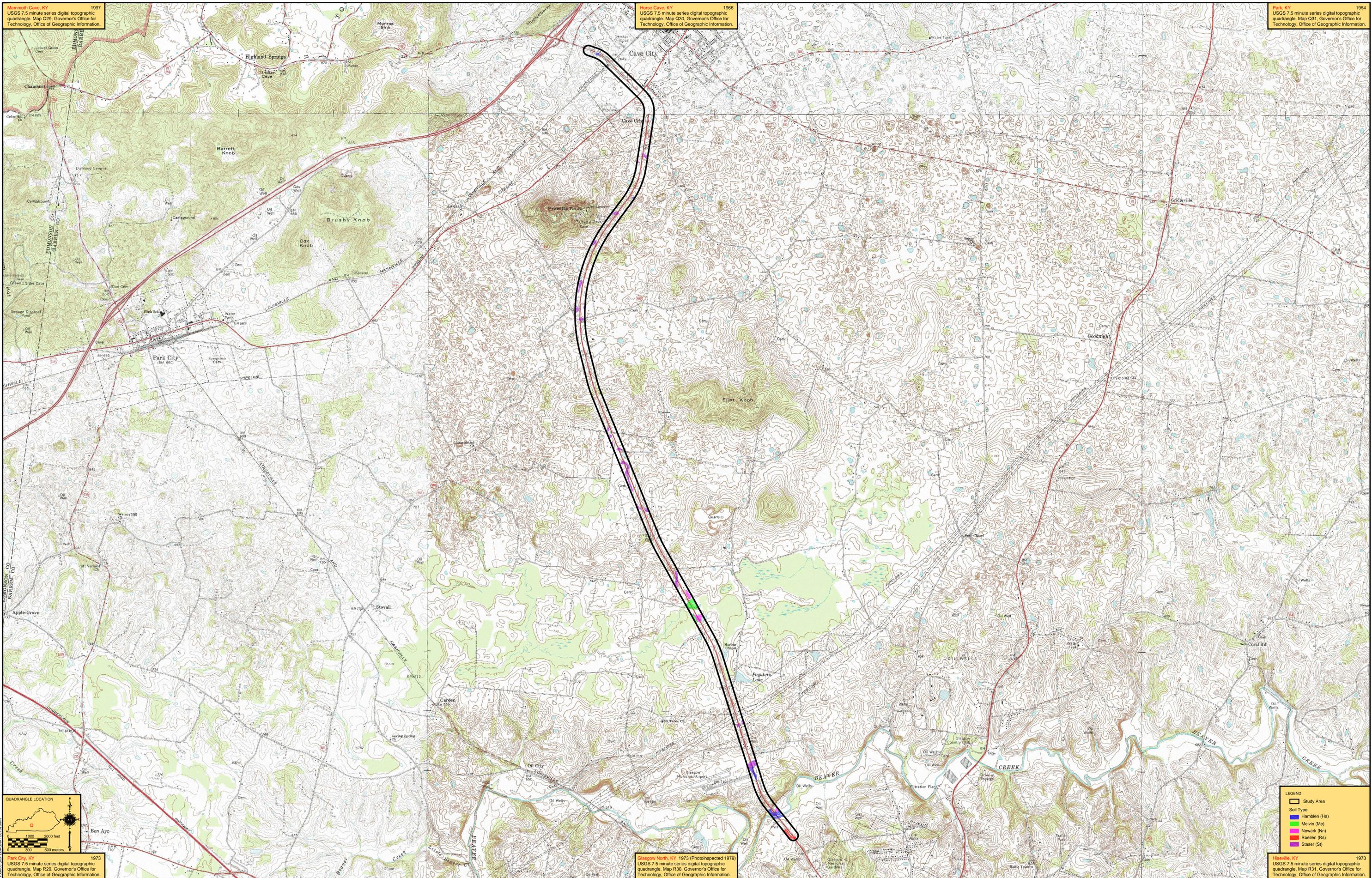


Figure 2. Section of 1879 Map of Barren County showing the current study area.



Figure 3. Section of 1938 USGS Horse Cave topographic quadrangle map showing the current study area.



A CULTURAL HISTORIC RESOURCE RECORDS REVIEW FOR THE KY 90 SCOPING STUDY, BARREN COUNTY, KENTUCKY

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February 16, 2016

Project Background

In January and February 2016, Cultural Resource Analysts, Inc. (CRA), conducted a cultural resource records review for the KY 90 scoping study that closely follows the KY 90 alignment from Glasgow to Cave City in Barren County, Kentucky. The review was conducted at the request of Bill Leopold, Environmental Specialist with Stantec. The study area is centered on the KY 90 alignment as it extends from the intersection of Veterans Outer Loop (US 68 Bypass) northwest of downtown Glasgow, the county seat, and continues in a general northwest direction to near the I-65 interchange west-southwest of downtown Cave City in Barren County, Kentucky. The cultural historic resources along the KY 90 corridor study area are discussed in this report.

Cultural Historic Records Review

A search of records maintained by the National Register of Historic Places (NRHP) (available online at: <http://www.nps.gov/nr/research/>) and the Kentucky Heritage Council (KHC) (FY16_2376) was conducted to: 1) determine if the study area had been previously surveyed for cultural historic resources; 2) identify any previously recorded cultural historic sites that were situated within the study area; and 3) provide information concerning what cultural historic resources could be expected within the study area.

KHC geographic information system (GIS) data requested by CRA on January 14, 2016, was returned on January 19, 2016, and researched by Trent Spurlock and Sarah Reynolds of CRA. The work at the KHC consisted of a review of professional survey reports and records of cultural historic sites for the scoping study.

KHC records revealed that there are four previously surveyed properties that have an undetermined status in the KHC database that are located within the study area. There are also three previously recorded sites with an undetermined status in the KHC database that are outside but near the study area and indicated on the mapping (KHC n.d.). One site located in the study area and three additional sites situated near but outside the study area were identified in a 2012 report. These four sites are not indicated in the KHC database but were recommended not eligible for listing in the NRHP in the 2012 report (Higgins and Martinolich 2012:i). The previously surveyed properties that are outside the study area were included in this report because of their proximity to the study area. The rural setting of the study area enhances the possibility that large property boundaries of the previously surveyed sites could extend into the study area.

Historic Properties and Districts

One multiple resource area nomination has been completed for Barren County. This is not a nomination, per se, but is a cover document that includes contexts and information to determine the NRHP eligibility of associated properties. Individual properties or groups of properties may be listed in the NRHP under the cover document, thereby creating a multiple property submission. The Barren County Multiple Resource Area (MRA) NRHP nomination was completed in August 1982 by Jayne Henderson, Main Street Project Director for the Carrollton Development Corporation. The nomination focuses on five historic contexts for the county: early Barren County development (1799–1850); Glasgow's early settlement; religion; stabilization and late nineteenth century growth; twentieth century growth in the county. No sites located in the study area were individually nominated to the NRHP under the Barren County MRA NRHP nomination. The Cave City Commercial Historic District, located east of the northern terminus and outside the study area, was listed in the NRHP under the Barren County MRA (Henderson 1982).

Properties with Undetermined Status in the KHC Database

Four previously surveyed properties that have an undetermined status in the KHC database are situated within the study area (Table 1). The four properties, all of which are residences, include: BN 218; BN 219; BN 512; and BN 513. Three previously surveyed properties are also situated near but outside the study area (BN 220, BN 221, and BN 269) (KHC n.d.). One site (BN 573) located in the study area and three additional sites (BN 572, BN 575, and BN 576) situated near but outside the study area were identified in a 2012 report. These four sites are not indicated in the KHC database but were recommended not eligible for listing in the NRHP in the 2012 report (Higgins and Martinolich 2012:i). Because of their proximity to the study area, the six previously identified properties outside the study area are included in Table 1 and the mapping for this report.

Table 1. Cultural Historic Resources with Undetermined NRHP Status located within the Study Area.

KHC Resource Number	Resource Name	Address	Notes
BN 218	House	HWY 90	
BN 219	Russell Gardner House	HWY 90 4.5 miles north of US 31E	
BN 512	House	3079 Happy Valley Road (KY 90)	Recommended not eligible for NRHP in 2009 report
BN 513	House	2951 Happy Valley Road (KY 90)	Recommended not eligible for NRHP in 2009 report
BN 573	Two barns	Old Happy Valley Road (KY 2143)	Recommended not eligible for NRHP in 2012 report
BN 220	Davidson Garner Home	Happy Valley Road (KY 90)	Located near but outside the study area; recommended not eligible for NRHP in 2006 report
BN 221	House	9187 Happy Valley Road (KY 90)	Located near but outside the study area; recommended not eligible for NRHP in 2012 report
BN 269	Commercial building	Flint Knob Road	Located near but outside the study area
BN 572	Ranch house and outbuildings	598 Old Happy Valley Road (KY 2143)	Located near but outside the study area; recommended not eligible for NRHP in 2012 report
BN 575	Ranch house, garage, barn	137 Old Happy Valley Road (KY 2143)	Located near but outside the study area; recommended not eligible for NRHP in 2012 report
BN 576	House and barns	150 Wilson Road (KY 685)	Located near but outside the study area; recommended not eligible for NRHP in 2012 report

Previous Cultural Historic Reports within the Study Area

Barren County Heritage: A Pictorial History of Barren County, Kentucky was located in the files of the KHC. The book, published in 1980 and including numerous photographs, was compiled by the South Central Kentucky Historical and Genealogical Society, Inc., with Cecil E. Goode and Woodford L. Gardner, Jr. serving as editors. Chapters in the book address the various towns and communities in the county, aspects of rural life, historic residences, social institutions such as schools and churches, economic engines over the county's history, and chapters about professions and military history (Goode and Woodford 1980).

In 1992 the Barren County Bicentennial Commission published *Then and Now: Barren County's Celebration* pamphlet in observance of Kentucky's Bicentennial celebration. Brief chapters in the publication address the history of the county, businesses, communities, residences, county and city government, agriculture, and various other industries and entertainment (Barren County Bicentennial Commission 1992).

Helen C. Powell of H. Powell and Company, Inc., completed the *Cultural Resource Survey of the Proposed Construction (of the) Glasgow Outer Loop From KY 80 to the Cumberland Parkway in Glasgow, Barren County, Kentucky* in 1995. The report was prepared for American Engineers of Glasgow, Kentucky. The purpose of the report was to survey for the proposed 6.15 mi half loop road that would extend from the east to west side of Glasgow along a northern route. The proposed project began at U.S. 68 west of Glasgow and curved to the north of the county seat ending at Salem Road

southeast of the Cumberland Parkway. Twenty-six properties were surveyed for the 1995 report. No NRHP-listed properties were located along the proposed roadway corridor, and three properties along the corridor were recommended as eligible for listing in the NRHP. The proposed 1995 project crossed the current study area. The three properties recommended as NRHP eligible in the 1995 report are not located in or near the current study area. It appears two sites surveyed for the 1995 report that were recommended not eligible for listing in the NRHP were located on either side of KY 90 in the vicinity of present-day Veterans Outer Loop (US 68). KHC site numbers and KHC historic resources survey forms were not completed for the properties surveyed for the 1995 report (Powell 1995:I-1, V-1, Figure 1, Map with Photograph Key).

A May 1996 report entitled *Description of the Jackman Bank Barn* was completed by David and Donna G. Logsdon of Logsdon and Logsdon Architects for the Glasgow Airport Board. The barn, situated near the Glasgow Municipal Airport possibly near Martin Road was described as a timber-framed structure utilizing mortise and tenon and false plate roof construction. In June 1996 David and Donna G. Logsdon prepared the report entitled *Specifications for the Dismantling and Re-Erection of the Jackman Bank Barn* for the Glasgow Airport Board. The barn was to be re-erected at 238 Caveland Road south of Cave City to the west of KY 90 and outside the current study area. The June 1996 report includes details and specifications for the dismantling and reconstruction of the barn such as site work, concrete, stonework and masonry, qualified contractors, procedures for dismantling and re-erection, carpentry work, and roofing specifications. Although the two locations of the barn are outside the current study area, because of the barn's relocated proximity to the study area (approximately .17 mi southeast of the study area along Caveland Road), the 1996 reports were included in this study (Logsdon and Logsdon 1996a:1-4; Logsdon and Logsdon 1996b:1-9).

In 2000 Donna G. Logsdon of Logsdon and Logsdon Architects prepared the Barren County Historic Sites Survey Proposal for the South Central Kentucky Historical and Genealogical Society and the KHC. The proposal included a windshield survey, updating previously surveyed sites, and the documentation of approximately 500 sites that had not been previously identified, including photography and completion of KHC inventory forms (Logsdon 2000:3).

The *EPRI Overhead Electric Transmission Line Siting Methodology Results for East Kentucky Power Cooperative's Memphis Junction – Natcher Parkway Junction 161 kV Transmission Line, Barren – Oakland – Magna 1614 kV Transmission Line, and Wilson – Aberdeen – Morgantown 161 kV Transmission Line Projects* report was located during the records review. This report is undated but was probably completed circa 2005 by Photo Science, Inc., of Lexington, Kentucky, and East Kentucky Power Cooperative (EKPC) of Winchester, Kentucky. The report addresses the methodology utilized for determining the siting of the three proposed electric transmission lines that were to be located in portions of Ohio, Butler, Warren, and Barren Counties, Kentucky. The proposed Barren – Oakland – Magna transmission line project would have extended over KY 90 in the current study area. This circa 2005 report does not include information concerning historic sites in the corridors for the three proposed electric transmission line corridors (Photo Science Inc. and EKPC n.d.)

Craig A. Potts of CRA completed the *Cultural Historic Reconnaissance Survey for the Proposed Barren County-Oakland-Magna Transmission Line Project in Barren and Warren Counties, Kentucky* in March 2006. The report was prepared for the EKPC in Winchester, Kentucky. The APE for the 2006 report crossed the KY 90 study area in the vicinity of BN 220, near its intersection with Lee Fendell Road and Harlow Cemetery Road. Site BN 220, which includes a log core, was surveyed for the 2006 report and recommended not eligible for listing in the NRHP. The State Historic Preservation Officer (SHPO) concurred Site BN 220 was not eligible for listing in the NRHP (Potts 2006:40 and 43; D. L. Morgan to M. S. Plank, letter 31 October 2006, report files of the KHC, Frankfort, Kentucky).

In 2009 the *Form 620 Submission Packet, Glasgow III Telecommunications Tower, Glasgow, Barren County, Kentucky* was completed by Patriot Engineering and Environmental, Inc. for

Cumberland Cellular Partnership dba Bluegrass Cellular. The cultural historic portion of the report was prepared by Fred J. Rogers and R. Glen Payne, with contributions from Ginger M. Shank, of Preservation Services and Technology Group, LLC. One previously identified site (BN 208) could not be located during the survey and was assumed no longer extant. Two previously unidentified resources (BN 512 and BN 513) were located during the field survey and recommended not eligible for listing in the NRHP. The SHPO agreed with these recommendations. Resources BN 512 and BN 513 have an undetermined NRHP-status according to the KHC GIS database. The APE for the 2009 report overlaps with the current study area in the vicinity of the Glasgow Municipal Airport and both BN 512 and BN 513 are located in the current study area (Rogers and Payne 2009; M. Dennen to L. R. Barrow, letter 15 June 2009, report files of the KHC, Frankfort, Kentucky).

Holly B. Higgins and Kathy Martinolich of CRA completed the *Cultural Historic Resource Survey for the Proposed Cave City – Bon Ayr 69KV Transmission Line in Barren County, Kentucky* in 2012. The report was prepared for EKPC of Winchester, Kentucky. The newly identified sites surveyed for the 2012 report are not indicated in the KHC GIS database. One site (BN 573) recorded for the 2012 report is located in the study area. Four additional sites (BN 221, BN 572, BN 575, and BN 576) identified for the 2012 report are located near but outside the current study area. The 2012 report recommended all five sites were not eligible for listing in the NRHP. The SHPO concurrence letter did not specifically agree with the NRHP eligibility recommendations of the authors (Higgins and Martinolich 2012:I; L. Casebier to J. Young, letter 1 August 2012, report files of the KHC, Frankfort, Kentucky).

Cultural Historic Records Review Results

As indicated on the ARC GIS mapping, historic resources have been surveyed in and near the study area along the KY 90 alignment. All of the previously identified historic properties within and near the study area have an undetermined status in the KHC database.

Numerous historic resources have been recorded in the rural areas within and outside the study area. It would be expected that many more historic resources are located in or near the study area, especially properties with outbuildings associated with agricultural operations. These rural agricultural properties may retain landscapes with intact integrity that could support large boundaries, if the sites are eligible for listing in the NRHP. Mid-twentieth-century residences are expected to be located within the study area as residents began building dwellings outside the central sections of Glasgow and Cave City.

CRA recommends that any projects developed as a result of this scoping study should avoid impacts to historic properties that may be later identified in the study area. Additional cultural historic investigations may be required to identify previously undocumented cultural historic resources in the vicinity of any such projects.

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Henderson, Jayne

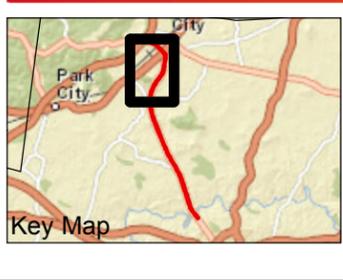
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1996b *Specifications for the Dismantling and Re-Erection of the Jackman Bank Barn*. Logsdon and Logsdon Architects, Horse Cave, Kentucky.
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n.d. *EPRI Overhead Electric Transmission Line Siting Methodology Results for East Kentucky Power Cooperative's Memphis Junction – Natcher Parkway Junction 161 kV Transmission Line, Barren – Oakland – Magna 1614 kV Transmission Line, and Wilson – Aberdeen – Morgantown 161 kV Transmission Line Projects*. Photo Science Inc., Lexington, Kentucky and East Kentucky Power Cooperative, Winchester, Kentucky.
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- Rogers, Fred J. and R. Glen Payne
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ATTACHMENT 8

PHOTO LOG



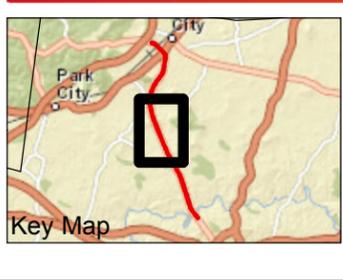
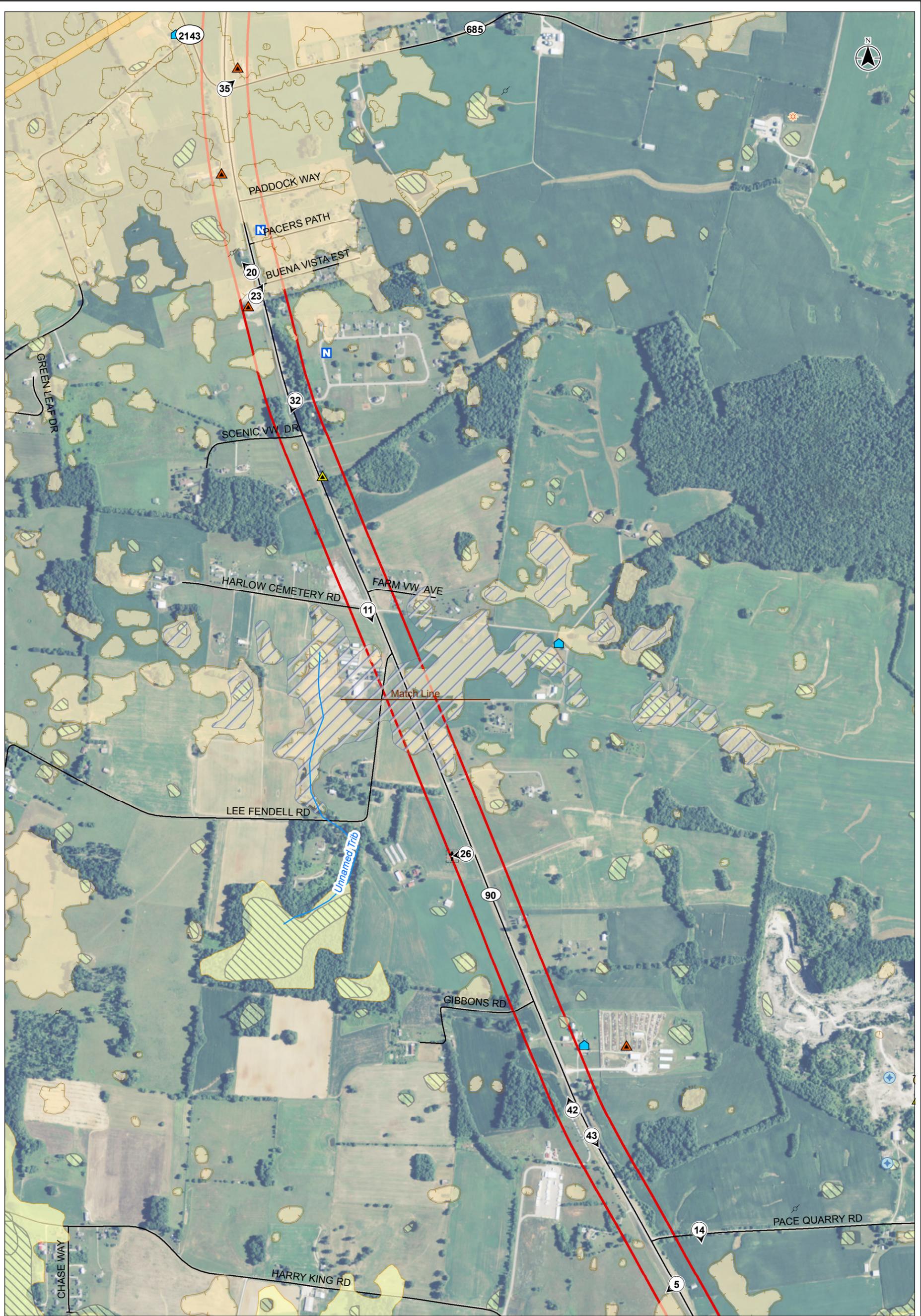
Legend	
	Study Area
	Photograph Number, Location and Direction
	Streams
	100-Year Flood Zone
	Sinkhole
	Hydric Soils
	Parks
	NWI Wetland
	City Boundary
	Cemetery
	House of Worship
	Noise Receptor
	Potential Hazmat
	Utility
	Cultural/Historic Site
	Archaeology Survey
	HazMat Record
	UST Record
	Oil/Gas Well
	Well Other
	Water Well
	Domestic Use
	Other

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Notes
 1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
 2. Base features: see Figure 3, Figure 4 and Sources and References.
 3. Base Imagery: USGS-NAIP, 2014.

Project Location	KY 90	178554021
	Barren County, Kentucky	Prepared by BL on 2016-01-15
Client/Project	KYTC District 3	
	Environmental Overview	
	KY 90 Scoping Study, KYTC Item # 3-8819.00	
Figure No.	Index-1	
Title	Photolog Index	

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Legend	
	Study Area
	Photograph Number, Location and Direction
	Streams
	100-Year Flood Zone
	Sinkhole
	Hydric Soils
	Parks
	NWI Wetland
	City Boundary
	Cemetery
	House of Worship
	Noise Receptor
	Potential Hazmat
	Utility
	Cultural/Historic Site
	Archaeology Survey
	HazMat Record
	UST Record
	Oil/Gas Well
	Well Other
	Domestic Use
	Other

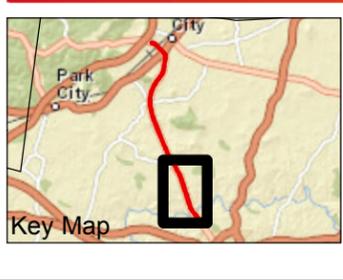
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Notes
 1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
 2. Base features: see Figure 3, Figure 4 and Sources and References.
 3. Base Imagery: USGS-NAIP, 2014.

Project Location
 KY 90
 Barren County, Kentucky
 Client/Project
 KYTC District 3
 Environmental Overview
 KY 90 Scoping Study, KYTC Item # 3-8819.00
 Figure No.
Index-2
 Title
Photolog Index

178554021
 Prepared by Bl on 2016-01-15

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Legend	
	Study Area
	Photograph Number, Location and Direction Streams
	Streams
	100-Year Flood Zone
	Sinkhole
	Hydric Soils
	Parks
	NWI Wetland
	City Boundary
	Cemetery
	House of Worship
	Noise Receptor
	Potential Hazmat
	Utility
	Cultural/Historic Site
	Archaeology Survey
	HazMat Record
	UST Record
	Oil/Gas Well
	Well Other
Water Well	
	Domestic Use
	Other

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Notes
 1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
 2. Base features: see Figure 3, Figure 4 and Sources and References.
 3. Base Imagery: USGS-NAIP, 2014.

Project Location
 KY 90
 Barren County, Kentucky
 Client/Project
 KYTC District 3
 Environmental Overview
 KY 90 Scoping Study, KYTC Item # 3-8819.00
 Figure No.
Index-3
 Title
Photolog Index

178554021
 Prepared by BL on 2016-01-15

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Photo 1: Beaver Creek at KY 90 bridge, with narrow to moderate wooded riparian corridor; fully supporting warmwater aquatic habitat and drinking water supply; facing downstream, west.



Photo 2: Unnamed, intermittent stream flowing under KY 90; the only other USGS mapped stream (aside from Beaver Creek) within the study area; facing upstream, northeast.



Photo 3: Representative view of forested NWI mapped wetland in study area; facing northwest.



Photo 4: Representative view of excavated pond NWI mapped wetland observed in study area; facing northeast.



Photo 5: Representative view of intermittent pond NWI mapped wetland in study area; pond located in sinkhole; facing southwest.



Photo 6: Representative view of emergent/scrub-shrub wetland observed in study area; facing east.



Photo 7: Representative view of potential Indiana bat and Northern long-eared bat foraging habitat, upland woodlot in study area; facing east.



Photo 8: Representative view of potential habitat for federal-listed snuffbox and rabbitsfoot mussels, Beaver Creek, and Indiana bat and Northern long-eared bat foraging habitat, riparian woodland; facing upstream, east.



Photo 9: Indication of potential habitat for gray bat and Kentucky cave shrimp in study area vicinity, known cave entrance present adjacent to study area; facing north.



Photo 10: Representative view of evidence of karst landscape, sinkholes present in open field; facing northwest.



Photo 11: Representative view of karst landscape along KY 90 alignment; sinkholes and associated FEMA 100-year floodplain in depression; facing southeast.



Photo 12: Representative view of FEMA 100-year floodplain along Beaver Creek, riparian woods and open field; facing southwest.



Photo 13: Active horse farm present in and adjacent to study area; facing south.



Photo 14: Agricultural fields and active farmland in study area; facing south.



Photo 15: Mammoth Liquors, former gas station; representative hazardous materials concern site, FINDS and UST database records; facing south.



Photo 16: Dollar General Store #3493; representative hazardous materials concern site, RCRA and FINDS database records; facing southeast.



Photo 17: Approximate location of hazardous materials concern, SPILLS (3) and SHWS database records, all resulting from traffic accidents; facing southwest.



Photo 18: Hazardous materials concern site, EDR Historical Auto Station record; facing west.



Photo 19: ACK Controls, Inc.; representative hazardous materials concern site, RCRA, AIRS and FINDS database records; facing southeast.



Photo 20: Oil well storage tank located in study area, well presently reported as dry and abandoned; facing northwest.



Photo 21: Happy Valley Apartments, representative noise sensitive receptor multi-family housing in study area; facing west.



Photo 22: Crystal Onyx MHP (mobile home park), representative noise sensitive receptor residential neighborhood, also location of hazardous materials concern site (US HIST CDL [meth lab] database record); facing southwest.



Photo 23: Buena Vista Estates, representative noise receptor residential development in study area; facing northwest.



Photo 24: Cave City Tabernacle, house of worship located in commercial structure (right of center) in study area; facing west.



Photo 25: Caveland Church, house of worship in study area; facing west.



Photo 26: Family cemetery (Gardner) located in study area; facing west.



Photo 27: CSX railroad underpass (public service) at KY 90; facing north.



Photo 28: Electrical substation (utility) located at Estes Road and KY 90 in study area; facing northwest.



Photo 29: Two gas pipeline markers indicating pipeline crossings of KY 90 just south of Dripping Springs Road; facing southeast.



Photo 30: Glasgow Municipal Airport facility buildings adjacent to KY 90; facing southwest.



Photo 31: Typical view of rural residential land use in study area, along KY 90 south of Cave City; facing northeast.



Photo 32: Typical view of rural residential land use in study area along KY 90 through center of study area; facing southwest.



Photo 33: View of commercial land use at north project terminus in Cave City; facing northwest.



Photo 34: View of commercial land use concentrated along KY 90 in Cave City; facing southeast.



Photo 35: View of scattered commercial land use (Cars & Trucks R Us used car sales) along KY 90 outside of city limits; facing northeast.



Photo 36: Madison Smith Machine & Tool, industrial facility at south project terminus in Glasgow; facing south.



Photo 37: View of KY 90 at project north terminus, intersection with Sanders Street, Cave City; commercial land uses adjacent to KY 90, where roadway constricts from 4-lanes to 2-lanes; facing southeast.



Photo 38: US 31W and KY 90 intersection, Cave City; commercial land uses adjacent to only signalized intersection in project corridor with the exception of south terminus; facing northeast.



Photo 39: View of KY 90 into Cave City commercial area; facing northwest.



Photo 40: View of KY 90 heading south out of Cave City; commercial interspersed with agricultural/undeveloped lands; facing south.



Photo 41: KY 90 in unincorporated Barren County; agricultural with scattered rural residential and commercial land uses, area of extensive sinkhole development; facing south.



Photo 42: KY 90 in unincorporated Barren County; agricultural with scattered rural residential and commercial land uses; southbound passing lane present; facing northwest.



Photo 43: KY 90 looking towards Glasgow from approximately the highest elevation in the project corridor; facing southeast.



Photo 44: KY 90 at US 68 (Glasgow Outer Loop) in Glasgow, south project terminus; industrial and commercial land uses adjacent to roadway; facing northwest.