KENTUCKY TRANSPORTATION CABINET

URS

PHASE I ARCHAEOLOGICAL SURVEY OF THE KY 32 IMPROVEMENT ROWAN AND ELLIOTT COUNTIES ITEM NO. 9-192.00

June 2013

PREPARED FOR:

KENTUCKY TRANSPORTATION CABINET

LEAD AGENCY:

FEDERAL HIGHWAY ADMINISTRATION

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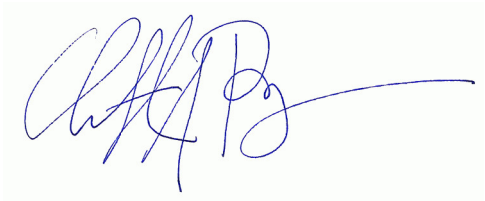

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ABSTRACT

URS Corporation (URS) was contracted by the Kentucky Transportation Council (KYTC) to conduct preliminary design and National Environmental Policy Act (NEPA) evaluation/documentation for the KY 32 Improvement Project (the Project) in Rowan and Elliott Counties, Kentucky (KYTC Item No. 9-192.00). As part of the NEPA process, consideration of the effects of this project upon any historic properties, under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (16 U.S.C 470 *et seq*., as amended through 2000), is required.

In order to comply with Section 106 of the NHPA, URS conducted a Phase I archaeological survey for the Project from February 19 to March 9, 2013, and from May 20 to 21, 2013. The Phase I archaeological survey covered the entire 12.1-mile (19.5-kilometer) preferred alignment.

The Area of Potential Effect (APE) for the Project consists of land to be directly impacted by ground disturbance, which includes land within the proposed right of way (ROW), which includes both temporary and permanent easements. The APE totals approximately 605.6 acres (or 245.1 hectares) in combined size. The indirect or visual APE for this Project was evaluated separately by Brown (2011).

The background research identified 20 previously recorded archaeological sites and two unconfirmed archaeological sites within two kilometers (1.2 miles) of the Project APE. None of these resources were identified directly within the Project. The Phase I archaeological survey utilized both pedestrian reconnaissance and shovel testing to examine 6,161 Sample Loci (SL) within the Project APE. . These SL documented that most of the Project is located on slope that is 15 percent or greater (n=5,370, 87 percent). The field survey identified a total of five archaeological resources (site 15El75, and isolated finds Johnson, Shelton, Hunter, and H Simmons), all of which are recommended as not eligible for listing in the NRHP.

The results of the Phase I survey indicate that the proposed undertaking will not impact any potentially eligible or eligible archaeological resources. Therefore, no further archaeological investigations are recommended.

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1.0 INTRODUCTION

URS Corporation (URS) was contracted by the Kentucky Transportation Cabinet (KYTC) to conduct preliminary design and National Environmental Policy Act (NEPA) evaluation/documentation for the KY 32 Improvement Project (the Project) in Rowan and Elliott Counties, Kentucky (KYTC Item No. 9-192.00). The lead agency for the Project is the Federal Highway Administration.

As part of the NEPA process, consideration of the effects of the Project upon any historic properties, under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (16 U.S.C 470 *et seq*., as amended through 2000), is required. In order to comply with Section 106 of the NHPA, URS conducted a Phase I archaeological survey that covered the preferred alignment, which consisted of approximately 605.6 acres (245.1 hectares) along a 12.1-mile (19.5-kilometer) long corridor adjacent to the existing KY 32. Figures 1.1 and 1.2 illustrate the Project.

The purpose of the archaeological investigation was to locate and identify archaeological resources within the Project Area of Potential Effect (APE) using the guidelines set forth by the Kentucky Heritage Council (KHC) in Sanders (2006). Identification of resources allowed for an assessment to be made of their significance in light of the criteria for inclusion in the National Register of Historic Places (NRHP). Recommendations were then formulated for avoidance or mitigation procedures of any culturally sensitive or significant properties.

In order to comply with the NHPA, several research strategies were employed:

- Background research, specifically a literature and physiographic review, of the Office of State Archaeologist (OSA) files in Lexington, Kentucky; and,
- Field reconnaissance of the Project Area of Potential Effect (APE), which included surface inspection of exposed soils and fixed-interval shovel testing.

To gain access to the OSA files for the background research, URS submitted the OSA project registration form and literature review request to the OSA on October 29, 2010, and received data back on November 8, 2010 (OSA Registration # FY11-5996). The background research indicated that there were no archaeological sites, historic structures, or NRHP-listed properties within the Project APE.

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LEGEND

- Centerline
- Segment Boundary
- Proposed Right-of-Way

0 580 1,160
Scale in Meters

0 2,000 4,000
Scale in Feet

N

BASE MAP SOURCE:
ArcGIS Online, USA Topo Maps
Kentucky 7.5' Topographic Quadrangles
Ault, and Bruin

KENTUCKY TRANSPORTATION CABINET

KY 32 Improvement
Rowan Elliott County

FIGURE 1.1
OVERVIEW OF THE PROJECT

JOB NO. 15009051

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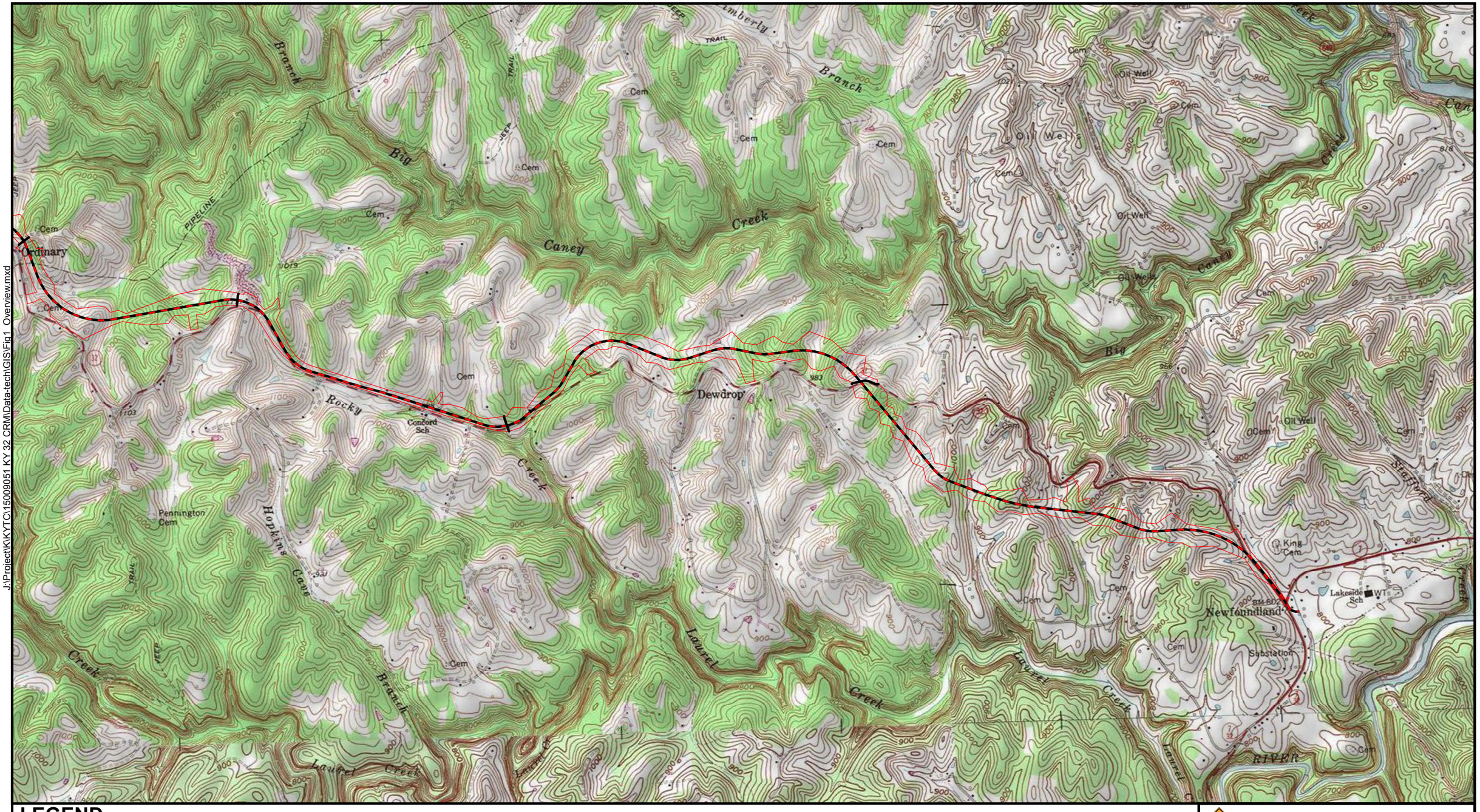

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KY 32 Improvement
Rowan Elliott County

FIGURE 1.2
OVERVIEW OF THE PROJECT

JOB NO. 15009051

URS

The field survey was conducted by Ms. Crista M. Haag, M.A. (Field Director), Mr. Jonathan M. Stroik, M.S. (Field Director), and field technicians, Ms. Jennifer A. Wulffin, M.A., RPA, Ms. Meghan B. Marley, M.A., Mr. Christopher A. Bowen, A.A., and Mr. Justin M. Fryer, B.A., of URS from February 19 to March 9, 2013 and from May 20 to 21, 2013. The crew spent approximately 146.5 hours (per person) in the field conducting the survey. There were weather delays (rain and ice), but no access issues, etc. that restricted the field effort.

Report preparation and analysis was the responsibility of Mr. Stroik and Ms. Haag. Christopher A. Bergman, Ph.D., RPA served as the Principal Investigator for the Project. Key personnel associated with the Project are already on file at the KYTC.

URS surveyed approximately 605.6 acres (245.1 hectares) for the Project. Both pedestrian reconnaissance and shovel testing were utilized with 6,161 SL being surveyed. The field survey identified a total of five archaeological resources (site 15El75, and isolated finds Johnson Site, Shelton Site, Hunter Site, and H Simmons Site), all of which are recommended as not eligible for listing in the NRHP.

1.1 Project Description and Project Area of Potential Effect

The KYTC has undertaken a study to consider the relocation, realignment, or reconstruction of KY 32 between KY 504 at Elliottville in Rowan County and KY 7 at Newfoundland in Elliot County. KY 32 is a two-lane rural road and is considered a major roadway in eastern Kentucky that connects southeastern Kentucky counties, including Elliott County, with I-64 and Morehead State University located in the city of Morehead in Rowan County. The Project includes 605.6 acres (245.1 hectares) of land requirements, along a 12.1-mile (19.2-kilometer) long corridor adjacent to the existing KY 32.

The APE for this survey consisted of land proposed to be directly impacted by ground disturbance, which includes both temporary and permanent easements within the proposed right of way (ROW). This area measures approximately 605.6 acres (or 245.1 hectares) in size. An indirect, or visual, APE for this Project was evaluated by Brown (2011), and was therefore not evaluated as part of the current survey.

2.0 ENVIRONMENTAL OVERVIEW

The following narrative describes the prehistoric and historic environmental setting of the project area in order to develop a context for understanding the location and preservation of cultural resources. Environmental conditions, including climate, and the related floral and faunal communities, significantly influenced the type and extent of prehistoric and historic settlement and subsistence patterns.

2.1 Physiographic Region

The Project is situated within the eastern portion of Rowan County and the western portion of Elliott County. It is located within the Pennsylvania System of the Eastern Kentucky Coal Field physiographic region. The Eastern Coal Field Region, or Cumberland Plateau, is generally characterized by intricately dissected Pennsylvanian-aged rocks where wooded mountain crests extend in all directions, these mountain slopes are carved by ravines eroded through thick, relatively flat lying sequences of Pennsylvanian sandstones, shales, conglomerates and coal. The major drainage pattern is dendritic where the sinuous valleys have narrow bottoms and steep walls (Newel 2001). According to McFarlan (1943):

> "*The Cumberland (Allegheny) Plateau is a maturely dissected plateau of varying altitude and relief and with local variation in character which is the expression of variation in rock outcrop and character. It is a region of dendritic drainage with its complementary maze of irregularly winding narrow-crested ridges and deep narrow valleys. Flat land, either upland or lowland, is at a minimum, though locally in areas of shale outcrop considerable bottoms have been developed. Also massive sandstones have given rise to local upland flats.*"

2.2 Geology

The geology of the Eastern Coal Field Region includes the Breathitt and Lee Formations, which are comprised of the previously mentioned constituents of interbedded sandstones, shales, conglomerates, and coal, along with siltstone, and to a lesser extent, limestone. The older Lee Formation contains orthoquartzitic sandstone as a primary component, which is more erosion resistant, less prone to landslides, and contributes to cliff outcrops and river knickpoints in the region. The Breathitt Formation overlies the Lee Formation

and consists of less resistant subgraywacke sandstone interbedded with the other constituents (Vesely et al. 2008:3, Table 2.1).

2.3 Soils

The Project crosses three soil associations (roughly west to east): Latham-Shelocta, Muskingum-Ramsey-Wellston, and Rock land-Monongahela-Pope (Weisenberger et al 1961; Avers et al. 1973; Soil Survey Staff 2006, 2013). The soils within these associations are typically found in upland settings, along ridges, or along steep slopes and drainages. Notable exceptions are the Stendal, Morehead, and possibly the Cranston Series, which are identified in level floodplains, low terraces, and alluvial or colluvial fans. Most of these soils are characterized as well drained and are typically used for pasture and hay, or for crops such as tobacco, corn, beans or grains. A list of each soil type present within the APE is provided below:

- Cranston gravelly silt loam, 2 to 6 percent slopes
- Cranston gravelly silt loam, 6 to 12 percent slopes
- Cranston gravelly silt loam, 12 to 20 percent slopes
- Gilpin silt loam, 6 to 12 percent slopes
- Gilpin silt loam, 12 to 20 percent slopes
- Gilpin-Ramsey complex, 2 to 12 percent slopes
- Gilpin-Ezel-Cotaco complex, 0 to 6 percent slopes
- Gilpin-Ramsey complex, 6 to 25 percent slopes
- Gilpin-Shelocta complex, 25 to 45 percent slopes
- Gilpin-Steinburg-Blairton complex, 12 to 25 percent slopes
- Hartsells fine sandy loam, 6 to 12 percent slopes
- Hartsells fine sandy loam, 12 to 20 percent slopes
- Latham silt loam, 6 to 12 percent slopes

- Latham silt loam, 12 to 20 percent slopes
- Latham silt loam, 20 to 30 percent slopes
- Latham-Shelocta silt loam, 12 to 20 percent slopes
- Latham-Shelocta silt loam, 20 to 30 percent slopes
- Latham-Shelocta silt loam, 30 to 50 percent slopes
- Morehead silt loam
- Rigley gravelly fine sandy loam, 20 to 30 percent slopes
- Rigley stone fine sandy loam, 30 to 60 percent slopes
- Rigley-Rock outcrop complex, 30 to 70 percent slopes
- Shelocta loam, 12 to 30 percent slopes
- Shelocta-Grigsby-Orrville complex, 2 to 15 percent slopes
- Steinsburg-Ramsey rocky sandy loam, 6 to 20 percent slopes
- Stendal silt loam

2.4 Hydrology

The Licking and the Big Sandy Rivers are the primary drainages and watersheds for the Project area. More specifically, the Project area within Rowan County is drained by Big Caney Creek, Caney Creek, Christy Creek, Clifty Creek, Laurel Creek, Wallace Branch, Riddle Fork, and other smaller tributaries. The portion of the Project area within Elliott County is drained by Big Caney Creek, Clifty Creek, Laurel Creek, Rocky Creek, and smaller unnamed tributaries.

2.5 Flora

As the structure of vegetation controls the character and species composition of animal populations, it is "fundamental to hunting communities in determining their life style" (Evans 1978:4). This is also true for early Euro-American communities for whom vegetational patterns determined, in large part, the choice of settlement sites (Gordon

1969; Hulbert 1930). For example, Gordon (1969:41) reports that "*stands of mixed oak, walnut, basswood, and black (sugar) maple had a high priority among the Woodland Indians and the early buyers of land for farming. They soon learned that the forest soils that supported such magnificent forests were possessed of extraordinary natural fertility*."

The floral reconstructions are based on two types of evidence: palynological and early land survey records. The former indicates the types and frequencies of floral species present in an assemblage, while the latter data indicate the distribution of natural forest types prior to European settlement. The earliest vegetational patterns of the post-glacial succession and subsequent shifts in climax forest constituents are derived primarily from palynological evidence. More recent forest types (post-Hypsithermal) are assumed to have been quite similar to those present at the time of contact. Work done by Yarnell (1974:47) revealed that, "*the climate probably remained much the same for the past 4,000 years...except for relatively minor fluctuations and the general vegetational patterns have not changed much during this period*." With a stable climate, vegetational patterns over the past 4,000 years in most of the eastern United States have also remained consistent. Consequently, direct historic reconstruction can be based provisionally on vegetation patterns observed at the time of the first European pioneers.

Within Kentucky and the Project area, early settlers would have encountered mature deciduous forests with grassy glades (Pollack 2008:11). These mature deciduous forests are characterized as the Appalachian Mixed Mesophytic forest, which is characterized with a variety of dominant trees species (Braun 1950). In upland settings with deep soils, trees such as yellow birch, yellow poplar, mountain maple, sugar maple, beech, eastern hemlock, mountain laurel, and rhododendron, and shallower upland soils would have supported black and white oak, scarlet oak, chestnut oak, white ash and red cedar. Magnolias, oaks, hickories, walnuts, elms, birches, ashes, basswoods, maples, locusts, sycamores, grand tulip poplar, black gum, sweet gum, eastern hemlock, black cherry, American beech, and yellow buckeye are present in lower elevations.

Today within the Project fewer woodland areas have been cleared for farmland and some areas are reverting to forest. According to Avers et al (1974:86), 76 percent of Rowan County was forested and Elliott County is 70 percent forested (Weisenberger et al. 1961:27). The areas that are forested contain, predominately, mixed hardwoods, which were also common historically with intermixed glades; however, some red cedar and even

pine or hemlock may be present. In areas that are reverting to forests, red cedar is more common (Soil Survey Staff 2011).

2.6 Fauna

During the Late Pleistocene, the development of open grazing lands and boreal forests would have supported a wide array of mammals adapted to cool climates. Evidence suggests that these types of biomes along the glacier's southern margins were exploited by megafauna indigenous to these areas, specifically the woodland musk ox (*Ovibos moschatus*), mastodon and woolly mammoth (*Mammut* sp.), barren ground caribou (*Rangifer tarandus*), giant beaver (*Castoroides* sp.), and moose-elk (*Cervacles scotti*) (Cleland 1966: 91-92; Prufer and Baby 1963:55; Ritchie and Funk 1973).

Over the course of several hundred years, climatic moderation gradually altered the glacial-boreal ecosystem in the Midwest. This trend, which has usually been assigned to some indeterminate time period beginning around 7000 B.C, was typified by a warmer climate with predominantly drier seasons. The megafauna of the Late Pleistocene suffered massive extinction and was replaced by smaller animals (similar to contemporary species) that filled the opening faunal ecological niches.

Contemporary faunal resources within the project area include both openland and woodland wildlife. Openland wildlife consists of several bird species such as pheasants, quail, meadowlarks, field sparrows, and doves, and mammal species such as cottontail rabbits (*Sylvilagus floridanus*), red foxes (*Vulpes vulpes*), and woodchucks (*Marmota monax*) (Forsythe and Jacobs 1986). Woodland wildlife consists of bird species such as ruffed grouse (*Bonasa umbellus*), woodcock (*Philohela minor*), thrushes, vireos, tanagers, and woodpeckers, and mammal species such as squirrels (*Sciurus* sp.), gray foxes (*Urocyon cinereoargenteus*), white-tailed deer (*Odocoileus virginianus*), raccoons (*Procyon lotor*), and opossum (*Didelphis virginiana*; Forsythe and Jacobs 1986). Several large mammals that were important to prehistoric subsistence patterns that have been subsequently hunted into local extinction include elk or wapiti (*Cervus elaphas*), bison (a possible Late Prehistoric species), cougar (*Felis concolor*), black bear (*Ursus americanus*), and wolves (*Canis* sp.).

2.7 Climate

Climate reconstruction is based, predominantly, on palynological evidence that depends on broad floral patterns sensitive to specific climatic characteristics and variation. This evidence is generally located in lake and pond sediments. The continental glaciers originating in the arctic and sub-arctic regions of the North Pole shaped climatic trends during the Late Pleistocene in the eastern United States. During the Late Pleistocene, a moist, cool climate succeeded a drier, cooler period.

Around 8,000 B.P. a warming/drying trend occurred which is often referred to as the "Hypsithermal" or "Altithermal." This trend profoundly affected vegetation patterns until 4,000 B.P. Modern floral patterns were in place sometime after 4,000 B.P. by the end of the Hypsithermal period. Warm air masses from the Gulf of Mexico influenced the vegetation and climactic patterns of the region. The major climatic event during the late Holocene is the "Little Ice Age" or the Neo-Boreal episode, which dates from 348 B.P. to 50 B.P. or ca. A.D. 1,600 to A.D. 1,900. This shift to a cooler climate may have had a dramatic effect on local prehistoric populations, perhaps resulting in a shorter growing season. The impact on Late Prehistoric populations is poorly understood, but some researchers suggest changes in community size and plans, as well as social organization, were a result of this phenomenon (Henderson 1998).

The modern climate for the Project area, located in the southeast portion of North America, falls under the Köppen Climate Classification is Humid Sub-tropical (Köppen *Cfa*) regime. The inland location of Kentucky contributes to a climate that exhibits broad seasonal variations in temperature ranges between summer and winter. Average daytime temperatures in the summer range between 84˚ and 62 ˚Fahrenheit. Typical summer days in Kentucky are normally sunny, warm, and humid. Winter temperatures range between 42˚ and 19˚ Fahrenheit. Winters are rarely harsh and cloudy skies are expected; most areas receive approximately 40 percent of the available sunshine. Springtime is relatively wetter than fall, which is Kentucky's "dry season." Statewide, average annual precipitation is approximately 46 inches (KyClimate Center 2013).

3.0 CULTURAL OVERVIEW

The following discussion is a synthesis of various sources regarding the known prehistoric and early historic cultures of the Project area and the surrounding region. While a lack of systematic investigation, as opposed to a lack of evidence, is responsible for the current dearth of archaeological information, existing regional data allows some extrapolation. Additionally, this pertinent regional information can provide a framework for addressing the problem of site significance, as well as suggest certain research questions concerning the area's cultural resources.

3.1 Paleoindian Occupation (14,000 B.C. to 8,000 B.C.)

Over the past 20 years, there has been an increase in the number of Paleoindian sites in Kentucky, however, the amount of new research that has been conducted from the identification of these sites remains relatively limited (Maggard and Stackelbeck 2008). The Project area is within the Upper Kentucky/Licking - Gorge Section (Rowan County) and Big Sandy – Lower Big Sandy Section (Elliott County) Management Areas, areas delineated by the KHC to organize the geographic distribution of archaeological resources across the state. According to Maggard and Stackelbeck (2008), there are twelve Paleoindian sites recorded within the Upper Kentucky/Licking Management Area, and seven of these sites occur within the Gorge Section. Four sites were open habitations without mounds, two sites were rockshelters, and one was a mound complex (15Po3) with an isolated Paleoindian artifact. It is important to note, that none of these sites were recorded in Rowan County.

Within the Big Sandy Management Area, there are fifteen Paleoindian sites, and thirteen occur within the Lower Big Sandy Section (Maggard and Stackelbeck 2008). All of the thirteen sites are recorded as open habitations without mounds, and none were located within Elliot County.

Tankersley (1996:22-37) divides the Paleoindian period in Kentucky into three subperiods based upon Point Projectile Knife (PPK) styles: Early Paleoindian (Clovis), from 9,450 to 8,950 B.C.; Middle Paleoindian, from 8,950 to 8,450 B.C. (Cumberland, Beaver Lake, Quad, and Simpson); and Late Paleoindian (unfluted Lanceolate and Dalton), from 8,450 to 7,950 B.C. These subperiods, in addition to much of the information about Paleoindian subsistence, settlement patterns, and chronology comes from evidence outside of the Commonwealth.

According to Maggard and Stackelbeck (2008), archaeological components indicative of the Early, Middle, and Late Paleoindian subperiods have been identified across the state of Kentucky. Furthermore, no sites of pre-Clovis age have been identified in Kentucky; although a number of possible pre-Clovis sites have been documented in regions surrounding Kentucky, where the cultural assemblages are reported within depositional contexts occurring stratigraphically below Clovis layers. Possible pre-Clovis sites in the surrounding environs include the Cactus Hill site in Virginia, the Topper Site in South Carolina, the Big Eddy site in Missouri and the Meadowcroft Rockshelter in Pennsylvania (Maggard and Stackelbeck 2008).

3.1.1 Early Paleoindian

Around 17,000 years ago, the final glacial advance of the Pleistocene, known as the Wisconsin stage, began to recede north. Regions below the glacial border were cloudy, rainy, and cool. Ice margin fluctuations, as well as the resulting climatic conditions, induced a rapid and widespread change in floral and faunal communities (Freeman et al. 1996:385). These rapid climatic changes lead some researchers to believe that stability within floral communities did not exist anywhere in eastern North America during the Late Pleistocene (Freeman et al. 1996:385).

The development of open grazing lands and boreal forests supported a wide array of mammals adapted to cool climates. Evidence suggests that the megafauna indigenous to the areas, exploited the types of biomes along the glacier's southern margins. Recent blood-residue analysis on fluted PPKs from northwestern North America suggests that Paleoindians hunted a slightly modified set of large mammals, primarily caribou and mammoth, but supplemented with bison, bear, sheep (*Ovis dall*), and musk ox. Within Kentucky, Paleoindian societies exploited mammalian resources in conjunction with numerous floral resources (Freeman et al. 1996:385; Tankersley 1996:27).

The most visible and diagnostic item in the Early Paleoindian assemblage is the fluted Clovis PPK (Agenbroad 1988:63; Tankersley 1994:96). In addition, the Early Paleoindian toolkit includes chipped stone knives and scrapers, awls, and two types of flaking hammers. Each implement in the toolkit was used for different purposes; for example, Early Paleoindians used the Clovis PPK for hunting big game and for penetrating the hides of megafauna. Once the point penetrated the hide, the shaft was easily withdrawn, leaving the point embedded in the prey's body (Frison 1989; Tankersley 1996). Early Paleoindians manufactured chipped stone knives and scrapers made from flakes struck

from chert nodules, and long blades struck from prepared chert cores (Green 1963). Paleoindians used these tools to butcher game and process plant fibers. Awls made from antler, bone, or ivory were used to manufacture baggage, clothing, and shelter (Tankersley 1996:24). Finally, Paleoindians used two types of flaking hammers (a round hammerstone and thick cylindrical billet made from ivory, antler, bone, or wood) to make various tools by striking flakes off stone cores (Tankersley 1996:26). The entire toolkit was lightweight and portable in order for Clovis groups to carry it across the landscape.

Early Paleoindians were small bands of highly mobile hunter-gatherers. Early Paleoindian bands moved their camps several times a year, resulting in small, short term, specialized activity sites scattered across the landscape. These small sites are only evident as surface finds or as scattered lithics. Larger, more diversified Early Paleoindian sites do occur; these sites typically are on terrace and floodplain settings where Clovis groups could monitor, procure, and process game, or near high quality raw material sources where Clovis groups could manufacture and refurbish their toolkits (Tankersley et al. 1990).

Based on a study of fluted PPKs, Rolingson (1964) found that the densest concentrations of Paleoindian artifacts occur in the Jackson Purchase, Western Coalfield, and Bluegrass regions of Kentucky. The best example is the Little River Paleoindian complex, located in Christian County, Kentucky (Gramly and Yahnig 1991; Smith and Freeman 1991). The Little River Paleoindian complex has several sites containing evidence of Paleoindian occupation. These sites include the Adams site (15Ch90), the Boyd (Ledford) site (15Ch236), the Roeder site (15Ch482), and the Ezell site (15Ch483) (Freeman et al. 1996:396). All of the sites have Clovis components and appear to have been lithic reduction/procurement locales, exploiting the high quality "Hopkinsville Chert" that occurs in abundance within the region (Freeman et al 1996; Tankersley 1989). Investigations at the Adams site have revealed a single-component Paleoindian site, complete with fluted points, preforms, blades, and blade cores (Sanders 1983, 1988, 1990). The Adams site is located adjacent to a sinkhole, possibly associated with an old pond or marsh. In Kentucky, Clovis blades at the Adams and the Joe Priddy (15Hd583) sites are mostly unmodified with a few examples showing some evidence of retouching along the side or end that modified the blades to form cutting and scraping tools. These sites containing evidence of blade technology, in Kentucky, tend to be located in proximity to high quality raw material exposures (Haag 2004; Maggard and Stackelbeck 2008).

3.1.2 Middle Paleoindian

The Middle Paleoindian period shows an increase in stylistic diversity when compared to the toolkit of earlier Paleoindian groups. Paleoindians during this timeframe have two main PPKs known as Gainey and Cumberland. These points are different from Clovis points because of their deeper and more rounded basal concavities (Tankersley 1996). In addition, the Middle Paleoindian toolkit does not contain the prismatic blades and polyhedral cores found in early Paleoindian toolkits. A bipolar lithic reduction technique replaces blade technology. This technological shift occurs because of the increased use of poorer raw material in the Middle Paleoindian period. Spurred endscrapers and limaces become common in the Paleoindian toolkit as well (Tankersley 1996).

In addition to technological changes, climatic changes during the Middle Paleoindian period affected vegetation and animal species. Vegetation was continuously changing, and because of these changes, animal herds reorganized, shifted ranges, or went extinct (Guilday 1982, Webb 1988). Megafauna were not all extinct, but there was a substantial reduction in their populations.

3.1.3 Late Paleoindain

By the Late Paleoindian period, unfluted points were present in the archaeological record; there was a change in subsistence, and a growth in population. Late Paleoindian PPKs were still lanceolate in shape, but unfluted. The main point type found during the Late Paleoindian period was the Dalton point, which occurred in the Midwestern and Southeastern United States (Justice 1987). In addition to the change in PPKs, Late Paleoindians manufactured beveled bifaces, backed bifaces, proximal endscrapers or sidescrapers, narrow endscrapers, hafted perforators, and backed and snapped unifaces (Ellis and Deller 1988). Many of these changes in the Late Paleoindian toolkit occurred because of changes in vegetation and fauna. Megafauna were extinct, so Late Paleoindian groups focused on smaller game such as white-tailed deer, bear, and turkey (Tankersley 1996).

With resources more evenly dispersed, Late Paleoindian groups were less mobile than their predecessors (Tankersley 1996). They practiced a more settled way of life, probably with smaller territories and only seasonal migration. As these groups settled on the landscape, Late Paleoindians inhabited areas not previously occupied by earlier

Paleoindian groups. Sites start appearing in the mountains and Late Paleoindian groups began utilizing rockshelters (Tankersley 1996).

The archival research conducted for the Project did not identify any evidence of a previously-recorded Paleoindian occupation within two kilometers (1.2 miles) of the Project.

3.2 Archaic Occupation (8,000 B.C. to 900 B.C.)

The Archaic period spans 7,000 years and refers to the archaeological remains of post-Pleistocene hunter gatherers that did not make or use pottery (Stoltman 1978:708). The change in climatic conditions and available food resources led to dramatic changes in subsistence and settlement strategies, quite different from the Paleoindians (Stafford 1997). The Archaic period is divided into three subperiods (Early, Middle, Late) based on temporal, technological, social, subsistence, and settlement criteria. The Early Archaic ranges from 8,000 to 6,000 B.C., the Middle Archaic from 6,000 to 3,000 B.C., and the Late Archaic from 3,000 to 1,000 B.C.

Within the Upper Kentucky/Licking Management Area, 277 Archaic components have been identified- 84 are unassigned Archaic, 80 are Early Archaic, 44 are Middle Archaic, and 151 are Late Archaic (Jefferies 2008:Table 4.35). In the Big Sandy Management Area, 181 Archaic components have been identified- 65 are unassigned Archaic, 40 are Early Archaic, 17 are Middle Archaic, and 59 are Late Archaic (Jefferies 2008:Table 4.42).

3.2.1 Early Archaic

During the Early Archaic period, the expanding deciduous forests produced a more favorable habitat for game species, particularly the white-tailed deer (Cleland 1966:92). Concurrently, there was a shift from the use of Paleoindian lanceolate points to more diversified types such as the Kirk, MacCorkle, St. Albans, Charleston, and LeCroy points or knives. Within the Gorge, most documented Early Archaic sites contain Kirk Corner-Notched, Kirk Stemmed, LeCroy, and St. Albans Side-Notched PPKs (Jefferies 2008). Within the Lower Big Sandy, most documented Early Archaic sites contain Kirk Corner-Notched, Kirk Stemmed, LeCroy, MacCorkle, St. Albans, Charleston, Lost Lake, St. Charles, Thebes, Pine Tree, and Decatur PPKs (Jefferies 2008). Early Archaic peoples added woodworking and milling tools to the assemblage including axes, gouges, drills, and

grinding stones (Chapman 1975:6; Jennings 1978:12). Small mobile groups gradually shifted to more geographically restricted settlement patterns, as seasonally-oriented hunting and gathering activities focused on smaller, more easily exploited territories. A narrow, yet nutritious, spectrum of plant foods seems to have been utilized, with deer hunting becoming the primary subsistence activity (Chapman 1975:232-233; Cleland 1966:92). Aquatic resources, such as fish and mussel, were not as important in the earlier portion of the Archaic period as they were in the earlier Paleoindian period (Jefferies 1996).

According to Jefferies (1996:40), Early Archaic bands in Kentucky were small and the sites they occupied were generally of short-term occupation. Early Archaic materials have been recovered in a wide variety of settings such as rockshelters, river terraces and floodplains, floodplain ridges, high points overlooking major streams or confluences, and upland settings.

Only one site within two kilometers (1.2 miles) of the Project, 15Ro145, which lies 86 meters (282 feet) south of the Project, has an Early Archaic component. This resource, which also contained an historic-era archaeological component, was classified as an "inventory site" which does not currently meet NR criteria.

3.2.2 Middle Archaic

During the Middle Archaic period, the continuing improvement in the climate led to a greater variety of available resources. The onset of the Hypsithermal climatic interval ushered in a warmer and drier period in Kentucky that greatly changed the vegetational patterns in the region (Jefferies 1996:47). The diversification of subsistence procurement activities increased and a pattern of exploitation of seasonal resources began to grow in importance. The Middle Archaic economy became more diffuse, with a continued emphasis on exploitation of white-tailed deer in conjunction with wild and passenger pigeons (*Ectopistes migratorius*), but with utilization of a wider variety of plant foods (Cleland 1966:92-93). Specialization in certain activities generated a more complex social structure within the band network as evidenced by what Griffin (1978:229) calls the early indication of "status differentiation among the band members."

The material remnants of Middle Archaic culture reflect the increasingly sophisticated technology adapted to the intensive exploitation of forest and riverine biomes (Jefferies 1996:47). There was an increase in ground and polished stone tools, full grooved axes,

pendants, and winged and cylindrical bannerstones. One of the most characteristic elements of Middle Archaic material culture is the development of regional point styles (Cook 1976; Fowler 1959; Lewis and Lewis 1961; Nance 1986b). Within the Gorge and Lower Big Sandy Sections, Morrow Mountain, Stanly Stemmed, and various side notched PPKs characterize the Middle Archaic (Justice 1987; Jefferies 2008).

The reduction of forested areas, with an inferred increase of grassland during the Hypsithermal, affected settlement patterns during the Middle Archaic (Conaty 1985; Janzen 1977; Jefferies 1983; Jefferies 1996; Nance 1985). The ephemeral nature of Middle Archaic sites suggests high mobility by small bands, similar to that described for the Early Archaic (Jefferies 1996:50). By the late Middle Archaic, however, some sites contain deep middens, a high diversity of tool types, and burials, indicating intensive occupations of some sites (Brown and Vierra 1983; Conaty 1985; Janzen 1977; Jefferies 1983; Jefferies 1996; Nance 1985). Examples of these large Middle Archaic occupations occur along the Ohio River, near Louisville, and these include the Reid, Hornung, and Miller sites.

The archival research conducted for the Project did not identify any evidence of a previously-recorded Middle Archaic occupation within two kilometers (1.2 miles) of the Project.

3.2.3 Late Archaic

In the Late Archaic period, the expansion of deciduous forest reached its most northern limit (around 2,000 B.C.), and the climate was warmer than present day (Cleland 1966:3). Coinciding with the increase of territorial permanence was the appearance of regional cultural adaptations. Late Archaic people utilized a wider array of specialized objects such as steatite and sandstone bowls, stone tubes and beads, polished plummets, net sinkers, whistles and rattles, birdstones, boatstones, bone awls, needles, and perforators (Chapman 1975:6). Ceremonialism became increasingly important, as evidenced through more elaborate, formalized mortuary practices and the presence of exotic burial goods procured through emerging trade networks (Chapman and Otto 1976:20). These data suggest that some level of change in social organization was taking place, along with changes in subsistence and settlement (Conaty 1985; Fowler 1959; Jefferies 1983; Jefferies 1996; Nance 1985, 1986a).

Cultural groups prior to the Late Archaic incorporated some seasonal patterning into their subsistence strategy. Scheduling the exploitation of differentially available resources, however, intensified during the Late Archaic, the trend being towards greater efficiency in the exploitation of plant and animal resources. The tendency culminated in the Late Archaic with what Caldwell (1958) defined as "primary forest efficiency." This statement describes the complete and effective adaptation to, and utilization of, a forest edge environment. The model for Late Archaic settlement and subsistence patterns is that of mobile hunter-gatherers with a band level social structure (Jobe 1983). The size and composition of the mobile groups would vary in accordance to the distribution and availability of resources across the landscape and through the seasons (Boisvert 1986).

Late Archaic sites are characteristically of large size and represent long occupations. Settlement systems reflected the need for changing vocational criteria as a response to seasonal resources. During the spring and summer, the exploitation of shellfish, fish, turtles, migratory birds, and other aquatic resources produced concentrations of sites characterized as small camps on slight knolls. Winter campsites were situated above the valleys for the effective exploitation of upland game such as deer, other mammals, and birds.

The first evidence of cultigens appears in Late Archaic assemblages and the earliest date documented in Missouri and Kentucky is about 2,300 B.C. (Chomko and Crawford 1978:405). At Salts Cave in Hart County, Kentucky, chenopod (*Chenopodium sp.*), sunflower (*Helianthus annuus*), and gourd seed (*Cucurbita pepo*) dated to approximately 1,500 B.C. (Yarnell 1974). Sumpweed (*Iva annua*), sunflower, chenopodium, and maygrass (*Phalaris caroliniana*) remains were recovered from human paleofeces dating to 1,150 B.C. at Hooton Hollow, a rockshelter in eastern Kentucky (Gremillion 1996).

By about 3,000 B.C., bands of people mainly employing a hunter/gatherer resource exploitation strategy began settling into relatively stable seasonal rounds between key resource areas. The archaeological record clearly suggests an increase in population levels and growing ecological specialization in subsistence, with scheduled, logistical procurement strategies. Camps, emphasizing either hunting or plant collecting activities, can often be distinguished by the kinds of tools and raw material left behind. Hunting camps appear in almost any ecological context, but gathering camps are usually restricted to the transition zone between the upland and bottomland/swamp forest zones.

Significant Late Archaic sites documented within the Gorge and Lower Big Sandy include the Deep Shelter site (15Ro34), site 15Ro35-26, and the Grayson site (15Cr73). The Grayson site, located within Grayson State Park on the Elliott and Carter County border, is an open habitation site containing a flaked tool assemblage, a groundstone tool assemblage, and features. PPKs recovered from the site include Matanza Side-Notched, Brewerton Side and Corner Notched, Brewerton Eared Triangular, Merom-Trimble, Cogswell Contracting Stemmed, Wade, Little Bear Creek, and Straight Stemmed which date the site from 2,500 to 1,000 B.C. (Driskell 1976; Jefferies 2008).

Despite the abundance of Late Archaic sites within the archaeological across this portion of Kentucky, the archival research conducted for the Project did not identify any evidence of a previously-recorded Late Archaic occupation within two kilometers (1.2 miles) of the Project APE.

3.3 Woodland Occupation (900 B.C. to A.D. 1,000)

Although divided into three subperiods, the Woodland period has a greater number of cultural phases and spatially discrete recognized societies. The three subperiods are the Early Woodland (1000 to 200 B.C.), the Middle Woodland (200 B.C to A.D. 500), and the Late Woodland (A.D. 500 to 1000). The major distinction between the Woodland and the Archaic periods is the development of ceramic technology and the use of ceramic vessels as part of everyday life. The Woodland period in Kentucky according to Applegate (2008:339) was a time of cultural continuities and innovations, and "Food collection remained the prevailing subsistence pursuit, populations lived in small communities for varying lengths of time, utilitarian tools were used for a variety of domestic tasks, and inter-regional contacts including long-distance trade continued."

Within the Upper Kentucky/Licking and Big Sandy Management Areas there has been substantial research and survey conducted on Woodland sites. Most of this research happened from the 1960s to present day and as a result, 332 Woodland sites have been recorded within the Upper Kentucky/Licking Management Area and 117 Woodland sites have been recorded within the Big Sandy Management Area (Applegate 2008). Of the 332 Woodland sites of the Upper Kentucky/Licking, 193 of these have been documented within the Gorge Section. For the 177 Big Sandy Woodland sites, 145 have been recorded in the Lower Big Sandy Section. Most of the sites in the Upper Kentucky/Licking's Gorge Section are rockshelters and open habitation sites; no stone mounds, isolated burials, or specialized activity areas have been identified (Applegate

2008:495). Within the Big Sandy's Lower Big Sandy Section, majority of the sites are open habitation without mounds and rockshelters, along with earth mounds, open habitation with mounds, stone mounds, non-mound enclosure, isolated burials, mound complex, workshops, and specialized activity sites (Applegate 2008:514).

3.3.1 Early Woodland

The Early Woodland Period in eastern Kentucky lasted from 1,000 B.C. to 200 B.C. During this time, initial expressions of secular-elitism and major aesthetic developments were emphasized through the building of large burial mounds, the practice of complex mortuary rituals, and the creation of various types of grave offerings. Known primarily from burial contexts, Adena cultural developments dominate Kentucky during the Early Woodland. Conical burial mounds, distinctive point styles, and cordmarked and fabric impressed pottery tempered with locally available tempering agents is characteristic of the period. Camps and small villages are common.

The presence or absence of ceramics is often the main criterion for separating the Late Archaic from the Woodland period. Pottery in some parts of Kentucky dates at or before 1,000 B.C., while there are few dates before 600 B.C. and much more dated after 400 B.C. The earliest ceramics in Kentucky occur in eastern and possibly central Kentucky (Railey 1990, 1996:81). Most of these specimens are thick, tempered with coarse pieces of lithic material, and have cordmarked, plain, or fabric impressed surfaces. Most often, these ceramics are typed as "Fayette Thick" (Griffin 1943). However, Applegate (2008) suggests that the earliest date for pottery dates from between 1,606 and 802 B.C in north-central Kentucky and includes Chenaultt/Dexter and Arrowhead Farm types. In northwestern portions along the Ohio River, pottery from features dated between 1,258 and 829 B.C. Sites dating to before 600 to 400 B.C. in central and northeastern Kentucky typically represent small assemblages of fragmentary sherds of thick, grit tempered plain, cordmarked or fabric-impressed surfaces, and "in portions of the southeast, pottery from Early Woodland sties includes quartzite tempered plain and cordmarked forms of the Pine Mountain series", that date between 1,432 and 950 B.C. (Applegate 2008:342-3). In western and southern Kentucky, the earliest pottery is conoidal or flowerpot-shaped vessels with narrow, flat bases. The exteriors of the vessels commonly exhibit cordmarking, fabric impressions, or cord-wrapped dowel impressions, while interior cordmarking or fabric impressions may also be present. The wares were tempered with chert, limestone, and quartz (Mocas 1977). Excavations at site 15Be391 in northern

Kentucky demonstrated an association between Fayette Thick ceramic wares and Kramer projectile points, dated together within feature contexts to 480 B.C (Duerksen et. al. 1994).

A majority of the dated Early Woodland PPK types in Kentucky are notched and stemmed forms, as well as finely made leaf-shaped blades, such as Kramer, Wade, Gary, Turkeytail, Cresap, Robbins, and Adena (Chapman and Otto 1976:21; Railey 1996:81). Other Early Woodland artifacts include tubular pipes, gorgets, slate pendants, full grooved axes, hematite celts, and incised stone tablets (Chapman and Otto 1976:210). Early Woodland people also used copper to manufacture beads, bracelets, rings, gorgets, and rings. A technological shift from grooved axes to the ungrooved celt appears as an additional marker for the transition from the Late Archaic to the Woodland period. Applegate (2008) suggests that because the grooved axe was attached to a split haft and likely became loose during use, would need more maintenance, whereas the celt was wedge-shaped and placed into a carved opening in a solid haft, made it essentially self-tightening with use.

Textile scraps, slippers, and desiccated human feces recovered from Salts Cave in Hart County, Kentucky indicate that sunflower, goosefoot, amaranth (*Amaranthus sp.*), knotweed (*Polygonum sp.*), and maygrass composed most of the diet. These plant products supplemented white-tailed deer, small mammals, box turtle (*Terrapin sp.*), fish, and birds. Settlement patterns of the Crab Orchard Culture in western Kentucky suggest that major floodplain settings, such as the Ohio/Cumberland/Tennessee River Valleys, were favored locales. Many settlements located in Kentucky such as the Bridge site in Livingston County (Nance 1985) and Slack Farm in Union County (Pollack and Munson 1989) has thick middens suggesting occupation over a period of centuries (Railey 1996:85).

Another archaeological characteristic of the Early Woodland is the development of social/ritual space spatially separate from domestic sites. Initially, Early Woodland people had isolated mortuary sites represented by a single burial or limited number of interments. By 500 B.C., they were constructing earthen enclosures and burial mounds. The meaning and function of these constructions is still unclear (Railey 1996).

Within the Gorge and Lower Big Sandy Sections, 85 sites (50-35) contained an Early Woodland component; the most important sites include the Grayson site (15Cr73), the Deep Shelter site (15Ro34), the Cold Oak site (15Le50), the Coldsplitter site (15Mf36),

and the Conley-Greene site 15El14. The Conley-Greene site is a stratified rockshelter that was occupied throughout the Early Woodland. Activities at the site included chipped stone tool manufacture, hunting, hide processing, and food preparation (Applegate 2008:521). The site contained midden deposits and features indicative of earth ovens, basin shaped pits, and possible post molds, and artifacts consisting of Adena Plain and Fayette Thick-like pottery, and Adena PPKs (Applegate 2008).

The archival research conducted for the Project did not identify any evidence of a previously-recorded Early Woodland occupation within two kilometers (1.2 miles) of the Project.

3.3.2 Middle Woodland

During the Middle Woodland period (200 B.C. to A.D. 500), parts of Kentucky seem to have been involved in the vast trade network shared by the Marksville culture of Louisiana and Mississippi, and the Hopewell culture of the Ohio and upper Mississippi valleys. Caldwell (1958) and Struever (1964) described this concept as the Hopewell Interaction Sphere. The designation "Hopewell" is applied to a particular archaeological assemblage that has been found from western New York to Kansas City and from the Gulf of Mexico to Lake Huron. Mayer-Oakes (1976) and Griffin (1978:246) recognized two dominant complexes or focal areas existing during the Middle Woodland of the Midwest: one, known as Hopewell, in southern Ohio, and the other, comprising the Havana societies, in the Illinois River valley and adjacent areas. Both are Hopewell, but the Ohio focus, a culmination of Late Archaic and Early Woodland trends, is much more dramatic and elaborate in terms of stylistic traits, mortuary ceremonialism, and complexity of earthworks.

Hopewell culture contains elaborate geometric earthworks, enclosures, and mounds that are often associated with multiple burials and a wide array of exotic ceremonial goods. In terms of its ritual manifestations, Hopewell represents a continuation of the Adena, but on a more expanded and elaborate scale (Dragoo 1962:13). Hopewellian trade networks were extensive and the materials used in the manufacture of ceremonial objects came from various regions in North America. For instance, copper and silver came from the Upper Great Lakes, quartz crystals and mica came from the lower Allegheny mountain region, obsidian and grizzly bear teeth from the west, shark and alligator teeth and marine shell from the Gulf Coast (Prufer 1964:75). Some of the ceremonial objects produced include obsidian knives and blades, stone platform pipes with human and animal effigies, copper

breast plates, ear spools, celts, mica zoomorphic and geomorphic shapes, and highly decorated ceramics (Jennings 1978:233).

Middle Woodland subsistence focused on hunting and collecting activities supplemented by small scale horticulture. Wymer (1997) states that 60 percent to nearly 90 percent of seeds recovered from Ohio Hopewell sites are components of the Eastern Agricultural Complex: maygrass, erect knotweed (*Polygonum erectum*), and goosefoot. Other significant cultigens include sumpweed or marshelder, sunflower, and yellow flowered gourd squash (*Cucurbita pepo*). Significant wild species include hickory nuts, black walnut, butternut (*Juglans cinera*), acorn, and hazelnut (*Corylus americanus*). The archaeological record indicates a dietary focus on white-tailed deer. Other notable animal species taken include black bear, elk or wapiti, beaver, various fish species, and mussels (Griffin 1967).

Middle Woodland settlement systems are difficult to identify at this time. The lack of known base campsites within the Middle Woodland suggests a model of small, scattered settlements, with ritual spaces, such as burial mounds and earthen enclosures serving as focal points. In the late Middle Woodland there appears to be a trend toward nucleation of settlements. Present evidence suggests that burial mound building in the Eastern Kentucky may have declined in the late Middle Woodland. However, stone mounds and the use of stone in earthen burial mounds became common (Railey 1996).

According to Applegate (2008) ceramic vessels in the east-central, north-central and northeastern portions of Kentucky generally have plain exterior surfaces while the ceramic vessels with cordmarked, cord-wrapped dowel-impressed, or fabric-impressed exterior surfaces are more common in southern and western Kentucky. Early Middle Woodland ceramics include conoidal, barrel-shaped, or flower pot-shaped jars with flat, rounded subconoidal, or pointed bases. More often than not, late Middle Woodland ceramic vessels are subconoidal, or subglobuar jars, with outflaring, recurved, or direct rims, with a majority having either cordmarked or plain exterior surfaces. Fabric impressed, or cord-wrapped dowel-impressed types and flat-based vessels are very rare (Applegate 2008).

Several PPK types from Early Woodland sites are also found at early Middle Woodland sites, and some are associated with absolute dates, including: Robbins. Motley, Gary, and Adena Stemmed. Types of PPKs diagnostic of the Middle Woodland include Copena and Copena Triangular as well as broad corner-notched forms like Snyders and Affinis Snyders. Late Middle Woodland PPK types include expanding stemmed and shallow side

notched types such as Steuben, Bakers Creek, Lowe, and Chesser. Chert bladelets are also diagnostic of the Middle Woodland, while other types of chipped stone tools remain relatively unchanged from the Early Woodland (Applegate 2008)

Evidence of exotic raw material use first appears towards the end of the Early Woodland subperiod, peaking during the early Middle Woodland, and continued, to a lesser extent, to the late Middle Woodland. Copper materials such as bracelets, breast plates/gorgets, and head ornaments and marine shell beads and Vanport (Ohio) chert bladelets are some of the types of exotic material items found nearly exclusively in mortuary–ritual contexts (Applegate 2008).

During the Middle Woodland, floodplain settings saw an increased focus for settlement strategies in many parts of Kentucky. These habitation sites often contain midden deposits and feature clusters that suggest the presence of activity areas. Within the Gorge and Lower Big Sandy Sections, 71 sites contained a Middle Woodland component; the most important sites include Little Sinking (15Le9), Anderson (15Po31), Cherokee Arch (15Wo32), Brisbin 15Bd311A, Stone Serpent 15Bd316, Portsmouth Complex sites [Old Fort (15Gp1), Biggs (15Gp8), Mays (15Gp16), and Hicks (15Gp265)], and the Blanton site (15Jo32). Most of these sites are mounds and mound complex/enclosures, however, Little Sinking is a cave, Cherokee Arch is rockshelter, and the Anderson and Blanton sites are open habitation sites (Applegate 2008:499, 519).

The lone Middle Woodland archaeological resource located within two kilometers (1.2 miles) of the Project, site 15Ro72, is a rockshelter occupation situated on a hillside approximately 611 meters (2004 feet) from the Project APE.

3.3.3 Late Woodland

During the Late Woodland, major changes in subsistence and settlement occurred, and there was more diversity in occupation patterns. Ceremonial centers disappeared, trade networks dissipated, and there was less emphasis on burial ceremonialism. In general, archaeologists perceive this period as a time between the Middle Woodland Period with its burial mounds, decorated ceramics, exchange networks, and the Late Prehistoric period with its complex cultures, decorated ceramics, and long distance trade networks (Pollack and Henderson 2000:613). In one sense, Late Woodland cultures have been defined by what they lack, rather than what they possess.

With the Hopewellian decline, there was increased reliance on domesticated plants supplemented by hunting and intensive gathering. Regional variants of this pattern emerged within major drainages throughout the region. Upland sites contributed substantial faunal, as well as agricultural resources to the subsistence base. The utilization of upland and bottomland sites during the Late Woodland is suggestive of the dichotomous settlement system documented for early historic groups in the Plains and northeast United States. The system was composed of two distinctive site types occupied on a seasonal basis. During the summer, a base camp or village was established with habitation structures and cultivated fields, and was reoccupied from year to year. After the harvest, the sites were temporarily abandoned for hunting camps in nearby forests. The major territorial reorganization between the Middle and Late Woodland periods indicated a gradual restriction of the total catchment area, and thus more spatially confined and more autonomous social units.

Within the Gorge and Lower Big Sandy Sections there appears to be one dominant phase-Newtown. This phase is believed to encompass the region of southern Ohio, northern and central Kentucky, and extreme southern Indiana. Griffin (1956:187), working on artifacts from the Turpin site in Ohio, recognized a previously undocumented cultural complex, which he named 'Newtown', and which he considered to post-date the Middle Woodland Hopewell tradition and to pre-date the Fort Ancient tradition in the Middle Ohio Valley. Owing to the paucity of Late Woodland archaeological data, Griffin (1952, 1956) was unable to characterize the Newtown culture or ascertain if distinctive regional variations existed.

More archaeological data has been gathered since Griffin's (1952, 1956) research, but considerable debate on the temporal and geographic extent of Newtown and other Late Woodland cultures still exists (e.g. Davis et al. 1997, Seeman and Dancey 2000, Clay and Creasman 1999, Pollack and Henderson 2000). Site assemblages throughout the region are linked by the occurrence of the ceramic complex known as Newtown Cordmarked, a type characterized by large jars with thickened, angular shoulders (McMichael 1984). More recent research (e.g. Pollack and Henderson 2000; Seeman and Dancey 2000) indicates that while a thickened angular shoulder on some vessels was a characteristic of some Newtown vessels, some site assemblages are considered Newtown even though they lack ceramic vessels with this particular characteristic.

Recent archaeological investigations at several sites in the region revealed additional traits about Newtown phase assemblages (Ahler 1988; Henderson and Pollack 1985, 2000; Kreinbrink 1992; Railey 1984). Typically, Newtown lithic assemblages are characterized by Steuben, Lowe or Chesser notched variety PPKs (see Justice 1987), thick stone bifaces, and small triangular shaped celts. The ceramic assemblage includes ceramic jars with incurvate to direct rims, flattened lips, and vertical cordmarking on their outer surfaces. Personal adornment, highly developed in the preceding Middle Woodland period, was apparently limited in the Late Woodland, as Newtown assemblages are distinguished by a lack of decorative and personal ornaments. The few documented artifacts showing artistic style include some stone and bone gorgets, bone pins, small mica sheets, limestone elbow pipes, and stone and shell beads.

Within the Gorge and Lower Big Sandy Sections, the most important sites containing Late Woodland components include the O'Hare Site Complex (15Mf632), Rogers (15Po26, 27), Haystack (15Po47A, 47B), Rock Bridge (15Wo75), Carroll (15Cr57), Hansen (15Gp14), Bentley (15Gp15), Wiley Creek (15Jo74), and the Dow Cook site (15La4). All of these sites are either open habitation sites or rock shelters (Applegate 2008:499, 519).

The archival research for the Project identified three Late Woodland sites documented within a two-kilometer (1.2-mile) radius of the Project APE. These three Late Woodland occupations were delineated within rockshelters on hillslopes located between 538 meters and 1467 meters from the Project, and all three were defined in context with Mississippian or Fort Ancient deposits.

3.4 Late Prehistoric Occupation (A.D. 1,000 - A.D. 1,600)

After A.D. 1000, the Middle Ohio Valley from roughly the mouth of the Muskingum to the Falls of the Ohio (Henderson 2008) was inhabited by groups of village-dwelling farmers and hunters known as the Fort Ancient culture. In contrast to the preceding Late Woodland patterns, Fort Ancient is marked by an increase in village size and an intensified focus on cultivation of staple domesticates: corn, beans, squash, and sunflower. Although contemporaneous with classic Mississippian manifestations observed further to the west, Fort Ancient lacks the monumental earthwork architecture and complex settlement hierarchy exhibited by these societies. Farming appears to have supplied the bulk of the Fort Ancient diet (Lewis 1996:127). Animal exploitation appears to have consisted entirely of hunting and trapping, and the keeping of domesticated dogs (Henderson 2008).

The 750 year period during which this tradition lasted has been divided by archaeologists into three subperiods: Early, Middle, and Late. Within the Gorge, these three subperiods are identified through the following phases: Early/Middle Fort Ancient (A.D. 1,000 to 1,400), and Late Fort Ancient (A.D. 1,400-1,750; Henderson 2008:812-813). Within the Lower Big Sandy, these three subperiods are identified through the following phases: Croghan (A.D. 1,000 to 1,200), Manion (A.D. 1,200 to 1,400), Gist (A.D. 1,400 to 1,550) and Montour (A.D. 1,550 to 1,750; Henderson 2008:825).

The earliest stages of Fort Ancient development apparently involved the *in situ* selection by small, dispersed local groups of subsistence strategies that persist throughout the period. The household was often the basic node in the settlement system during the Early Fort Ancient, and Pollack and Henderson (1992) have compared this level of organization with the family/hamlet pattern proposed by Johnson and Earle (1987). The latter sub-periods saw a gradual concentration of local populations into larger and larger settlements, with circular organization becoming the norm in the eastern portions of the cultural range. This level of social organization is thought to be analogous with Johnson and Earle's (1987) "acephalous local group" construct, in which political power is weak and ephemeral, and factionalism/fragmentation frequent (Pollack and Henderson 1992).

There is evidence that after A.D. 1,400, a seasonal cycle of congregation in large villages during the summer and dispersing into smaller camps during the winter may have been followed (Fitting and Cleland 1969). Status differentiation among individuals becomes more pronounced with time as indicated by materials interred with burials as grave-goods. Concurrently, over time traits differentiating local Fort Ancient manifestations recede as wider regional traits gain emphasis. Extra regional trade becomes more pronounced. These developments are concurrent with the emergence of Late Fort Ancient. Pollack and Henderson (1992) propose that the larger Late Fort Ancient villages were the result of two or more smaller villages typical to the Middle Fort Ancient period combining into one larger community. Inherent to this construct is the perception that political power becomes more focused and permanent, analogous to the classic Big Man Society (Johnson and Earle 1987).

Chipped stone triangular projectile points; well-fired, thin-walled ceramics tempered with shell or grit, stone discs bifacially chipped from non-cryptocrystaline raw material (typically limestone), and a variety of bone implements are common materials recovered from Fort Ancient sites in the region.

In the Gorge Section, the Early/Middle Fort Ancient subperiods are represented by open habitations without mounds and rockshelters: the Elk Fork site (15Mo140), the Martin site (15Po42), and the Lindon Fork Rockshelter (15Wo107; Henderson 2008). For the Late Fort Ancient subperiod is represented by rockshelters such as William S. Webb Memorial Rockshelter (15Mf32; Henderson 2008).

The Lower Big Sandy Section, the Early Fort Ancient subperiod, Croghan Phase, is represented by open habitations without mounds and isolated burials: the White's Creek I Site (15Bd11), the Horton Hollow/Horton Farm Site (15Cr100), the Old Fort Village/Bentley/Lower Shawneetown Site (15GP15), the Mayo Site (15Jo14), and site 15La302A (Henderson 2008). The Middle Fort Ancient Manion Phase is best represented by the Fullerton Field Site (15Gp3), an open habitation village site with two burial mounds (Henderson 2008). The Late Fort Ancient Gist phase is best represented by Fullerton Field site also. The Late Fort Ancient Montour phase is best represented by the Hardin Village Site (15Gp22), an open habitation site without mounds (Henderson 2008).

As referenced in the discussion of the Late Woodland, above, three Fort Ancient/Mississippian sites have been documented within a two-kilometer (1.2-mile) radius of the Project APE. These three occupations were identified in context with Late Woodland deposits within rockshelters on hillslopes located between 538 meters and 1467 meters from the Project.

3.5 Proto-Historic (A.D. 1,500 – 1,673)

Ohio Valley prehistory phased into the historic period as items of metal and glass appear at Late Fort Ancient sites in the region dating to the early 17th Century (Pollack and Henderson 1983). Such items occurring at these times are interpreted as reflecting indirect trading contacts with Europeans to the east and south, with direct contact between Europeans and Native Americans in the Middle Ohio Valley occurring somewhat later.

The relationships of specific Native American groups to their lands in eastern Kentucky at the time of earliest European documentation are unclear. This obscurity may be attributed to the general assumption that even before direct contact with Europeans had occurred in the Middle Ohio Valley, the repercussions of the colonial presence in the New World had unbalanced to some extent all portions of the sociocultural network that had adapted over millennia across eastern North America. It has been proposed that smallpox appeared in

the Southeast in the last few years of the 17th century (Milner 1980), initiating a rapid, tumultuous period of pandemic that decimated, dispersed, and demoralized native populations. Traditional accounts that Kentucky was explicitly maintained as an intertribal game preserve at this time, uninhabited except for transient Iroquois and Cherokee hunting parties, are almost certainly overly simplistic expressions of a complex reality (Jennings 1984), but probably do reflect the disrupted aftermath of disease and the ravages of trade-based conflicts. These pressures influenced another documented source of this historical obscurity: the voluntary, sometimes temporary, migration of groups towards newly established hubs of European trade.

The earliest of regional accounts by French and British sources reflect a high degree of band mobility up and down the length of the Ohio River (Jennings 1984), often in reaction to various positive and negative pressures from the European powers. For instance, Donehoo (1928) reports that a single band of Shawnee, known by the French to be living on the Ohio River near its confluence with the Mississippi River in 1682, settled two years later on the Delaware River in Eastern Pennsylvania in the company of Arnold Viele, a Dutch Trader from Albany who is reputed to be the first European to navigate the Ohio River. It is not surprising, therefore, that the understanding of the tribal territories of that period remains so ephemeral and incomplete.

3.6 Historic Period (after A.D. 1,700)

Rowan and Elliott counties are part of the Foothills Region of the Appalachian Mountain Cultural Landscape Area for the Historic Period. In the 1770s, the first Euro-Americans built their settlements in Kentucky. The archaeological record indicates that sites occupied by Old World settlers from Europe and Africa dominate the record. Native American sites ceased to exist at this time, although some groups still claimed land in Kentucky (McBride and McBride 1996:183).

Throughout the first half of the 18th century, Britain and France fought for control of the area west of the Alleghenies. Whoever controlled this area, controlled access to fur, lumber, and other valuable natural resources. As the western frontier continued to expand towards the Mississippi River, Europeans displaced and forced aboriginal groups into new settlement and economic patterns. Warfare and raiding became common, and alliances between aboriginal groups and European nations constantly shifted in order to gain control of the land. Tensions between the French and British resulted in the French and Indian War.

Between 1754 and 1758, the French controlled much of the Ohio Valley, including important villages such as Lower Shawneetown, near modern Portsmouth, Ohio. After the British captured Fort Duquesne in 1758, the French abandoned most of the Ohio Valley. In addition, a majority of the Indian villages that allied themselves with the French were also abandoned at this time (McBride and McBride 1996:186-187).

After the American Revolution, the British signed a peace treaty, which granted the United States a boundary that extended to the Mississippi River. The British also abandoned their native allies and the United States formulated Indian policies, which forced numerous Native American tribes on the Atlantic Coast to give up land claims because of their alliance with the British. By the late 18th and early 19th century, Euro-Americans continued to push westward, displacing Native Americans.

Hunters, people loosely affiliated with land companies in the east, and squatters were the first to explore Kentucky. Some of the more famous initial settlers were Elisha Walden, Benjamin Cutbird, Simon Kenton, James Harrod, Kasper Manslar, Squire Boone, and Daniel Boone (McBride and McBride 1996). Entering through the Cumberland Gap, the first reports of exploration were in 1750. Exploration was made easier by Indian trails over difficult terrain and many of these trails are now part of modern transportation systems (Wallace 1968).

During the colonial period, Kentucky was part of a region known as Veandalia; however, there was a failed attempt to make it a separate colony. In 1775, a party of axemen led by Daniel Boone, and financed by the North Carolina speculators, widened the old Cumberland Gap into a wagon road. At this time, Kentucky was known as "Transylvania," and many hoped that it would become a proprietary colony. Although it did not become a proprietary colony, Kentucky was open to thousands of potential settlers. Originally, a county of Virginia, Kentucky gained statehood in 1792.

A majority of settlers were from Greater Virginia, North Carolina, and Greater Pennsylvania. Trying to get away from Indian controlled territories and continuous feuding with the Iroquois and Cherokee, there were 325,000 settlers in Kentucky and Tennessee by 1800. At first, most settlements were located near stations or forts, but after the Revolutionary War, farmsteads were established farther away from these areas. Major towns were Georgetown, Danville, Stanford, and Lexington. Once the Chickasaw ceded the western portion of the state, rapid emigration began by people from the east (Davis 1923). The newly acquired lands in southwestern Kentucky attracted the attention

of land speculators, frontiersmen, displaced families, and religious missionaries. In this area, there were still occasional raids by Native Americans, so settlements were still clustered around forts or stations. Major areas of settlement included Elizabethtown, Greensburg, and Russellville (McBride and McBride 1996:189).

During the early 1800s, transportation improved in Kentucky. First, there was regular steamboat traffic by 1820, which strengthened ties with the East Coast, Deep South, and Western Europe. Although most large towns were still in the Bluegrass Region, larger river towns (e.g. Ashland, Louisville) were starting to develop (McBride and McBride 1996). Due to the importance of river trade, many improvements and canal construction were conducted along Kentucky's rivers including the Barren, Green, and Kentucky Rivers. Other transportation improvements included new roads, improvements to old roads, and railroad construction; improved transportation lead to increased industrialization, which improved Kentucky's standard of living. Cities and rural communities continued to grow, and plantations expanded. Before the Civil War, there were 225,483 slaves in Kentucky (McBride and McBride 1996: 195).

When the Civil War began in 1861, Kentucky was a slave state that did support succession. Kentucky leaders tried to remain neutral, but by the end of 1861, the northern portion of Kentucky was occupied by Union troops and the southern portion of Kentucky was occupied by Confederate troops. Union bases were set up in Paducah, Smithfield, Wickliffe, Maysville, Covington, and Louisville. Confederate forts were established in Hickman, Columbus, Hopkinsville, Bowling Green, Glasgow, Monticello, and Somerset. With the fall of Fort Donelson and Henry in 1862 in Tennessee, Confederate forts in Kentucky were quickly abandoned (McBride and McBride 1996:202). The last major battle fought in Kentucky was at Perryville in the fall of 1862.

After the Civil War, although Kentucky did not have the devastation suffered by other states, it still went through major political, social, and economic changes. For instance, Kentucky had the challenge of integrating a large African American population into society, its coal and timber industry were starting to develop, the tobacco market increased, and the traditional agricultural system began to fall apart (McBride and McBride 1996:204). Kentucky did not participate in Reconstruction, but did participate in activities of the Freedmen's Bureau.

Railroad transportation became very important after the Civil War, resulting in the decline of Kentucky's steamboat and river industry between 1870 and 1900. Only the Ohio River

was still a major form of transportation. The railroad system, in part, reoriented trade patterns and led to additional road construction. While these transportation methods increased the contact between various parts of Kentucky, McBride and McBride (2008) suggest it also increased regional cultural and economic differences.

During the late 19th and early 20th centuries, timber and coal industries began to flourish, especially in Appalachia. By the late 1880s, 19.5 million tons of coal was coming from Appalachia and the Western Coal Fields (McBride and McBride 1996:208). This trend increased throughout the 20th century.

Many of the trends described above, continued into the early 20th century. Between 1915 and 1945, there was an increase in mechanized agriculture, but an overall decrease in farming as a way of life, in contrast, urbanization continued with an increase in apartment buildings. There were major improvements to roads, and more stores being constructed which led to a greater access to consumer goods (McBride and McBride 2008:967).

3.6.1 Rowan and Elliott Counties

A more detailed overview of the historic context of Rowan and Elliott counties was provided in the Brown (2011) historic architecture report prepared for the Project; only a brief overview is presented below.

The Appalachian Mountain Cultural Landscape Area was one of the first areas to be settled in Kentucky (McBride and McBride 2008). Rowan and Elliott counties, which are situated within the Appalachian Mountain Region, were first settled by Euro-Americans in the 1780s along the Licking and Big Sandy Rivers. Rivers were major transportation systems; however, inland trails were also used. One trail that entered Rowan County from the northeast, crossed through Morehead, and ran west to the Licking River was utilized by the Cherokee and Shawnee, and subsequently by colonial settlers (Brown 2011:18).

Rowan County was officially established in 1856 from Fleming and Morgan counties, and the county seat is Morehead (Brown 2011). Elliot County was created in 1869 from Morgan, Carter, and Lawrence counties, with the county seat in Sandy Hook (Brown 2011). During this time, agriculture (tobacco and corn) and timber were important practices within both counties, with everything being shipped out through the Licking River and its tributaries, then down the Ohio and Mississippi Rivers to markets in New Orleans (Brown 2011). These items were sold for other goods, such as sugar and coffee.

The roads that comprise the modern iteration of KY 32 owe their existence to tobacco. Prior to the 20th century, roads were deeply rutted wagon trails, and the need to transport tobacco (a major cash crop for the region) started the effort for road improvement. It was not until 1934 that a route between Elliottville and Newfoundland was improved and graded.

3.6.2 Historic Archaeological Sites within the Appalachian Mountain Cultural Landscape Area-Foothills Region and Rowan and Elliott Counties

Within the Foothills, 780 historic archaeological sites have been recorded, and of these a majority are farm/residential sites (n=603, 77 percent). Most of the detailed research has focused on industrial sites (n=96 or 12 percent; McBride and McBride 2008:1024). Within Rowan and Elliott counties, none of the previously identified historic period sites have been subjected to any intensive research beyond Phase I survey.

The archival research conducted for the Project identified five historic archaeological deposits inventoried within a two-kilometer (1.2-mile) radius of the Project APE. All five of these resources were associated with historic farms and/or residences; two have been classified as "inventory sites", and the other three have not been assessed for NRHP eligibility.

4.0 BACKGROUND RESEARCH

URS reviewed the archaeological site files maintained by the OSA in Lexington to locate any previously recorded archaeological sites within two kilometers (1.2 miles) of the APE, to identify any cultural resource investigations that had previously taken place, and to provide information on the expected types and location parameters of sites in the vicinity. The electronic files were received from the OSA (Registration # FY11-5996) on November 8, 2010. The results of this review identified 20 previously recorded archaeological sites, two unconfirmed archaeological sites, and nine cultural resources surveys within a two-kilometer (1.2-mile) radius of the Project. None of the archaeological resources were previously defined within the APE.

4.1 Previously Recorded Archaeological Sites

There have been 20 previously recorded and two unconfirmed archaeological sites identified within a two-kilometer (1.2-mile) radius of the Project APE. For the sites documented as "unconfirmed archaeological sites", other than location, no other information is available through the data received from OSA. Table 4.1 lists all previously recorded sites and their cultural affiliation.

Data analyzed from these previously recorded archaeological sites allows for the following observations:

- Sites are typically located in dissected uplands, terraces, hillsides, or floodplain settings;
- Sites are more likely to be encountered within 140 meters or less of a water source;
- Sites have been identified in settings ranging from 200 meters AMSL to 353 meters AMSL;
- Sites have a NRHP status of either "not assessed" or "inventory site" meaning the site does not presently meet NR criteria;
- Site types have included rockshelters (n=12), open habitation without mounds (n=3), and historic/ farm residence (n=5); and,
- Sites range in temporal affiliation from Early Archaic to the mid-20th century, with a majority of the previously-defined sites designated as indeterminate prehistoric.

Table 4.1. Previously Recorded Archaeological Sites within Two Kilometers (1.2 Miles) of the Project

Site #	Site Type	Temporal Period	Topography	Soil Association	Distance to Water (meters)	Elevation (meters AMSL)	NRHP Recommendation	Distance from center line of Direct APE (feet/ meters)
15EL7	Rockshelter	Indeterminate Prehistoric	Cumberland Plateau-floodplain		17		Inventory Site (does not presently meet NR criteria)	
15EL8	Rockshelter	Indeterminate Prehistoric	Cumberland Plateau-floodplain		33		Inventory Site (does not presently meet NR criteria)	
15EL22	Historic/ Farm Residence	Historic Euro American	Cumberland Plateau-terrace		26		NR Status Not Assessed	
15EL23	Historic/ Farm Residence	Historic Euro American; Indeterminate Prehistoric	Cumberland Plateau-terrace		0		NR Status Not Assessed	
15EL25	Historic/ Farm Residence	Historic Euro American	Cumberland Plateau-terrace		96		NR Status Not Assessed	
15EL26	Open Habitation without Mounds	Indeterminate Prehistoric	Cumberland Plateau-terrace		140		NR Status Not Assessed	
15EL27	Open Habitation without Mounds	Indeterminate Prehistoric	Cumberland Plateau-terrace		56		Inventory Site (does not presently meet NR criteria)	
15EL31	Rockshelter	Indeterminate Prehistoric	Cumberland Plateau-hillside		61		Inventory Site (does not presently meet NR criteria)	

Site #	Site Type	Temporal Period	Topography	Soil Association	Distance to Water (meters)	Elevation (meters AMSL)	NRHP Recommendation	Distance from center line of Direct APE (feet/ meters)
15EL32	Rockshelter	Indeterminate Prehistoric; Late Woodland/ Mississippian Fort Ancient	Cumberland Plateau-hillside		65		Inventory Site (does not presently meet NR criteria)	
15EL33	Historic Farm/ Residence	Historic Euro American	Cumberland Plateau-hillside		18		Inventory Site (does not presently meet NR criteria)	
15EL34	Rockshelter	Woodland Indeterminate	Cumberland Plateau-hillside		36		NR Status Not Assessed	
15EL35	Rockshelter	Indeterminate Prehistoric	Cumberland Plateau-hillside		14		NR Status Not Assessed	
15EL36	Rockshelter	Indeterminate Prehistoric	Cumberland Plateau-hillside		62		NR Status Not Assessed	
15EL37	Rockshelter	Indeterminate Prehistoric; Late Woodland/ Mississippian Fort Ancient	Cumberland Plateau-hillside		23		NR Status Not Assessed	
15EL63	Open Habitation without Mounds	Indeterminate Prehistoric	Cumberland Plateau-floodplain		3		Inventory Site (does not presently meet NR criteria)	

Site #	Site Type	Temporal Period	Topography	Soil Association	Distance to Water (meters)	Elevation (meters AMSL)	NRHP Recommendation	Distance from center line of Direct APE (feet/ meters)
15EL66	Rockshelter	Indeterminate Prehistoric	Cumberland Plateau-dissected uplands	n/a	107		NR Status Not Assessed	
15RO145	Historic/ Farm Residence	Historic Euro American; Prehistoric Early Archaic	Cumberland Plateau-dissected uplands	n/a	113		Inventory Site (does not presently meet NR criteria)	
15RO62	Rockshelter	Woodland Indeterminate ; Late Woodland/ Mississippian Indeterminate	Cumberland Plateau-hillside		32		NR Status Not Assessed	
15RO72	Rockshelter	Middle Woodland	Cumberland Plateau-hillside		0		Inventory Site (does not presently meet NR criteria)	
15RO75	Rockshelter	Not Recorded on Site Form	Cumberland Plateau-hillside		89		Inventory Site (does not presently meet NR criteria)	

4.2 Previous Cultural Resources Surveys

Nine previous cultural resources surveys were identified during the background records check. These surveys were conducted within a two-kilometer (1.2-mile) radius of the Project, and only a small portion of one survey, Anderson (2000), extended within the Project APE. Table 4.2 lists these surveys.

Table 4.2. Previously Surveyed Areas within Two Kilometers (1.2 Miles) of the Project

Report Title	GIS ID	Author/ Date	Distance from center line of direct APE (feet/meters)
"An Archaeological Survey of a Water Tank Site and Pump Station Site for the Elliott County Water Project"	**578130**	Janzen, Donald/ 1989	
"An Archaeological Survey of the Elliott County Water Tank Site"	**578586**	Janzen, Donald and Frank Bodkin/ 1990	
"An Archaeological Survey of the Proposed Realignment of KY (Item No. 9-126-00), in Elliott County, Kentucky"	**582165**	Anderson, Jason/ 2000	
"Archaeological Survey for the Proposed Medium Security Prison IN Elliott County, Kentucky"	**582125**	Anderson, Jason/ 2001	
"Phase I Archaeological Survey of the Proposed Newfoundland to Sandy Hook, Kentucky 7, Elliott County, Kentucky"	**579484**	Hixon, James Lee	
"Phase I Archaeological Survey for the Proposed Elliott County Prison 69 kV Substation and Tap, Elliott County, Kentucky"	**583156**	Miner, Lorene M./ 2003	
"Phase I Archaeological Survey of the Southbound Coal LLC Burton Branch Coal Permit Area, Elliott County, Kentucky"	**584421**	McGraw, Betty/ 2006	
"An Archaeological Survey of the Proposed Laurel Gorge Trail in Elliott County, Kentucky"	**583243**	Anderson, Jason/ 2002	

Anderson (2000) was a Phase I archaeological survey of a proposed realignment of KY 32 in Elliott County. This survey crosses through the easternmost end of the APE. Another previous survey area (Janzen 1989) is located approximately xxxx from the center line of the APE. This survey appears to be a very small area located in the center portion along the Project.

4.3 Site Location Model

The results of the background research, in addition to the examination of topographic mapping, indicates that the entire Project APE has a low to moderate probability for containing archaeological sites. This assertion is based upon the steep topography within the APE and the low number of documented sites within the two-kilometer (1.2-mile) radius of the APE. Based on previously identified sites in the area, prehistoric sites have a slightly higher frequency than historic sites. If prehistoric sites are present within the Project APE, they most likely will be of an unassigned cultural affiliation; if diagnostic artifacts are present, they most likely will be Archaic, Woodland, or Late Prehistoric in origin. Site types may consist of rockshelters or open habitation sites without mounds. Historic sites most likely will be farm/residential sites dating to the 19th and mid 20th centuries. Sites (both prehistoric and historic) will likely be present in dissected upland or hillside setting, and are unlikely to be eligible for listing in the NRHP.

5.0 FIELD AND LABORATORY METHODS

5.1 Field Methods

For the archaeological field survey, URS used the standard archaeological field methods cited in the KHC 2006 guidelines, entitled *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports*. Two survey techniques (pedestrian survey and subsurface shovel probing) were utilized during the Phase I field survey. Pedestrian survey involved surface inspection in five-meter intervals in areas with good ground surface visibility (e.g. greater than 50 percent visibility) and in areas of steep slope (15 percent of greater). For pedestrian survey in steeply sloped areas, the field crew closely inspected the ground surface for possible cultural features, including caves, rock shelters, rock overhangs, and above ground resources. To facilitate the field survey, areas with slope of 15 percent or greater were identified on field mapping using a geographic information system program (GIS), and visually verified in the field. Figures 5.1 to 5.15 illustrate these areas as generated by GIS. The survey coverage mapping in Appendix A, illustrates slope that was verified in the field. In addition, pedestrian surveyed areas, although surveyed at five-meter intervals, were documented with SL every 20 meters.

In level areas which had not been previously disturbed, displayed poor surface visibility, and/or were not located on steep slopes, systematic shovel probing was utilized. Shovel probes consisted of (minimally) 30 centimeter in diameter holes, excavated to archaeologically sterile soil or to a maximum depth of 50 centimeters below the surface. Shovel probes were excavated at 20-meter intervals, per KHC and KYTC protocols. Excavated soils were screened through ¼ inch wire mesh and examined for evidence of cultural materials. Profiles were described for each shovel probe, and notes were recorded concerning the soil stratigraphy (including Munsell color designations and texture) and any cultural resources encountered. All shovel probes were assigned a unique designation that was then mapped with sub-meter accurate GPS equipment.

During fieldwork, SL forms were completed by URS personnel. Isolated finds, archaeological sites, and positive finds within shovel probes were noted on the SL forms. Artifacts were bagged and assigned numbers by their SL locations. Photographs were taken of the general project area, visible disturbances, etc.

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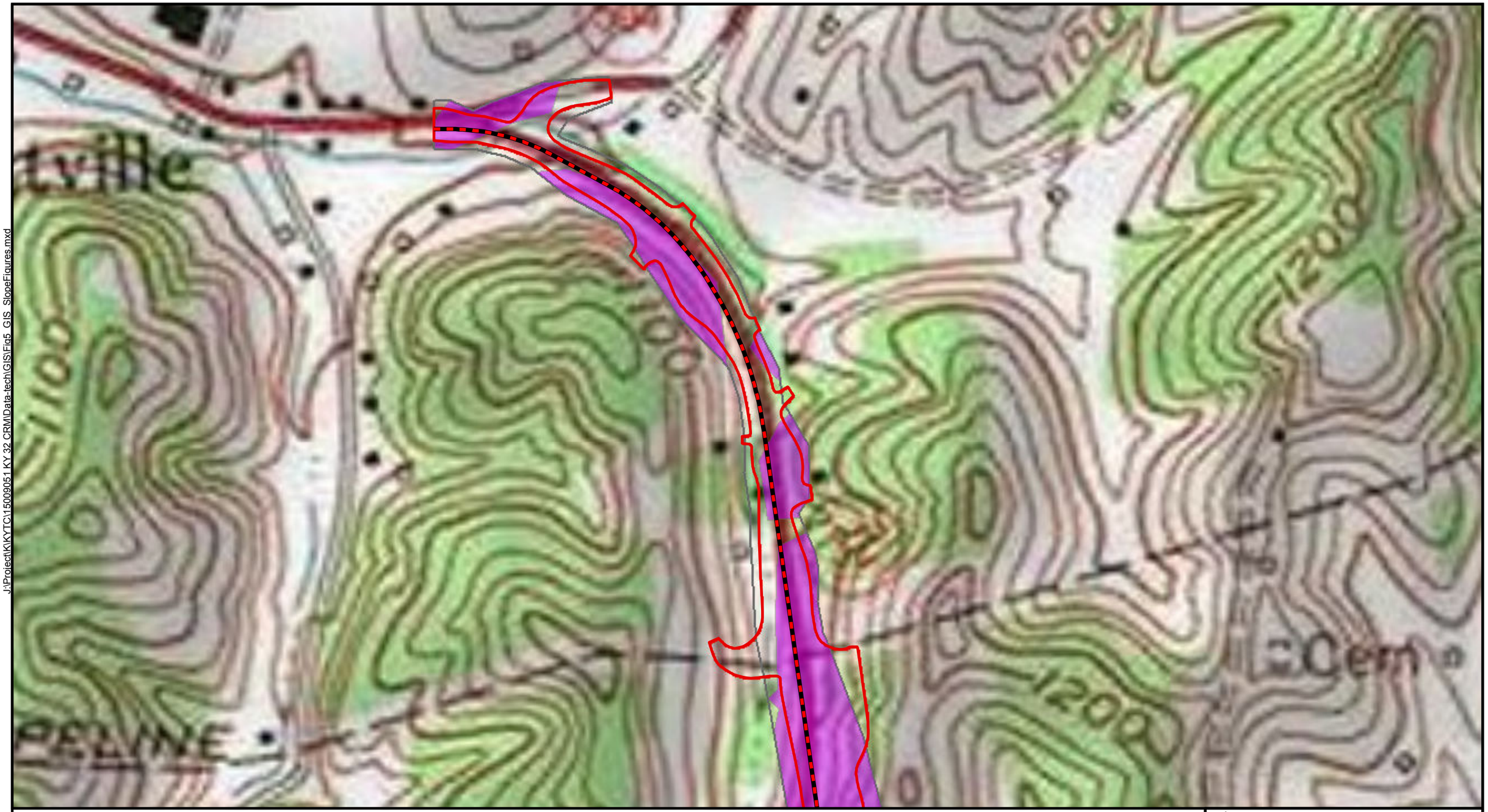

LEGEND

- Centerline
- Segment Boundary
- Limits of Disturbance
- ROW
- Slope Greater than 15 Percent

0 60 120
Scale in Meters

0 300 600
Scale in Feet

N

BASE MAP SOURCE:
ArcGIS Online
USA Topo Maps

KENTUCKY TRANSPORTATION CABINET

KY 32 Improvement
Rowan Elliiot County

FIGURE 5.1
GIS IDENTIFIED AREAS OF
GREATER THAN 15 PERCENT SLOPE

JOB NO. 15009051

URS

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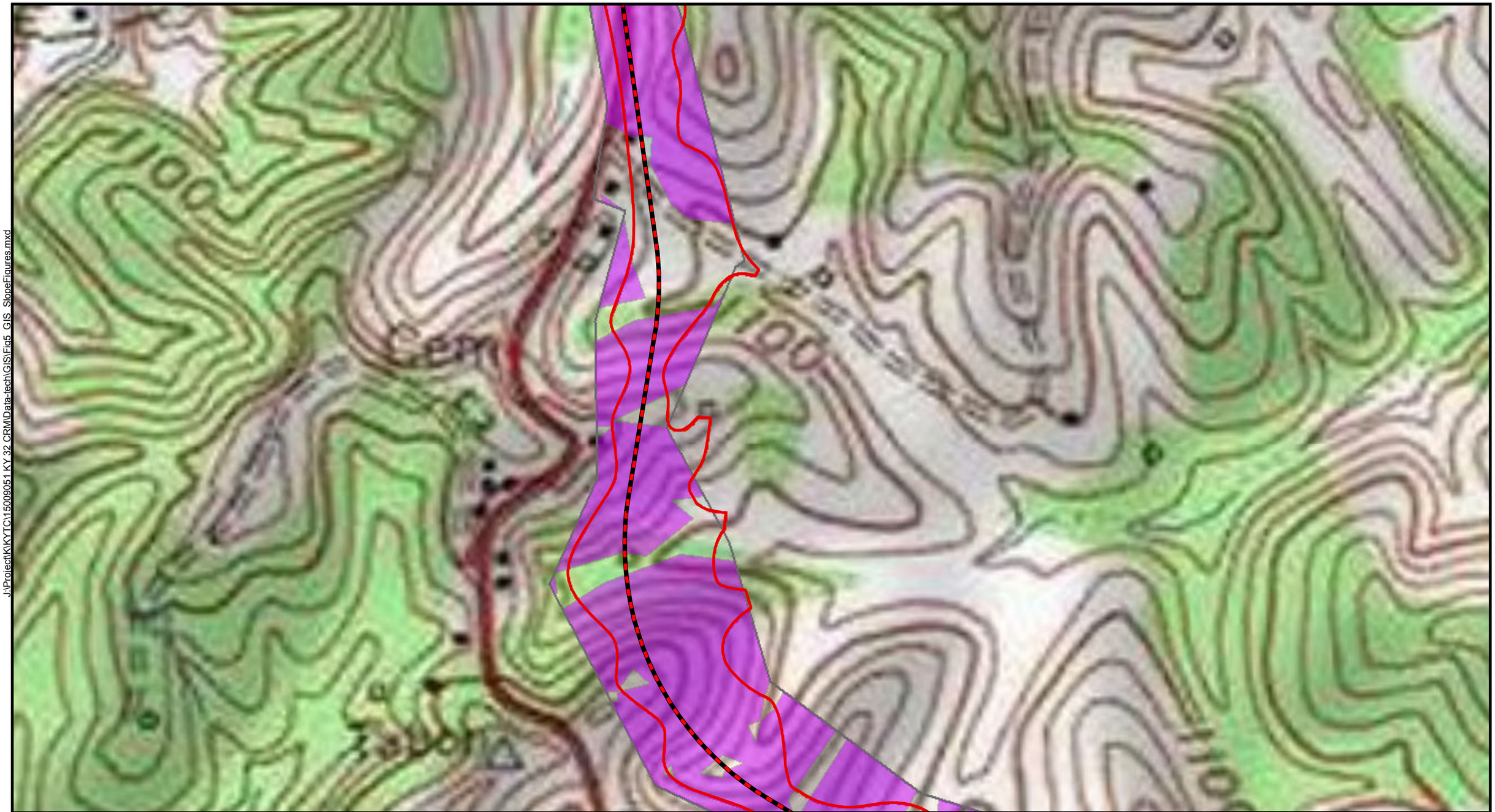

LEGEND

- Centerline
- Segment Boundary
- Limits of Disturbance
- ROW
- Slope Greater than 15 Percent

0 60 120
Scale in Meters

0 300 600
Scale in Feet

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BASE MAP SOURCE:
ArcGIS Online
USA Topo Maps

KENTUCKY TRANSPORTATION CABINET

KY 32 Improvement
Rowan Elliiot County

FIGURE 5.2
GIS IDENTIFIED AREAS OF
GREATER THAN 15 PERCENT SLOPE

JOB NO. 15009051

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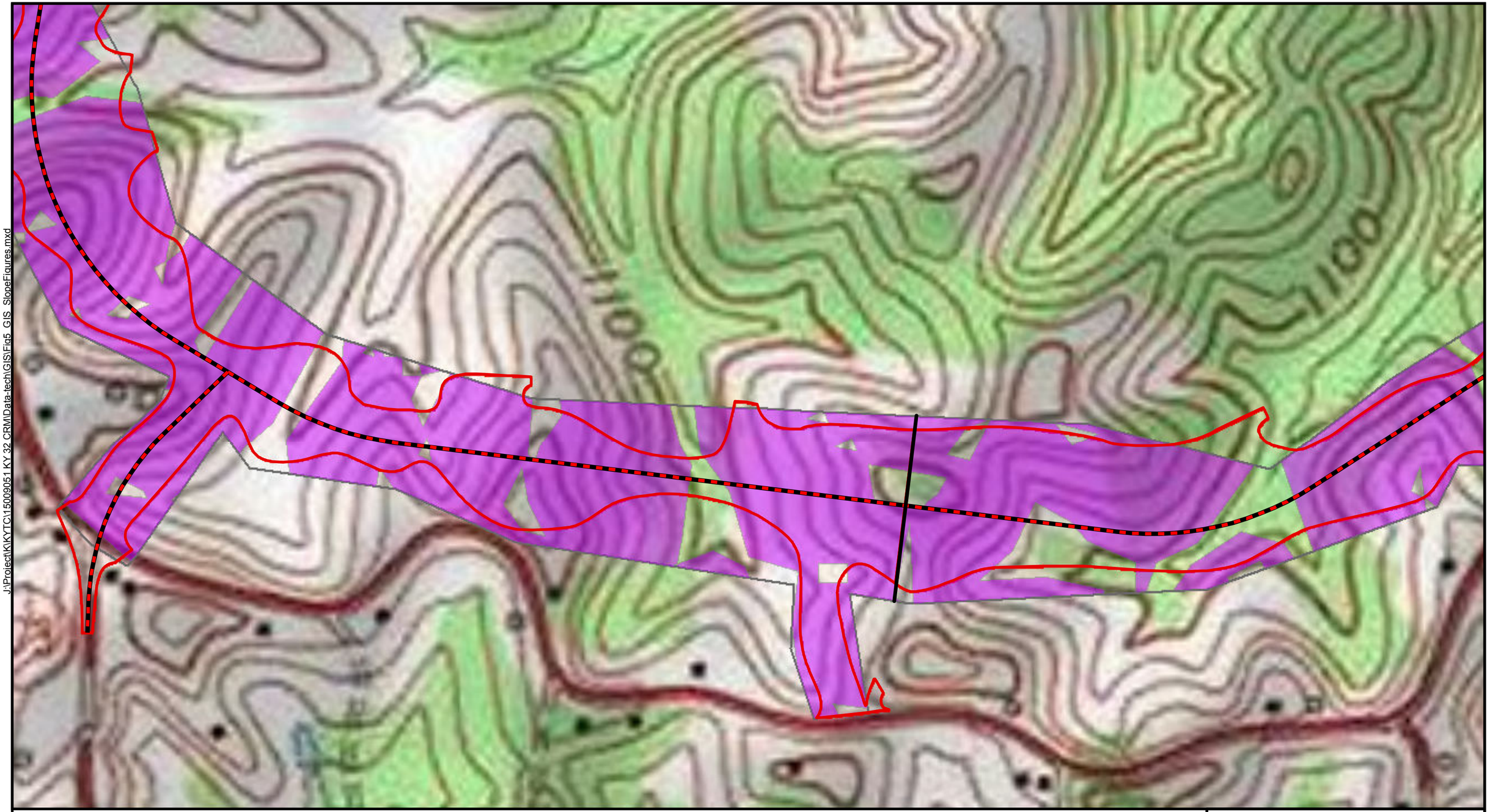

LEGEND

- Centerline
- Segment Boundary
- Limits of Disturbance
- ROW
- Slope Greater than 15 Percent

0 60 120
Scale in Meters

0 300 600
Scale in Feet

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BASE MAP SOURCE:
ArcGIS Online
USA Topo Maps

KENTUCKY TRANSPORTATION CABINET

KY 32 Improvement
Rowan Elliiot County

FIGURE 5.3
GIS IDENTIFIED AREAS OF
GREATER THAN 15 PERCENT SLOPE

JOB NO. 15009051

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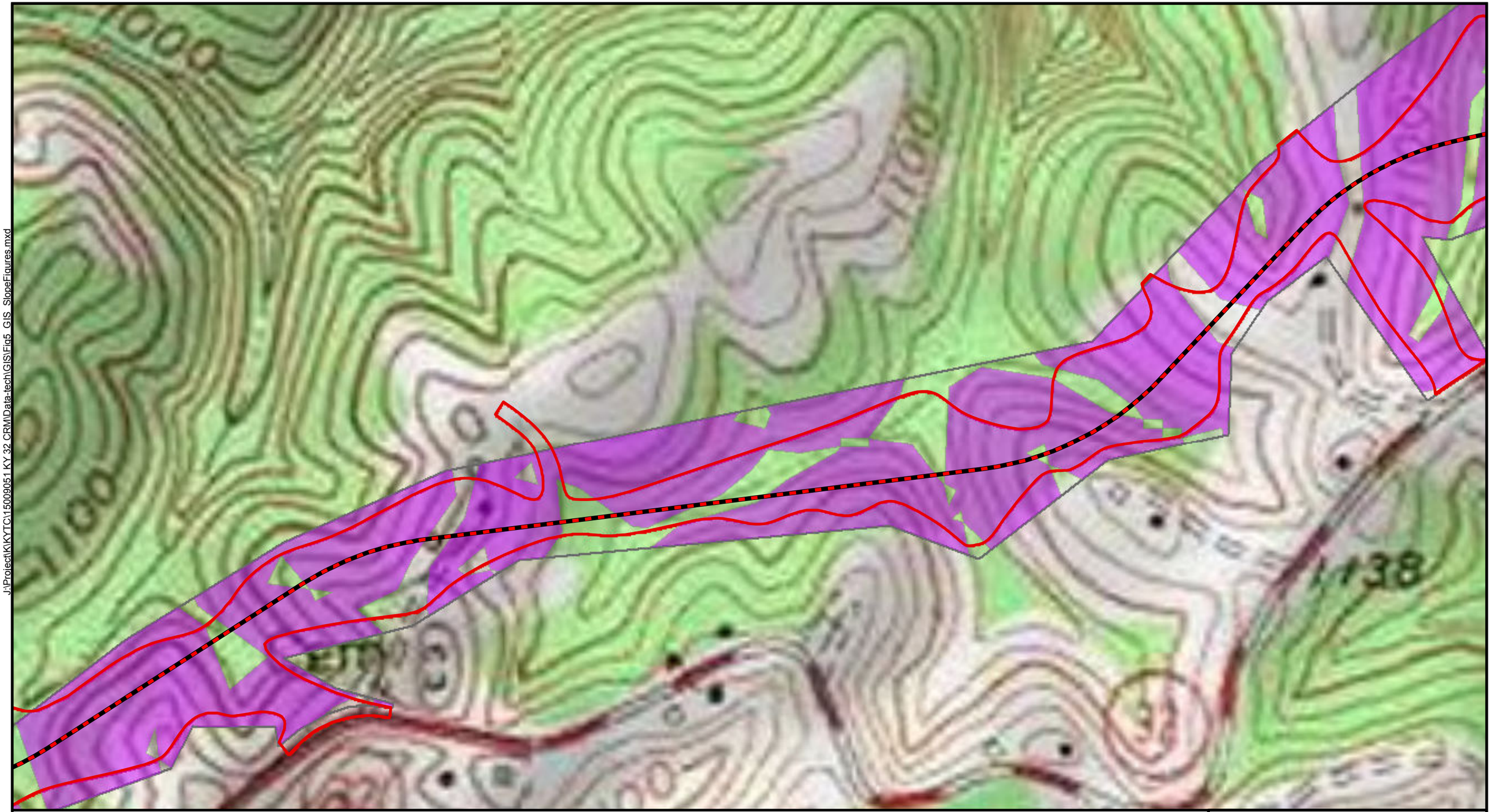

LEGEND

- Centerline
- Segment Boundary
- Limits of Disturbance
- ROW
- Slope Greater than 15 Percent

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Scale in Meters

0 300 600
Scale in Feet

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BASE MAP SOURCE:
ArcGIS Online
USA Topo Maps

KENTUCKY TRANSPORTATION CABINET

KY 32 Improvement
Rowan Elliiot County

FIGURE 5.4
GIS IDENTIFIED AREAS OF
GREATER THAN 15 PERCENT SLOPE

JOB NO. 15009051

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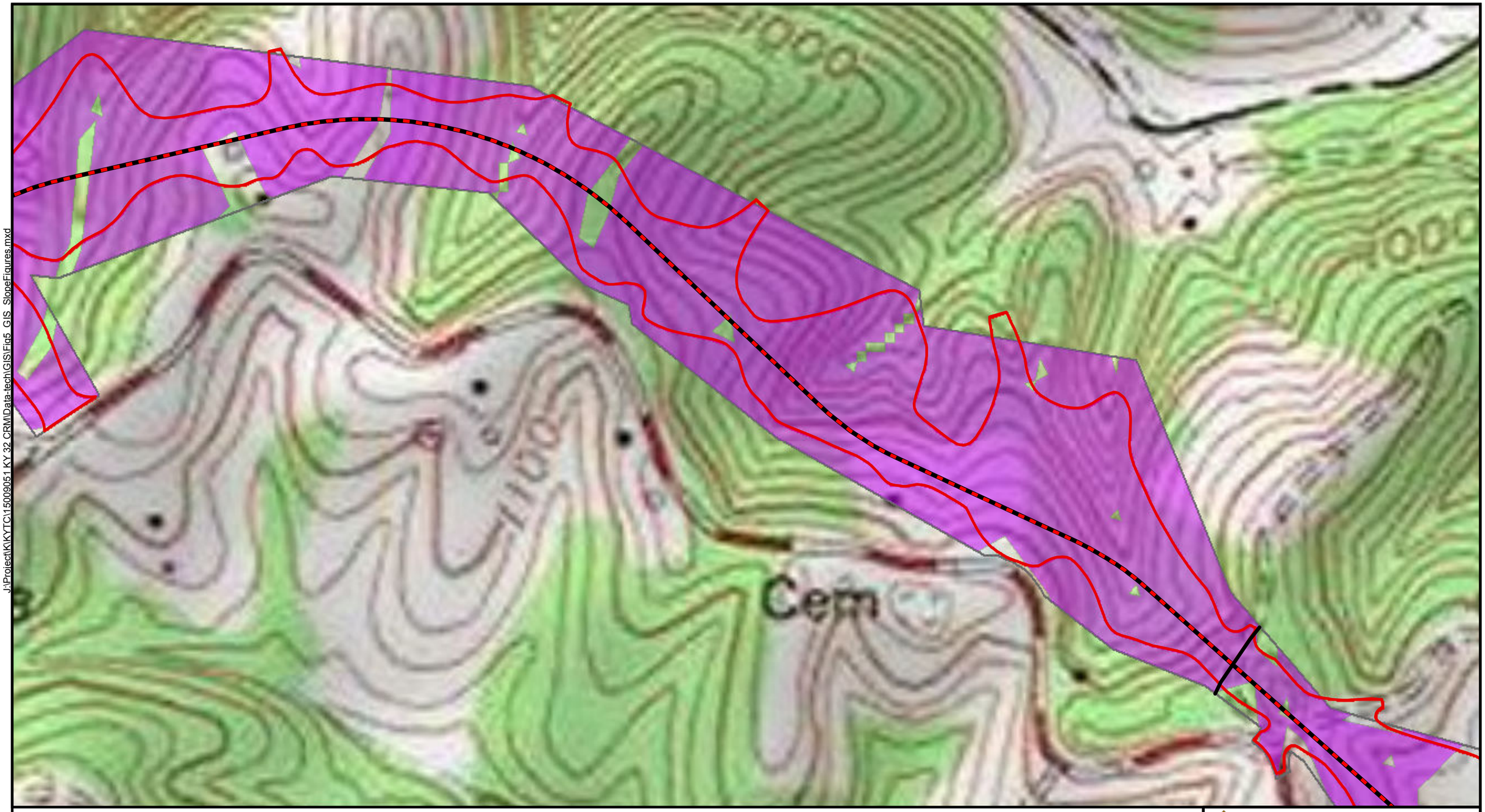

LEGEND

- Centerline
- Segment Boundary
- Limits of Disturbance
- ROW
- Slope Greater than 15 Percent

0 60 120
Scale in Meters

0 300 600
Scale in Feet

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BASE MAP SOURCE:
ArcGIS Online
USA Topo Maps

KENTUCKY TRANSPORTATION CABINET

KY 32 Improvement
Rowan Elliiot County

FIGURE 5.5
GIS IDENTIFIED AREAS OF
GREATER THAN 15 PERCENT SLOPE

JOB NO. 15009051

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LEGEND

- Centerline
- Segment Boundary
- Limits of Disturbance
- ROW
- Slope Greater than 15 Percent

0 60 120
Scale in Meters

0 300 600
Scale in Feet

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BASE MAP SOURCE:
ArcGIS Online
USA Topo Maps

KENTUCKY TRANSPORTATION CABINET

KY 32 Improvement
Rowan Elliiot County

FIGURE 5.6
GIS IDENTIFIED AREAS OF
GREATER THAN 15 PERCENT SLOPE

JOB NO. 15009051

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LEGEND

- Centerline
- Segment Boundary
- Limits of Disturbance
- ROW
- Slope Greater than 15 Percent

0 60 120
Scale in Meters

0 300 600
Scale in Feet

BASE MAP SOURCE:
ArcGIS Online
USA Topo Maps

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KY 32 Improvement
Rowan Elliiot County

FIGURE 5.7
GIS IDENTIFIED AREAS OF
GREATER THAN 15 PERCENT SLOPE

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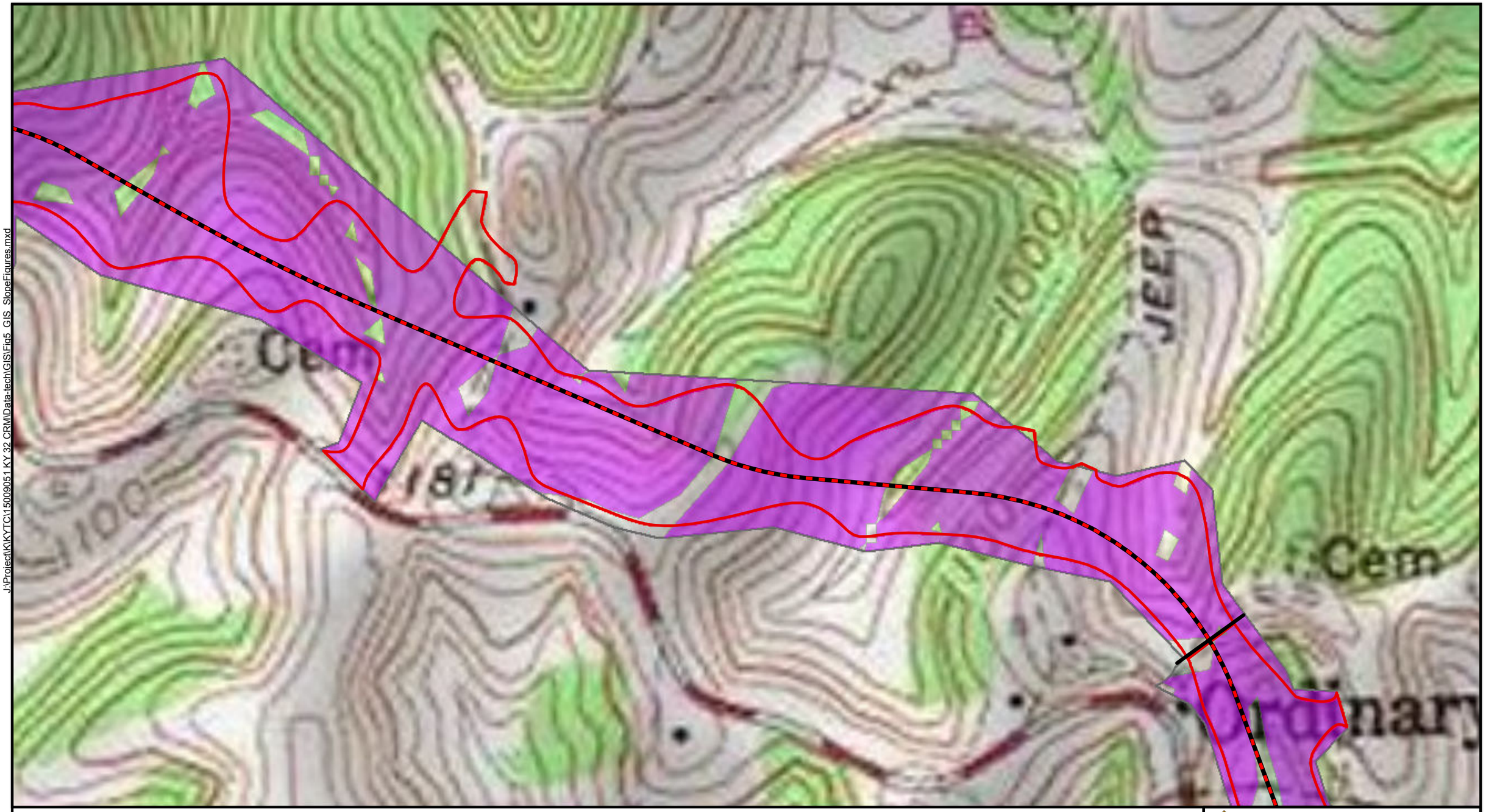

LEGEND

- Centerline
- Segment Boundary
- Limits of Disturbance
- ROW
- Slope Greater than 15 Percent

0 60 120
Scale in Meters

0 300 600
Scale in Feet

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BASE MAP SOURCE:
ArcGIS Online
USA Topo Maps

KY 32 Improvement
Rowan Elliiot County

FIGURE 5.8
GIS IDENTIFIED AREAS OF
GREATER THAN 15 PERCENT SLOPE

JOB NO. 15009051

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LEGEND

- Centerline
- Segment Boundary
- Limits of Disturbance
- ROW
- Slope Greater than 15 Percent

0 60 120
Scale in Meters

0 300 600
Scale in Feet

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BASE MAP SOURCE:
ArcGIS Online
USA Topo Maps

KENTUCKY TRANSPORTATION CABINET

KY 32 Improvement
Rowan Elliiot County

FIGURE 5.9
GIS IDENTIFIED AREAS OF
GREATER THAN 15 PERCENT SLOPE

JOB NO. 15009051

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LEGEND

- Centerline
- Segment Boundary
- Limits of Disturbance
- ROW
- Slope Greater than 15 Percent

0 60 120
Scale in Meters

0 300 600
Scale in Feet

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BASE MAP SOURCE:
ArcGIS Online
USA Topo Maps

KY 32 Improvement
Rowan Elliiot County

FIGURE 5.10
GIS IDENTIFIED AREAS OF
GREATER THAN 15 PERCENT SLOPE

JOB NO. 15009051

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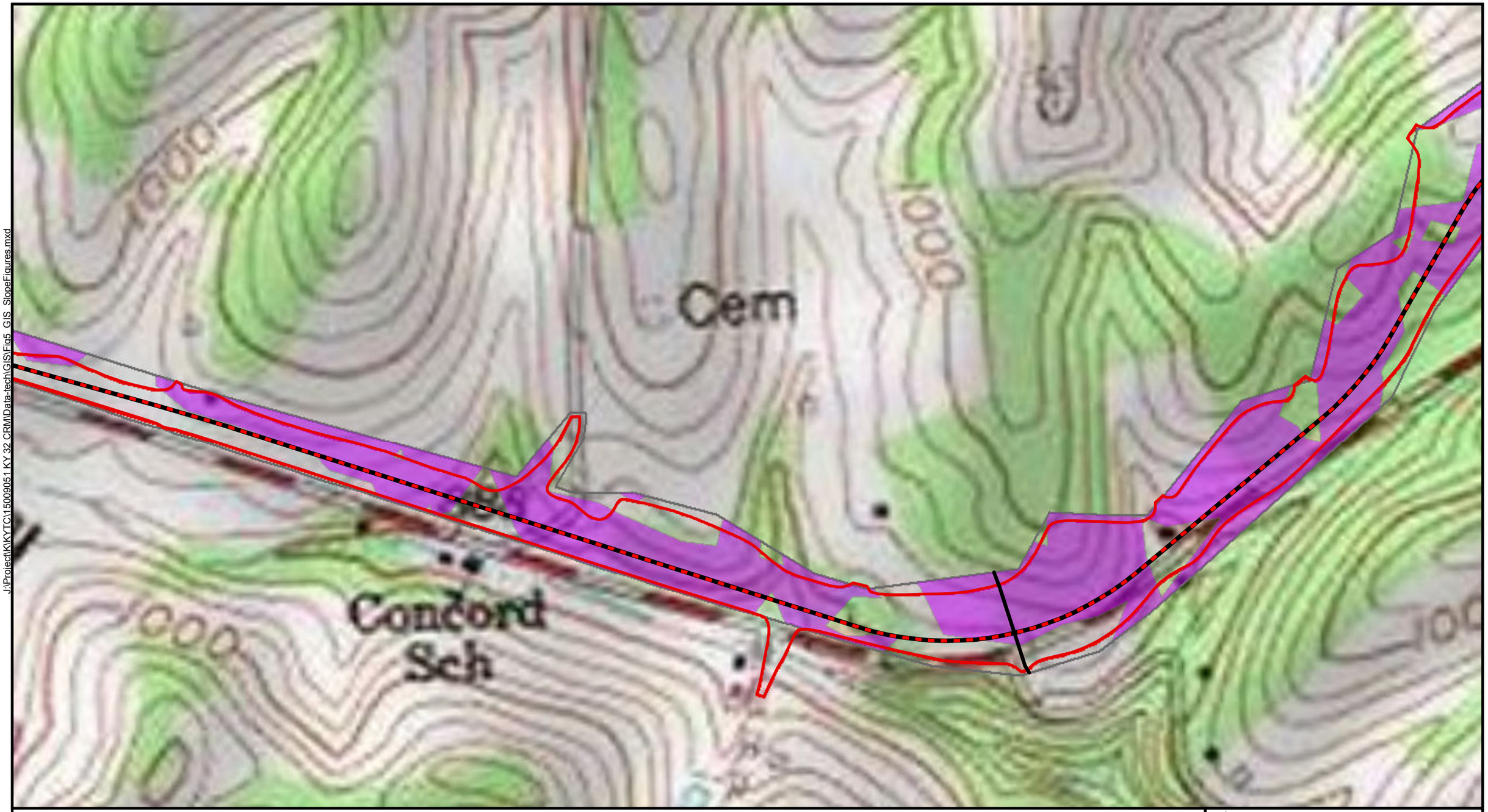

LEGEND

- Centerline
- Segment Boundary
- Limits of Disturbance
- ROW
- Slope Greater than 15 Percent

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Scale in Meters

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Scale in Feet

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BASE MAP SOURCE:
ArcGIS Online
USA Topo Maps

KY 32 Improvement
Rowan Elliiot County

FIGURE 5.11
GIS IDENTIFIED AREAS OF
GREATER THAN 15 PERCENT SLOPE

JOB NO. 15009051

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Dewdrop

LEGEND

- Centerline
- Segment Boundary
- Limits of Disturbance
- ROW
- Slope Greater than 15 Percent

0 60 120
Scale in Meters

0 300 600
Scale in Feet

BASE MAP SOURCE:
ArcGIS Online
USA Topo Maps

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KENTUCKY TRANSPORTATION CABINET

KY 32 Improvement
Rowan Elliiot County

FIGURE 5.12
GIS IDENTIFIED AREAS OF
GREATER THAN 15 PERCENT SLOPE

JOB NO. 15009051

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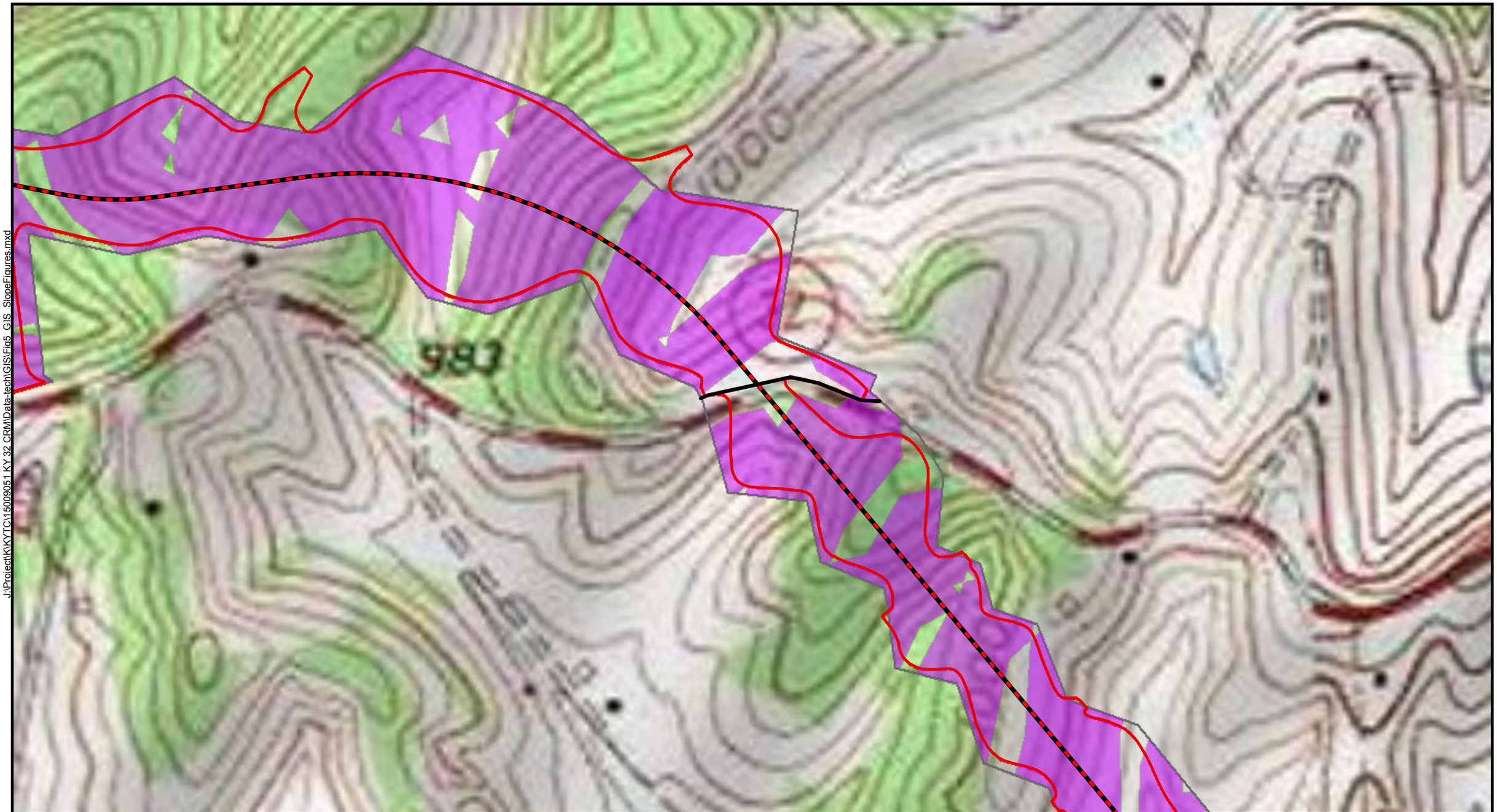

LEGEND

- Centerline
- Segment Boundary
- Limits of Disturbance
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- Slope Greater than 15 Percent

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Scale in Meters

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Scale in Feet

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BASE MAP SOURCE:
ArcGIS Online
USA Topo Maps

KENTUCKY TRANSPORTATION CABINET

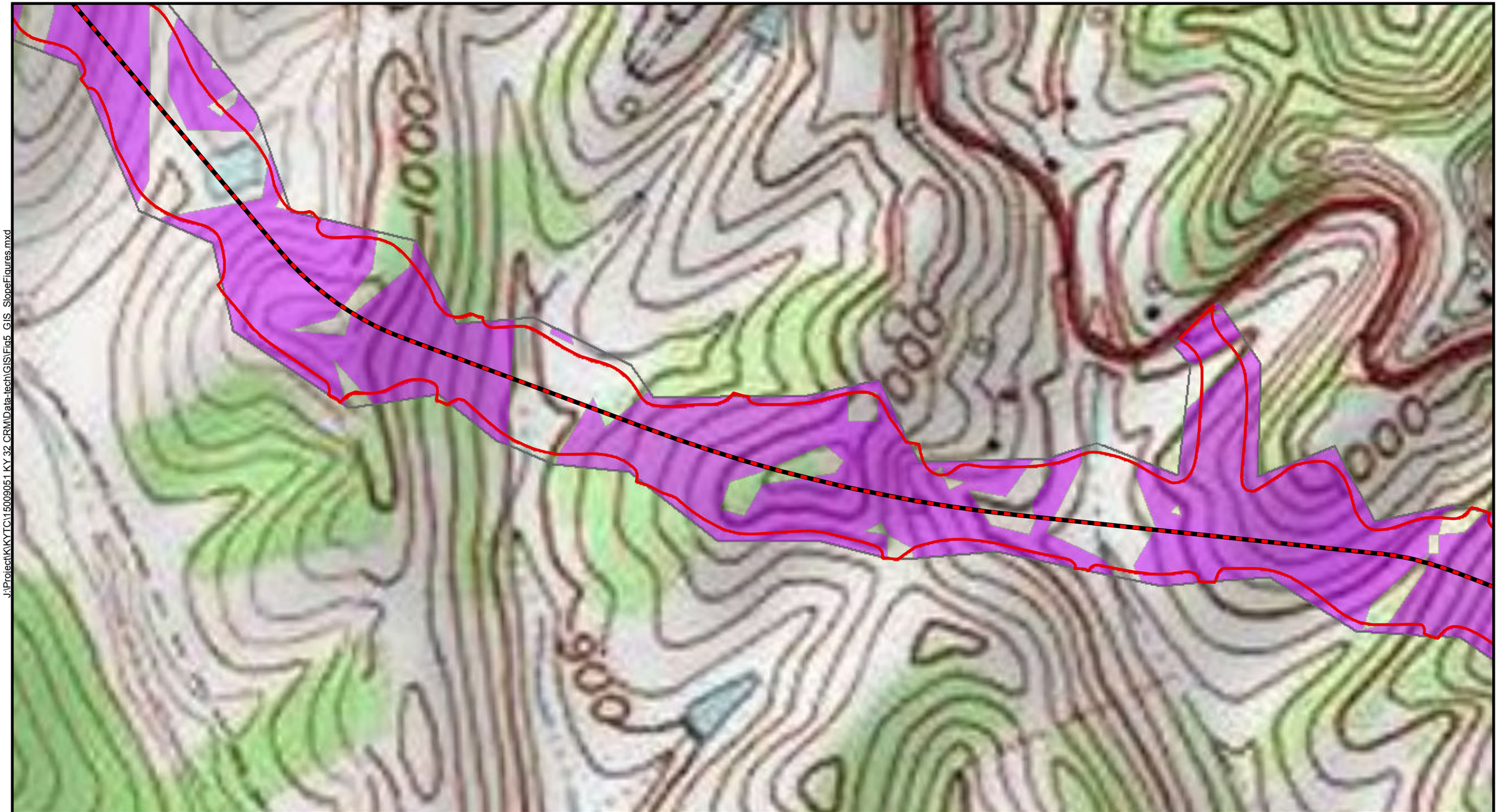
KY 32 Improvement
Rowan Elliiot County

FIGURE 5.13
GIS IDENTIFIED AREAS OF
GREATER THAN 15 PERCENT SLOPE

JOB NO. 15009051

URS

J:\Project\KIKYTC\15009051 KY 32 CRM\Data-tech\GIS\Fig5_GIS_SlopeFigures.mxd



LEGEND

- Centerline
- Segment Boundary
- Limits of Disturbance
- ROW
- Slope Greater than 15 Percent

0 60 120
Scale in Meters

0 300 600
Scale in Feet

N

BASE MAP SOURCE:
ArcGIS Online
USA Topo Maps

KENTUCKY TRANSPORTATION CABINET

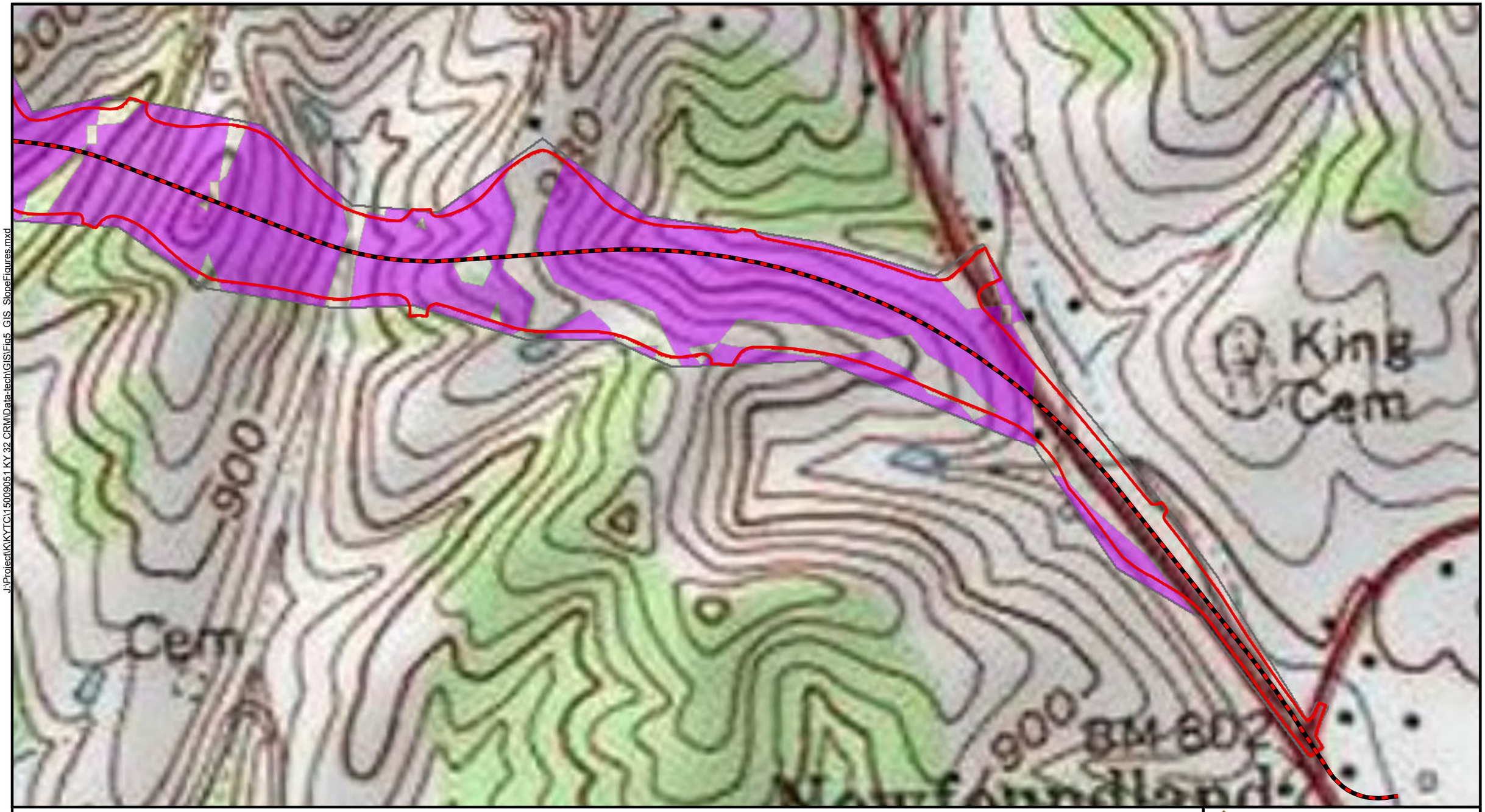
KY 32 Improvement
Rowan Elliiot County

FIGURE 5.14
GIS IDENTIFIED AREAS OF
GREATER THAN 15 PERCENT SLOPE

JOB NO. 15009051

URS

J:\Project\KYTC\15009051 KY 32 CR\Data-tech\GIS\Fig5_GIS_SlopeFigures.mxd



LEGEND

- Centerline
- Segment Boundary
- Limits of Disturbance
- ROW
- Slope Greater than 15 Percent

0 60 120
Scale in Meters

0 300 600
Scale in Feet

N

BASE MAP SOURCE:
ArcGIS Online
USA Topo Maps

KY 32 Improvement
Rowan Elliiot County

FIGURE 5.15
GIS IDENTIFIED AREAS OF
GREATER THAN 15 PERCENT SLOPE

JOB NO. 15009051

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For mapping purposes, all SLs, as well as all cultural resources, including isolated finds, were mapped using a sub-meter accurate Trimble GeoXT Global Positioning System (GPS). The internal software within the GPS unit records locations with a program called TerraSync, this data is then transferred to a desktop program (Trimble Pathfinder Office), which is used to differentially correct the data, so it has sub-meter accuracy. Data is finally exported into shapefiles for use in ArcGIS, which is used to create the report mapping. GPS data were supplemented by notes on the SL forms and sketch maps of the sites and their locations.

5.2 Laboratory Methods

Once collected in the field, the artifacts were bagged by provenience. Each bag was labeled with the project number, project title, site number, SL type and number, stratigraphic unit of recovery, and the date of excavation. This information was then transferred to a log and each bag was labeled with an individual number. Upon return to the laboratory, the artifacts were washed in warm water, with the exception of fragile specimens (such as prehistoric ceramics). All artifacts that were cleaned were then air dried, rebagged in clean receptacles, and their data entered into an Excel spreadsheet that was used for analysis.

5.3 Cultural Materials Recovered and Analytical Methods

During the Phase I archaeological field survey, both prehistoric and historic artifacts were recovered. As a result, analytical methods are described in this chapter for both prehistoric and historic artifacts. Table 5.1 lists the artifacts recovered from the Phase I archaeological survey, with a more detailed analysis within Chapter 7.0 (Site Descriptions).

Table 5.1. Artifacts Recovered from the Phase I Archaeological Survey

Site Number	Site Name	SL Number	Depth (cmbs)	Artifact Type	Count (n=)
Not Assigned an OSA Site Number	Johnson	BB209	0-30	Container Glass	2
				Whiteware	1
				Metal	1
15El75	Crum	B538	0-32	Window Glass	2
				Bottle Glass	1
				Metal	1
				Coal	2
		B539	19-30	Whiteware	1
		B540	0-21	Window Glass	9
				Bottle Glass	1
				Metal	1
		B540-North	0-20	Bottle Glass	2
				Window Glass	20
				Unknown Glass	6
				Metal	4
				Plastic	1
		B540-East	0-17	Metal	4
				Bottle Glass	6
				Plastic	2
				Chert Flakes	5
Not Assigned an OSA Site Number	Shelton	A608	0-15	Bottle Glass	1
				Coal	3
Not Assigned an OSA Site Number	Hunter	C622	0-10	Whiteware	1
		C622-South	0-27	Whiteware	1
Not Assigned an OSA Site Number	H Simmons	CC825	0-50	Chert Flakes	2
Total					**80**

5.3.1 Prehistoric Lithic Analysis

The analysis applied to the Phase I lithic assemblage is often referred to as the *chaine operatoire* (operation chain) system. Current approaches to this type of analysis include a study of the systematic procedures utilized by prehistoric knappers to make tools (Leroi-Gourhan 1964; Geneste and Plisson 1986; Sellet 1993; Bar Yosef and Van Peer 2009). The purpose of the *chaine operatoire* approach is to incorporate the processes of lithic production and use into a framework that can interpret not only morphological characteristics of stone tools, but also human behavior and organization associated with those stone tools (Sellet 1993). Variables, such as the abundance and availability of raw material, cultural influences, and situational constraints, influence lithic manufacturing

trajectories from the initial procurement of raw material to the final discard of a stone tool within the *chaine operatoire* (Andrefsky 1998:38).

Lithic analysis often includes placing artifacts into specific types, which reflect certain stages within a stone manufacturing trajectory. The following paragraphs explain and define the typologies used within this analysis in order to identify the specific reduction sequences within a lithic assemblage. If the sample size is large enough and not limited to a small number of artifacts, interpretations concerning the behavior and activities associated with the assemblage are made within Chapters 7.0 and 8.0 of this report.

Method of Lithic Analysis

The production of stone tools involves a process that must begin with the selection of suitable raw materials. The basic requirements of any raw material to be used to make flaked stone artifacts include the following: 1) that it can be easily worked into a desirable shape; and 2) that sharp, durable edges can be produced during flaking. Raw material selection involves a careful process of decision-making and includes consideration of the properties of specific materials, especially their ability to be easily flaked and hold an edge. For example, obsidian is ideal for producing cutting implements such as PPKs, but it is not as suitable for tasks involving heavy chopping.

Once a raw material is selected, the process of tool manufacture begins. Two different strategies can be utilized and these involve the reduction of a material block directly into a tool form, like a biface, or the production of a core. The second reduction process involves the preparation of a block of raw material so that flakes of a suitable shape and size can be detached. These blanks are then flaked by percussion or pressure flaking into a variety of tool types including scrapers, bifacial knives, or projectile points.

Biface reduction can proceed along two different manufacturing trajectories, one of which involves the reduction of blocks of raw material, while the other involves the reduction of a flake blank. Experimental work has shown that the former manufacturing strategy, involving a block of raw material, begins with the detachment of flakes with cortical or natural surfaces. This stage is accomplished by direct percussion, usually involving a hard hammer that more effectively transmits the force of the blow through the outer surface. Having removed a series of flakes and thus created suitable striking platforms, the knapper begins the thinning and shaping stage. The majority of the knapping is done with a soft hammer using marginal flaking. The pieces detached tend to be invasive, extending into

the midsection of the biface. A later stage of thinning may follow, which consists of further platform preparation and the detachment of invasive flakes with progressively straighter profiles in order to obtain a flattened cross-section. By the end of this stage, the biface has achieved a lenticular or bi-convex cross-section. Finally, the tool's edge is prepared by a combination of fine percussion work and pressure flaking if desired. It should be noted that flakes deriving from biface reduction are sometimes selected for tool manufacture as discussed above. Thus, the biface can, in some instances during the reduction cycle, be treated as a core.

The second manufacturing trajectory, utilizing a flake, begins with core reduction and the manufacture of a suitable flake blank. The advantages of utilizing a flake blank for biface reduction include the following: 1) flakes are generally lightweight and can be more easily transported in large numbers than blocks of material; and 2) producing flakes to be used for later biface reduction allows the knapper to assess the quality of the material, avoiding transport of poorer-grade cherts.

The initial series of flakes detached from a flake blank may or may not bear cortex. However, they will display portions of the original dorsal or ventral surfaces of the flake from which they were struck. It should be noted that primary reduction flakes from this manufacturing sequence can be wholly non-cortical. Thus, the use of the presence of cortex alone to define initial reduction is of limited value. Biface reduction on a flake involves the preparation of the edges of the piece in order to create platforms for the thinning and shaping stages that follow. In most other respects, the reduction stages are similar to those described above, except that a flake blank often needs additional thinning at the proximal or bulbar end of the piece to reduce the pronounced swelling.

In order to identify a reduction sequence, the first part of this analysis involves separating retouched tools, flakes, cores, and fragments (shatter and ‘chunks’ of raw material) into types and listing the presence or absence of features such as cortex. The tools are divided into subtypes including bifaces/preforms, projectile points, knives, scrapers, and miscellaneous tools. The flakes are then further subdivided, in as much as was possible, into groups that would more specifically identify the reduction sequence to which they belonged. The list below presents each of the major artifact categories.

1) Retouched tools
   - A) Points
   - B) Knives
   - C) Bifaces/Preforms

1. Stage 1 Blank: Natural or flake blank; minimal retouch, testing
2. Stage 2 Edged Biface: Exhibits edge/margin shaping, initial thinning
3. Stage 3 Thinned Biface: Initially thinned, shaped biface preform
4. Stage 4 Preform: Exhibits refined thinning/shaping without development of specific attributes
5. Stage 5 Finished Biface: Finished tool exhibiting specific formal elements, dedicated to specific use. Fully developed hafting elements, sharpening, or edge serration.

D) Flake Tools
E) Miscellaneous Tools

2) Debitage
A) Flakes
1. Initial reduction - all reduction sequences
2. Flakes - undetermined reduction sequence
3. Biface initial reduction flakes
4. Biface thinning flakes
5. Biface finishing flakes - probably including edge sharpening
6. 'Chips' - complete and between 5 mm and 1 cm in length
7. Microdebitage <5 millimeters in length
8. Janus Flakes

Raw Material Analysis

Stone material analysis was conducted macroscopically by visual inspection, which can be viewed as a "best fit" approach based on the available information. Primarily, the color and texture of the chert were recorded for all specimens. In some instances, when cortex was present on artifacts, notes were taken on whether the chert came from a primary (e.g. outcrop) or secondary source (e.g. stream); notes were also taken on if the chert was tabular, nodular, etc. These variables were compared to appropriate references for the region (e.g. USGS geological quadrangle maps) to identify specific chert types and the possible location of these specific chert types.

A review of 12 USGS geological quadrangle maps (see Table 5.2) within and surrounding the Project indicate which chert resources were locally available prehistorically.

- Primary sources of chert within the general Project area include Boyle, Brannon, Brassfield, Breathitt, Newman, Ste. Genevieve, and St. Louis chert types. Boyle appears to be the most abundant, occurring as float (irregular shaped nodules) and whole beds or lenses with irregular shaped chunks or blocks (Weir 1975; McDowell 1976). The other chert types mostly occur in nodular or pebble forms.

- Secondary sources of chert within the general Project area occur mostly in alluvium and fluvial deposits. Chert identified in these deposits occur in pebble, cobble, and subangular to rounded fragments. Secondary source chert has been documented in USGS quadrangles: Plummers Landing, Farmers, Salt Lick, Cranston, Olive Hill, and Ault.

Further to the east, Brassfield, Crab Orchard, Newman, and St. Louis chert types occur near the Project. According to Patterson and Hostermann (1961), St. Louis nodules occur in the ridges around Dry Run Creek, a drainage which crosses the Project. The other chert types are most likely to occur in stream cut banks or creek beds in fragments, nodules, lenses, or masses.

Table 5.2. Summary of USGS Geological Quadrangle Maps

(*Quadrangles shaded in gray are within the APE)

USGS Quadrangle Name	Plummer's Landing	Cranston	Soldier	Olive Hill
Reference	(McDowell et al. 1971)	(Philley et al. 1974)	(Philley et al. 1975)	(Englund and Windolp 1975)
USGS Quadrangle Name	Farmers	Morehead	Haldeman	Ault
Reference	(McDowell 1975)	(Hoge and Chaplin 1972)	(Patterson and Hosterman 1961)	(Delaney and Englund 1973)
USGS Quadrangle Name	Salt Lick	Bangor	Wrigley	Sandy Hook
Reference	(Philley 1978)	(Hylbert and Philley 1971)	(Hosterman et al. 1961)	(Englund and Delaney 1966)

Terminology Related to Retouched Tools

Biface: A biface is any retouched tool, partially completed or finished, which has been flaked by percussion or pressure flaking over both of its surfaces. Callahan's (1974, 1979) stages that were used for analysis are defined below.

> Stage 1 Blank: A blank that consists of a piece of raw material (flake, cobble, or chunk). The type of bifacial blank is dependent upon the type of biface being produced and the available raw material.
>
> Stage 2 Edged Biface: During this stage, the blank is chipped around the edges on both sides. In addition, the squared or rounded edges of the piece are often removed.
>
> Stage 3 Thinned Biface: This stage involves the primary thinning of a biface, which consists of humps, ridges, and previous step fractures being removed. These bifaces have flakes detached, which reach the center of the piece and most of the cortex is removed (Andrefsky 1998: Table 7.7).
>
> Stage 4 Preform: This stage involves the secondary thinning of the biface. Flake scars may be patterned and travel past the center of the surface, and butts are prepared by grinding or beveling. Initial shaping also occurs at this stage (Andrefsky 1998:181).
>
> Stage 5 Finished Biface: This stage entails the final shaping of the biface, which usually exhibits refined trimming of edges and can possibly be hafted (Andrefsky 1998: Table 7.7).

Retouch: This term is taken from the French '*retouchee'* and refers to the modification of a block of raw material (biface manufacture) or flake by a single removal or series of removals, thus transforming the piece into a 'tool'. Retouch shapes the original blank and its edges and can take the form of invasive bifacially detached flakes on a PPK or small, tiny flakes on the edge of an end-scraper. Retouch may also be caused unintentionally due to utilization; in this case retouch forms as a result of an activity and not by a process of intentional modification before use. Utilization retouch is typically discontinuous along an edge.

Retouched flake or piece: This category of retouched tool is represented by flakes, or badly broken artifacts, which have limited amounts of retouch and are not standardized tool forms. The retouch on these artifacts is highly varied in type, inclination, and position.

Tool: For the purposes of typological description only, a tool is any flake that has been shaped and modified by secondary retouch. In the case of biface manufacture, a block of raw material may be transformed directly by retouch into a tool such as a knife or PPK. The term tool, therefore, is used only for descriptive purposes to separate those artifacts which have been retouched from the debitage or unretouched pieces. Finally, it should be recognized that the latter group of objects may well have functioned as tools, for example unretouched flakes with good cutting edges are effective for skinning and butchery, but this is difficult to determine without a microwear analysis.

Terminology Related to Debitage

Chip: This term, introduced by Newcomer and Karlin (1987), describes tiny flakes (<1 centimeter in length) which are detached during several different types of manufacturing trajectories. First, they can result from the preparation of a core or biface edge by abrasion, a procedure that strengthens the platform prior to the blow of the hammer. During biface manufacture, chips are detached when the edge is 'turned' and a platform is created in order to remove longer, more invasive flakes. Tiny flakes of this type are also removed during the manufacture of tools like end-scrapers.

Core: A core is a block of raw material, other than a biface preform, from which flakes have been detached. Cores may be produced by careful preparation or consist of a block of material from which only a few flakes have been detached.

Debitage: The French term *debitage* has two related meanings: 1) it refers to the act of intentionally flaking a block of raw material to obtain its products, and 2) it refers to those products themselves. Commonly, the term debitage is used by prehistorians to describe flakes that have not been modified by secondary retouch and made into tools.

Flake: A flake is a product of debitage that has a length/width ratio of 1:1 (de Sonneville-Bordes 1960). In this report, there are two separate categories of flakes and the first is for those pieces to which a specific reduction sequence cannot be assigned. With these pieces, it is impossible to tell whether they have been detached during simple core

reduction or biface manufacture. For example, cortical flakes initially removed from a block of raw material can appear similar in both core and biface reduction.

The second group of flakes results from biface reduction and is described as follows:

Biface initial reduction flakes are typically thick, have cortex on part of their dorsal surfaces, and have large plain or simply faceted butts. There are relatively few dorsal scars, but these may show removals from the opposite edge of the biface.

The thinning/shaping flakes result from shaping the biface, while its thickness is reduced. These flakes generally lack cortex, are relatively thin, have narrow, faceted butts, multidirectional dorsal scars, and curved profiles. Thinning flakes are typically produced by percussion flaking.

The finishing or trimming flakes are produced during the preparation of the edge of the tool. These flakes are similar in some respects to thinning flakes, but are generally smaller and thinner and can be indistinguishable from tiny flakes resulting from other processes such as platform preparation. Biface finishing flakes may be detached by either percussion or pressure flaking.

The categories used to describe biface reduction follow in a broad sense those proposed by Newcomer (1971), Callahan (1979), and Bradley and Sampson (1986). It should be noted, however, that rigid schemes of reduction such as those cited, which break up into stages a process that is in fact an unbroken continuum from raw material selection to the final abandonment of the tool, can only approximate the course of a manufacturing trajectory used by prehistoric knappers. Thus, the classificatory results provided in the text below, at least at the level of individual artifacts, should be regarded as "informed opinion" rather than hard fact per se. While individual flakes may be subjected to misidentification, the authors have demonstrated through experimentation that larger assemblages can be characterized to a level of between 70 percent and 80 percent accuracy.

Janus flake: These flakes are a debitage type produced during the initial reduction of a flake blank (Tixier et al. 1980). The removal of a flake from the ventral surface of a larger flake results in a flake with a dorsal surface, which is completely or partially composed of the ventral surface of the original flake blank.

Percussion and pressure flaking: Percussion flaking involves the use of a hammer or percussor to strike a piece of chert in order to detach a flake. This hammer can be of a relatively hard material, such as a quartzite hammerstone, or a softer organic material such as a deer antler. Direct percussion is a flaking technique, which involves the delivery of the blow directly on to the striking platform, while indirect percussion utilizes an intermediary or 'punch'. Pressure flaking, as suggested by the name, involves the chipping of stone by pressure. Flakes are 'pressed off' with the use of a pointed tool such as a deer or elk antler tine.

Platform abrasion: When the blow of the precursor is aimed close to the edge of the piece being flaked (marginal flaking), it is necessary to prepare and strengthen that edge. The edge is usually prepared by abrasion that entails rubbing the striking platform area with a hammerstone and detaching a series of tiny flakes (chips) from the surface where the flake will be removed. Evidence of platform abrasion is usually clearly visible on biface thinning flakes at the intersection between the butt and dorsal surface.

Shatter: Shatter can either be produced during the knapping process or through natural agents. Naturally occurring shatter is usually the result of a thermal action shattering a block of chert. During debitage, shatter results from an attempt to flake a piece of chert with internal flaws and fracture lines. For the purposes of this volume, shatter is defined as a piece of chert that shows no evidence of being humanly struck, but may nonetheless be a waste product from a knapping episode.

5.3.2 Historic Artifact Analysis

The historic artifact classification established in this report is based first on the material and secondly on class designations established by Sprague (1980). This is a functional classification in which the form or material of an object is of minor importance when compared to the object's function in a culture. The classification is similar to that defined by South (1977), but the categories in Sprague's classificatory system are mutually exclusive, and the system is designed specifically for 19th and 20th century sites. Artifacts are assigned to one of a number of groups, such as Personal Items, Domestic Items, Architecture, Commerce and Industry, or Unknown objects classified by material.

Each group is subdivided into classes based on function. For example, Domestic Items may be broken down into furnishings, housewares and appliances, and cleaning and

maintenance. Architectural Items fall into classes such as construction, plumbing, fixed illumination and power, fixed heating, cooling, and atmospheric conditioning, and architectural safety.

Classes are further subdivided into types that were based on one or more key attributes. For example, in the case of a ceramic sherd, observable criterion, primarily technological or stylistic, by which a ceramic type has been defined included shape, paste, hardness, part, decoration, color, and glaze.

The following sections provide definitions of the more common material types like ceramic, glassware, and metal, as well as their decorations, recovered in 17th through early 20th century contexts. These are the classes of artifacts most relevant to the Project.

Ceramics

The general descriptions of ceramic types found within this section come from two main sources including Sutton and Arkush (1998:165-232) and Stelle (2001).

The earthenwares are a broad category of ceramics fired at temperatures too low to vitrify the paste, but high enough to vitrify the glaze. Earthenware pastes are porous, absorbent, and relatively coarsely-grained. Often various materials added to the paste as tempering agents are clearly visible in the paste. Earthenware-quality clays are readily available, relatively easy to work and inexpensive to fire. Earthenwares were generally utilitarian, although various decorative traditions were prized tablewares. Earthenware decorative types include, but are not limited to, tin glazed, iron glazed, mottled manganese, lead glazed, slipped, slip-trailed, combed slip, and sgrafitto. Earthenwares are nearly ubiquitous on historic period sites; details of vessel form, manufacturing, and decorative technique are often diagnostic for specific ethnicities or periods. The so-called refined earthenwares of the late eighteenth through early 19th centuries reflect the popular demand for inexpensive imitations of porcelain. The following sub-categories of refined earthenwares are usually treated as distinct types with discrete production histories, but often prove nearly indistinguishable in the laboratory.

Creamware is early refined earthenware, dating from around 1760 to 1820. Creamwares are generally thinly potted using mold-patterns. Creamware and the other 'refined' earthenwares were mass-produced for an international market.

Pearlware is a refined earthenware with a white paste, introduced after 1779 by Josiah Wedgwood. Pearlware has several improvements over creamware, including increased flint content; cobalt was added to the glaze to mask the natural yellowish tint of the glaze. The addition of cobalt gives pearlware a bluish-green cast, particularly in areas where the glaze has 'puddled'. Pearlware reached a peak in popularity around 1810, but was largely superseded by whiteware by 1825.

Whiteware is refined earthenware with a white paste, clear glaze and no tinting. Whiteware was developed as a direct successor to pearlware and became popular after ca. 1820-1830. The paste is generally more porous than that of ironstone (see below) which generally possesses a harder, more compact paste.

Ironstone is highly refined opaque earthenware with a clear glaze. It is typically dense, non-porous, and may be indistinguishable from whiteware. The peak of production for 'heavy bodied' dense ironstone wares was between 1840 and 1885, although variations on ironstone continue in production today.

The stonewares are characterized by a compact, fine-grained and non-porous, opaque body fired to higher temperatures (1300 degrees Fahrenheit) than the earthenwares. Stonewares are manufactured from naturally vitrifying, dense clays that produce a fine-grained, homogenous texture with a hard body. Stonewares may be decorated with cobalt and manganese, Albany or Bristol slips, or salt glazing, with a variety of incised or applied surface decorations. Stonewares have a long history of use in utilitarian and tableware forms, although by the 19th century, stoneware was used almost exclusively for storage vessels.

The term "Yellowware" applies to a ceramic type constructed of clay which fires to a yellowish hue. Less dense than stoneware, yellowware is fired at 2200 degrees F to a very durable body suitable for use in baking. Yellowwares were intended to be low cost, mass-produced utilitarian ceramics. They generally date from 1850-1930.

Porcelain is a highly vitrified ceramic with a white, translucent, almost glassy body. Porcelain contains a meticulously purified kaolin white china clay and feldspar paste that has been fired at extremely high temperatures.

Ceramic Decorations

Most ceramics are decorated by glazing, whereby an applied solution that vitrifies at high temperature seals the porous paste of the vessel, while imparting a distinctive color according to the trace elements present in the glaze solution. Most historic glazes were based on lead flux until the 1820s when alkaline glazes were introduced in refined earthenware manufacturing. Hydrofluoric acid and ammonium sulfide solutions may be used to test the presence of lead in historic ceramic sherds (Deiss 1985).

The following are some of the most common decorative types in historic ceramics:

Underglaze transfer print: The use of an underglaze transfer print to decorate ceramics was developed in the early part of the 19th century. The designs are typically quite intricate and include floral motifs, as well as 'exotic' oriental scenes. The earliest transfer prints were blue, but a variety of colors was introduced after ca. 1825.

Flow blue: Flow blue decoration was a variant of transfer printing where the design flows or blends with the glaze. The result of this effect is a fuzzy or blurred decoration that is caused by the introduction of a volatile liquid, such as lime or ammonia chloride, during the final firing of the vessel. Flow blue decorated wares date from 1830-1860, with a peak of production from 1850-1860.

Spongeware/Spatterware: The production of spongeware involved the application of a coloring agent with a modified sponge. The sponge was dipped in a color or variety of colors and used to produce blotches, whirls, or bands. Varying date ranges have been applied to this form of decoration, but 1840-1860 is the most commonly accepted. Spatterware is a variant of spongeware in which the color is 'spattered' over the surface of the vessel. It has a slightly longer date range than spongeware, extending from 1840-1880. Both decorative techniques remain in production to the present day.

Handpainted underglaze: Handpainted decorations, usually floral motifs, were utilized on refined earthenwares including pearlware, whiteware, and ironstone. On the earlier ceramic vessels, the colors included blue, ochre, and green. Later vessels, dating between 1840-1860 were more often polychrome with a wider variety of colors such as green, brown, yellow, black, red, blue, and pink.

Annular: Banded decorations were commonly applied to whitewares and ironstone with the use of a quill. This type of decoration, referred to as 'annular', consists of horizontal or concentric bands of color applied to the slip. Annular whiteware has a median date of production of 1845.

Molded or embossed wares: Included in this group are the edge decorated pearlwares and whitewares such as the 'shell-edge' or 'feather edge' types. These ceramic wares have a pattern molded to the edge that was then covered with a cobalt blue or forest green color. Blue and green shell edge wares have a date range of 1810-1860, with a median date of production of 1835 (Lofstrum et al. 1982). Plain molded or embossed designs were utilized on whiteware and ironstone, especially in the middle part of the 19th century. Large embossed ironstone vessels, with floral or naturalist designs such as sheaves of wheat, have a median date of production around 1873 (Gates and Ormerod 1984).

Glassware

Glassware can be as valuable as ceramic technology and decoration for providing chronological information on historic period sites. Vessel form, closure type, metal (chemical composition) and manufacturing technique are often diagnostic attributes.

Optimal cataloguing procedure for glass requires sorting specimens by glass-making materials - the actual compounds that compose the 'metal', or body of the glass: 'Soda-lime', 'Potash-Lime' 'Potash-Lead', and 'Lime'. Determining these fluxes and stabilizing agents can be approached two ways; by chemical analysis, or ultra-violet light testing (Jones and Sullivan 1985:10, 12). The ultra-violet test is the less reliable; lead glass will fluoresce blue, while soda glass will appear yellow at the rim. Chemical analysis requires cleaning an unobtrusive (read expendable) portion of the glass fragment, then dropping a minute amount of hydrofluoric acid onto its surface. A second drop of sulphide of ammonia is then applied directly over the first. The reaction will show a white spot for the presence of soda and a black spot for lead (Bickerton 1972:32).

The traditional method of cataloguing by color is notoriously unreliable, but more practical for 19th and 20th century collections where the glass-making compounds have become standardized for the industry. All glass is cataloged by color, supplemented by manufacturing technique, vessel form and rim/base finish where such evidence is available

in the collection. Where there is evidence for pre-19th century cultural resources, tests to determine glass metal compounds are performed.

Metal

The most common metal artifact found on historic and modern sites are nails. A brief history of the manufacturing techniques of nails is discussed below.

The period from 1790 to 1830 is considered a transitional period from wrought to cut nails (Nelson 1963:4). After the American Revolution, many cut nail manufacturers were established in the northeast. These were first operated by hand power and later by water or steam power. Initial inventions and specific improvements of cut nails are largely unknown. The most important contributions seem to have made by Jacob Perkins, J. G. Pierson, Jesse Reed, and Mark and Richard Reeve between 1791 and 1815 when more than 88 patents were issued for improvements on nail machines. The rapid development and sale of these machines made it possible to manufacture nails on a wide scale in the early 19th century (Nelson 1963:6).

The development of cut nail manufacturing is marked by at least five distinct phases (Nelson 1963:8): cut from common sides with hammered heads (1790s-1820s); cut from opposite sides with hammered heads (1810-1820s); cut from common sides with crude machine-made heads (1815-1830s); cut from opposite sides with crude machine-made heads (1820s-1830s); and modern machine headed nails.

The first factories set up for the production of wire nails were apparently established in New York in the 1850s. The earliest wire nails were not made for building construction, but rather in smaller sizes for pocket-book frames and objects like cigar boxes (Nelson 1963:9). American wire nail machinery was not really perfected until the 1860s and 1870s. Wire nails did not supplant cut nails with the rapidity that wrought nails were replaced. The transition was more gradual. Wire nails did not really become the dominant type until the 1890s, and many builders preferred using cut nails well into the 20th century. The greater holding power of cut nails was certainly a factor that delayed the quick acceptance of wire nails. The earliest wire nails can be distinguished from their modern counterparts by their head, as they are bulbous and generally eccentric with respect to the shank. Generally, the presence of wire nails in older sites indicates late 19th or 20th century repairs, alterations, or maintenance.

5.4 Curation

All 80 artifacts recovered will be temporarily stored at URS' CRM laboratory in Cincinnati, Ohio, until they can properly be curated at the William S. Webb Museum of Anthropology in Lexington or returned to the property owner. All artifacts and documentary materials (field notes, laboratory notes, analysis forms, photographs, etc.) were processed, cataloged, analyzed, and prepared in accordance with 36 CFR Parts 79 and 800.

6.0 ARCHAEOLOGY FIELD RESULTS

To facilitate the field survey, URS divided the APE into eight segments (Segments 1 through 8). Segments began and ended at road crossings that bisected the Project. For example, Segment 1 begins at the intersection of KY 32 and KY 504, and ends at the Buck Run Road. Surveyed land requirements occurred on one or both sides of KY 32. SL on the north side were given a single letter prefix (e.g. A23), while SL on the south side were given a double letter prefix (e.g. AA34). After assigning a prefix, SL were numbered sequentially from west to east. The survey coverage maps for the field survey are included in Appendix A.

A majority of the Project is located within forested, agricultural, and residential properties north and south of KY 32, and consists of a variety of surface conditions, including manicured grass lawns, hay fields, cattle pastures, forests, and gravel/paved driveways and roads.

A total of 6,161 SL were surveyed within the eight segments (Table 6.1). Most of the SL (n=5,370, or 87 percent) were visually inspected on steep slope. A total of 194 shovel probes were excavated, with ten of these positive for cultural material. The recovery of this cultural material resulted in the identification of five archaeological resources (site 15El75, and isolated finds Johnson, Shelton, Hunter, and H Simmons), which are outlined in the following narrative discussion of the survey results, and detailed in Chapter 7.0. Please note that the OSA only assigned a state site number to one of these five sites.

Table 6.1. Summary of Field Results for KY 32 in Rowan and Elliott Counties, Kentucky

Segments	Segment Mileage	Segment Acreage	SL Total	Excavated Shovel Probes	Cultural Resources Identified
1		71.41	712	15	0
2		124.01	1,260	35	0
3		68.91	698	14	1
4		62.42	638	3	0
5		56.04	566	23	0
6		35.70	388	50	3
7		88.65	902	14	0
8		98.41	997	40	1

Segments	Segment Mileage	Segment Acreage	SL Total	Excavated Shovel Probes	Cultural Resources Identified
TOTAL	**12.1**	**605.56**	**6,161**	**194**	**5**

6.1 Segment 1

The segment trends across the floodplain of Christy Creek, and then across southern ridges and valleys of the Big Caney Creek drainage system. A majority of the segment is covered in grass for hay and cattle pasture with two residential areas (Plate 6.1).

A total of 712 SL were surveyed along the length of this segment, fifteen of which were shovel probed (Table 6.2). The remaining 697 SL were pedestrian-inspected, due to the high incidence of slope and modern disturbance associated with the KY 32. The 15 excavated shovel probes revealed a soil profile composed of a dark yellowish brown (10YR 4/4) silt loam A horizon, underlain by a yellowish brown (10YR 5/6) silt clay B horizon. The interface was encountered between two centimeters and 50 centimeters below the ground surface. No cultural materials or features were identified on Segment 1.

Within Segment 1, one historic resource documented by Brown (2011) was within the APE. This resource was a WPA Culvert (RW-193) on KY 32 that was built in the 1930s (Plate 6.2). The culvert carries a branch of Christy Creek underneath KY 32 and it was originally constructed in cut stone, but due to deterioration, portions of the culvert have been replaced with concrete (Brown 2011). Visible disturbance was documented at this location due to road, ditch, and culvert construction. No archaeological materials and/or deposits were documented at this location.

Plate 6.1: View of Segment 1 at W P Mabry Road, facing north.

Plate 6.2: KY 32 WPA Culvert (RW-193), facing west.

Table 6.2. Survey Results – Segment 1

SL Types	Count (n=)
Negative Shovel Probes	15
Positive Shovel Probes	0
Pedestrian-Agricultural	0
Pedestrian-Disturbed	133
Pedestrian-Slope	560
Pedestrian-Wet	4
Total	**712**

6.2 Segment 2

The APE parallels the present road to the north and trends across the southern ridges and valleys of the Big Caney Creek drainage system. The segment is covered in grass for hay, cattle pasture and in woods (Plate 6.3).

A total of 1,260 SL were surveyed along the length of this segment, 35 of which were shovel probed (Table 6.3). The remaining 1,225 SL were pedestrian-inspected, due to the high incidence of slope (1,182 SL) and modern disturbance associated with the KY 32 and driveways (39 SL). The 35 excavated shovel probes revealed an average soil profile composed of a dark yellowish brown (10YR 4/4) silt loam A horizon, underlain by a yellowish brown (10YR 5/6) silt clay B horizon. The interface was encountered between eight centimeters and 40 centimeters below the ground surface. No cultural materials or features were identified on Segment 2.

Within Segment 2, one historic resource, the Lowe Barn (RW-215) was visited during the archaeological field survey. Brown (2011) documented the barn as one typically used for drying tobacco (Plate 6.4). Visual inspection of the area around the barn revealed eroded soils, and no cultural materials were visible on the ground surface. URS did attempt to excavate one shovel probe adjacent to the barn, in an area which appeared to have some soil development. This shovel probe (SL BB 252) revealed a shallow 20 centimeter thick layer of 10YR 4/6 dark yellowish brown silt clay over a 10YR 5/4 yellowish brown clay with unnatural gravels. No cultural materials were identified at this location.

Plate 6.3: View of the Segment 2 from tract 151-00-00-069.00, facing southeast.

Plate 6.4: The Lowe Barn (RW-215), facing east.

Table 6.3. Survey Results – Segment 2

SL Types	Count (n=)
Negative Shovel Probes	35
Positive Shovel Probes	0
Pedestrian-Agricultural	0
Pedestrian-Disturbed	39
Pedestrian-Slope	1,182
Pedestrian-Wet	4
Total	**1,260**

6.3 Segment 3

The Project in this segment trends across the southern ridges and valleys of the Big Caney Creek drainage system. At the time of survey, the segment was covered 25 percent in grass (hay and cattle pasture) and 75 percent in woods.

A total of 698 SL were surveyed along the length of this segment, 14 of which were shovel probed (Table 6.4). The remaining 688 SL were pedestrian-inspected, due to steep slope (649 SL) and disturbance associated with gravel driveways and roads (34 SL). The 14 shovel probes contained an average soil profile composed of a dark yellowish brown (10YR 4/4) silt loam A horizon, underlain by a dark yellowish brown (10YR 4/6) silt clay B horizon. The interface was encountered between five centimeters and 33 centimeters below the ground surface. Cultural material was recovered from one positive shovel probe (SL BB309), which contained four historic/modern artifacts (the Johnson Isolated Find).

Table 6.4. Survey Results – Segment 3

SL Types	Count (n=)
Negative Shovel Probes	13
Positive Shovel Probes	1
Pedestrian-Agricultural	0
Pedestrian-Disturbed	34
Pedestrian-Slope	649
Pedestrian-Wet	1
Total	**698**

The location of this positive shovel probe is near historic resource, RW-223 (the Johnson House), documented by Brown (2011). The Johnson House is a white one and half story house built between 1925 and 1949 (Plate 6.5). In addition to the house, there are two barns, a shed, and a chicken coop. This resource is discussed in greater detail in Chapter 7.0.

From SL AA344 to 346 and from SL BB344 to 346 on tract 158-00-00-009.00, two rockshelters were identified in close proximity within the direct APE on steep slope. The uppermost rockshelter is concave in shape with dimensions of 10 meters (32.8 feet) wide, 3.2 meters (10.5 feet) overhang, and 4.0 meters (13.1 feet) high. It opens to the south, and there is an intermittent waterfall flowing over the center of the overhang and into the rockshelter (Plate 6.6). The waterfall has washed away all of the soil from the center floor of the rockshelter, leaving soil on the east and west ends. Because the rockshelter was small and contained little soil, the Phase I survey standards in Sanders (2006) for rockshelters could not be used. URS was able to fit in one shovel probe, SL AA344, which was excavated on the west end of the rockshelter. This shovel probe was sterile for cultural material, and consisted of a soil horizon composed of a dark yellowish brown (10YR 4/4) silty sand to a depth of 15 centimeters below ground surface, underlain by a yellowish brown (10YR 5/6) silty sand to a depth of 30 centimeters below ground surface.

The lower rockshelter is U-shaped, with dimensions of 18 meters (59.0 feet) wide, 14.9 meter (48.9 feet) overhang, and 4.0 meters (13.1 feet) high. It opens to the east, and there is a drainage/waterfall that enters the back of the rockshelter and pools on the floor (Plate 6.7). The drainage flows out of the rockshelter to the east, and eventually into Big Caney Creek. The waterfall has washed away the soil on the rockshelter floor down to bedrock, except for on the northern and southern ends. URS excavated two shovel probes within the rockshelter, SL BB345 and BB345W, and both were sterile for cultural material. These shovel probes displayed a soil horizon composed of a dark yellowish brown (10YR 4/4) silty sand to a depth of 25 centimeters below ground surface, underlain by a yellowish brown (10YR 5/6) silty sand to a depth of 40 centimeters below ground surface.

Plate 6.5: The Johnson House (RW-223), facing east.

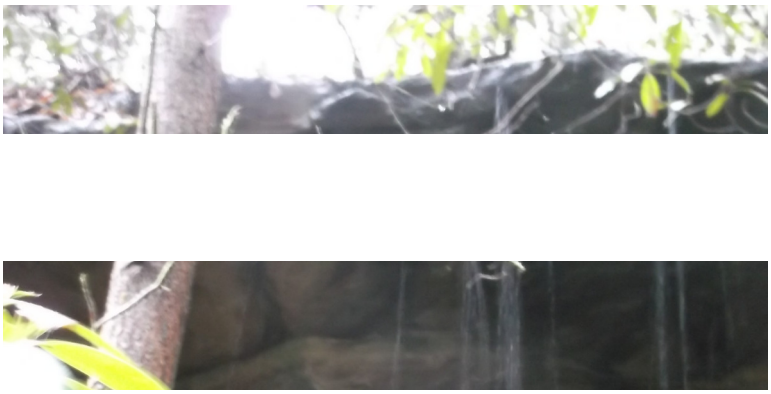


Plate 6.6: View of Segment 3's upper rockshelter on tract 158-00-00-009.00, facing north.

Plate 6.7: View of Segment 3's lower rockshelter on tract 158-00-00-009.00, facing west.

6.4 Segment 4

The segment trends across the southern ridges and valleys of the Big Caney Creek drainage system, and is covered in grass for hay, cattle pasture and woods.

A total of 638 SL were surveyed within this segment, three of which were shovel probed (Table 6.5). The remaining 635 SL were pedestrian-inspected due to slope and roadway disturbance. The three shovel probes revealed an average soil profile composed of a dark yellowish brown (10YR 4/4) silt sand A horizon, underlain by a yellowish (10YR 5/6) silt sand B horizon. The interface was encountered between 17 centimeters and 41 centimeters below the ground surface. No cultural resources were identified on Segment 4.

Table 6.5. Survey Results – Segment 4

SL Types	Count (n=)
Negative Shovel Probes	3
Positive Shovel Probes	0
Pedestrian-Agricultural	0
Pedestrian-Disturbed	24
Pedestrian-Slope	610
Pedestrian-Wet	1
Total	**638**

6.5 Segment 5

Similar to the other preceding segments to the west, Segment 5 trends across the southern ridges and valleys of the Big Caney Creek drainage system. Vegetation within this segment consists mostly of woods with some grassy areas for hay (Plate 6.8).

A total of 566 SL were surveyed within this segment, 23 of which were shovel probed (Table 6.6); the remaining 543 SL were pedestrian-inspected, due to slope and disturbance from roads and utility corridors. The 23 shovel probes contained an average soil profile composed of a dark yellowish brown (10YR 4/4) silt loam A horizon, underlain by a yellowish brown (10YR 5/6) silt clay B horizon. The interface was encountered between two centimeters and 42 centimeters below the ground surface. No cultural resources were identified in Segment 5.

At the west end of Segment 5, there is one historic resource documented originally by Brown (2011): the Johnson Family House (EL-33) on tract 014-00-00-022.00. The house is a white one story tall structure (Plate 6.9). Associated with the house are a cement block garage, a shed, one-seat privy, and a possible corn crib (Brown 2011). Two shovel probes were excavated in the level areas near the house. These two shovel probes revealed shallow soils that consisted of a 11 to 13 centimeter thick layer of 10YR 3/3 dark brown silt loam underlain by a 10YR mottled 5/6 yellowish brown, 6/4 light yellowish brown, and 7/2 light gray clay. No archaeological material was identified at this location.

Table 6.6. Survey Results – Segment 5

SL Types	Count (n=)
Negative Shovel Probes	23
Positive Shovel Probes	0
Pedestrian-Agricultural	0
Pedestrian-Disturbed	23
Pedestrian-Slope	517
Pedestrian-Wet	3
Total	**566**

Plate 6.8: View of Segment 5 on tract 014-00-00-014.02 facing north.

Plate 6.9: View of the Johnson Family House, facing west.

6.6 Segment 6

The segment trends across the northern slopes of the Rock Creek valley, of the Laurel Creek drainage system, and KY 32. The segment is covered in grass for hay and in woods (Plate 6.10).

A total of 388 SL were surveyed within this segment, 50 of which were shovel probed (Table 6.7); the remaining 333 SL were pedestrian-inspected, due to slope and modern disturbances of KY 32, gravel driveways, and residential areas. The 50 shovel probes contained an average soil profile composed of a dark yellowish brown (10YR 4/4) silt loam A horizon, underlain by a yellowish brown (10YR 5/6) silt clay B horizon. The interface was encountered between three centimeters and 37 centimeters below the ground surface. Nine shovel probes were positive, contained within three distinct archaeological resources: site 15El75, and isolated finds Shelton and Hunter. These resources are discussed in greater detail in Chapter 7.0, and below.

Table 6.7. Survey Results – Segment 6

SL Types	Count (n=)
Negative Shovel Probes	41
Positive Shovel Probes	9
Pedestrian-Agricultural	0
Pedestrian-Disturbed	114
Pedestrian-Slope	222
Pedestrian-Wet	2
Total	**388**

The Crum Site (15El75) is a multicomponent site with two partially intact basement foundations, a chimney foundation, a capped stone-lined well, and a collapsing wood framed structure located on a ridgetop at the Crum Cemetery Road crossing on tract 014-00-00-006.00. Three shovel probes excavated on the survey grid (SL B538, B539, B540) contained historic artifacts from the late 19th and early 20th centuries; subsequent radial shovel tests yielded two more positive SL (B540N, and B540E). One of these radial shovel probes, SL B540E, also contained five chert flakes, representing an unspecified prehistoric component for the Crum Site.

The Shelton Isolated Find is a historic isolated find located on tract 022-00-00-006.00. This find is located on a terrace utilized as a hayfield overlooking KY 32 and Rock Creek Road. SL A608 contained yellow bottle glass shard and three coal fragments. Subsequent radial shovel probes excavated around this positive find were negative for cultural materials.

The Hunter Isolated Find is a historic isolated find located on tract 022-00-00-007.00. The isolated find is located on a wooded terrace overlooking KY 32 and Rock Creek Road. SL C622 contained a scalloped whiteware ceramic sherd. Subsequent radial shovel probes yielded one more positive SL, C622S, which also contained a scalloped whiteware ceramic sherd.

In addition to the archaeological resources, two historic resources, the Brown House (EL-43) and the Skaggs Farm (EL-46) identified by Brown (2011), were also visited. The Brown House (EL-43) is located on tract 014-00-00-007.00 (Plate 6.11). Most of the APE near the Brown House was on slope, and was pedestrian surveyed. One shovel probe excavated in a level area near the house revealed a disturbed profile and no cultural materials were recovered. The Brown House is a typical representation of the general

project area. As Plate 6.11 illustrates, most of the houses along KY 32 have been built by either leveling ridge tops or cutting into side slopes. As a result, soils are usually disturbed or absent altogether.

The Skaggs Farm (EL-46) is located on tract 014-00-00-017.00 (Plate 6.12). The Skaggs farm is composed of seven buildings: the house, the washhouse, three chicken houses, a privy, and a barn (Brown 2011). Most of this historic resource is outside of the APE, and the portion within the APE was documented as slope and pedestrian surveyed. No archaeological materials were documented.

Plate 6.10: View of Segment 6 on tract 022-00-00-007.00, facing east.

Plate 6.11: The Brown House (EL-43), facing north.

Plate 6.12: The Skaggs Farm (EL-46), facing northeast.

6.7 Segment 7

Trending across the southern ridges and valleys of the Big Caney Creek drainage system, this segment contains grass for hay and woods.

A total of 902 SL were surveyed within this segment, 14 of which were shovel probed (Table 6.8); the remaining 888 SL were pedestrian surveyed, due to slope and modern disturbances of KY 32, gravel roads, utility corridors, and residential/farm areas. The 14 shovel probes contained an average soil profile composed of a dark yellowish brown (10YR 3/4) silt loam A horizon, underlain by a yellowish brown (10YR 5/6) silt clay B horizon. The interface was encountered between 17 centimeters and 32 centimeters below the ground surface. No cultural resources were identified on Segment 7.

Within Segment 7, URS visited one historic resource documented by Brown (2011), the Knipp/Bennett Farm (EL-55), located on tracts 022-00-00-008.00 and 022-00-00-009.00 (Plates 6.13 and 6.14). The Knipp/Bennett Farm is composed of nine buildings: two houses (north and south of KY 32), a mobile home, a smokehouse, concrete block shed, a wood shed, a chicken house, and a barn. The two houses and the mobile home are within the APE. A shovel probe (SL EL-55 A) excavated on the west side of the house, south of KY 32, contained modern material: a candy wrapper, plastic, coal, and gravel. This area appears to have been subjected to various fill episodes related to the construction of the house and road. Because the artifacts were considered modern in nature, this historic resource was not considered an archaeological site.

Table 6.8. Survey Results – Segment 7

SL Types	Count (n=)
Negative Shovel Probes	14
Positive Shovel Probes	1
Pedestrian-Agricultural	0
Pedestrian-Disturbed	110
Pedestrian-Slope	763
Pedestrian-Wet	15
Total	**902**

Plate 6.13: The Knipp portion of the Knipp/Bennett Farm (EL-55), facing northwest.

Plate 6.14: The Bennett portion of the Knipp/Bennett Farm (EL-55), facing southwest.

6.8 Segment 8

The segment crosses the northern ridges and valleys of the Laurel Creek drainage system, and is covered in grass for hay and in woods (Plate 6.15).

A total of 997 SL were surveyed within this segment, 40 of which were shovel probed (Table 6.7); the remaining 957 SL were pedestrian surveyed, due to slope and modern disturbances of KY 32, gravel driveways, and residential/farm areas. The 40 shovel probes contained an average soil profile composed of a dark yellowish brown (10YR 4/4) silt loam A horizon, underlain by a yellowish brown (10YR 5/6) silt clay B horizon. The interface was encountered between 15 centimeters and 38 centimeters below the ground surface. One shovel probe was positive, identifying a single archaeological resource, the H Simmons Isolated Find.

The H Simmons Isolated Find is a prehistoric isolated find located on a floodplain of an intermittent drainage of Laurel Creek, on tract 030-00-00-008.00. Subsequent intrasite shovel probes did not yield additional cultural material.

Within Segment 8 there is one historic resource, the Burley Tobacco Barn (EL-71) that was visited during the URS archaeological survey. The tobacco barn is located on tract 037-00-00-058.00 (Plate 6.16) and has a mural painted by Jo Ann Butts dated August 2008. One shovel probe excavated in a level area near the barn revealed a 19 centimeter thick layer of 10YR 4/2 dark grayish brown silt loam underlain by a mottled 7.5YR 5/6 strong brown and 10YR 4/2 dark grayish brown clay. No cultural material was identified at this location.

Table 6.9. Survey Results – Segment 8

SL Types	Count (n=)
Negative Shovel Probes	39
Positive Shovel Probes	1
Pedestrian-Agricultural	2
Pedestrian-Disturbed	66
Pedestrian-Slope	867
Pedestrian-Wet	22
Total	**997**

Plate 6.15: View of Segment 8 on tract 037-00-00-058.00, facing northwest.

Plate 6.16: The Burley Tobacco Barn (EL-71) facing west.

7.0 ARCHAEOLOGICAL SITE DESCRIPTIONS

The URS Phase I archaeological field survey of the Project resulted in the identification of five archaeological sites and/or isolated finds within the Project APE. The following table (Table 7.1) outlines the inventory of archaeological resources identified by the current survey. Please note that the OSA only assigned a state site number to one of the archaeological resources, the rest were considered isolated finds.

Table 7.1. Inventory of Archaeological Sites Identified Within the Study Corridor

State Site ID	Field Site ID	Cultural Affiliation	Site Type/ Artifact Count	Recommended NRHP Status
15El75	Crum	Unassigned Prehistoric and Historic: Late 19th and Early 20th Century	Former farm/house site (n=68)	Not eligible
NA	Johnson	Historic/Modern: 20th Century	Isolated Find (n=4)	Not eligible
NA	Shelton	Historic: Early 20th Century	Isolated Find (n=4)	Not eligible
NA	Hunter	Historic: Late 19th and Early 20th Century	Isolated Find (n=2)	Not eligible
NA	H Simmons	Unassigned Prehistoric	Isolated Find (n=2)	Not eligible

7.1 Site: 15El75

Temporal Affiliation: Unassigned Prehistoric and Late 19th and Early 20th Century Historic
Site Type: Former farm/house, Artifact Scatter
Site Size: 2,209.6 square meters (23,783.9 square feet)
Topographic Setting: Ridgetop
Soils: Gilpin-Steinsburg-Blairton complex, 12 to 25 percent slopes
Elevation:
Distance to Water:
NRHP-Status: Not Eligible

Site Description:

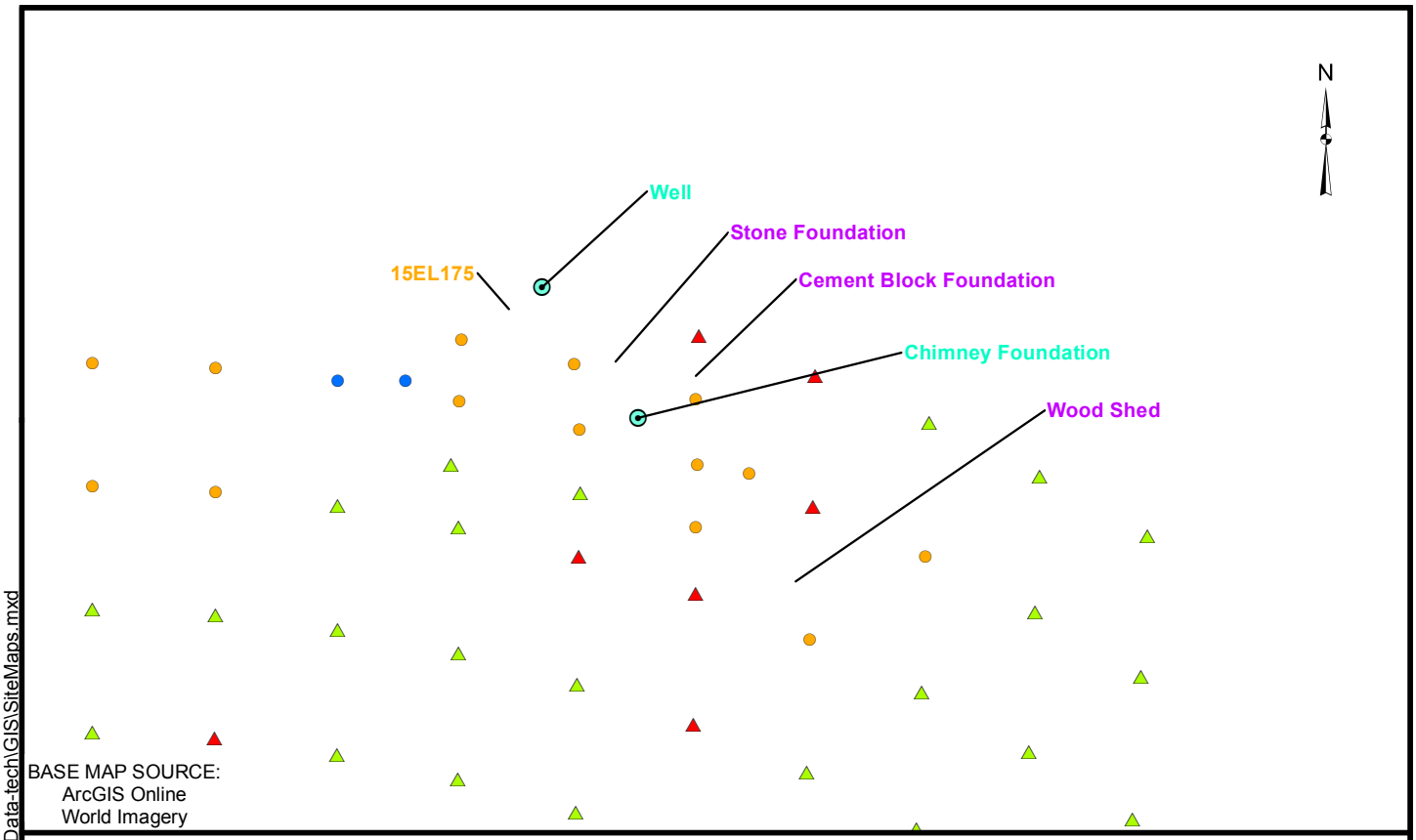
Site 15El75 is located on a ridgetop within Segment
crossing, north of KY 32 (Figure 7.1). Crum Cemetery Road (gravel) bounds the site to the south, east, and north. Within this portion of Segment x, the site area was covered in grass and brush; eleven shovel probes were

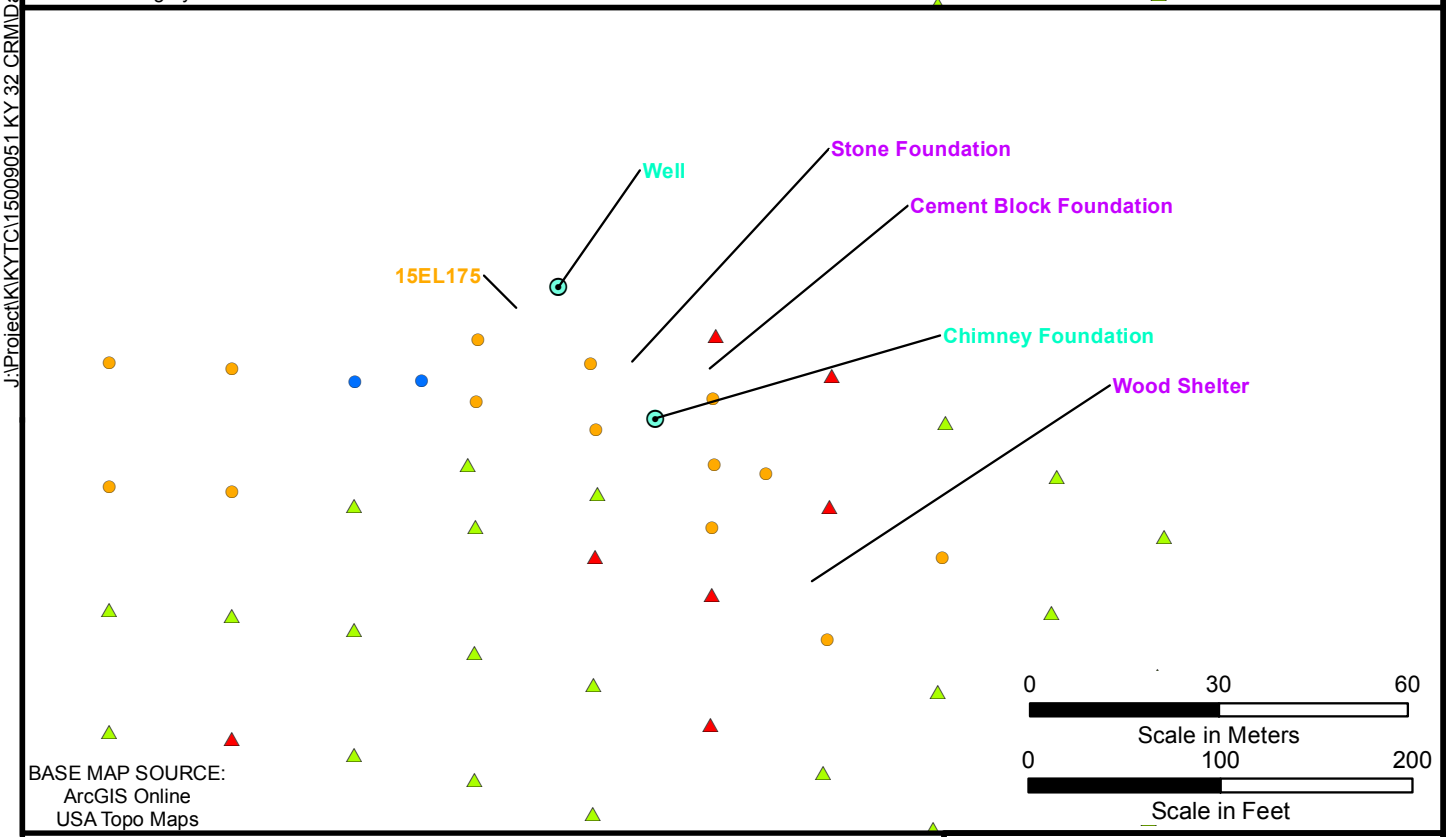
excavated across this area. These shovel probes revealed a typical soil profile that consisted of a 20 centimeter thick dark yellowish brown (10YR 4/4) silt loam A horizon, underlain by a yellowish brown (10YR 5/4 to 10YR 5/6) silt clay B horizon (Figure 7.2). Of these eleven shovel probes, five were positive for historic materials, one of which (B540E) was also positive for prehistoric materials (Table 7.2).

Table 7.2. Summary of Artifacts Recovered from Site 15El75.

SL Number	Depth (cmbs)	Artifact Type	Functional Group	Historic Count (n=)	Prehistoric Count (n=)
B538	0-32	Wire Nail	Architectural	1	
		Window Glass	Architectural	2	
		Container Glass	Kitchen	1	
		Coal	Indefinite Use	2	
B539	0-19	Whiteware Sherd	Kitchen	1	
B540	0-21	Electrical Wire	Architectural	1	
		Window Glass	Architectural	9	
		Container Glass	Kitchen	1	
B540N	0-20	Wire Nail	Architectural	3	
		Barbed Wire	Activity	1	
		Window Glass	Architectural	20	
		Unknown Glass (Melted)	Unknown	6	
		Container Glass	Kitchen	2	
		Plastic	Indefinite Use	1	
B540E	0-17	Stove Grate	Kitchen	2	
		Metal Chain	Indefinite Use	1	
		Metal Fragment	Indefinite Use	1	
		Container Glass	Kitchen	6	
		Plastic	Indefinite Use	2	
		Chert Flakes	Prehistoric		5
Total				**63**	**5**

Prehistoric materials recovered from SL B540E consisted of five pieces of debitage, typed as two biface thinning flakes, one biface finishing flake, one unspecified reduction flake, and one flake fragment. Some of these specimens display evidence of heating (n=2), although this does not appear to be intentional. In addition, these flakes are manufactured from a light gray to tan, vitreous chert. No diagnostic materials were recovered. This group of flakes may represent a brief resharpening episode of a bifacial tool.





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LEGEND

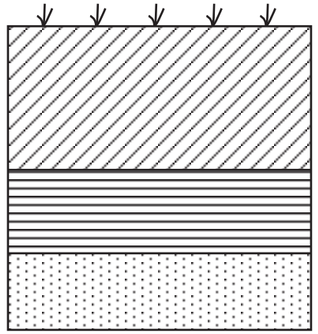
- Centerline
- Survey Boundary
- ROW
- Segment Boundary
- Isolated Find
- Unsurveyed
- Ped, Disturbed
- Ped, Slope
- Ped, Wet
- ST
- ST, Disturbed
- ST, Wet
- Archaeological Site

KY 32 Improvement
Rowan Elliott County

FIGURE 7.1
SITE MAP
SITE 15EL175

JOB NO. 15009051

URS



Ground Surface

Strat I- Dark Yellowish Brown 10 YR 4/4 Silt Loam

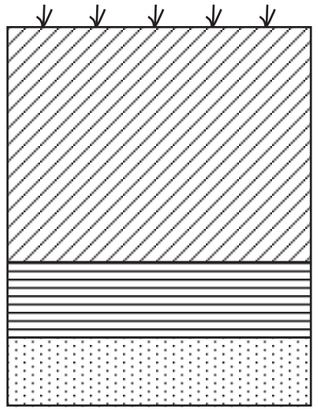
0-19 cmbgs

Strat II- Yellowish Brown 10 YR 5/6 Silt Clay Loam

19-30 cmbgs

Unexcavated

The Crum Site (15EL175)
Soil Profile SL B539



Ground Surface

Strat I- Dark Yellowish Brown 10 YR 4/4 Silt Loam

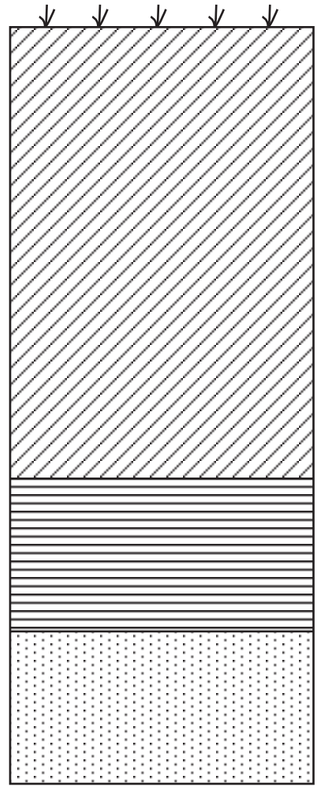
0-31 cmbgs

Strat II- Yellowish Brown 10 YR 5/6 Silt Clay

31-40 cmbgs

Unexcavated

The Hunter Site
Soil Profile SL C622



Ground Surface

Strat I- 10 YR 4/4
Dark Yellowish Brown Silt Sand

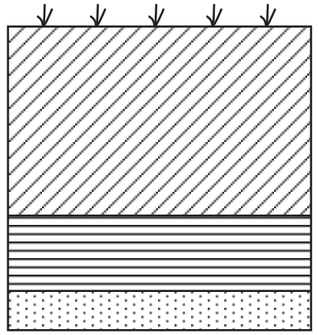
0-30 cmbgs

Strat II- 10 YR 5/6
Yellowish Brown Silt Sand

30-40 cmbgs

Unexcavated

The Johnson Site
Soil Profile SL BB309



Ground Surface

Strat I- Dark Yellowish Brown 10 YR 4/4 Silt Clay

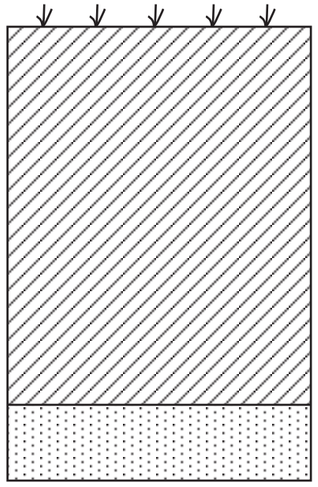
0-25 cmbgs

Strat II- Yellowish Brown 10 YR 5/6 Clay

25-35 cmbgs

Unexcavated

The Shelton Site
Soil Profile SL A608



Ground Surface

Strat I- Dark Yellowish Brown 10 YR 4/4 Silt Loam

0-50 cmbgs

Unexcavated

The H. Simmons Site
Soil Profile SL CC825

0 20 40

APPROXIMATE SCALE IN CENTIMETERS

KENTUCKY TRANSPORTATION CABINET

FIGURE 7.2
SOIL PROFILES

JOB NO. 15009051

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The historic artifact assemblage consists of 31 shards of window glass, ten shards of container glass, six pieces of unidentified melted glass, one whiteware sherd, four wire nails, one piece of barbed wire, one piece of electrical wire, one metal chain, one metal fragment, two stove grate fragments, two pieces of coal, and three pieces of plastic. Analysis of these artifacts places them within the late 19th and early 20th centuries, and they are mainly associated with architectural and domestic functions.

A visual examination of the site area revealed the remains of five dilapidated structures associated with a single residential property: a capped stone-lined well, a collapsed cut-stone basement, a collapsed cement block basement, a torn-down brick chimney foundation, and a collapsed wood shed (see Plates 7.1 to 7.5). These structures are visible on the USGS 7.5 Minute (topographic) Ault quadrangle (1978) map. URS also consulted historic mapping located on website: historicmapworks.com. However, no mapping specific to Elliott County could be located, except for one map from the Department of Highways (1937), which did illustrate several structures within this area.

The stone used for construction of the well and basement is sandstone. The stone-lined well is circular and has diameter of four feet (1.2 meters) and the cut stone basement is square with approximate dimensions of five meters by five meters by 1.3 meters deep (16.4 feet by 16.4 feet by 4.3 feet deep). There is also a square cement block basement with the approximate dimensions of eight meters by eight meters by 1.3 meters deep (26.2 feet by 26.2 feet by 4.3 feet deep). The sandstone brick chimney has been torn down, but the foundation measures three feet by feet feet (0.9 meters by 0.9 meters). Rectangular, with dimensions of 4.8 feet by six feet (1.5 meters by 1.8 meters), the woodshed is also collapsed. It appears that the foundations have been partially torn apart, in an attempt to reuse the building material.

Site 15El75 appears to be an abandoned house site and/or a dumpsite given its close proximity to the road. The site possibly dates to the late 19th to early 20th century, with a small unassigned prehistoric component. Most of the above ground structures are collapsed, and the foundations have been partially dismantled (likely in an effort to reuse the material). Soils are shallow, and all of the artifacts were recovered from the A Horizon (the first 20 centimeters of soil).

Given the moderate amount of cultural material recovered from the site (n=68), the absence of diagnostic artifacts from both the prehistoric and historic assemblages, the date range of historic artifacts, the collapsed structures, and the shallow soils, site 15El175 is

considered not eligible for listing in the NRHP. Further research at this location would not likely produce additional data relevant towards a better understanding of the prehistoric or historic-era context of the region in general (Criterion D of the NRHP), or this resource in particular.

Plate 7.1: Capped stone-lined well at the Crum Site (15El175), facing north.

Plate 7.2: Collapsed cut stone basement at the Crum Site (15El175), facing east.

Plate 7.3: Collapsed cement block basement at the Crum Site (15El175), facing north.

Plate 7.4: Torn-down chimney with foundation at the Crum Site (15El175), facing west.

Plate 7.5: Collapsed wood shed at the Crum Site (15El175), facing east.

7.2 Site: Johnson Isolated Find

Temporal Affiliation: Historic (1925-1949)/Modern **Site Type**: Historic/Modern Isolated Find
Site Size: 36.7 square meters (394.7 square feet) **Topographic Setting**: Dissected Upland
Soils: Hartsells fine sandy loam, 12 to 20 percent slopes
Elevation:
Distance to Water:
NRHP-Status: Not Eligible

Site Description:

The Johnson Isolated Find was identified within Segment x on the north side of the KY 32 on a dissected upland overlooking an unnamed tributary (Figure 7.3; Plate 7.6). This isolated find is located on the eastern edge of historic resource RW- 223. RW-223 has been documented as a one-and-a-half-story, gable-end, three-bay, two-pile building (1925 to 1949) that has been altered over the years (Brown 2011:167). The residence is still in use today.

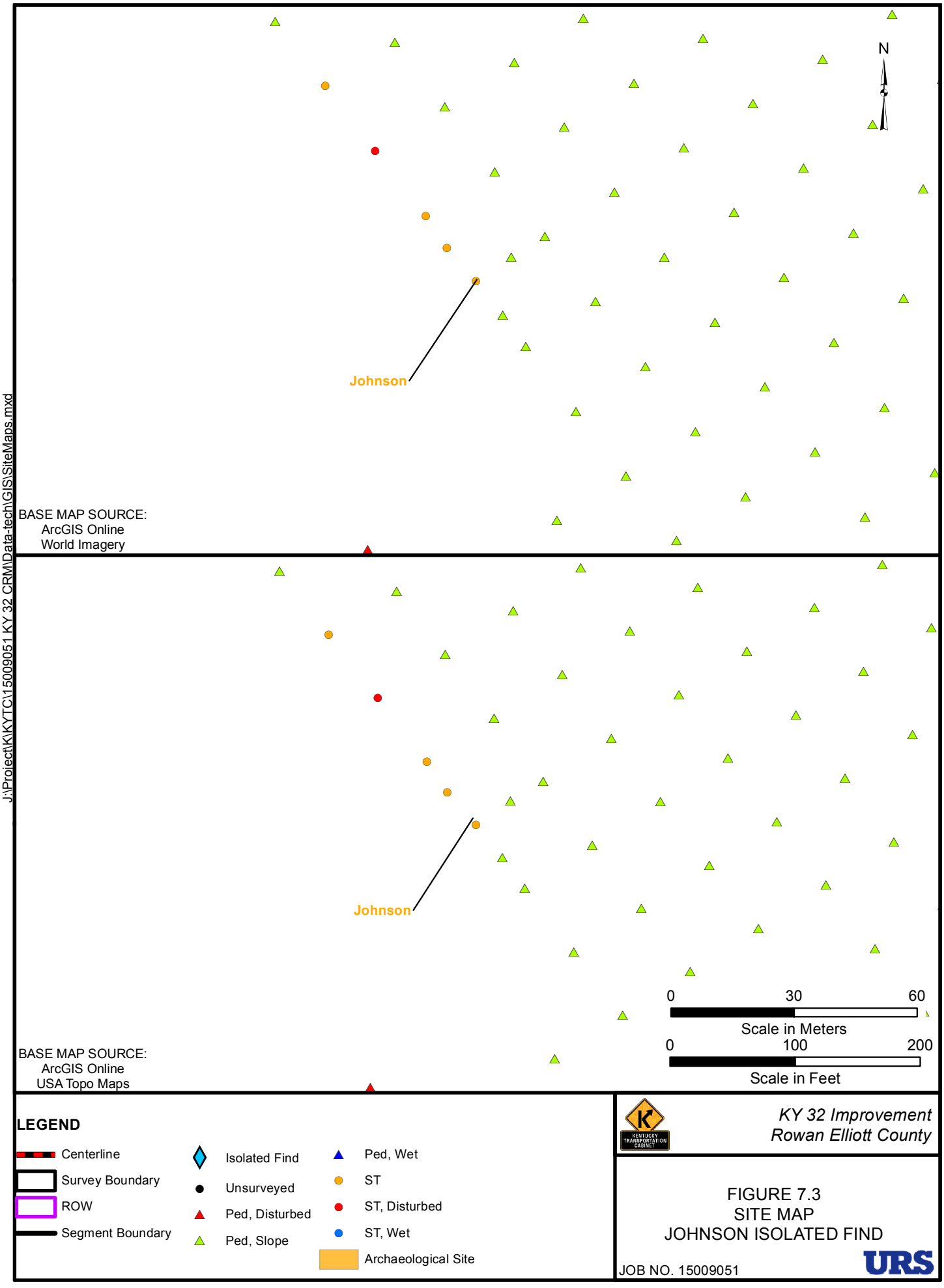
Because the area was covered in grass, four shovel probes were excavated within the APE behind the barn. This area was flat, but looked like it had been intentionally leveled to

construct the barn. The four shovel probes varied in soil profile, with the shovel probes closer to the barn either containing no soils or shallow soils consisting of a 15 centimeter thick layer of 10YR 3/3 dark brown clay loam underlain by 16 centimeters of mottled 10YR 3/3 dark brown and 5/6 yellowish brown clay loam. The subsoil was a 10YR 5/8 yellowish brown clay. Soil profiles closer to the house consisted of a dark yellowish brown (10YR 4/4) silt sand underlain by a dark yellowish brown (10YR 5/6) silt sand. The interface was encountered at 30 centimeters below the ground surface (please refer to Figure 7.2).

Of these four shovel probes, SL BB309, was positive for cultural material containing one piece of white container glass, one clear dish glass, one whiteware ceramic cup handle, and one aluminum sheet fragment. One radial shovel probe was excavated to the north of SL BB309, while the east and south radials were documented as slope and the west radial was located outside of the APE. The excavated radial was negative for cultural material. Bounded by slope to the east and south, it is possible that this isolated find could extend further to the west outside of the APE.

Given the location of this resource adjacent to the historic/modern, actively-utilized residence, it appears likely that the material recovered at the Johnson Isolated Find represents the casual discard of debris from the household. Due to the small amount of material recovered (n=4), the broad date range of the artifacts (i.e. undecorated whiteware dates from 1820 to present), and that the APE is limited to the landform directly adjacent to the edge of residential area portion of the property, further research at this location would not likely produce additional data relevant towards a better understanding of the historic-era context of the region in general (Criterion D of the NRHP), or this resource in particular. URS therefore recommends the Johnson Isolated Find as not eligible for inclusion in the NRHP.

Plate 7.6: Overview of the Johnson Isolated Find, facing south.



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7.3 Site: Shelton Isolated Find

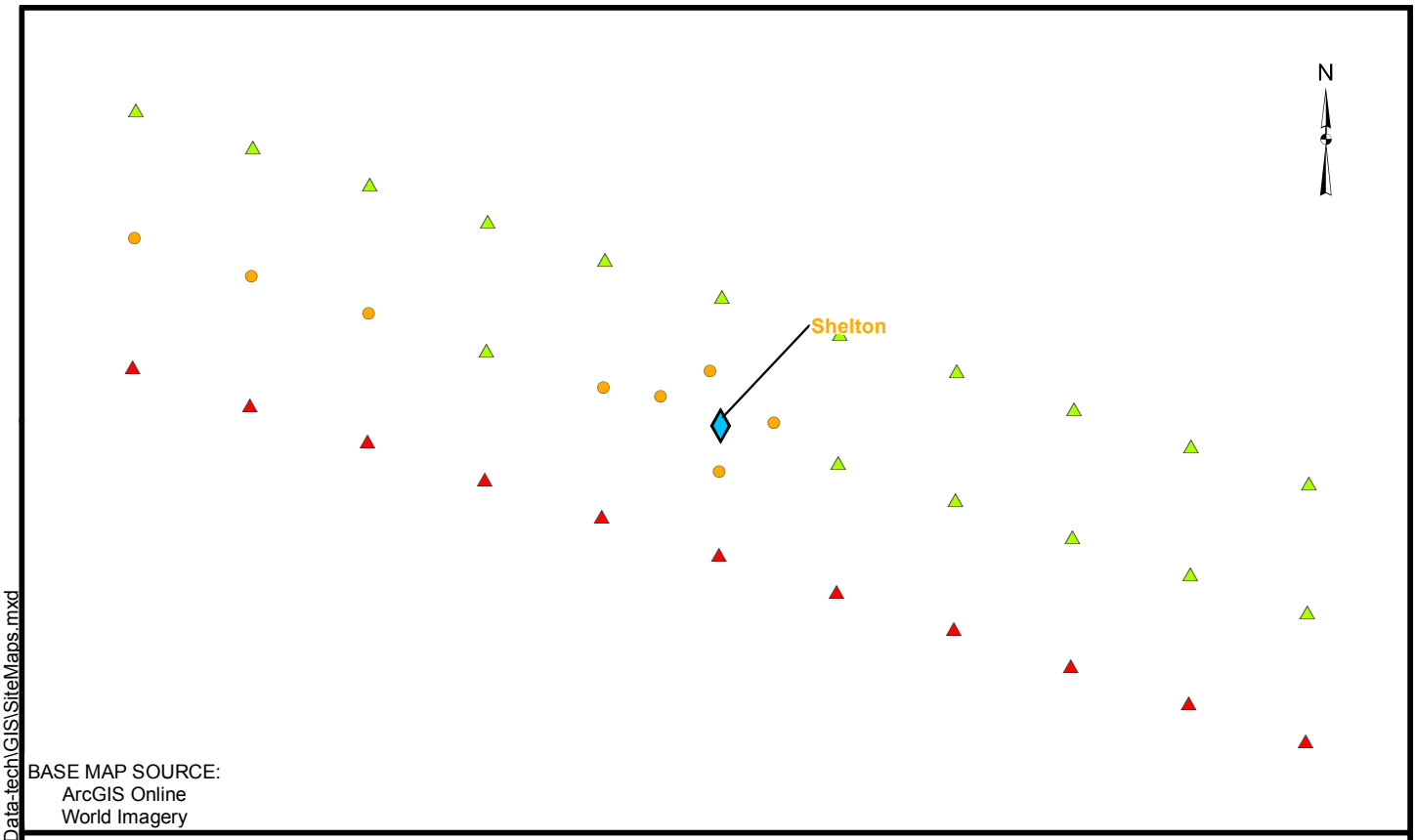
Temporal Affiliation: Depression (1920-1940) Historic
Site Type: Historic Isolated Find
Site Size: 149.7 square meters (1,611.3 square feet)
Topographic Setting: Terrace
Soils: Shelocta-Grigsby-Orrville complex, 2 to 15 percent slopes; Gilpin-Shelocta complex, 25 to 45 percent slopes
Elevation:
Distance to Water:
NRHP-Status: Not Eligible

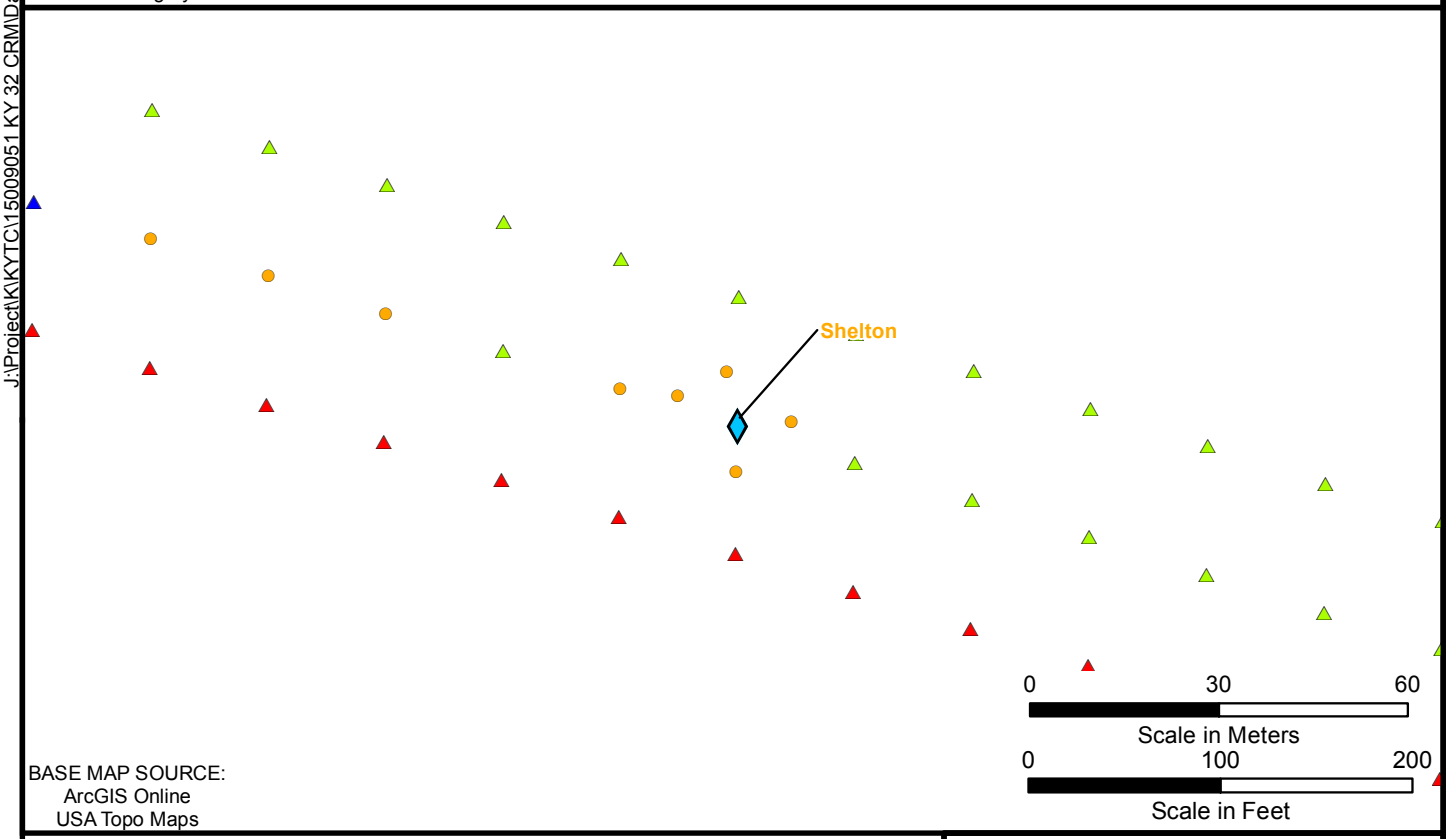
Site Description:

The Shelton Isolated Find was identified within Segment x on the north side of the KY 32. This isolated find is located in a hayfield on a terrace overlooking the Rock Creek floodplain (Figure 7.4; Plate 7.7). Because the area was covered in grass, shovel probes (n=6) were excavated, included within this total are four radial shovel probes. Soil profiles consisted of a dark yellowish brown (10YR 4/4) silt clay A horizon, underlain by a dark yellowish brown (10YR 5/6) clay B horizon. The interface was encountered at 25 centimeters below the ground surface (please refer to Figure 7.2).

Only one SL, A608, was positive at this location, containing one piece of yellow embossed dish glass and three pieces of coal. The yellow embossed dish glass was manufactured during the Depression, circa 1920 to 1940.

Given the location of this resource adjacent to the modern, actively-utilized KY 32, it appears likely that the material recovered at the Shelton Isolated Find represents the casual discard of debris. This observation is reinforced by the absence of any evidence for a sustained historic-era occupation in the vicinity of this resource. As the project APE is limited to the landform directly adjacent to the road edge, further research at this location would not likely produce additional data relevant towards a better understanding of the historic-era context of the region in general (Criterion D of the NRHP), or this resource in particular. URS therefore recommends the Shelton Isolated Find as not eligible for inclusion in the NRHP.





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LEGEND

- Centerline
- Survey Boundary
- ROW
- Segment Boundary
- Isolated Find
- Unsurveyed
- Ped, Disturbed
- Ped, Slope
- Ped, Wet
- ST
- ST, Disturbed
- ST, Wet
- Archaeological Site

KY 32 Improvement
Rowan Elliott County

FIGURE 7.4
SITE MAP
SHELTON ISOLATED FIND

JOB NO. 15009051

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Plate 7.7: Overview of the Shelton Isolated Find, facing south.

7.4 Site: Hunter Isolated Find

Temporal Affiliation: Late 19th and Early 20th Century Historic
Site Type: Historic Isolated Find
Site Size: 124.7 square meters (1,342.2 square feet)
Topographic Setting: Terrace
Soils: Gilpin-Blairton-Ramsey complex, 2 to 12 percent slopes
Elevation:
Distance to Water: **NRHP-Status**: Not Eligible

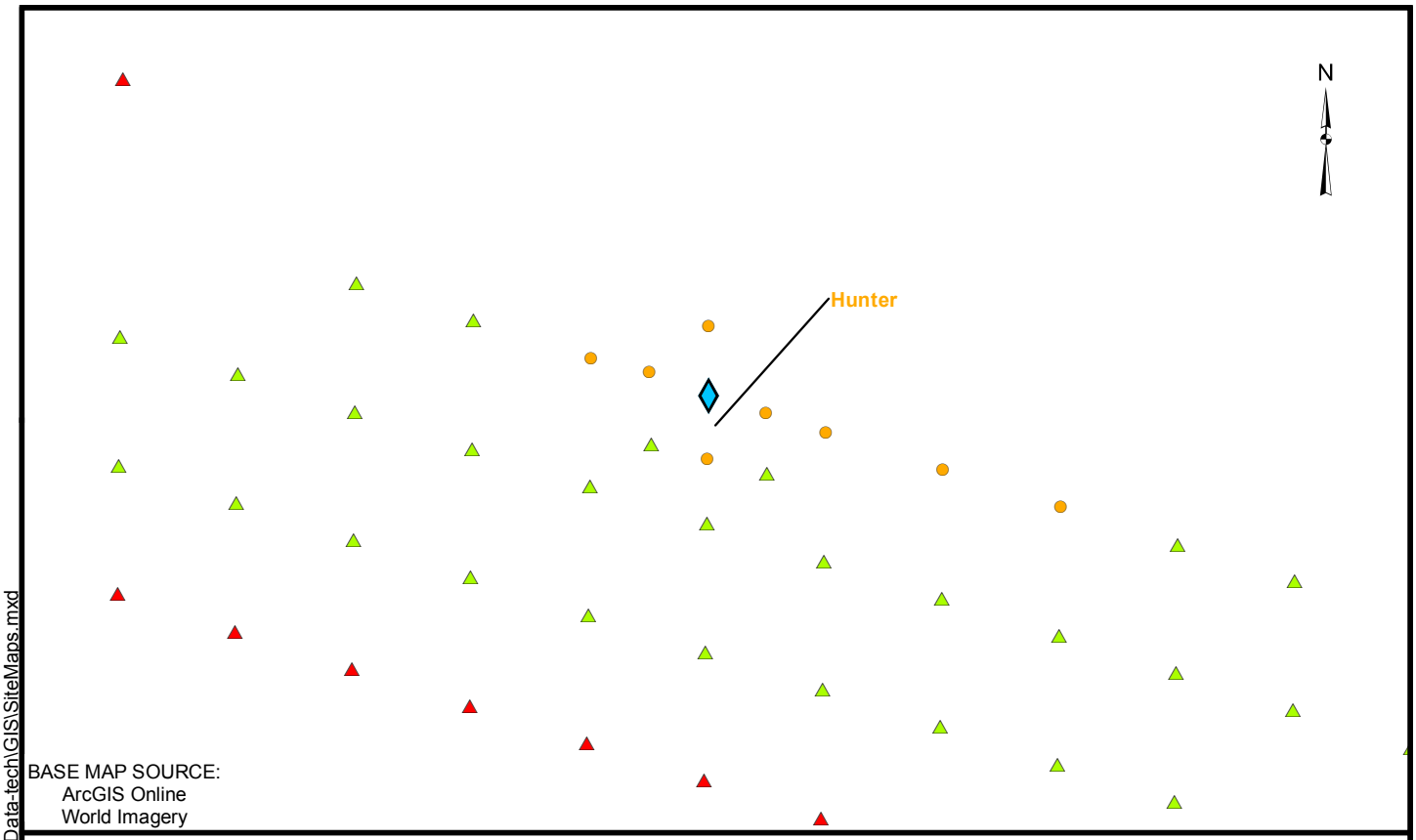
Site Description:

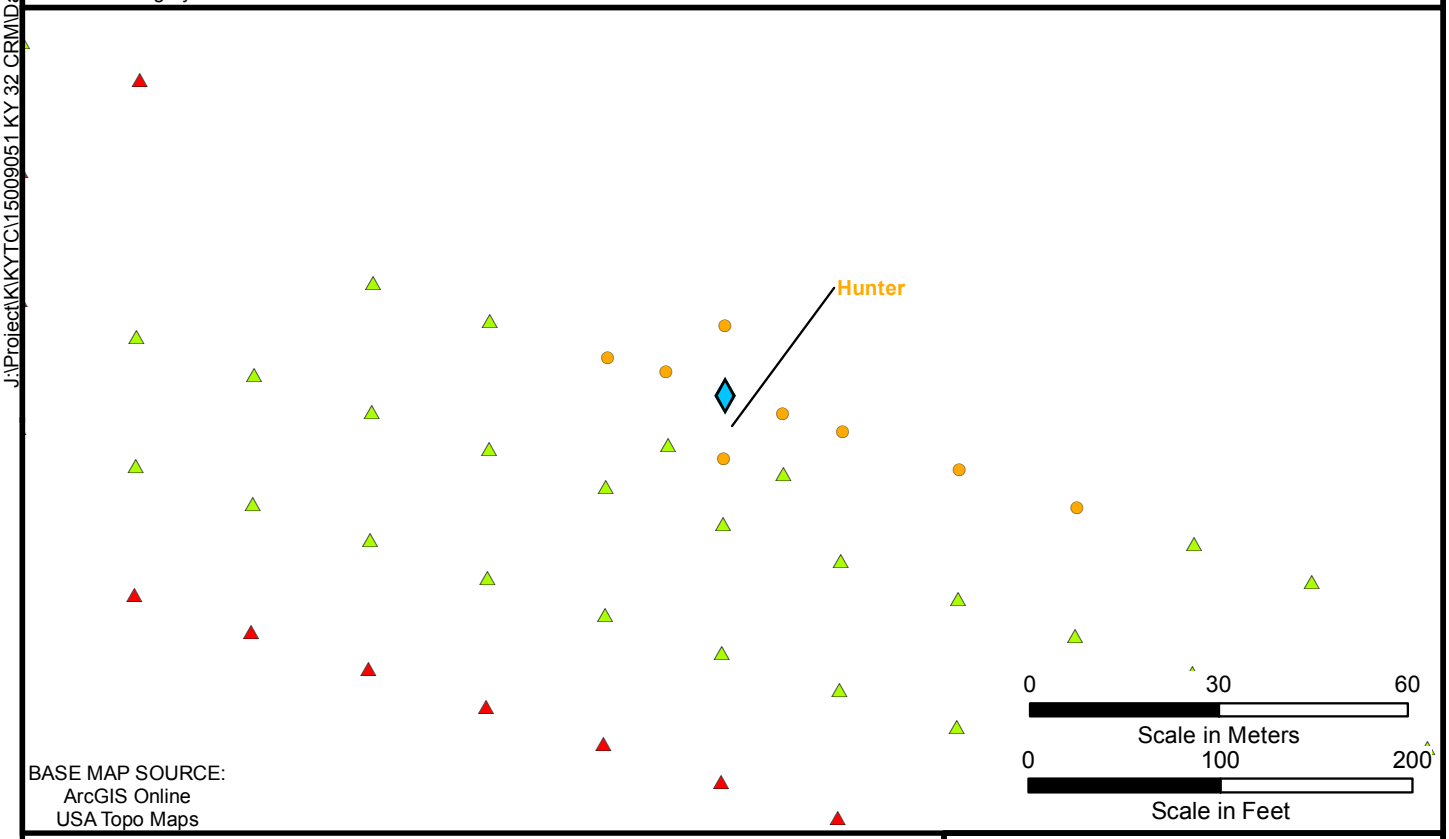
The Hunter Isolated Find was identified within Segment x on the north side of KY 32. The isolated find is located on a wooded terrace over-looking Rock Creek floodplain (Figure 7.5; Plate 7.8). Because the ground surface was obscured, URS excavated nine shovel probes in this area; four of these were radial shovel probes. The shovel probing revealed a soil profile consisting of 30 centimeter thick layer of a dark yellowish brown (10YR 4/4) silt loam A horizon, underlain by a dark yellowish brown (10YR 5/6) silt clay B horizon.

One SL, C622, was positive for cultural materials, with one piece of a whiteware rimsherd (with scalloping and impressed for decoration) recovered from the shovel probe. This positive shovel probe necessitated the need for radial shovel tests, and SL C622S (excavated 10 meters to the south of SL C622) was also positive, containing one whiteware rim sherd. Due to slope, all four radial shovel probes could not be excavated around this positive SL. Both sherds were recovered from the A soil horizon (please refer to Figure 7.2 for sample soil profile), and have a manufacturing date from 1820 to 1930.

Given the location of this resource adjacent to the modern, actively-utilized KY 32, it appears likely that the material recovered at the Hunter Isolated Find represents the casual discard of debris. This observation is reinforced by the absence of any evidence for a sustained historic-era occupation in the vicinity of this resource. As the Project APE is limited to the landform directly adjacent to the road edge, further research at this location would not likely produce additional data relevant towards a better understanding of the historic-era context of the region in general (Criterion D of the NRHP), or this resource in particular. URS therefore recommends the Hunter Isolated Find as not eligible for inclusion in the NRHP.

Plate 7.8: Overview of the Hunter Isolated Find, facing west.





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LEGEND

- Centerline
- Survey Boundary
- ROW
- Segment Boundary
- Isolated Find
- Unsurveyed
- Ped, Disturbed
- Ped, Slope
- Ped, Wet
- ST
- ST, Disturbed
- ST, Wet
- Archaeological Site

KENTUCKY TRANSPORTATION CABINET

KY 32 Improvement
Rowan Elliott County

FIGURE 7.5
SITE MAP
HUNTER ISOLATED FIND

JOB NO. 15009051

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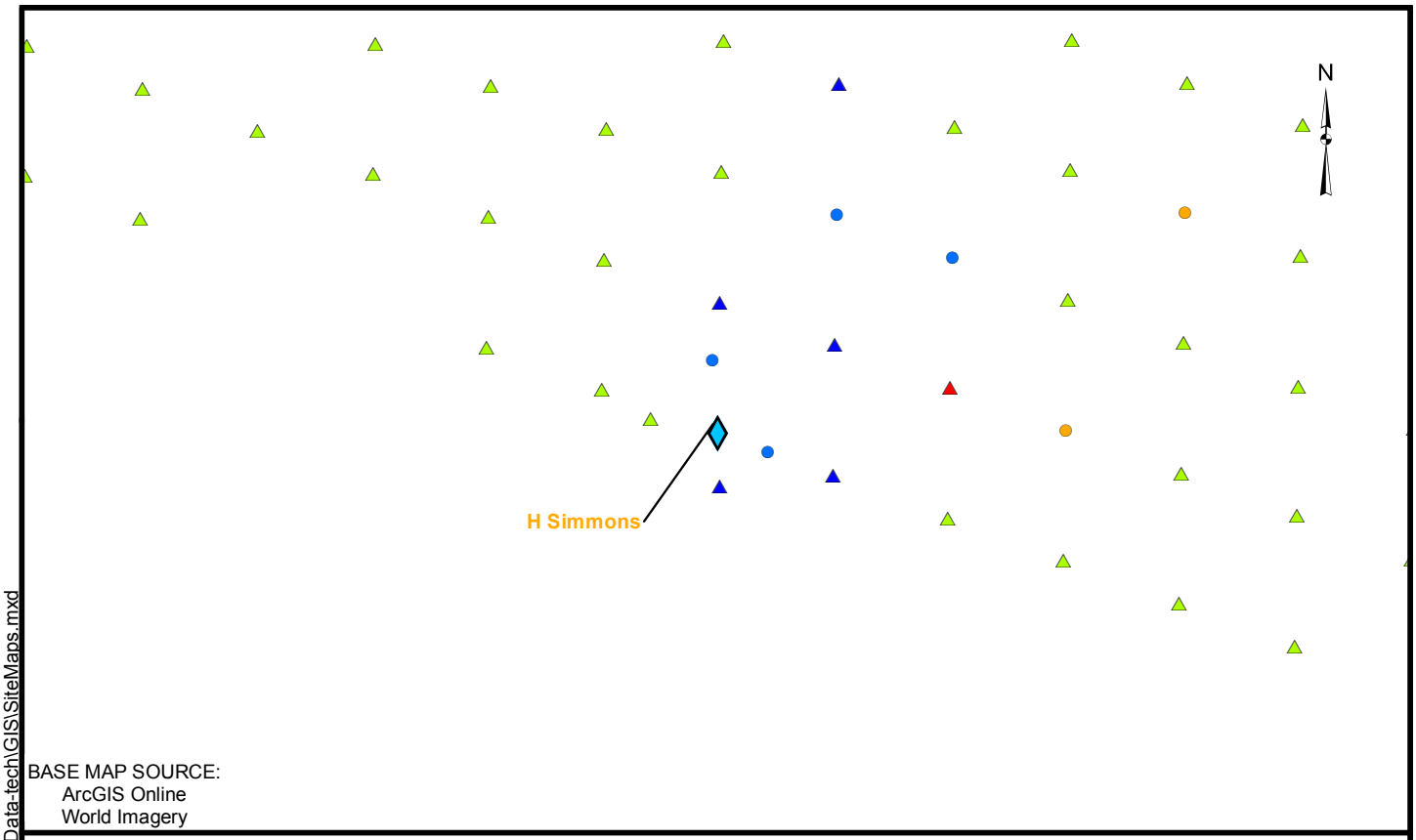
7.5 Site: H Simmons Isolated Find

Temporal Affiliation: Undetermined Prehistoric
Site Type: Prehistoric Isolated Find
Site Size: 68.5 square meters (737.3 square feet)
Topographic Setting: Floodplain
Soils: Shelocta-Grigsby-Orrville complex, 2 to 15 percent slopes; Gilpin-Shelocta complex, 25 to 45 percent slopes
Elevation:
Distance to Water:
NRHP-Status: Not Eligible

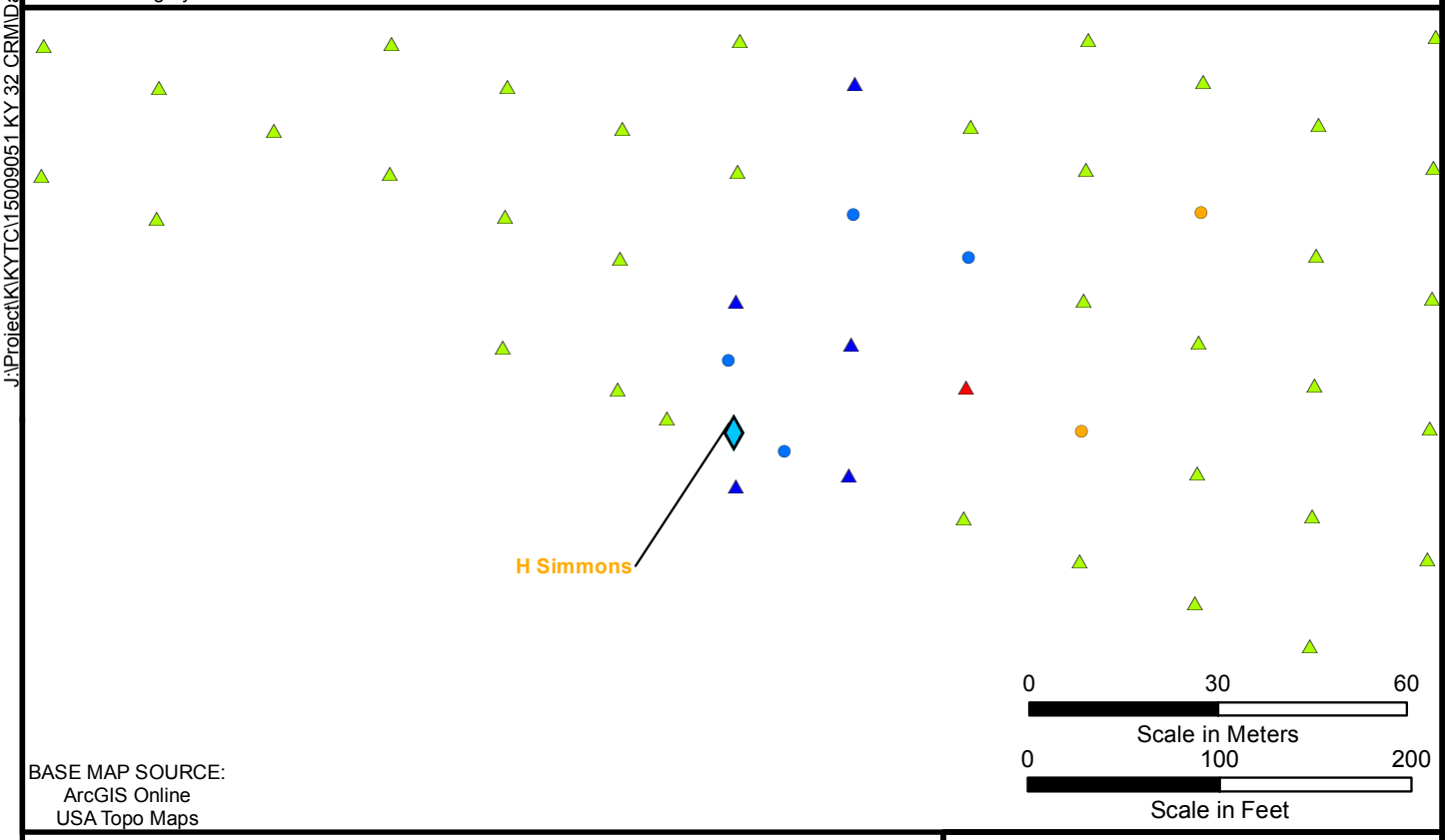
Site Description:

The H Simmons Isolated Find was identified within Segment x on the south side of KY 32. The isolated find is located in a cattle pasture on a narrow floodplain of an unnamed intermittent tributary of Laurel Creek (Figure 7.6; Plate 7.9). Covered in grass, this area was subjected to shovel probing. Most of this floodplain was highly saturated with water at the time of the survey. One shovel probe, CC825, was positive, containing two prehistoric flakes. Radial shovel probes were attempted, however, two shovel probes filled with water upon excavation, one radial was in standing water, and one radial was on steep slope. The soil profile from SL CC825 revealed a 50 centimeter deep dark yellowish brown (10YR 4/4) silt loam A horizon. Sterile subsoil was not encountered within this shovel probe. It is important to note, however, that other shovel probes excavated on this floodplain, contained shallow soils, where subsoil was encountered, suggesting that there are no deeply buried deposits at this location.

Plate 7.9: Overview of the H Simmons Isolated Find, facing north.



BASE MAP SOURCE:
ArcGIS Online
World Imagery



BASE MAP SOURCE:
ArcGIS Online
USA Topo Maps

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LEGEND

- Centerline
- Survey Boundary
- ROW
- Segment Boundary
- Isolated Find
- Unsurveyed
- Ped, Disturbed
- Ped, Slope
- Ped, Wet
- ST
- ST, Disturbed
- ST, Wet
- Archaeological Site

KENTUCKY TRANSPORTATION CABINET

KY 32 Improvement
Rowan Elliott County

FIGURE 7.6
SITE MAP
H SIMMONS ISOLATED FIND

JOB NO. 15009051

URS

The two prehistoric flakes consist of an unspecified reduction flake and a chip. Both specimens were manufactured from tan, vitreous chert. The unspecified reduction flake contained secondary patina on the ventral surface. These two flakes may represent causal discard.

Based on the data from the Phase I survey, the H Simmons Isolated Find represents an unassigned prehistoric isolated find consisting of two pieces of lithic debitage. The isolated find consists of two small artifacts, which, aside from simple locational data, cannot contribute further information regarding regional prehistory, and therefore fails to meet Criterion D of the NRHP. The H Simmons Isolated Find is considered not eligible for listing in the NRHP.

8.0 RECOMMENDATIONS AND CONCLUSIONS

This report has presented the background research, field strategy, and results of a Phase I archaeological survey for the proposed KY 32 Improvement Project in Rowan and Elliott Counties, Kentucky (KYTC Item No. 9-192.00). The Phase I archaeological survey was conducted by personnel from the URS Cincinnati, Ohio office. The lead agency for the Project is the Federal Highway Administration. The purpose of the archaeological survey was to locate and identify any archaeological resources existing within the Project APE that may pose limitations on the proposed undertaking.

The APE for this survey consisted of the land proposed to be directly impacted by ground disturbance, which includes land within the proposed ROW, measuring approximately 605.6 acres (or 245.1 hectares) in size. An indirect (or visual) APE for this Project was not part of this SOW, as the viewshed was previously considered as part of the prior Brown (2011) report and, therefore, not re-evaluated as part of the current survey.

The background research identified 20 previously recorded archaeological sites and two unconfirmed archaeological sites within two kilometers (1.2 miles) of the Project APE. None of these sites were located directly within the Project APE. The site location model, which is based on the background research (see Chapter 4.0, Section 4.3), suggested that the entire APE had a low to moderate probability for containing archaeological sites. The site location model also suggested that if sites were identified, there was more of a chance that they would be prehistoric than historic. Prehistoric sites would most likely contain an unassigned component and historic sites would date to the 19th and 20th centuries. All sites would be on dissected upland or hillside setting, and not eligible for listing in the NRHP.

The Phase I archaeological survey involved both pedestrian reconnaissance and shovel probing, with 6,161 SL examined within the Project APE. These SL documented that most of the Project is located on steep slope that is 15 percent or greater (with 5,370 of the SL falling on steep slope, or 87 percent of the total surveyed SL). The field survey identified a total of five archaeological resources (site 15El75, and isolated finds: Johnson, Shelton, Hunter, and H Simmons), all of which are recommended as not eligible for listing in the NRHP (Table 8.1).

Table 8.1: Summary of Field Results for KY 32 in Rowan and Elliott Counties, KY

Survey Segment	Segment Mileage	Segment Acreage	SL Total	Cultural Resources Identified	NRHP Recommendation
1		71.41	712	0	
2		124.01	1,260	0	
3		68.91	698	Johnson	Not Eligible
4		62.42	638	0	
5		56.04	566	0	
6		35.70	388	15El75	Not Eligible
				Shelton	Not Eligible
				Hunter	Not Eligible
7		88.65	902	0	
8		98.41	997	H Simmons	Not Eligible
TOTAL	**12.1**	**605.56**	**6,161**	**5**	

The URS archaeological field results mostly conform to the site location model. For example, only five archaeological resources were identified, which suggests a low archaeological probability similar to the site location model. Four of the five sites are in upland settings, all prehistoric components were unassigned, all historic components dated to the 19th and 20th centuries, and all sites have been recommended as not eligible for listing in the NRHP. The one main difference from the site location model was the slightly higher number of historic sites/ isolated finds instead of prehistoric ones. For example, of these five archaeological resources identified by URS, there were two unassigned prehistoric components and four historic components dating to the late 19th and early 20th centuries. Although it is possible that the field results reflect a lack of prehistoric activity in this area, it is more likely that because of the steep topography, every level area within the APE contains a house. It is possible that the construction of these structures has destroyed the prehistoric footprint in this area. For example, discussion with property owners during the field survey described leveling hilltops just to build houses.

It is the opinion of URS that due to the general paucity of archaeological resources (n=5), and the location of most of the Project APE on steep slope, that the Project coincides with an area of low archaeological potential. URS surveyed a total of 605.6 acres (245.1 hectares) and identified just five archaeological resources, or one archaeological resource for every 121.1 acres (49.0 hectares) surveyed. In addition, none of the five identified resources are considered eligible for listing in the NRHP. The results of the survey indicate that the proposed undertaking will not impact any potentially eligible or eligible

archaeological resources. Therefore, no further archaeological investigations are recommended.

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