

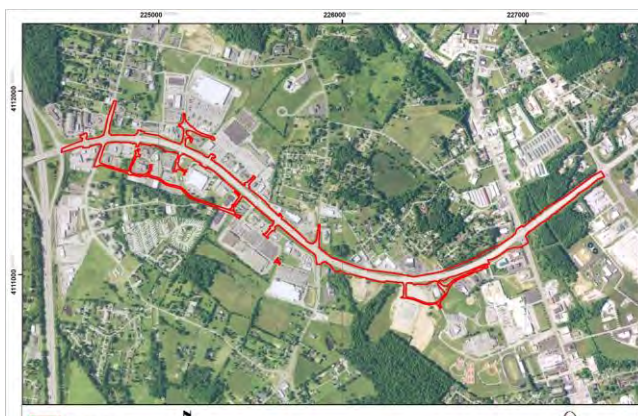
SEPTEMBER 29, 2017



PHASE I ARCHAEOLOGICAL SURVEY OF
49.08 ACRES FOR THE KY 192 HIGHWAY
WIDENING AND PAVEMENT
REHABILITATION PROJECT IN LONDON,
LAUREL COUNTY, KENTUCKY

PROJECT NO. PR17021

TECHNICAL REPORT 17023



SUBMITTED TO:

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**PHASE I ARCHAEOLOGICAL SURVEY OF 49.08 ACRES FOR THE KY 192 HIGHWAY
WIDENING AND PAVEMENT REHABILITATION PROJECT IN LONDON,
LAUREL COUNTY, KENTUCKY
(ITEM NO. 11-187)**

OSA Project No. FY18-9292

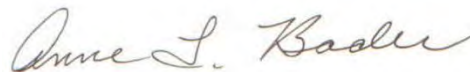
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Project No. PR17021
Cultural Resources Report No. TR17023



(Principal Investigator)

September 29, 2017

ABSTRACT

On August 17 and 18, 2017, Corn Island Archaeology, LLC completed a Phase I archaeological survey of 49.08 acres (19.86 hectares) for a proposed highway widening and repaving project in London, Kentucky. The project area encompasses the existing right-of-way of KY-192, associated side roads, and some new connector roads to the north and south of the existing right-of-way. The area of potential effect is covered primarily in pavement, with a few areas of grass over fill. The survey was requested by HDR, Inc.

The project area was investigated by pedestrian survey and the excavation of six shovel test probes. No prehistoric or historical materials or features were observed. No further archaeological investigations are recommended.

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ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
A.D.	after the birth of Christ
AMSL	above mean sea level
APE	Area of Potential Effects
B.C.	before the birth of Christ
BHT	backhoe trench
B.P.	before present
ca.	circa
CFR	Code of Federal Regulations
cm	centimeter(s)
cmbs	centimeter(s) below surface
CRM	cultural resources management
e.g.	For example
FCR	fire-cracked rock
FR	Federal Register
FS	Field Site
ft	foot (feet)
GIS	Geographic Information System
GPS	Global Positioning System
GSV	ground surface visibility
ha	hectare
m	meter(s)
mm	millimeter(s)
N/A	not applicable
n.d.	no date
NHPA	National Historic Preservation Act of 1966
NRHP	National Register of Historic Places
OSA	Office of State Archaeology
PI	Principal Investigator
PL	Public Law
ROW	Right-of-way
RPA	Registered Professional Archaeologist
SHPO	State Historic Preservation Office
SOI	Secretary of the Interior
SOW	Statement (Scope) of Work
STP(s)	shovel test probe(s)
USC	United States Code
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
YR	Yellow-Red (Munsell Color)

1

INTRODUCTION

On August 17 and 18, 2017, Corn Island Archaeology, LLC completed a Phase I archaeological survey of 49.08 acres or 19.86 hectares (ha) for a proposed highway widening and repaving project in London, Laurel County, Kentucky (**Figure 1**). The project area is located along KY 192 between I-75 and Barbourville Road on the south side of London, Kentucky (**Figure 2** and **Figure 3**). The survey was requested by HDR, Inc. in support of the Kentucky Transportation Cabinet (KYTC) (Item No. 11-187).

The 49.08-acre project area of potential effects (APE) consists of 31.88 acres of highly disturbed right-of-way (ROW) with an additional 17.2 acres of potential ROW acquisition planned. The length of the ROW, from I-75 to the Hal Rogers Parkway, is approximately 19,507 feet (ft) or 5,956 meters (m). At the time of survey, the ground surface of the project area was covered primarily in pavement, with parts of the proposed area of acquisition covered in grass and secondary vegetation (**Figure 4**, **Figure 5**, and **Figure 6**). One part of the proposed acquisition area extends into an existing, heavily modified drainage. In addition to this disturbance from the modified drainage, the 17.2-acre portion of planned acquisition has been subjected to fill deposition and grading, leaving no intact, undisturbed ground. Surface visibility ranged from 0 to 15 percent throughout the project APE.



Figure 1. Location of Laurel County, Kentucky

Three previously conducted archaeological surveys (Anderson and O'Connor 2004, Hand 1998, and Weis and Shock 1978) overlap or intersect the current project area. No sites within the current project APE were found as a result of these surveys.

COMPLIANCE REQUIREMENTS

The archaeological documentation of this project was required to meet compliance requirements relative to Section 106 of the National Historic Preservation Act (NHPA) (16 USC 470 f). The Federal Highways Administration (FHWA) is the lead federal agency. The project complies with specifications for field investigations and for National Register of Historic Places (NRHP) assessment as set forth in the *Secretary of the Interior Standards and Guidelines for Archaeology and Historic Preservation* (National Park Service 1983).

The conduct of this investigation also adhered to specifications for field investigations and reporting standards for Phase I archaeological survey as detailed in *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports* (version 2.5, updated August 2006) prepared by the Kentucky State Historic Preservation Office (SHPO) seated in the Kentucky Heritage Council (KHC) in Frankfort, Kentucky (Sanders 2006).

Phase I Archaeological Survey of 49.08 Acres for the KY 192 Highway Widening and Pavement Rehabilitation Project in London, Laurel County, Kentucky

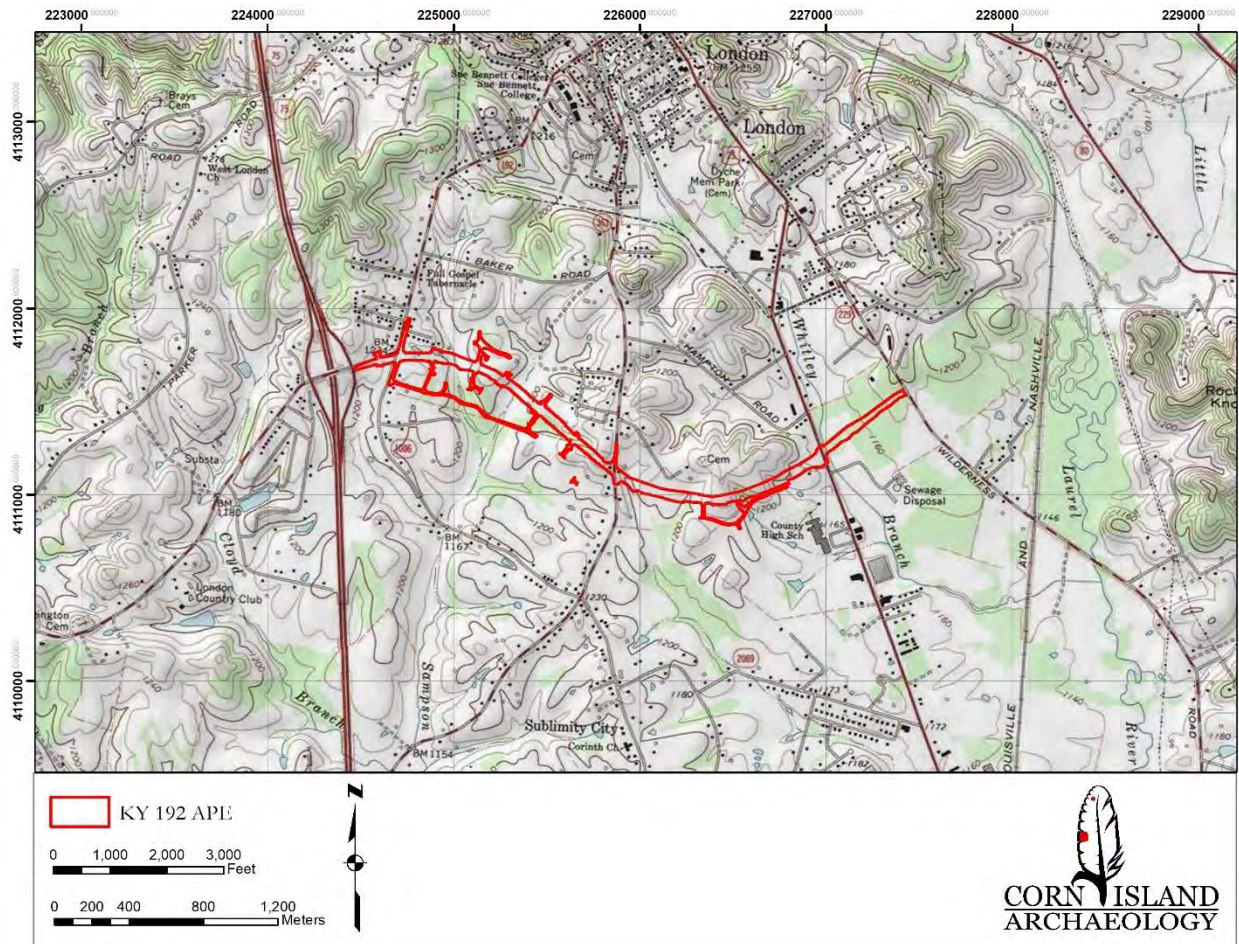


Figure 2. Segments of the 7.5-minute USGS 1970 *Lily, KY* and the 1969 *London, KY* quadrangle showing project APE.

Phase I Archaeological Survey of 49.08 Acres for the KY 192 Highway Widening and Pavement Rehabilitation Project in London, Laurel County, Kentucky

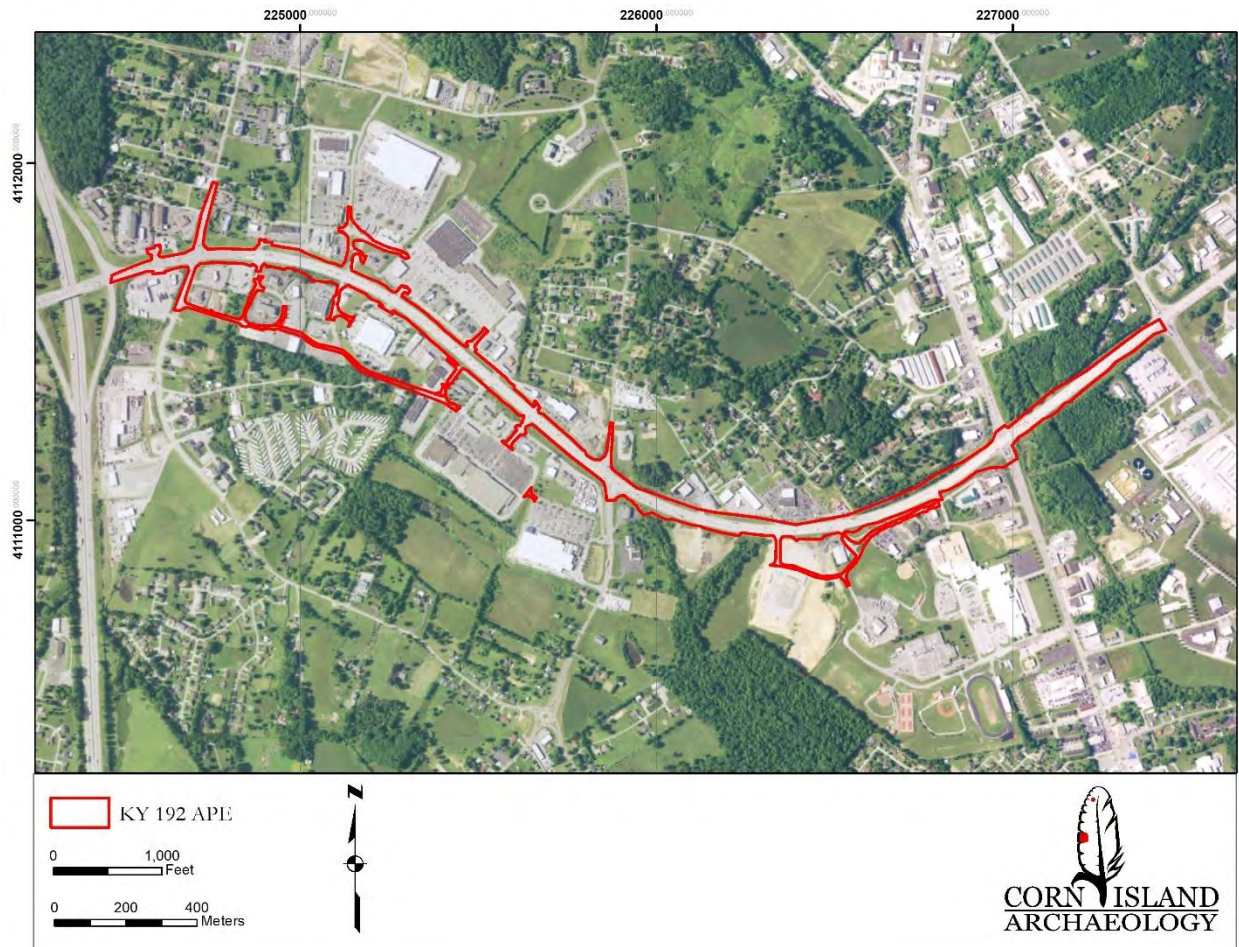


Figure 3. Project area on satellite imagery from ESRI®.



Figure 4. Western edge of APE facing south.



Figure 5. View to east over western edge of project APE.



Figure 6. View to northeast from segment of APE behind the U.S. Post Office.

PROJECT STATEMENT OF WORK

The archaeological investigation described herein entailed the following tasks:

- A routine background records search at the Office of State Archaeology (OSA) in Lexington, Kentucky to determine the level of existing documentation relevant to recorded archaeological sites and prior archaeological investigation(s), if any, at and nearby the site of the proposed project;
- A review of archival documentation pertaining to the presence and locations of potential historical archaeological resources within the project APE;
- A simple ground surface inspection of the project APE;
- A near-surface examination through shovel probing in undisturbed areas with slopes less than 15 percent; and
- The preparation of a professional technical report of findings per the standards of the Secretary of the Interior and the KHC/SHPO.

FINDINGS

The survey of the APE recorded no archaeological sites or cultural features. No artifacts were recovered. No further archaeological investigations are recommended.

PROJECT SCHEDULING AND STAFFING

The field portion of the survey required 22 manhours to complete, including travel time, over a period of two days. The project staff meets the requirements for professional archaeologists as detailed in the Secretary of the Interior standards. Tim Sullivan, PhD served as Principal Investigator and Field Director. He was assisted in the field by Jonas Yates, BA. Dr. Sullivan, Melinda King Wetzel, MA, and Melissa Coomer, BA, prepared the technical report of findings.

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ENVIRONMENTAL CONTEXT

The study of prehistoric and historic cultures extends beyond the study of the actual material remains of a society to provide an understanding of the ways in which that society interacted with its environment. Throughout time, the natural landscape has influenced human use and was in turn affected by that use. This interrelationship is reflected in both the natural and cultural resources of the area. These cultural resources may include property types such as standing structures, cemeteries, archaeological sites, and traditional cultural properties.

The cultural landscape approach provides a framework for understanding the entire landuse history of a property. It is the foundation for establishing a broader context for evaluating the significance of cultural resources, because the significance of any given cultural resource is not determined in isolation. Rather, it is achieved by examining the entire context of the landscape and interrelationships among its constituent components.

ENVIRONMENTAL CONTEXT

The physical environment is one of many factors that influenced the cultural development of an area. An awareness of the natural setting and available resources of an area allows informed interpretations of cultural issues such as settlement patterns and sedentism, as well as resource utilization and exploitation. The following environmental context provides data on regional ecological patterns such as floral distributions and communities, regional geomorphology, soils, and hydrology. The discussion is aimed at identifying those aspects of the natural environment that may have influenced the cultural development of the project APE.

Physiography

Laurel County lies on the western edge of the Eastern Coal Field physiographic region (**Figure 7**). The county is drained by the Rockcastle River on its western side and the Cumberland River to the south. Elevations in Laurel County range from 723 to 1,760 ft above mean sea level (AMSL) (University of Kentucky 2013). Elevations in the immediate project area range from 1,190 to 1,230 ft AMSL.

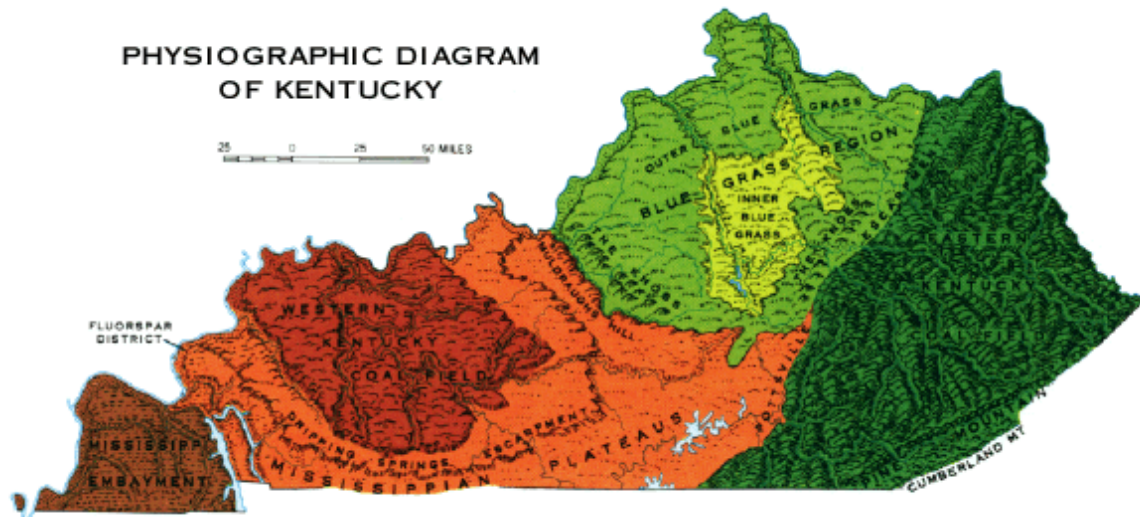


Figure 7. Physiographic regions of Kentucky.
(<http://www.uky.edu/KentuckyAtlas/kentucky-atlas.html>)

Geology

The APE is located primarily within the Pikeville Formation. The surrounding ridges are composed primarily of the Middle Pennsylvanian Pikeville formation (Ppk), which is composed of mixed clastics, including shale and coal. Minor components in the APE include the Lower Pennsylvanian Grundy Formation and the Corbin sandstone member of the Grundy formation (**Figure 8**).

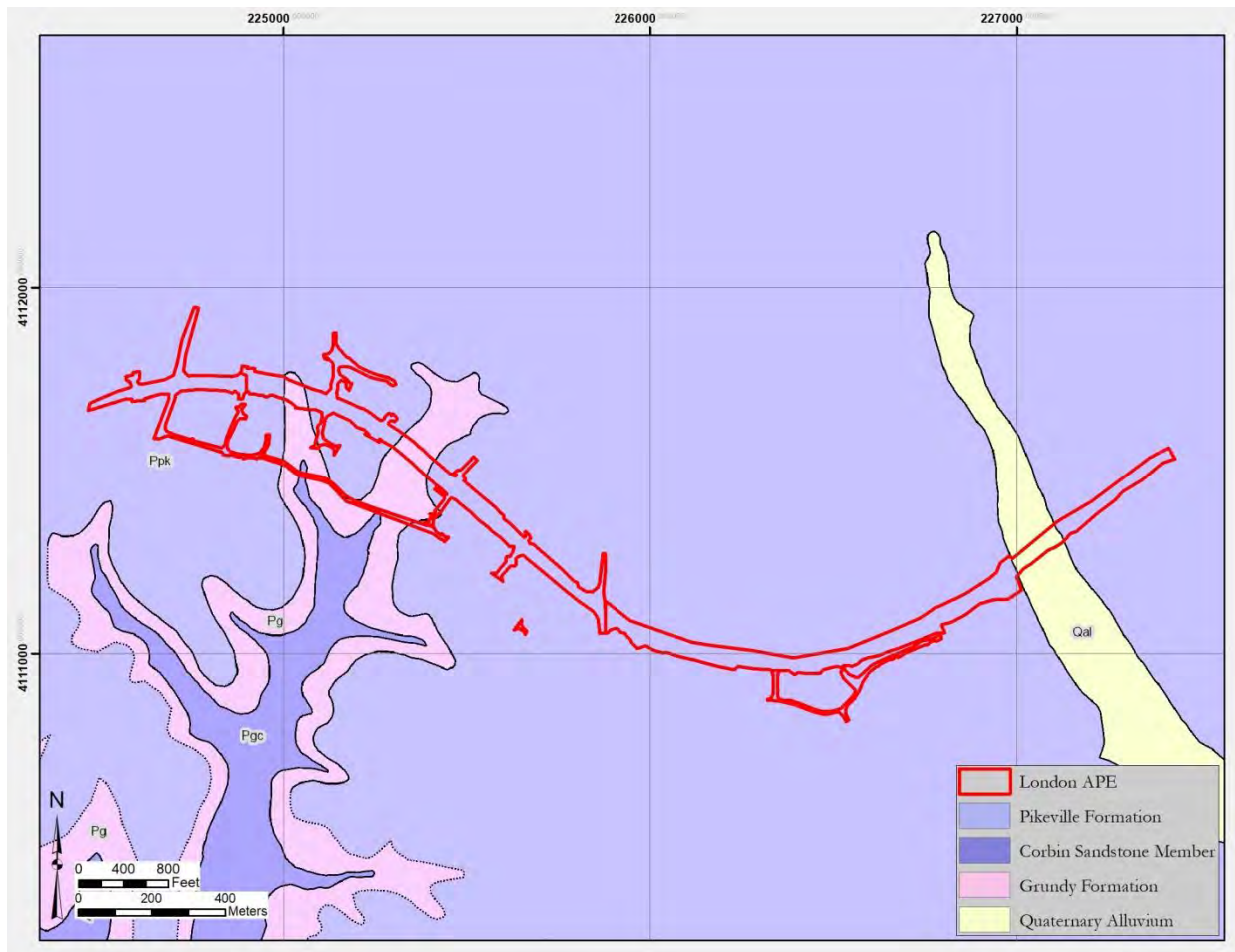


Figure 8. Geology underlying the project area (Kentucky Geological Survey 2016)

Soils

As revisited by Buol et al (1989), work by Dokuchaev (1898) and Jenny (1980) led to the understanding of soil as an open system influenced by the following five variables:

- parent material (geology);
- time;
- relief (landform);
- climate; and
- organisms.

Soil mapping was completed by the United States Department of Agriculture Natural Resources Conservation Service (USDA-NRCS) (**Figure 9**). The USDA classifies soils in the study area as predominantly Latham silt loam, 6 to 12 percent slopes (21.7 percent of the APE) and Whitley silt loam, 2 to 6 percent slopes (24.8 percent) (U.S. Department of Agriculture and National Resources Conservation Service 2017). As discussed below, the soils recorded in shovel tests excavated during this investigation conform more closely with fill associated with disturbed conditions.

Table 1. Soils within the APE

Soil type	Landform	Parent material	Acres in APE	Percent of APE
Latham silt loam, 2 to 6% slopes (LbB)	Ridges	Clayey residuum weathered from acid shale	0.4	0.70
Latham silt loam, 6 to 12% slopes (LbC)			10.7	21.70
Latham silt loam, 12 to 20% slopes (LbD)			2.4	4.90
Latham silty clay loam, 12 to 20% slopes, severely eroded (LbD3)			3	6.10
Scheloceta-Latham silt loams, 20 to 30% slopes complex (SdE)	Mountain slopes	Fine-loamy colluvium derived from sandstone & shale	4.6	9.50
Morehead silt loam (Mo)	Stream terraces	Mixed fine-silty alluvium	0.8	1.60
Stendal silt loam (Sn)	Floodplains		0.8	1.60
Stendal silt loam, terrace (So)			6	12.30
Whitley silt loam, terrace, 2 to 6% slopes (WtB)	Stream terraces		1.1	2.30
Whitley silt loam, 2 to 6% slopes (WhB)	Ridges	Fine-silty residuum weathered from interbedded sedimentary rock	12.1	24.80
Whitley silt loam, 6 to 12% slopes (WhC)			6.9	14.20
Whitley silt loam, 12 to 20% slopes (WhD)			0.2	0.40
Total			49	100.10

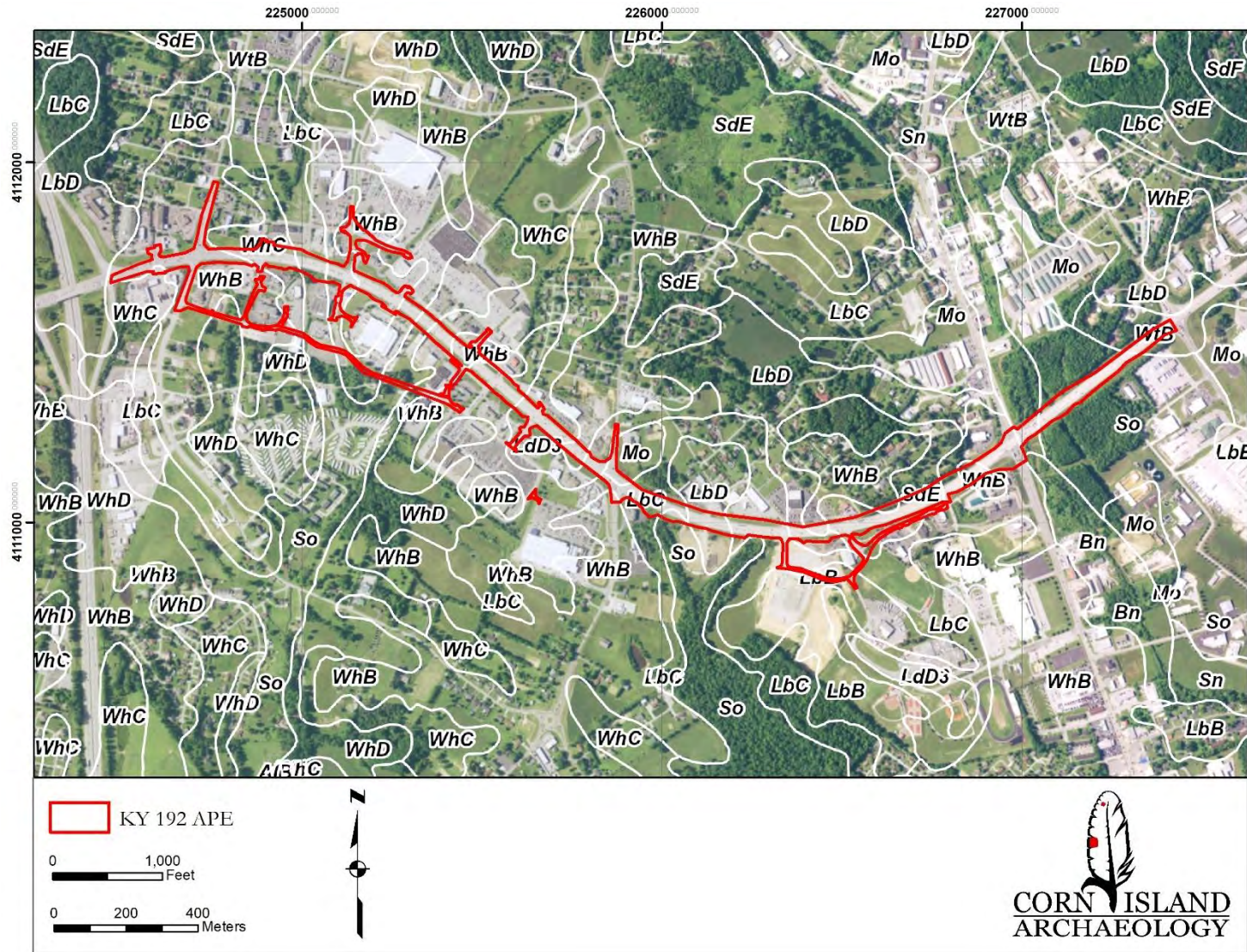


Figure 9. Soils mapped for the project APE (USDA-NRCS 2017).

Climate

Most broadly, Laurel County lies within an Udic moisture regime, defined as 90 consecutive days of moist conditions within the soil profile (Buol et al. 1989). In contrast to the Ustic moisture regime to the west that supports wheat, the Udic moisture regime of the eastern United States can support corn. Within recorded history, average annual precipitation for Laurel County has been between 40 and 60 inches. The average annual air temperature ranges between 44° and 66° F. Its frost-free period ranges from 154 to 189 days (U.S.Department of Agriculture and National Resources Conservation Service 2017).

Climate fluctuations, however, have varied from these ranges throughout the Earth's history (Buol et al. 1989; Fagan 1991). According to a model developed by Milankovich, these periodic fluctuations are caused by changes in the Earth's elliptical orbit every 100,000 years, its quivering spin on its axis every 21,000 years, and its tilt on its axis every 41,000 years (Selby 1985:510). The pollen record shows that relatively mild temperature fluctuations have occurred since the end of the Pleistocene Epoch. After about 10,000 B.P., there was a gradual warming trend that resulted in generally higher temperatures than are present today. The highest temperatures appear to have occurred around 5000 B.P. This warming trend continued until the beginning of the Little Ice Age (A.D. 1500 to 1850) during which a significant drop in temperature occurred. After the Little Ice Age, temperatures became more moderate (Davis 1983:176; Fagan 2000; Mann 2002). A few of the fluctuations that have occurred over the past 10,000 years are summarized in **Table 2**.

Table 2. Abbreviated List of Major Climate Fluctuations over the Past 10,000 Years

Dates	Fluctuation	Event	Source
8200-4500 B.C.	1-2.5°C warmer; drier; prairie expands	Hypsithermal, Altithermal, Climatic Optimum	Buol et al. 1989:180; Selby 1985
3000-1200 B.C.	1-2°C cooler; wetter		Buol et al. 1989:180; Selby 1985
A.D.900-1200	warmer; droughts	Medieval Warm Period	Buol et al. 1989; Fagan 2000
A.D.1500-1850	cooler	Little Ice Age	Mann 2002
A.D.1600	warmer	variation within the Little Age	Buol et al. 1989
A.D.1700	cooler	variation within the Little Ice Age	Buol et al. 1989

Biological Resources

Floral Resources

During glaciation, biotic communities changed to taiga and other subarctic communities. Vegetation would have included pines, fir, hemlock, and spruce. As the glaciers retreated, a forest of hackberry and ironwood replaced the northern species until more temperate deciduous species returned from their separate refugia to the south and east (Delcourt 2002).

As the glaciers continued to retreat farther north, average temperatures rose and the mixed hardwood forests were gradually replaced by Oak-Hickory forests. By 5,000 years ago, the

transition was complete (Delcourt and Delcourt 1981). Oak-Hickory Forests would have been found in warm exposed areas, and Beech-Maple Forests would have occurred in cool, moist shaded areas. Along streams and river valleys, Northern Riverine Forests would have been present (Kricher 1988).

Oak-Hickory Forests commonly contain a wide variety of flora. The trees that may have been present prehistorically include oaks, hickories, American chestnut, dogwood, sassafras, hop hornbeam, and hackberry. Tulip trees, elm, sweetgum, shagbark hickory, and red maple also may have been present, especially in moist areas. The understory may have contained a variety of blueberries and deer berry among other plants. Herbs may have included wintergreen, wild sarsaparilla, wood-sorrel, may-apple, rue-anemone, jack-in-the-pulpit, and trout lilies (Kricher 1988). The American chestnut, a common species during prehistoric times as a canopy tree, has been reduced to an understory tree by a blight introduced into North America in historic times (Kricher 1988). Numerous grasses and perennials such as smartweed, goosefoot, and amaranth are found in areas that are not farmed. Many of these species were present prehistorically and were utilized to various degrees for food, medicine, spiritual use, construction material, fuel, and fiber.

According to conclusions made by Delcourt and Delcourt (1997) and Lorimer (2001), however, the present and predicted forest types may not have existed during prehistoric times due to intentional burning by Native Americans. Fire was used to clear bottomland for agriculture, to create habitat for meadow or edge-dwelling species, and to clear the underbrush surrounding a settlement. Another activity practiced by native groups was the tending of patch resources such as river cane (*Arundinaria gigantea*) (Delcourt 2002). This native species of bamboo, as well as grasses and sedges, would have been important to Native American groups for use as cordage, nets, baskets, and mats.

Some of the most important botanical materials to native populations were the weedy plants that grew in the disturbed soil surrounding their camps. These were gathered for many years and, as a result, became domesticated (Riley et al. 1990; Smith 1989). Other species important to native groups were species that were domesticated elsewhere such as in Mexico or Peru. These include bottle gourds (*Lagenaria siceraria*), pumpkins (*Cucurbita pepo ssp pepo*), maize (*Zea mays*), and beans (*Phaseolus vulgaris*).

In addition to river cane (*Arundinaria gigantea*), Delcourt (2002) suggests Native Americans may have tended stands of mast resources as well. These resources might have included hickory, walnuts, butternuts, and acorns. These would have been present in the acidic mesophytic and acidic subxeric forests, which occur on sideslopes and bottomlands.

Ecological communities in the past, however, may have been different. In addition to effects of climate change and prehistoric modifications, a number of modifications dating to the historic period have affected the communities within Laurel County. Effects include extensive sheet erosion in the uplands, excessive deposition in the valleys, and transformation of forest species from k-selected to r-selected species, the r-selected species being those that are intolerant of shade and can therefore colonize disturbed areas more quickly. Other examples of historic modifications include agriculture, in which the diversity of species in the valleys would have been replaced by monocrop plots; species extermination due to over collection; and the demise of native species due to competition with introduced species such as Japanese honeysuckle, tree-of-heaven, and burning bush.

Faunal Resources

During glacial periods of Quaternary times, the mammoth and mastodon were residents of the region, which at one time had been treeless tundra. Other types of large and now-extinct animals such as the giant peccary, ground sloth, bison, horse, elk, deer and beaver would also have been available to the early Paleoindian groups inhabiting the area (Shelford 1963; Wayne and Zumberge 1965). By approximately 8000 B.C., mixed deciduous forests had developed in the area. After the warmer Hypsithermal period, the flora and fauna of the area were probably typical of the Carolinian province biotic assemblage.

Mammals that thrived in the forested environment may have included the gray squirrel, fox squirrel, white-tailed deer, raccoon, beaver, woodchuck, and a variety of mice, striped skunks, mink, otter, fox, black bear, and bobcats. Buffalo traces created corridors to and from the area's salt licks. Bird species would likely have included red-tailed hawks, ruffed grouse, great horned and eastern screech owl, pileated woodpecker, wild turkeys, and blue jay among others (Kricher 1988). A variety of ducks and geese also could have been present during the fall and spring migrations. Numerous species of freshwater mussels and other shellfish such as gastropods were present and used by the aboriginal inhabitants. Studies of various Indiana and Kentucky shell mounds have yielded remains suggesting that major fish populations used prehistorically were the drumfish (*Applodinotus grunniens*) and catfish (*Ictalurus sp.*), which fed upon the mussel populations.

Data from Kentucky archaeological sites document a reliance on a wide range of resources. In other areas, mastodonts have been documented in association with early Paleoindian groups (10,000 to 8000 B.C.). Fish and shellfish became important during the Archaic period (8000 B.C. to 900 A.D.), while white-tailed deer and wild turkey were used during numerous periods. Raccoon is often recovered from features during the later periods.

During the historic period, however, these resources shifted dramatically. Europeans and European-Americans began to severely modify the regional ecology (Delcourt and Delcourt 1981). Fauna that are now gone from the area include the wolf, elk, beaver, passenger pigeon, and others. The populations of mink, fox, and most other animals have been reduced, due to the loss of habitat and hunting.

3

BACKGROUND RESEARCH

To understand the trends near the project APE, Corn Island examined comparable data compiled by surveys, excavations, and the Kentucky Heritage Council's *State Historic Preservation Comprehensive Plan Report (State Plan)* (Pollack 1990, 2008b). The project APE is interpreted in relation to the appropriate Management Area and Cultural Landscape as defined by the state plan. According to the state plan (Pollack 1990, 2008), Laurel County is located within the Foothills Section of the Appalachian Cultural Landscape and within Southeastern Mountains Section of the Upper Cumberland Management Area (Pollack 2008b). The Upper Cumberland Management area encompasses a total of 12,150 square kilometers (km²), 7,054 km² in the Lake Cumberland Section and 5,460 km² in the Southeastern Mountains Section. As of 2008, 295 km² of the Southeastern Mountains Section had been surveyed with the identification of 892 sites (Stackelbeck and Mink 2008). Prehistoric sites are nearly evenly split between open habitation sites (without mounds) (n=302) and rockshelters (n=314). Other recorded prehistoric sites include Open habitations with stone mounds (n=12), earth mounds (n=6), mound complexes (n=11) and cemeteries (n=16). Historic sites are most often identified as historic farms (n=167).

PREVIOUSLY CONDUCTED ARCHAEOLOGICAL SURVEYS AND RECORDED SITES

The results of a records search with the OSA were received on July 7, 2017. The requisite records were retrieved from the OSA on August 29, 2017. A total of 17 professional archaeological surveys have been conducted within a 2-kilometer (km) buffer of the project APE (Allgood 2004; Anderson and O'Conner 2004; Mabelitini 2006; Case and Herndon 2011; Cleveland et al. 1997; Cobb, Weaver, and McNutt 1989; Fiegel 2006; Hand 1998; Hobson 1989; Joseph and Yallop 1998; Martin 2009; Niquette 1985; Schlarb et al. 2007; Weis and Shock 1978; Turnbow, deLorenze, and Allen 1977; Weller 2015; Wilkinson 2012) (**Table 3** and **Figure 10**).

Three of these surveys intersect or overlap the current project. These include a 2004 survey by Cultural Resource Analysts, Inc. (CRAI) for the planned construction of the KY 192 to KY 80 frontage road which overlaps a small portion of the western part of the current project area (Anderson and O'Connor 2004). CRAI also conducted an archaeological assessment of the proposed KY Highway 192 upgrade (Hand 1998) that overlaps the western end of the current project. Finally, the 1978 survey of 3.7 miles of proposed sanitary sewer line intersected the western portion of the current project corridor in several locations (Weis and Shock 1978).

Table 3. Previous surveys within 2 km of the current project APE.

YEAR	AUTHORS	TITLE
1977	Turnbow, Christopher A., Gerald De Lorenze, & Roger C. Allen	An Archaeological Survey and Assessment of the London-Laurel County Industrial Park and Housing Project. Report No. 16
1978	Weis, Terry L. & Jack M. Schock	An Archaeological Survey of 3.7 Miles of Proposed Sanitary Sewage Improvements for the Utilities Commission, London, Laurel County, Kentucky
1985	Niquette, Charles M.	An Archaeological Survey of the Proposed Cardinal Estates Subdivision near London, Laurel County, Kentucky
1989	Hobson, Robert C.	A Phase One Archaeological Assessment of a Proposed Office Building near London, Laurel County, Kentucky
1989	Cobb, Charles R., Guy Weaver, & Charles H. McNutt	Archaeological Survey for the Proposed Lexington-Knoxville FTA Lightguide Cable, Pulaski, Laurel, and Whitley Counties, Kentucky
1997	Cleveland, M. Todd, Patrick H. Garrow, & Jeffrey L. Holland	Phase I Cultural Resource Survey for the Proposed New Federal Courthouse in London, Kentucky
1998	Joseph, J. W. & Robert J. Yallop	Archeological Survey and Evaluation of the Proposed London, Kentucky, U.S. Courthouse
1998	Hand, Robert B.	A Cultural Resource Assessment of the Kentucky Highway 192 Upgrade at London in Laurel County, Kentucky
2004	Allgood, Jessica L.	An Archeological Survey for the Proposed London and Laurel County Tourist Center, Laurel County, Kentucky
2004	Anderson, Jason and Lori O'Conner	An Archaeological Survey of the Proposed Construction of the KY 192 to KY 80 Frontage Road in Laurel County, Kentucky
2006	Mabelitini, C. Brian	A Phase I Archaeological Assessment of the 8.78 Ha Proposed Armed Forces Readiness Center (AFRC), Laurel County, Kentucky
2006	Fiegel, Kurt	Archaeological Evaluation of the Proposed Nextel Partner's Inc., Tower: Marymount, KY341P, London, Laurel County, Kentucky
2007	Schlarb, Eric J. & Susanne Winter	An Archaeological Assessment of National Guard Armories in the State of Kentucky
2009	Martin, Rebecca	Cultural Resource Assessment of the London Wetland and Rain Garden Project on the London Ranger District, Daniel Boone National Forest, Laurel County, Kentucky
2011	Case, Ken R. & Richard L. Herndon	A Cultural Resource Survey of the Proposed Whitley Branch Wetland and Stream Restoration Project in Laurel County, Kentucky
2012	Ann Wilkinson	Phase I Archaeological Survey of the Proposed London West Tele-Communications Tower Location, Laurel County, Kentucky
2015	Ryan Weller	Phase I Abbreviated Report for the Proposed LV Main Street London Wireless Cellular Tower Location in Laurel County, Kentucky

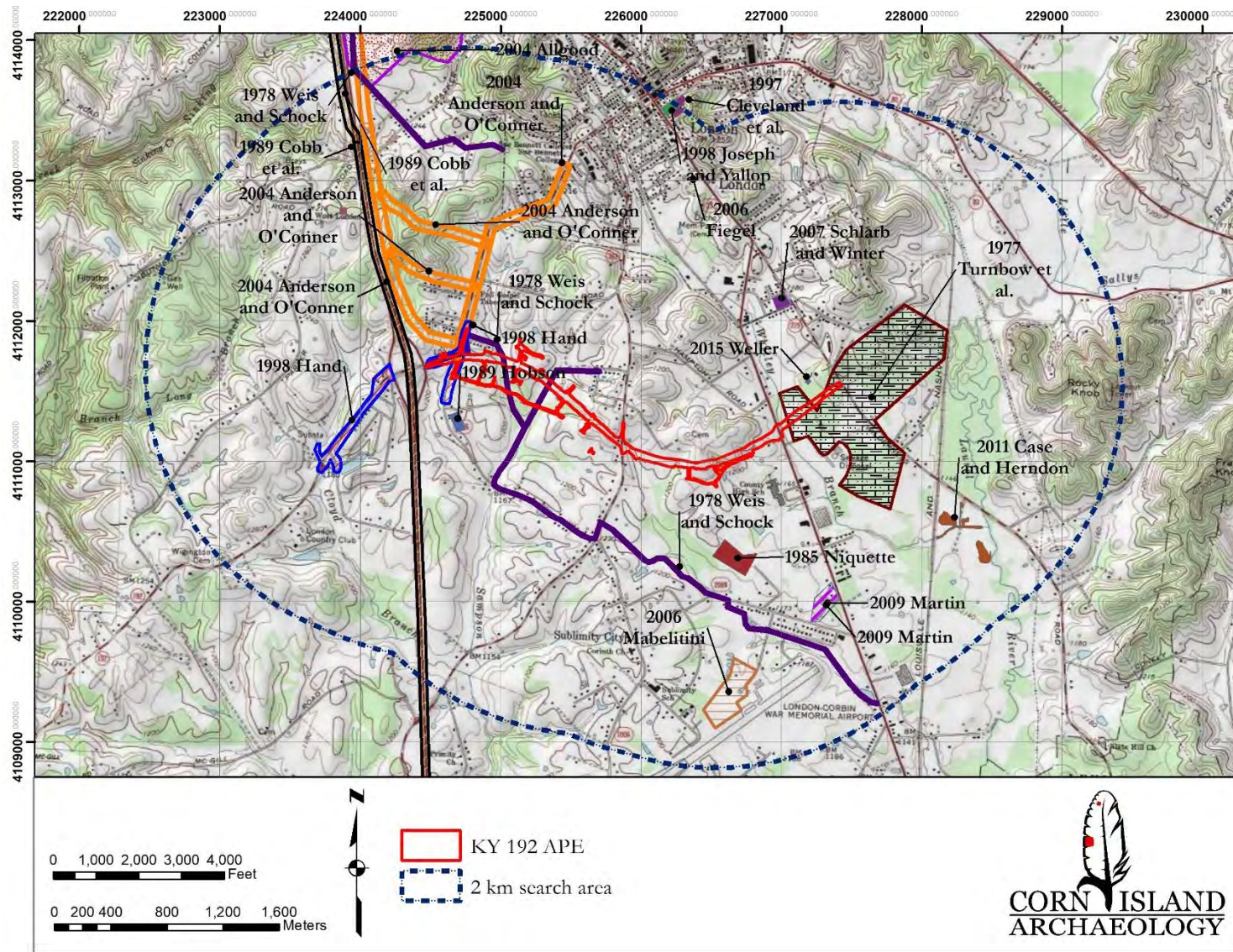


Figure 10. Portion of the USGS 7.5-minute 1977 *Haldeman, Kentucky* quadrangle map showing locations of previous archaeological surveys.

The following summarizes the survey methods as well as the results of the 17 Phase I archaeological surveys that have been conducted within 2 km of the current project area.

In 1977, Christopher A. Turnbow, Gerald de Lorenze, and Rodger C. Allen of Archaeological Services of Kentucky, Inc. conducted a Phase I investigation of 185 acres (74.9 ha) for the proposed London-Laurel County Industrial Park and Housing Project. The survey included pedestrian survey and excavation of shovel tests. Four archaeological sites were recorded: 15LL26, 15LL27, 15LL28, 15LL29. The sites were recommended as not eligible for the NRHP and no further work was recommended (Turnbow, deLorenze, and Allen 1977).

In 1978, Terry L. Weis and Jack M. Schock of Arrow Enterprises, Inc. conducted a Phase I archaeological of 3.7 miles for the proposed sanitary sewage improvements for the utilities commission of London. The survey included pedestrian survey and excavation of shovel tests. Three archaeological sites, 15LL310, 15LL311, 15LL312 and a historical cemetery were recorded. The sites were recommended as not eligible for the NRHP and no further work was recommended (Weis and Schock 1978). The current project intersected this old survey in several locations.

In 1985, Charles M. Niquette of Cultural Resources Analysts Inc. (CRAI) surveyed 7 acres (2.8 ha) for the proposed Cardinal Estates subdivision near London. The survey consisted of pedestrian survey and excavation of shovel tests. No archaeological sites were recorded and no further work was recommended (Niquette 1985).

In 1989, Robert C. Hudson, also of CRAI, surveyed 5.2 acres (2.2 ha) for a proposed office building near London. The survey consisted of pedestrian survey and excavation of shovel tests. No archaeological sites were recorded and no further work was recommended (Hudson 1989).

Charles R. Cobb, Guy Weaver, and Charles H. McNutt of Garrow and Associates, Inc. performed a Phase I archaeological survey of 57 miles for a proposed Lexington-Knoxville FTA lightguide cable in Pulaski, Laurel, and Whitley Counties in 1989. The survey consisted of pedestrian survey and shovel test excavations. Seventeen archaeological sites were recorded, with one being in Laurel County: 15LL112. The site was recommended as not eligible for the NRHP and no further work was recommended (Cobb, Weaver, and McNutt 1989).

In 1997, Todd M. Cleveland, Patrick H. Garrow, and Jeffrey L. Holland of Garrow and Associates, Inc. conducted a Phase I archaeological survey for the proposed new federal courthouse in London (Cleveland et al. 1997). Since the project area was largely paved over, the survey consisted of a visual inspection and a historic map review. As a result, it was considered unlikely that any intact prehistoric resources would be found in the project area, but highly probable that significant historic archaeological resources would be present. Five areas in particular were considered to be archaeologically sensitive and recommended for Phase II evaluation. This project also included a cultural historical study of all properties within view of, and from, the proposed courthouse. A total of 52 buildings, including one existing NRHP and 9 recommended structures, were documented.

J. W. Joseph and Robert J. Yallop of New South Associates performed a Phase I archaeological survey for the proposed new federal courthouse in London in 1998. The survey consisted of excavation of trenches by backhoe, following previous recommendations from a previous survey by New South Associates (Todd, Garrow, and Holland 1997). One historical site was recorded: 15LL331. The site was recommended as not eligible for the NRHP and no further work was recommended (Joseph and Yallop 1998).

In 1998, Robert B. Hand of CRAI conducted a Phase I archaeological survey of 18.64 acres (7.7 ha) for the KY Highway 192 upgrade at London in Laurel County, Kentucky. The survey consisted of pedestrian survey and excavation of shovel tests. No archaeological sites were recorded and no further work was recommended (Hand 1998). A portion of this survey overlaps the current project area.

In 2004, Jessica L. Allgood of CRAI conducted a Phase I archaeological survey of 120 acres (48.6 ha) for the proposed London and Laurel County tourist center in Laurel County, Kentucky. The survey consisted of pedestrian survey and excavation of shovel tests. No archaeological sites were recorded and no further work was recommended (Allgood 2004).

Jason Anderson and Lori O'Conner of CRAI surveyed of 66.66 acres (27.1 ha) for the proposed construction of the KY 192 to KY 80 Frontage Road in Laurel County in 2004. The survey consisted of pedestrian survey and excavation of shovel tests. One historical cemetery (15LL354) was recorded. If 15LL354 was avoided, no further work was recommended (Anderson and O'Conner 2004).

Brian C. Mabelitini of Kentucky Archaeological Survey (KAS) performed a Phase I archaeological survey of 22 acres (8.78 ha) for the proposed Armed Forces Readiness Center in Laurel County in 2006. The survey consisted of pedestrian survey and excavation of shovel tests. No archaeological sites were recorded and no additional investigations were recommended (Mabelitini 2006).

In 2006, Kurt Fiegel of South Winter Research surveyed the proposed Nextel Partner's Inc. tower in London. The survey consisted of the excavation of shovel tests. The survey recorded one historic debris scatter (15LL369) that was not considered eligible for listing in the NRHP. No further archaeological work was recommended (Fiegel 2006).

In 2009, Rebecca Martin of Daniel Boone National Forest conducted a Phase I archaeological survey of 7 acres (2.8 ha) for the proposed London wetland and rain garden project in the London Ranger District, Daniel Boone National Forest. The survey consisted of pedestrian survey and the excavation of shovel tests. No archaeological sites were recorded and no additional investigations were recommended (Martin 2009).

Ken R. Case and Richard L. Herndon of CRAI conducted a Phase I archaeological survey in 2011 of 9.5 acres (3.8 ha) for the proposed Whitley Branch wetland and stream restoration project in Laurel County. The survey consisted of pedestrian survey and excavation of shovel tests. No archaeological sites were recorded and no further work was recommended (Case and Herndon 2011).

In 2012, Ann Wilkinson of CDM Smith conducted a Phase I archaeological survey of 0.52 acres (0.211 ha) for the proposed London West tele-communications tower location in Laurel County. The survey consisted of pedestrian survey and excavation of shovel tests. No archaeological sites were recorded and no further work was recommended (Wilkinson 2012).

Most recently, in 2015, Ryan Weller of Weller and Associates, Inc. conducted a Phase I archaeological survey of 0.67 acres (0.27 ha) for the proposed LV Main Street wireless cellular tower location in Laurel, County. The survey consisted of pedestrian survey and excavation of shovel tests. No archaeological sites were recorded and no further work was recommended (Weller 2015).

These surveys have resulted in the discovery and documentation of nine archaeological sites within 2 km of the project APE. No recorded sites lie within the current project APE. The nine sites are summarized in **Table 4**.

Table 4. Archaeological Sites within 2 km of the Current Project Area

Site	References	Summary	NRHP Recommendation
15LI26	Turnbow, de Lorenze and Allen 1977	Unidentified Prehistoric	Not Eligible
15LI27	Turnbow, de Lorenze and Allen 1977	Unidentified Prehistoric	Not Eligible
15LI28	Turnbow de Lorenze and Allen 1977	Unidentified Prehistoric	Not Eligible
15LI29	Turnbow, de Lorenze and Allen 1977	Unidentified Prehistoric	Not Eligible
15LI310	Weis and Schock 1978	Unidentified Prehistoric	Not Eligible
15LI311	Weis and Schock 1978	Unidentified Prehistoric	Not Eligible
15LI312	Weis and Schock 1978	Unidentified prehistoric	Not Eligible
15LI331	Joseph and Yallop 1998	Mid-19 th Century Historic Farmstead	Not Eligible
15LI354	Anderson and O'Conner 2004	Late 19 th Century to Late 20 th Century Cemetery	Not available

Webb and Funkhouser carried out a broad survey of known sites throughout the state for the University of Kentucky in 1932. Three sites were listed in Laurel County, though none appear to be within the current project area (Funkhouser and Webb 1932:215-216). These included a rock pile and burials, a camp or village near East Bernstadt, and a rockshelter on Sinking Creek.

HISTORIC MAP REVIEW

The project area is located on the south side of London, Kentucky in central Laurel County. Several USGS maps (**Table 5**) were located that document the APE historically. No buildings are depicted within the project APE on either the 1893 or the 1897 USGS maps (**Figure 11** and **Figure 12**). The 1937 Laurel County Highway map depicts four buildings within the project APE (**Figure 13**). Four buildings are also depicted on the 1952 USGS Lily quadrangle (**Figure 14**). The most recent USGS Lily, KY quadrangle dates to 1970 and depicts two buildings within the APE (see **Figure 2**). These have since been destroyed by the construction of KY192.

Table 5. Reviewed Historic Maps

Map	Reference
<i>Topographic Map of the London, Kentucky 15-minute Quadrangle</i>	USGS 1893
<i>Topographic Map of the London, Kentucky 15-minute Quadrangle</i>	USGS 1897
<i>Kentucky Highway Map of Laurel County</i>	Kentucky Department of Highways 1937
<i>Topographic Map of the Lily, Kentucky 7.5-minute Quadrangle</i>	USGS 1952
<i>Topographic Map of the Lily, Kentucky 7.5-minute Quadrangle</i>	USGS 1970

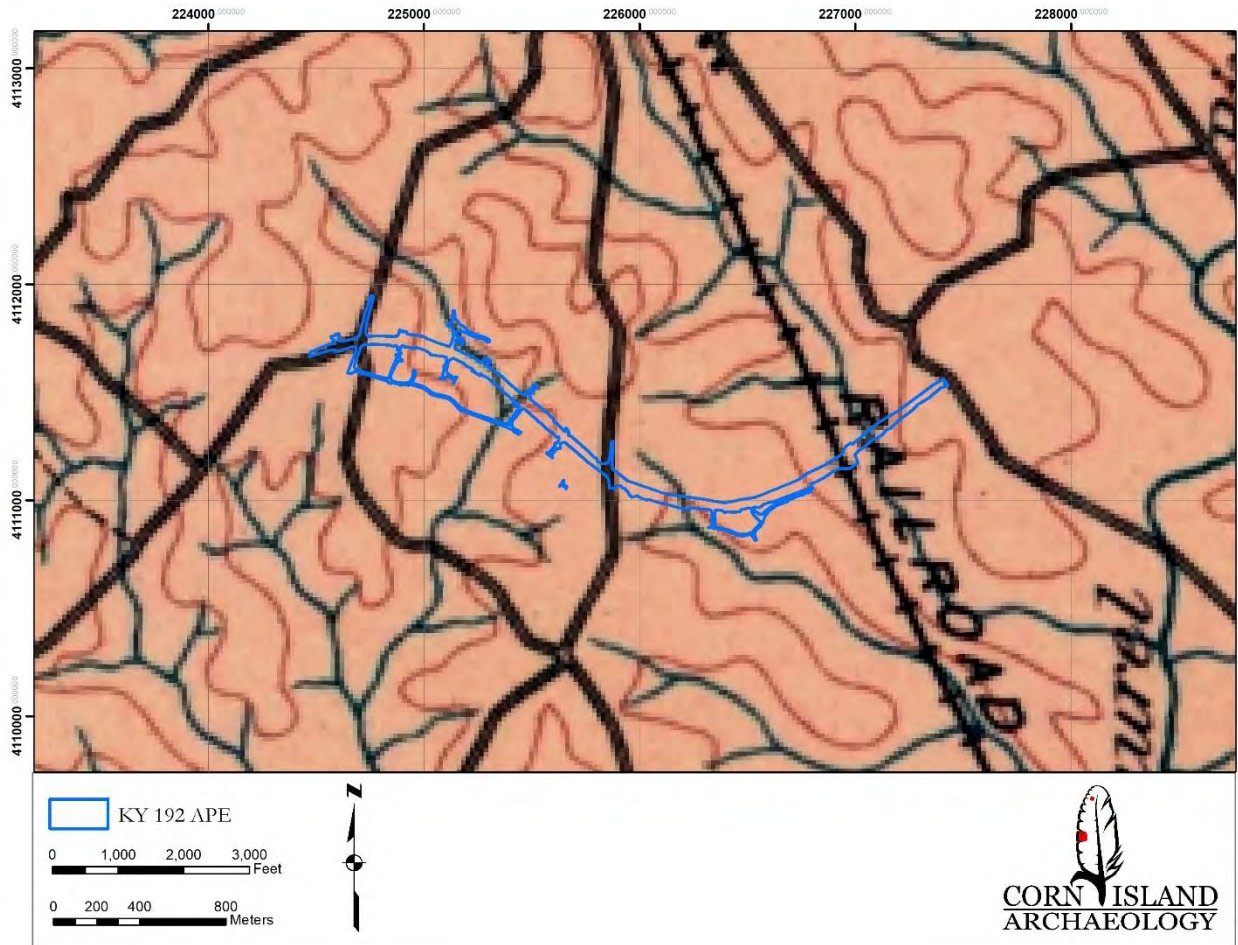


Figure 11. Project APE on a segment of the 1893 London, Kentucky USGS 15-minute quadrangle map (U.S.Geological Survey 1893).

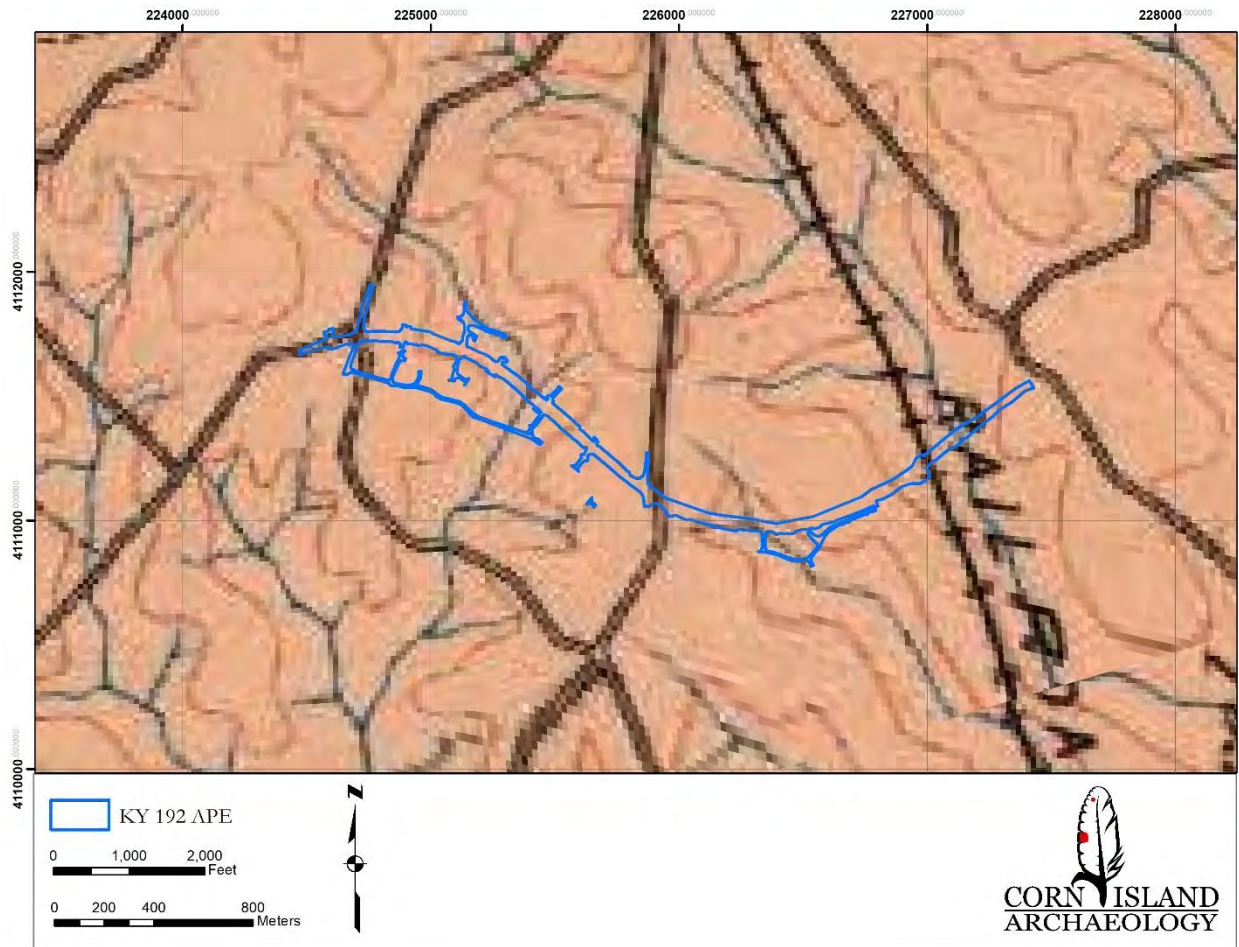


Figure 12. Project APE on a segment of the 1897 *London, Kentucky* 15-minute quadrangle map (U.S.Geological Survey 1897).

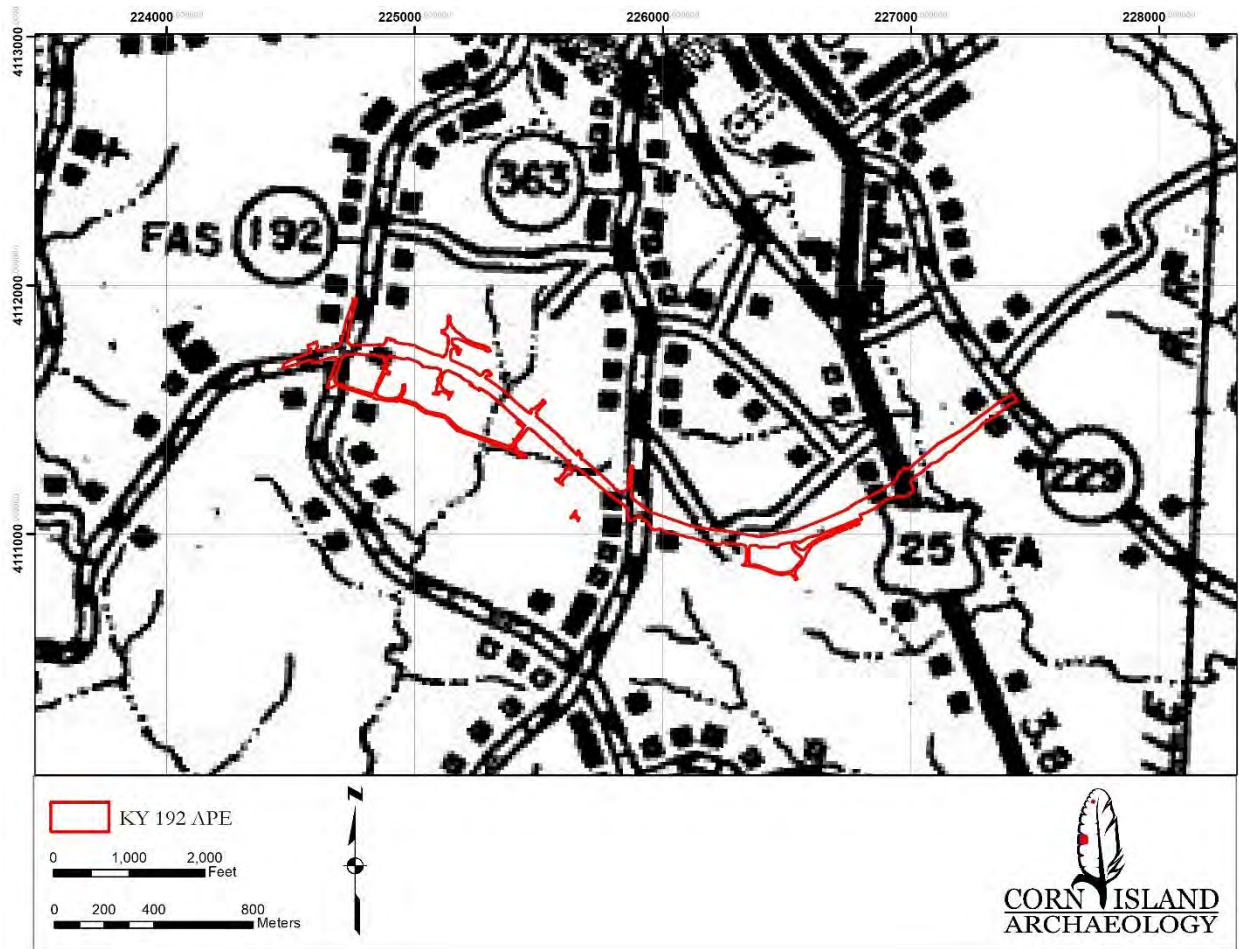


Figure 13. Project APE on segment of the 1937 Kentucky Department of Highways Map of Laurel County (Kentucky Department of Highways and Federal Works Agency-Public Roads Administration 1937).

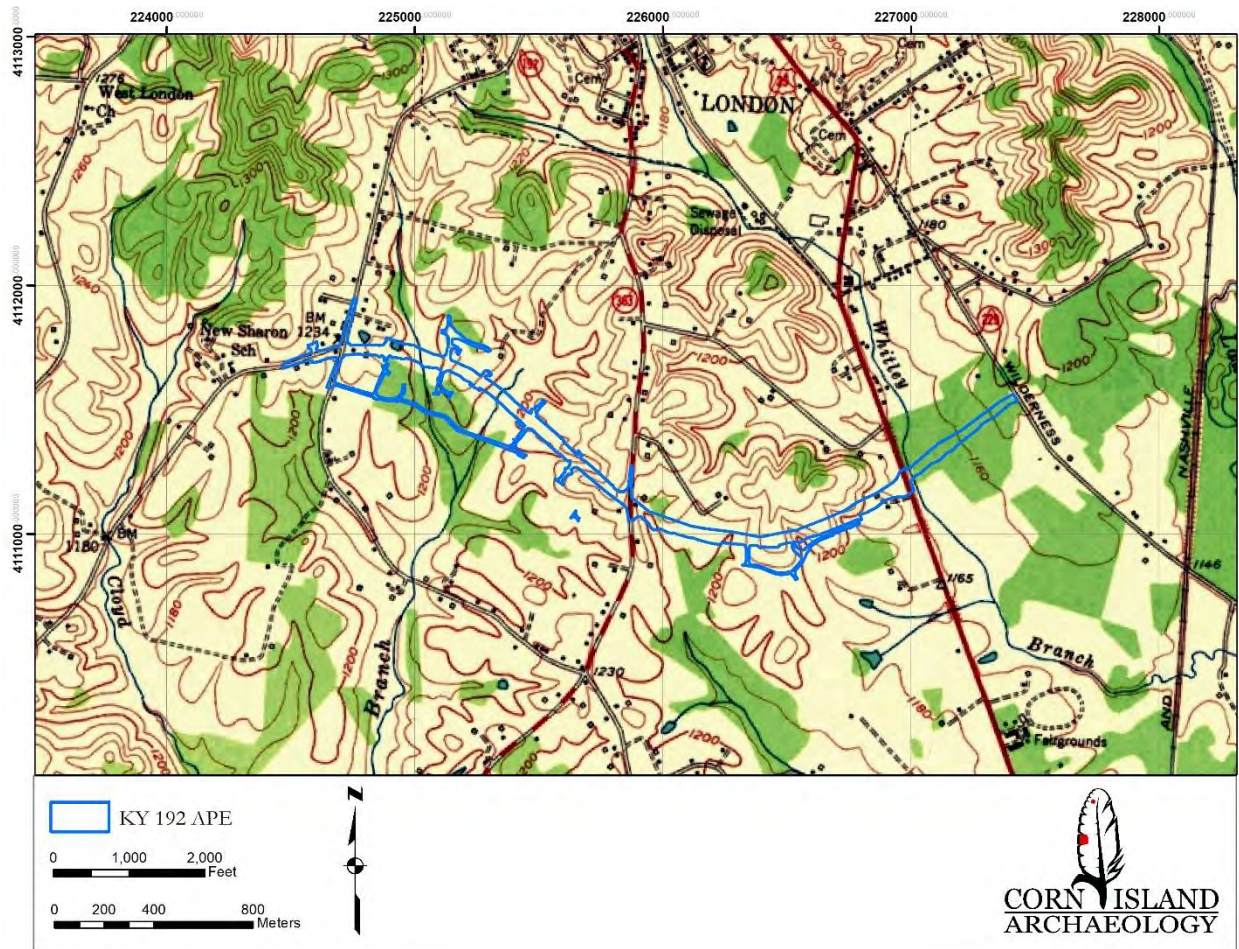


Figure 14. Project APE on segment of the 1952 USGS *Lily, Kentucky* 7.5-minute quadrangle (U.S. Geological Survey 1952).

4

FIELD METHODOLOGY

PURPOSE AND OBJECTIVES

The purpose of this investigation was to satisfy required federal compliance regulations enacted to ensure no significant historic or archaeological properties would be adversely affected resulting from the proposed roadway project. To this end, the specific objectives of the investigation included the following:

- to determine if archaeological sites are present within the project APE;
- to ascertain the nature, depth, and integrity of cultural deposits, if discovered; and;
- to provide a preliminary determination, if possible, on the NRHP eligibility of archaeological sites discovered within the project APE.

The survey was done in accordance with the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* located at 48 FR 44716 and with the revised guidelines for archaeological fieldwork in Kentucky (Sanders 2006).

FIELD METHODS

The project area was first delineated on topographic quadrangles, project mapping, and satellite imagery. The project boundaries were clearly communicated to the project director and easily identified in the field by the project outlines provided by the client. The field methods utilized for this project entailed a combination of pedestrian survey, shovel test probe (STP) excavation, and windshield survey. A visual ground surface inspection of the project APE was first performed to identify above-ground indicators of human activity such as structural foundations, refuse dumps, wells and cisterns, gravestones, quarry pits, and earthen and stone mounds. A total of six shovel tests were excavated in locations where pavement or other disturbances did not cover the APE (**Figure 15**). A walkover was also conducted in the area to the southeast of the post office, which revealed a heavily modified drainage.

The shovel tests measured at least 30 cm or 11.8 inches in diameter and were excavated to a depth of 50 cm (19.7 in) cmbs or until culturally sterile subsoil was encountered and examined to a depth of 10 cm. The intent of excavating the shovel probes was to determine the depth of a plowzone and/or other disturbances and to detect the presence of intact historic yard midden and/or remnants of historic buildings.

MAPPING AND DOCUMENTATION

Points were taken using a *Garmin GPS map 64s* unit to record the locations of excavation units and surface data. The project area and representative shovel tests were photographed with a digital camera. A project field log documented survey conditions and strategies. STPs were plotted with a GIS.

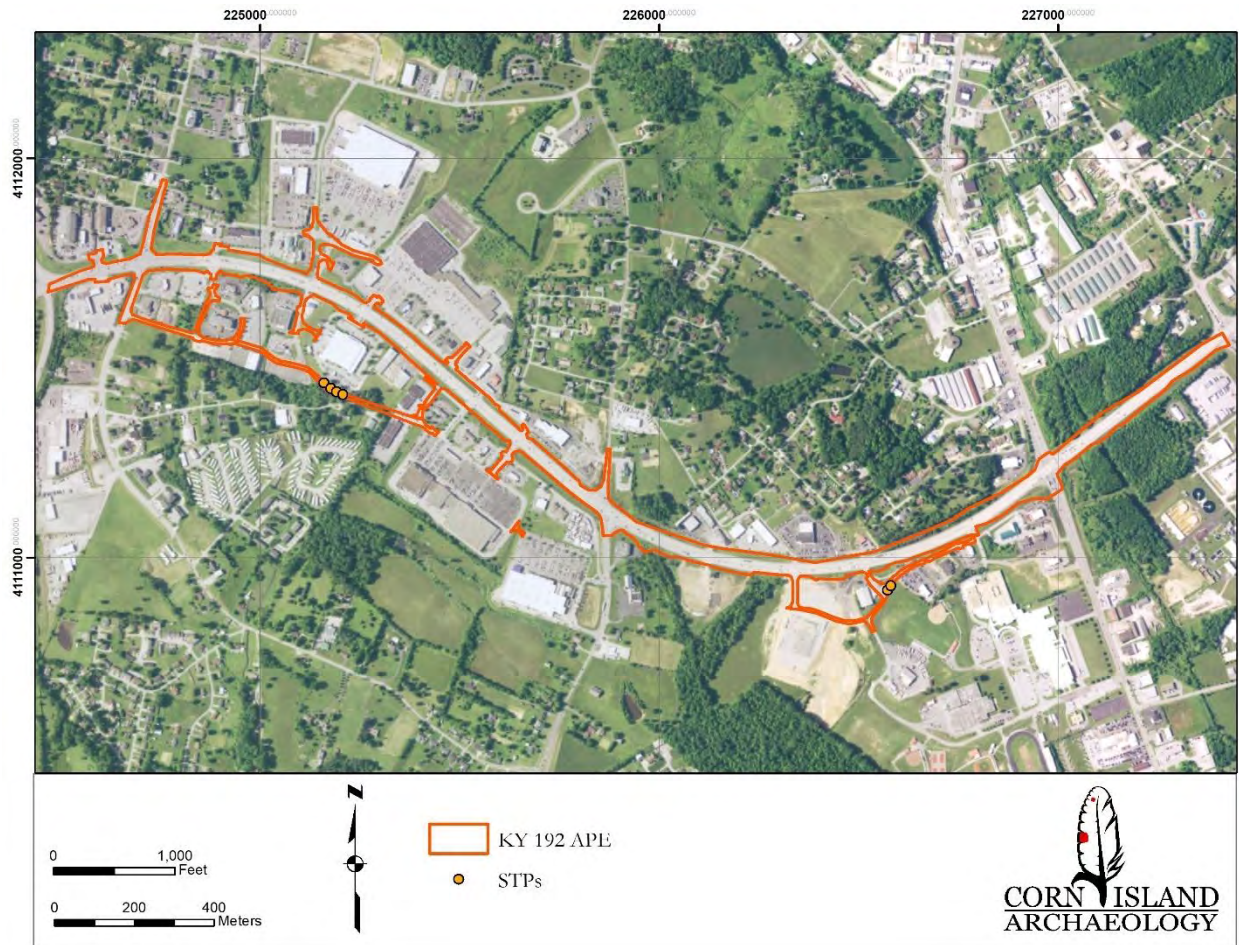


Figure 15. STP locations within the project APE on 2016 satellite imagery from USDA/NRCS.

5 FINDINGS

PROJECT AREA CONDITIONS

The 49.08-acre project area of potential effects (APE) is in a heavily developed area consisting of numerous paved roadways and parking lots, as well as businesses and industrial facilities (Figure 16, Figure 17, and Figure 18). The APE is restricted to the existing road and embankment in much of the area. Approximately 33.88 acres of the APE (69 percent) is currently covered in pavement (Table 6). An additional 15 acres is classified as graded, slope, and/or drainage—though these are not necessarily mutually exclusive.

Table 6. Ground surface classifications in project APE

Classification	Acres	% of APE
Paved	33.88	69
Graded	6.2	12.6
Slope	4	8.2
Drainage	5	10.2



Figure 16. View to northeast over central west side of project APE.



Figure 17. View to northeast of one of the proposed areas of pavement replacement near the center of the APE.



Figure 18. View to north on Hwy 363 spur of APE near the center of the project area.

Other noted disturbances include a drainage to the south of the post office that was found to be heavily modified, with a 5-ft diameter drainpipe emerging from a terrace of strip-mine fill (**Figure 19**).



Figure 19. View to west of drainpipe in drainage to southeast of post office.

The distribution of the disturbances along the project corridor is further documented in **Figure 20** and **Figure 21**. **Figure 22** through **Figure 32** present photo-documentation of these disturbances from labeled identified points along the corridor. All imagery is from Google Earth.

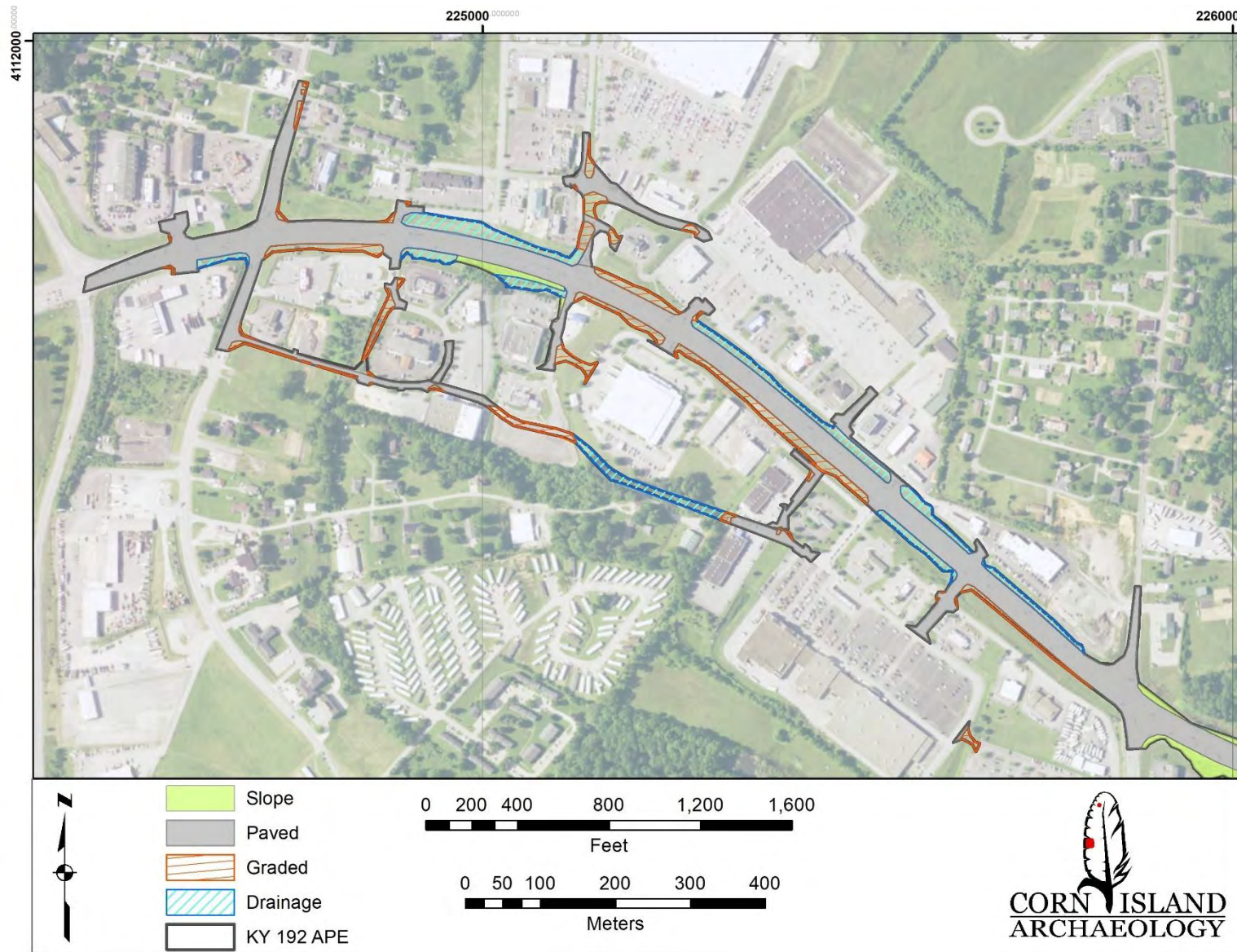


Figure 20. Western APE disturbances.

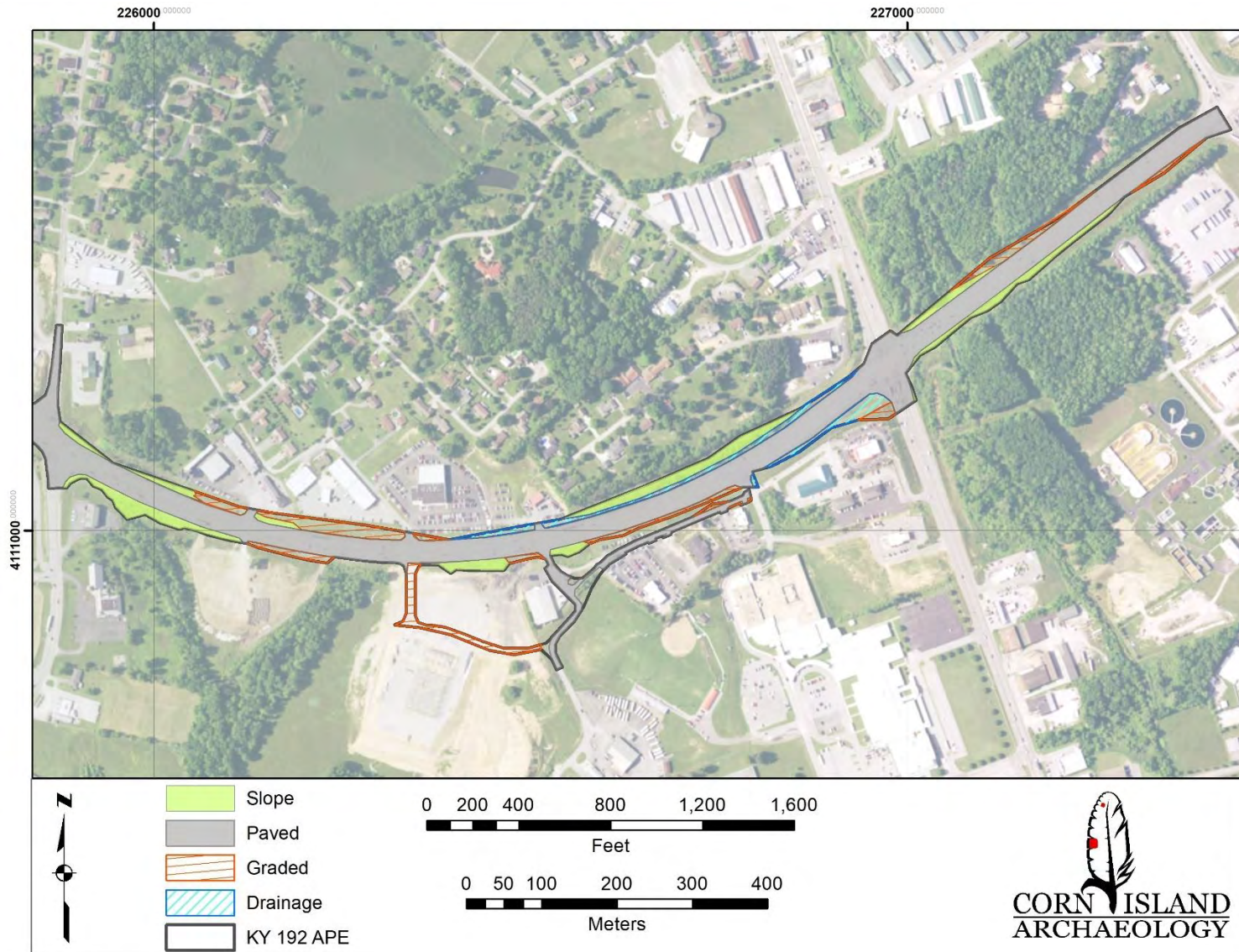


Figure 21. Eastern APE disturbances.

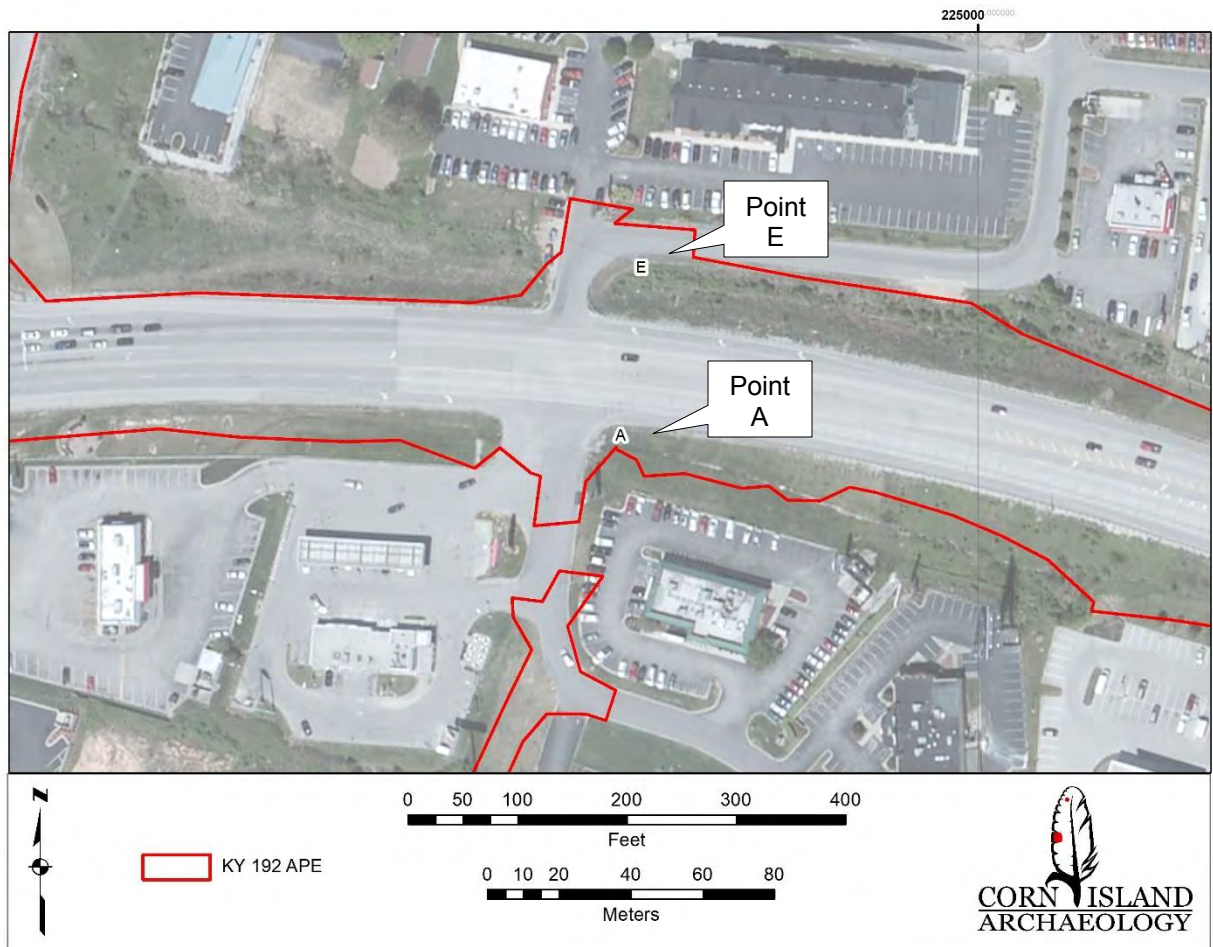


Figure 22. Locations of photo-documentation from Points A and E.



Figure 23. (Point A). Drainage along south side of KY 192 at intersection of Oscar Barnett Drive and KY 192.



Figure 24. Point (E). Slope, grading, and drainage along north side of KY 192 facing east.

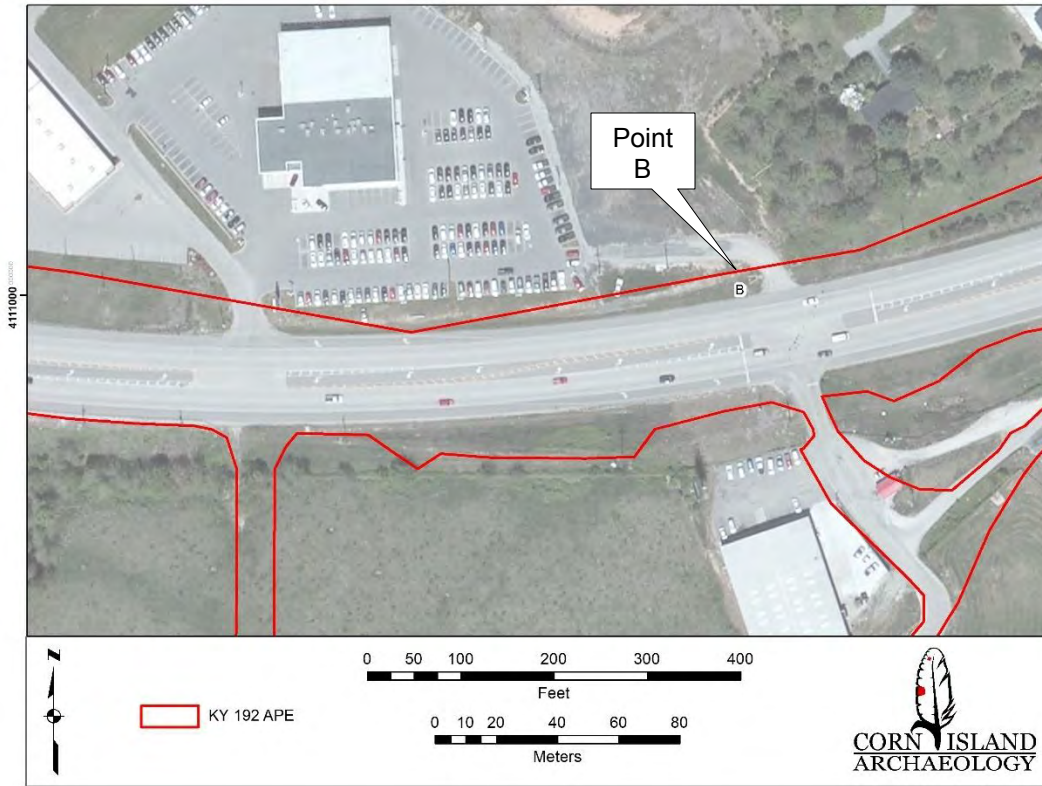


Figure 25. Location of photo-documentation from Point B.



Figure 26. (Point B). KY 192 facing west showing grading and drainage along north side of KY 192.

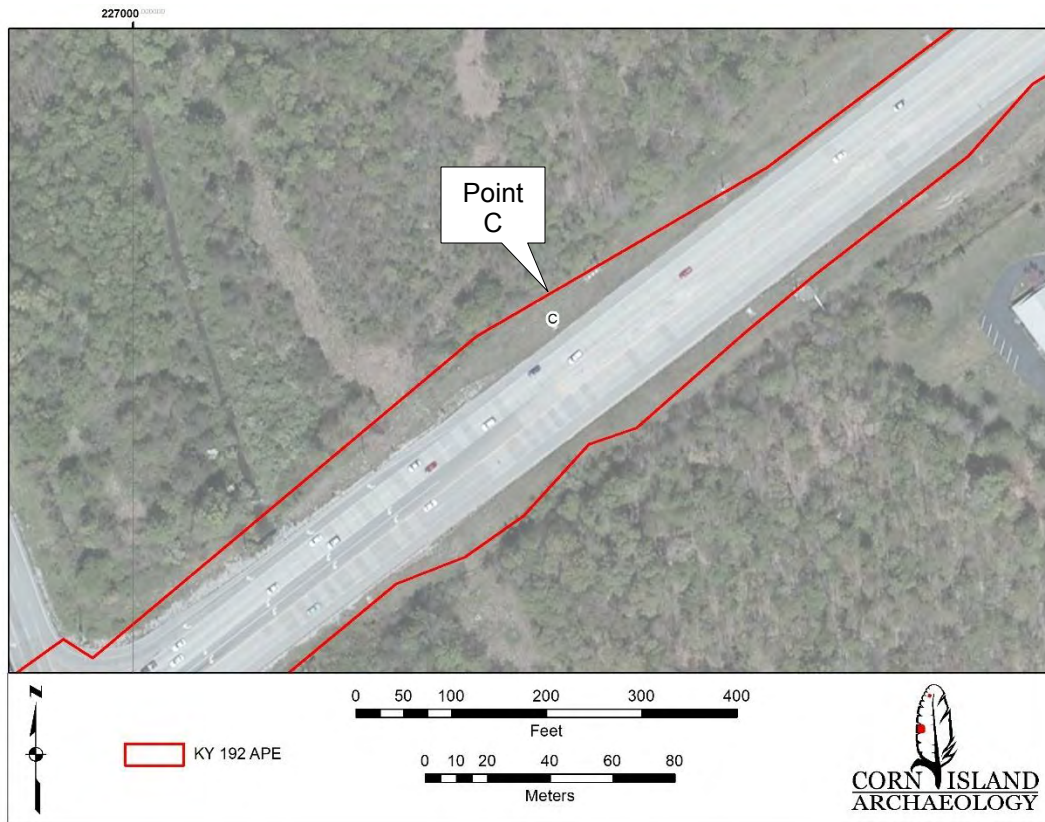


Figure 27. Location of photo-documentation from Point C.



Figure 28. (Point C). Slope along north edge of KY 192 in eastern APE.

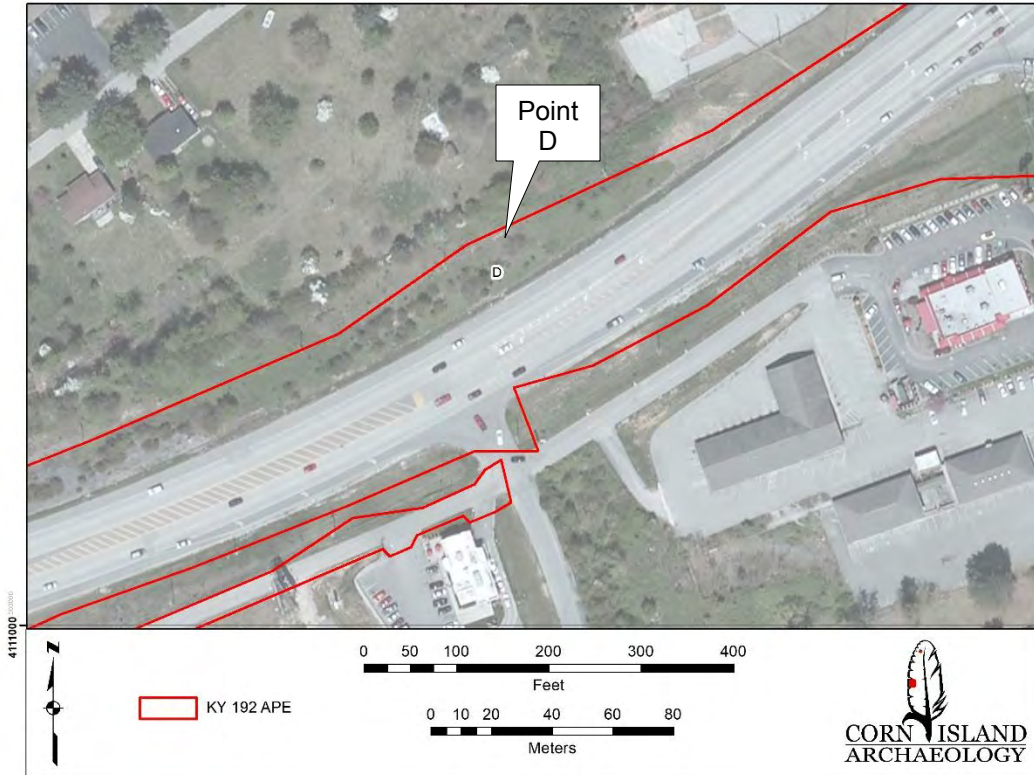


Figure 29. Location of photo-documentation from Point D.



Figure 30. (Point D). Slope and drainage along north edge of KY 192.

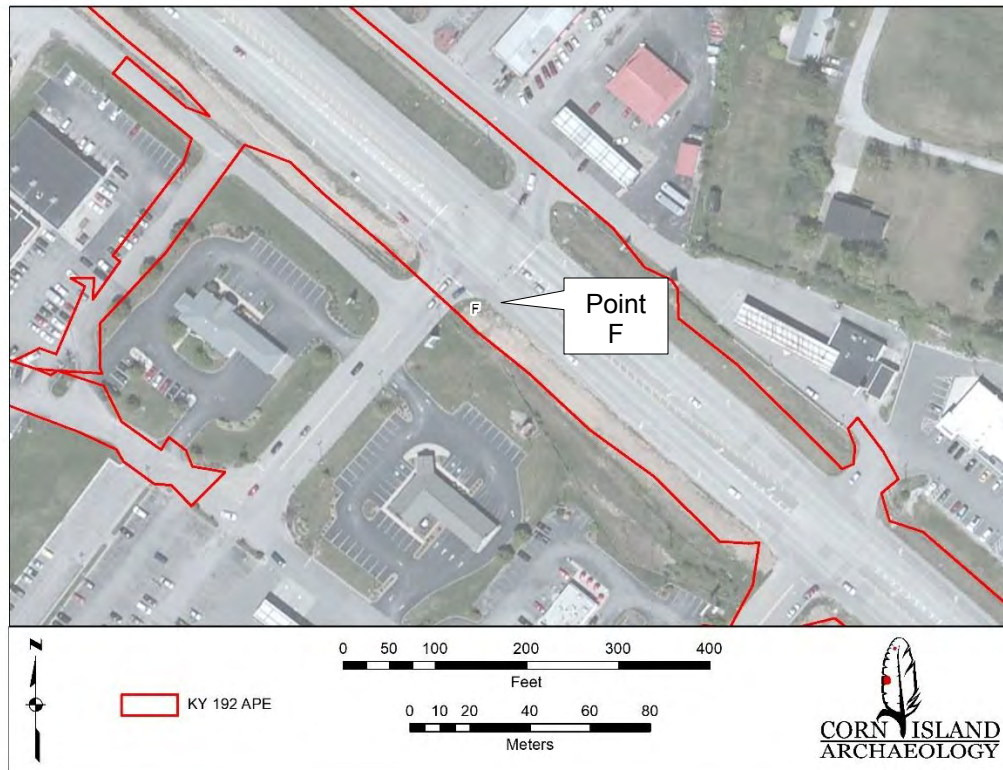


Figure 31. Location of photo-documentation from Point F.

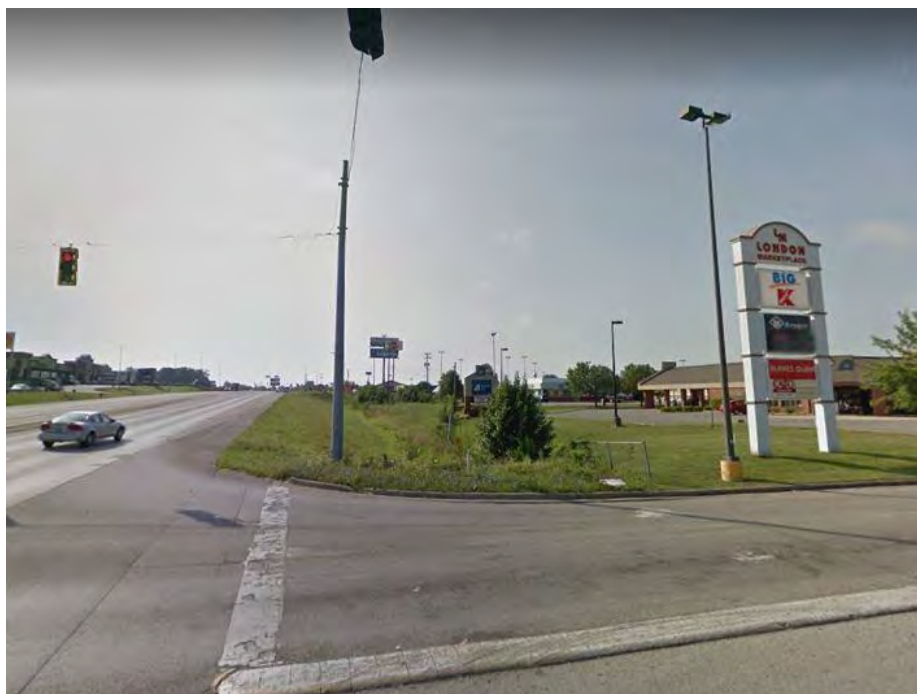


Figure 32. (Point F). Slope, grading, and drainage along south side of KY 192 facing east.

Shovel Probing

Undisturbed ground was limited throughout the project corridor. Only six shovel tests were excavated within the project APE. Four of these were excavated in the lot behind the London U.S. Post Office (**Figure 33** and **Figure 34**). Two were excavated in a relatively level area of a lot belonging to South Laurel Middle School (**Figure 35**).

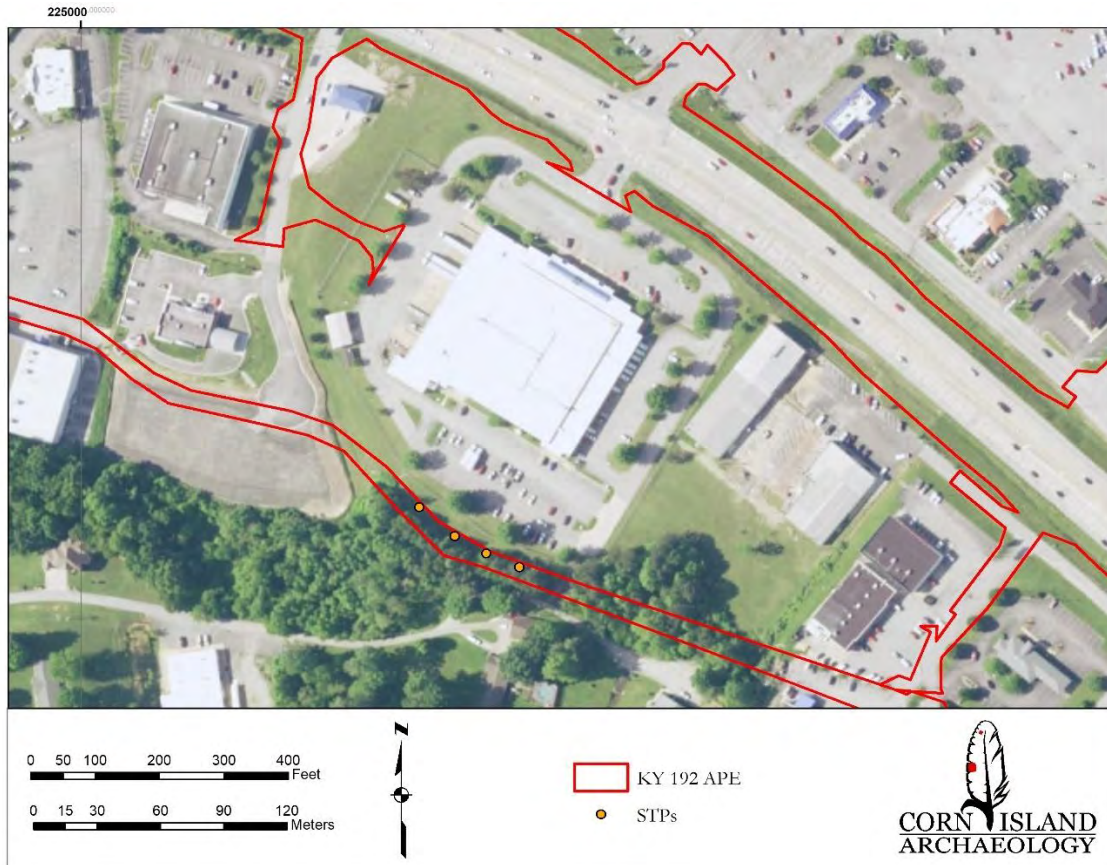


Figure 33. Project APE on satellite imagery from ESRI with location of shovel tests behind London U.S. Post office.



Figure 34. Close-up view of project APE on satellite imagery from ESRI with location of shovel tests behind London U.S. Post office.

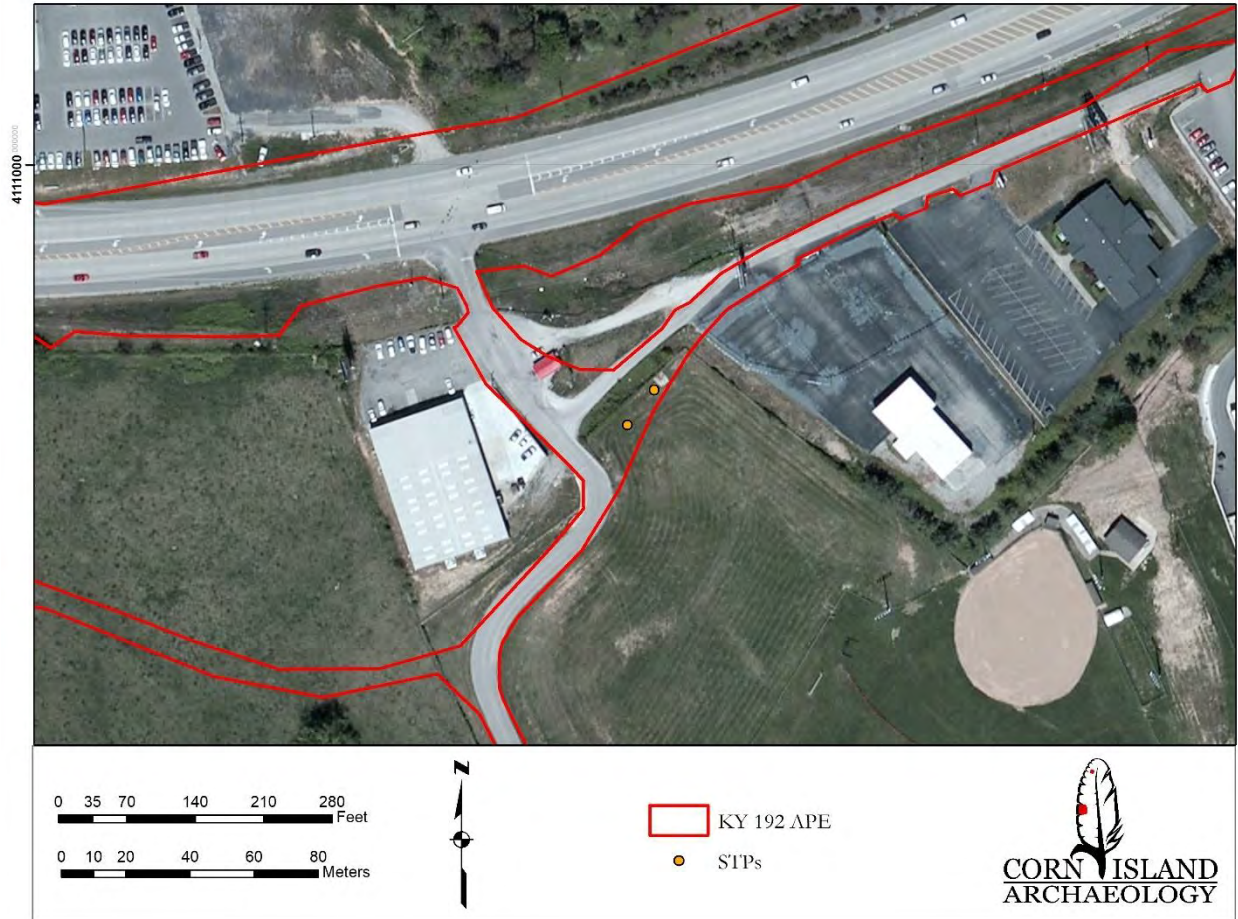


Figure 35. Location of STPs on South Laurel Middle School property.

These six probes encountered a single zone of mottled clay fill, most with fragments of shale. Each of the soils encountered in STPs consisted of mottled clay fill with fragments of shale and were correspondingly not screened. Shovel tests were excavated in areas with soil classified by the USDA/NRCS as Whitley silt loams, 6 to 12 percent slopes in the area behind the post office (**Figure 36** and **Figure 37**), and Latham silt loams, 6 to 12 percent slopes on property associated with the middle school (**Figure 38** and **Figure 39**). The mottled fill encountered in these STPs does not conform with the USDA/NRCS soil descriptions noted above in Section 2 of this report. This is further indication of the disturbances present in the area. No artifacts were collected during the shovel probing.



Figure 36. View to west over area of APE behind post office.



Figure 37. Mottled clay with shale fragments in STP excavated behind the post office.



Figure 38. View to west over level area on South Laurel County Middle School.



Figure 39. Mottled clay fill in STP excavated on South Laurel County Middle School property.

7

SUMMARY and RECOMMENDATIONS

On August 17 and 18, 2017, Corn Island Archaeology, LLC completed a Phase I archaeological survey of a 49.08-acre APE encompassing the existing KY192 ROW, between I-75 and Barbourville Road, on the south side of London, Laurel County, Kentucky. The survey was requested by HDR, Inc., Inc. to support planned highway widening and pavement rehabilitation. The archaeological survey involved surface reconnaissance, windshield survey, and the excavation of six shovel tests. No archaeological sites were discovered during the survey. The entire APE was found to be heavily disturbed by importation of fill and construction associated with highways, roads, and businesses. Shovel probes excavated revealed mottled clay soils inconsistent with soils reported for the area by the USDA/NRCS soil surveys, also indicating the soils have been imported as fill.

RECOMMENDATIONS

No artifacts were recovered, and no cultural features were noted in, or directly adjacent to the project APE during this survey. No previously recorded archaeological sites lie within the project APE. Therefore, no resources considered eligible for listing in the NRHP will be affected by this project. No further archaeological investigations are recommended prior to the commencement of construction operations.

8

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