

Phase IA Archaeological Research Report

**Watershed Plan and Environmental Assessment for
the Coal River Watershed
Kanawha County, West Virginia**

Prepared for:

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Contains Sensitive Information—Not for Public Distribution

October 2, 2025

ABSTRACT

The Markosky Engineering Group, Inc. (Markosky) completed Phase IA archaeological research report for the Watershed Plan and Environmental Assessment for the Coal River Watershed on October 1, 2025. The Capitol Conservation District (CCD), in combination with the Natural Resources Conservation Service (NRCS), are preparing a Watershed Plan Environmental Assessment (Plan-EA) for the Coal River Watershed to address public safety and resource concerns associated with an outdated dam located on the Coal River near the town of Tornado. This survey examined a 10.7-ha (26.4-ac) study area that included the Upper Falls area of the Coal River, which lies immediately east of the town of Tornado, approximately 4.5 km (2.8 mi) southwest of St. Albans in Kanawha County, WV.

The Phase IA efforts were designed and conducted to assess the archaeological potential (historic and precontact) of the study area, and to determine the appropriate methods of archaeological excavation, if required. This effort consisted of background research that involved consulting the West Virginia State Historic Preservation Office Interactive Map files, archaeology report abstracts, academic and peer-reviewed publications, National Register of Historic Places (NRHP) files, and Historic Resource Survey Files as applicable. This research also included a review of historic maps and atlases, public documents, county histories, and township histories.

The Phase IA research report determined that the study area has precontact and historic archaeological potential. The background research showed that there are numerous precontact archaeological sites recorded in close proximity to the study area, and one historic archaeological site with at least three documented features present within the river channel and adjacent riverbanks. Additionally, the west bank is likely to contain archaeological remains of a late nineteenth century grist mill.

This report recommends:

- A geomorphological survey of the study area to assess the potential for buried, intact archaeological deposits
- A subsequent Phase IB archaeological survey of the portions of the study area determined to have high archaeological probability. These areas are expected to include:
 - The municipal parkland on the east bank.
 - The vicinity around the Pickens Grist Mill on the west bank.
 - Stream bank areas immediately adjacent to the in-channel dam and lock features
 - The stream channel immediately downstream of the canal lock, and adjacent portions of the stream bank
 - Any other relatively level and undisturbed portions of the study area.
- That the existing archaeological and historic resources within the river channel should be re-documented to update for accuracy to and show their current condition.

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TABLE OF CONTENTS

ABSTRACT	
TABLE OF CONTENTS	i
LIST OF FIGURES	ii
1.0 INTRODUCTION	1
1.1 Project Purpose	1
1.2 Project Description	1
1.3 Location and Description of Study Area	1
2.0 PHASE IA ARCHAEOLOGICAL SURVEY METHODS	3
2.1 Background Research	3
3.0 ENVIRONMENTAL SUMMARY	4
3.1 Physiography	4
3.2 Soil Series	4
3.3 Drainage and Hydrology	5
4.0 CULTURAL BACKGROUND	6
4.1 Pre-contact Period	6
4.1.1 Paleoindian Period (ca. 14,000-10,000 Years B.P.)	6
4.1.2 Early Archaic Period (10,000-8,000 Years B.P.)	7
4.1.3 Middle Archaic Period (8,000-5,000 Years B.P.)	8
4.1.4 Late Archaic Period (5,000-3,000 Years B.P.)	8
4.1.5 Early Woodland Period (3,000-1,900 Years B.P.)	9
4.1.6 Middle Woodland Period (1,900-1,100 Years B.P.)	10
4.1.7 Late Woodland Period (1,100-400 Years B.P.) / Late Prehistoric (A.D. 1200-1550)	11
4.2 Abbreviated Historic Regional Summary	12
4.3 Historic and Modern Land Use	12
4.4 Cultural Resources Identified and Predicted Within and Near the APE	14
5.0 PHASE IA ARCHAEOLOGICAL SURVEY RESULTS	16
5.1 Results	16
5.1.1 West Half of the Study Area	16
5.1.2 East Half of the Study Area	16
5.1.3 The Coal River Channel	17
6.0 RECOMMENDATIONS	18
7.0 REFERENCES	19

TABLE OF CONTENTS (Continued)

FIGURES APPENDICES

APPENDIX A Figures

APPENDIX B Previously Recorded Archaeological Sites in the Vicinity

LIST OF FIGURES

<u>Figure No.</u>	<u>Title</u>
1	Project Location
2	Soil Series
3	Historic Photograph of Grist Mill
4	Approximate Study Area Location in 1899
5	Study Area Location in 1909
6	Study Area Location in 1958
7	Study Area Location in 1976
8	Concrete Dam and Timber Ruins in the Study Area
9	Study Area in 2023
10	Locations of Previously Recorded Archaeological Resources
11	Phase IA Background Research Preliminary Results

1.0 INTRODUCTION

1.1 Project Purpose

The Markosky Engineering Group, Inc. (Markosky) conducted a Phase IA archaeological survey for the Watershed Plan and Environmental Assessment for the Coal River Watershed (hereinafter referred to as, the Project) located in Kanawha County, West Virginia (**Figure 1**).

The Phase IA archaeological survey was designed and conducted to facilitate project compliance with state and federal legislation regarding cultural resources, including Section 106 of the National Historic Preservation Act (NHPA), as amended, and the Advisory Council on Historic Preservation guidelines (36CFR§800). The survey was conducted in accordance with archaeological protocols and procedures established by the West Virginia State Historic Preservation Office's (WV SHPO) *Guidelines for Phase I, II, and III Archaeological Investigations and Technical Report Preparation* (Trader 2018). All work performed for the archaeological investigations was conducted by Markosky personnel who meet or exceed the professional qualifications as specified for their position in 36CFR§61.

1.2 Project Description

The project site is located at the Upper Falls on the Coal River, in the town of Tornado, West Virginia. The Capitol Conservation District (CCD), in combination with the Natural Resources Conservation Service (NRCS), are preparing a Watershed Plan Environmental Assessment (Plan-EA) for the Coal River Watershed to address public safety and resource concerns associated with an outdated dam located on the Coal River near the town of Tornado (see **Figure 1**).

The Coal River is a popular destination for outdoor enthusiasts, and with initiatives such as the Water Trail, which further encourages the public to use the Coal River and its tributaries, a watershed project that improves public safety and provides long-term restoration with positive impacts to environmental, economic, and social aspects of living in the watershed, appears to be warranted. Several project alternatives will be considered. Removal of the dam would be consistent with recent stream restoration projects performed by the West Virginia Department of Environmental Protection (WV DEP) on the Coal River to improve public safety, enhance water quality and restore aquatic movement; however, the project will also consider alternatives that keep the dam in place, if those alternatives also provide environmental benefits and are cost effective. The project design could also include recreational enhancements such as improved water access, walking paths, etc. that extend beyond the dam's location.

1.3 Location and Description of Study Area

Due to the preliminary nature of the EA planning process, a study area was developed for the project that was designed to encompass all of the area that might be required for alternatives being considered. The study area as it is presently defined encompasses approximately 2,462.0

linear feet (750.4 m) of the Coal River channel, an area measuring approximately 10.7 ha (26.4 ac). For descriptive ease, the study area was subdivided into east and west halves using Coal River as a north-south axis. The study area includes an extant, in-channel dam structure and is generally bound to the to the east by Pettigrew Lane, and to the south by the Smith Creek Road bridge. The western edge of the study area is limited in the north to the stream channel and a narrow slice of heavily forested riverbank (maximum width of 100 ft / 30.4 m) at the rear of residential properties that front Riverview Dr. and bordered to the southwest by Coal River Road.

2.0 PHASE IA ARCHAEOLOGICAL SURVEY METHODS

2.1 Background Research

Background research was conducted to collect information regarding the environmental setting, pre-contact and historic use of the survey area, and to provide a context for the interpretation and evaluation of the archaeological potential of the study area. Research specific to the environmental setting of the study area was conducted utilizing online sources and repositories including, but not limited to the National Park Service (NPS), National Oceanic and Atmospheric Administration (NOAA), West Virginia Geological & Economic Survey (WVGES), WV DEP and United States Department of Agriculture (USDA).

Development of the pre-contact background and historic regional summary was accomplished via review of academic and peer-reviewed publications, NRHP Files, and of the Markosky project archives. This research also included a review of historic maps and atlases, historic photographs and historic aerial photography (where available), public documents, and county and township histories. Further research involved reviewing the existing data on known archaeological and historic resources in the vicinity of the survey area via The West Virginia Interactive GIS Map, which provided archaeology report abstracts, and data on recorded archaeological sites and recently completed archaeology projects in the region.

3.0 ENVIRONMENTAL SUMMARY

3.1 Physiography

The study area is located entirely within Appalachian Plateau physiographic province. The Appalachian Plateau forms the northwestern-most province of the Appalachian Mountains, stretching northeastward from Alabama into New York. The land is composed of sedimentary rocks (sandstones, conglomerates, and shales) that were deposited during the late Paleozoic as horizontal beds. The beds have been cut by streams to form the plateaus' distinctive mountainous terrain. Mountain ranges in the Appalachian Plateaus include the Catskill, Pocono, Allegheny, and Cumberland Mountains (NPS 2024). In West Virginia, the Appalachian Plateau covers the western two-thirds of the state as a dissected, westward-tilting plateau with relatively flat rock formations. The bedrock in this province is mainly comprised of Pennsylvanian and Permian strata that contain mineable coal deposits, natural gas, and oil fields. In the northeast is a subprovince called the Allegheny Mountain Section that encompasses a transitional region of folded mountains and dissected plateau. The eastern boundary is a prominent geological feature defined by a series of long, folded mountains and valley called the Allegheny Front, which runs northeast-southwest across the state (WVGES 2019). The Allegheny Front marks an abrupt change in the style of deformation, as the rock strata turn up abruptly, and are heavily folded and faulted (Briggs 1999).

3.2 Soil Series

There are three (3) soil series mapped within the study area: Kanawha fine sandy loam, (KaA), Udifluvents, loamy (UB), and Cotaco loam (Ct). Together, these soils comprise 48.4% of the study area. The remaining 51.6% of the land surface in the study area is water (**Figure 2**).

Kanawha fine sandy loam is a well-draining soil that occurs on terraces and toeslopes and is considered prime farmland (USDA, NRCS 2024). Its major uses, outside of urban areas, are for cropland and pasture. The Kanawha series is a fine-loamy, mixed, active, mesic Typic Hapludalf, composed of fine-loamy alluvium derived from sedimentary rock. It is very deep, with a typical profile of Ap-B1-Bt+B3-C, with the C horizon occurring at 132.1 cm (52.0 in).

Udifluvents are alluvial soils derived from sedimentary rock that occur on floodplains (USDA, NRCS 2024). Their stratigraphy consists of stratified alluvial deposits. These soils can be farmland of local importance, although drainage varies and they may flood during any season.

The Cotaco series are very deep, somewhat poorly-draining to moderately well-draining fine-loamy, mixed, semiactive, mesic Aquic Hapludults (USDA, NRCS 2024). They formed in fine-loamy alluvium derived from sedimentary rock. The typical profile for Cotaco is Ap-BA-Bt1-Bt2-C1-C2, with the C horizon present at 104.1 cm (41.0 in). Cotaco soils occur on foot slopes, colluvial fans, and low stream terraces with slopes between 0 and 20 percent. Considered prime farmland, Cotaco soils are principally used as cropland outside of native forest areas.

3.3 Drainage and Hydrology

The project area is in the Coal River watershed (HUC8 05050009), at a confluence of Coal River with Falls Creek (a 2nd-order tributary) near the town of Tornado, WV. The project location lies in the Smith Creek-Coal River subbasin (HUC 12 #050500090607), approximately 5.3 km (3.3 mi) south of the Coal River-Kanawha River confluence.

The Coal River watershed is roughly triangular and drains about 2,330.9 square kilometers (900.0 square miles), including almost all of Boone County and parts of Kanawha, Raleigh, Lincoln, Logan, and Putnam counties. The watershed is roughly 32.1 km (20.0 mi) wide at its broadest and about 80.4 km (50.0 mi) at its longest (Dean 2024). Coal River flows southeast to northwest through the southwestern portion of the state, with headwaters in Raleigh County and ending at a confluence with the Kanawha River at St. Albans in Kanawha County. The Coal River is the result of a confluence of the Little Coal River and Big Coal River, which occurs approximately 30.5 km (19.0 mi) south of the Kanawha River. Other main tributaries of Coal River include Marsh Fork and Clear Fork, which converge to form Big Coal River, and Pond Fork and Spruce Fork, which form the Little Coal River (Tetra Tech 2006).

The topography of the region is primarily mountainous, and is characterized by deep, steep-sided valleys and narrow winding ridges. The deeply incised and dissected valleys in the Appalachian Plateaus physiographic province form the drainage network of Coal River and other major rivers in the region, including the Kanawha, Elk, Gauley and New Rivers (Ehlke, Runner, and Downs 1982). Elevation in the Coal River watershed ranges from a maximum of 1,103.4 m (3,620.0 ft) on Ivy Knob of Guyandotte Mountain near the headwaters of Pond Fork and Marsh Fork, to a minimum of approximately 172.5 m (566.0 ft) at Coal River's confluence with Kanawha River. Several of the prominent ridges within the southern head watershed have knobs over 914.4 m (3,000.0 ft) above mean sea level. Cook, Cherrypond, Kayford, Coal River, Paint and Guyandotte Mountains are the highest within or bordering the watershed (WVDEP 1997). The Lower Coal River flows through the ancient Teays Lake bed, forming a meandering course with high banks as it cuts down into the lake bed sediment (WVDEP 1997).

Gaging station data at Tornado, WV shows that flood stage for Coal River at Tornado, WV is 7.6 m (25.0 ft) (NOAA). The gauge sits at 173.6 m AMSL (569.77 ft) (North American Vertical Datum 1988 [NAVD88]). A historic high-water level for Coal River at Tornado of 9.74 m (31.98 ft) occurred on March 7, 1967, and a historic low of 2.8 m (9.47 ft) on August 22, 2023.

4.0 CULTURAL BACKGROUND

4.1 Pre-contact Period

4.1.1 Paleoindian Period (ca. 14,000-10,000 Years B.P.)

The Paleoindian Period is identified as the earliest era of human habitation in the Mid-Atlantic and the broader Americas. Highly mobile Paleoindian populations lived during the tail end of the last glacial maximum (ca. 22,000-14,000 B.P.) and into the first major deglaciation of the ice sheet when rapid and extreme climatic change occurred (ca. 14,000-9,000 B.P.) (Vento et al. 2008:14). The end of the last glacial maximum is followed by the Younger Dryas (ca. 13,000-12,000 B.P.) that illustrated a significant climate reversal from the previously warmer deglaciation phase, with boreal conditions extending equatorward (Ritchie 1979; Vento et al. 2008:15).

During the Late Pleistocene, West Virginia was characterized by boreal forests dominated by pine, spruce, and fir. At Cranberry Glades in West Virginia, Watts (1979) documented the transition of the environment from the boreal forest to one rich in more mesic or hardwood species shortly after 14,000 cal years B.P. After 11,600 cal years B.P., the environment shifted to a more xeric deciduous forest with oak, chestnut, and hickory (Watts 1979). The wooded settings allowed for a wide hunter-gatherer diet (MacDonald et al. 2003; Steegman 1983) of wild game fauna and botanical remains of wild plants and nuts, supported by various early studies of Paleoindian sites (e.g., Carlisle and Adovasio 1982; Dent and Kauffman 1985).

Paleoindian populations made specific choices regarding “short-term” settlement. In western New York, evidence of Paleoindian activity is prominent on elevated locations, such as hills or knolls along major drainages (Ritchie 1980; Weed 2004:3-81), and specifically on the edges of marshes and the margins of paleo-period lakes. In Pennsylvania, Lantz (1985) noted a preference for first or second order streams, particularly “on small headwater runs” (Lantz 1985:177), similarly identified by MacDonald et al. (2003:31) as locations of short term encampments. Moreover, Weed (2004:3-82) notes in adjacent watersheds that lowland and upland settings are equally preferred.

The Paleoindian record of the Appalachian Highlands, including the Appalachian Plateau, is sparse compared to the surrounding area (Anderson and Gillam 2000, Rosencrance 2018). This may be due in part to Paleoindian hunter gatherers avoiding the boreal higher elevations during the Younger Dryas. The study of Paleoindians of West Virginia is largely limited to analyzing the distribution of isolated Paleoindian projectile points. In West Virginia, Early Paleoindian fluted points have their greatest density along the Ohio River; however, Late Paleoindian artifacts in the state are almost exclusively found in the higher elevations of eastern West Virginia (Rosencrance 2018:4). As the Younger Dryas ended and the warming of the early Holocene began, these higher elevations of the Appalachian Plateau may have ceased being marginal environments as hunter gatherers began to utilize the resources of new deciduous forests.

Paleoindian populations exhibit specialized craftsmanship in their lithic reduction, diagnostically producing large fluted points, unifaces and bifaces, and diminutive blades from cores via indirect

percussion (Adovasio et al. 1998). The most recognized point of this period is the Clovis point, which has been found in West Virginia, most recently in Tyler and Randolph Counties (Rosencrance 2018:73). Paleoindian projectile points were often manufactured from high-quality, non-local materials (Carr and Adovasio 2002); however, local lithic resources of the period include Hillsdale chert and Kanawha chert (Brashler and Lesser 1990; Rosencrance 2018:74). Their toolkits also contained materials made from wood, bone, and included basketry (Adovasio et al. 1998).

4.1.2 Early Archaic Period (10,000-8,000 Years B.P.)

The transition of the Paleoindian into the Early Archaic was smooth, and specifically within the Appalachian Plateau, was a continuation of mobility patterns involving the selective use of habitat (Raber et al. 1998:126). Weed (2004:3-87) suggests the differences between the two periods likely only represents adjustments to the tool kit to accommodate an increasing variety of floral and faunal resources. Johnson and Siemon (1991) and Adovasio et al. (1998) would generally reflect this idea, but suggest a more gradual change “without significant discontinuities” (Adovasio et al. 1998:22), and the adjustments in the tool kit are more likely associated with the hunting of white-tailed deer. More broadly, this was also a time when the Younger Dryas was displaced by another abrupt warming phase beginning at about 10,000 B.P. (Vento et al. 2008:14), dominated by the modern-like Mixed Mesophytic forest (Carr 1998b). The resulting new forests were likely composed of more fir, white pine, oak, hemlock, alder, birch, and others (Vento et al. 2008:18). The coniferous forests that were in retreat contained few food resources, as compared to the nuts, berries, and herbs of the expanding deciduous forests (Stoltman and Baerreis 1983).

The Boreal Period (9,000-8,000 B.P.) marked a transition from the Pre-Boreal to the wetter Atlantic period, and illustrated warmer and drier conditions. At this time, the rivers in the region established a clear meandering channel habit (Vento et al. 2008:19). The basal sands and gravels of the Younger Dryas were overlain by variable finer grained overbank deposits. However, by the end of the Early Archaic, streams began to stabilize their courses, making some floodplain settings more habitable (Coppock et al. 2010).

Settlement patterns across the Plateau consisted of macro and microband base camps, hunting and gathering stations, and certain specialized site types (e.g., Adovasio et al. 1998). Base camps occurred along major and minor tributary drainages, while hunting and gathering stations were more widely distributed and not as closely linked to permanent water sources (Weed 2004:3-90). Laurel Run rockshelter provides some indications that rockshelters may have been used in the Early Archaic (Jensen 1993:4), and archaeological data from adjacent states would support the notion of rockshelter use by hunter gatherers during the Paleoindian and Early Archaic periods, even in the absence of such sites currently being recorded.

In response to the environmental changes, as indirectly noted by Weed (2004:3-87) above, the transition into the Early Archaic period carried with it new point forms and styles including corner-notching and stems (Adovasio et al. 1998), some with deep lateral edge serrations (MacDonald et al. 2003:35). The St. Albans site along the Kanawha River provides one of the best views of the chronology of the Early Archaic Period in the eastern United States. At the St. Albans site,

stratified deposits provided a clear, radiocarbon-dated chronology for the Early Archaic Period, with diagnostic projectile points ranging oldest to youngest including Charleston, Kirk, MacCorkle, St. Albans, LeCroy and Kanawha (Broyles and Harding 1974).

4.1.3 Middle Archaic Period (8,000-5,000 Years B.P.)

Archaeologically, few differences distinctly characterize the Middle Archaic, and it was largely reflective of a continuation of the Early Archaic, including site frequency (Adovasio et al. 1998; MacDonald et al. 2003:41) and technological continuity (e.g., Stewart and Cavallo 1991). However, the greatest distinction of the Middle Archaic is often associated with the emergence of the bifurcate point bases (Carr 1998a; MacDonald et al. 2003; Weed 2004), which was a stylistic change that began emerging during the end of the Early Archaic.

This time is also marked by the wetter Atlantic Climatic Episode that emerged at approximately 8,000 B.P. and extended to 4,500 B.P. During this time, the pollen record for the Upper Ohio, upper and central Delaware, and Susquehanna River Drainage basins shows a rapid decrease in pine, but an increase in both oak and hemlock (Vento et al. 2008:19). Vento et al. (2008) also notes that if basal dates of 8,000 B.P. are present at a site location, then the paleosol is typically overlain by a thick package of fine-grained overbank deposits of continuous (8,000-4,500 B.P.) low magnitude flood deposition. Regardless, long term stability of floodplains is evident through the Atlantic Period.

Base camps during the Middle Archaic are typically well positioned on Holocene-age river terraces, while smaller resource procurement stations for seasonal flora and fauna exploitation are located in upland settings (Cowin 1991; Weed 2004:3-107). Not surprisingly, then, lithic reduction stations are near bedrock outcrops (Funk 1991; Weed 2004). All of which is a settlement system that seems to parallel the stabilization of stream courses at the end of the Early Archaic (Coppock et al. 2010). Beginning in the Middle Archaic, archaeological evidence indicates some rockshelters were continuously occupied until the contact period, for example, the Craig Run East Fork Rockshelter, Webster County, West Virginia (Jensen 1993).

4.1.4 Late Archaic Period (5,000-3,000 Years B.P.)

Cyclonic storms increased in frequency after the Atlantic, and as early as 6,000 B.P. in the Middle Archaic, resulted in high alluvial deposition (Vento et al. 2008:22), which then continued into the Late Archaic. Stratigraphic evidence of coarse-grained vertical and lateral accretionary deposits is evident along first, second, and third order tributaries indicating the occurrence of large storms after 6,000 B.P. (Knox et al. 1981).

The decline of hemlock, then, during the Sub-Boreal (approximately 4,500-3,000 B.P.) indicates warm and dry conditions during this time (Vento et al. 2008), which may also lend to the general absence of well-developed cumelic A-horizons and associated floodplain instability (Vento et al. 2008), which may also be recorded at Meadowcroft Rockshelter (Campbell et al. 2008).

Population increases are noted across the Middle Atlantic (Custer 1988). An increased availability of resources stimulated population growth, increased the use of subsistence and settlement

patterns, and began to lead the way to widespread regional exchange networks (MacDonald et al. 2003:49). Resource exploitation became well defined (e.g., Cowin 1991; Raber 1995) and riverine resources are well used (e.g., Lothrop 2001) and perhaps preferred (Weed 2004). Smaller hunting and extractive camps utilized a wider range of landforms and focused on the more seasonally diffuse or restricted resources in the hinterlands on small streams, adjacent to marshes, and near large springs in the uplands (MacDonald et al. 2003; Ritchie 1980; Weed 2004).

Certainly a major hallmark of the Late Archaic is the appearance of the Brewerton projectile point in combination with the onset of the Laurentian Tradition (Cowin 1991; Dragoo 1959; Justice 1987:115; Weed 2004:3-117), among other projectile point types, such as Otter Creek, Steubenvilles and Lanceolates (MacDonald et al. 2003:49-50). At the Burning Spring Branch Site in Kanawha County, West Virginia (46KA142), the transition from imported steatite bowls to locally made sandstone bowls and finally Early Woodland pottery provides a view of evolving technology (USACE n.d.). The nearest steatite sources to the site are in Virginia, so the site also provides a view of possible resource trade of exchange.

The ending dates for the Late Archaic are highly variable due to the varying opinions on how to define and separate the continuum of human behavior that in some ways better parallels earlier Archaic periods in addition to what is typically associated with increasingly Woodland sedentism. For simplicity purposes, and in the face of variable opinions based on yet lacking firm evidence with a larger dataset to counter otherwise, the Late Archaic is defined here as ending at about 3,000 B.P., or the end of the Sub-Boreal.

4.1.5 Early Woodland Period (3,000-1,900 Years B.P.)

The Early Woodland represents an increased sedentary lifestyle and is illustrated by longer periods of site use (Mouer 1990). However, communities are not yet fully sedentary, but remain semi-sedentary (Stewart 2003:7) and should be more accurately identified as remaining a dominant hunter-gatherer society. The foods that were hunted and gathered are little different from those that were sought during the Archaic. However, some plant experimentation and limited cultivation occurred (McConaughy 2015a), but at no greater extent than some early horticultural practices. It is unclear if subsistence crops were yet grown in any quantity to supplement the wild food diet.

Some widespread trade and exchange networks have been proposed between regions (Stewart 1989; 2003), the data of some extending from burials (Klein 2003:124). Adovasio et al. (2003) suggest the squash seeds and maize that appear at Meadowcroft Rockshelter are non-native cultigens, which is suggestive of regional interaction. Regardless, experimentation on the domestication of various plant species occurred through conscious and unconscious selection of attributes that were favorable (King 1985), gradually gaining greater importance through the Early Woodland (Clay 1991). During this time, the mean climate abruptly shifted at the beginning of the Early Woodland (approximately 3,000 B.P.) to a warm and moist climatic condition, beginning in the Sub-Atlantic (3,000-1,750 B.P.) (Vento et al. 2008).

A hallmark of the Early Woodland is unmistakably the first earthen structures that began to appear in the central and upper Ohio Valley (e.g., Stothers and Abel 1993; Spencer 2019), which are typically associated with the Adena ritual landscape (ca. 400 B.C. to A.D. 250), which was created by smaller, mobile social units (Clay 1998). Although for the purposes of this context here, we will not attempt to summarize the extensive volumes of publication on the Adena, we can generally state that this landscape consisted of accretionary burial mounds, paired-post residences, ceremonial circles, and large earthwork enclosures (e.g., Dragoo 1963; Webb and Baby 1957; Webb and Snow 1945). The ceremonial and burial practices were varied, and not all individuals in the communities were placed within the burial mounds, as these were reserved for higher status individuals.

The mounds represent a shift in mortuary practices and likely belief systems, most frequently occurring on alluvial terraces of major streams and rivers, while resource extraction camps were typically located in the uplands and along smaller streams (MacDonald et al. 2003:69; Schweikart 1998). New point typologies also appeared (Adovasio et al. 1998), and both Flint Ridge and Upper Mercer cherts were commonly used by the Adena for ceremonial tool production (MacDonald et al. 2003).

4.1.6 Middle Woodland Period (1,900-1,100 Years B.P.)

The warm and moist Sub-Atlantic ended around 1,750 B.P. and transitioned to a cooler and moister Scandic (1,750-1,200 B.P.), which effectively halted A horizon development due to large frequent floods. Instead, rapid vertical accretion, illustrated through poorly developed B horizons and coarse-grained C horizons, occurred on low terraces in the region (Vento et al. 2008:23).

Archaeologically, little is known of the Middle Woodland Period in West Virginia due to the paucity of excavated sites that provide chronological anchoring. The most accurate characterization of the Middle Woodland is to describe it as a continuation of trends that were initiated during the Early Woodland. Adovasio et al. (2003) view the identification of the transition of Early to Middle Woodland in degree rather than kind. These trends consist of increased sedentism, burial ceremonialism, the increased importance of cultigens, and interregional exchange (MacDonald et al. 2003:87).

Certainly the most prominent cultural influence during the Middle Woodland was the Ohio Valley Hopewell. Again, there is a mountain of data and research on this topic, which for the purposes of this context, will not be summarized here in any great detail. However, it is accurate to state that in addition to exotic artifacts, Hopewell sites often comprise of an elaborate built environment (Clay 1998) consisting of burial mounds and intricate earthworks. However, all of the hallmarks of a state level society, which include hierarchical social structure, well-developed agriculture, craft specialization, and centralized redistribution are absent (Yerkes 2002). Yerkes (2002:227) states it best: “They were complex without being sedentary... the social organization of the Ohio Hopewell allowed them to be mobile and dispersed, yet well integrated.” The mobile settlement subsistence system included regular trips to the earthworks for various types of social interaction, then afterward, the re-dispersal of small groups to different locations to continue their daily and separate social interactions.

Ceramic styles and forms became increasingly variable, were constructed better, and became more decorative (McConaughy 2000 in MacDonald et al. 2003). Increases in ground stone tools in the Middle Woodland indicated an increasingly diverse diet (Mayer-Oakes 1955). However, a majority of sites are indicative of small base camps (e.g., Stewart 2003), and as mentioned above, are indicative of the smaller kin groups traveling together. Stewart (2003:24) suggests farming practices are more efficient and less expensive when combined with hunting and gathering in small family groups.

Chipped stone technologies included the appearance of Raccoon-notched, Jack's Reef varieties, and Snyders points. Lantz (1989) argues that Raccoon-notched points are diagnostic of the arrival of the bow and arrow to western Pennsylvania. Even if this is not the case, the bow and arrow likely arrived sometime between the Middle and Late Woodland periods – though some have argued it occurred as early as the Late Archaic in the Eastern Woodlands (e.g. Bradbury 1998).

4.1.7 Late Woodland Period (1,100-400 Years B.P.) / Late Prehistoric (A.D. 1200-1550)

The Late Woodland Period begins with the return to the warm and moist conditions of the Neo-Atlantic (1,100-750 B.P.) and ends with the Pacific (700-400 B.P.) that reversed the climate back to cooler and moister conditions similar to those in the Middle Woodland (Vento et al. 2008).

In parts of southwestern Pennsylvania and West Virginia, the beginning of the Late Woodland is perhaps more clearly defined by the end of Hopewell interactions and trade, though this differentiation remains difficult due to the continued use of some of the same pottery styles (i.e., limestone-tempered, conical, and generally plainly decorated) (McConaughy 2012:22). The Late Woodland Period is also marked by increased ceramic diversity. Diagnostic ceramic types are often thin, cord-marked and grit-tempered (Marble 2011; Mayer-Oakes 1955). Some temporally diagnostic projectile point types also span the Middle to Late Woodland periods, including Chesser-notched, Raccoon-notched, and Jack's Reef varieties; yet projectile point styles and forms continued to evolve dramatically, with triangular points such as Levanna and Madison a common indicator of Late Woodland Period occupation.

Settlement patterns are increasingly evident on lowland settings due to the increasing dependence on diverse agricultural production with accompanying needs for reliable water supply and fertile soil (Weed 2004). Interestingly, pollen studies from alluvial contexts indicate high percentages of grass, vetch, and *Chenopodium* sp. occur in alluvial deposits less than 2,000 years old, which are plants often associated with disturbance events. These events may be the result of cultural alteration of the natural floodplain or natural deforestation associated with burning, clearing, and cultivating forest space prior to European cultivation (Gooding 1981; Scully and Arnold 1981), often appearing as charcoal flecking in late Holocene deposits (Vento et al. 2008).

Though maize agriculture was now well established, there was also an increasing reliance on diverse food sources. The fluctuating climate seen with the Medieval Warm Period (A.D. 950 to 1250) and the Little Ice Age (ca. A.D. 1400 to 1700), led to variable reliance on agriculture,

hunting, and gathering. This is exemplified by the exploitation of at least one rockshelter by Monongahela hunting groups during the Little Ice Age in Greene County, Pennsylvania, the Sandrocks Shelter (36GR0068) (Montag 2001). A similar shift was documented by McMichael (1965) in rockshelters of Nicholas County, West Virginia.

4.2 Abbreviated Historic Regional Summary

The first euroamerican presence in what would become Kanawha County was likely by Gabriel Arthur, a captive, in 1674. In 1742, John Peter Salling (sometimes recorded as Salley) and Jon Howard explored Coal River, and the first actual settlement in the region occurred in 1773. It is thought that Coal River was named by John Peter Salling for the coal outcroppings in the area. The rich natural resources of the Coal River basin included not just coal, but salt and timber as well. The salt industry was an early economic boom in Kanawha County, and from 1820 onwards, coal resources were used in the salt extraction process, involving construction of flatboats along Coal River for use by the salt industry (Dean 2024). By mid-century, cannel coal was in significant demand as a source of lamp oil, leading to organization of mining companies and authorization by the Virginia General Assembly, in 1849, of development of plans to make Coal River more navigable (Binning and Moore 1997; Dean 2024).

The Coal River Navigation Company was established, and construction on a slackwater navigation system began in 1855 with the purpose to open up the river to transport by steamboats, which had much higher capacity than the flatboats used by the salt industry. By 1859, a total of eight locks and dams had been built on Coal River, providing thirty-five (35) miles of upstream slackwater navigation between the mouth of the Kanawha River to Peytona, Boone County. Lock No. 3 was constructed in the project area (Binning and Moore 1997). The outbreak of the Civil War, coupled with catastrophic flooding in 1861, reduced navigation through the system (Sutphin 2024). After the war, the newly-established government of West Virginia reorganized the Coal River Navigation Company and conducted repairs, but the discovery of petroleum and development of kerosene for lighting greatly diminished the market demand for cannel coal, leading to the company's closure in 1881 and abandonment of the locks and dams (Sutphin 2024). With the navigation system no longer in use, the river was utilized by the timber industry, which boomed when the railroad came to the region in 1873. Log booms were constructed on the Coal River near St. Albans, and were used until 1906, when a railroad line was completed along Big Coal and Coal Rivers, passing through the town of Tornado, rendering transport via water unnecessary (Binnings and Moore 1997). The town of Tornado was originally known as Upper Falls, and its first post office opened in 1881. Local lore has it that the name was changed to "Tornado" in 1886 when a new post office was approved and two community members squabbled heatedly over the name (Charleston Gazette 2012). Timber extraction ended in the 1920s, but the rail line continues to operate and transport bituminous coal (West Virginia Explorer 2025).

4.3 Historic and Modern Land Use

According to "Tornado Remembers: Upper Falls of Coal Rier 1788-1988," a mill and bridge were constructed in Upper Falls / Tornado on land owned by Roman Pickens in 1884 (Wood and Wisman 1988). The Pickens mill processed corn and wheat and drew customers from as far away

as 50 miles. An undated historic photograph shows the three-story mill structure on the west bank of the Coal River, immediately north (downstream) of a dam (**Figure 3**). In the 1920s, a grist mill dam was constructed of concrete across Coal River to improve water flow to the mill; no information is available on the mill's original (pre-1920s) dam. Advancements in the production of corn meal and flour, coupled with problems of aging and upkeep of the mill building led to the mill's closure and eventual demolition in 1953.

Review of available historic maps and photography from the region show little significant change in the project study area and surrounding region since 1899. USGS mapping from 1899 depicts the Tornado/Upper Falls area along Coal River as a small settlement with a grouping of six buildings clustered along Coal River Road at the banks of Coal River (**Figure 4**). In addition to Coal River Road, other major transportation routes in the region, including Falls Creek Road to the southwest, Smith Creek Road to the southeast (which is depicted traversing a bridge across the river), and Island Creek Road to the south, are all mapped in their current alignments. Settlement is shown as scattered and largely restricted to major transportation routes.

By 1909, Upper Falls had a post office named "Tornado" (**Figure 5**). Minor changes to the settlement distribution within the town are visible along Coal River Road, and the Coal River Railroad is mapped to the east of the river channel. By 1931, the railway was renamed the Chesapeake and Ohio Railroad (USGS). In 1958 the town of Upper Falls (Tornado post office) included some residential side-streets south of Coal River Road and also had a school (Andrews Heights) (**Figure 6**). Regionally, telephone and pipeline utilities traversed the landscape.

Historic imagery from 1976 shows an increase in residential development in Upper Falls/Tornado on the south side of Coal River Road, including Maple Street to the south (**Figure 7**). The Coal River channel within the study area appears largely the same as it does today, with the portion of the Coal River channel immediately north of the bend in Coal River Road visible as turbulence, and the grist mill dam visible upstream (south). On the east bank of the river within the study area, Pettigrew Lane, which corresponds to the eastern boundary of the study area, is visible in its present configuration, with one parking area present on the south side of the road at the dam. Another area at the southern terminus appears cleared, with an access road and rectangular feature that corresponds to a present-day boat launch and parking area. Between 1994 and 2003, a second parking area was created in the northeast quadrant of the study area along Pettigrew Lane (Google, LLC 2025).

At present the study area and surrounding region remains rural, with the majority of the land covered in forest. Visible development, both residential, commercial, and agricultural, is concentrated along the banks of Coal River. The portions of the study area outside the river channel include riverbank on the west side that appears relatively undeveloped between Coal River Road and the channel, and floodplain on the east side developed as parkland (Meadowood Park). The parkland within the study area contains two (2) small parking lots along Pettigrew Lane, buildings adjacent to the southernmost parking area attributed to the Coal River Group, and a parking area and boat launch at the southeast corner of the study area. Aerial imagery shows the Coal River Group buildings were constructed ca. 2009-2010 (Google LLC, 2025).

4.4 Cultural Resources Identified and Predicted Within and Near the APE

The West Virginia SHPO Interactive Map viewer shows one (1) recorded archaeological resource and three (3) above-ground resources within the study area. The archaeological site is the recorded, National Register-listed Coal River Locks, Dams, and Log Booms Archaeological District (Site ID # 97001417). The site encompasses a rectangular portion of the river channel in the approximate center of the study area. The boundary for Lock and Dam 3 is given in the form as 106.7 m (350.0 ft) in width and 45.7 m (150.0 ft) in length for a total acreage of 1.2 (0.5 ha). On the map viewer, however, the site measures approximately 1.0 ha (2.4 ac), and the grist mill dam forms the southern boundary. In 1997, when the NRHP form was prepared, Lock 3 was described as a “pronounced feature on the river at Upper Falls” and is presently evident on the landscape as a linear channel excavated into the bedrock along the east bank of the river, immediately north (downstream) of the concrete dam. The lock’s original dimensions, would have been one hundred and twenty-five (125) feet long by twenty-four (24) feet wide, with a minimum depth of four (4) feet (Dean 2007). The lock is a mapped above-ground feature (KA-4676), though its pinpoint on The West Virginia SHPO Interactive Map viewer is offset to the south (upstream) of the concrete dam.

The NRHP form described the extant mill dam as being at the “approximate location of the previous navigation dam, Dam 3”. The original timber crib dam was stone-filled and resting on wooden piles with thick boards across the upstream side and would have been two hundred and seventy-three (273) feet long (Binning 1997 [7.4]). The original timber crib dam is also a mapped above-ground resource (KA-4675) in the West Virginia SHPO Interactive Map viewer, although the photo documentation shows only the concrete mill dam. The dam is a fixture on the landscape, long credited with maintaining favorable conditions for fishing, boating, and other water activities, and has been repaired at various times in the past, notably in the mid-1950s and mid-1960s (Charleston Gazette 1955, 1964; Johnson 1956).

At present, there is a linear feature made of anchored logs immediately adjacent to the concrete dam on the upstream side (**Figure 8**). This feature is typically submerged and not visible within the channel except at times of low flow (Diane Lumadue, personal communication). It is thought that this feature may be remnants of the navigation dam, although it is also possible that it is the remains of a mill dam that preceded the extant concrete structure.

Both the dam and lock were recorded as part of the West Virginia Navigable Rivers: Navigation Aids and Relics survey in 1991. The third mapped above-ground resource was also recorded during this same survey, but is no longer extant; it was recorded as a dwelling (KA-4677), mapped on the east bank of the river, in the approximate location of the extant Coal River Group buildings on Pettigrew Lane. The form on file for KA-4677 is noted to be incorrect; it identifies a single-story dwelling with a cement block foundation as a lock and dam worker’s house (subsequently scratched out). The form notes the presence of foundations adjacent to the house, but does not include any mapping that shows these features. Aerial imagery shows that the house was removed between 1997 and 2003, and its location is presently occupied by the Coal River Group buildings.

In addition to these recorded resources, foundation remains of the Roman Pickens grist mill are present in the study area. As of 1988, the foundation was described as still visible on the landscape (Wood and Wisman 1988). Aerial imagery of the study area shows a rectangular feature approximately 60.0 m (196.8 ft) north of the concrete dam at the edge of the west bank of the river that is visible from above as recently as 2023 (**Figure 9**). The area is heavily overgrown with tree cover and shrubs.

Two (2) previous archaeological surveys have been conducted within the bounds of the study area. An archaeological identification survey for a sanitary sewer extension was conducted in the northeast portion of the study area by Cultural Resource Analysts, Inc. in 2013. The survey did not identify any significant archaeological resources. A second survey, Coal River Trail Improvements, is mapped in the study area, encompassing very small rectangular portions of the northeast and southeast quadrants. No report for this survey is available online.

The West Virginia SHPO Interactive Map viewer shows twelve (12) pre-contact archaeological sites mapped within a 0.5 km (0.3 mi) radius of the study area (**Figure 10**). See **Appendix B** for a summary of these sites. All twelve (12) sites are located west of Coal River and identified as campsites or workshop/resource processing locations. Three (3) of these sites are within 100.0 m (328.0 ft) of the study area, and two (2) are less than 50.0 m (164.0 ft). The landforms on which these sites were identified include terraces, rises, hillslopes, and rolling fields. Descriptions of cultural material are lacking for all but one site, 46-KA-155 (Rogers III), which is described as a large, multi-cultural campsite or hunting camp that yielded “several” types of points (none described in detail) and two nutting stones. Most of the sites are surface scatters; one (1) site, 46-KA-130 (Martin II) was subjected to excavation that recovered cultural material from a depth between 18-20 cm (7.0-7.8 in) below surface. No excavation map or additional details are available. East of Coal River, the nearest archaeological site is located 0.7 km (0.4 mi) east of the study area (see **Figure 10**). Site 46-KA-205 (Wood’s Property) is described as an open campsite on bottom land along Martin and Smith Creeks, with pre-contact artifacts recovered from plowed fields in the bottom land, as well as from the adjacent hillside. It was also subjected to excavation of at least one 5.0 ft x 5.0 ft test unit. No artifact descriptions are given, but the site is considered multi-component based on the (undescribed) nature of surface finds.

5.0 PHASE IA ARCHAEOLOGICAL SURVEY RESULTS

5.1 Results

The background research and examination of maps and historic imagery show that the majority of the study area has potential to contain historic and pre-contact archaeological resources (**Figure 11**).

5.1.1 West Half of the Study Area

The west half of the study area is limited to a narrow strip of riverbank north of the upper falls, and south of the concrete mill dam, most of which appears steeply sloping. Background research shows numerous pre-contact archaeological sites mapped in the immediate vicinity. Therefore, the west half of the study area should be considered to have high potential for pre-contact archaeological resources on any stable, relatively level landforms that are present. Such areas would appear limited, however, to a narrow strip of residential lawn and forest along Coal River Road (see **Figure 11**).

Background research and review of historic imagery show that remains of the Pickens Grist Mill and related resources (e.g., mill race) are likely present on the west bank between the falls and the concrete mill dam. Additional resources may be present related to the engineering and construction of the navigation and mill dams that currently and historically spanned the river channel. Therefore, this area should be considered to have high potential for containing historic archaeological resources.

5.1.2 East Half of the Study Area

The northern reaches of the east half of the study area is confined to the river channel and a narrow slice of sloping riverbank, but broadens to encompass a portion of municipal parkland between the riverbank and Pettigrew Lane. The riverbank is heavily vegetated, and the parkland is largely manicured lawn. Several extant structures, including the Coal River Group buildings, associated parking areas, and boat storage are present, as is a park pavilion, a shed or other utilitarian building, and an unpaved stream access area at the southern terminus (see **Figure 11**).

The background research revealed that in addition to the numerous recorded precontact sites on the west side of the river channel, a recorded precontact archaeological site is present within 1.0 km (0.6 mi) of the APE on the east side of the channel. Therefore, the east half of the study area should be considered to have high potential for pre-contact archaeological resources on any stable, undisturbed, and relatively level landforms, which would include the manicured lawn of the parkland bordering Pettigrew Road, as well as any level portions of the adjacent forested riverbank.

Historic archaeological potential in the east half of the study area is considered moderate; review of historic maps and imagery of the area suggest most of this area was agricultural land, with no buildings present within the APE until its conversion to parkland by the 1970s, after which point parking areas, pavilions, and other structures and buildings were erected. One recorded historic

resource was present in the east half of the study area, a dwelling that is no longer extant. In its historically-documented location is the parking lot and buildings of the Coal River Group. It is not certain whether remains of associated foundations, mentioned in the historic resource form for the no-longer extant resource, were similarly destroyed by subsequent building construction. It is possible that archaeological remains could be present beneath the parking lot. In addition, there may be historic archaeological resources present on the bank associated with the engineering of the navigation and mill dams that currently and historically spanned the river channel.

5.1.3 The Coal River Channel

The Coal River channel contains remains of three (3) structures: the canal lock, which is excavated into bedrock and is not known to have any remaining timber elements, the existing concrete mill dam, and an unidentified, linear wooden feature immediately upstream of the concrete mill dam. These features lie within the Lock 3 at Upper Falls/Tornado archaeological site that spans the channel, which is included in the recorded, National Register-listed Coal River Locks, Dams, and Log Booms Archaeological District. Therefore, the river channel should be considered to have high historic archaeological potential.

There are multiple possible interpretations of the linear wooden feature. It may be evidence of the original navigation dam, or it could be remains of a pre-1920s mill dam, since the Pickens Mill was in operation from the mid-1880s, approximately 40 years prior to the erection of the extant concrete structure. It is also possible that there could be remains of a coffer dam in the channel, which might reasonably have been erected to facilitate construction of the navigation lock and dam. Sources suggest that Lock and Dam No. 3 had a typical layout, with the dam most likely located at the downstream end of the canal lock (Binnings 1997; Dean 2007). The linear wooden feature's location, which is at the upstream end of the lock, immediately next to the concrete mill dam, indicate a higher probability that it is a remnant of a mill dam or potentially a coffer dam, rather than the navigation dam. If the navigation dam was indeed at the downstream end, then that area should be considered to have archaeological potential to contain features related to dam engineering.

6.0 RECOMMENDATIONS

- A geomorphological survey is recommended to identify the landforms throughout the study area to determine their formation and assess their likelihood to contain archaeological deposits, as the study area is likely to contain floodplain and terrace landforms that may have the potential for deeply buried pre-contact or historic archaeological resources.
- A Phase IB archaeological survey should be conducted, designed based on the recommendations of the geomorphological survey, and developed with an understanding of all possible design constraints of the project. The survey will focus on areas with the highest probability of containing archaeological resources, which would be expected to include:
 - The municipal parkland on the east bank.
 - The vicinity around the Pickens Grist Mill on the west bank.
 - Stream bank areas immediately adjacent to the in-channel dam and lock features
 - The stream channel immediately downstream of the canal lock, and adjacent portions of the stream bank to look for additional engineering elements related to the canal lock and dam construction.
 - Any other relatively level and undisturbed portions of the study area.
- The existing archaeological and historic resources within the river channel should be re-documented to update for accuracy to and show their current condition.

7.0 REFERENCES

- Anderson, David G. and J. Christopher Gillam
2000 "Paleoindian Colonization of the Americas: Implications from an Examination of Physiography, Demography, and Artifact Distribution." *American Antiquity* 65(1):43-66.
- Adovasio, J.M., R. Fryman, A.G. Quinn, D.C. Dirkmaat, and D.R. Pedler
1998 The Archaic West of the Allegheny Mountains: A View from the Cross Creek Drainage, Washington County, Pennsylvania. In *The Archaic Period in Pennsylvania, Hunter-Gatherers of the Early and Middle Holocene Period*, edited by Paul A. Raber, Patricia E. Miller, and Sarah M. Neusius, pp. 1- 27.
- Binning, Jeanne Day and Warren H. Moore
1997 *Coal River Locks, Dams, and Log Booms Archaeological District*. National Register of Historic Places Registration Form, United States Department of the Interior, National Park Service. Available from the West Virginia SHPO Interactive Map Viewer, <https://mapwv.gov/shpo/viewer/index.html>.
- Bradbury, Andrew P.
1998 The Bow and Arrow in the Eastern Woodlands: Evidence for an Archaic Origin. *North American Archaeologist* 18 (3): 207-233.
- Broyles, Bettye and James Harding
1974 *St. Albans Site. National Register of Historic Places Inventory – Nomination Form*.
- Campbell, J.M., K.M. Gallup, F.J. Vento, and J.M. Adovasio
2008 Reinterpretation of the Molluscan Fauna of Meadowcroft Rockshelter (36WH297) in Relation to Holocene Millennial-Scale Climate Variation. Paper presented at the 73rd Annual Meeting of the Society for American Archaeology, Vancouver, British Columbia.
- Carlisle, R.C. and J.M. Adovasio
1982 *Meadowcroft: Collected Papers on the Archaeology of Meadowcroft Rockshelter and the Cross Creek Drainage*. Paper prepared for the 47th Annual Society for American Archaeology Meeting, Minneapolis.
- Carr, K.W.
1998a The Early Archaic Period in Pennsylvania. *Pennsylvania Archaeologist* 68(2):42-69.

1998b Archaeological Site Distributions and Patterns of Lithic Utilization During the Middle Archaic in Pennsylvania. In *The Archaic Period in Pennsylvania, Hunter-Gatherers of the Early and Middle Holocene Period*, edited by Paul A. Raber, Patricia E. Miller, and Sarah M. Neusius, pp. 77-90.
- Clay, R.B.
1991 Adena Ritual Development: An Organizational Type in a Temporal Perspective. In *The Human Landscape in Kentucky's Past: Site Structure and Settlement*

Patterns, edited by C. Stout and C.K. Hensley, pp. 30-39. Kentucky Heritage Council.

- 1998 The Essential Features of Adena Ritual and Their Implications. *Southeastern Archaeology* 28(2):1-21.

Charleston Gazette

1955 "20 Pledges Received for Coal Project." October 23, 1955. Pg. 37.

1964 "Dam Repairs Planned by Upper Falls Group." July 11, 1964. Pg. 5.

2012 Welcome to Tornado, W.Va...Or is it Upper Falls? Electronic document, <https://weather.com/news/news/tornado-town-20120502>, accessed July 2025.

Coppock, G.F., J.M. Stiteler, and F.J. Vento

2010 *A Geoarchaeological and Paleoenvironmental Investigation of the Aughwick Creek Watershed (Watershed 12C): Alternative Mitigation for Sites 36HU199 and 36HU200, SR 0522, Section 05BN, Blacklog Narrows, Cromwell Township, Huntington County, Pennsylvania*. Prepared for the Pennsylvania Department of Transportation, Engineering District 9-0.

Cowin, V.L.

1991 The Middle Archaic in the Upper Ohio Valley. *Journal of Middle Atlantic Archaeology* 7:43-53.

Custer, J.F.

1988 Late Archaic Cultural Dynamics in the Central Middle Atlantic Region. *Journal of Middle Atlantic Archaeology* 4:39-60.

Dean, William H.

2007 *Coal, Steamboats, Timber and Trains: The Early Industrial History of St. Alans, West Virginia & The Coal River, 1850-1925*. Pictorial Histories Publishing Company, Inc. Charlestown, WV.

2024 Coal River. e-WV: *The West Virginia Encyclopedia*. Electronic document, <https://www.wvencyclopedia.org/entries/1316>, accessed July 2025.

Dent, R.J., Jr. and B.E. Kauffman

1985 Aboriginal Subsistence and Site Ecology as Interpreted from Microfloral and Faunal Remains. In *Shawnee-Minisink: A Stratified Paleoindian Site in the Upper Delaware Valley of Pennsylvania*, edited by C.W. McNett, pp. 55-79. Academic Press, New York.

Dragoo, D.W.

1959 Archaic Hunters of the Upper Ohio Valley. *Annals of Carnegie Museum* 35:139-245, Pittsburgh.

1963 Mounds for the Dead: an analysis of Adena culture. *Annals for the Carnegie Museum* 37, Pittsburgh.

- Ehlke, Theodore, Gerald S. Runner, and Sanford C. Downs
1982 *Hydrology of Area 9, Eastern Coal Province, West Virginia*. U.S. Geological Survey, Water-Resources Investigations Open-File Report 81-803. Charleston, West Virginia.
- Funk, R.E.
1991 The Middle Archaic in New York. *Journal of Middle Atlantic Archaeology* 7:7-18.
- Gooding, J.D.
1981 *The Archaeology of Vail Pass Camp: A Multi-Component Base Camp Below the Tree Limit in the Southern Rockies*. Prepared for the Colorado Department of Highways, Denver, Colorado.
- Google, LLC
2025 Google Earth Pro. Version 7.3.6.10201 (64-bit). Build date January 13, 2025.
- Jensen, Anne
1993 *Rockshelters on the Gauley Ranger District, Monongahela National Forest*. National Register of Historic Places Multiple Properties Documentation Form.
- Johnson, Skip
1956 "Repairs to Dam Aiding Coal River." *Charleston Gazette*. June 17, pg. 38.
- Johnson, W.C. and E.J. Siemon, III
1991 *Phase II Testing at the Chickies Creek Site (36LA993), Lancaster County, Pennsylvania*. Prepared for the Texas Eastern Gas Pipeline Company, Houston, Texas. Center for Cultural Resources Research, University of Pittsburgh, Pittsburgh, Pennsylvania.
- Justice, N.D.
1987 *Stone Age Spear and Arrow Points of the Midcontinental and Eastern United States: A Modern Survey and Reference*. Indiana University Press, Bloomington, Indiana.
- King, F.B.
1985 Early Cultivated Cucurbits in Eastern North America. In *Prehistoric Food Production in North America*, edited by R.I. Ford, pp. 73-98. Museum of Anthropology, University of Michigan, Ann Arbor, Michigan.
- Klein, M.
2003 Of Time and Three Rivers: Comments on Early and Middle Woodland Archaeology in Pennsylvania. In *Foragers and Farmers of the Early and Middle Woodland Periods in Pennsylvania*, edited by P.A. Raber and V.L. Cowin, pp. 117-134. Pennsylvania Historical and Museum Commission, Harrisburg, Pennsylvania.

- Knox, J.C., P.F. McDowell, and W.C. Johnson
 1981 Holocene Fluvial Stratigraphy and Climate Change in the Driftless Area, Wisconsin. In *Quaternary Paleoclimate*, edited by W.C. Mahaney, pp. 107-127. Geo Abstracts Limited, Norwich, England.
- Lantz, S.W.
 1985 The Paleo-Indian Period. In *A Comprehensive State Plan for the Conservation of Archaeological Resources, Volume II*, edited by P.A. Raber, pp. 164-181. Historic Preservation Planning Series No. 1, Pennsylvania Historical and Museum Commission, Harrisburg, Pennsylvania.
- 1989 Age, Distribution and Cultural Affiliation of Raccoon Notched Point Varieties in Western Pennsylvania and Western New York. *Bulletin of the Carnegie Museum of Pittsburgh* 28.
- Lothrop, J.
 2001 *Management Summary: Phase III Data Recovery at Prehistoric Sites 46BR31 and 46BR60, U.S. Route 2 Follansbee-Weirton Road Upgrade Project, Follansbee, Brooke County, West Virginia*. Prepared for Whitney, Bailey, Cox, and Magnani, Bridgeport, West Virginia.
- MacDonald, D.H., J.C. Lothrop, and D.L. Cremeens
 2003 *Pennsylvania Archaeological Data Synthesis: The Raccoon Creek Watershed, Watershed D of the Ohio River Subbasin 20 for Bridge Replacement Project T-319, Beaver County Bridge No. 36 (Links Bridge), Independence Township, Beaver County, PA*. Prepared for Pennsylvania Department of Transportation, Engineering District 11-0.
- Mayer-Oakes, W.J.
 1955 Prehistory of the Upper Ohio Valley: An Introductory Archaeological Study. Anthropological Series. No. 2, *Annals of the Carnegie Museum*, Pittsburgh, Pennsylvania.
- McConaughy, Mark A.
 2012 The Middle Woodland: Western Pennsylvania vs. Eastern Pennsylvania. *Pennsylvania Archaeologist* 82 (2):17-33.
- 2015a The Late Woodland Period in Western Pennsylvania. *Pennsylvania Archaeologist* 85(2):25-46.
- McConaughy, M. and J. Johnson
 2003 Sugar Run Mound (36WA359) and Village (36WA2): Hopewell/Middle Woodland in Warren County, Pennsylvania. In *Foragers and Farmers of the Early and Middle Woodland Periods in Pennsylvania*. Pennsylvania Historical and Museum Commission, Harrisburg, Pennsylvania.
- Montag, Michele
 2001 *Small Sites and the Monongahela Settlement System: A View from the Sandrocks Shelter (36GR68)*. Doctoral Dissertation, State University of New York.

- Mouer, D.L.
1990 The Formative Transition in Virginia. In *Late Archaic and Early Woodland Research in Virginia: A Synthesis*, pp. 1-88. Archaeological Society of Virginia, Richmond, Virginia.
- National Geographic Society
2013 Alum Creek, WV, National Geographic World Map.
- National Oceanic and Atmospheric Administration (NOAA), National Water Prediction Service.
2025 Coal River (WV) at Tornado. Electronic document, <https://water.noaa.gov/gauges/torw2>, accessed July 22, 2025.
- National Park Service (NPS)
2024 Appalachian Plateaus Province. Electronic document, <https://www.nps.gov/articles/appalachianplateausprovince.htm>, accessed July 10, 2025.
- Raber, P.A.
1995 Prehistoric Settlement and Resource Use in the Aughwick Creek Valley and Adjoining Areas of Central Pennsylvania. *Pennsylvania Archaeologist* 65(1):1-18.

1998 *The Archaic Period in Pennsylvania: Current Models and Future Direction. In The Archaic Period in Pennsylvania: Hunter-Gatherers of the Early and Middle Holocene Period*. Pennsylvania Historical and Museum Commission, Harrisburg, Pennsylvania.
- Ritchie, W.A.
1979 The Otter Creek No. 2 Site in Rutland County, Vermont. *Bulletin and Journal of the Archaeology of New York State* 76:1-20.

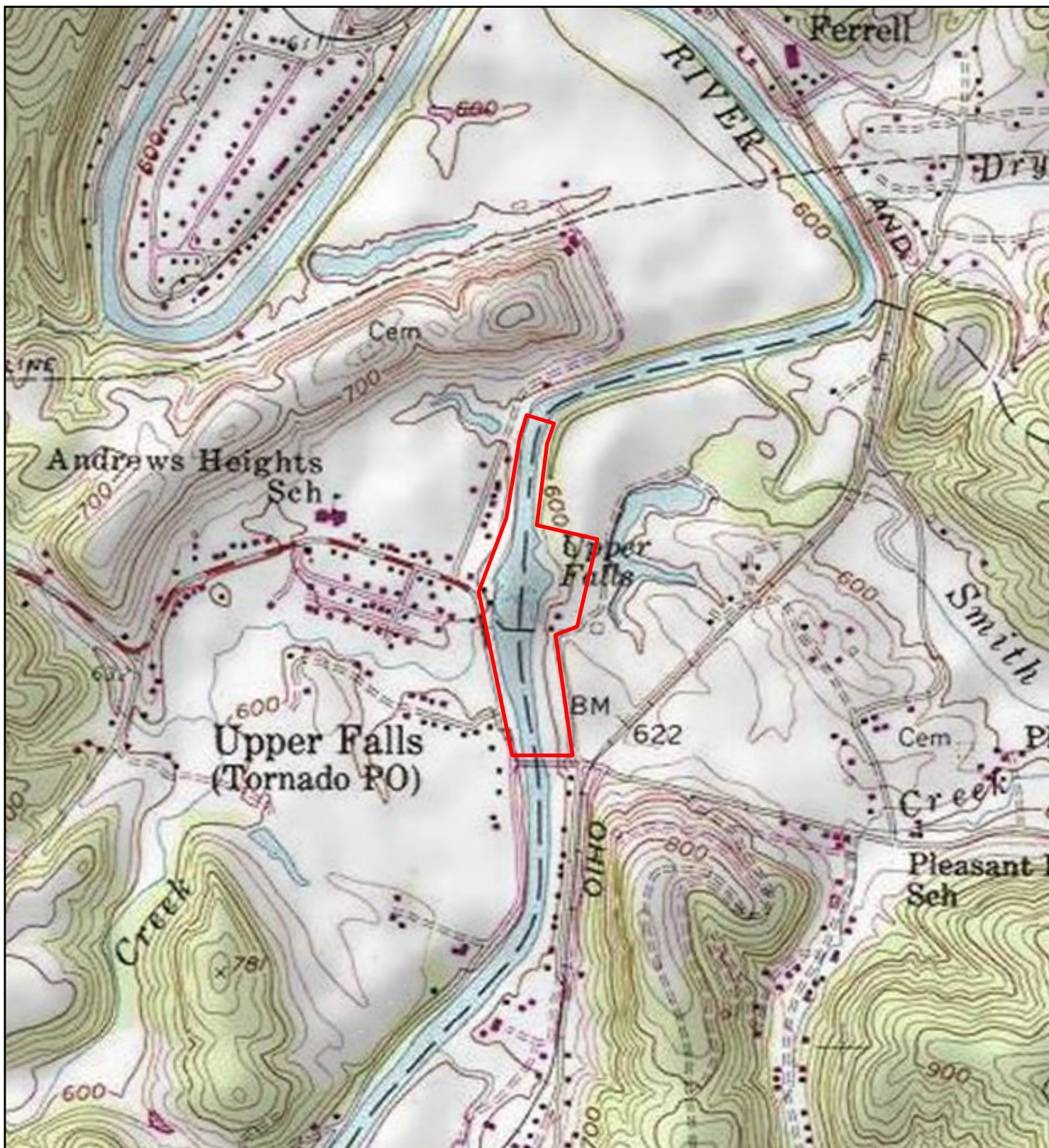
1980 *The Archaeology of New York State*. Harbor Hill Books, Harrison, New York.
- Schweikart, J.F.
1998 *An Upland Settlement in the Adena Heartland: Preliminary Evidence and Interpretations from Two Early Woodland Non-Mortuary Habitations in Perry County, Ohio*. ASC Group, Inc., Columbus, Ohio.
- Scully, R.W. and R.W. Arnold
1981 Holocene Alluvial Stratigraphy in the Upper Susquehanna River Basin, New York. *Quaternary Research* 15:327-344.
- Spencer, D.
2019 *Woodland Mounds in West Virginia*. The History Press, Charleston, South Carolina.
- Steegman, A.T.
1983 *Boreal Forest Adaptations: The Northern Algonkians*. Plenum Press, New York.

- Stewart, R.M.
 1989 Trade and Exchange in Middle Atlantic Region Prehistory. *Archaeology of Eastern North America* 17:47-78.
- 2003 A Regional Perspective on Early and Middle Woodland Prehistory in Pennsylvania. In *Foragers and Farmers of the Early and Middle Woodland Periods in Pennsylvania*. Pennsylvania Historical and Museum Commission, Harrisburg.
- Stewart, R.M. and J. Cavallo
 1991 Delaware Valley Middle Archaic. *Journal of Middle Atlantic Archaeology* 7:19-42.
- Stoltman, J.B. and D.A. Baerreis
 1983 The Evolution of Human Ecosystems in the Eastern United States. In *Late Quaternary Environments of the United States, Volume 2*, edited by H.E. Wright, pp. 252-268. University of Minnesota Press, Minneapolis.
- Tetra Tech, Water Resources and TMDL Center
 2006 Total Maximum Daily Loads for Selected Streams in the Coal River Watershed, West Virginia. Electronic document, [https://dep.wv.gov/WWE/watershed/TMDL/grpb/Documents/Coal%202008/Final Coal TMDL Report 1 15 07.pdf](https://dep.wv.gov/WWE/watershed/TMDL/grpb/Documents/Coal%202008/Final%20Coal%20TMDL%20Report%201%2015%2007.pdf), accessed July 22, 2025.
- Trader, Patrick
 2018 *Guidelines for Phase I, II, and III Archaeological Investigations and Technical Report Preparation*. West Virginia State Historic Preservation Office (WV SHPO). Accessed at <http://www.wvculture.org/shpo/techreportguide/guidelines.html>.
- United States Department of Agriculture, Natural Resources Conservation Service (USDA, NRCS)
 2025 *Web Soil Survey*. Website at <http://websoilsurvey.nrcs.usda.gov>. Accessed July 10, 2025.
- United States Geological Survey (USGS)
 1899 *Charleston, West Virginia* topographic map, 15-minute. United States Geological Survey, Washington, D.C.
- 1909 *St. Albans, West Virginia* topographic map, 15-minute. United States Geological Survey, Washington, D.C.
- 1931 *St. Albans, West Virginia* topographic map, 15-minute. United States Geological Survey, Washington, D.C.
- 1958 *Alum Creek, West Virginia* topographic map, 7.5-minute. United States Geological Survey, Washington, D.C.
- 1976 *Alum Creek, West Virginia* aerial photograph. United States Geological Survey, Washington, D.C.

- Vento, F.J., H.B. Rollins, A. Vega, J.M. Adovasio, P. Stahlman, D.B. Madsen, and J.S. Illingworth
2008 *Development of a Late Pleistocene-Holocene Genetic Stratigraphic Framework for the Mid-Atlantic Region: Implications in Archaeology*. Paper presented at the 73rd Annual Meeting, Society for American Archaeology, Vancouver, British Columbia.
- Watts, W.A.
1979 Late Quaternary Vegetation of Central Appalachian and the New Jersey Coastal Plain. In *Ecological Monographs*, 49:427-469.
- Webb, W.S. and R.S. Baby
1957 *The Adena People – No. 2*. The Ohio Historical Society, Columbus.
- Webb, W.S. and C.E. Snow
1945 *The Adena People. Reports in Anthropology and Archaeology, Volume VI*. University of Kentucky, Lexington.
- West Virginia Department of Environmental Protection, Division of Water Resources (WVDEP)
1997 An Ecological Assessment of the Coal River Watershed. Electronic document, https://dep.wv.gov/WWE/watershed/wqmonitoring/Documents/EcologicalAssessments/EcoAssess_Coal_1997.pdf
- West Virginia Explorer
2025 Tornado, West Virginia. Electronic document, <https://wvexplorer.com/communities/cities-towns/tornado-west-virginia/>, accessed July 2025.
- West Virginia Geological & Economic Survey (WVGES)
2019 "Physiographic Provinces of West Virginia." Electronic document, <https://www.wvgs.wvnet.edu/www/geology/geolphp.htm>, accessed July 10, 2025.
- Weed, C.S.
2004 *Prehistoric Context Study (Chapter Three) in Support of Data Recovery at Site 36AL480, Leetsdale, Allegheny County, Pennsylvania*. Prepared for the United States Army Corps of Engineers, Pittsburgh District, Pittsburgh, Pennsylvania.
- Wood, Joe and Eloise Wisman
1988 *Tornado Remembers: Upper Falls of Coal River 1788-1988*. Kanawha Bicentennial: Charleston, WV.
- Yerkes, R.W.
2002 Hopewell Tribes: A Study of Middle Woodland Social Organization in the Ohio Valley. In *The Archaeology of Tribal Societies*, edited by W.A. Parkinson, pp. 227-245. International Monographs in Prehistory, Ann Arbor.

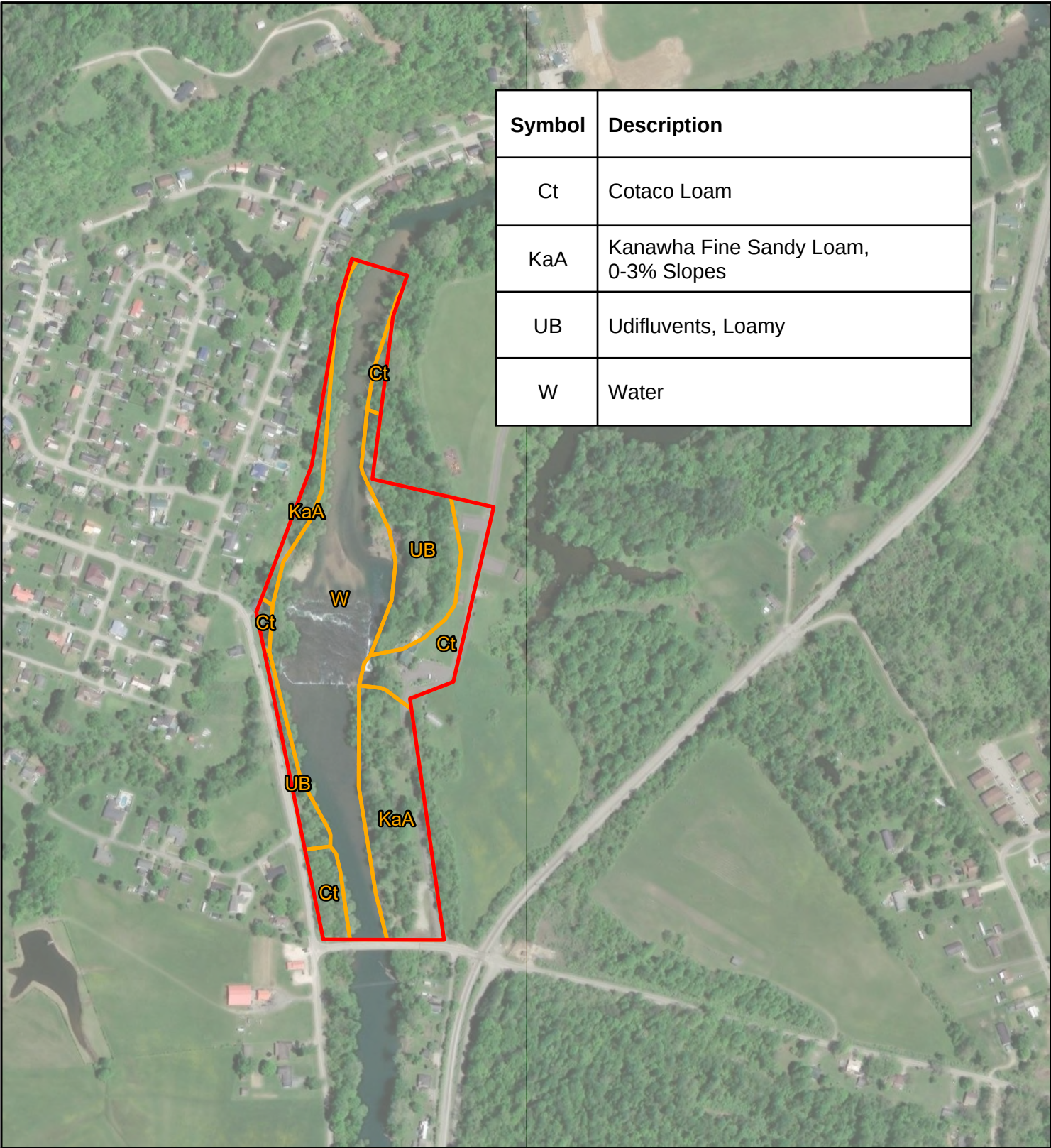
APPENDIX A

Figures



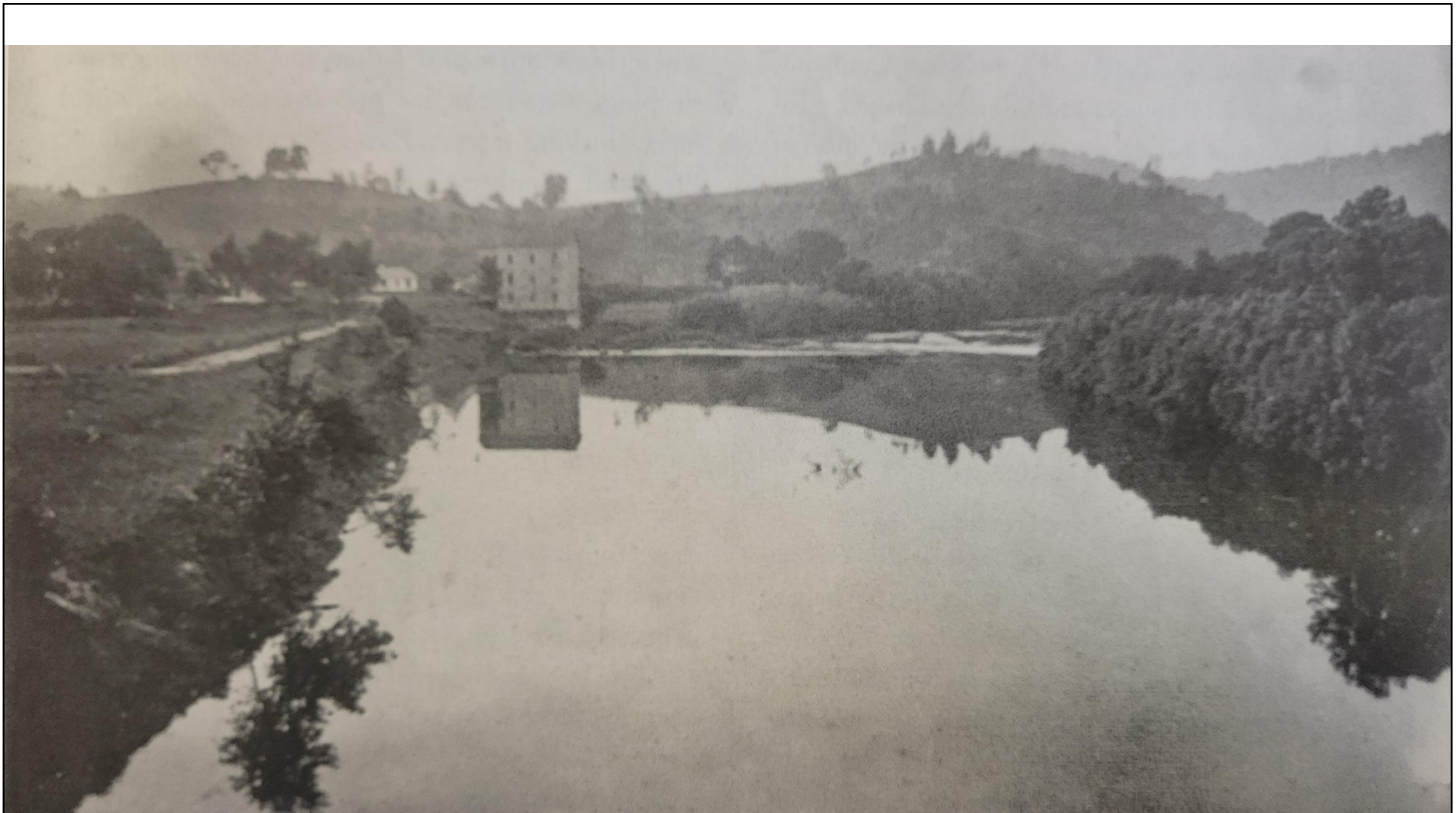
	Project Study Area	Phase IA Archaeological Research Report Watershed Plan and Environmental Assessment for the Coal River Watershed	
	Feet 0 500 1,000 Meters 0 150 300	Kanawha County, WV Source: National Geographic Society 2013 (Alum Creek, WV)	

Figure 1
Project Location



Symbol	Description
Ct	Cotaco Loam
KaA	Kanawha Fine Sandy Loam, 0-3% Slopes
UB	Udifuvents, Loamy
W	Water

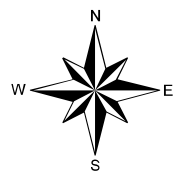
	 Project Study Area Soil Series	Phase IA Archaeological Research Report Watershed Project Plan Environmental Assessment Coal River Watershed	Figure 2 Soil Series
	Feet 0 250 500 Meters 0 75 150	Kanawha County, WV <i>Source: USDA NRCS 2024</i>	



Phase IA Archaeological Research Report
Watershed Plan and Environmental Assessment
for the Coal River Watershed

Kanawha County, WV
Source: Dean 2007

Figure 3
Historic Photograph of
Grist Mill



 Project Study Area

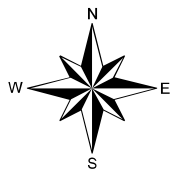
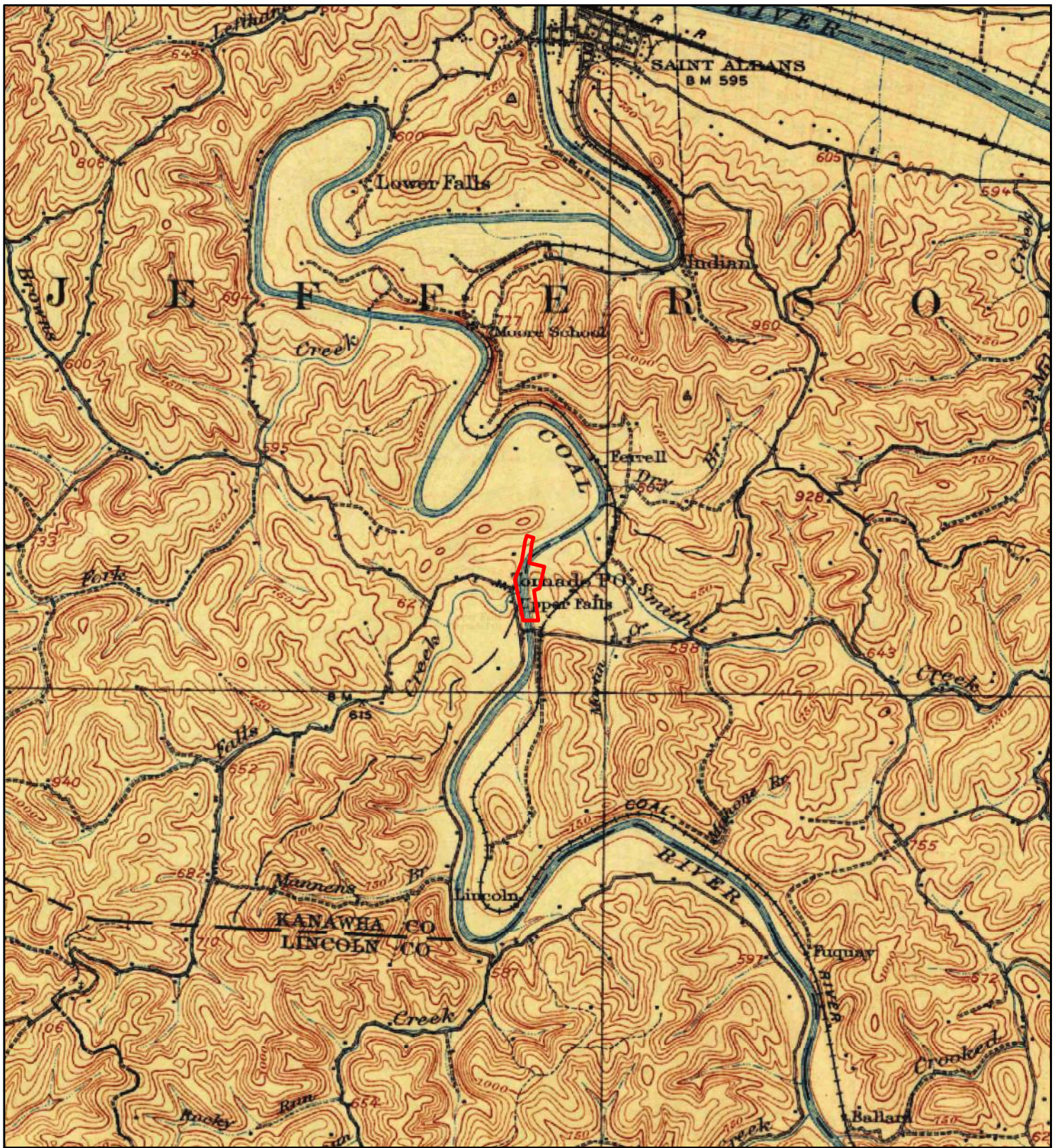
Phase IA Archaeological Research Report
Watershed Plan and
Environmental Assessment for the
Coal River Watershed



Feet
0 2,000 4,000
Meters
0 600 1,200

Kanawha County, WV
Source: USGS 1899 (Charleston, WV)

Figure 4
Approximate Study
Area Location in
1899



 Project Study Area

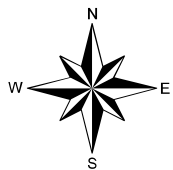
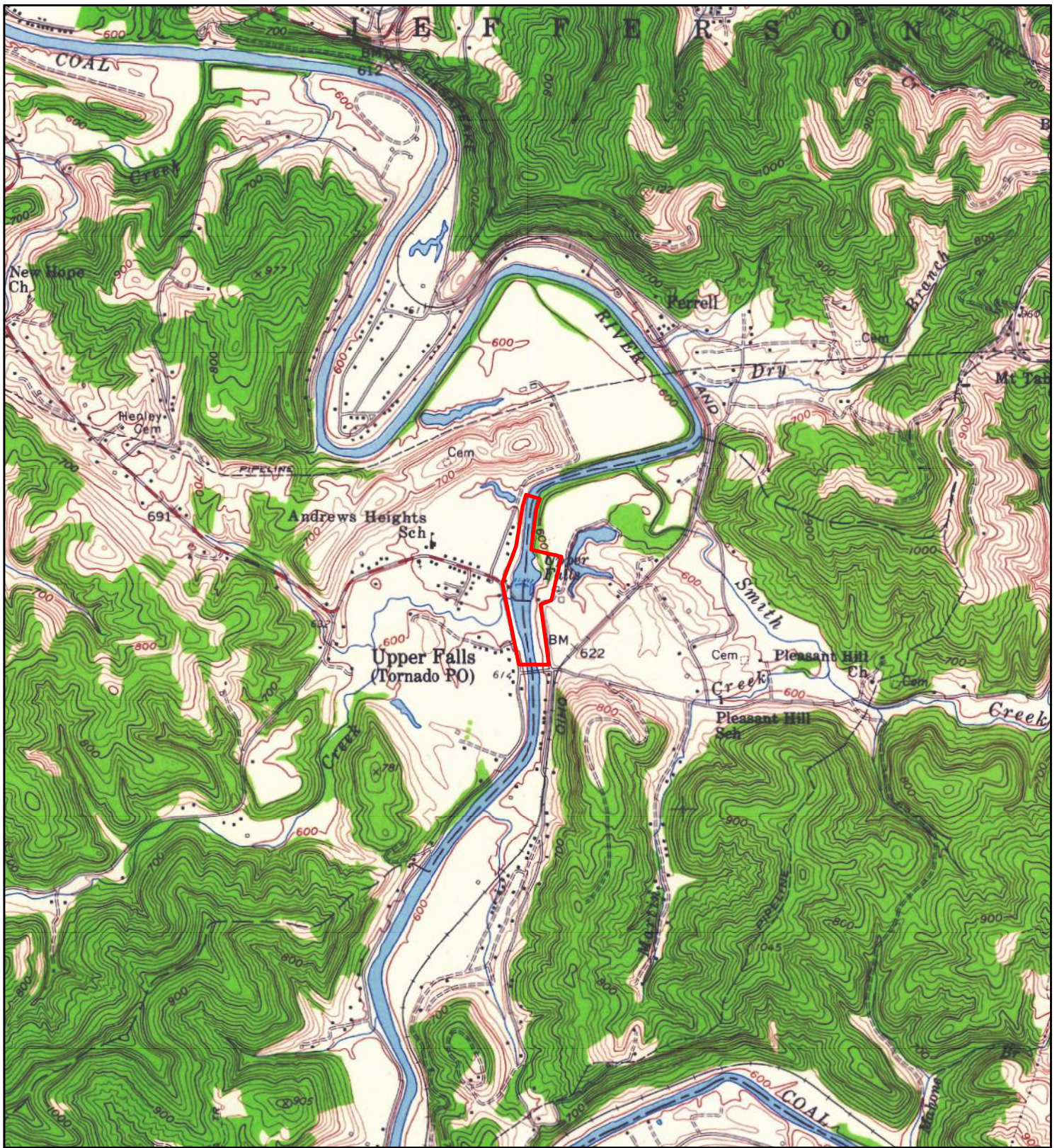
Phase IA Archaeological Research Report
Watershed Plan and
Environmental Assessment for the
Coal River Watershed



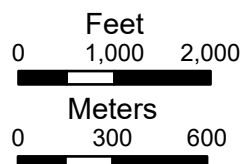
Feet
0 2,000 4,000
Meters
0 600 1,200

Kanawha County, WV
Source: USGS 1909 (Saint Albans, WV)

Figure 5
Study Area
Location in 1909



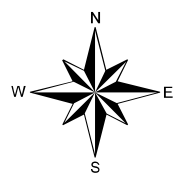
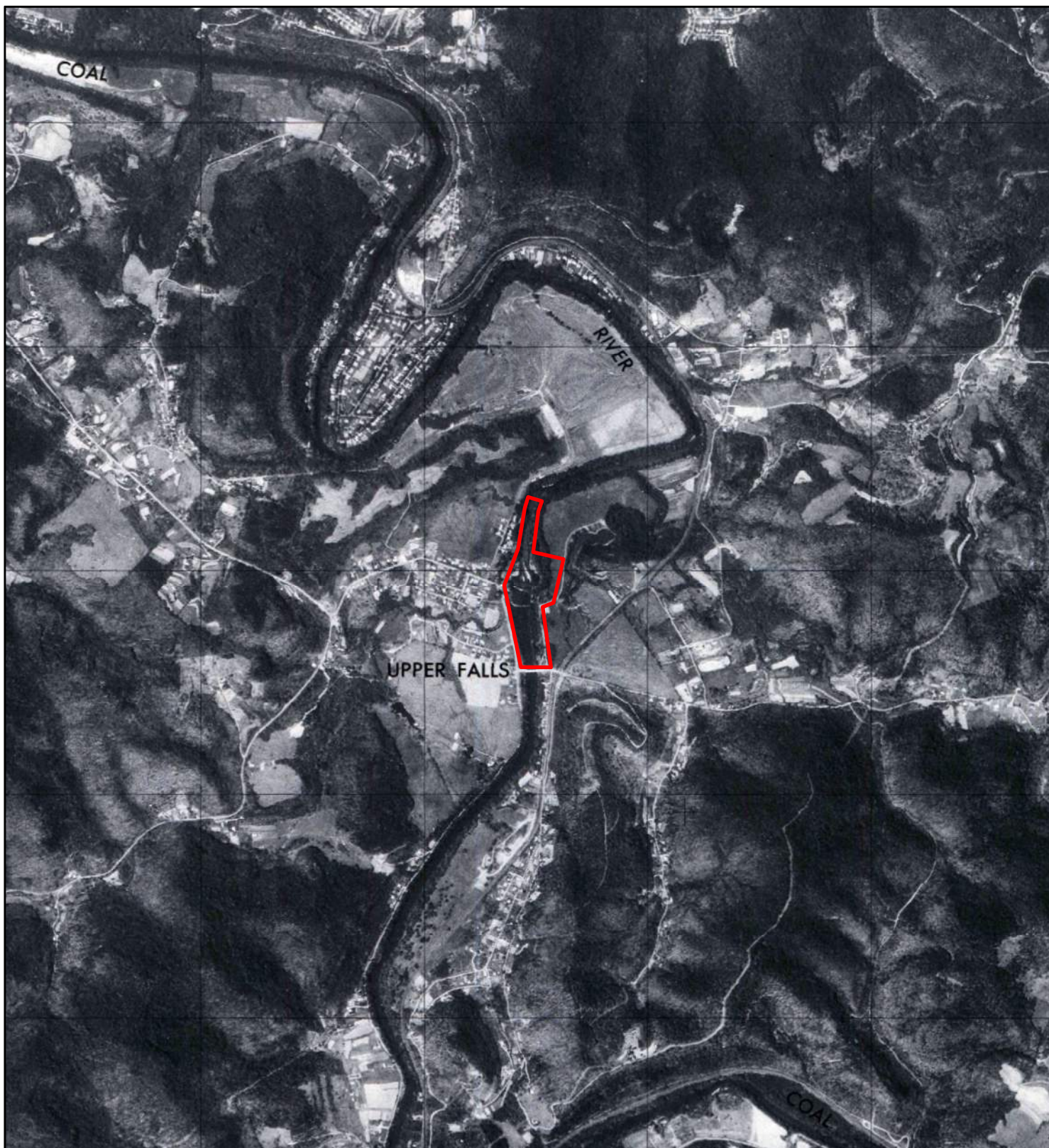
 Project Study Area



Phase IA Archaeological Research Report
Watershed Plan and
Environmental Assessment for the
Coal River Watershed

Kanawha County, WV
Source: USGS 1958 (Alum Creek, WV)

Figure 6
Study Area
Location in 1958



 Project Study Area

Phase IA Archaeological Research Report
Watershed Plan and
Environmental Assessment for the
Coal River Watershed



Feet
0 1,000 2,000
Meters
0 300 600

Kanawha County, WV
Source: USGS 1976 (Alum Creek, WV)

Figure 7
Study Area
Location in 1976

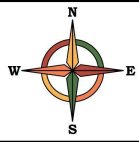


Phase IA Archaeological Research Report
Watershed Plan and Environmental Assessment for the
Coal River Watershed



Kanawha County, WV
Source: Diane Lumadue 2024

Figure 8
Concrete Dam and
Timber Ruins in
the Study Area

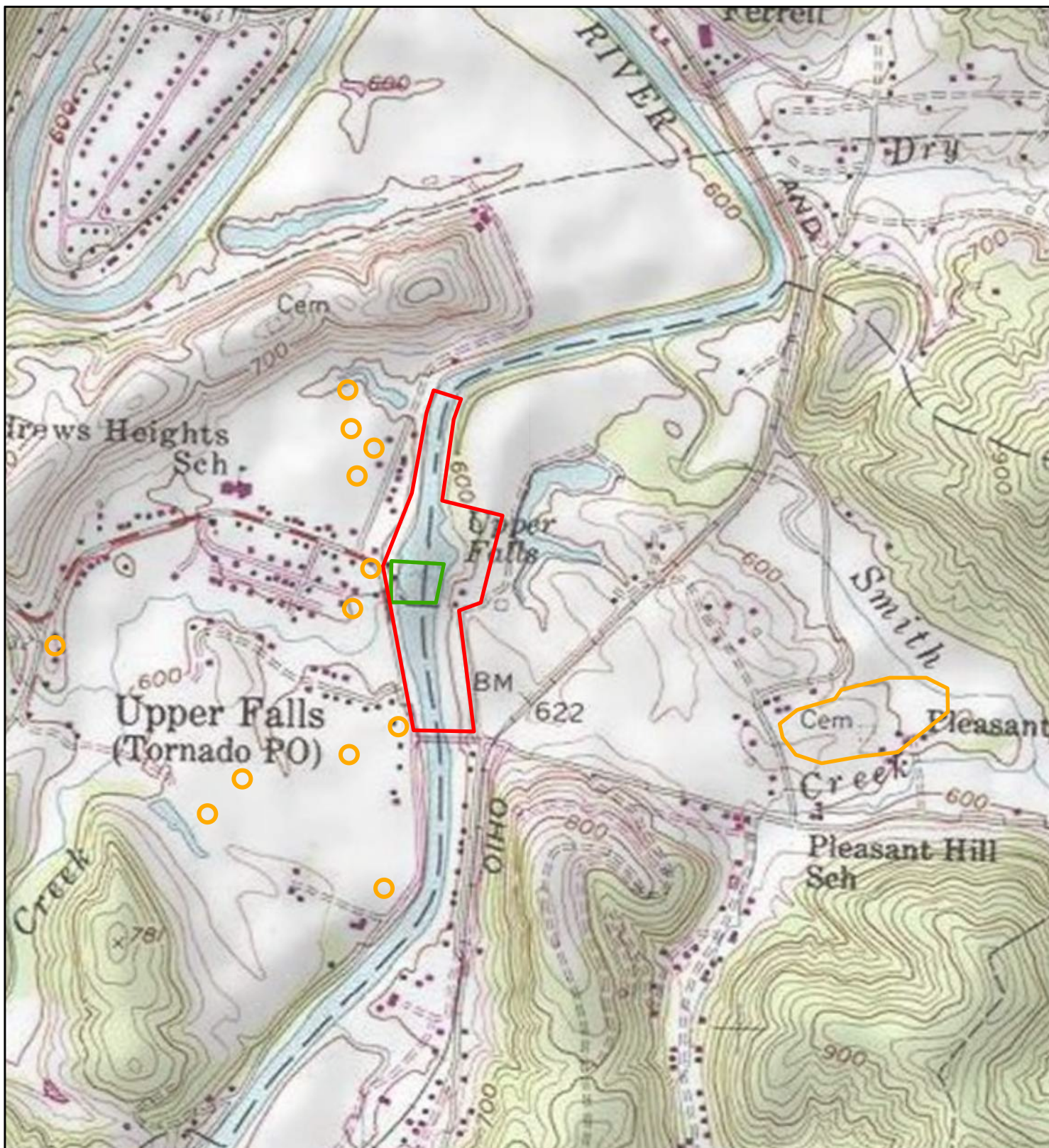


 Project Study Area

Phase IA Archaeological Research
Report Watershed Plan and
Environmental Assessment for the
Coal River Watershed

Kanawha County, WV
Source: Google, LLC 2025 (Airbus)

Figure 9
Study Area in 2023



	Project Study Area Archaeological District	Phase IA Archaeological Research Report Watershed Plan and Environmental Assessment for the Coal River Watershed	Figure 10 Locations of Previously Recorded Archaeological Resources
	Previously Recorded Archaeological Site		Feet 0 500 1,000 Meters 0 150 300

Kanawha County, WV
Source: WVSHPO 2023



	Project Study Area Extant Building Roadway/Pavement Disturbed Steep Slope Wet High Archaeological Probability* Archaeological District Structural Ruins Topographic Contours
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APPENDIX B

Previously Recorded Archaeological Resources

Previously Recorded Archaeological Sites

Site Number	Site Name	Temporal Affiliation	Site Type	Landform	NR Status
46-KA-129	Martin I	Precontact	campsite	Terrace	Unevaluated
46-KA-130	Martin II	Precontact	campsite	Terrace	Unevaluated
46-KA-131	Hudson	Precontact	campsite	Terrace	Unevaluated
46-KA-132	Legg	Precontact	campsite	Terrace	Unevaluated
46-KA-134	Holmes	Precontact	campsite	Terrace	Unevaluated
46-KA-135	Stephens	Precontact	campsite	Terrace	Unevaluated
46-KA-136	Rogers I	Precontact	Workshop/resource procurement	Ridge	Unevaluated
46-KA-137	Rogers II	Precontact	campsite	hillslope/rise	Unevaluated
46-KA-139	Riley	Precontact	Resource processing	Terrace	Unevaluated
46-KA-155	Rogers III	Precontact	Camping/hunting	NA	Unevaluated
46-KA-49	Upper Falls Site	Precontact	NA	NA	Unevaluated
46-KA-205	Wood's Property	Precontact	Open campsite	Valley bottom/flood plain	Unevaluated