APPENDIX H

Surveys of Cultural Resources

Phase I Archaeological Survey

Phase I/II Historic Architectural Survey

for the

American Electric Power
Mountaineer Commercial Scale
Carbon Capture and Storage Project
Mason County, West Virginia

Contract No. 326849x215
February 2011

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FINAL REPORT

PHASE I ARCHAEOLOGICAL SURVEY

MOUNTAINEER CCS II PROJECT
MASON COUNTY, WEST VIRGINIA

FR # 10-1133-MS

Prepared for:

American Electric Power
and
U.S. Department of Energy

Prepared by:

TRC ENVIRONMENTAL, INC.
4425 Forbes Boulevard
Lanham, Maryland 20706

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Timothy R. Sara, M.A., RPA, Principal Investigator

Authored by:

Timothy R. Sara, Patrick Walters, B.A., and Robert Wall Ph.D.
with contributions by Jessica Mundt, M.A., and Nicole Tompkins, B.A.

February 2011

ABSTRACT

In July and August 2010, TRC Inc. conducted a Phase I archaeological survey of all proposed impact areas of the Mountaineer CCS II Project in Mason County, West Virginia. The proposed impact areas included the area for the potential CO_2 capture process and well sites (approximately 58 acres), along with the area for potential pipeline corridors (approximately 26 miles). The survey was conducted in accordance with the methods presented by TRC/PHE in a June 1, 2010 letter to the West Virginia State Historic Preservation Office (WVSHPO). The WVSHPO approved the proposed methodology on July 2, 2010.

The project area is located south and west of the Ohio River in the northern portion of the county. Current land use in the proposed project area includes previously disturbed areas associated with existing power plant and electric transmission line operations, as well as forested land and open fields. Background research indicated that there had been seven archaeological surveys previously conducted within two miles of the project area and that 10 archaeological sites had been previously recorded within one mile of the project area. Based on a variety of physiographic features, the project area was considered to have the potential for High, Moderate, and Low probability areas of previously unrecorded archaeological resources.

The Phase I survey integrated a review of historical documents, local histories, historic structure files, and archaeological site files with a systematic field survey of the project area. Historic research indicated the general Project location was a rural agricultural area during the historic period. As a result of the field survey, one previously unrecorded cemetery (MS-0176 [46MS355]) and one isolated archaeological find (46MS365 [IF TRC-1]) were identified in the project area. The one artifact (chert biface reduction flake) recovered is a prehistoric artifact consisting of lithic debitage (the byproduct of stone tool-making) associated with short-term use of the area during the prehistoric period. In total, 770 shovel tests were excavated at 15-meter intervals, as well as 102 judgmentally placed shovel test pits. Due to property access restrictions, approximately 2.05 miles of the study area within the South Corridor (1.0 miles), East Corridor (0.3 miles), and Jordan East Corridor (0.75 miles) were not subjected to Phase I survey during the current investigation. Should these areas be selected for construction, Phase I survey investigations are recommended once property access is secured.

Based on the analysis of these materials and contextual information derived from the survey, the isolated archaeological find (46MS365 [IF TRC-1]) is recommended as not eligible for inclusion on the National Register of Historic Places. The Brinker Family Cemetery (MS-0176 [46MS355]) consists of a small family cemetery of approximately 10 burials located on a ridgeline overlooking the Ohio River Valley. The current project design does not impact this resource, and as such, it will be avoided.

On August 27, 2010, AEP requested via letter report an advanced approval from the WVSHPO to proceed with development of the initial geologic characterization well at the Borrow Area property. The West Virginia Deputy State Historic Preservation Officer provided approval for geologic characterization well activities at the Borrow Area site on September 20, 2010. On October 15, 2010 AEP also requested via letter report an advanced approval from the WVSHPO to proceed with development of the initial geologic characterization well at the Jordan Tract. The West Virginia Deputy State Historic Preservation Officer provided approval for geologic characterization well activities at the Jordan Tract site on November 8, 2010.

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I. INTRODUCTION

This report presents the findings of a Phase I archaeological survey of all proposed construction impact areas of the proposed Mountaineer Carbon Dioxide Capture and Storage (CCS II) Project (Project) in Mason County, West Virginia **(**FR # 10-1133-MS; Figures 1-1, 1-2, and 1-3). TRC, Inc. (TRC) conducted this work under contract with American Electric Power (AEP), which is receiving federal funding from the U.S. Department of Energy (DOE), depending on results of the ongoing National Environmental Policy Act (NEPA) review.

The proposed Project involves the capture of CO_2 from the existing Mountaineer coal-fired power plant, and the transport of the captured CO_2 by pipeline to well locations for permanent geologic storage in saline formation(s) approximately 1.5 miles below the surface. The Project would construct a CO_2 capture system using Alstom's chilled ammonia process (CAP) at a previously disturbed site within the boundaries of the existing 1,300 megawatt (MW) Mountaineer Plant. The capture system would occupy an area of approximately 500 feet by 1,000 feet.

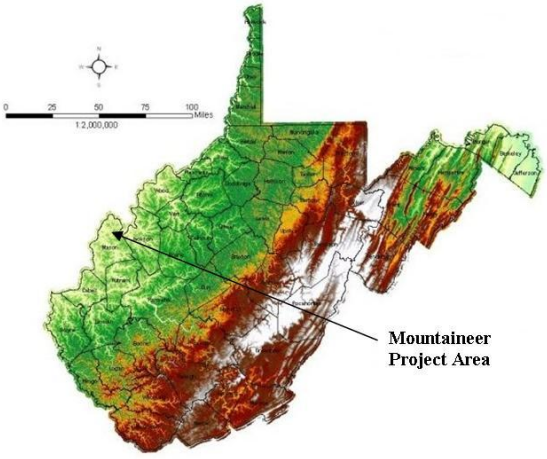


Figure 1-1. Location of the Mountaineer CCS II project area in Mason County, West Virginia.

Approximately 1.5 million metric tons of CO_2 will be captured annually that will be transported by pipelines (primarily underground) to well sites located within 12 miles of the capture facility. Proposed corridors for the pipeline are located primarily within existing electric transmission line and roadways. Five areas are under consideration for potential well sites: (1) Mountaineer Plant; (2) Borrow Area; (3) Jordan Tract; (4) Eastern Sporn Tract; and (5) Western Sporn Tract. The CO_2 would be injected for permanent geologic storage into one or more geologic formations approximately 1.5 miles below ground. Existing infrastructure (roadways, utilities) would be used to the extent practical; however, upgrades or construction of additional infrastructure may be required. The Project would also potentially impact 26 miles of new pipeline corridor, and approximately 55 acres of land at the proposed CO_2 injection sites and their associated access roads.

Current land use in the proposed project area includes previously disturbed areas associated with existing power plant and electric transmission line operations, as well as forested land and open fields. There have been seven archaeological surveys previously conducted within two miles of the project area and 10 archaeological sites have been previously recorded within one mile of the project area. Review of background information and physiography prior to field survey indicated the project area has areas with potential High, Moderate, and Low probability for both historic and prehistoric archaeological resources.

The purpose of this Phase I archaeological survey was to identify archaeological sites that may be eligible for the National Register of Historic Places (NRHP), and to determine the effects of the

proposed development on those properties. The archaeological investigations were conducted in accordance with the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* and the West Virginia State Historic Preservation Office (WVSHPO) *Guidelines for Phase I, II, and III Archaeological Investigations and Technical Report Preparation* (n.d.). The survey was also conducted in accordance with the methods presented by TRC/PHE in a June 1, 2010 letter to the West Virginia State Historic Preservation Office (WVSHPO). The WVSHPO approved the proposed methodology on July 2, 2010.

Prior to field investigations, background research was conducted at the West Virginia Division of Culture and History (State Historic Preservation Office [SHPO]) in Charleston. This research included review of historical maps, documents, previous archaeological reports, and archaeological site files. The background research was conducted by TRC Senior Archaeologist, Robert D. Wall, Ph.D., RPA and Archaeologist Jessica Mundt, M.A. The field survey was directed by Patrick Walters, B.A. and conducted by a crew of five technicians from July 23 to August 4, 2010 and August 30 to September 3, 2010 under the overall supervision of TRC Principal Investigator, Tim Sara, RPA.

The historic architectural review for this project was conducted by TRC and is reported in a separate technical document.

This report is organized as follows. Chapter II describes the environmental setting of the project area summarizing geological, soil, floral and faunal resources. Chapter III provides the prehistoric and historic background and details regional archaeological findings, chronology, and history. Also contained in this chapter are a review of local archaeological and architectural site distributions and previous archaeological work in the project area and vicinity. Chapter IV describes the field methods used for the survey and Chapter V presents the survey results. Conclusions and recommendations are presented in Chapter VI. Attachment A lists TRC personnel qualifications, Attachment B provides the WVSHPO Research Form, and Attachment C provides a completed WVSHPO Cemetery Form. Attachment D provides the West Virginia Isolated Find Form. Attachment E contains previous agency correspondence regarding the Project.

Additionally, AEP is proposing a construction upgrade of a barge unloading facility on the Ohio River, near the AEP Mountaineer Plant. This area was subject to a previous archaeological survey in 2005; a summary of those results and recommendations are provided as an Addendum to this report.

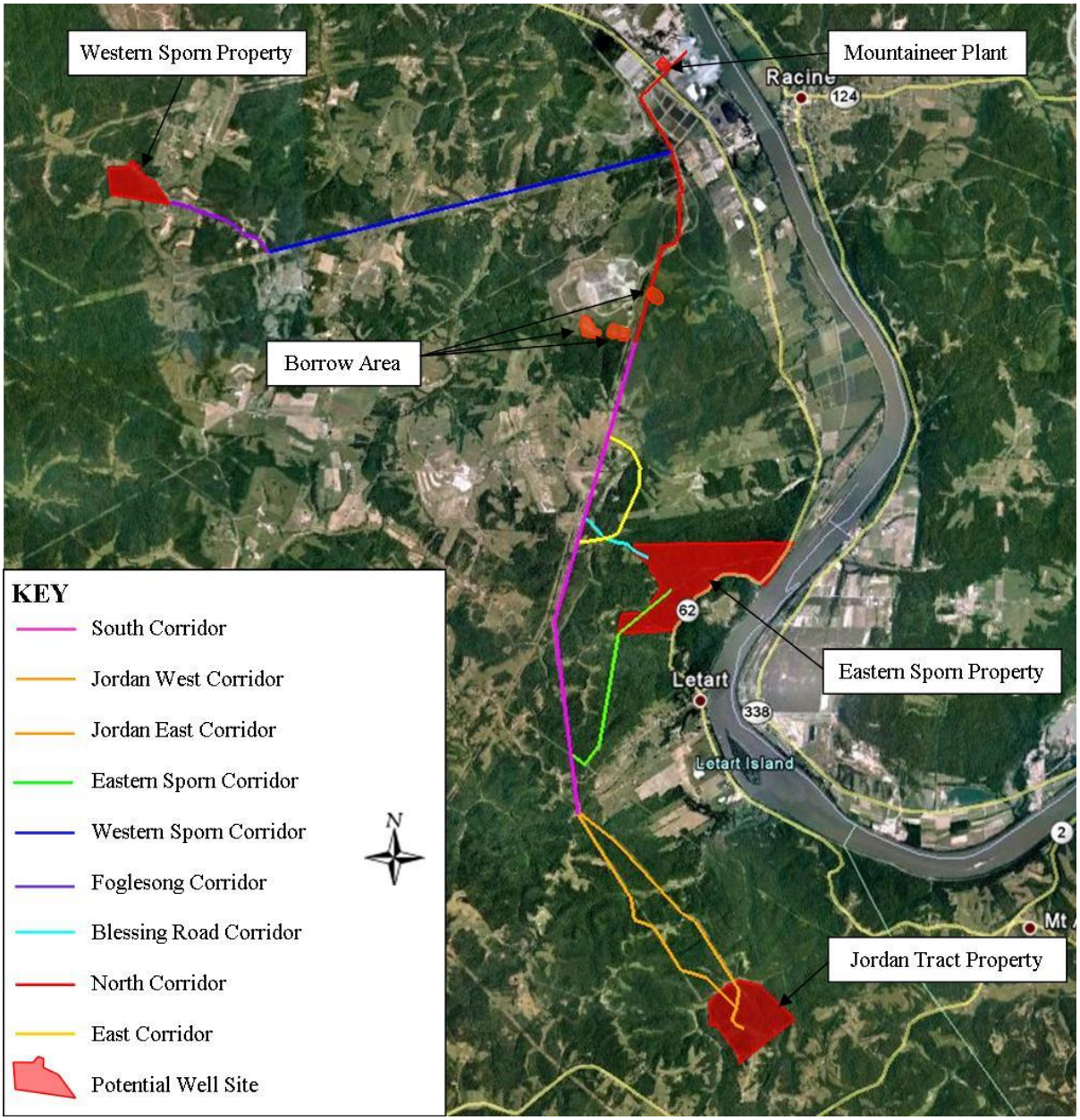


Figure 1-2. Aerial view of Mountaineer CCS II project area.

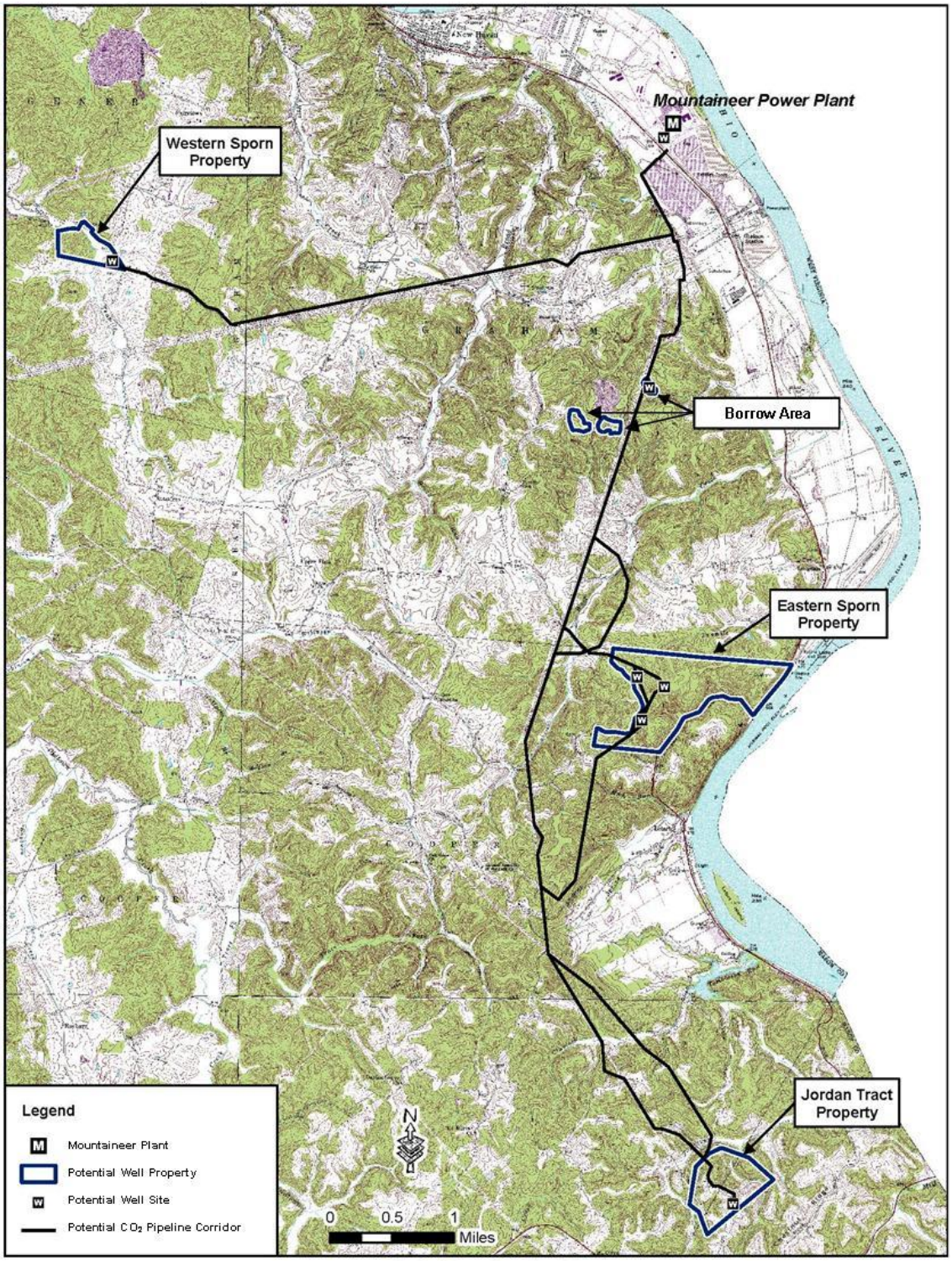


Figure 1-3. *New Haven, Cheshire, and Mount Alto USGS 7.5 Minute Quadrangle*, depicting the project area.

II. ENVIRONMENTAL SETTING

PHYSIOGRAPHY AND GEOLOGY

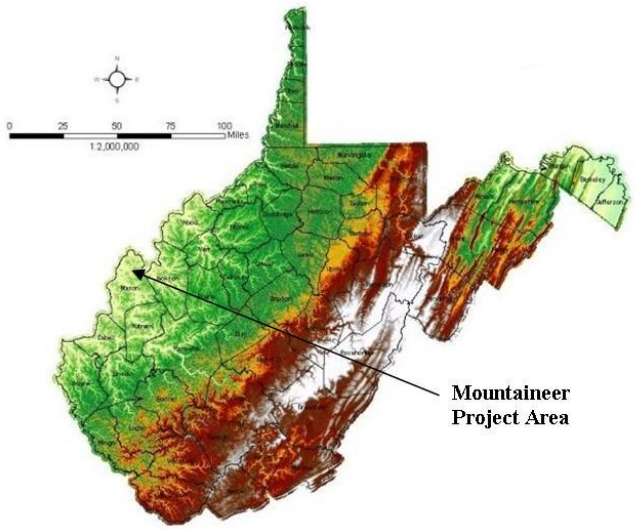


Figure 2-1. Mountaineer CCS II project area location on *West Virginia Physiographic Province Map*.

The project area is located within the Appalachian Plateau Physiographic Province, a hilly and highly dissected landscape characterized by narrow floodplains and V-shaped valleys (USDA 2008). The Appalachian Plateau Province covers the western two-thirds of the State where rock formations are relatively flat, except for several distinct folds and faults on the eastern side of the Province. The boundary between the Plateau and the Valley and Ridge Province to the east is the Allegheny Front, a complex and rather abrupt change in the topography, stratigraphy, and structure. The oldest rocks within the Appalachian Plateau Physiographic Province are located in the eastern fold sequences and range in age from late Ordovician up through the Mississippian (Cardwell et al. 1968). The majority of the Appalachian Plateau is comprised of Pennsylvanian and Permian strata. The rocks exposed in the northern part of the Plateau are younger than those exposed in the southern part.

Bedrock in this area was formed within the Appalachian Basin, a sedimentary basin in the Midwest deposited in the Paleozoic Era (WVGES 1969). Thick, alternating layers of shale, limestone, dolomite, and sandstone formed from marine sediments were deposited in the Cambrian and Ordovician Periods. Bedrock within the project area is relatively flat and is commonly found below shallow soil cover and in outcrops. Weathered bedrock and alluvial material form surface soils in the valley floors. Surface runoff flows into streams and gullies, causing increased erosion on slopes and along waterways. Erosion caused by both wind and water is a major factor in the topographic character of the Appalachian Plateau Province including the survey area. Topography of the general project area ranges from nearly level floodplains to moderately steep ridge tops and steep to very steep side slopes. Elevation ranges from 500 feet above sea level along the Ohio River to 1,260 feet at the top of Garnes Knob.

Drainage from the project area flows into intermittent and ephemeral streams as well as perennial streams including Brinker Run, Broad Run, Claylick Run, Little Broad Run, Mud Run, Thombleson Run, Tenmile Creek, and West Creek all of which eventually flow into the Ohio River.

Mineral resources in the vicinity of the project area include coal, oil, and natural gas. Coal seams are present throughout West Virginia and have been mined for over a hundred years

(WVGES 2010a). A number of historic coal mines, no longer active, exist in the vicinity of the project area. The now closed Broad Run Mine is located approximately one mile south of the Mountaineer Plant. In addition, there are several oil and natural gas deposits within Mason County, a number of which are active wells within a few miles of the survey area Ohio Division of Natural Resources 2010).

Local lithic resources that would have been available to humans for stone tool manufacturing during the prehistoric period include quartzite, crystalline rocks from stratified old alluvium, and some lacustrine sediments in preglacial valleys found within soils of the Gallia Series. In addition, a number of bedrock cherts with known geological provenience in southern West Virginia, eastern Kentucky and southern and eastern Ohio were used for prehistoric stone tool production (Smith 2005).

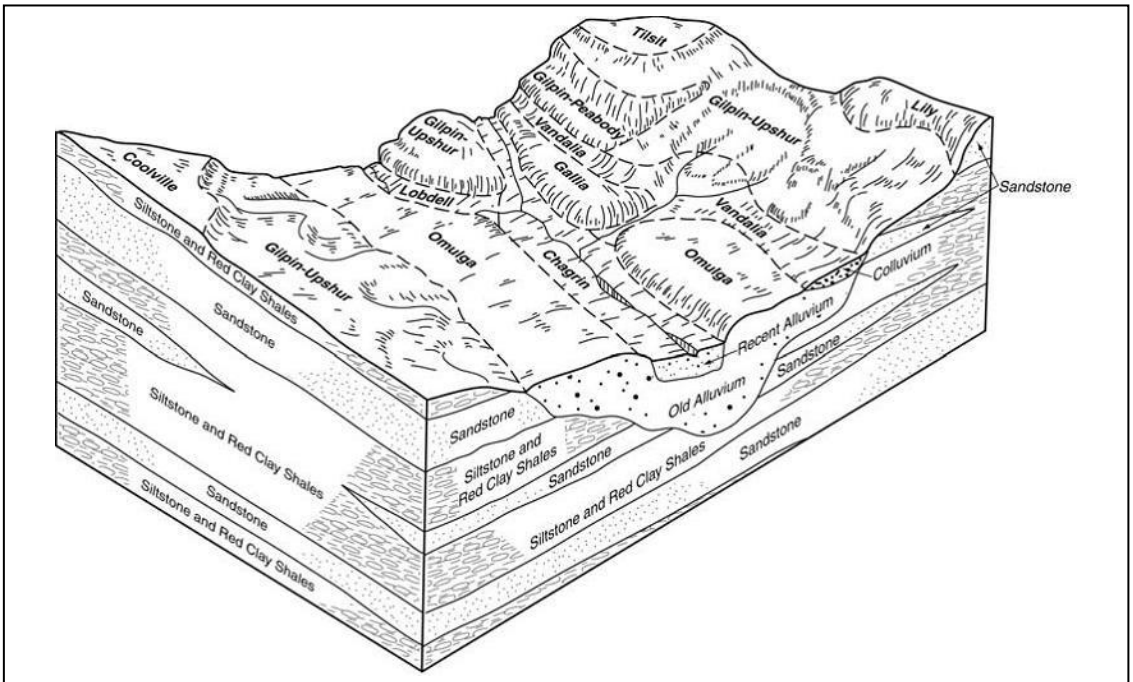


Figure 2-2. Diagram showing soils typical of the Mountaineer CCS II Project Area.

SOILS OF THE PROJECT AREA

Blessing Road Corridor

Soils mapped within the Blessing Road Corridor were formed from shale, siltstone, sandstone as well as alluvium and colluvium (USDA 2010). A majority of the soils mapped as existing within the Blessing Road Corridor belong to the Gilpin-Upshur complexes (GpC and GpD) and the Gilpin-Peabody complex (GmF), all of which contain soils from more than one series and are found in upland areas (Table 2-1). Soils mapped within lower-lying areas include Sensabaugh (SnA) soil units, found along drainageways, on foot slopes and alluvial fans, and Vandalia (VdD) Series soils which occur on foot slopes and colluvial fans. The Gilpin, Upshur, Peabody and Vandalia units are all soils with relatively severe hazards of erosion, high surface water runoff, and shallow depth to bedrock.

Borrow Area

Soils in the three borrow areas are primarily mapped as Gilpin-Upshur complex (GpC and GpD), a well-drained soil series found primarily on hill slope shoulders, with smaller contributing areas of Landfill (Ld) soils on the northern and western boundaries of the borrow areas (see Table 2-1). Soils of the Borrow Area are formed from shale, siltstone, and some sandstone. Pedestrian survey and shovel test excavation in these areas indicated that the original surficial deposits have been largely removed or altered.

East Corridor

The soils of the East Corridor survey area are formed from siltstone, sandstone and shale and from loess, colluvium, alluvium, and lacustrine sediments (USDA 2010). Soil series mapped within the East Corridor include Coolville and Tilsit soils (CsB) and Vandalia soils (VdD) in upland areas, and Omulga soils (OmB) within lower valley areas (see Table 2-1). In portions of the corridor, the soil series are so variable that they are described as complexes, with multiple soil series occurring in a defined area. The Gilpin-Peabody complex (GmF), Gilpin-Upshur complex (GpC, GpD, and GpE) and Upshur-Gilbin complex (UgD3) all occur within the East Corridor. These complexes include soils that occur in upland areas from the Gilpin, Peabody and Upshur series. Soils belonging to steeply sloping soil units including GmF, Gilpin-Upshur complexes, UgD3, and VdD account for approximately two-thirds of the soils within the survey area. A portion of the project area crosses a section of a river, as well as an intermittent stream. These waterways are surrounded by soils from the Sensabaugh Series (SnA and SrB) which are typical of lower-lying areas such as drainageways and foot slopes.

Eastern Sporn Corridor

Soils in the Eastern Sporn Corridor are derived from sandstone, siltstone, shale, limestone, and low-lime glacial drift, and from alluvial, colluvial, loess, and lacustrine sediments (USDA 2010). Gallia soils (GaC) may also include pebbles and fragments of sandstone, shale, quartzite, and crystalline rocks. Soil complexes mapped within the survey corridor include the Gilpin-Peabody complex (GmF), the Peabody-Gilpin complex (PgF), the Gilpin-Upshur complex (GpE), and the Upshur-Gilpin complex (UgD, and UgE)(see Table 2-1). These complexes contain soils from multiple series including Peabody, Gilpin, and Upshur, all of which occur in upland areas. Other soils mapped as present within the upland areas of the survey Corridor are Chagrin (CdA), Coolville and Tilsit soils (CsB), Tarhollow soils (ThC), and Upshur (UeB and UeC). Additional soils mapped within the survey Corridor include Omulga soils (OmB) which occur in valley fills, Vandalia (VdD) soils which occur on foot slopes and colluvial fans, and Sensabaugh soils (SnA and SrB) that occur along small streams, foot slopes, and alluvial fans. Approximately 84 percent of the soils in the survey corridor are mapped as PgF units, Upshur-Gilpin complexes, GpE units, and GmF units, all occurring on very steep landforms with high erosion hazards, and often shallow depth to bedrock. The Survey corridor passes over three intermittent stream areas surrounded soils classified within the Gilpin-Peabody complex (GmF) and the Peabody-Gilpin complex (PgF).

Foglesong Corridor

Soils within the Foglesong Corridor are mapped as including Coolville and Tilsit Soils (CsB), and Gallia soils (GaC), all of which occur in upland areas of the corridor (see Table 2-1). The Gilpin-Upshur complex (GpC, GpD, GpE), which accounts for approximately 77 percent of the soils

within the survey corridor, also occur in upland areas (USDA 2010). The low-lying portions of the survey area are mapped as Lobdell soils (LvA), which occur on nearly level floodplains. The survey corridor passes over an intermittent stream that is surrounded by Vandalia (VdD) soil, which occurs on foot slopes and colluvial fans. The soils in the Foglesong Corridor area were formed from siltstone, sandstone, shale, and low lime glacial drift as well as from alluvial, colluvial, lacustrine, and loess deposits. In addition, Gallia soils may contain pebbles and fragments of sandstone, shale, quartzite, and crystalline rocks.

Jordan East Corridor

Mapped soils of the Jordan East Corridor survey area are formed from sandstone, siltstone, shale, limestone, and low-lime glacial drift, as well as from alluvium and colluvium (USDA 2010). Some of the survey area contains varied soil identified as soil complexes including the Gilpin-Peabody complex (GmF), the Gilpin-Upshur complex (GpC), the Peabody-Gilpin complex (PgF) and the Upshur-Gilpin complex (UgD, and UgE) (see Table 2-1). These complexes occur in upland areas and contain soil from more than one series including Gilpin, Upshur, and Peabody soils. Other soils mapped as occurring in upland areas of Jordan East Corridor include Coolville and Tilsit soils (CsB), and Upshur (UeC). Soils mapped in lower-lying areas within Jordan East Corridor include Sensabaugh (SnA), Vandalia (VdE and VdD) and Chagrin (CdA) soils. The majority of the soils are mapped as PgF or UgE units both of which occur on very steep landforms with high erosion hazards, and shallow depth to bedrock. Jordan East Corridor crosses an intermittent stream within Vandalia soil (VdD) and three perennial streams, surrounded by Chagrin soil (CdA), Sensabaugh soil (SnA) and soil within the Peabody-Gilpin complex.

Jordan West Corridor

The Jordan West Corridor survey area is mapped as containing soils derived from sandstone, siltstone, shale, limestone, and low-lime glacial drift and from alluvium and colluvium from upland areas (USDA 2010). Some upland areas are mapped as containing soils from the Gilpin-Upshur complex (GpC and GpD), the Upshur-Gilpin complex (UgD and UgE), the Gilpin-Peabody complex (GmF), and the Peabody-Gilpin complex (PgF)(see Table 2-1). These soil complexes contain varied soil from the Gilpin, Upshur, and Peabody series. Soil from the Lily (LIE) and Upshur (UeC) soil series also occur in upland areas of Jordan West Corridor while Chagrin soils (CdA) occur in flood plains, Sensabaugh soils (SnA) occur along drainageways or foot slopes, and Vandalia soils (VdE) occur on foot slopes and colluvial fans. The majority of the soils within this survey area belong to either PgF or UgE units which are associated with very steep landforms that have high erosion hazards, and shallow depth to bedrock. The survey area intersects two perennial streams, Claylick Run and Tombleson Run, which are associated with Chagrin soils (CdA), Sensabaugh soils (SnA) and soils from the Upshur-Gilpin complex (UgE) and the Peabody-Gilpin complex (PgF).

Jordan Tract

Soils mapped within the Jordan Tract survey area were formed from shale, siltstone, and sandstone, as well as alluvium, colluvium and loess (USDA 2010). Much of the soil mapped within the Jordan Tract survey area are varied soils belonging to complexes including the Gilpin-Peabody (GmF) complex, the Peabody-Gilpin (PgF) complex, and the Upshur-Gilpin complex (UgD and UgE) which all occur in upland area (see Table 2-1). The Upshur (UeC), and Coolville and Tilsit (CsB) soils, mapped within the soil area, are also found in upland areas. The only soils mapped within the Jordan Tract that are found in lower-lying areas are from the Sensabaugh

(SnA) Soil Series, which occur along small streams or drainageways and on foot slopes and alluvial fans.

North Corridor

Soils mapped within the North Corridor were formed from sandstone, siltstone, shale, limestone, and low-lime glacial drift, as well as alluvium (USDA 2010). A majority of the soils mapped within the North Corridor are from the Gilpin-Upshur (GpC, GpD, GpE) and the Gilpin-Peabody complexes (GmF), all of which occur in upland areas (see Table 2-1). Soils from theses complexes are characterized by relatively severe hazards of erosion, high surface water runoff, and shallow depth to bedrock. In addition, soils from the Tarhollow Series (ThC) were mapped in the North Corridor and are also found in upland areas. Chagrin (CdA) Series soils were also mapped within the survey area and are found on the floodplains of Little Broad Run which intersects the survey area.

South Corridor

Soils mapped within the South Corridor survey area are formed from sandstone, siltstone, and shale in addition to alluvial, colluvial, loess, and lacustine sediments (USDA 2010). A number of upland areas within the corridor contain soils from multiple soils series. These varied soils are identified as complexes and include the Gilpin-Peabody complex (GmF), the Gilpin-Upshur complex (GpC, GpD, and GpE), the Peabody-Gilpin complex (PgF), and the Upshur-Gilpin complex (UgC, UgD, and UgE) (see Table 2-1). Coolville and Tilsit soils (CsB), Gallia soils (GaC), and Upshur soils (UeC) are also mapped within upland areas of the survey corridor. Other soils within South Corridor include Omulga soils (OmB) found in valley fills, Sensabaugh soils (SnA) which occur along drainageways and foot slopes, and Vandalia soils (VdE and VdD) that occur on foot slopes and colluvial fans. The South Corridor is dominated by the Gilpin-Upshur complexes, GmF soil units, PgF soil units, UeC soil units, and Upshur-Gilpin complexes composing approximately 75 percent of the soil. South Corridor intersects intermittent streams in three locations within soils from the Sensabaugh series (SnA) and the Gilpin-Upshur complex (GpE). The survey corridor intersects perennial streams in two locations within soils from the Sensabaugh soil series (SnA).

Western Sporn Corridor

Western Sporn Corridor is mapped as containing soils derived from sandstone, siltstone, shale, and low lime glacial drift, as well as alluvial, colluvial, loess, and lacustine sediments (USDA 2010). Soils from the Gilpin-Peabody complex (GmF) and the Gilpin-Upshur complex (GpC, GpD, GpD3, and GpE) are mapped in the upland areas of the survey Corridor (see Table 2-1). These complexes contain soils from multiple series including Gilpin, Peabody and Upshur soils. Also mapped in the upland areas of the Western Sporn Corridor are soils from the Tarhollow (ThC), Lily (LIE), Gallia (GaC), and Coolville and Tilsit (CsB) soil series. The Lodell soils (LvA) present within the Corridor occur on nearly level floodplains while the Vandalia soils (VdD) occur on foot slopes and colluvial fans. Approximately two thirds of the soil units in the Western Sporn Corridor belong to the Gilpin-Upshur complexes (GpC, GpD, GpE) associated with steep slopes and severe erosion hazards. The Western Sporn Corridor crosses perennial streams in three locations within soils from Lobdell (LvA) soils series and within soils from the Gilpin-Peabody (GmF) complex. The Western Sporn Corridor crosses intermittent streams in three locations within soils from the Lily series (LIE), the Lobdell series (LvA) and within soils from the Gilpin-Peabody (GmF) complex.

Western Sporn Tract

Soils mapped within the Western Sporn Tract were formed from sandstone, shale, and siltstone, as well as alluvium, colluvium, loess, and lacustrine sediments (USDA 2010). Some of these soils are varied and include units from the Gilpin-Peabody complex (GmF), and the Gilpin-Upshur (GpD and GpE) complex which occur in upland areas (see Table 2-1). Also found in upland areas are soils from the Gallia Series (GaC) and the Cedarbrook Series (CcC). Other soils mapped within the Western Sporn include soils from the Lobdell (LvA) Series found on nearly level floodplains, the *Vandalia (VdD) Series* which occur on foot slopes and colluvial fans, the Lindside Series (LsA) found on floodplains along larger tributaries. Soils occurring on floodplains are associated with Tenmile Creek, which intersects the Western Sporn.

Soil Descriptions

The *Chagrin Series* consists of deep, well drained soils on floodplains composed of alluvium from upland areas of sandstone, siltstone, shale, limestone, and low-lime glacial drift. Slopes for this series range from 1 to 3 percent within the project area.

The *Coolville Series* consists of deep, moderately well drained soils containing a thin loess mantle and underlying clayey soil. Coolville soils formed from siltstone and/or sandstone and occur on upland summits and benches of hills. Slopes within the project area for this series range from 3 to 8 percent.

The *Gallia Series* consists of deep, well drained, soils that formed in stratified old alluvium and some lacustrine sediments in preglacial valleys. Gallia soils may contain a loess mantle and pebbles and fragments of sandstone, shale, quartzite, and crystalline rocks. These soils occur on summits on high terraces and have slopes ranging from 8 to 15 percent within the project area.

The *Gilpin Series* consists of moderately deep, well drained soils derived from Allegheny siltstone, sandstone, and shale. Gilpin soils occur on gently to steeply sloping uplands. Slopes within the project area for this series range from 8 to 65 percent.

The *Lily Series* consists of moderately deep, well drained soils formed from sandstone. These soils occur on nearly level to very steep uplands including ridge tops and hill sides. Slopes for this series range from 15 to 35 percent within the project area.

The *Lobdell Series* consists of very deep, moderately well drained soils. These soils occur on nearly level floodplains and formed from alluvium from upland areas of sandstone, shale, and low lime glacial drift. Slope for this series ranges from 0 to 3 percent within the project area.

The *Omulga Series* consists of very deep, moderately well drained soils formed in loess, colluvium, or old alluvium, and by underlying lacustrine sediments. Omulga soils occur in valley fills in abandoned preglacial drainage systems in the Allegheny Plateau. Slopes within the project area for this series range from 3 to 8 percent.

The *Peabody Series* consists of moderately deep, well drained soils derived from siltstone and shale. Peabody soils occur on upland ridge tops, benches, and hillsides. Slopes within the project area for this series range 35 to 65 percent.

The *Sensabaugh Series* consists of deep, well drained soils formed in alluvium or colluvium along small streams or drainageways and on foot slopes and alluvial fans. Slopes within the project area range from 0 to 8 percent for this series.

The *Tarhollow Series* consist of deep or very deep, moderately well drained soils formed from siltstone or shale occurring in unglaciated uplands. Slopes for this series range from 8 to 15 percent within the project area.

The *Tilsit Series* consists of deep to very deep, moderately well drained soils formed from siltstone or fine grained sandstone, which may be interbedded with soft shale. Tilsit soils occur on upland ridgetops. Slopes range from 3 to 8 percent for this series within the project area.

The *Upshur Series* consists of deep to very deep, well drained soils derived from shale and siltstone. Upshur soils occur on upland ridge tops, benches, and hillsides. Slopes within the project area for this series range from 8 to 35 percent.

The *Vandalia Series* consists of very deep, well drained soils formed from shale, siltstone, and some sandstone. Vandalia soils occur on foot slopes and colluvial fans. Slopes range from 15 to 35 percent for this series within the project area.

Table 2-1.

Soils of the Mountaineer CCS II Project Area.

Name/ USDA Mapping Symbol	Profile (Inches)	Texture, Inclusions	Color (Munsell)	Slope Percent	Drainage	Landform
Chagrin (CdA)	Ap: 0-10 Bw: 10-44 C: 44-60	Silt loam medium granular, friable Silt loam Organic stains Organic stains in root channels Silt loam	10YR 4/2 10YR 6/2 10YR 5/4 10YR 4/3 10YR 3/2 10YR 5/3	0-3	Well drained	Flood plains
Coolville (CsB)	Oe: 0-1 Ap: 1-8 BE: 8-11 Bt1: 11-15 Bt2: 15-20 2Bt3: 20-25 2Bt4: 25-34 2Bt5: 34-41 2BC: 41-49 2Cr: 49-60	Partially decomposed pine needles, duff Silt loam Medium granular, friable, roots Silt loam Silt, friable, roots Silty clay loam Silt films Silty clay loam Clay films Iron accumulation Iron depletions, rock fragments Silty clay Silt coatings Clay Silty clay Iron depletions Silty clay Clay films Iron accumulation Silty clay loam Iron accumulation Iron depletions Soft shale bedrock	---------- 10YR 4/3 10YR 5/3 10YR 5/6 10YR 5/3 10YR 5/6 10YR 6/3 10YR 5/4 10YR 4/4 10YR 5/6 10YR 5/2 10YR 4/4 10YR 6/3 N 5/ 2.5YR 4/6 10YR 5/2 7.5YR 5/6 10YR 6/1 2.5YR 4/6 10YR 5/4 7.5YR 5/6 10YR 6/1 10YR 5/4	3-8	Moderately well drained	Upland summits and benches

Name/ USDA Mapping Symbol	Profile (Inches)	Texture, Inclusions	Color (Munsell)	Slope Percent	Drainage	Landform
Gallia (GaC)	A1: 0-6 A2: 6-11 C1: 11-17 C2: 17-60	Extremely gravelly loam Medium subangular, friable, roots Extremely gravelly loam Medium subangular, friable, roots Extremely cobbly sandy loam Moist, friable, roots Extremely cobbly sandy loam Moist, friable, roots Moist, clay films	10YR 4/2 10YR 2/2 10YR 5/2 10YR 2/2 10YR 7/2 10YR 5/2 10YR 7/2 10YR 5/2 10YR 6/4 10YR 4/4	8-15	Well drained	Moraines
Gilpin (GmF, GpC, GpD, GpD3, GpE, UgD3, PgF, UgC, UgD, UgE, PgF)	Ap: 0-8 Bt1: 8-13 Bt2: 13-24 C: 24-30 R: 30	Channery silt loam Channery silt loam Channery silt loam Extremely channery loam Fractured shale and siltstone	10YR 4/2 10YR 5/4 10YR 5/6 10YR 5/3 2.5Y 5/4	8-65	Well drained	Nearly level to very steep uplands
Lily (LID, LIE)	Ap: 0-8 Bt1: 8-24 Bt2: 24-30 R: 30	Loam Clay loam Sandy clay loam Lithochromic mottles Hard sandstone bedrock	10YR 4/3 7.5YR 5/6 7.5YR 5/6 2.5YR 4/6 ----------	15-35	Well drained	Nearly level to very steep ridge tops and hill sides
Lobdell (LvA)	A: 0-3 Bw: 3-23 BC: 23-31 Cg1: 31-52 Cg2: 52-60	Silt loam Dry, medium granular, friable Silt loam Silt loam Iron depletions Silt loam Iron accumulation Sandy loam Iron accumulation	10YR 4/2 10YR 6/2 7.5YR 4/4 10YR 4/3 2.5Y 6/2 2.5Y 5/2 10YR 4/3 5Y 4/1 10YR 5/6	0-3	Moderately well drained	Nearly level flood plains

Name/ USDA Mapping Symbol	Profile (Inches)	Texture, Inclusions	Color (Munsell)	Slope Percent	Drainage	Landform
Omulga (OmB)	Ap: 0-10 BA: 10-15 Bt1: 15-20 Bt2: 20-24 Bt3: 24-30 2Btx: 30-43 2B't1: 43-50 2B't2: 50-62 2B't3: 62-79 2C: 79-85	Silt loam Medium granular, friable, roots Silt loam Clay films Silt coatings Iron and manganese concretions Silty clay loam Clay films Silt coatings Iron and manganese concretions Silty clay loam Clay films Silt coatings Iron depletions Iron oxide Silty clay loam Silt coatings Clay depletions Iron oxide Silty clay loam Clay films Clay depletions Silty clay loam Clay films Clay depletions Accumulated iron oxide Silty clay Clay films Clay films Clay depletions Clay Clay films Clay films Clay depletions Clay	10YR 4/3 10YR 7/3 10YR 5/6 10YR 5/4 10YR 6/6 10YR 2/1 10YR 5/6 10YR 5/6 10YR 6/4 10YR 2/1 10YR 5/6 10YR 5/6 10YR 6/4 10YR 6/2 10YR 5/8 10YR 5/6 10YR 6/3 10YR 5/2 10YR 5/8 10YR 5/4 10YR 4/4 10YR 5/2 10YR 5/6 10YR 6/4 2.5Y 6/2 7.5YR 5/8 10YR 5/6 10YR 6/4 5YR 4/6 2.5Y 6/2 10YR 5/6 10YR 6/4 5YR 4/6 2.5Y 6/2 7.5YR 5/2 5Y 6/1	3-8	Moderately well drained	Valley fills in abandoned preglacial drainage system
Peabody (GmF, PgF)	Oi: 0-1 A: 0-2 Bt1: 2-10 Bt2: 10-22 C: 22-27 Cr: 27	Slightly decomposed organic material Silty clay loam Silty clay loam Silty clay Channery silty clay Red clay shale and siltsone	---------- 7.5YR 4/4 5YR 4/4 2.5YR 3/4 2.5YR 3/4 ----------	35-65	Well drained	Upland ridgetops, benches and hillsides

Name/ USDA Mapping Symbol	Profile (Inches)	Texture, Inclusions	Color (Munsell)	Slope Percent	Drainage	Landform
Sensabaugh (SnA, SrB)	Ap: 0-9 Bwl: 9-20 Bw2: 20-36 Ab: 36-42 C: 42-62	Gravelly loam Gravelly loam Gravelly clay loam Gravelly loam Gravelly loam	7.5YR 4/2 7.5YR 4/4 7.5YR 4/4 10YR 4/3 10YR 4/4	0-8%	Well drained	Along small streams and drainageways, footslopes and alluvial fans
Tarhollow (ThC)	A1: 0-2 A2: 2-5 BE: 5-9 Btl: 9-12 Bt2: 12-27 Bt3: 27-31 2Bt4: 31-34 2Bt5: 34-44 2BC: 44-55 2Cr: 55-60	Silt loam Dry, friable, roots Silt loam Silt loam coatings Silt loam Clay films Silt loam Clay films Silt loam Clay films Silt clay loam Clay films Clay depletions Channery silty clay Clay films Iron depletions Iron accumulation Channery silty clay loam Clay films Clay depletions Iron depletions Silty clay loam Soft siltstone	10YR 3/2 10YR 5/2 10YR 4/3 10YR 3/2 10YR 5/4 7.5YR 5/6 7.5YR 5/6 7.5YR 5/6 7.5YR 5/6 7.5YR 5/6 10YR 5/6 7.5YR 5/6 10YR 6/4 7.5YR 5/6 7.5YR 5/6 10YR 5/2 5YR 5/6 7.5YR 5/6 7.5YR 5/6 10YR 6/3 10YR 6/2 10YR 5/6 ----------	8-15	Moderately well drained	Unglaciated uplands

Name/ USDA Mapping Symbol	Profile (Inches)	Texture, Inclusions	Color (Munsell)	Slope Percent	Drainage	Landform
Tilsit (CsB)	Oi: .5-0 Oe: 0-0.5 Ap: 0.5-5 BA: 5-9 Bt1: 9-19 Bt2: 19-24 Btx1: 24-44 Btx2: 44-56 C: 56-65 R: 65	Leaves and pine needles Partially decomposed leaves and pine needles Silt loam Silt loam Silty clay loam Silty clay loam Iron depletions Iron concentrations Silty clay loam Clay films Iron depletions Iron concentrations Silty clay loam Clay films Iron concentrations Iron concentrations Very channery silt loam Hard siltstone	---------- ---------- 10YR 5/2 10YR 6/4 10YR 5/6 10YR 5/4 2.5Y 6/2 7.5YR 5/6 2.5Y 5/6 2.5Y 5/4 10YR 6/2 7.5YR 5/8 2.5Y 6/2 2.5Y 6/1 2.5Y 5/6 7.5YR 5/6 10YR 5/4 7.5YR 5/6 5Y 5/2 ----------	3-8	Moderately well drained	Upland ridgetops
Udorthents (Ud)	Urban Land Complex- Areas disturbed by cutting or fill	Moderately course textured soil	----------	Varies	Well drained	Varies
Upshur (GpC, GpD, GpD3, GpE, UgD3, UeB, UeC, UgC`, UgD, UgE)	Ap: 0-7 Bt1: 7-16 Bt2: 16-31 Bt3: 31-42 C1: 42-54 C2: 54-72 Cr: 72	Silty clay Clay Clay films Clay Silty clay Silty clay loam Silty clay Calcareous shale	5YR 4/4 2.5YR 4/4 5YR 4/4 2.5YR 4/4 10YR 4/3 10YR 3/3 2.5YR 3/4 2.5Y 6/4	8-35	Well drained	Upland ridgetops, benches and hillsides.
Vandalia (VdD, VdE)	Ap: 0-5 BA: 5-8 Bt1: 8-17 Bt2: 17-33 Bt3: 33-43 2C: 43-72	Silty clay loam Silty clay loam Silty clay loam Channery silty clay Channery silty clay Channery clay	7.5YR 4/2 5YR 4/4 5YR 4/6 2.5YR 4/4 2.5YR 4/4 10R 4/3	15-35	Well drained	Foot slopes and colluvial fans

Source: USDA National Cooperative Soil Survey, accessed March 2010, www2.ftw.nrcs.usda.gov

FLORA AND FAUNA

The project area lies within the Eastern Broadleaf Forest (Oceanic) Province and consists of three categories of vegetation: natural systems, human altered/disturbed systems and previously disturbed systems (Nature Serve 2010). The natural systems include forest, swamp, floodplain and riparian systems, which contain the greatest variety of wildlife as a result of a lower amount of human disturbance. Forest areas may include eastern hemlock (*Tsuga canadensis*), sugar maple (*Acer saccharum*), yellow birch (*Betula alleghaniensis*), American beech (*Fagus grandifolia*), white pine (*Pinus strobus*), tuliptree (*Liriodendron tulipifera*), black cherry (*Prunus serotina*), and sweet birch (*Betula lenta*), white oak (*Quercus alba*), red oak (*Quercus rubra*), chestnut oak (*Quercus prinus*), scarlet oak (*Quercus coccinea*), black oak (*Quercus velutina*), red maple (*Acer rubrum*), pignut hickory (*Carya glabra*), and mockernut hickory (*Carya alba*). Characteristic trees near floodplain systems include silver maple (*Acer saccharinum*), eastern cottonwood (*Populus deltoids*), river birch (*Betula nigra*), sugarberry (*Celtis laevigata),* sweetgum (*Liquidambar styraciflua*), willows (*Salix spp.*), and sycamore (*Platanus occidentalis*), with green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus Americana*), tuliptree, and bur oak (*Quercus macrocarpa*) in more well-drained areas. Natural swamp areas may include red maple, alder (*Alnus spp.),* sedges (*Carex spp*.), common buttonbush (*Cephalanthus occidentalis*), black ash (*Fraxinus nigra*), holly (*Ilex spp*.), blackgum (*Nyssa sylvatica*), cinnamon fern (*Osmunda cinnamomea*), swamp white oak (*Quercus bicolor*), and pin oak (*Quercus palustris*). Common trees within Riparian systems may include river birch, sycamore, and box elder (*Acer negundo*), and possibly tuliptree, sweetgum, red maple, sugarberry, and green ash.

Human altered or disturbed systems include areas used for the production of crops including corn, soybeans, small grains, sunflowers, vegetables, and cotton, as well as pastures used for livestock grazing or the production of hay and developed areas which most commonly include single-family housing units. These areas typically have elevated levels of invasive and non-native (exotic) plant species including autumn olive (*Eleagnus umbellate*), garlic mustard (*Alliaria petiolata*), japanese honeysuckle (*Lonicera japonica*), japanese knotweed (*Fallopia japonica*), and multiflora rose (*Rosa multiflora*) (Invasive Plant Atlas 2010).

Previously disturbed systems consist of areas that have sustained large-scale human disturbance, such as grading or clearing, but have established early successional communities, including grassland and shrub/scrub (Nature Serve 2010). These areas usually contain native species found in natural systems, but still contain exotic and invasive species. These areas support a greater variety of wildlife than human altered systems, but a more limited variety of wildlife than a natural system.

Wildlife found in the project area includes raccoons (*Procyon lotor*), white-tailed deer (*Odocoileus virginianus*), striped skunks (*Mephitis mephitis*), various rodents, garter snakes (*Thamnophis sirtalis*), Eastern box turtles (*Terrapene carolina carolina*), American toads(*Bufo americanus*), and Eastern newts (*Notophthalmus viridescens*). Avian species include rock dove (*Columba livia*), European starling (*Sturnus vulgaris*), horned lark (*Eremophila alpestris*), American crow (*Corvus brachyrhynchos*), American pipit (*Anthus rubescens*), snow bunting (*Plectrophenax nivalis*), scarlet tanager (*Piranga olivacea*), wood thrush (*Hylocichla mustelina*), blue jay (*Cyanocitta cristata*), red-eyed vireo (*Vireo olivaceus*) white-eyed vireo (*Vireo griseus*), Carolina chickadee (*Poecile carolinensis*), yellow-billed cuckoo (*Coccyzus americanus*), Acadian flycatcher (*Empidonax virescens*) Eastern wood pewee (*Contopus virens*), ovenbird (*Seiurus aurocapillus*), hooded warbler (*Wilsonia citrine*) worm-eating warbler (*Helmitheros vermivorus*), common yellowthroat (*Geothlypis trichas*), mourning warbler (*Oporornis Philadelphia*), turkey

vulture (*Cathartes aura*), barn owl (*Tyto alba*) and wild turkey (*Meleagris gallopavo*). Perennial streams within the project area also support a variety of aquatic species including, fish, such as red shiner (*Cyprinella lutrensis*), bluegill (*Lepomis macrochirus*), green sunfish (*Lepomis cyanellus*), bluntnose minnow (*Pimephales notatus*), and white crappie (*Pomoxis annularis*), as well as invertebrate species such as mussels, isopods, amphipods, and insects (Nature Serve 2010).

Shelford (1963) includes the project area within the temperate deciduous forest biome (or oak-deer-maple biome). The region would have provided aboriginal populations with rich and varied biotic resources in the form of nuts, seeds, berries, fish, large and small mammals, and birds. Before the arrival of the Europeans, the project area vicinity would have represented a mosaic of habitats. Dominant trees would have included red and white oak, red maple, sassafras, American sycamore, red mulberry and black cherry. Numerous shrubs and undergrowth such as arrowwood, poison ivy, blackberry, Virginia creeper and dogwood would have also been present.

PALEOENVIRONMENT

The more than 11,000 years of human occupation of the Atlantic Slope are divided into two broad climatic periods. The earlier, before 8000 B.C., corresponds to the Pleistocene epoch of the Quaternary geologic period. The period after 8000 B.C. corresponds to the Holocene epoch of the Quaternary geologic period. The seasons of the Pleistocene produced a mosaic vegetation pattern which is a species-diverse, patchy arrangement of plant and animal communities. Pleistocene conditions ended in most areas of the world around 11,000 B.C. (Delcourt and Delcourt 1983, 1985; Watts 1979, 1980); however, due to the wasting of the Laurentide ice sheet, near ice-age conditions reappeared in the Northeast (Broecker and Denton 1990; Fitting 1974). The grandest of these cold episodes followed 9000 B.C., when runoff from the melting glacier suddenly shifted from the Mississippi River to the St. Lawrence River (Broecker and Denton 1988). The rush of cold water from the St. Lawrence River disrupted the Gulf Stream's warm northward current, returning the north Atlantic basin to ice age-like conditions for about 700 years. During the Holocene, the glacier retreated and finally disappeared.

Describing the past environments of the region is based on limited paleoenvironmental work in the region over the past four decades. In the Appalachian region, reconstruction of the late glacial and post-glacial period environments is based on pollen core evidence from a number of sites (Carbone 1974; Delcourt 1979; Delcourt and Delcourt 1981), including Buckles Bog near Meadow Mountain in Garrett County, Maryland (Maxwell and Davis 1972). Pollen evidence from Buckles Bog documents the presence of tundra adapted plant species between 21,000 and 17,700 B.C. *Cyperaceae* (sedge) and grasses predominate in the pollen record with lower percentage values of spruce and pine (Maxwell and Davis 1972:515). Species represented in the late glacial period zone from Buckles Bog are similar to those from early herb assemblages in sites on glaciated terrain and pollen influx values are similar to measurements of contemporary pollen rain in arctic tundra (Maxwell and Davis 1972:516). A significant change in flora is evident in zone BB-2 at Buckles Bog. Dated at 14,700 B.C., the zone shows a sharp increase in tree pollen counts marking a change from tundra to boreal woodland.

At around 12,500 B.C., shortly after the time of initial human occupation of the area, a pine-birch forest dominated the regional environment. This shows up in zone BB-3 as a primary *Pinus-Betula* assemblage. The establishment of modern vegetation in the region is clearly evident in pollen assemblage zone BB-4 at Buckles Bog where a *Quercus-Castanea* (oak-chestnut) forest appears to dominate by around 7000 B.C. Zones C-1, 2, and 3 at Cranesville (Cox 1968) support

the Buckles Bog information with data which is almost identical to that from Zone BB-4. The pollen data from these two Appalachian Plateau cores are similar to data from Ridge and Valley sites with differences in elevation perhaps causing a lag in the Plateau region.

What is known about the animal populations inhabiting West Virginia in the late and post-glacial periods is derived from cave sites and salt lick sites in the central Appalachian region (Carbone 1974). Recoveries from New Paris No. 4 sinkhole (Guilday et al. 1977) lend support to the presence of a late glacial boreal climate in the region, which would support megafauna and large mammals such as mastodon, mammoth, sloth, caribou, moose, bison, and musk ox (Carbone 1974:94). A rapid change in the faunal assemblage representing the region is indicated by recoveries from Hosterman's Pit (Guilday 1967) where a modern faunal assemblage was radiocarbon dated at 7340 $\pm$ 1000 B.C. Faunal assemblages from archaeological sites in southwestern Pennsylvania (e.g., Gilmore 1946) and West Virginia show deer and elk to be common in the region in late prehistoric times, and most likely the preferred food resource of aboriginal populations. Recoveries of bear, rabbit, beaver, small rodents, turtle, turkey, and bison, are indicative of supplementary food resources utilized throughout the prehistory of the area.

The Holocene once was thought to be a period of relatively uniform climate; however, current research indicates that the Holocene was composed of episodes of fluctuating global climates that translated into local climatic variations. The definition of these episodes has to be refined for each region, as the translation from global conditions to local can be quite complex. Empirical evidence providing at least a rough outline of Holocene episodes has been accumulating in the Mid-Atlantic for some time (Carbone 1974). Overlapping the Middle Holocene (ca. 10,200–7000 B.C.), a mesic period characterized by hemlock and oak appeared in the mountains, and xeric conditions may have prevailed on the Coastal Plain (Carbone 1974; Watts 1979, 1980).

MODERN CLIMATE

The modern climate in the region is humid continental, with local variations affected by differences in elevation, slope, and valley position. Precipitation averages about 45 to 50 inches per year with slightly more rainfall along the eastern boundary of the county. The average annual temperature is 52°F and the average growing season is 164 days (Beverage et al. 1968).

III. CULTURAL OVERVIEW AND REVIEW OF PREVIOUS RESEARCH

This chapter presents an overview of the prehistory and history of the project region and provides a review of the previous archaeological investigations that have been conducted in the project area and vicinity. Following the prehistoric overview, a review of the regional history, including the Colonial, Revolution and Early Federal, Early Industrial, Late Industrial, and Early Modern periods is presented. Archaeological site and survey reports from the immediate region are also reviewed to provide a context for interpreting the archaeological resources of the local project area.

PREHISTORIC CONTEXT

The three main divisions in the prehistory of the Eastern Woodlands include the Paleoindian period (10,500 - 8000 B.C.), the Archaic period (8000 - 1000 B.C.), and the Woodland period (1000 B.C. - AD 1000). A Late Prehistoric period lasted from AD 100 to AD 1600, and the Protohistoric period (AD 1600 - 1670) involved the short period of time during which aboriginal peoples in the region interacted with the earliest European settlers to enter the region. These periods are summarized below as relevant to the Mason County area.

Table 3-1.

Prehistoric Cultural Chronology of West Virginia.

Cultural Period	Approximate Dates
Paleoindian Period	10,500 – 8,000 BC
Archaic Period	8000 - 1000 BC
Early Archaic Subperiod	8000 - 6000 BC
Middle Archaic Subperiod	6000 - 4000 BC
Late Archaic Subperiod	4000 - 1000 BC
Woodland Period	1000 BC - AD 1000
Early and Middle Woodland Subperiods	1000 BC - AD 500
Late Woodland Subperiod	AD 500 – AD 1000
Late Prehistoric Period	AD 1000 – AD 1600
Protohistoric/Contact Period	AD 1600 – AD 1670

Paleoindian Period (ca. 10,500 BC – 8000 BC)

As early as 12,500 years ago the earliest inhabitants to occupy the Appalachian Mountains moved into what is now the Ohio Valley. These peoples were hunters and foragers who depended on species of game, which are now extinct in the region, as well as game such as white-tailed deer, which are still common in the region today. Pleistocene fauna such as mastodon, mammoth, caribou and elk, along with deer and smaller game were hunted with thrusting spears tipped with fluted spear points. Such point forms are very similar in style throughout North America during the Paleoindian period.

To understand the settlement patterns and life ways of early aboriginal groups in the Ohio Valley, comparisons must be made with nearby regions where significant finds and substantial research efforts have taken place in the last 15 years. Major excavations have been conducted in the Shenandoah Valley of Virginia and at Meadowcroft Rockshelter, southwest of Pittsburgh,

Pennsylvania. Meadowcroft Rockshelter, a site containing some of the earliest radiocarbon dated occupations in North America, is located in southwestern Pennsylvania along a tributary of the Ohio River. A Paleoindian component from Stratum IIa, dating the deepest occupation level on the site, contained an unfluted lanceolate projectile point, a collection of stone tools including flake knives, blades, unifaces, bifaces, gravers, and denticulates, and a small amount of debitage (Adovasio et al. 1978:644). Evidence of principal faunal species exploited by occupants of the site include primarily white-tailed deer and elk, although smaller game including bird remains have also been recovered. Meadowcroft is interpreted as a locus for hunting, collecting, and food processing activities. Little evidence of tool manufacturing is apparent in the assemblage though some tool re-sharpening did take place on the site (Adovasio et al. 1978, Carlisle and Adovasio 1982).

In the vicinity of the Meadowcroft site, intensive survey in the Cross Creek drainage has produced Paleoindian sites in sheltered positions overlooking the drainage. These sites are in accessible locations to several different ecological zones (Fryman 1982:62) and include quarry workshop sites (e.g. 36WH351). Other sites include hunting and base camps occupied while resources of Cross Creek were exploited. Although Meadowcroft is an important site that may facilitate our interpretation of other rockshelters in western West Virginia, our understanding of the eastern region's Paleoindian settlement pattern is best derived from analysis of the Flint Run complex sites (Gardner 1974, 1977). These sites cluster in the Shenandoah Valley of Virginia east of the study area. Three phases between 10,000 - 8000 B.C. are recognized for the Paleoindian period in the region based on Gardner's work. The Clovis phase is the earliest, followed by mid-Paleo, and Dalton-Hardaway. Differences between the three phases are mainly stylistic; that is, changes are manifested in styles of projectile points, but not in the basic tool kit, which consists of scrapers, bifacial knives, cores, wedges, and flake tools.

A model of Paleoindian settlement in the region would include the establishment of base camps in high river terrace settings where outcrops of high quality cryptocrystalline lithic material occur. Such settings would include terrace landforms along the Kanawha River just southwest of the project area and the Ohio River where consistent use of terrace settings is shown (Hyde 1960). The presence of early Holocene occupations at the St. Albans site (46KA27) provides a nearby example of this pattern. It is not presently known how extensive the Kanawha Black flint outcrops were exploited at this time. It appears that most of the fluted points found in the Ohio and nearby Kanawha Valleys are manufactured from non-local cherts (Paxton 1960; Broyles 1967; Youse 1981). Hunting and foraging camps would have been located on well drained sites adjacent to some of the laurel swamps, springs, and ponds, or adjacent to first-order streams. While upland springheads and swampy locations may have been frequently utilized at that time, higher elevation ridges may not have been due to lack of sufficient surface water. Again, there is little evidence to confirm their settlement preferences.

Archaic Period (ca. 8000 BC - 1000 BC)

The Archaic period in the Ohio and nearby Kanawha Valley is marked by significant population increase in the region. This is evidenced by numerous Archaic period projectile point finds, as well as buried sites such as the Glasgow site (Niquette et al. 1991) along the floodplains of the Kanawha River, as well as within upland rockshelters, such as Scary Rockshelter (46PU158).

Regional settlement systems largely reflect post-glacial adaptations as deciduous forests dominated much of the landscape except at the higher elevations. Populations would have been organized into small bands, which exploited large and small game, fish, and wild plants of their

surroundings in a restricted wandering pattern. Hunting and foraging trips stemmed from base camps located near critically important resources such lithic outcrops of lithic material of suitable knapping quality.

Some of the ubiquitous rock shelter locations found in the region may have been critical staging areas for such exploits. This settlement pattern carried aboriginal groups into Appalachian summit areas, as well as along the wide floodplains of major rivers. Intensive use of high elevation environments, i.e., above 4000 feet, would likely date to as early as the Kirk Phase of the Early Archaic period (ca. 8000 B.C.), as has been found further south in North Carolina (Purrington 1983:113) and in southwestern Virginia highlands. Kirk occupations represented by small surface scatters are also found in higher elevation headwaters in northern West Virginia and western Maryland.

Evidence from Middle Archaic sites in the Appalachian region show a trend toward more generalized adaptations and the exploitation of a wide range of environmental zones. This is a pattern which persists throughout the period. There is a marked increase in the number of sites dating to this period, a trend which perhaps originated with the Kirk Phase occupations.

The Late Archaic occupation of the Kanawha Valley exhibits trends that are similar to those occurring in the Upper Ohio Valley. This is probably tied into a "Montane" Archaic tradition as defined by McMichael (1968). This tradition, which is focused in the central to southern Appalachian region, is marked by the use of a variety of non-cryptocrystalline materials (e.g., quartzite, siltstone, specular hematite, and fine-grained sandstone) during the Middle to Late Archaic period. Projectile point styles exhibit remarkable similarities over wide regions, even during the Late Archaic. Typical point forms include Savannah River stemmed, Perkiomen, and Buffalo Stemmed. Dunnell (1972), based on work conducted at Fishtrap Reservoir, defines a Late Archaic phase comprising small seasonal camps containing evidence of stone cooking vessels and food grinding equipment. This indicates a reliance on gathered plant foods supplemented by a hunting economy. Major encampments are found primarily in broad valley locations with nearby upland headwater camps occupied sporadically for hunting and gathering purposes.

Overall, in the Ohio and Kanawha valleys during the Late Archaic there was a tremendous increase in the number of sites, and occupations are found in a much wider range of environmental settings. This relates to the development of a broad-spectrum subsistence strategy and growth of new adaptations and technologies used to exploit an ever-broadening resource base. Like the Early and Middle Archaic periods, Late Archaic site finds are primarily surface collections or samples from looted rock shelters of stemmed and notched points, as well as ground stone artifacts which seem to have widespread use during this time. There is, however, a growing number of newly recorded buried Archaic components in the Ohio and Kanawha Valleys as a result of cultural resources surveys in the area (e.g., Niquette et al. 1991).

Woodland Period (ca. 1000 BC - AD 1000)

The Woodland period is distinguished by the development of settled village horticulture and saw the development of widespread burial ceremonialism that included mound construction. The introduction of fired-clay ceramics also marks the beginning of this period. A full-blown elaboration of the burial ceremonialism concept is evidenced by Adena mound complexes. Mound building had been initiated during the previous Late Archaic period, but on a smaller scale with the construction of simple stone mounds or burials on natural hilltop features. Woodland

period settlement patterns in the region show primarily a bottomland settlement preference in larger valleys and within tributary systems. This is evident throughout this part of the Ohio Valley as indicated by the frequency of mound sites along Ohio River terraces. Upland areas most frequently utilized include rockshelters and hillside benches. The upland landforms, particularly the ridge lines and high elevation saddles appear to have seen variable use throughout the period.

During the Early Woodland period, regional trade networks became more intensified. Cultigens gradually assumed greater importance in Early Woodland economies as domesticated plants and stable wild resources were more heavily exploited. Finally, a more sedentary existence characterized Early Woodland-period societies. Adaptive strategies were geared to the exploitation of a more limited array of stable resources within a smaller catchment area.

The Kanawha Tradition, which is included within the earliest phase of Adena (800 - 500 B.C.) is defined primarily on the basis of excavations at the Hansford site (Wilkins 1977, 1979). Diagnostic artifacts from this period include Adena stemmed points manufactured from Ohio Flint Ridge material, fishtail projectile points, and thick ceramic wares. The latter include Fayette Thick and Vinette I wares, which are tempered with high percentages of grit. Pottery of this type has been found primarily in rock shelters in the area. Adena plain pottery has also been found on such sites along with hematite hemispheres and grooved cobbles (possible fragments of Adena tablets). A number of mound sites have been recorded and excavated in the Kanawha Valley and surrounding region, including the Cotiga Mound site, located along Tug Fork in Mingo County. The recovery of Vinette pottery, an Adena point, a central log tomb, and cremation pits seem to clearly identify the Cotiga Mound site with Adena.

During the earlier phase of Adena, small settlements of circular houses were built, occasionally with the association of small burial mounds. During the later Leslie Mound Phase (500-200 B.C.), accretional mounds (though not in this area) containing cremations but no grave goods, are associated with circular house with paired posts and central hearth areas. The pottery which marks this phase includes primarily shale- or siltstone-tempered wares similar to Adena Plain (Wilkins 1979). A number of other mound complexes are represented in various parts of the Ohio Valley in West Virginia during this time period, including the Cresap Mound (Dragoo 1963).

The final phase of Adena is represented by Murad Climax Phase sites (200 B.C. - A.D. 1), based on excavations conducted at Murad Mound in the Kanawha River Valley (McMichael and Mairs 1969) and the more recently excavated Cotiga Mound (Frankenberg and Henning 1993; Wall 1993). During this period, mortuary ceremonialism became more elaborate with log tomb burials and a variety of exotic grave goods of copper and mica. Other mounds of this period excavated in the Kanawha Valley include the Criel Mound, Great Smith Mound, Natrium Mound, and the Catacomb Mound (Ison et al. 1985).

The Early Woodland tool assemblage is essentially the same as the Late Archaic period with a few stylistic changes in diagnostic artifacts. Projectile point styles include the Adena lobate-stemmed form, Turkey Tail points, and a few Late Archaic styles, such as the fishtail points and Steubenville stemmed forms. Non-utilitarian and ceremonial items recovered from sites in the region include gorgets, leaf-shaped blades covered with red ocher, and hematite hemispheres and celts.

Based on the limited evidence available, it is inferred that subsistence/settlement systems of the Early Woodland period in the region included a focus on seasonally available resources and an emphasis on floodplain settlement locations. The use of horticulture has been demonstrated during the Early Woodland in the Ohio Valley. Recent evidence from Meadowcroft Rockshelter demonstrates the use of *Cucurbita* and 16-row *zea mays* yielding radiocarbon dates of 870 ± 75 B.C. to 705 ± 120 B.C. for the former, and 375 to 340 ± 90 B.C. for the latter (Adovasio and Johnson 1981). It is possible, however, that these cultigens were not as intensively utilized in the more marginal upland regions of the Appalachians until much later.

The Middle Woodland period (AD 1-500) in the Ohio Valley is marked by the existence of Hopewell manifestations and a further elaboration of cultural trends which were established by their Adena predecessors. During Hopewell times, earthworks increased in both magnitude and complexity. A number of changes in material culture also occurred; for instance, platform pipes took the place of tubular varieties, and it is likely that toward the end of the Middle Woodland period, the bow and arrow replaced the spear thrower. There is also an intensification of trade networks previously established; favored trade items included mica, obsidian, galena crystals, and marine shells. Cache blades, gorgets, and platform pipes were also included as regularly exchanged trade items in West Virginia (Wright 1959). The dating of sites relevant to the poorly understood Middle Woodland period remains a problem and tends to vary by subregion.

McMichael (1968), for example, originally divided the Middle Woodland period in West Virginia into two sub-periods. The earliest relates to the Hopewellian cultures of the Ohio Valley and includes the Armstrong Culture in central and southern West Virginia (McMichael 1968:24). This culture is defined by mound building and earthworks construction in the Ohio Valley region. Wilkins (1979), however, describes a de-emphasis on mortuary ceremonialism in some portions of West Virginia at this time, a sharp contrast with trends of cultural florescence in the Ohio Valley. Our understanding of the Armstrong Culture is based primarily on excavations at Mount Carbon, in Fayette County (McMichael 1962), similar sites in Nicholas County (McMichael 1965), and the Spring Site at Green Sulphur Springs (Ison et al. 1985:28). Mount Carbon produced a radiocarbon date of AD 120 ± 140 and a pit at the Spring Site provided a date of AD 310 ± 70 (Ison et al. 1985).

McMichael (1968:26) defines the succeeding Middle to Late Woodland phase in central West Virginia as the Buck Garden Culture, first defined on the basis of rock shelter investigations in Nicholas County, but now of limited utility as a concept. Burials were commonly interred under rock overhangs during this period as well as in stone mounds. This cultural trend may be related to the Lewis Creek Mound Culture of Virginia as described by MacCord (1986). The Buck Garden concept has outlived its usefulness, but the Late Woodland in western and southern West Virginia is still not clearly defined. Chronologically, it begins much earlier than in adjacent regions, ca. AD 400, and represents a continuation of Middle Woodland period patterns.

Even terminal Late Woodland sites are generally small in size and dispersed across the landscape represented by individual households or perhaps small clusters of households. Clay and Creasman (1999:7) note an inherent plasticity in the Late Woodland that may reflect high mobility and no tendency to cluster into large manifestations such as nucleated villages. In general, Late Woodland sites (AD 400-1000) in this region of the Ohio and nearby Kanawha Valley, are represented by cord-marked ceramics, Chesser and Lowe Flared points, triangular projectile points and a hunting-gathering/incipient horticultural economy including cultivation of maize (e.g., Woods site). These sites seem to be distributed mainly in upland rockshelter sites and open alluvial bottom areas, the latter including the Childers and Woods sites in Mason County (Shott et

al. 1990). At Childers, dating from AD 400-600, 193 features were recorded including one house. At the Woods site, dating from AD 800-1000, it is estimated that 10-15 people lived on the site for approximately 13-18 years (Shott et al. 1990).

Late Prehistoric and Protohistoric Periods (ca. AD 1000 - 1670)

Fort Ancient village culture predominated in this part of the Ohio and nearby Kanawha valley after AD 1000. These villages are sedentary and over time became more dependent on cultivated crops. There is some variability in the structure of such sites although most lack associated earthworks except for burial mounds. In West Virginia, many of the Fort Ancient villages are large, circular sites. There are differing opinions on whether Fort Ancient is tied to Mississippian influence, though most researchers feel there is no clear relationship.

In West Virginia, Fort Ancient is divided into three subperiods, Early, Middle and Late. Early Fort Ancient sites, dating from ca. AD 1000-1250, are generally smaller sites located along larger rivers. Villages of this period, such as the Roseberry Farm site (46MS53), have an open central plaza and evidence a subsistence pattern of maize cultivation supplemented by hunting, especially deer (Graybill 1979, 1981, 1988). Burial mounds associated with village occupations include for example Roseberry Farm, where 26 burials were excavated from the mound site in the village. These burials represent a small fraction of the burial population (Graybill 1979), 70 percent of which are infant burials. Ceramics associated with early Fort Ancient sites are generally shell-tempered and plain with lug and strap handles.

Middle-period Fort Ancient sites date from ca. AD 1250-1450 and are considered to be similar to earlier Fort Ancient sites and with differences noted in artifact styles and community patterns (Graybill 1988). Sites are generally larger and house structures (e.g., pit houses) are similar to earlier Fort Ancient sites. Graybill (1988) notes the cessation of burial mound construction with interments now in pits and middens within the boundaries of the village. A combination of hunting and gathering and the use of some cultigens characterize the basic subsistence pattern. Examples of such sites include a small stockade village site called Lewis Old Town (46MS57) (Kuhn and Spurlock 1982) which dates to ca. AD 1360.

Late Fort Ancient sites, which also date to the Contact period, date from AD 1450-1700. These sites are very different from earlier phases of Fort Ancient. Villages are much larger, often with multiple palisades, and a lack of the pit houses evident in earlier sites. The uniformity among village sites suggests some sort of political connection (Graybill 1988). Artifacts found on Late-period sites are more elaborate and include many items made from bone and shell, both marine and fresh water. Protohistoric Fort Ancient sites are evidenced by engraved marine shell and historic trade items. Examples of such sites include Clover (46CB40) and Buffalo (46PU31) (Hanson 1975), and within Mason County, the Orchard site (Moxley 1988). The Orchard site is located along the Ohio River north of Point Pleasant and dates to ca. AD 1640-1690. The site was a large village containing numerous silo-shaped storage pits and more than 300 burials, many associated with ceramic vessels. Artifacts include copper and brass beads as well as glass trade beads (Moxley 1988).

HISTORIC CONTEXT

Early Colonial Period

Mason County was created from portions of Kanawha County in 1804. Point Pleasant, established in 1794 and located at the mouth of the Kanawha River, is the county seat for Mason County. The county was named for George Mason, a member of the Constitutional Convention in Philadelphia in 1787 and a Virginian who also helped to write Virginia's constitution. Formerly a territory occupied by the Shawnee, Mingo, and various Iroquoian tribes in the seventeenth and into the eighteenth century, Mason County was first visited by European explorers in 1669 when LaSalle explored the Ohio River valley. Later French explorers claimed the lands for France and Louis XV and ultimately led to the conflict of the French and Indian War of the 1750s. A large Shawnee village was located in the mid-1700s within what is now Mason County.

Christopher Gist, representing the Ohio Company, traveled through Mason County in 1750. Others, including land speculators such as George Washington, came to the region in the 1770s. At that time, Washington held a large amount of acreage in what is now Mason County. Other settlers of the early 1770s included Andrew Lewis, George Muse, Peter Hog, Andrew Stephens, Andrew Waggener, John Polson, John West, Charles Thurston, Dr. Craik, and Hugh Mercer (Comstock 1973). Many of these early landholders either sold their lands to others or passed them on to their heirs. Many of the early settlers faced conflicts with local native populations; however, it was not until after the American Revolution that much of the Euro-American settlers' conflicts with local native groups (such as the Shawnee) ceased.

The Battle of Point Pleasant, in October 1774, is the best known conflict in the region between local Indian populations and Euro-American colonists. This conflict was the ultimate outcome of rapid colonization west of the Allegheny Mountains. Such settlement in these western lands had been declared illegal by the Proclamation of 1763 but colonization persisted. The Virginia colonial militia, led by General Anthony Lewis, defeated the Indians at Point Pleasant, in spite of heavy casualties. This led to the end of what is known as Lord Dunmore's War which had begun in the Spring of 1774 and ended shortly after the Battle of Point Pleasant.

Among the earliest settlers to the Grayham District were William Graham, John Roush, Michael Seagrist, and James Wolfe, who came in 1800 (Ferguson 1967:61). The Reverend William Graham oversaw the founding of Grayham Station in 1798. Designed as a Presbyterian colony, the settlement failed shortly after its founding. The location of Graham Station shows on John Wood's 1822 map of the county. Many of the early settlers established farms along the fertile Ohio River floodplain and tobacco and livestock production were important to the farming economy of the region through much of the nineteenth century (Comstock 1973).

Early Nineteenth Century

The first grist mill was built by Thomas Hoffman on Big Broad Run in 1820. A saw mill was built upstream on the same creek the following year (Comstock 1973:41). The first steam powered mill was built in 1836 by Michael Zirckel. By 1808, the establishment of early roads such from Watkins Mill to Graham Station, facilitated movement of farm products to eastern markets. Livestock drivers took hogs, sheep, and cattle to market from the Ohio and Kanawha

region (Ferguson 1967:81). This led to the establishment of a number of inns and taverns along these routes.

Later, the Charleston and Point Pleasant Turnpikes were completed in 1851 and 1861, respectively (Ferguson 1967:87). In much of the interior, further away from the Ohio River, roadways were primarily developed along major creeks. Overall, the lack of good roads through much of the rugged uplands characterizing Mason County during the nineteenth century accounts for its rural character even today. The 1822 John Wood map of Mason County shows physical features such as Little Broad Run, Big Broad Run, and Slide Hill Creek, but it depicts little cultural information with the exception of Grayham's Station, located just north of West Creek on the map (Wood 1822).

Before the coming of the railroad, steamships were used along the Ohio River to provide transportation in the mid-1800s. This was soon surpassed by the railroad industry. For example, the Atlantic and Northwestern Railroad connected the region to Charleston, West Virginia (Mason County History Book Committee 1987). Later, the Ohio River Railroad ran along the river from Wheeling to Point Pleasant, transporting oil and later passengers (Mason County History Book Committee 1987:420). By the turn of the century, regional rail systems connected to the Baltimore and Ohio Railroad linking New Haven, Hartford and other Ohio River communities. Passenger service on these railroads continued through much of the twentieth century.

Mid Nineteenth to Early Twentieth Century

During the Civil War, West Virginia split from Virginia. However, in Mason County, there were only a few skirmishes and no major engagements. The closest significant Civil War conflict took place near Buffington Island, upriver from Mason County in southeastern Meigs County, Ohio. During the Battle of Buffington Island, a Union detachment routed a Confederate cavalry column under the command of General John Hunt Morgan on July 19, 1863. This battle represents the only significant conflict that took place in Ohio during the war (Ohio Historical Society 2010). Early towns developed primarily along the Ohio River. For example, New Haven, formerly called Gabhart's Mill, then New London, was settled in the mid-1800s (Ferguson 1967:73). Early settlers practiced some mining and salt operations. Its first post office was established in 1864. By 1880, the population of New Haven was 541.

Hartford was founded in 1853 and named in 1863 after Hartford, Connecticut. Early settlers included capitalists such as Morgan Buckley and William Healy (Gibbs 1975) who were interested in exploiting the coal and salt resources of the area. Many of the early companies involved in mining operations focused on both salt and coal. These companies included the Hartford City Salt and Coal Company and the Valley City Salt and Coal Company. Companies often owned most of the operation beyond the mining property. This included furnaces for processing the raw product, stave mills and cooper shops for making barrels to contain the product, boats for transporting it to market, and even company housing for the workers.

The population of Hartford increased rapidly, reaching 1,162 by the 1880 census, but declining shortly thereafter. The population was 515 in 1900 and dwindled to 358 by 1910. The decline in population was likely due to the decrease in operations of coal and salt production companies (Ferguson 1967:71) and the lack of supporting industries to maintain the population.

Early coal mining in the nineteenth century was done with slope mines. Salt mining was established by the 1840s, but was subsequently replaced by a rapidly growing coal industry in the late 1800s. Early salt mining operations were undertaken by the Mason County Mining and Manufacturing Company which employed Irish laborers to extract and process the salt before the products were shipped out via the Ohio River (Gibbs 1975:7). In the early days of coal mining, coal was used primarily to fuel furnaces in the salt and iron industry. Coal mining developed more quickly with improvements in transportation that facilitated moving the coal to markets. As early as 1817, coal had been used primarily in the process of drying salt brine (Cohen and Andre 1987:128). By the 1830s, the first commercial coal was being produced in the region. Later in the nineteenth century, the timber industry complemented coal as a second major extractive industry along with oil and natural gas. These industries still persist today but have not supported a large population. Today, much of the region is rural farmland and forest. Numerous small farms are still cultivated and the dairy industry is strong. These economic pursuits are complemented by commercial activities associated with the Ohio River. Other twentieth-century industries include manufacture of porcelain and energy.

HISTORIC MAP RESEARCH

To determine the possible locations of historic period archaeological sites, documentary research examined historical maps that could reveal signs of former historic occupation. Evidence on historic maps included the addition of town names over time, the location of transportation routes, churches, cemeteries, and other cultural features. The following historic maps show the gradual change in occupation density in Mason County, West Virginia and surrounding areas.

The general project area is depicted on maps as early as 1796. The Collot, Victor and Tardieu map (1796) (Figure 3-1) of the Ohio River indicates water depths as well as ports and towns along the River, an indication of the importance of water transportation to commerce during this time period. The largest town in close proximity to the project area is Point Pleasant, established in 1794. A small settlement including a dock area is shown within the northeast corner of the general project area. This is most likely the early development of Graham Station, intended to be a Presbyterian colony and established by Reverend William Graham just two years later in1798. The 1796 map shows "Tart's fall" and "Two Islands" which later become Letart Falls and Letart Island with the town of Letart developing later along the West Virginia bank of the River just north of the Island. The map also notes that the eastern section of the general project area is a "Dangerous Place when the water is low" making it an unattractive if not treacherous area for those navigating by boat.

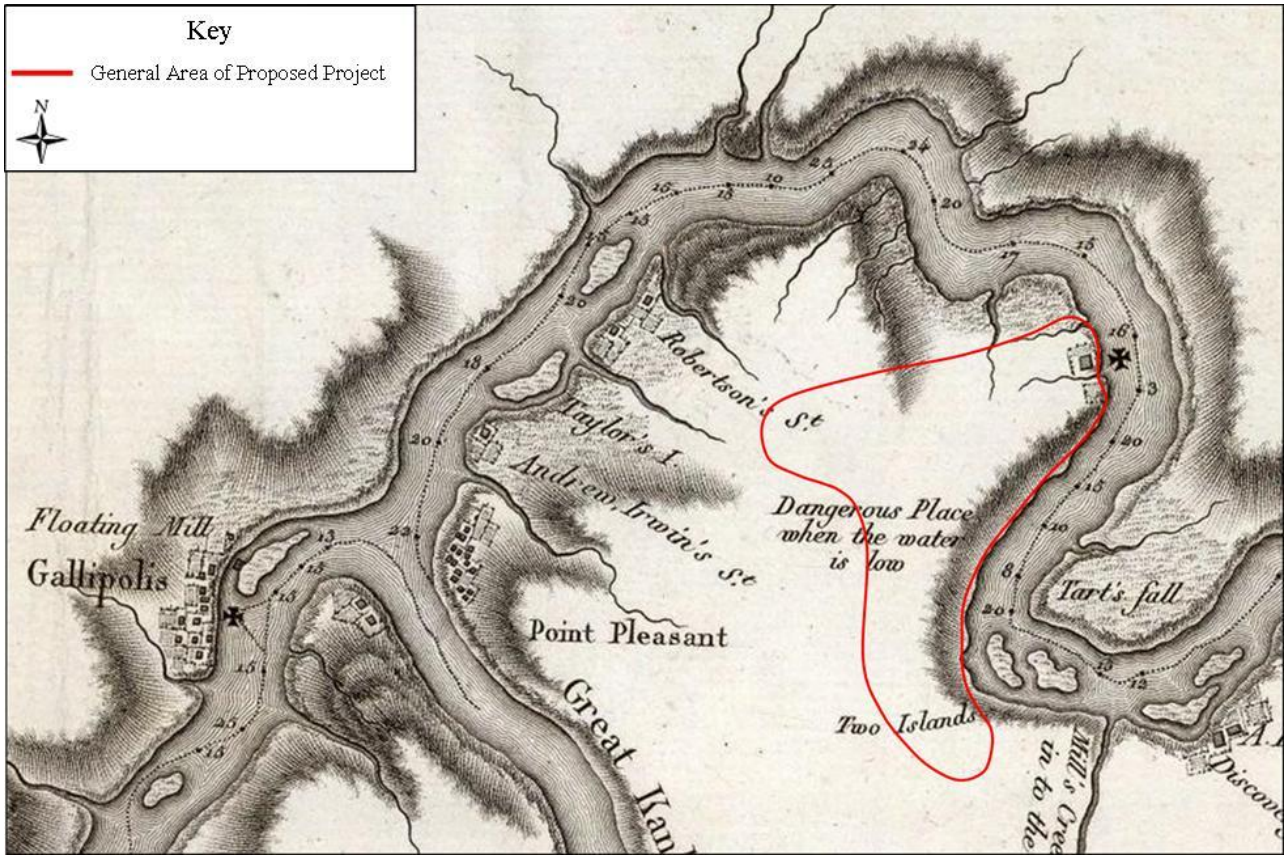


Figure 3-1. 1796 Collot, George Henri Victor and P.F., Tardieu *A General Map of the River Ohio, Plate the second* showing the approximate area of the Project.

The 1825 Buchon, Carey and Lea map (Figure 3-2) identifies the project area within Mason County, Virginia. Mason County was created from portions of Kanawha County in 1804. The 1825 map also illustrates a number of new roads, which facilitated the movement of farm productions to a greater number of markets. Many of the creeks are named on the 1825 map, while many of the smaller branches are unidentified. This may simply be due to the lack of detail of the map or potentially an indication of the increased, although not complete, knowledge of the more interior lands of the State.

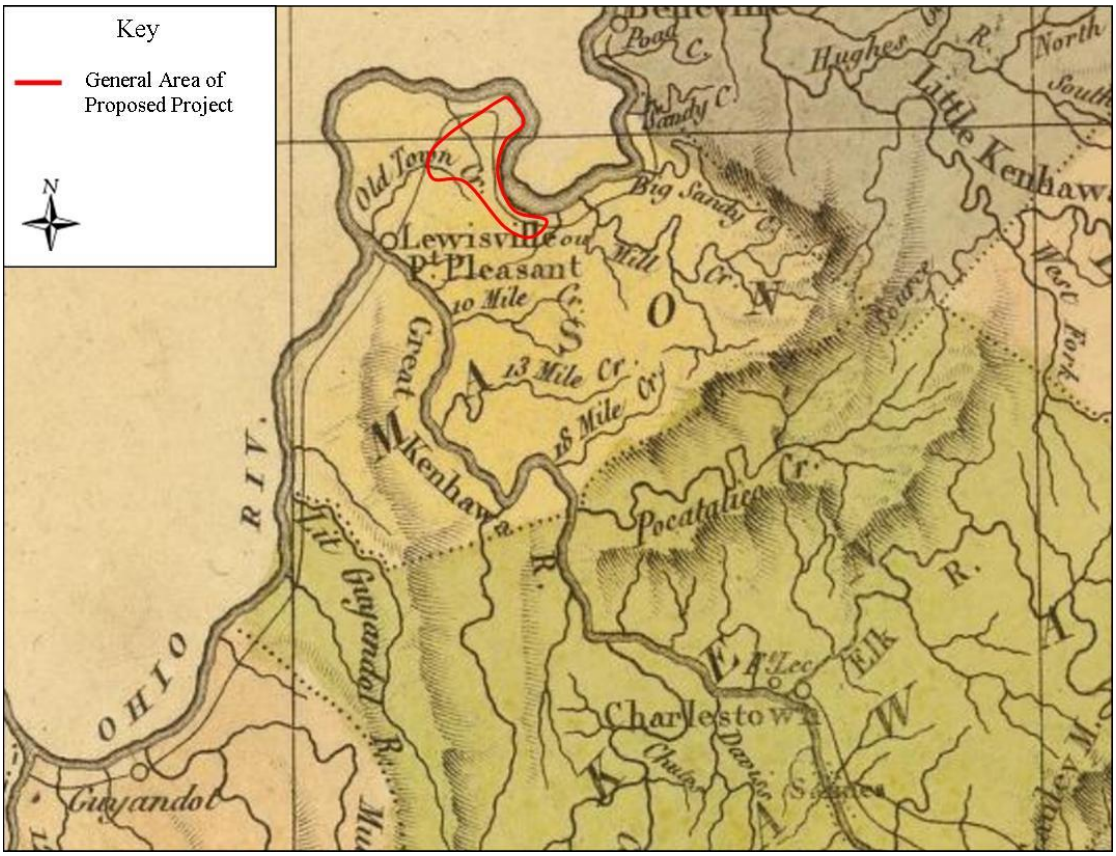


Figure 3-2. 1825 Buchon, J. A. C., H. C. Carey, I. Lea *Virginie.* showing the approximate area of the proposed Project.

The 1863 Bache and Nicholson map (Figure 3-3) shows the project area within the State of West Virginia just after West Virginia became a State on July 1, 1863. The map also shows increased detail of waterways, as well as an increased number of roads. Roads along with the developing rail systems allowed for increasingly faster and more efficient travel and transport of goods over land during this time.

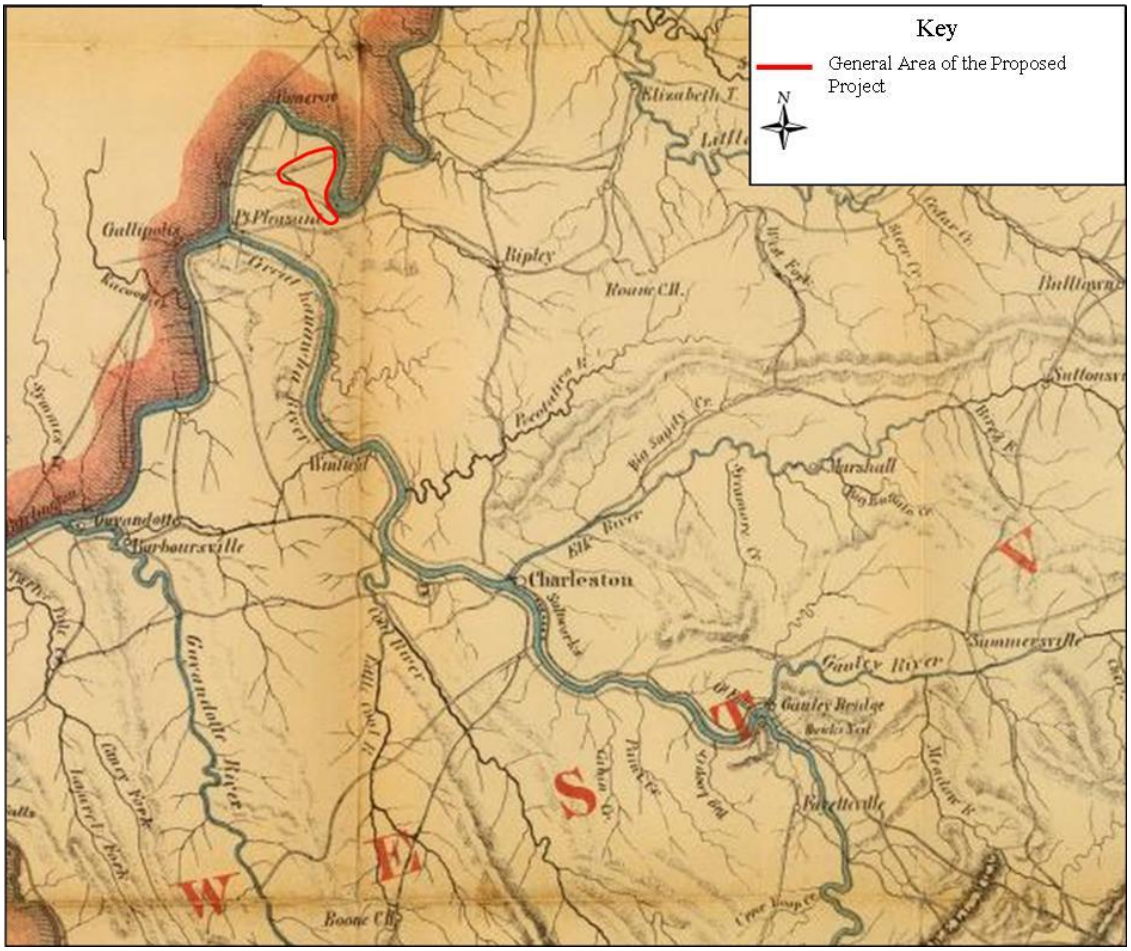


Figure 3-3. 1863 Bache, A. D. and W. L. Nicholson *Map of the state of Virginia*.showing the approximate area of the proposed Project.

Also in July 1863, the West Virginia State Legislature provided for the creation of townships within the counties of the State. The 1877 Hayes map (Figure 3-4) shows the project area within the Graham district of Mason County. The Hayes map identifies property owners, as well as a number of businesses, schools, churches and a voting district line indicating that both sides of the Ohio River were becoming increasingly developed at this time. Within the general project area, the approximate location of two churches and one school are identified along with numerous private structures and a concentration of buildings making-up the town of Grahams Station. Greater detail of the path of roads and turnpikes is indicated, as well as the town plan for Racine, located in Ohio, directly across the River from the current project area.

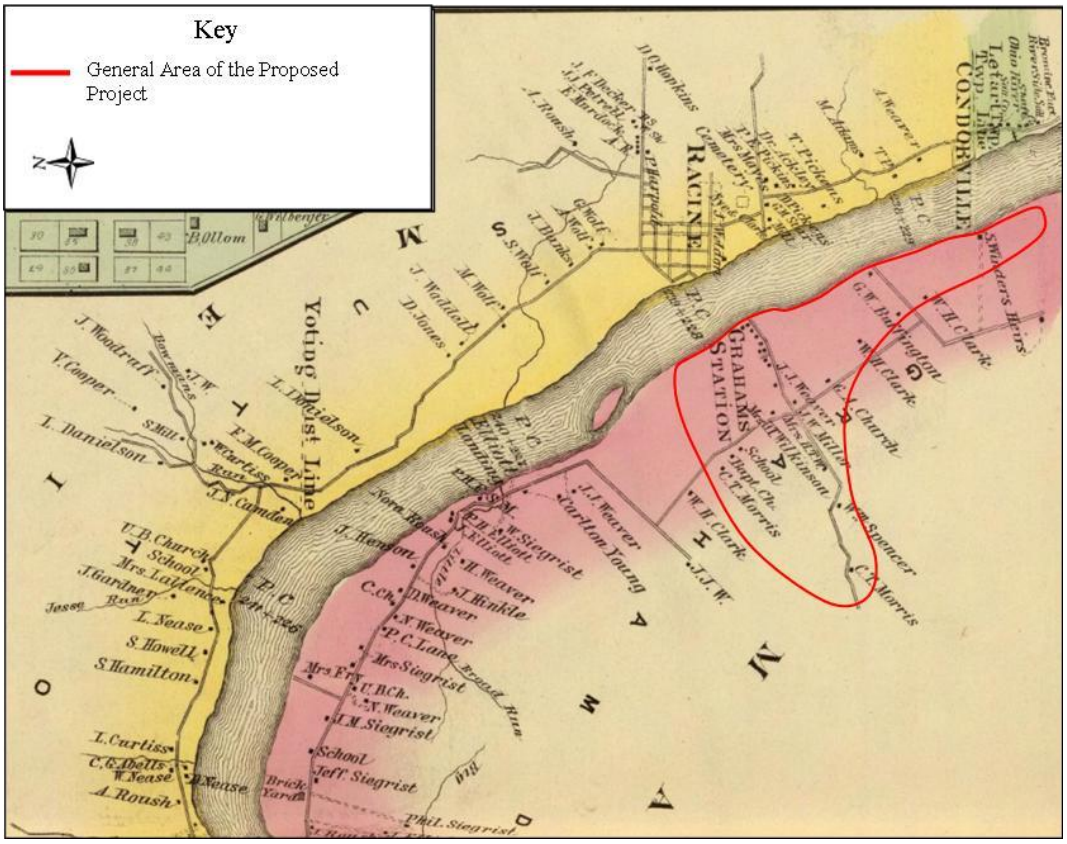


Figure 3-4. 1877 Hayes, Eli L. Upper Ohio River and Valley part XIV, 238 to 253 miles below Pittsburgh (with) Minersville, Condorville, Racine, O.; Graham Station, W. Va. showing the approximate area of the proposed Project.

A detail from the 1877 Hayes map (Figure 3-5) shows the layout of the town of Graham Station. At this time it appears only 13 structures existed in the town with the major property owners being the Beagle and Beaver families. Limited business existed in the town including a doctor, carpet weaver shop and a ferry likely transporting passenger across the river to Racine.

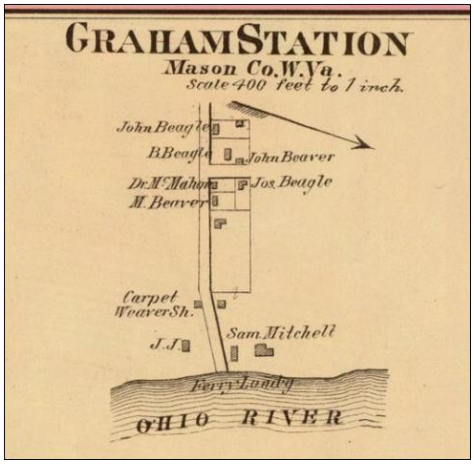


Figure 3-5. 1877 Hayes, Eli L. Upper Ohio River and Valley part XIV, 238 to 253 miles below Pittsburgh (with) Minersville, Condorville, Racine, O.; Graham Station, W.Va. showing layout of Graham Station.

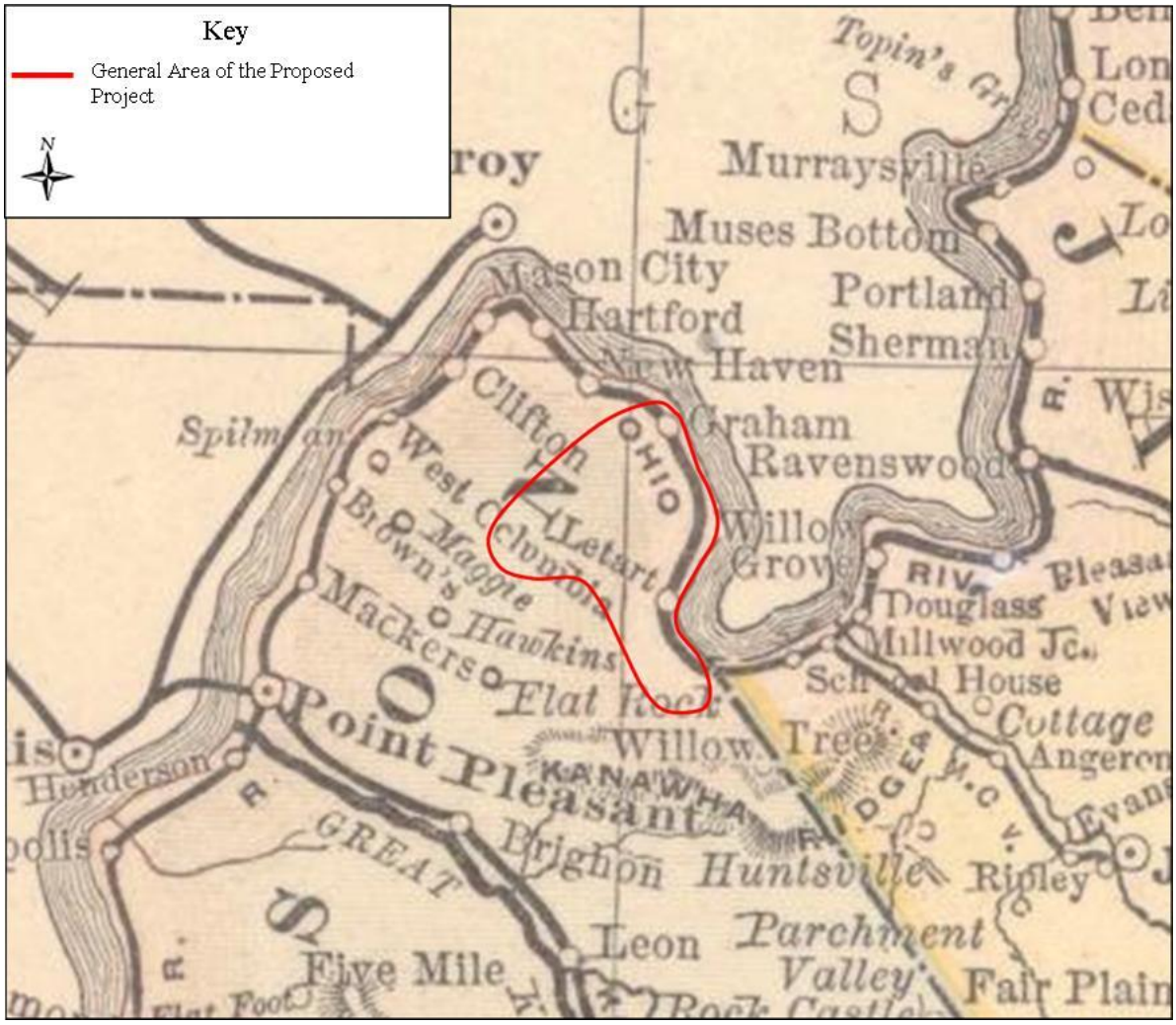


Figure 3-6. 1890 Rand McNally & Co. *New Map of West Virginia* showing approximate area of the proposed Project.

The 1890 Rand McNally & Co. map (Figure 3-6) identifies an increased number of towns, the majority of which are located along the recently developed rail lines indicating the importance of railroads to transportation and commerce. During the middle to late nineteenth century the focus of transportation in West Virginia and throughout the country changed from riverine- to railroad-based. The 1890 map shows that the Ohio River Railroad runs along the eastern portion of the general project area.

The 1901 map of West Virginia taken from the Enlarged Business Atlas and Shippers Guide (Figure 3-7) illustrates the intricate rail system that had developed in the area by the turn of the century. These railroads linked goods and passengers to locations throughout the country.

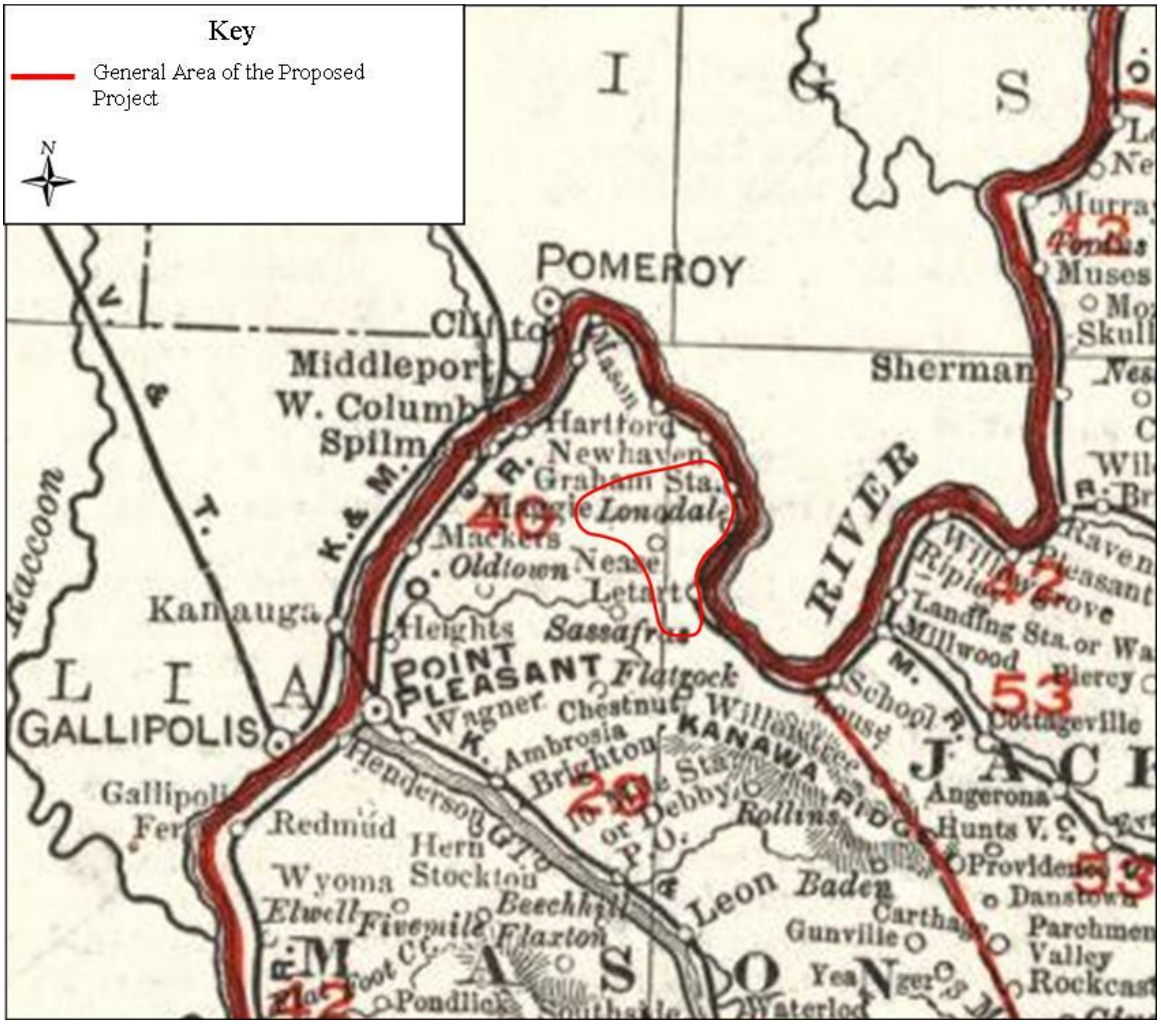


Figure 3-7. 1901 Rand McNally & Co. *West Virginia from Enlarged Business Atlas and Shippers Guide* showing approximate area of the proposed Project.

The 1908 USGS topographic maps (Figure 3-8) show the proposed CO_2 corridors and well locations to lie predominantly within Mason County with small portions in Waggener and Jackson Counties. Most of the project area lies within mountainous terrain with a few sections located on the flood plains of the Ohio River. The largest towns in the project vicinity include New Haven and Letart within West Virginia and Racine on the Ohio side of the River directly across from Graham Station. Graham Station appears to be a fairly small town located at the intersection of the railroad and a major road. Various houses and other structures including schools and churches are indicated on the map although the area appears to be relatively sparsely populated.

A comparison between the 1908 and the 1926/1928 USGS topographic maps (Figure 3-9) indicate that little changed in the 20 preceding years. A few new structures appear on the map possibly indicating a slight increase in population.

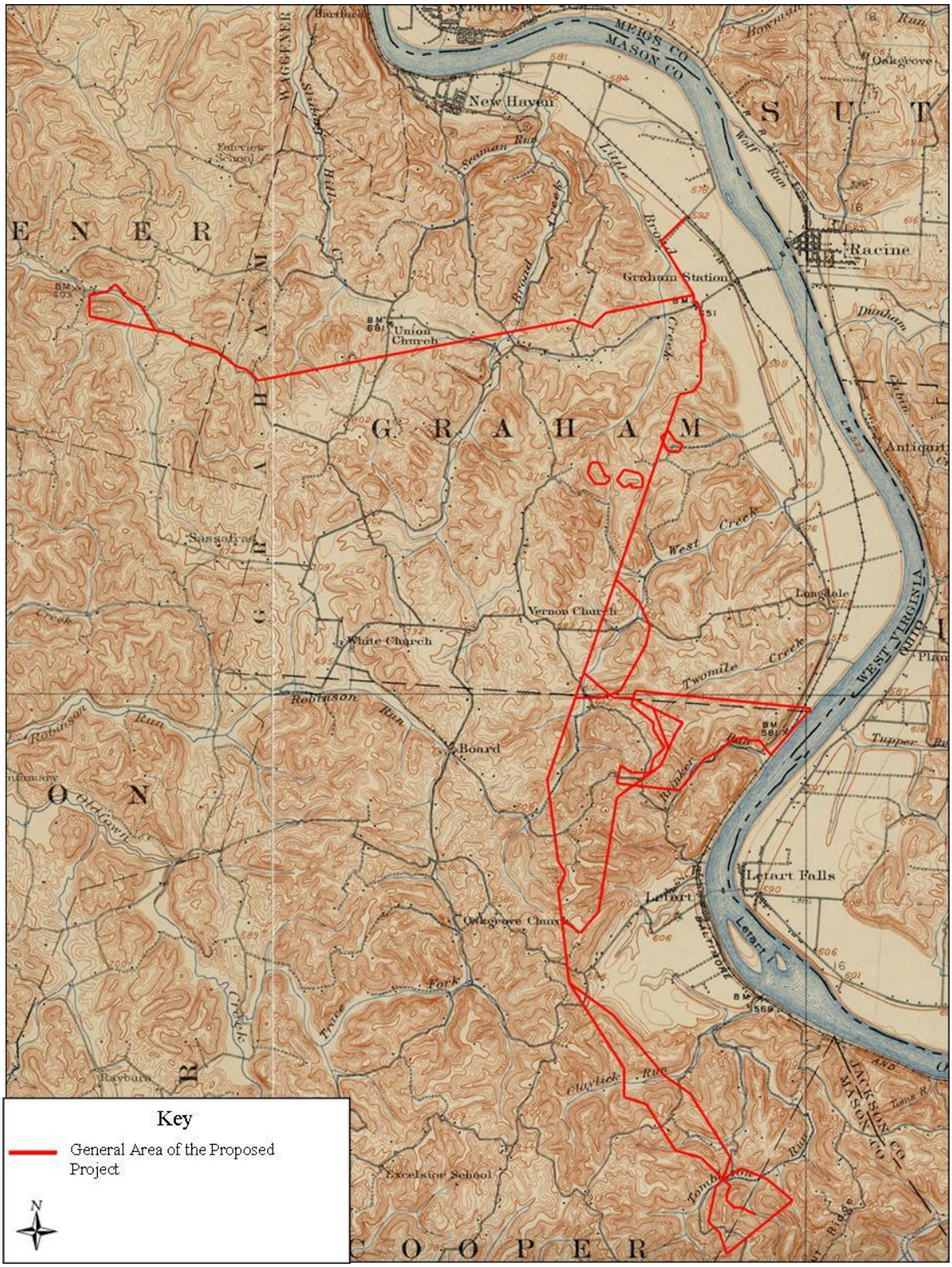


Figure 3-8. 1908 *USGS Ravenswood Quadrangle* and *USGS Point Pleasant Quadrangle State of West Virginia* showing proposed Project. (Note: see Figure 4-1 for corridor names).

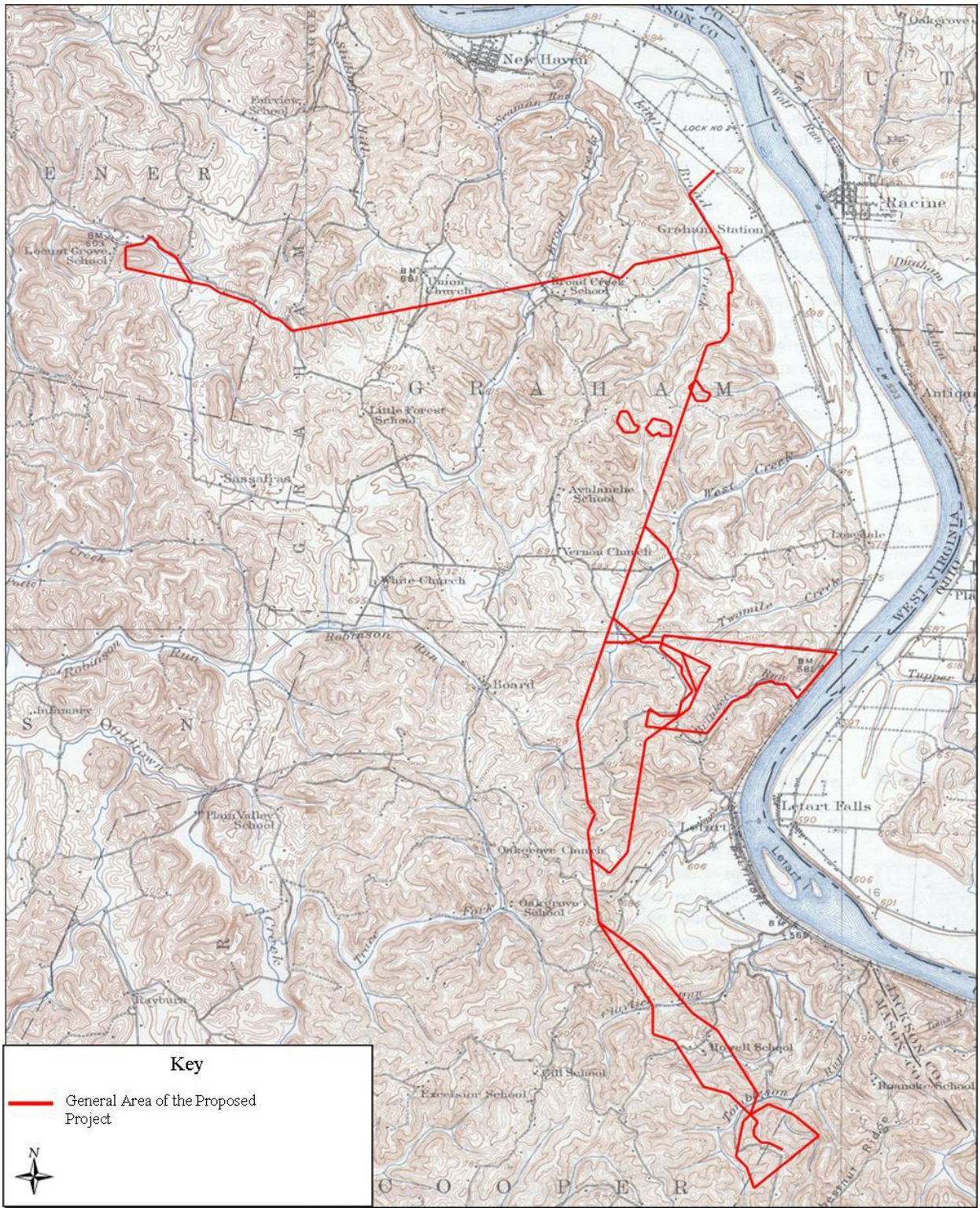


Figure 3-9. 1926 *USGS Point Pleasant Quadrangle* and 1928 *USGS Ravenswood Quadrangle, State of West Virginia* showing proposed Project. (Note: see Figure 4-1 for corridor names).

The 1990 aerial photo (Figure 3-10) shows the Mountaineer Power Plant development which was commissioned in 1980. Also new are a number of cleared areas crossing over the landscape indicating the location of transmission lines. A few development concentrations exist, but by the large the area appears to be sparsely populated most likely owing to the rough terrain. The Ohio River floodplain on either side is thoroughly developed with agricultural fields.

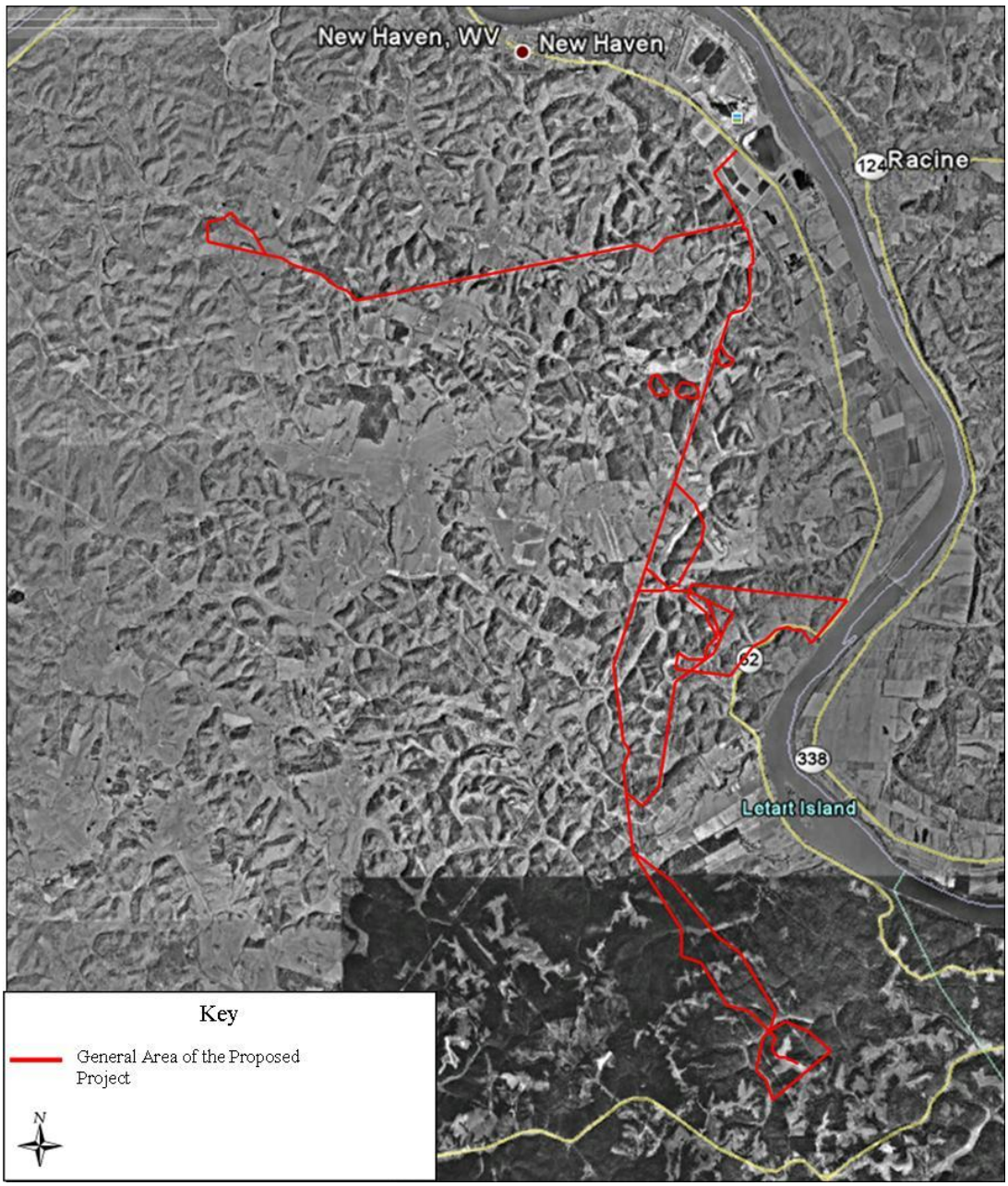


Figure 3-10. 1990 Google Earth aerial image showing location of the proposed Project. (Note: see Figure 4-1 for corridor names).

The 2009 aerial photo (Figure 3-11) of the general project area indicates that very little changed through the preceeding 20 years. This area of West Virginia has remained a relatively undeveloped, rural landscape throughout its history with the Mountaineer Power Plant development representing the largest visible impact to the project area.

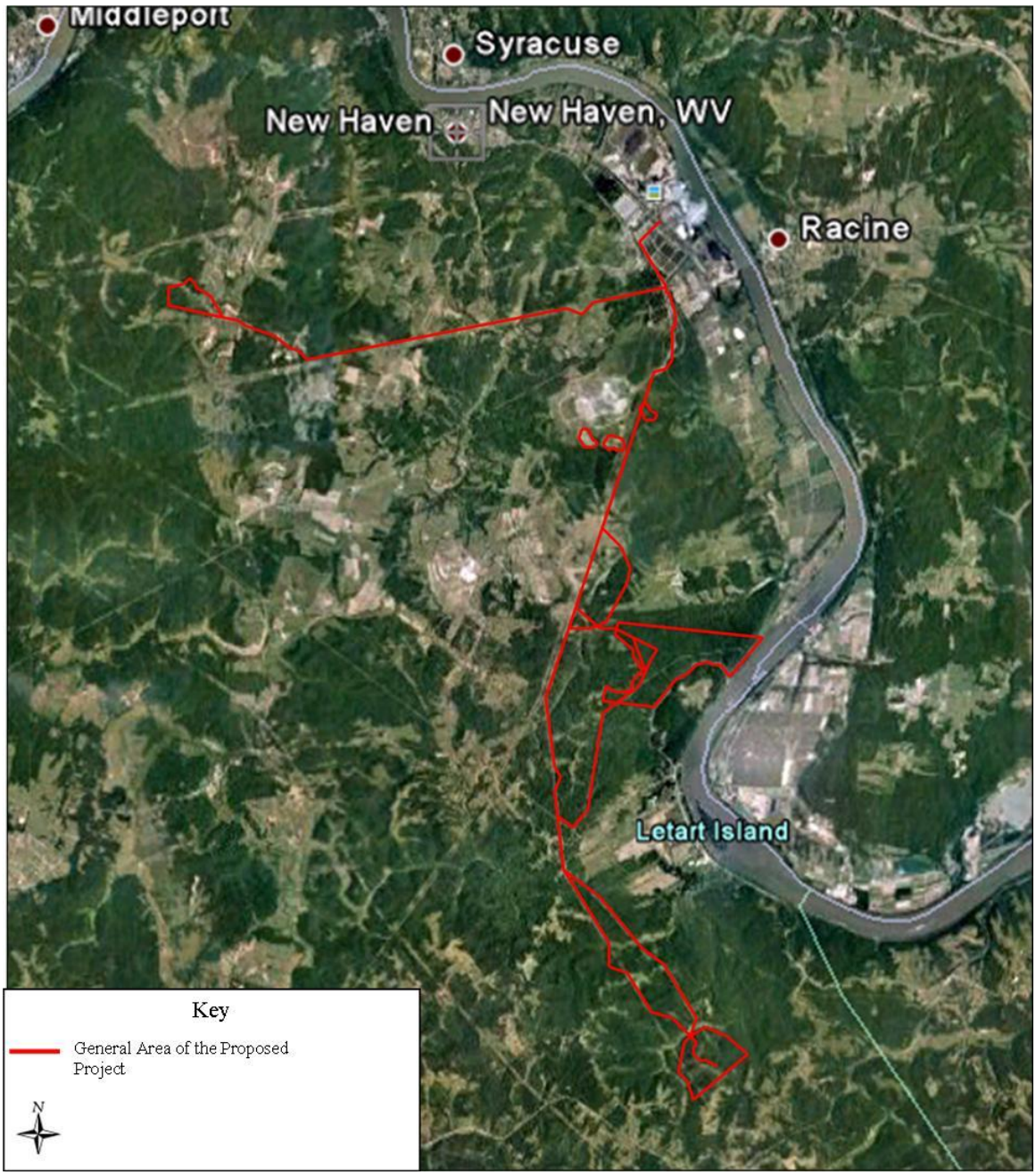


Figure 3-11. 2009 Google Earth aerial image showing location of the proposed Project.
(Note: see Figure 4-1 for corridor names).

SITE DISTRIBUTIONS AND PREVIOUS ARCHAEOLOGICAL RESEARCH

Background research utilizing the WVSHPO files in Charleston was conducted to investigate previously recorded cultural resources within two miles of the project area west of the Ohio River. Research included a review of archaeological and historic architectural resources listed in or eligible for inclusion in the NRHP. Also examined were USGS topographic maps of archaeological and architectural sites recorded within a two-mile radius of the project area west of the Ohio River. Other records reviewed included archaeological site maps, state archaeological site files, National Register listings, State Archaeological Bulletins, and historic structures listings.

Background research indicated seven Phase I archeological surveys have been conducted within two miles of the project area. Previous archaeological reports on surveys conducted west of the Ohio River within a two-mile radius of the Mountaineer CCS II project area were reviewed and are summarized in this section.

Previous Archaeological Studies Adjacent to the Project Area

In 1990, Cultural Resource Analysts, Inc. (Lexington, Kentucky) conducted a Phase I archaeological investigation of 70 acres of land for a proposed coal ash disposal facility located approximately 0.5 miles north of the Borrow Area 7 and approximately 0.3 miles west of Borrow Area 1. The survey area consisted of a dissected upland mountaintop and an associated saddle area with a portion of the area previously disturbed by construction. Pedestrian survey and shovel testing revealed no sites and the proposed construction activities were predicted to have no effect on cultural or historical resources.

In March 2005, Big Blue Archaeological Research, Inc. (Morgantown, West Virginia) conducted a Phase I Cultural Resources Investigation of 16.1 acres of land approximately 0.25 miles northeast of the North Corridor along the Ohio River in advance of the construction of new barge loading and offloading berths and a limestone storage pile at the power plant. Riverbank, floodplain and terrace dissected by small streams characterized the Survey Area. Survey work consisted of augering, shovel testing, test unit excavation and visual inspection of the project area all of which revealed no cultural resources. It was therefore recommended that planned construction be permitted.

In July 2005, GAI Consultants, Inc. (GAI) conducted a Phase IA Cultural Resources Investigation on approximately 2,339 acres of land a majority of which is occupied by the existing Mountaineer Plant between U.S. Route 33 and the Ohio River in order to determine the archaeological potential of the area. As part of this project GAI also surveyed an area in Ohio and Kentucky in order to recommend one of the three survey areas for a proposed AEP project. The Phase IA Investigation included visual inspection only and determined that the majority of the Mountaineer Survey Area had been disturbed as a result of the existing facilities, but that moderate potential exists for uncovering intact archaeological deposits along ridge tops, benches, saddles and stream valleys. GAI did suggest limited deep testing to eliminate the potential for deeply-buried cultural deposits. A portion of the proposed Survey Area, including portions of the Borrow Area, the Western Sporn Corridor and the South Corridor, lies within the Phase IA Survey area.

In December of 2005, GAI followed-up the Phase IA work with a Phase IB cultural resources survey in order to identify archaeological and architectural resources that could be affected by the development of a project proposed for construction within the Mountaineer Plant property. The

client, American Electric Power (AEP), refined the locations which would be affected by the proposed construction which resulted in four survey areas totaling approximately 80 acres. Geomorphology reconnaissance included walkover survey, as well as the excavation of seven backhoe trenches in three areas to determine the potential for cultural materials buried beneath fill deposits. Geomorphology revealed significant ground disturbance in all four areas with a recommendation for shovel testing in two of the areas. Archaeological survey conducted in two of the survey areas recovered no cultural material and confirmed the disturbed nature of the soil. The architectural and historic survey identified four structures greater than 50 years old. The WVSHPO recommended the Graham Station Cemetery and the Graham Station Baptist Church as ineligible for the NRHP and the Graham Station School and the B&O Railroad (Ohio River Division) as potentially eligible for the NRHP. Through Phase IB work, it was determined that the proposed project would have no effect on cultural resources and therefore construction should be allowed to proceed.

In September 2005, Cultural Resource Analysts, Inc. completed Phase I archaeological survey of portions of the proposed MR-4 Surface Mine. Four survey areas, all located within 0.6 miles west of the Borrow Area Route and 0.7 miles north of the Western Sporn Corridor were subject to pedestrian survey and shovel testing. Two previously unrecorded sites were identified during this survey. Site 46MS296 is a low-density prehistoric lithic scatter of undetermined age. Site 46MS296 was not considered eligible for the NRHP and no further work was recommended. Site 46MS297 includes the remains of a domestic dwelling dating from the late nineteenth to early twentieth century. It was determined that not enough information was available to provide a NRHP eligibility recommendation. Cultural Resource Analysts, Inc. recommended that Site 46MS297 be avoided and if not possible then further assessment should be conducted in order to determine the site's potential for NRHP eligibility.

In 2006, KCI Technologies, Inc. conducted Phase I archaeological survey of approximately 58 acres of land in advance of a proposed refuse disposal area. The survey area was located west of and intersecting the Borrow Area pipeline route and north of and intersecting the Western Sporn Corridor. Phase I work consisted of 104 shovel tests and five Test Units which resulted in the identification of two archaeological sites (46MS301 and 46MS302), one isolated find (46MS303) and one historic cemetery (46MS304). Gatlin Refuse Site #1 (46MS301) is a multi-component site consisting of a scatter of prehistoric flaked stone artifacts of unknown age and a historic domestic refuse pit likely dating from the late nineteenth to early twentieth century. The Gatling Refuse Site #2 (46MS302) consisted of five non-diagnostic, prehistoric flaked stone artifacts. The Gatling Refuse Isolated Find (46MS303) consisted of a single rhyolite flake recovered from a potentially disturbed context. Lastly, the Weaver Cemetery (46MS304) is a late nineteenth century family burial plot consisting of two headstones and the remains of two or possibly three members of the Weaver family. None of the four previously unidentified sites were recommended as potentially eligible for the NRHP, but it was recommended that the Weaver cemetery be avoided by redesign of the Project. No further archaeological investigations were recommended.

In September 2006, KCI conducted a Phase I archaeological survey of 19.33 acres of land located approximately 1.15 miles north of the Western Sporn corridor and approximately 1.75 miles northeast of the Western Sporn property for a proposed boundary revision for an existing underground mining operation. Field investigations included 141 shovel tests and two test units. One piece of lithic reduction debris was recovered from a buried plowzone deposit for which a West Virginia Isolated Find Site Form was completed and site number 46MS300 was assigned. No further archaeological work was recommended.

In July 2009, Triad Engineering, Inc. conducted a Phase I archaeological investigation in advance of a proposed wastewater collection upgrade. The total survey area consists of approximately 0.6 miles and lies approximately 1.9 miles north of the Western Sporn Corridor South to the southwest of New Haven, West Virginia. Phase I investigation included walkover survey of the entire area, shovel testing, two augur probes and two backhoe trenches. Survey area terrain includes a terrace and steeply sloping hillside, which contained a portion of the wastewater treatment plant property, a section within a residential subdivision and a vacant lot. Augur testing suggested the potential for deeply buried cultural resources, which was further investigated through the excavation of two backhoe trenches. No evidence of cultural resources was encountered during the field investigations, therefore construction plans were recommended to proceed.

A West Virginia Department of Environmental Protection (DEP) report was filed in 1996 detailing a pedestrian survey conducted near New Haven, West Virginia as part of a reclamation project. During this survey two mine portals dating to the early twentieth century were identified, both within 0.06 mile of the Ohio River between mile 245 and 247 on the West Virginia side of the river. Portal 1 is located approximately 2.25 miles north of the Western Sporn Corridor and Portal 2 is located approximately 3 miles north of the same corridor. Both were noted as having historic archaeological potential. It was recommended that DEP fill in the portals with a non-destructive material in order to stabilize and preserve the portals. This report also mentioned the remains of a fan house 20 feet southeast of Portal 1, rubble from a salt works associated with the mine and the former site of a tipple, none of which would be included in the reclamation project.

Previously Recorded Archaeological Sites within One Mile of the Project Area

Background research at the WVSHPO included examination of site files in order to identify previously recorded sites near the project area. Ten sites were identified within one mile of the project area with an additional five sites located within two miles. Table 3-2 highlights the archaeological sites and Figure 3-12 lists archaeological sites within one mile of project area.

Table 3-2.

Archaeological Sites near Mountaineer CCS II Project Area.

Site Number	Site Name	Site Type	National Register Eligibility Status	Distance and Direction (Approximate)
Sites within one-mile radius of Project Area				
46MS3	N/A	Fort Ancient Village	No DOE	Ca. 1600 m (1 mile) northeast of the Eastern Sporn
46MS275	Hoffman Mound 1	Early Woodland Mound Earthwork	No DOE	Ca. 1440 m (0.9 miles) east of Potential North Corridor
46MS276	Hoffman Mound 2	Early Woodland Mound Earthwork	No DOE	Ca. 1440 m (0.9 miles) east of Potential North Corridor
46MS296	N/A	Prehistoric Lithic Scatter	Not Eligible	Ca. 340 m (0.2 miles) west of Potential North Corridor

Site Number	Site Name	Site Type	National Register Eligibility Status	Distance and Direction (Approximate)
46MS297	N/A	Remains of a domestic dwelling dating from the late 19th to early 20th century	No DOE	Ca. 100 m (0.06 miles) west of the Potential North Corridor
46MS301	Gatling Refuse Site #1	Prehistoric Lithic Scatter/ Historic Refuse Pit	Not Eligible	Ca. 420 m (0.25 miles) west of Potential North Corridor
46MS302	Gatling Refuse Site #2	Prehistoric Litthic Scater	Not Eligible	Ca. 400 m (0.25 miles) west of Potential North Corridor / ca. 250 m (0.15 miles) north of Western Sporn Corridor South
46MS303	Gatling Refuse Isolate	Single chert flake	No DOE	Ca. 340 m (0.2 miles) west of Potential North Corridor ca. 250 m (0.15 miles) north of Western Sporn Corridor South
46MS304	Weaver Cemetery	Two 19th century headstones	No DOE	Ca. 160 m (0.1 miles) north of Western Sporn Corridor South
46MS307	Evergreen Cemetery	Approx. 350 headstones, 19th century to present	No DOE	Ca. 1300 m (0.8 miles) east of Eastern Sporn Corridor 1
Sites within two-mile radius of Project Area				
46MS70	Mission Ridge Mound	Rock Mound, burial	No DOE	Ca. 3000 m (1.8 miles) southwest of Western Sporn
46CH293	Fichner	Mound Earthwork (reported burial mound)	No DOE	Ca. 3100 m (1.9 miles) southwest of Jordan Tract
46MS311	Bear Wallow Area C	Historic Farmstead	Not Eligible	Ca. 2400 m (1.5 miles) southwest of Jordan Tract
46MS312	Bear Wallow Area D	Historic Farmstead	Not Eligible	Ca. 2500 m (1.5 miles) southwest of Jordan Tract
46MS300	Sliding Creek Isolate	Single chert flake	No DOE	Ca. 2500 m (1.5 miles) northeast of Foglesong Corridor/ ca. 2200 m (1.4 miles) north of Western Sporn Corridor South

Sources: Archaeological Site Records, WVSHPO 2010, Cultural Resource Reports and West Virginia and National Register Files, WVSHPO 2010.

Figure 3-12. Previously recorded archaeological sites within two miles of the project area.

IV. FIELD AND LABORATORY METHODS

FIELD METHODS

Preliminary review of topographic, drainage, and soils data indicated that the project area could be subdivided into areas of potential High, Moderate, and Low Probability for archaeological resources. High and Moderate probability areas included areas of relatively level uplands and the floodplain. Steeply sloped areas were considered Low Probability. In order to organize the field survey, the study area was assigned individual *survey area* designations. Within each survey area, individual transects received letter designations, and individual shovel tests were incorporated in a numbered sequence for each transect (e.g. F-2). Figure 4-1 provides an aerial view of the Mountaineer CCS II project area, showing the locations of all injection sites and pipeline corridors.

Shovel Test Survey

Systematic excavation of shovel test pits (STPs) was conducted at intervals of 15 meters (49.2 feet) along survey transects where appropriate. In total, 770 STPs were excavated along shovel test transects, in addition to 102 judgmentally placed shovel tests. Shovel tests measured 40 cm in diameter and were excavated by natural or cultural horizons until sterile soils (Pleistocene-age deposits) were reached. When artifacts were recovered from multiple consecutive STPs, a temporary site number was issued and additional shovel tests were then excavated in the locus in order to help define the site boundaries. Low probability areas utilized STPs that were excavated on a judgmental basis to confirm soil and drainage characteristics and/or disturbance.

Project Area and Site Documentation

Each field investigation team recorded the results of individual tests on standardized field forms. All soils were described in terms of color and texture using Munsell color notations and USDA classification schemes. The Field Director recorded daily notes describing the progress of the survey in terms of the number of shovel tests excavated, area surveyed, and pertinent environmental information. Recovered artifacts were assigned a unique catalog number that was used for laboratory tracking.

TRC generated project-specific field maps in the field to record essential survey area and site detail and were used to generate overall project maps that are reproduced in Chapter 5. The field maps include survey area boundaries, local physiographic and cultural features, survey transects, individual shovel tests, and newly recorded sites; all mapped areas were referenced to proposed disturbance areas. Each survey area was photographed with general views showing project area conditions at the time of survey; these views are depicted on project maps.

When archaeological sites were recorded in the field, individual smaller scale site maps were prepared using compass and pacing and tied into existing landmarks. The site maps included visible surface features, shovel tests, surrounding vegetation, physiographic features, roads, or other non-archaeological cultural features, and sketches of local topography. All shovel tests, both negative and positive, were plotted on the site maps. The locations of all shovel tests, surface features encountered, and site locations were mapped in the field, and plotted by the use of GPS positioning using a *Trimble GEOXT* handheld GPS unit and plotted onto USGS topographic maps, project area maps, and aerials. Each site was photographed from several

vantage points to show general topography and site conditions. All recovered artifacts, with the exception of modern trash, were retained by TRC for processing and curation.

LABORATORY AND ANALYTICAL METHODS

Artifact Processing and Analysis

When artifacts are recovered in the field they are bagged in 4-mil, resealable plastic bags along with artifact cards bearing provenience information. A catalog number is assigned to each unique provenience, and this number appears with all provenience information. Recovered artifacts are transported from the project area to TRC's laboratory facility in Lanham, Maryland, where artifact bag numbers are examined for accuracy with field provenience information and the general artifact inventory. At this point, any labeling errors detected on artifact cards, bags, or the inventory, are corrected. Artifacts are then sorted by general categories (historic, prehistoric, faunal) and then by material type within each category (i.e., prehistoric lithics or ceramics; historic glass, ceramics, architectural material, etc.). The catalog number remains with each artifact during washing and analysis.

All artifacts are washed in tap water using a soft toothbrush. Artifacts are then allowed to air-dry before being submitted for analysis. All diagnostic artifacts recovered from an archaeological site are labeled with the official site number and catalog number. Labeling is done with ink on a coat of polyvinyl acetate (PVA) and sealed over with another coat of PVA.

Although only one artifact was recovered from this survey, the following describes the analytical procedures used for identifying artifacts.

For prehistoric lithics, raw materials are identified on the basis of macroscopic characteristics: color, texture, hardness, fracturing attributes, and inclusions. Magnification with a 10X lens, and, on occasion, higher levels of magnification, is used to identify inclusions and to evaluate texture and structure. Amount of cortex and heat treatment are recorded for all chipped stone artifacts. These artifacts are segregated into groups on the basis of shared attributes related to morphology (overall size and shape, blade and haft shape) and technology (production and resharpening methods [flaking patterns], presence or absence of haft grinding, and presence or absence of blade serration).

Historic artifact analysis follows an industry-standard format and based on the South/Noel Hume typology (South 1977). Artifact pattern analysis, based on form or material type, is conducted for all historic artifacts recovered from a survey. The purpose of artifact pattern analysis is to organize an assemblage and to provide a description of its contents. The collection is thus organized by functional group, including Domestic, Furnishing, Architectural, Activities, Personal, and Indeterminate, as per the work of South (1977). The principal reference sources for historic artifact identification include but are not limited to Denker and Denker (1985), Ketchum (1983), Noel Hume (1970) and South (1977). The ceramic and glass analyses provide information on ware or vessel types, techniques of surface decoration and manufacture, description of decorative motifs, beginning and ending dates of manufacture, and, if present, maker's marks.

Artifact Database

The artifact inventory is generated using a computerized data management system developed by TRC and written in Microsoft Excel 2007. Each artifact is described by basic type utilizing descriptive information (characteristics).

Curation

After analysis, artifacts are placed in clean, perforated 4-mil, resealable plastic bags with air holes. Artifacts are divided by general type and placed into sub-bags within a general bag for each provenience. An acid-free artifact card with provenience information and bag number is included with each bag. The one recovered artifact and original field records generated from this survey will be temporarily curated at the TRC Lanham, MD office until a permanent curation facility is designated.

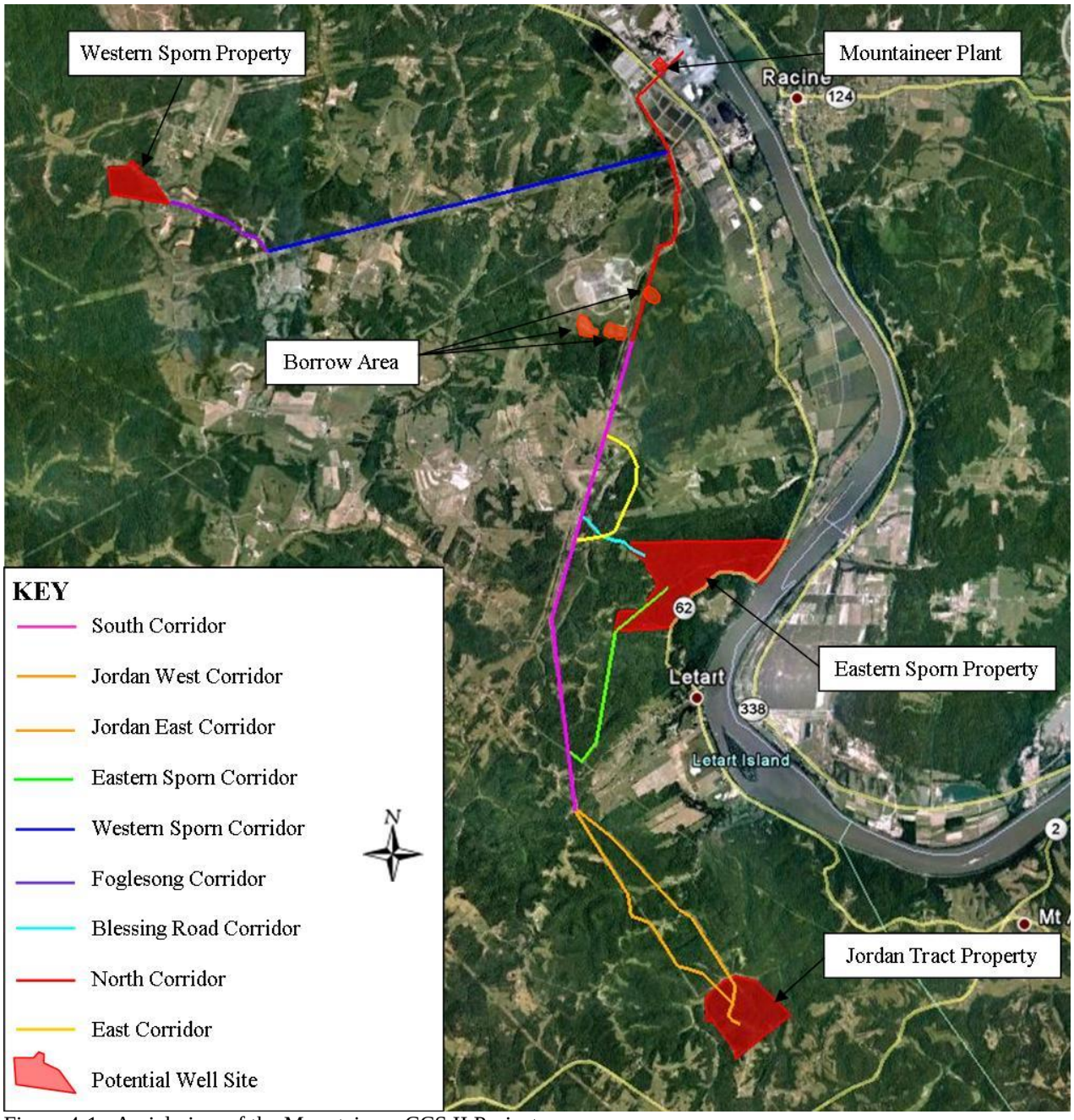


Figure 4-1. Aerial view of the Mountaineer CCS II Project area.

V. FIELD RESULTS

As described in Chapter 4, the project area was divided into multiple survey areas based on proposed construction impact. Table 5-1 summarizes the results of the Phase I survey and depicts the total number of transects, shovel tests, artifacts recovered, and sites identified. The following chapter describes each of the survey areas and reports on the results of the investigation. The findings from each survey area are described herein.

Table 5-1. Phase I Archaeological Investigation Results, Mountaineer CCS II Project.

Survey Area	Linear Distance / Acreage	No. of Survey Transects	No. of Shovel Tests;	No. of Positive Tests	No. of Artifacts Collected	Archaeological Sites Identified
North Corridor	2.69 miles	0	7 judgmental	0	0	0
South Corridor	4.36 miles	16	76 @ 15 m intervals; 21 judgmental	1	1	(1 Isolated Archaeological Find)
Western Sporn Corridor	3.68 miles	22	176 @ 15 m intervals; 27 judgmental	0	0	0
Foglesong Corridor	1.16 miles	5	52 @15 m intervals	0	0	0
Blessing Road Corridor	0.67 miles	5	41 @ 15 m intervals; 6 judgmental	0	0	0
East Corridor	1.42 miles	7	43 @ 15 m intervals; 3 judgmental	0	0	0
Eastern Sporn Corridor	2.62 miles	9	105 @ 15 m intervals; 24 judgmental	0	0	0
Jordan East Corridor	2.19 miles	8	36 @ 15 m intervals; 8 judgmental	0	0	0 (1 family cemetery identified; MS0176 [46MS355])
Jordan West Corridor	2.20 miles	8	66 @ 15 m intervals; 6 judgmental	0	0	0
Borrow Area (BA-1)	27.84 acres of injection site construction area	1	7 @ 15-m intervals	0	0	0
Mountaineer Plant (MT-1)	5 acres of injection site construction area	0	0	0	0	0
Eastern Sporn (ES-1, ES-2, ES-3)	15 acres in three injection site construction areas	10	58 @ 15-m intervals	0	0	0
Jordan Tract (JT-1)	0.6 miles of pipeline corridor; 2 acres of injection site construction area	5	70 @15 m intervals	0	0	0
Western Sporn (WS-1)	0.15 miles of pipeline corridor; 5 acres of injection site construction area	3	40 @ 15-m intervals	0	0	0
Total			**770 @ 15-m intervals; 102 judgmental**	**1**	**1**	**0 (1 Isolated Archaeological Find; 1 family cemetery)**

PIPELINE CORRIDORS

North Corridor

Figure 5-1. View to the south of the existing conveyor system running through the North Corridor project area, showing associated ground disturbance.

The North Corridor consists of all potential pipeline construction areas located from the existing Mountaineer Power Plant to the intersection with the South Corridor (see Figure 4-1; Figures 5-1 and 5-2). The pipeline corridor consists of approximately three miles of linear alignment south and west of the Mountaineer Plant. The northern portion of the alignment is situated directly adjacent to an existing conveyor system leading from the plant to an existing borrow area situated one mile southwest of the plant complex (see Figure 5-1). The majority of this area has been subjected to extensive ground disturbance as a result of the construction of a conveyor system, access roads and transmission lines. Generally, this area consists of upland ridge finger landforms and steep slope; however, the landscape in this area has been heavily modified due to this construction activity.

In total, seven judgmental STPs were excavated within the corridor alignment where intact soils were potentially present. Each of the judgmental shovel test exhibited disturbed soils with a mixture of gravel and clayey mottled subsoils. The remainder of the alignment was subjected to visual inspection and pedestrian survey. No cultural material was recovered.

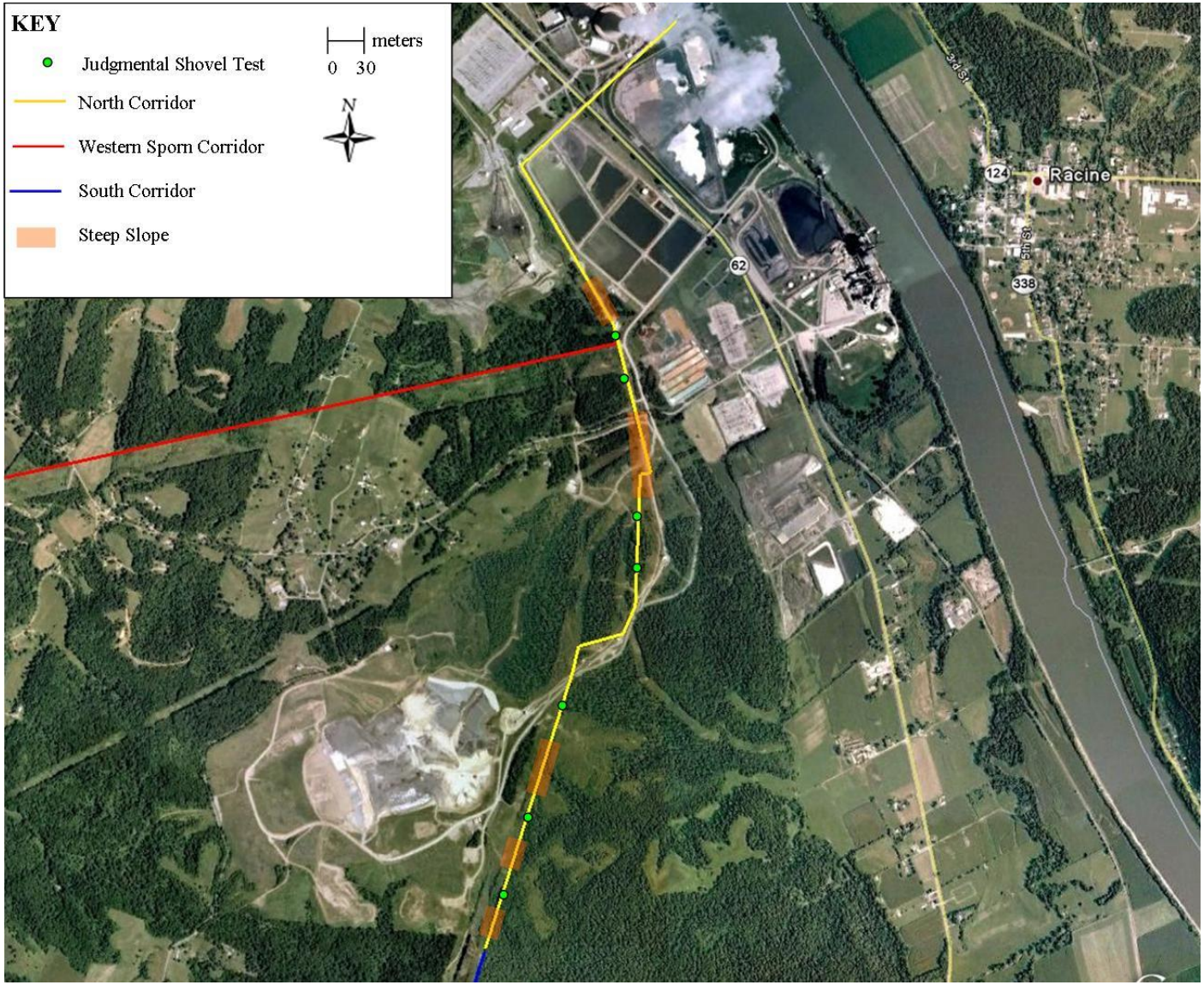


Figure 5-2. Base map of archaeological investigations within the North Corridor project area.

South Corridor

Figure 5-3. View to the north of the existing transmission corridor running parallel to the South Corridor project area.

The South Corridor consists of approximately 4.36 miles of potential pipeline construction areas located from the southern terminus of the North Corridor, south of the Little Broad Run Landfill and Borrow Area potential injection site, to the intersection with the Jordan East and West Corridors west of the town of Letart in eastern Mason County (see Figure 4-1; Figures 5-3, 5-4, 5-5, 5-6, 5-7, and 5-8).

The proposed corridor runs directly adjacent to the eastern side of a north-south trending existing transmission line corridor. In the northern section of the South Corridor, the transmission corridor consists of three clear cut swaths measuring a total of 500 feet in width (see Figure 5-3). As the corridor approaches the Blessing Road crossing, it follows a single transmission line swath which turns southeast and measures approximately 75 feet in width.

Figure 5-4. Open, pasture area within the South Corridor project area and the location of Isolated Find TRC-1; view to the south.

The topography in this area is typical of the interior of Mason County, namely broad upland landforms and narrow ridgelines cut by narrow, deep drainages. Elevations within the South Corridor range from 600 to 910 feet amsl. Dense scrub undergrowth is present within the clear cut transmission lines, while the majority of the eastern periphery of the potential pipeline corridor falls within mixed forested areas of conifers and hardwood trees. Several of the larger upland landforms in the central portion of the corridor are open, grassy livestock grazing fields (see Figure 5-4). The corridor crosses several small, county maintained gravel roads, including Blessing Road, Broad Church Road, and County Route 15 before terminating near the Gill Road crossing. The corridor also crosses several small unnamed ephemeral streams located at the base of steep slopes between ridge lines which flow into West Creek and Mud Run to the east. These areas are generally scoured with erosion and present little relief.

Soils in the northern portion of the South Corridor are mapped primarily as Gilpin-Upshur Complex, Omulga silt loam, and Coolville and Tilsit soils on the upland areas, and Sensabaugh

loams in the lower-lying areas adjacent to stream crossings. A typical soil profile in the upland areas of the South Corridor revealed a dark yellowish brown (10YR 4/3) silt clay loam A horizon overlying a yellowish brown (10YR 5/4) compact silty clay subsoil (see Figure 5-5).

In total, 76 STPs were excavated at 15-meter intervals along 16 shovel test transects. In addition, 21 judgmentally placed STPs were excavated in areas of low probability (see Figures 5-6 through 5-8). As a result of the survey, one isolated archaeological find (46MS365 [IF TRC-1]) was recorded. It consisted of a single chert biface reduction flake recovered in shovel text pit (STP) Q-6 in a grassy open field in the central portion of the survey area. Eight radial shovel tests excavated at 2 and 5-meter intervals in cardinal directions surrounding the positive shovel test did not yield any additional cultural material. Approximately one mile of the proposed alignment in the central portion of the survey area was not investigated during the survey due to private property access restrictions. Should this area be selected for construction, Phase I survey investigations in the form of systematic shovel testing is recommended.

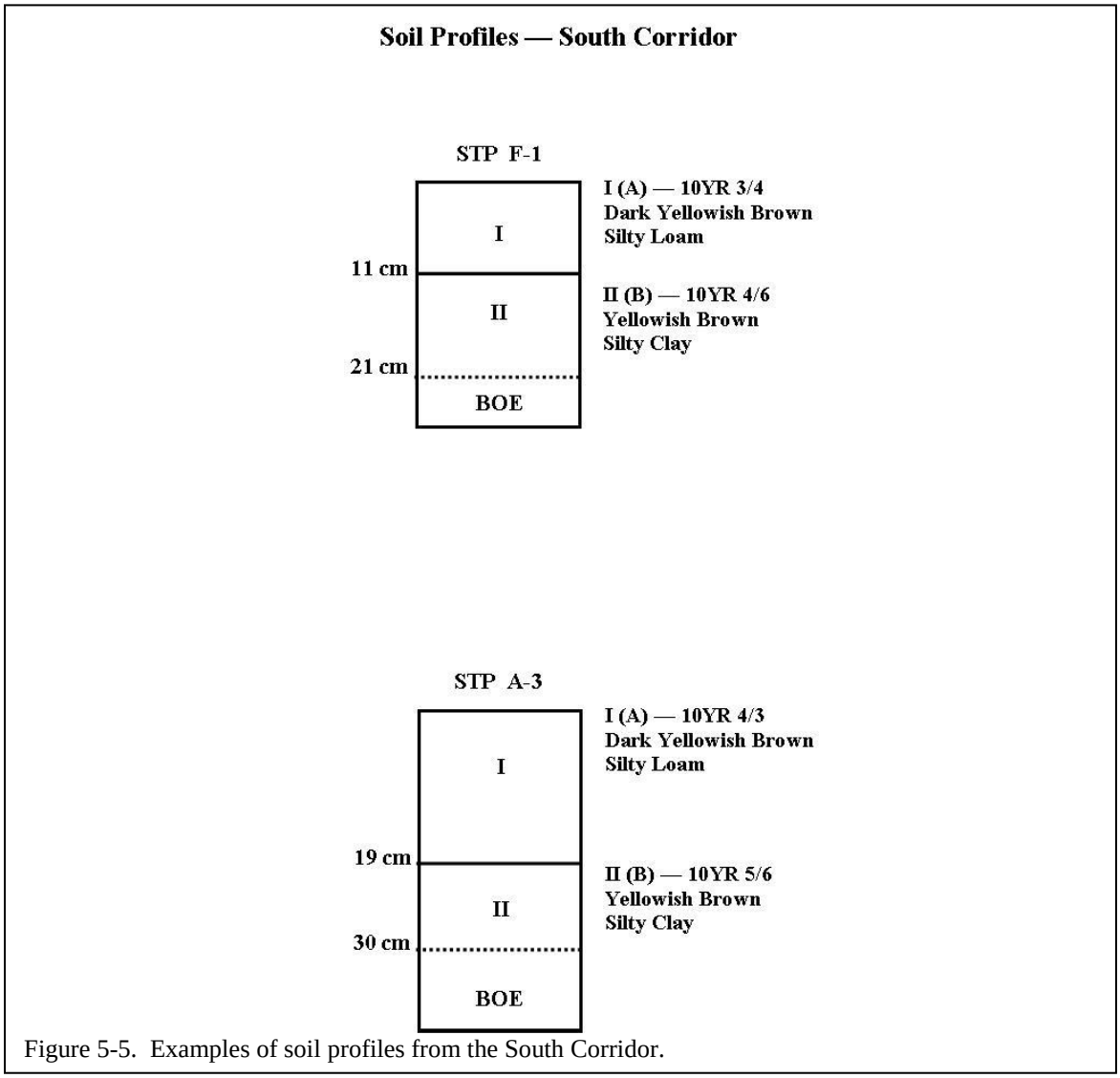


Figure 5-5. Examples of soil profiles from the South Corridor.

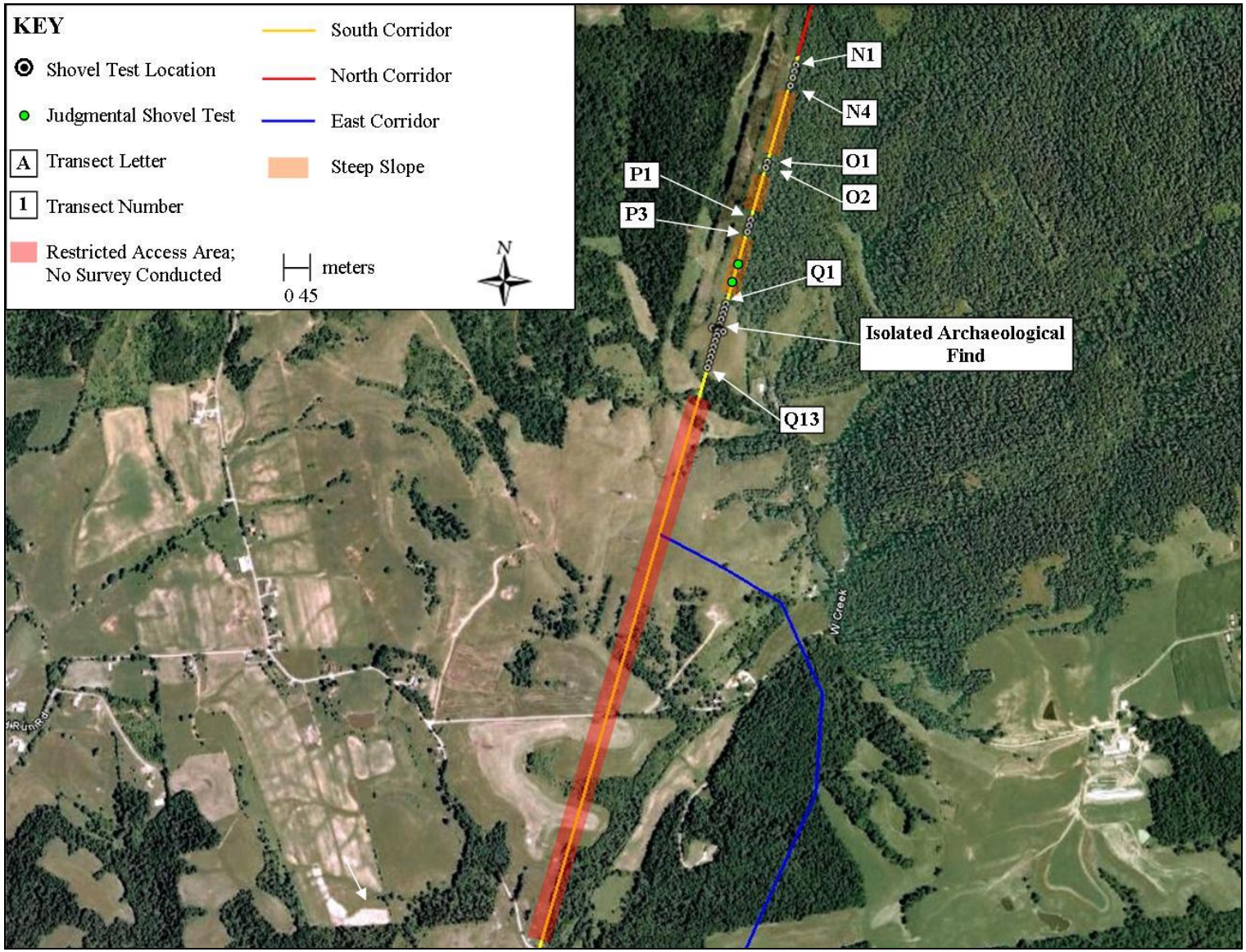


Figure 5-6. Base map of archaeological investigations within the northern portion of the South Corridor project area.

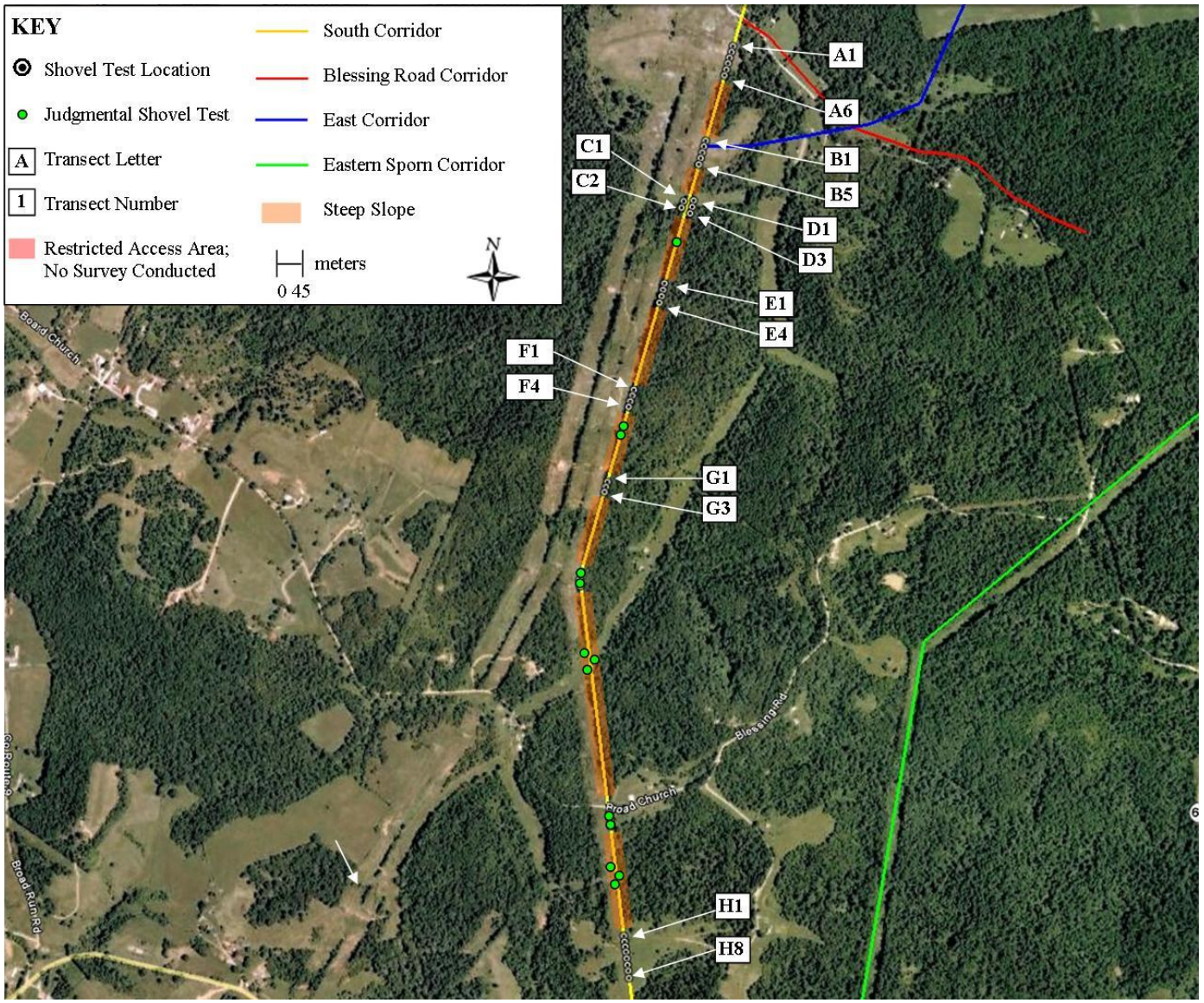


Figure 5-7. Base map of archaeological investigations within the central portion of the South Corridor project area.

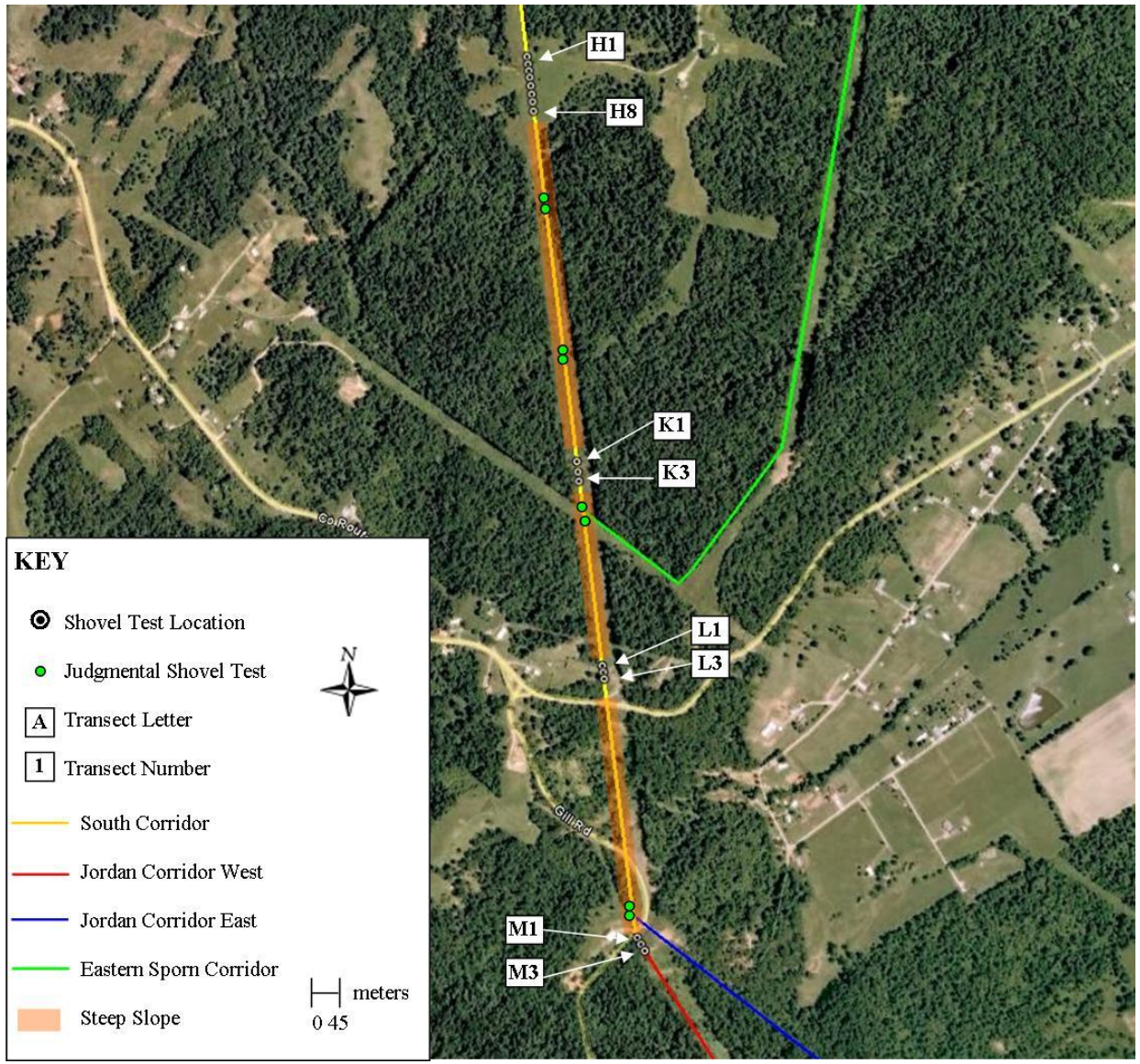


Figure 5-8. Base map of archaeological investigations within the southern portion of the South Corridor project area.

Western Sporn Corridor

Figure 5-9. View to the west of typical slope and upland setting within the Western Sporn Corridor.

The Western Sporn Corridor consists of approximately 3.68 miles of potential pipeline construction areas located from the terminus of the Foglesong Road Corridor to the intersection with the North Corridor within the Little Broad Run landfill. The Western Sporn Corridor spans the north-central portion of Mason County (see Figure 4-1; Figures 5-9, 5-10, 5-11, 5-12 and 5-13).

From the western intersection with Dave Foglesong Road, the corridor proceeds east atop a series of prominent knolls and broad upland landforms cut by steep drainages of ephemeral streams (see Figure 5-9). As the corridor continues to the east, it crosses several broad upland areas that were grassy livestock feeding areas at the time of the survey. The proposed corridor runs directly adjacent to the north side of an existing east-west trending transmission line corridor. This wide transmission line clear cut swath consists of four high-tension transmission lines measuring approximately 400-feet wide. From the western intersection with Dave Foglesong Road, the corridor proceeds east atop a series of prominent knolls and broad upland landforms cut by steep drainages of ephemeral streams. As the corridor approaches the Mountaineer Plant, it crosses two broad floodplains associated with Broad Run and Little Broad Run (see Figure 5-10). Elevations throughout the survey area range from 600 to 840-feet amsl.

Figure 5-10. View to the northeast of Broad Run Stream crossing in the central portion of the Western Sporn Corridor.

Soils throughout the Western Sporn Corridor are mapped as Gilpin-Peabody complex (GmF) and the Gilpin-Upshur complex (GpC, GpD, GpD3, and GpE) with smaller amounts of Tarhollow (ThC), Lily (LIE), Gallia (GaC), and Coolville and Tilsit (CsB) soil series in the upland areas, and Lily series (LIE), the Lobdell series (LvA) in the low lying areas adjacent to stream crossings. An example of the soil profiles encountered in the upland portions of the Western Sporn Corridor revealed a dark grayish brown (10YR 4/2) silty loam overlying a strong brown (7.5YR 5/6) silty clay subsoil. Several shovel tests on exposed ridge lines also revealed an eroded and weathered strong brown (7.5YR 5/6) subsoil present at the ground surface. A typical soil profile in the low-lying areas adjacent to stream crossings revealed a

brown (10YR 5/3) silty loam overlying a brownish yellow (10YR6/6) sandy clay subsoil with gravel inclusions (see Figure 5-11).

In total, 176 STPs were excavated in the survey area at 15-meter intervals along 22 survey transects. In addition, 15 judgmentally placed STPs were excavated in Low Probability areas (see Figures 5-12 and 5-13). No cultural material was recovered.

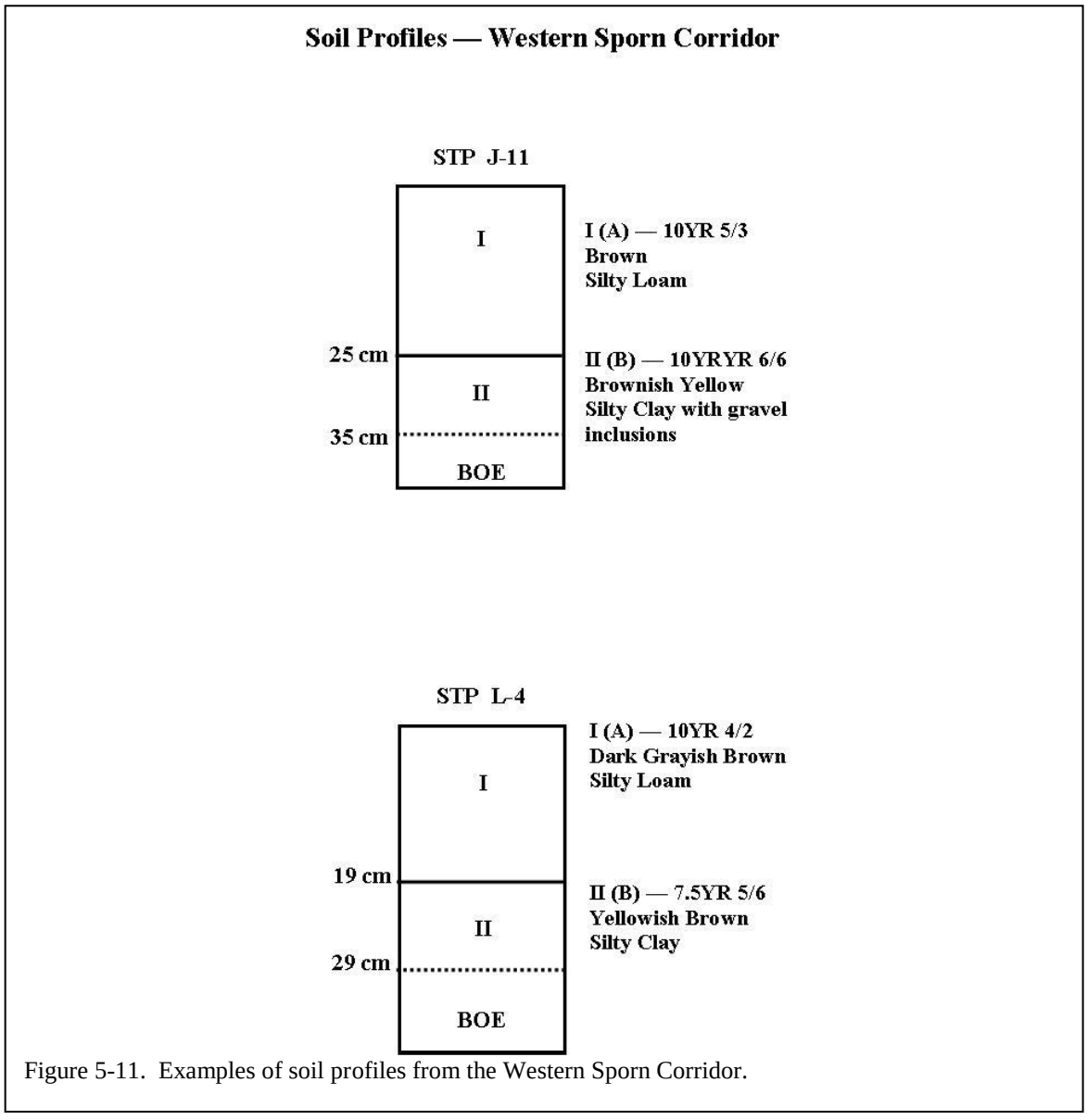


Figure 5-11. Examples of soil profiles from the Western Sporn Corridor.

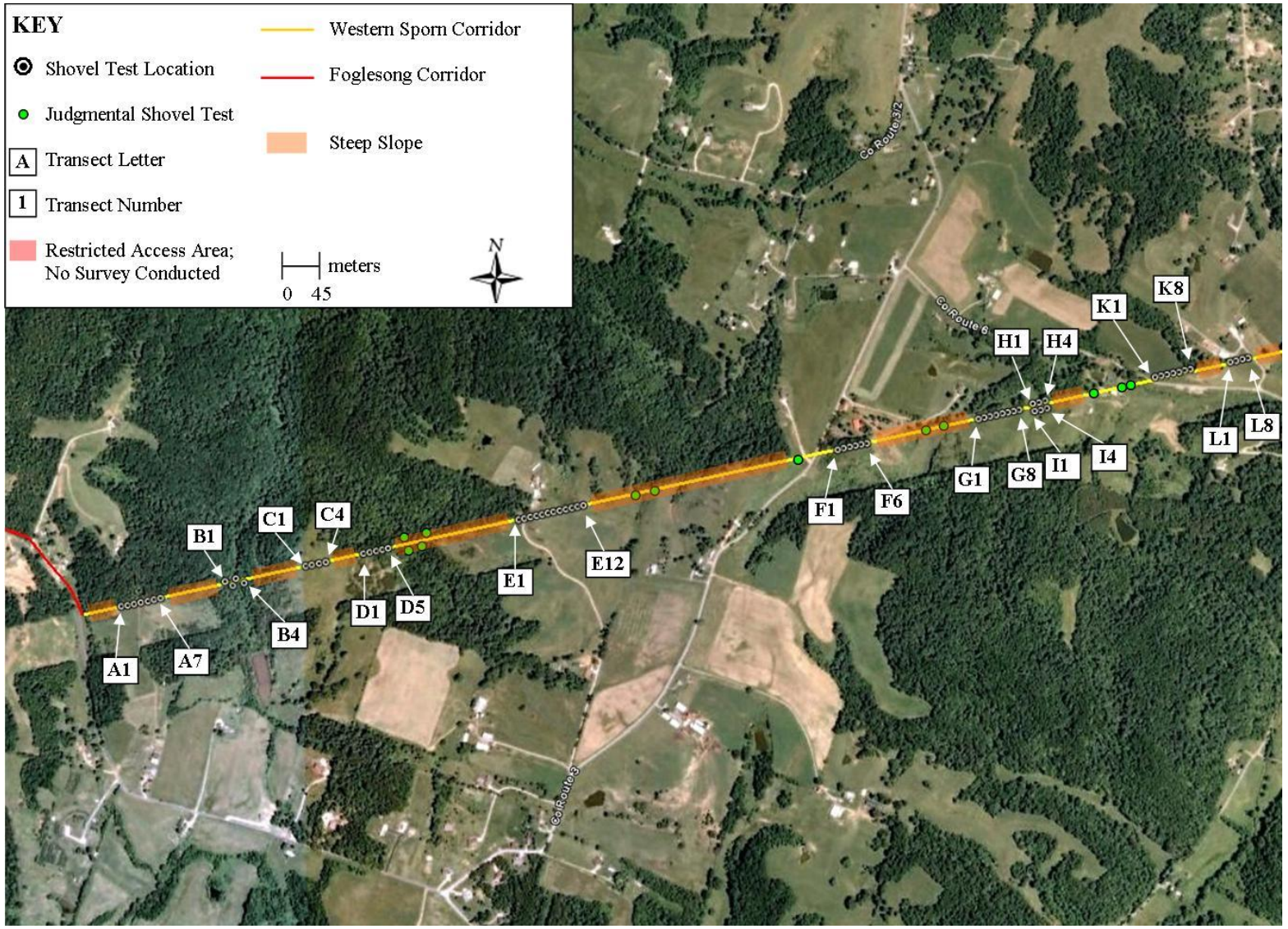


Figure 5-12. Base map of archaeological investigations within the western portion of the Western Sporn Corridor project area.

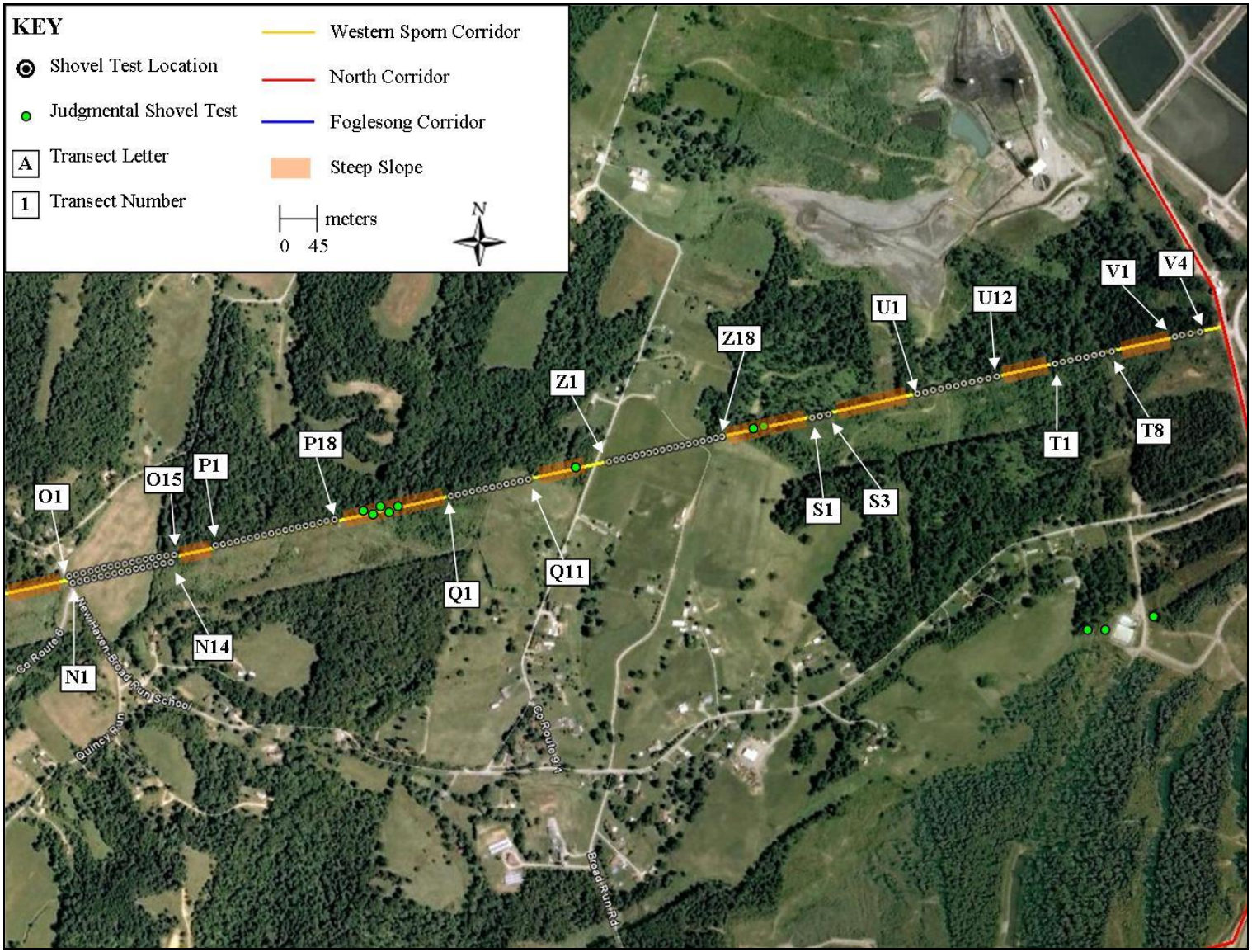


Figure 5-13. Base map of archaeological investigations within the eastern portion of the Western Sporn Corridor project area.

Foglesong Corridor

Figure 5-14. View of domestic structure and associated ground disturbance present within the western portion of the Foglesong Corridor.

The potential Foglesong Corridor begins near the intersection of Lieving Road and Dave Foglesong Road adjacent to the Western Sporn injection site in northwestern Mason County (see Figure 4-1; Figures 5-14 and 5-15). The corridor measures approximately 1.16 miles and runs generally east-southeast toward the intersection with the Western Sporn Corridor. The potential alignment runs directly adjacent north of Dave Foglesong Road and runs parallel with the road throughout. STPs were excavated at 15-meter intervals within the proposed alignment along a single transect, with the exception of areas of ground disturbance and steep slope, which were examined via pedestrian survey. Ground disturbance included landscaping, grading, and driveway construction associated with several domestic dwellings near the alignment, especially in the western portion of the proposed corridor (see Figure 5-14).

The potential corridor begins in a low-lying fallow agricultural field adjacent to the Foglesong and Lieving Road intersection and runs east through several landscaped yards before descending to side slope along a narrow stream cut. As the corridor continues east, it crosses several broad, upland landforms before terminating at the intersection with the existing transmission line (Western Sporn Corridor) along an ephemeral tributary of Tenmile Creek.

Soils in the Foglesong Corridor are mapped as Coolville and Tilsit Soils (CsB), and Gallia soils (GaC) in upland areas of the corridor. The low-lying portions of the survey area are mapped as Lobdell soils which occur on nearly level floodplains. The survey corridor passes over an intermittent stream that is surrounded by Vandalia (VdD) soil which occurs on foot slopes and colluvial fans.

In total, 52 STPs were excavated along five shovel test transects. Additionally, two judgmentally places STPs were excavated to examine Low Probability areas (see Figures 5-12 and 5-13). No cultural material was recovered.

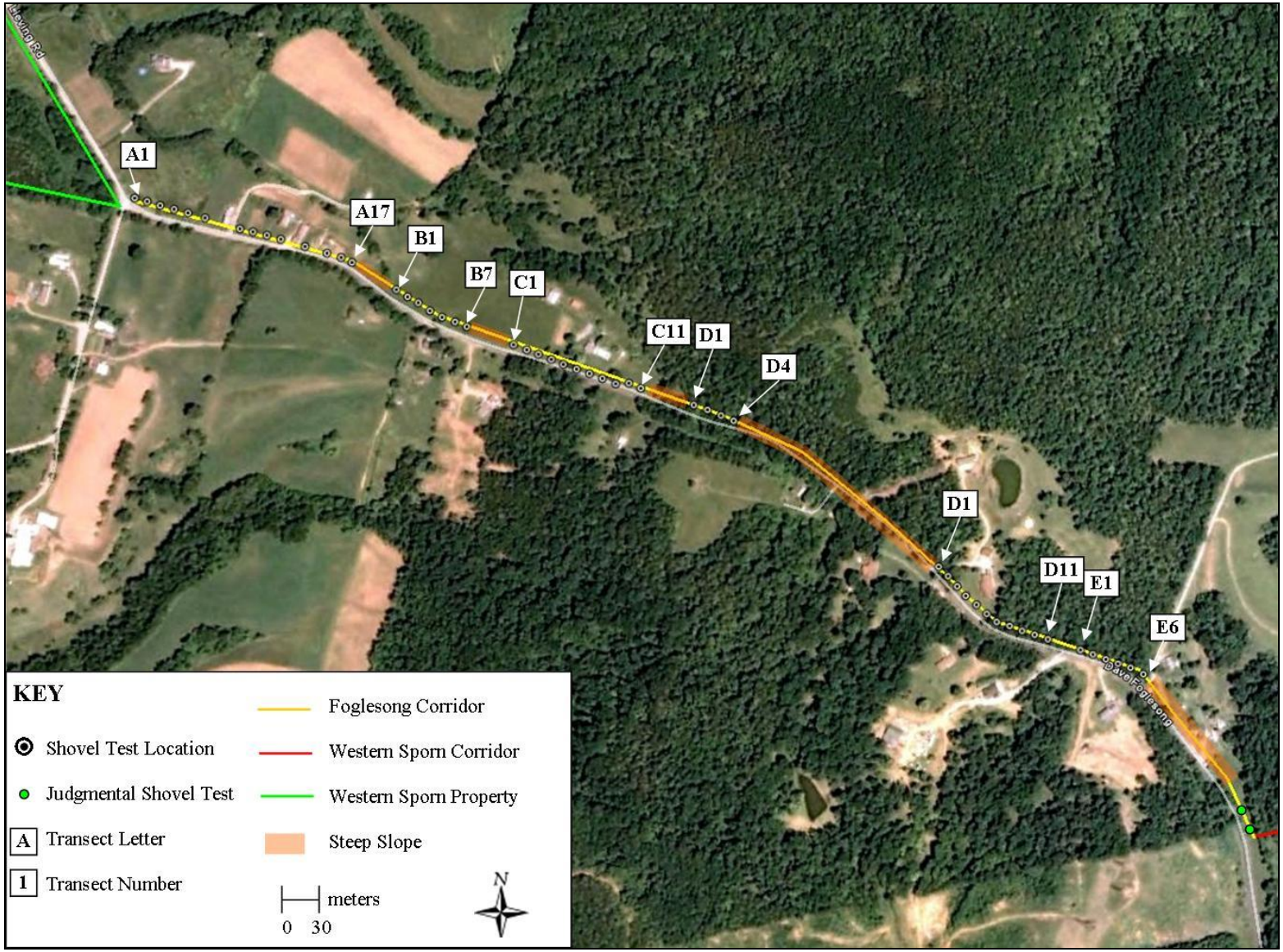


Figure 5-15. Base map of archaeological investigations within the Foglesong Corridor project area.

Blessing Road Corridor

Figure 5-16. View to the southeast of steep slope adjacent to Blessing Road within the Blessing Road Corridor.

The Blessing Road Corridor consists of 0.67 miles of potential pipeline construction areas located from the intersection of Blessing Road and the South Corridor to the well sites at the Eastern Sporn Property (see Figure 4-1; Figures 5-16 and 5-17).

The corridor runs generally west to east adjacent to the north side of Blessing Road. At the intersection with the South Corridor, the corridor crosses a small floodplain of West Run. This low-lying, grassy area was investigated with two parallel shovel test transects excavated at 15-meter intervals. Soils in this area showed a combination of deeper alluvial soil overlying clayey subsoil, mixed with pockets of disturbed, gravelly soils associated with a vehicle dump on the eastern portion of the floodplain. As the corridor continues east, it crosses several steep slopes and small upland landforms before traversing side slope on a steep drainage cut (see Figure 5-16). Within the Eastern Sporn property, the proposed corridor alignment rises to an upland landform before terminating at a potential injection sites in the northwest corner of the Eastern Sporn. In total, 41 shovel tests were excavated along five shovel test transects in the survey area, as well as six judgmental shovel tests (see Figure 5-17). No cultural material was recovered.

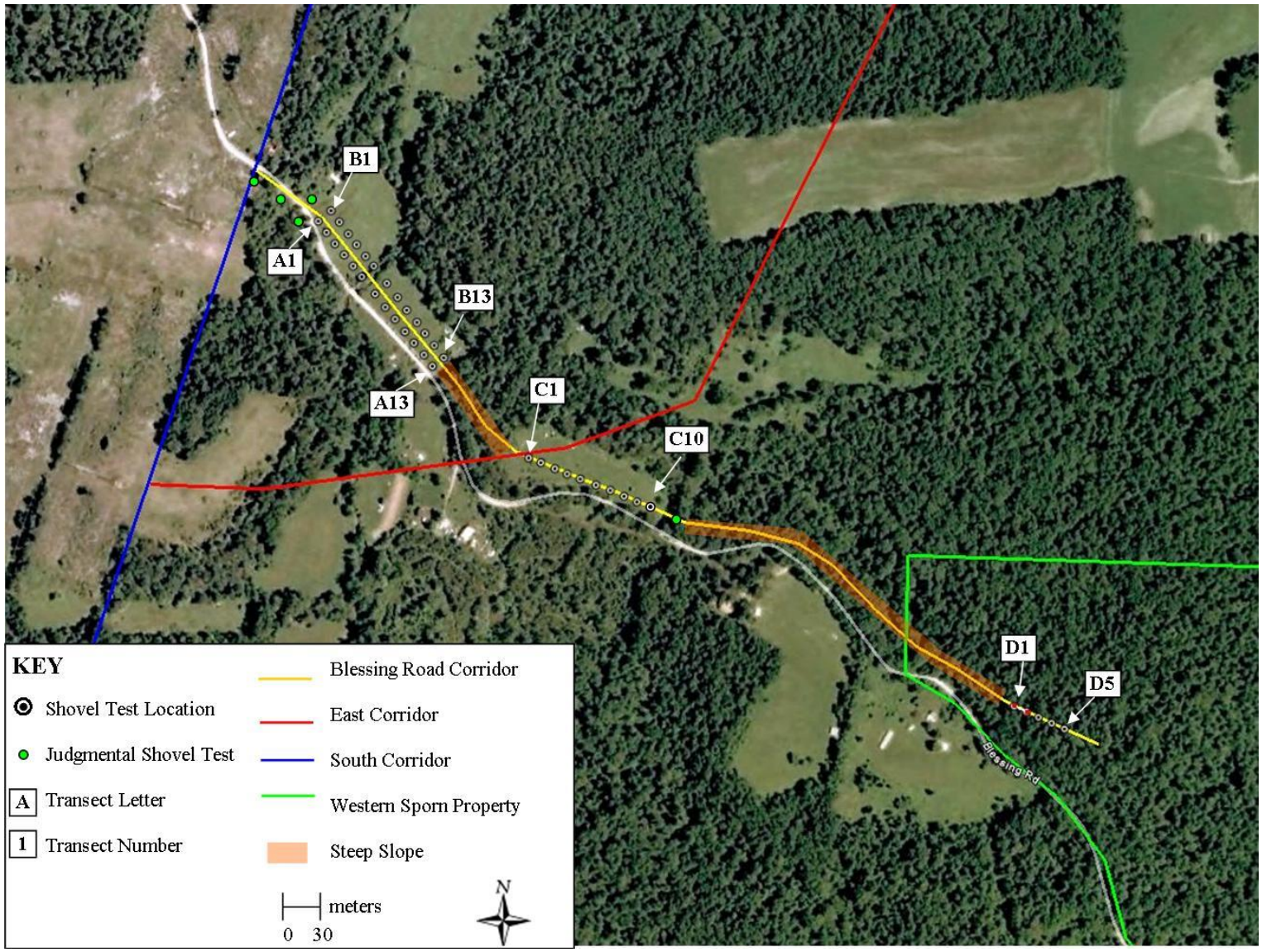


Figure 5-17. Base map of archaeological investigations within the Blessing Road Corridor project area.

East Corridor

Figure 5-18. Small floodplain of West Run and adjacent domestic structure present in the southern portion of the East Corridor; view to the southeast.

The proposed East Corridor consists of approximately 1.42 miles of linear alignment, which connects the northern and southern portion of the South Corridor in eastern Mason County (see Figure 4-1; Figures 5-18 and 5-19). From the south, the corridor intersects the South Corridor on a broad upland before descending to the east across a small floodplain of West Run. A modern domestic house and several outbuildings are present adjacent to the floodplain area (see Figure 5-18). As the corridor continues to the north and east, it crosses the Blessing Road Corridor atop an upland knoll. The corridor then proceeds to the north crossing several upland ridgelines and steep slope associated with deep cut drainages. The corridor alignment terminates at the second intersection with the South Corridor in a grassy, open agricultural field approximately 0.3 miles north of Traffic Circle Longdale Road (County Route 12).

Soils in the East Corridor are mapped as Coolville and Tilsit soils (CsB) and Vandalia soils (VdD) in upland areas, and Omulga soils (OmB) within lower valley areas. A portion of the project area crosses a section of a river as well as an intermittent stream. These waterways are surrounded by soils from the Sensabaugh Series (SnA and SrB), which are typical of lower-lying areas such as drainages and foot slopes.

In total, 43 STPs were excavated at 15-meter intervals along seven survey transects, as well as three judgmentally placed shovel tests (see Figure 5-19). Approximately 0.3 miles of the proposed alignment in the northern portion of the survey area was not investigated during the survey due to private property access restrictions. Should this area be selected for construction, Phase I survey investigations in the form of systematic shovel testing is recommended.

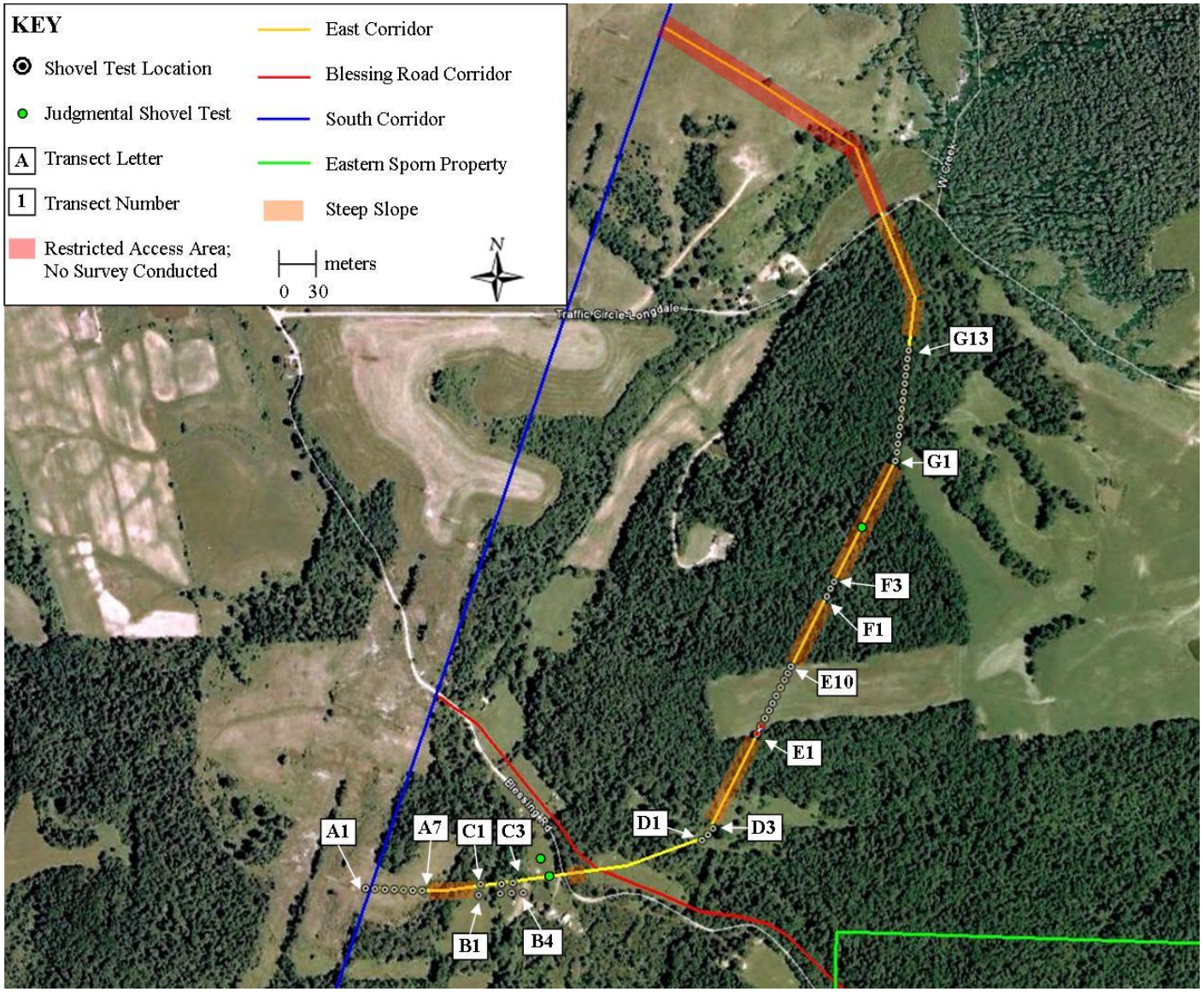


Figure 5-19. Base map of archaeological investigations within the East Corridor project area.

Eastern Sporn Corridor

Figure 5-20. View to the east of upland ridge overlooking Ohio River valley at the terminus of the Eastern Sporn Corridor, as well as the location of Brinker Family Cemetery (MS-0176 [46MS355]).

The potential Eastern Sporn Corridor originally consisted of 2.62 miles of survey corridor located from the intersection with the South Corridor 0.25 miles north of County Route 15 to the proposed injection sites and geologic characterization wells within the Eastern Sporn (see Figure 4-1; Figures 5-20 and 5-21). Although the eastern 0.9 miles of this corridor is no longer bring considered, it was nonetheless subject to Phase I survey.

The originally proposed corridor ran directly adjacent to an existing clear cut power line swath running generally north-south to the Eastern Sporn property (see Figure 5-20). Vegetation in the area is primarily dense hardwood forest, with smaller areas of open, grassy pastures near the western terminus. From the intersection with the South Corridor, the alignment crosses several narrow finger ridges which overlook the Ohio River floodplain near the town of Letart cut by steep ephemeral stream drainages before terminating within the Eastern Sporn property.

In addition to the current proposed corridor, an additional 0.9 miles of potential corridor alignment was surveyed. This extension follows the existing power line swath running west to east through the Eastern Sporn property; however, this extension will not be included in the current project construction. The vegetation and topography in this area was similar to that of the western and eastern development areas. Elevations in the survey area range from 680 to 910 feet amsl.

Soils in the Eastern Sporn Corridor are mapped as Gilpin-Peabody complex (GmF), the Peabody-Gilpin complex (PgF), the Gilpin-Upshur complex (GpE), and the Upshur-Gilpin complex (UgD, and UgE) in the upland areas. Other soils mapped as present within the upland areas of the survey Corridor are Chagrin (CdA), Coolville and Tilsit soils (CsB), Tarhollow soils (ThC), and Upshur (UeB and UeC). Additional soils mapped within the survey Corridor include Omulga soils (OmB) which occur in valley fills, Vandalia (VdD), and Sensabaugh soils (SnA and SrB) that occur along small streams, foot slopes, and alluvial fans. Approximately 84 percent of the soils in the survey Corridor are mapped as PgF units, Upshur-Gilpin complexes, GpE units, and GmF units.

In total, 71 STPs were excavated at 15-meter intervals along 14 survey transects, as well as 12 judgmental STPs, in the survey area. As a result of the survey, one nineteenth and twentieth century family cemetery was identified (MS-0176[46MS355]). The cemetery is situated atop an upland ridge overlooking the Ohio River valley to the east near the project area terminus directly adjacent to the south of the existing transmission line clear cut swath (see Figure 5-20). Approximately 10 grave markers were identified, the earliest of which stated an 1884 burial date and the latest of which indicated a 1908 burial date. All of the readable grave markers were from the "Brinker" family. A further discussion of this resource is provided in the following section.

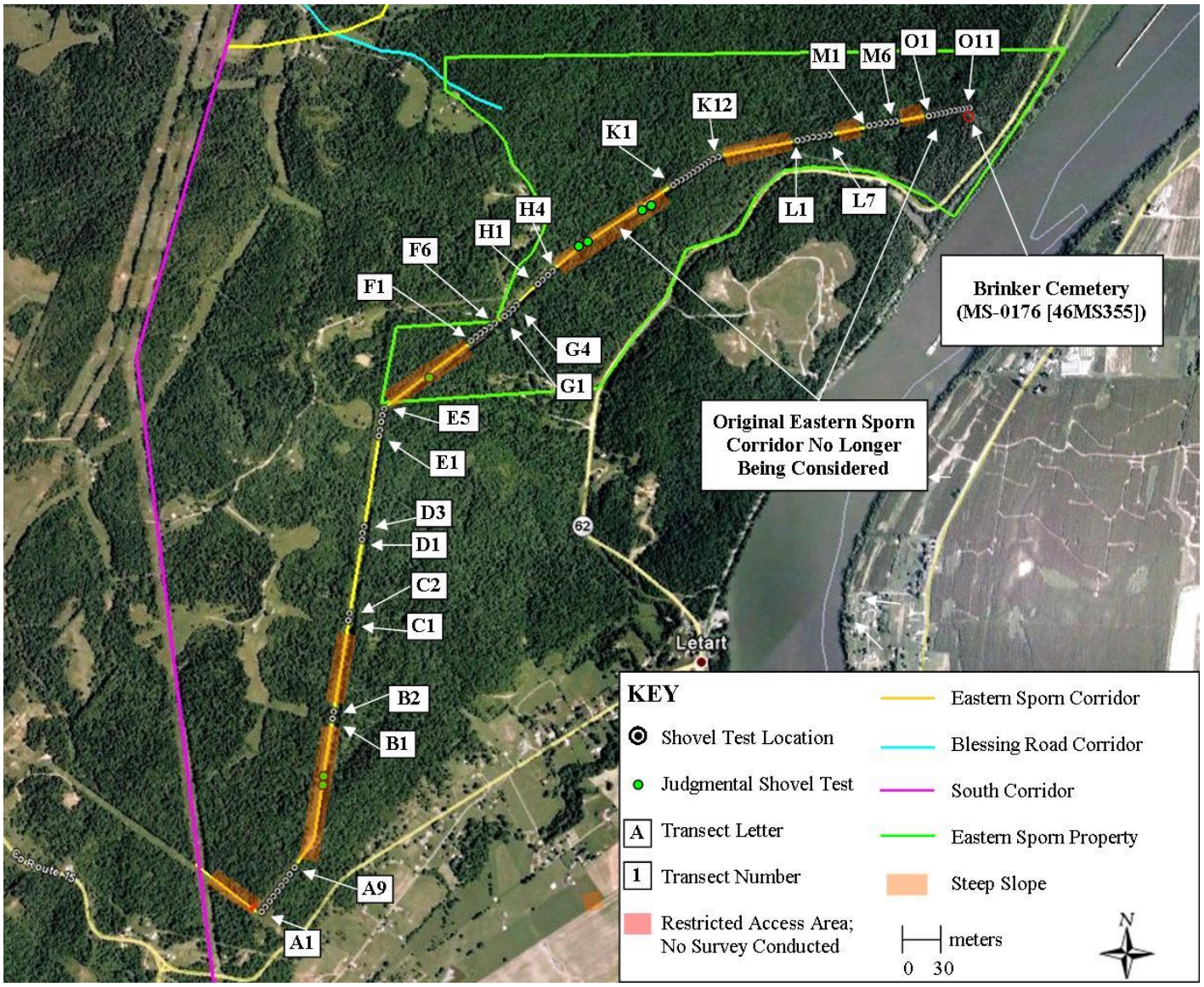


Figure 5-21. Base map of archaeological investigations within the Eastern Sporn Corridor project area.

Jordan East Corridor

Figure 5-22. View of small floodplain of Tombleson Run near the southern terminus of the Jordan East Corridor.

The potential Jordan East Corridor consists of 2.19 miles of proposed pipeline construction areas located from the southern terminus of the South Corridor near the Gill Road intersection to the Jordan Tract property approximately 1-mile north of Route 2 in eastern Mason County (see Figure 4-1; Figures 5-22 and 5-23).

The corridor runs directly adjacent to and within the western side of an existing, clear cut transmission line measuring approximately 150 feet in width. The corridor crosses several narrow ridge fingers and steep slope associated with ephemeral stream drainage cuts. The corridor also crosses several county roads, including Tombleson Run Road and Shirley Road. The corridor terminates atop a prominent landform knoll within the Jordan Tract property which overlooks a small, low-lying floodplain of Tombleson Run (see Figure 5-22). Elevations in the survey area range from 600 to 880-feet amsl.

Soils in the upland portion of the Jordan East Corridor are mapped as Gilpin-Upshur complex (GpC and GpD), the Upshur-Gilpin complex (UgE), and the Peabody-Gilpin complex (PgF). Soil from the Lily (LIE) and Upshur (UeC) soil series also occur in upland areas of Jordan East Corridor while Chagrin soils (CdA) occur in flood plains, Sensabaugh soils (SnA) occur along drainageways or foot slopes, and Vandalia soils (VdE) occur on foot slopes and colluvial fans. The survey area intersects perennial streams in five locations. These areas are mapped as containing Chagrin soils (CdA), Sensabaugh soils (SnA) and soils from the Upshur-Gilpin complex (UgE) and the Peabody-Gilpin complex (PgF).

In total, 36 STPs were excavated at 15-meter intervals along eight shovel tests transects, as well as eight judgmentally placed STPs (see Figure 5-23). Approximately 0.75 miles of the proposed corridor in the central portion of the survey area were not investigated during the survey due to private property access restrictions. Should this area be selected for construction, Phase I survey investigations in the form of systematic shovel testing is recommended.

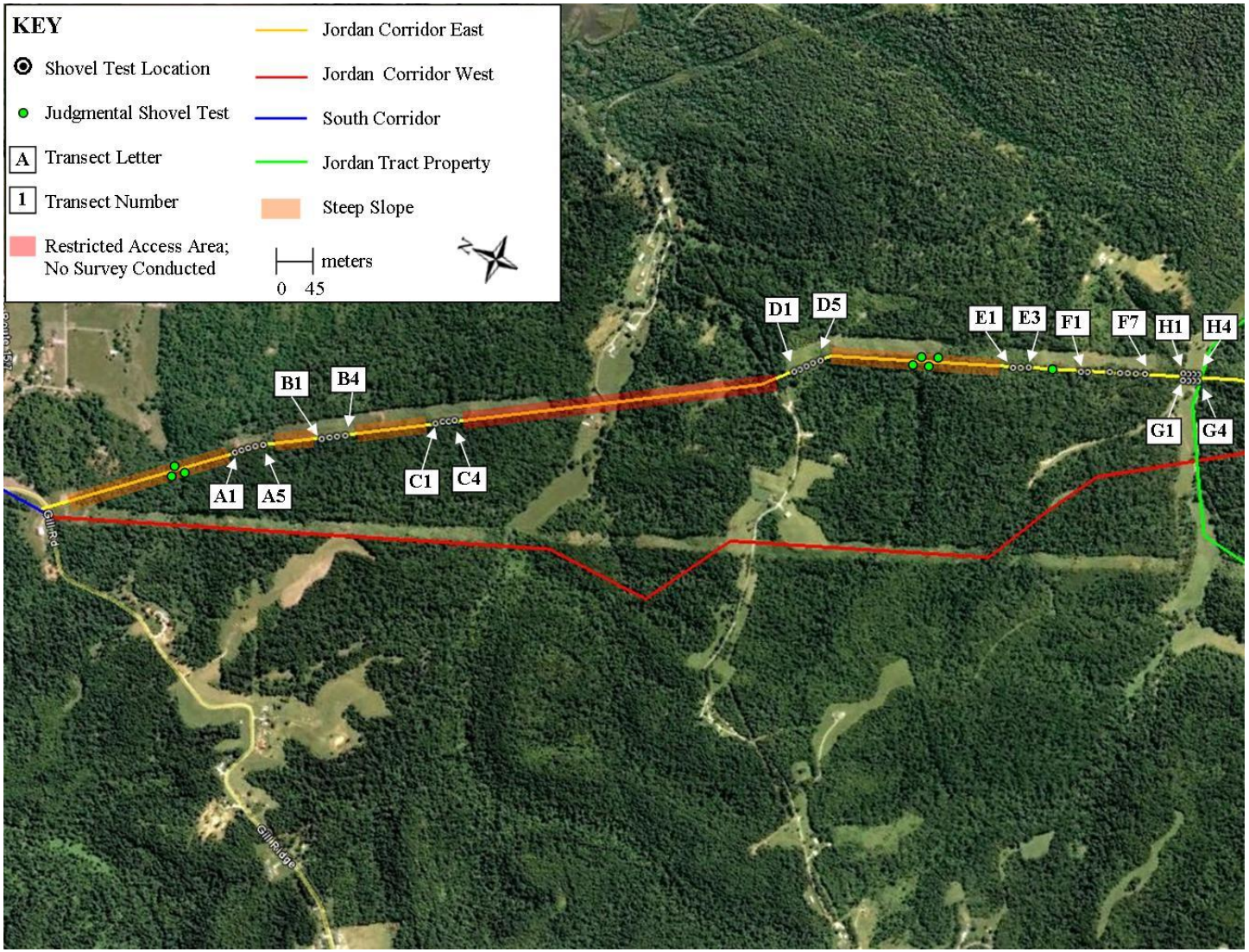


Figure 5-23. Base map of archaeological investigations within the Jordan East Corridor project area.

Jordan West Corridor

Figure 5-24. View of steep slope and cattle pasture present in the Jordan West Corridor.

The potential Jordan West Corridor consists of 2.2 miles of proposed pipeline construction areas located from the southern terminus of the South Corridor to the Jordan Tract property. As with the Jordan East Corridor, the corridor runs directly adjacent to a clear cut transmission line running generally north-south from the Gill Road intersection (see Figure 4-1; Figures 5-24 and 5-25). The corridor deviates slightly to the southeast from the power line corridor approximately 0.2 miles north of the Tombleson Run crossing, where it crosses a narrow ridgeline before descending to the Tombleson Run floodplain and connects with the Jordan East Corridor alignment and terminates at the Jordan Tract property. Topography throughout the survey area is similar to that of the nearby Jordan East Corridor, namely narrow ridge fingers cut by deep ephemeral stream crossings (see Figure 5-24).

Soils in the upland portion of the Jordan West Corridor are mapped as Gilpin-Upshur complex (GpC and GpD), the Upshur-Gilpin complex (UgE), and the Peabody-Gilpin complex (PgF). Soil from the Lily (LIE) and Upshur (UeC) soil series also occur in upland areas of Jordan West Corridor while Chagrin soils (CdA) occur in floodplains, Sensabaugh soils (SnA) occur along drainageways or foot slopes, and Vandalia soils (VdE) occur on foot slopes and colluvial fans. The survey area intersects perennial streams in four locations. These areas are mapped as containing Chagrin soils (CdA), Sensabaugh soils (SnA) and soils from the Upshur-Gilpin complex (UgE) and the Peabody-Gilpin complex (PgF).

In total, 66 STPs were excavated at 15-meter intervals along eight shovel tests transects in the survey area, as well as six judgmentally placed STPs (see Figure 5-25). No cultural material was recovered.

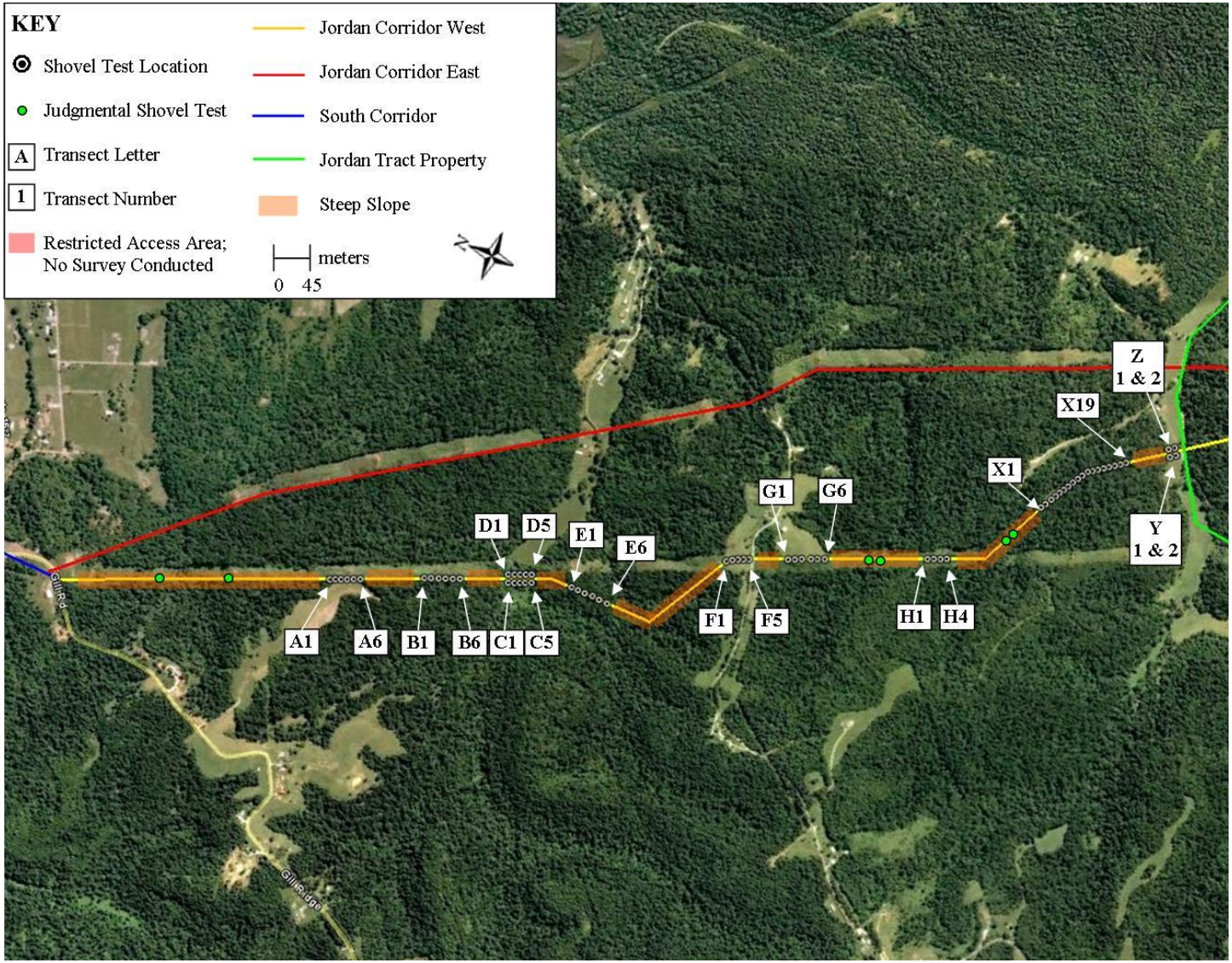


Figure 5-25. Base map of archaeological investigations within the Jordan West Corridor survey area.

POTENTIAL WELL PROPERTIES

Borrow Areas 1, 7, and 8

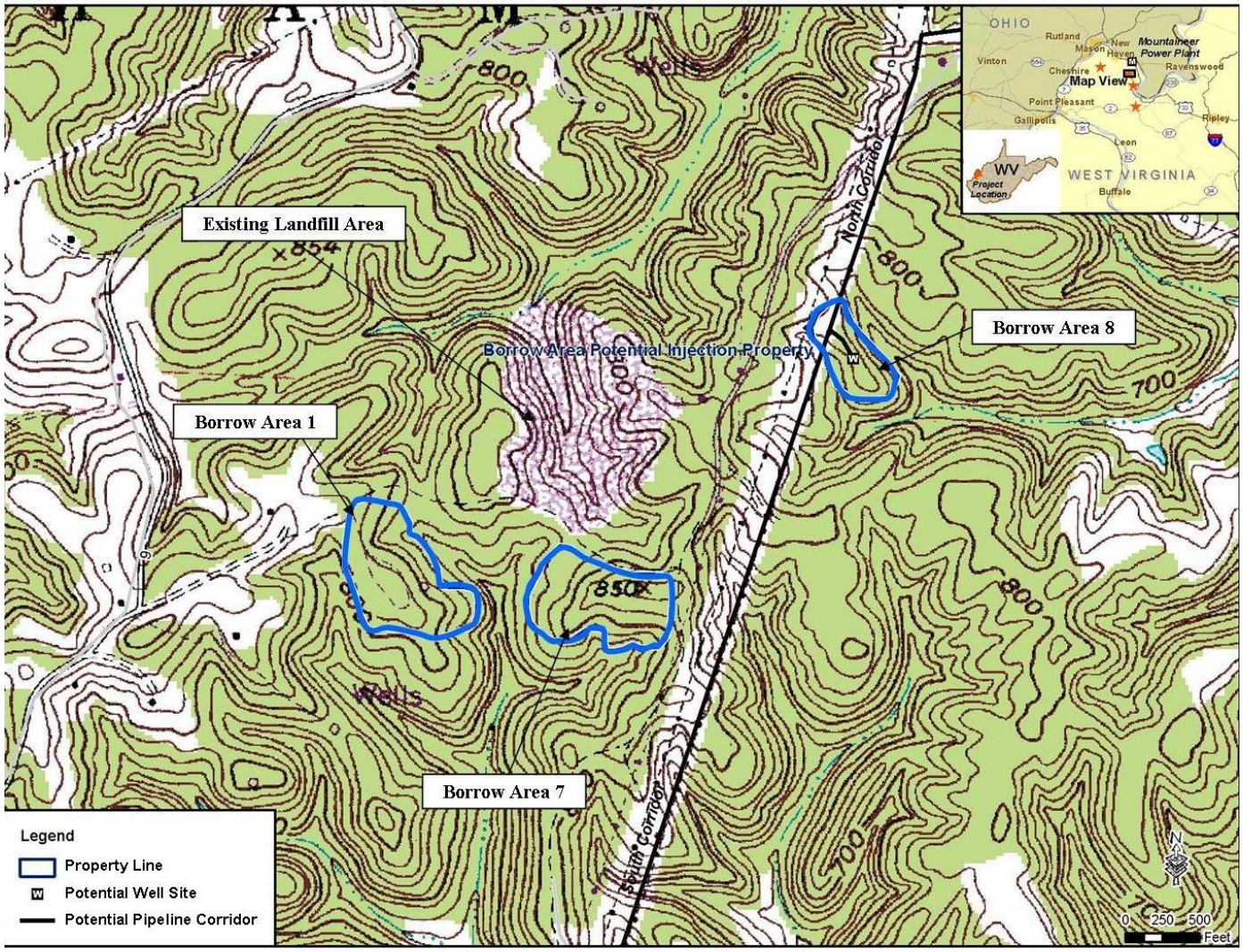
Figure 5-26. View to the southeast Borrow Area 1, location of proposed characterization well site.

The Borrow Area survey area consists of three smaller areas located at the existing Mountaineer Power Plant (see Figure 4-1; Figures 5-26, 5-27, and 5-28). Borrow Area No. 1 (ca. 12 acres), as well its associated access road, was subjected to close visual inspection and pedestrian survey and was found to have been subjected to extensive ground disturbance associated with clay mining (see Figure 5-26). Recently planted grasses are present in this area. No STPs were excavated in this area due to the ground disturbance and past removal of soil deposits. No cultural material was observed or recovered from this area. It should be noted that on August 27, 2010, AEP requested via letter report an advanced approval from the WVSHPO to proceed with development of the initial geologic characterization well at the Borrow Area 1 location. The WVSHPO provided approval for geologic characterization well activities at the Borrow Area No. 1 on September 20, 2010.

Figure 5-27. Ash and gypsum disposal cell within Little Broad Run landfill, showing general disturbance conditions: view to southwest.

Similar disturbed conditions are present in Borrow Area 7, a 4-9-acre area located to the east. Borrow Area 8 is a 10.94-acre area located east of the active mining area adjacent to an existing transmission corridor. This area is dominated by a thin ridge finger and steeply sloping gradient extending southeast from the transmission line. At Borrow Area 8, due to limited surface visibility atop the ridge finger, seven STPs were excavated along a single transect at 15-meter intervals. Each STP excavated showed mixed and graded soils evident of past disturbance. For example, ST A-3, located approximately 15 meters east of the existing transmission line, displayed a light brown (10YR 6/3) mottled with strong brown (7.5YR 5/6) highly compacted clay soil with a mixture of sandstone and gravel. All STPs exhibited similar soil characteristics, and visual inspection of the landform clearly indicated that past industrial activity has altered the landscape. No cultural material was observed or recovered.

All three of the Borrow Areas have been highly impacted from past and ongoing land alteration activities (see Figure 5-27). Examples of graded areas where large volumes of original ground surface have been removed are ubiquitous. As such, the potential for identifying undisturbed archaeological resources within this area is non-existent.



Borrow Area

Figure 5-28. *New Haven* USGS 7.5'Topographic Map depicting the location of proposed well sites within the Borrow Area.

Mountaineer Plant (MT-1)

Figure 5-29. Existing conditions at the potential Mountaineer Plant well site, showing extensive ground disturbance; view to southwest.

The potential Mountaineer Plant well site (MT-1) consists of a five-acre area within the existing Mountaineer Plant complex (see Figure 4-1; Figures 5-29 and 5-30). At the time of the survey, the area was a gravel covered and cleared construction area in the west-central portion of the Mountaineer Plant complex (see Figure 5-29). Existing process equipment is present in the central portion of the survey area. The proposed construction area has been highly impacted from past and ongoing land alteration activities. Due to the previous extensive ground disturbance, the potential for identifying undisturbed archaeological resources within this area is non-existent, and the survey area was visually inspected and documented.

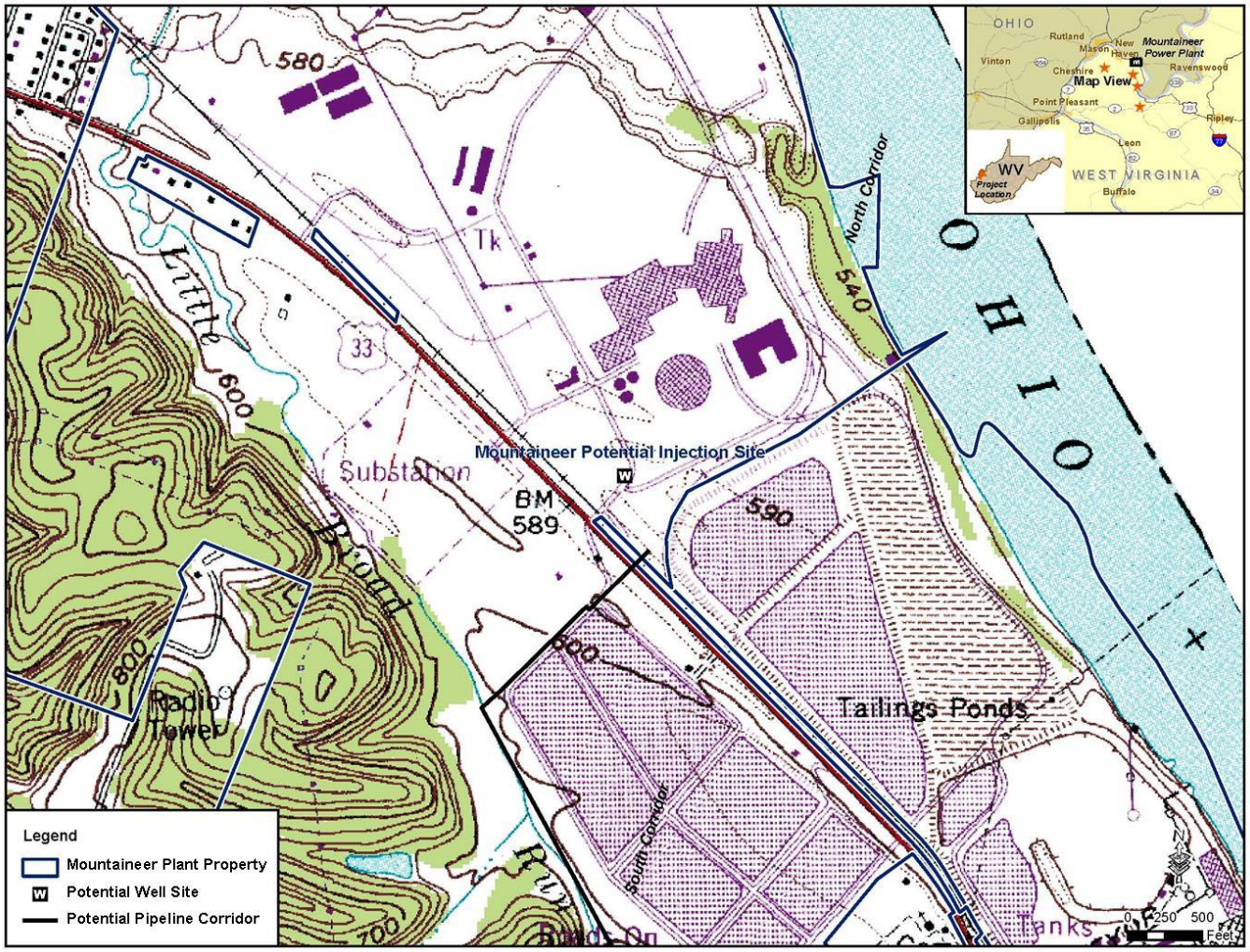
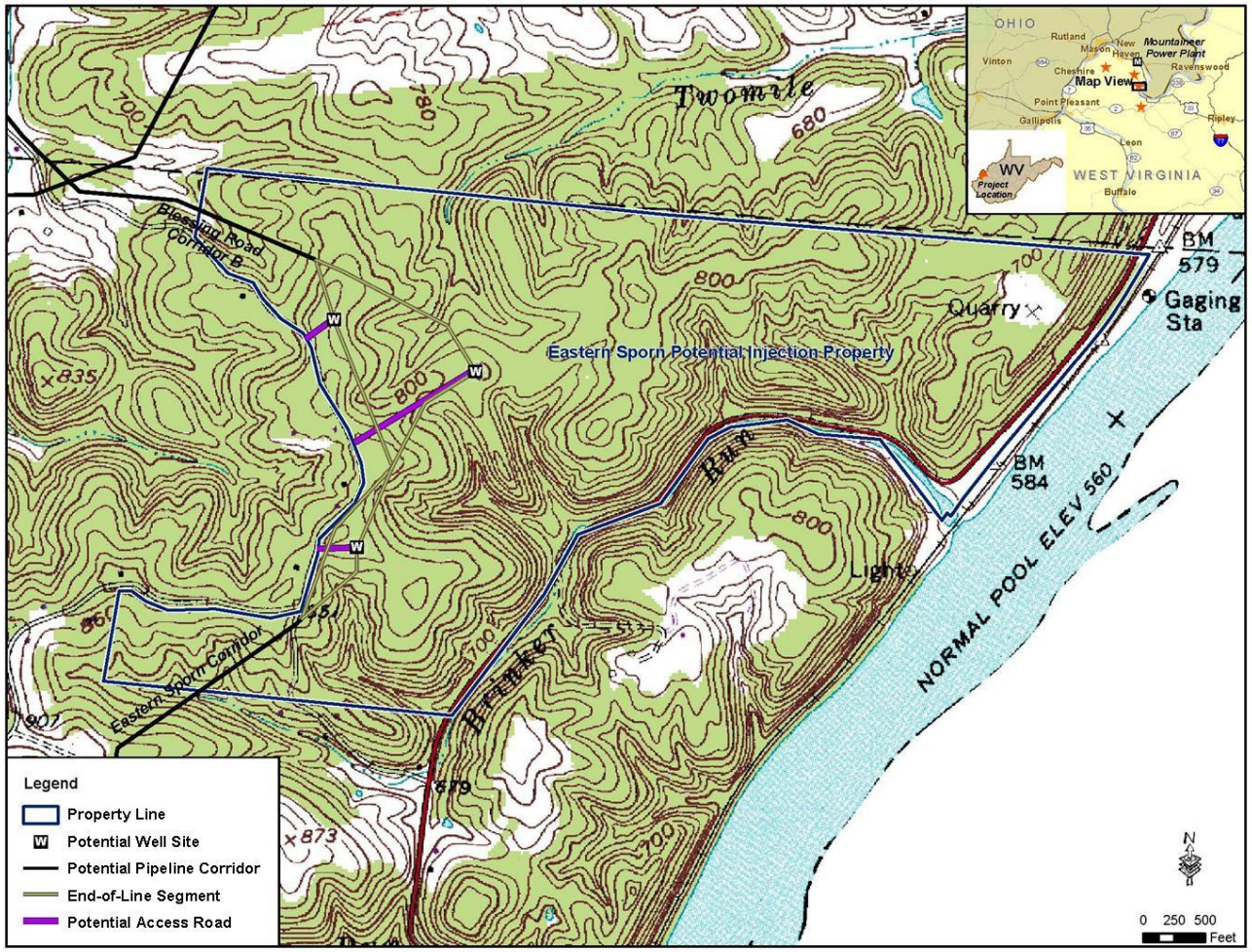


Figure 5-30. *New Haven* USGS 7.5'Topographic Map depicting the location of proposed Mountaineer Plant potential well site (MT-1).

Eastern Sporn (ES-1. ES-2, and ES-3)

Figure 5-31. View to the north of dense vegetation and typical landform slope at the Eastern Sporn property.

The potential well sites at the Eastern Sporn property consist of approximately 15 acres within three injection site construction areas in the eastern portion of the tract. The Eastern Sporn property approximately one mile north of the town of Letart (see Figure 4-1; Figures 5-31 and 5-32). The entire potential construction area is situated on top of a series of east-west trending ridge fingers extending from a broad upland near Blessing Road. Vegetation in the survey area is a mixture of moderate growth hardwood and conifer forest (see Figure 5-31). Each of the construction areas is bounded to the north, east, and south by steep slope. Elevation is the survey area range from 760 to 840-feet amsl. In total, 58 STPs were excavated at 15-meter intervals along 10 survey transects within the survey area (see Figure 5-32). No cultural material was recovered.



Eastern Sporn Property

Figure 5-32. *New Haven* USGS 7.5'Topographic Map depicting the location of potential well sites and archaeological investigations at the Eastern Sporn property (ES-1, ES-2, and ES-3).

Jordan Tract (JT-1)

Figure 5-33. View to the northwest of Shirley Road, adjacent to the Jordan Tract potential well site.

The potential Jordan Tract well site consists of approximately five acres of construction area and 0.6 miles of pipeline corridor within the Jordan Tract property (see Figure 4-1; Figures 5-33, 5-34, 5-35, and 5-36). The property is located in eastern Mason County approximately two miles west of the town of Mount Alto. The potential pipeline corridor and well site is located on top of a narrow, upland ridge finger running north-south through the central portion of the project area which runs adjacent to Shirley Road (see Figure 5-33). The landform slopes sharply away from the survey area to the west and east. Immature grown conifer forest dominates the ridge back, and it appears that much of the survey area has been recently clear cut and replanted. As a result, many of the STPs excavated in the area displayed little topsoil overlaying compact clay.

Figure 5-34. Abandoned modern house site (MS-0164) present in central portion of the Jordan Tract; view to the north.

Figure 5-35. View to the northeast of abandoned modern house cinder block foundation (MS-0164).

In total, 70 STPs were excavated at 15-meter intervals along five survey transects (see Figure 5-36). A mid-twentieth-century abandoned house and several outbuildings were encountered near Shirley Road in the central portion of the survey area (see Figures 5-34 and 5-35). The house appears to be of 1940's or 1950's construction and was recorded during the architectural survey as MS-0164. Several pieces of modern trash (glass, plastic, etc.) were noted in the shovel tests in this area. No additional cultural material was recovered in the survey area.

On October 15, 2010 AEP requested via letter report an advanced approval from the WVSHPO to proceed with development of the initial geologic characterization well at the Jordan Tract. The WVSHPO provided approval for geologic characterization well activities at the Jordan Tract site on November 8, 2010.

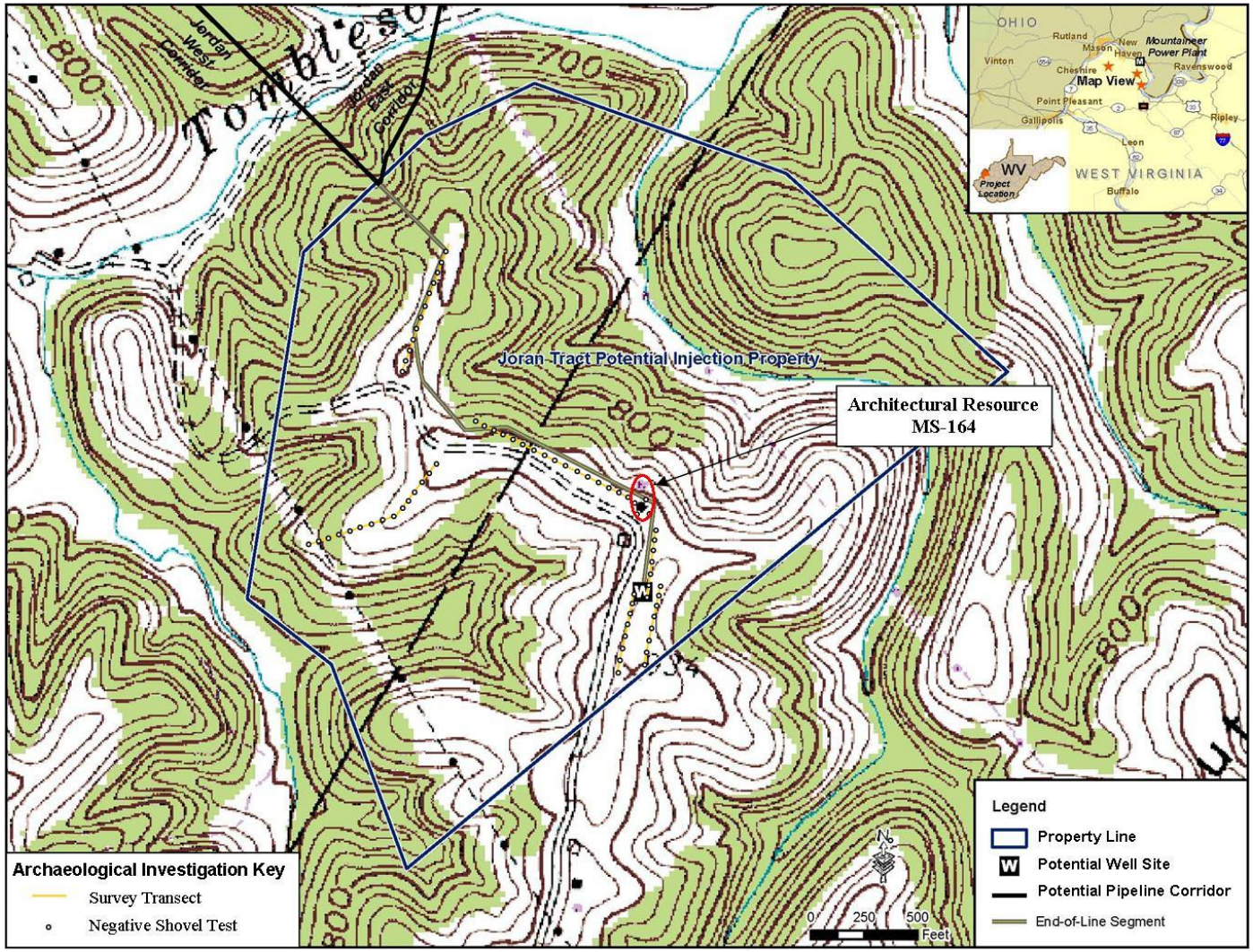


Figure 5-36. *New Haven* USGS 7.5' Topographic Map depicting the location of potential well sites and archaeological investigations at Jordan Tract (JT-1).

Western Sporn (WS-1)

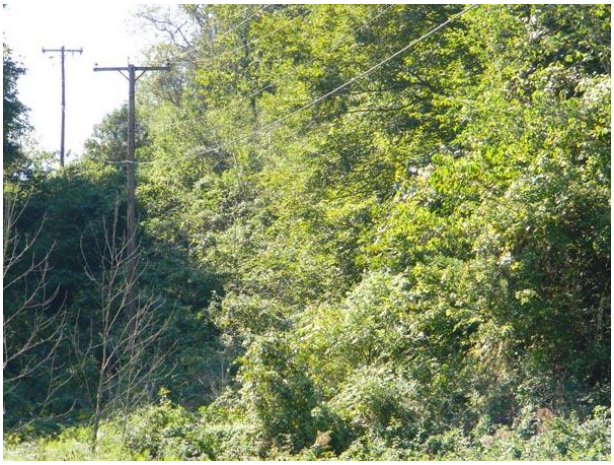


Figure 5-37. View to the west of upland landform and slope within the Western Sporn potential well site.

The potential Western Sporn well site (WS-1) consists of approximately five acres of proposed construction area and 0.15 miles of pipeline corridor with the Western Sporn property (see Figure 4-1; Figures 5-37 and 5-38). The property is located approximately 2.75 miles southeast of the town of West Columbia in northwestern Mason County. The potential well site is located on top of a small landform knoll in the extreme southeastern corner of the property overlooking Tenmile Creek, which runs through the property to the north and west (see Figure 5-37). The landform slopes to a low-lying area adjacent to the creek to the north, and to Lieving Road to the east. In addition to the current construction area associated with the Western Sporn potential injection site, approximately eight acres of additional area was investigation during the present survey. No cultural material was recovered from this low-lying area, north of an ephermal drainage of Tenmile Creek which flows through the property. In total, 40 STPs were excavated in the survey area at 15-meter intervals along three survey transects (see Figure 5-38). No cultural material was recovered.

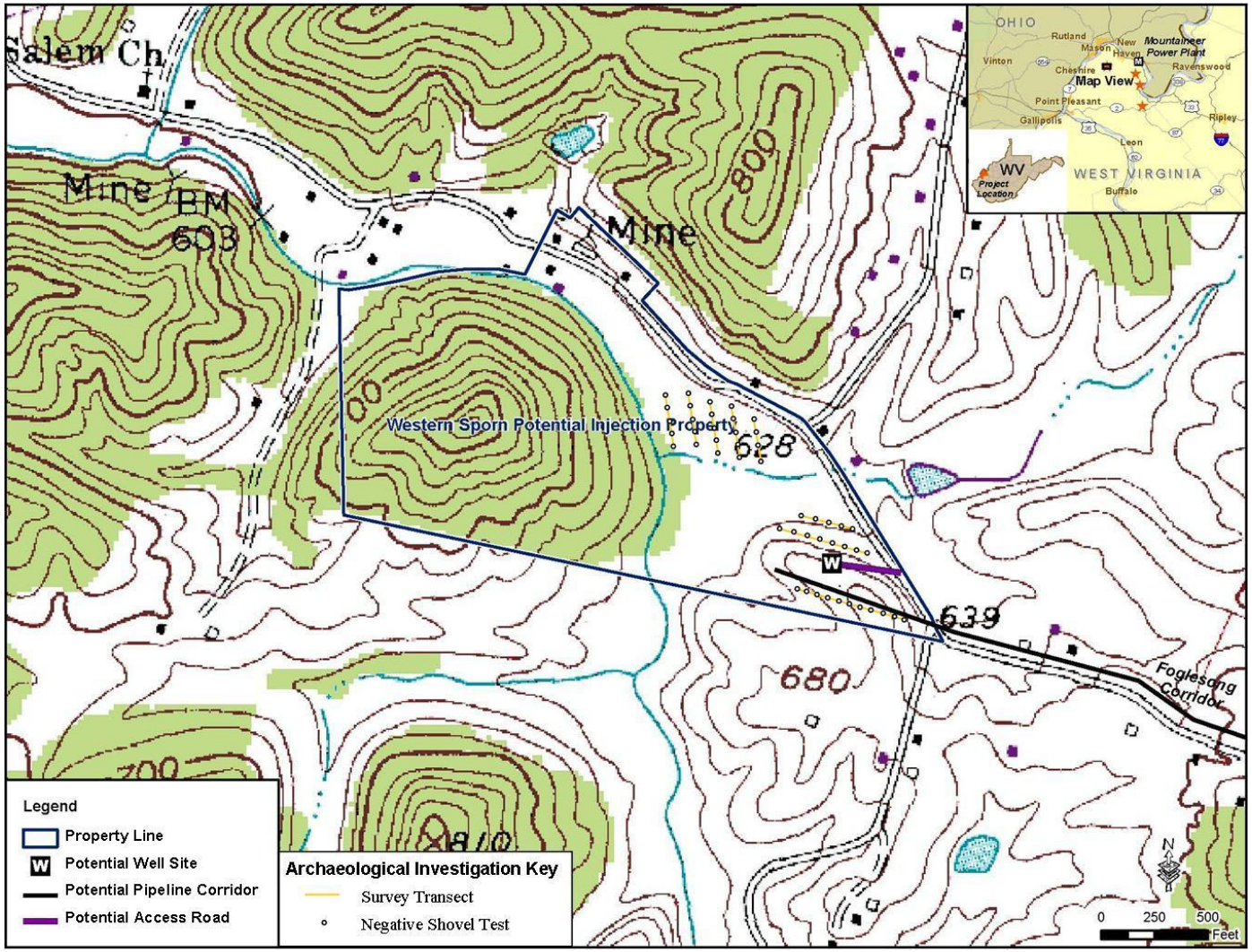


Figure 5-38. *New Haven* USGS 7.5' Topographic Map depicting the location of potential well site and archaeological investigations at Western Sporn property (WS-1).

NEWLY RECORDED RESOURCES

46MS365 [IF TRC-1]

Isolated Find 46MS365 [IF TRC-1] consists of a possible chert biface reduction flake recovered from STP Q-6 on a small upland knoll in the approximate center of the South Corridor survey area (see Figure 4-1; Figure 5-6). No additional cultural material was recovered within eight radial shovel tests excavated at 2-meter and 5-meter intervals in cardinal directions surrounding the find. 46MS365 [IF TRC-1] represents short-term, transitory, or seasonal occupation of the area during the prehistoric period.

BRINKER FAMILY CEMETERY (MS-0176 [46MS355])

Figure 5-39. General setting of Brinker Family Cemetery (MS-0176 [46MS355]), showing above ground burial markers and overgrown setting.

The newly recorded family cemetery (MS-0176 [46MS355]) is located on a prominent ridge overlooking the Ohio River valley in eastern Mason County (see Figure 4-1; Figures 5-39, 5-40, 5-41, 5-42, and 5-43). The cemetery measures approximately 65-x-75 feet and is bordered to the west by an existing power line corridor, to the north by push piles and slope off the ridgeline, and to the east and south by forested areas (see Figures 5-39 and 5-40).

The cemetery was encountered at the far eastern terminus of the originally proposed Eastern Sporn Corridor during the present survey; however, this eastern extension of the Eastern Sporn Corridor is no longer being considered. It is surrounded by a mixture of mature growth hardwood trees and dense undergrowth (see Figure 5-42). No visible signs of boundaries or maintenance (i.e. fence posts, metal gates, etc.) were present at the time of the survey.

In total, 10 above ground burial markers were recorded, five of which appeared to be in original locations in the center of the burial area. The grave markers and few surface depressions noted in the cemetery area indicated a standard Christian burial orientation of east-west. Several of the centrally located grave markers rest atop a small, elevated concrete platform rising approximately 4-5 inches above the ground surface. Three additional grave markers were recorded on the ground surface within a 40-feet radius surrounding the central burial area. These markers appear to have been displaced from their original location. Nine of the grave markers have readable dates, the earliest of which is 1884 and the latest of which is 1908 (see Figure 5-40). Each of the decipherable grave markers indicates a surname of "Brinker".

The entire visible Brinker Family Cemetery area was cleared of undergrowth and each grave location was documented and photographed during the present survey. The survey recorded 10 burials in the cemetery area; however, no extensive subsurface survey was conducted during the present survey. While no additional surface depressions or grave features were observed, the

general overgrown setting of the cemetery prevented extensive surface and subsurface examinations difficult.

Figure 5-40. Earliest decipherable grave marker located in the Brinker Family Cemetery (MS-0176 [46MS355]); indicating a burial date of 1884; view to the east.

Figure 5-41. Pushpiles and ridge slope present along the northern boundary of the Brinker Family Cemetery (MS-0176 [46MS355]); view to the northwest.

Figure 5-42. Existing transmission line swath present along the immediate western boundary of the Brinker Family Cemetery (MS-0176 [46MS355]); view to the northwest.

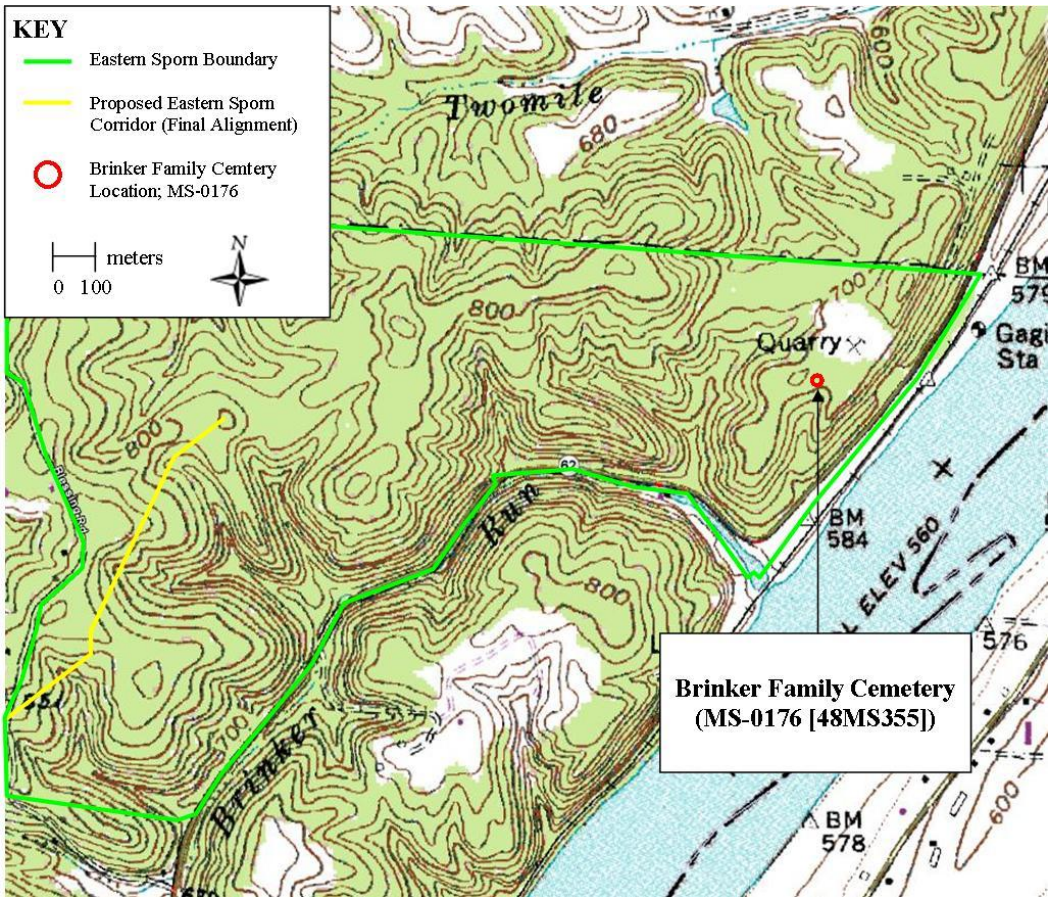


Figure 5-43. *New Haven USGS 7.5' Topographic Map* depicting the location of the Brinker Family Cemetery (MS-0176 [46MS355]).

VI. SUMMARY AND RECOMMENDATIONS

PROJECT SUMMARY

In July and August 2010, TRC Inc. conducted a Phase I archaeological survey of all proposed impact areas of the Mountaineer CCS II Project in Mason County, West Virginia. The proposed impact areas included approximately 55 acres related to the potential CO_2 capture process and potential well sites, along with 26 miles of potential pipeline corridors. The project area is located south and west of the Ohio River in the northern portion of the county. Current land use in the proposed project area includes previously disturbed areas associated with existing power plant and electric transmission line operations, as well as forested land and open fields. Background research indicated that there had been seven archaeological surveys conducted within two miles of the project area and that 10 archaeological sites had been previously recorded within one mile of the project area. l Based on a variety of physiographic features, the project area was considered to have High, Moderate, and Low probability areas for previously unrecorded archaeological resources.

Field methods included the systematic excavation of STPs at intervals of 15 meters along survey transects where appropriate. In total, 770 STPs were excavated along shovel test transects, in addition to 102 judgmentally placed shovel tests. Low probability areas utilized STPs that were excavated on a judgmental basis to confirm soil and drainage characteristics and/or disturbance. Due to property access restrictions, approximately 2.05 miles of the study area within the South Corridor (1.0 miles), East Corridor (0.3 miles), and Jordan East Corridor (0.75 miles) were not subjected to Phase I survey during the current investigation. Should these areas be selected for construction, Phase I survey investigations are recommended once property access is secured.

The survey resulted in the recovery of one artifact – an isolated archaeological find (46MS365 [IF TRC-1]), in addition to recording a previously unidentified historic cemetery- (MS-0176 [46MS355]). The isolated find was evaluated for eligibility for inclusion in the NRHP, which is summarized below. Because the Brinker Cemetery is no longer within the project APE, it was not evaluated. A summation and recommendation for these resources follows:

NATIONAL REGISTER RECOMMENDATIONS

This section provides recommendations on the research value and potential of sites to be eligible for inclusion in the National Register. Each archaeological site identified in the project area was evaluated with reference to the criteria of eligibility for inclusion in the NRHP, as set forth in 36 CFR 60.4, and based on guidelines set forth by the National Park Service (1993) (Table 6-1). The four criteria of eligibility evaluation are:

Criterion A:Properties that are associated with events that have made a significant contribution to the broad patterns of our history; or

Criterion B:Properties that are associated with the lives of persons significant in our past; or

Criterion C:Properties that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

Criterion D:Properties that have yielded or may likely yield information important to history or prehistory [36 CFR 60.4].

Isolated Find 46MS365 (IF TRC-1) consists of a possible chert biface reduction flake recovered from STP Q-6 on a small upland knoll in the approximate center of the South Corridor survey area. No additional cultural material was recovered within eight radial shovel tests excavated at 2-meter and 5-meter intervals in cardinal directions surrounding the find. 46MS365 (IF TRC-1) represents short-term, transitory or seasonal occupation of the area during the prehistoric period. By definition, the isolated find does not represent a locus of sustained human activity and does not have research value nor is it eligible for the National Register. Further investigation of the resource would not change our interpretation or contribute to our present understanding of the region's history or prehistory, and no further study is recommended.

Brinker Family Cemetery (MS-0176 [46MS355]) consists of a small (approximately 65-x-75 feet) family cemetery located on a prominent ridge overlooking the Ohio River valley in eastern Mason County. The cemetery is bordered to the west by an existing power line corridor, to the north by push piles and slope off the ridgeline, and to the east and south by forested areas. No visible signs of boundaries or maintenance (i.e. fence posts, metal gates, etc.) were present at the time of the survey. In total, 10 above ground burial markers were recorded, five of which appeared to be in original locations in the center of the burial area. The grave markers and few surface depressions noted in the cemetery area indicated a standard Christian burial orientation of east-west. Nine of the grave markers have readable death dates, the earliest of which is 1884 and the latest of which is 1908, and each of the decipherable grave markers indicates a surname of "Brinker." The survey recorded 10 burials in the cemetery area; however, no extensive subsurface survey was conducted during the present survey. While no additional surface depressions or grave features were observed, the general overgrown setting of the cemetery prevented extensive surface and subsurface examinations difficult. Because the Brinker Cemetery is no longer inside the project APE, it was not evaluated.

Table 6-1.

Research Potential and Significance Recommendations.

Resource Number	Site Type/Cultural Affiliation	Estimate of Research Potential	NRHP Recommendations
46MS365 [IF TRC-1]	Unknown prehistoric period	Poor	Not Eligible

REFERENCES CITED

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ATTACHMENT A

TRC PERSONNEL QUALIFICATIONS

Tim Sara, M.A., RPA (Program Manager and Principal Investigator) Mr. Sara has an M.A. in Anthropology from the City University of New York and has 23 years experience in cultural resources management. He is qualified under the *Secretary of the Interior's Professional Qualifications (Archeology) (36 CFR 61)* and is certified by RPA. Mr. Sara has conducted numerous Phase I, II, and III investigations throughout the mid-Atlantic Region including West Virginia. Mr. Sara has recently directed investigations of the **AES New Creek Wind Energy Project** in Grant and Mineral Counties, and is currently directing archaeological studies for the **AES Snowy Creek Wind Energy Project** in Preston County. Mr. Sara has also directed archaeological investigations for the National Park Service in the **New River Gorge National River** and for the Department of Justice in Preston County.

Robert Wall, Ph.D., RPA (Senior Archaeologist) has more than 30 years of experience in archaeological field investigations in the Middle Atlantic region, with a particular focus on the Susquehanna, Potomac, Delaware, and Upper Ohio drainages. He is qualified under the Secretary of the Interior's Professional Qualifications (Archeology) (36 CFR 61) and is certified by RPA. Dr. Wall has expertise in Archival Research/Land Use Studies; Archeological Inventory Surveys; Archeological Site Assessments and National Register Testing; Archeological Site Mitigation and Data Recovery; Cemetery Delineation, Archeology Laboratory Processing, Analysis, Curation, Research and Report Writing. Dr. Wall has also authored numerous publications on the archeology of Maryland, Pennsylvania, and West Virginia.

Patrick Walters, B.A. (Archaeologist) has more than 9 years of experience in archaeological field investigations in the Middle Atlantic region. He has particular expertise in the development of field methods and archaeological site treatments, as well as consultation with regulatory agencies. He has extensive experience with CRM projects throughout the Middle Atlantic, including numerous Phase I, II, and III investigations, research, technical reports, and historic and prehistoric artifact analysis. Mr. Walters is also working on the **Snowy Creek Wind Energy** project in Preston County, West Virginia.

ATTACHMENT B

WEST VIRGINIA DIVISION OF CULTURE AND HISTORY USER REGISTRATION AND RESEARCH RECORD FORM

West Virginia State Historic Preservation Office

Cultural Resources Files and Library
User Registration and Research Record Form

INSTRUCTIONS: Part I must be completed before you will be permitted access to the SHPO Cultural Resource Files and Library. Part II is a record of the site files, cultural resource reports, USGS topographic maps and other materials you utilize during your visit. Part III will be completed and signed by a SHPO staff member only when you have completed your research and have returned the materials to which you have been given access.

I. IDENTIFICATION

DATE: June 8, 2010

Name (s) Robert Wall
Jessica Mundt

Organization or Company: TRC

Address: 4425 Forbes Blvd
Lanham, MD 20706 Phone 301, 306-6981

FR Number (if known) Mountaineer CCS II Project Mason Co.

II MATERIALS UTILIZED
ARCHAEOLOGY:
USGS QUAD MAP NAMES:
Point Haven
Mount Alto
Cheshire

ARCHAEOLOGY SITE FORM #s
MS 3, 375-276, 293, 311, 312
296, 300, 301, 70
302, 303, 304, 307

CRM Reports/Publications
90-542-MS
05-409-MS-1
05409-MS
05-1391-MS
05-1218-MS
96-517-MS
05-1215-MS

SURVEY AND NATIONAL REGISTER:
County Survey Files
no structures

National Register Files
checked on line

Other Materials

III MATERIALS RETURNED IN GOOD ORDER

DATE: 6/8/2010 # Photocopies 171 $ 42.75

USER NAME:

SHPO STAFF SIGNATURE:
(Signature assures that materials have been returned to file)

RECEIVED
PAID IN
JUN 8 2010
FULL
WVDCH

ATTACHMENT C

WEST VIRGINA CEMETERY SURVEY FORM

West Virginia Cemetery Survey Form

NR rating:_____

(Revised February 3, 2010)

1. Site Number (OFFICE USE ONLY): **MS 0176 [46MS355]**

2. Cemetery Name, Historic: **Brinker Cemetery**
Cemetery Name, Common: **Brinker Family Cemetery**

3. County: **Mason** 4. 7.5' Quadrangle Name: **New Haven**

5. UTM Zone: **17** NAD: **83**
Easting: **38.912317°** Northing: **38°54'44.34"N**
Easting: **81.922402°** Northing: **81°55'20.65"W**

6. Location: **West side of CR 62, north of Letart**

7. Ownership: Public: Municipal_____ County_____ State_____ Federal_____
Private: Family__X__ Church_____ Denomination_____
Fraternal_____ Other_____

8. Burial Population: **Approximately 10**

9. Predominant Surnames: **Brinker (all)**

10. Mass Grave: Yes_____ No__X__ Explain: **Individual grave markers**

11. Public Accessibility: Unrestricted_____
Restricted__X__
For permission to visit, contact Appalachian Electric Power

12. Access into cemetery: By foot__X__ By car_____

13. Terrain: **Hilly and heavily wooded**

14. Bounded by: Fence_____ Wall_____ Hedge_____ Other_____N/A__X__

15. Condition: Well-maintained_____ Poorly maintained_____ Overgrown, easily identifiable__X__
Overgrown, unidentifiable_____ Unidentifiable, but known to exist through tradition or other means (identify source) _____

16. Disturbances: **None**

17. Cemetery Size and Orientation (please give dimensions in feet, and indicate compass direction for long and short axis): **Approximately 60-ft. north-south by 75-ft. east west**

West Virginia Cemetery Survey Form NR rating:_____

Site Number: **MS 0176 [46MS355]** Cemetery Name: **Brinker Cemetery**

18. Historical Background (use continuation sheet if necessary): _____

19. Gravestones (Please list the number of gravestones that fit in the categories below. If this is guess or an approximation, put "circa" before the number. Include photographs and/or sketches of representative decorative carvings.):

Number of headstones **10** Number of burials **10** Footstones? Yes **X** No____

Number of gravestones with burial dates from the 18th century_____ 19th century **5**

20th century **5** 21th century_____

Please list the earliest headstone date **1884** Most recent date **1908**

Number of gravestones of each material: Slate_____ Marble **X** Granite **X**
Sandstone_____ Fieldstone_____
Other_____

Number of gravestones that are: Readable **9** Eroded_____ Badly Tilted **5**
Cracked/Broken **8** Broken but standing **5** Broken, no longer standing **3**
Location of stones no longer standing: **Within the visible cemetery boundaries**

Restoration efforts, if any: _____

20. Please attach: 1) a copy of the topographic quadrangle map indicating the cemetery's location, and 2) general photograph(s) of the cemetery showing its setting and/or location. If you have any reference information about the cemetery (books, personal communication, etc.) please include a list.

Recorder: **Patrick Walters, Archaeologist** Date: **August 10, 2010**
Address: **TRC Environmental Corp., 4425 Forbes Boulevard, Lanham MD**
Telephone Number: 301-306-6981

Please return form to:
Historic Preservation Office
The Cultural Center
1900 Kanawha Boulevard East
Charleston, West Virginia 25305-0300

Thank you for your interest in the West Virginia Cemetery Survey.

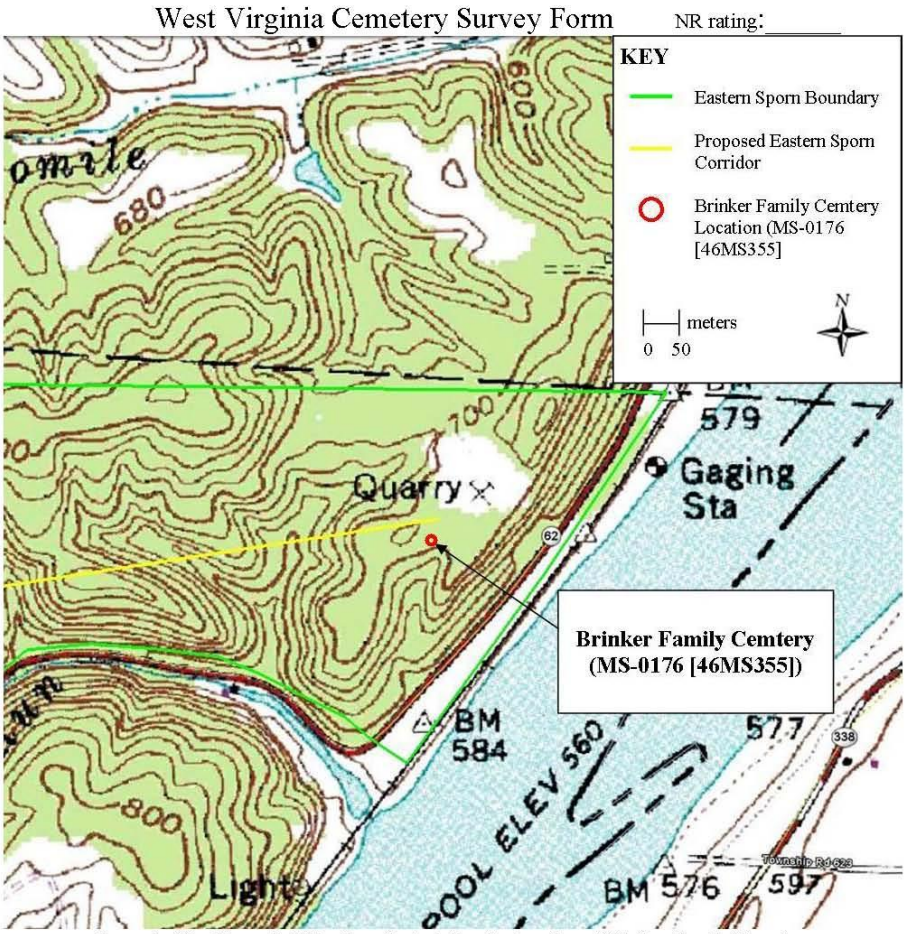


Figure 1. New Haven 7.5' Quadrangle depicting the location of Brinker Family Cemetery

West Virginia Cemetery Survey Form NR rating:_____

Figure 2. View to the northeast of Brinker Family Cemetery

Figure 3. Brinker family headstone of oldest readable burial date (1884)

ATTACHMENT D

WEST VIRGINIA ISOLATED FIND FORM

WEST VIRGINIA ISOLATED FIND SITE FORM

Revised 2010

1. Site No.: 46MS365 2. Site Name: IF TRC-1

3. County: Mason 4. 7.5' Quadrangle: New Haven

5. UTM Zone: 17 or 18 (circle one) NAD: NAD 83
Northing: 4309860.08 Easting: 418044.89

6. Location Description: A small upland knoll in a grassy cattle pasture overlooking an unnamed tributary of West Creek.
The find is located within an existing north-south transmission corridor approximately2.5 miles south of the Mountaineer Power Plant.

7. Ownership (Name/Address/Tenant): Private

8. Describe Artifact Recovered (Please provide a detailed description of recovered artifact, including measurements and type of raw materials. You may also provide sketch or photo of diagnostic artifacts):
See continuation sheet.

9. Temporal Period: ■ Prehistoric ☐ Historic

Discuss Cultural Affiliation: See continuation sheet.

10. Site Condition: ☐ Unknown ☐ Undisturbed ■ Destroyed

■ Disturbed (explain): The site is located in an agricultural field that has been subjected to plowing. The single artifact was recovered within the Ap horizon (plowzone).

11. Topography/Landform: ☐ Floodplain ☐ Terrace ☐1 ☐2 ☐3 ☐ Ridge Top ☐ Gap/Saddle
■ Hillside/Bench ☐ Other

12. Physiographic Province: ■ Appalachian Plateau ☐ Transitional ☐ Ridge and Valley

Other :

13. Soils: Gilpin Channery silt loam (GpC)

14. Vegetation:
Open, grassy cattle pasture

15. Elevation: 680 ft. (ft/m amsl) 16. Slope%: 0-5% 17. Slope Direction: South

18. Nearest Water (Name): West Creek ☐ Permanent ■ Intermittent

19. Distance to Water (ft/m): 200 m north

20. Investigation Type: ■ Pedestrian Survey ■ Shovel Test Probes ☐ Surface Collection

21. Form Prepared by: Patrick Walters

22. Affiliation: TRC, Inc.

23. Address: 4425 Forbes Blvd., Lanham, MD, 20706

24. Phone Number: 301-306-6981 25. E-Mail: pwalters@trcsolutions.com

26 Date of Fieldwork: 8-1-10 27. Date Form Prepared: 1-13-11

28. References (Please note any bibliographic references):

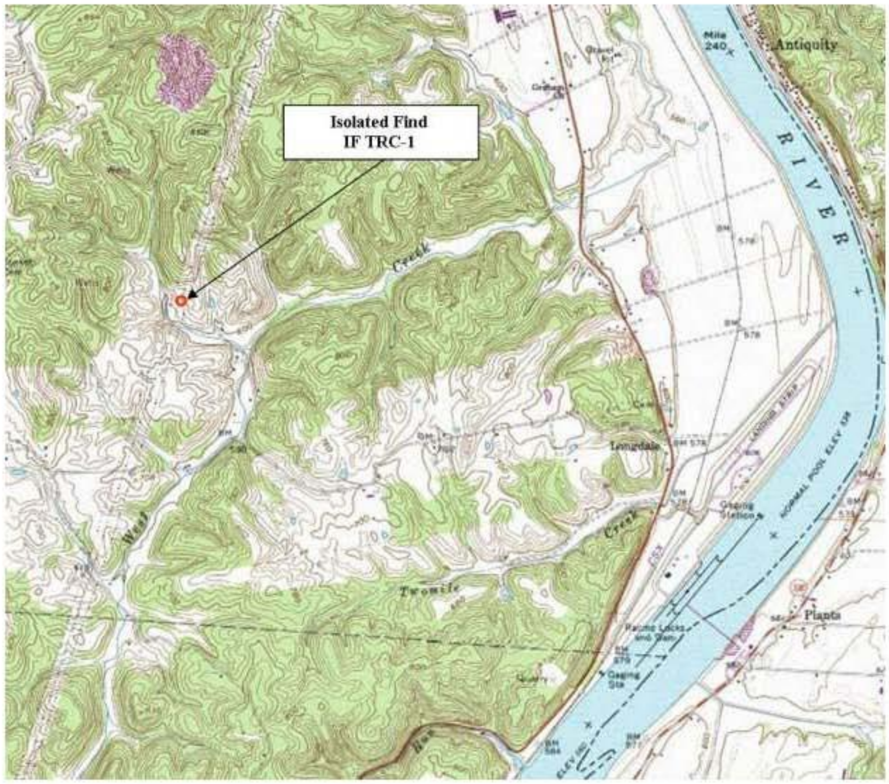
29. Map (Attach portion of USGS quadrangle map and sketch location with nearest landmarks and other recorded sites; include north arrow, key, and scale)

See continuation sheet.

West Virginia Division of Culture and History
State Historic Preservation Office
1900 Kanawha Blvd., East
Charleston, WV 25305
(304) 558-0220

Continued from Sheet 1.

8. Isolated archaeological find IF TRC-1 consisted of a single chert biface reduction flake recovered in shovel text pit Q-6 in a grassy open field in the central portion of the South Corridor survey area. Eight radial shovel tests excavated at 2 and 5-meter intervals in cardinal directions surrounding the positive shovel test did not yield any additional cultural material.


Isolated Find
IF TRC-1
Antiquity
RIVER
Creek
West
Creek
Twomile
Longdale
Plants

ATTACHMENT E

PRIOR AGENCY CORRESPONDENCE

4425 Forbes Boulevard
Lanham, Maryland 20706

Main 301-306-6981
Fax 301-306-6986

June 1, 2010

Ms. Susan Pierce
Deputy State Historic Preservation Officer
West Virginia Division of Culture and History
The Cultural Center
Capitol Complex
1900 Kanawha Boulevard East
Charleston, WV 25305-0300

RE: *Request for Consultation Regarding Proposed Project in Mason County, West Virginia.*

TRC Environmental, Inc. (TRC), in association with Potomac-Hudson Engineering, Inc. (PHE) invites initial consultation with the West Virginia State Historic Preservation Office (WVSHPO) on a proposed project in Mason County, West Virginia. Our client, American Electric Power (AEP) and the lead federal agency, the U.S. Department of Energy (DOE), propose to develop a carbon dioxide capture and storage (CCS) project at the AEP Mountaineer Power Plant. The project is referred to as the Mountaineer CCS II Project (Project).

AEP is seeking financial assistance from the DOE for the Mountaineer CCS II Project. As such, AEP will be supporting DOE in the preparation of an Environmental Impact Statement (EIS), as well as future consultation that will be conducted under Section 106 of the National Historic Preservation Act. The EIS and DOE's consultation will address all aspects of the Mountaineer CCS II Project. However, as characterization wells and corridor selection efforts are being undertaken by AEP for feasibility considerations, preliminary studies are expected to precede the EIS and formal Section 106 consultation. For that reason, early consultation to obtain your input on potential cultural resources in these areas and our approach to investigating these areas is sought before undertaking the efforts.

The proposed consultation is with regard to cultural resource studies supporting the National Environmental Policy Act (NEPA) EIS and any other applicable approvals. The consultation is proposed to ensure properly focused pre-project site characterizations and subsequent project compliance with all applicable federal and state historic preservation laws over the course of the project. Following is a brief description of the Project and plans for characterization work in support of project planning and EIS development.

Project Description

The Project would capture approximately 1.5 million tonnes of carbon dioxide (CO_2) annually from a 235 megawatt slipstream of flue gas from the existing 1300 megawatt Mountaineer Power Plant located near New Haven, West Virginia. The captured CO_2 would be transported by pipeline to injection sites located within approximately 12 miles of the plant. The captured CO_2 would be injected for permanent storage into geologic formations located approximately 1.5 miles underground. AEP will conduct geologic and hydrogeologic characterization activities to support preliminary project engineering and design. As part of these ac

tivities, preliminary characterization work is planned at potential injection well sites and within potential pipeline corridors between the Mountaineer plant and the well sites. Up to three deep characterization wells will be developed to characterize subsurface conditions and assess their suitability for the injection and storage of CO_2. Four properties owned by AEP have been identified for potential characterization wells. In order of preference to support characterization activities, they are: (1) the Jordan Tract; (2) the AEP Landfill property; (3) the Eastern Sporn Tract; and (4) the Western Sporn Tract. Conceptual pipeline corridors to each of these four locations have been preliminarily identified. The final locations and design of the proposed corridors, characterization wells and access roads for these sites will be refined upon completion of associated environmental studies.

Attachment A contains maps depicting the location of the Mountaineer Plant, characterization well properties, and preliminary conceptual corridors.

Cultural Resources Studies

Our initial focus is to conduct cultural resources studies (literature review and fieldwork) in order to determine if any potentially significant cultural resources would be impacted by the characterization activities and, ultimately, the overall Project. TRC/PHE proposes to conduct both a Phase I Archaeological Survey and a Historic Architectural Resources Survey to identify cultural resources that are listed or are eligible for listing in the National Register of Historic Places (National Register), and to determine the potential effects of the characterization well development or corridor location on those properties. This work will be conducted in accordance with all applicable federal and WVSHPO guidelines and is summarized below.

Literature Review and Site File Search

A literature review and site file search will be conducted at the WVSHPO and Archives in Charleston prior to initiation of field surveys. Local histories, cartographic data, and other relevant documentation on the prehistoric and historical resources in the area will be reviewed. For the purposes of this research, TRC/PHE will conduct a review of state archaeological site files, National Register-listed and -eligible properties, previously surveyed historic structures, and associated GIS-based maps of archaeological and historic architectural sites within a one-mile radius of the characterization well sites, access roads and potential pipeline corridors. Any other relevant sources

that may contain information on historical and archaeological sites in the project sites' vicinities will also be consulted.

Archaeological Survey

The Phase I Archaeological Survey will be conducted in accordance with the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* and the WVSHPO *Guidelines for Phase I, II, and III Archaeological Investigations and Technical Report Preparation* (n.d.). Field methods will consist of both pedestrian and shovel test survey to locate archaeological resources. Per *Guidelines*, shovel test pits (STPs) will be excavated at an interval of 15 meters within all proposed impact areas of the Project once those locations are known. Guidelines regarding single or multiple transects in the corridors will be followed based on potential corridor widths. A pedestrian survey will be conducted in lieu of shovel testing where steep slope, exposed bedrock, and/or ground disturbance precludes the utility of shovel testing. The archaeological survey will initially focus on sites selected for initial characterization wells, access roads to these sites, and potential pipeline corridors. Further field studies of the overall Project, including selected proposed corridors and injection well locations will be conducted as the Project design is developed. Technical Reports following the WVSHPO *Guidelines* will be produced and submitted for WVSHPO review to document the background research and results of fieldwork. The initial Technical Report will document the background research and results of fieldwork for the characterization well sites and associated access roads. A follow-on Technical Report submitted at a later date will document the field results of the corridor investigations and remaining project sites.

Architectural Survey

TRC will conduct a survey of architectural resources according to all applicable federal and WVSHPO standards within an Area of Potential Effect (APE) of 500 feet from the proposed characterization well sites and pipeline corridors. The proposed characterization well sites' surroundings are heavily wooded and the characterization activity is not expected to be visible beyond 500 feet. The potential pipeline corridors generally follow existing developed transmission and/or road rights-of-way, and the pipeline is expected to have minimal visibility. The survey will record resources 50 years and over, identify all resources listed in or eligible for listing in the National Register, and assess any potential effects to these resources from the project. The results of the identification process, along with recommendations of National Register eligibility for historic architectural resources within the APE will be submitted to the WVSHPO for review. Following WVSHPO concurrence with the National Register eligibility recommendations, TRC/PHE will assess any effects to these resources from the characterization well sites and present these findings in a separate report.

<u>Ongoing Consultation</u>

It is proposed that consultation with the WVSHPO will be ongoing as design, NEPA EIS scoping, and other activities in support of the Project are advanced. It is understood that further refinement of the APE for architectural resources and for the cultural resources field studies may be required to determine the effects to potentially significant historic properties in the Project area. In that regard, while we are not yet formally proposing an APE for any of the other project components, any

thoughts you may wish to share in advance on that topic would be welcomed. On behalf of AEP and the DOE, TRC/PHE will continue to provide your office with updated Project design plans for your review. The project team is available to participate in one or more face-to-face meetings or teleconferences with your office to facilitate your review of the Project if necessary.

Your response to this letter, acknowledging your interest in participating in this consultation, and in commenting on our determination of the APE, for the proposed characterization well investigations is greatly appreciated. We would appreciate a response as soon as practical within the 30 day review period, in order to help more quickly focus on potential impacts to cultural resources as the Project moves forward.

Should you require any additional information please do not hesitate to contact me at (301) 306-6981, or tsara@trcsolutions.com. For questions concerning Architectural History, please contact Mr. Geoffrey Henry at (202) 352-2109, ghenry@trcsolutions.com.

Sincerely yours,
Timothy R. Sara, RPA

Senior Archaeologist and
Program Manager

cc: M. Lusk, DOE/NETL
M. McMillian, DOE/NETL
B. Whipple, PHE
F. Blake, AEP
B. Sherrick, AEP
C. Cooper TRC
G. Henry, TRC

enclosures

WEST VIRGINIA
Division of Culture and History

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300
Randall Reid-Smith, Commissioner
Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EO/AA Employer

July 1, 2010

Mr. Timothy R. Sara
Senior Archaeologist
TRC
4425 Forbes Boulevard
Lanham, MD 20706

RE: Mountaineer CCS II Project
FR#: 10-1133-MS

Dear Mr. Sara:

We have reviewed the above referenced project to determine potential effects to cultural resources. As required by Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

According to submitted information, American Electric Power (AEP) and the U.S. Department of Energy (DOE) propose to develop a carbon dioxide capture and storage (CCS) project at the AEP Mountaineer Power Plant in Mason County. It is our understanding that four properties have been identified for potential location of characterization wells. In addition, the proposed project will also involve the construction of a pipeline and access roads associated with each characterization well.

Archaeological Resources:
The submitted document indicates that a literature review, site file search and Phase I archaeological survey will be conducted for the proposed project area. The Phase I survey will consist of pedestrian survey and shovel pit excavation at 15 meter intervals and will initially focus on sites selected for characterization wells, access road and potential pipeline corridors. Additional field work will be conducted for selected corridors and injection well locations as project design is developed. Technical reports presenting the results of the survey will be submitted for our review. All work will be conducted in accordance with the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* and this office's *Guidelines for Phase I, II, and III Archaeological Investigations and Technical Report Preparation* (2001). We concur with this proposal and will provide further comment upon receipt of the resulting technical report or as requested.

Architectural Resources:
Submitted information indicates that TRC will conduct a literature review, site file search of National Register and architectural survey files and complete an architectural survey of the project area. TRC has tentatively defined the area of potential effect (APE) as 500 feet from the proposed characterization well sites and pipeline corridors. According to submitted information, the proposed characterization well sites will be placed in areas that are heavily wooded and the pipeline corridors generally follow existing developed transmission and/or road rights-of-way. Submitted information states that it is expected that the project will have minimal visibility. The survey will record all resources 50 years and older, identify all resources listed in or eligible for listing in the National Register and assess any potential effect to these resources. We also request that when submitting the architectural survey report that you forward the dimensions of all above ground components of this project. Additionally, we would request that you use a viewshed analysis to assist you in finalizing an appropriate APE. With these two additions, we concur with this proposal and will provide further comment upon receipt of the resulting architectural survey report, or as requested.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Lora A Lamarre, Senior Archaeologist, or Shirley Stewart Burns, Structural Historian, at (304) 558-0240.*

Sincerely,

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/LAL/SSB

August 23, 2010

Ms. Susan Pierce
Deputy State Historic Preservation Officer
West Virginia Division of Culture and History
The Cultural Center
Capitol Complex
1900 Kanawha Boulevard East
Charleston, WV 25305-0300

RE: Request for Consultation, Mountaineer CCS II Project, Mason County, WV, FR # 10-1133-MS

Dear Ms. Pierce:

The American Electric Power (AEP) and U.S. Department of Energy (DOE), as lead Federal agency, propose to develop a carbon dioxide (CO_2) capture and storage (CCS) project at AEP's Mountaineer Power Plant located near New Haven, in Mason County, West Virginia. The proposed project is referred to as the Mountaineer CCS II Project (or "Project" hereafter in this transmittal).

Previous consultation has been initiated with your office by TRC Environmental Corp. (TRC) and Potomac Hudson Engineering (PHE) on behalf of AEP and DOE in a letter dated June 1, 2010, entitled "*Request for Consultation Regarding Proposed Project in Mason County, West Virginia.*" The previous request for consultation introduced the overall proposed Project and the initial characterization well studies, as well as requested early coordination/consultation with the West Virginia Division of Culture & History, State Historic Preservation Office (WVSHPO) regarding proposed cultural resource investigations in the vicinity of the characterization well sites and associated access roads. In a letter dated July 1, 2010, your office concurred with the proposed Phase I archaeological survey, the definition of the Area of Potential Effect (APE), and the methodology for the historic architectural investigation.

As previously introduced in the June 1, 2010 letter, AEP is seeking financial assistance from DOE for the proposed Project. As such, DOE is preparing an environmental impact statement (EIS) and is continuing consultation with the WVSHPO under Section 106 of the National Historic Preservation Act (NHPA) of 1966 regarding the proposed Project and the EIS process. The following provides a brief description of the proposed Project to be analyzed within the EIS and the methodology that will be followed to characterize the affected environment and assess potential impacts to cultural resources. The study area or APE for cultural resources includes the AEP Mountaineer Power Plant Site, associated corridors and rights-of-way for the CO_2 transport pipeline, as well as the properties where the CO_2 injection and monitoring wells could be located, as shown in Figures 1 through 6.

Proposed Agency Action

The Proposed Action under consideration by DOE would provide financial assistance to AEP under the Clean Coal Power Initiative (CCPI) Program to support construction and start-up of the Mountaineer CCS II Project. AEP proposes to construct a commercial scale CCS system at their existing Mountaineer Power Plant near New Haven, West Virginia, as depicted in Figure 1. This Project would capture CO_2 from the existing Mountaineer pulverized coal power plant, compress the captured CO_2 to supercritical conditions, and transport the captured CO_2 by pipeline to injection well(s) for permanent geologic storage in saline reservoir(s) approximately 1.5 miles below the surface.

As part of the proposed Project, AEP would construct a carbon capture facility using Alstom's chilled ammonia process (CAP) within the boundaries of the existing 1,300-megawatt (MW) Mountaineer Plant. The facility would occupy an area of approximately 500 feet by 1,000 feet, and would process a 235-MW slip-stream of flue gas after it exits the plant's flue gas desulfurization system. Approximately 1.5 million metric tons of CO_2 would be captured annually, treated, and compressed for geologic storage.

The processed CO_2 would be transported by pipeline (primarily underground) to the proposed injection site(s) on two to four of AEP's properties, located within an estimated 12 miles of the Mountaineer Plant (refer to Figure 1). The CO_2 would then be injected for permanent geologic storage into one or more geologic formations approximately 1.5 miles below ground. The Project would be designed to remove 90 percent of the CO_2 from the 235–MW slip stream and would demonstrate a commercial-scale deployment of the CAP for CO_2 capture, as well as demonstrate permanent geologic storage of CO_2 in deep underground saline formations.

Cultural Resources Studies

Cultural resource studies are currently being conducted for the characterization well sites in accordance with the previous consultation initiated by PHE/TRC. The results of these studies will be reported to your office in September 2010 and will be incorporated into the EIS document.

Cultural resources studies (literature review and fieldwork) will also be conducted in support of the Project to determine if any potentially significant cultural resources would be impacted by the overall Project. DOE proposes to conduct both a Phase I Archaeological Survey and a Historic Architectural Resources Survey to identify cultural resources listed or eligible for listing in the National Register of Historic Places (National Register), and to determine the potential effects of the Project on those resources. This work will be conducted in accordance with all applicable federal and WVSHPO guidelines and is summarized below. The results of these additional studies will be reported to your office in September 2010 along with the results of the characterization well studies.

Literature Review and Site File Search

DOE has previously conducted a literature review and site file search at the WVSHPO and Archives in Charleston as part of the cultural resources investigations of the characterization well

sites and pipeline corridors. Local histories, cartographic data, and other relevant documentation on the prehistoric and historical resources in the area have been reviewed. DOE conducted a review of state archaeological site files, National Register-listed and -eligible properties, previously surveyed historic structures, and associated GIS-based maps of archaeological and historic architectural sites within a one-mile radius of the potential characterization well sites, well site access roads, and potential pipeline corridors. Other relevant sources containing information on historical and archaeological sites in the vicinity of the Project were also consulted. DOE is expanding the literature review and site file search to include information on the entire APE associated with the Project, including the AEP Mountaineer Plant Site, as well as the proposed CO_2 injection sites.

Archaeological Survey

DOE conducted a Phase I Archaeological Survey of the potential characterization well sites and the pipeline corridors in accordance with the consultation initiated with your office in June 2010, and your letter of response dated July 1, 2010. DOE is currently preparing a Technical Report following the *WVSHPO Guidelines* that will document the background research, results of fieldwork for the characterization well sites, and results of additional fieldwork to be conducted within the Project area, as detailed below. This report will be submitted in September 2010.

The guidelines followed for the Phase I Archaeological Survey of the characterization well sites will also be followed for the Phase I Archaeological Survey for the remaining APE of the Project, including the Mountaineer Plant Site, the proposed injection well sites and the proposed pipeline corridors not already surveyed. The Phase I survey will be conducted in accordance with the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* and the *WVSHPO Guidelines for Phase I, II, and III Archaeological Investigations and Technical Report Preparation* (1995). Field methods will consist of both pedestrian and shovel test surveys to locate archaeological resources. Per the guidelines, shovel test pits (STPs) will be excavated at an interval of 15 meters within all proposed impact areas of the Project. Guidelines regarding single or multiple transects in the corridors will be followed based on potential corridor widths. A pedestrian survey will be conducted in lieu of shovel testing where steep slope, exposed bedrock, and/or ground disturbance precludes the utility of shovel testing.

Architectural Survey

DOE conducted an architectural survey of the potential characterization well sites and the pipeline corridors in accordance with the informal consultation initiated with your office in June 2010 and your letter of response dated July 1, 2010. DOE is currently preparing a Technical Report for Historic Architectural Resources that will document the background research, results of architectural fieldwork for the characterization well sites and results of additional fieldwork to be conducted within the Project area, as detailed below. This report will be submitted in September 2010.

DOE will conduct additional surveys of architectural resources according to all applicable federal and WVSHPO standards within an APE of 500 feet from the CO_2 injection well sites and all proposed CO_2 pipeline corridors. As stated in the June 1, 2010 letter to your office, the AEP-owned properties where the CO_2 injection wells would be located are either already developed (AEP Mountaineer Plant Site and AEP Borrow Site) or are heavily wooded and not expected to

be visible beyond 500 feet. The potential pipeline corridors generally follow existing developed transmission corridors and/or road rights-of-way and the pipeline is expected to be constructed primarily underground and have minimal visibility. In accordance with your letter dated July 1, 2010, the location and dimensions of all Project-related aboveground resources along the CO_2 pipeline corridors or at the CO_2 injection sites will be included in the Technical Report for Historic Architectural Resources, mentioned previously.

For the Project-related facilities that would be constructed on the existing AEP Mountaineer Plant Site, the APE is defined as the footprint of these proposed facilities, as well as those areas immediately adjacent to the proposed site. Current facilities at the Mountaineer Plant Site include large buildings, an approximately 400-foot-tall cooling tower, and two approximately 1,000-foot-tall stacks on the northwest end of the property. The view shed of any proposed aboveground Project-related facilities at the Mountaineer Plant was not used to define the APE, as the presence of existing facilities generates a greater visual impact than the proposed facilities, which would be considerably smaller. Based on preliminary field reconnaissance, no resources beyond the adjacent properties would fall within the view shed of the proposed site.

The architectural survey will record resources 50 years and over, identify all resources listed in or eligible for listing in the National Register, and assess any potential effects to these resources from the Project. The results of the identification process, along with recommendations of National Register eligibility for historic architectural resources within the APE will be submitted to the WVSHPO for review. Following WVSHPO concurrence with the National Register eligibility recommendations, DOE will assess any effects to these resources from any aboveground facilities constructed at the Mountaineer Plant Site, along the pipeline corridors, and at the proposed CO_2 injection well sites and present these findings in the Technical Report.

Ongoing Consultation

DOE proposes that consultation with the WVSHPO will be ongoing as design and other activities in support of the Project are advanced. DOE will provide your office a copy of the Draft EIS for review and comment. The Draft EIS is anticipated to be released in January 2011. Your response to this letter, acknowledging your interest in participating in the Section 106/NHPA consultation, and in commenting on our determination of the APE for the architectural investigations would be greatly appreciated.

We would appreciate a response as soon as practical within the 30-day review period in order to help us more quickly focus on potential impacts to cultural resources as the Project moves forward.

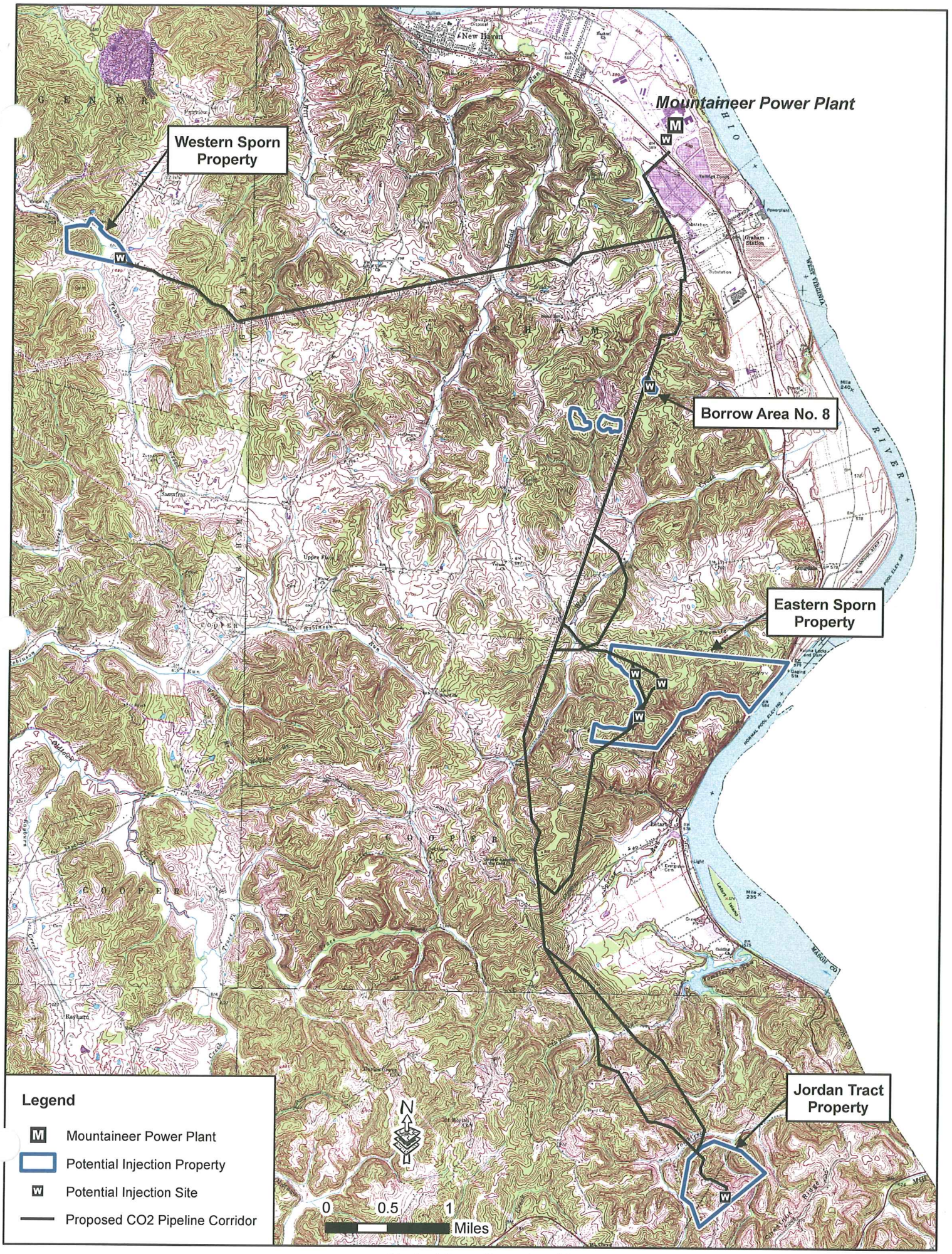
If you need additional information please do not hesitate to contact me at (304) 285-4145 or Mark.Lusk@NETL.DOE.gov.

Sincerely,

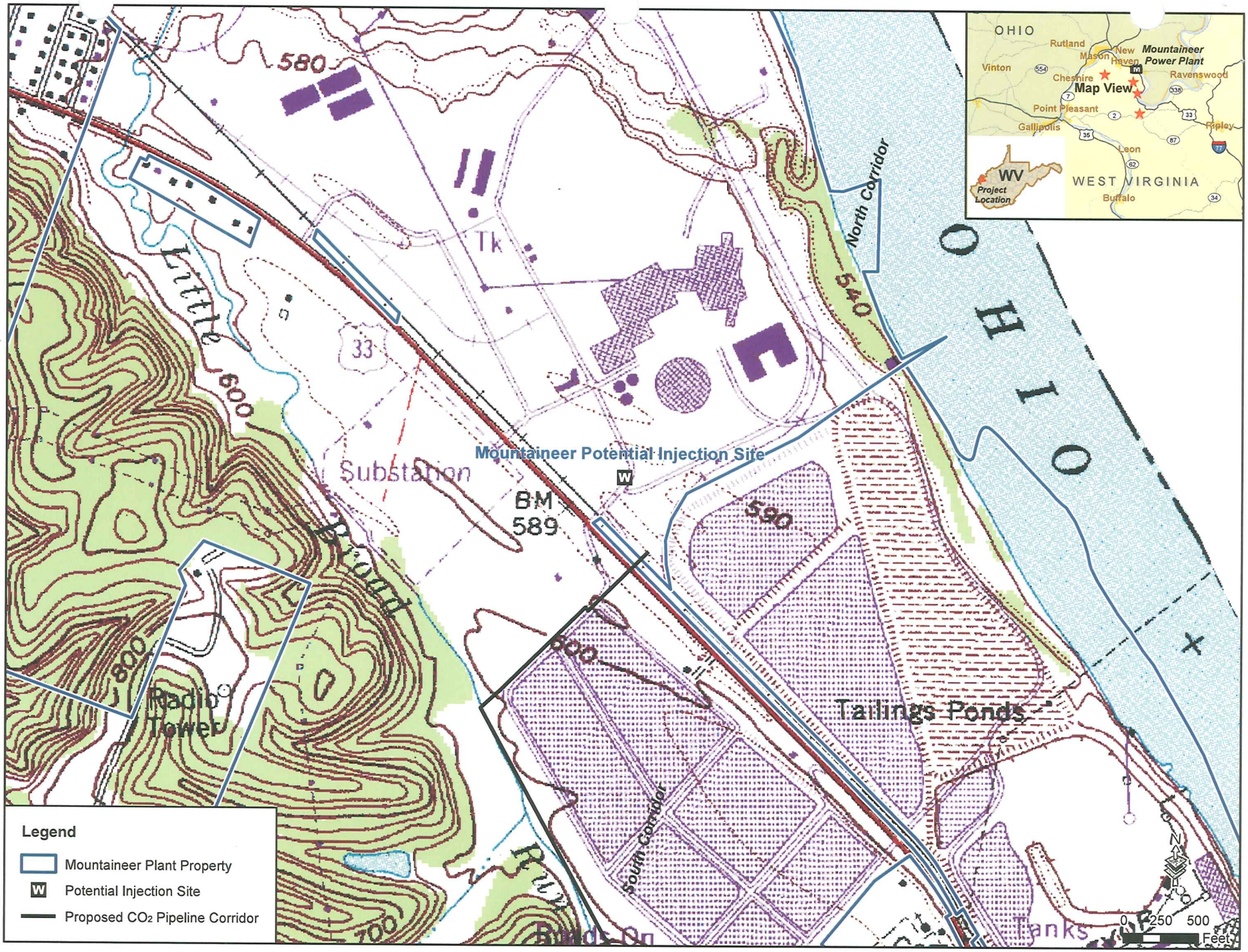
Mark W. Lusk
NEPA Document Manager
National Energy Technology Laboratory

cc: M. McMillian, DOE/NETL
F. Blake, AEP
B. Sherrick, AEP
B. Whipple, PHE
T. Sara, TRC

enclosures



Project Area Overview Map


OHIO
Rutland
New Haven
Mason
Mountaineer Power Plant
Vinton
Cheshire
Map View
Ravenswood
Point Pleasant
Gallipolis
Ripley
Leon
WV
Project Location
WEST VIRGINIA
Buffalo
580
Tk
North Corridor
540
OHIO
Little
600
33
Substation
Mountaineer Potential Injection Site
BM
589
590
Bryant
800
Radio Tower
600
Tailings Ponds
South Corridor
700
Roads On
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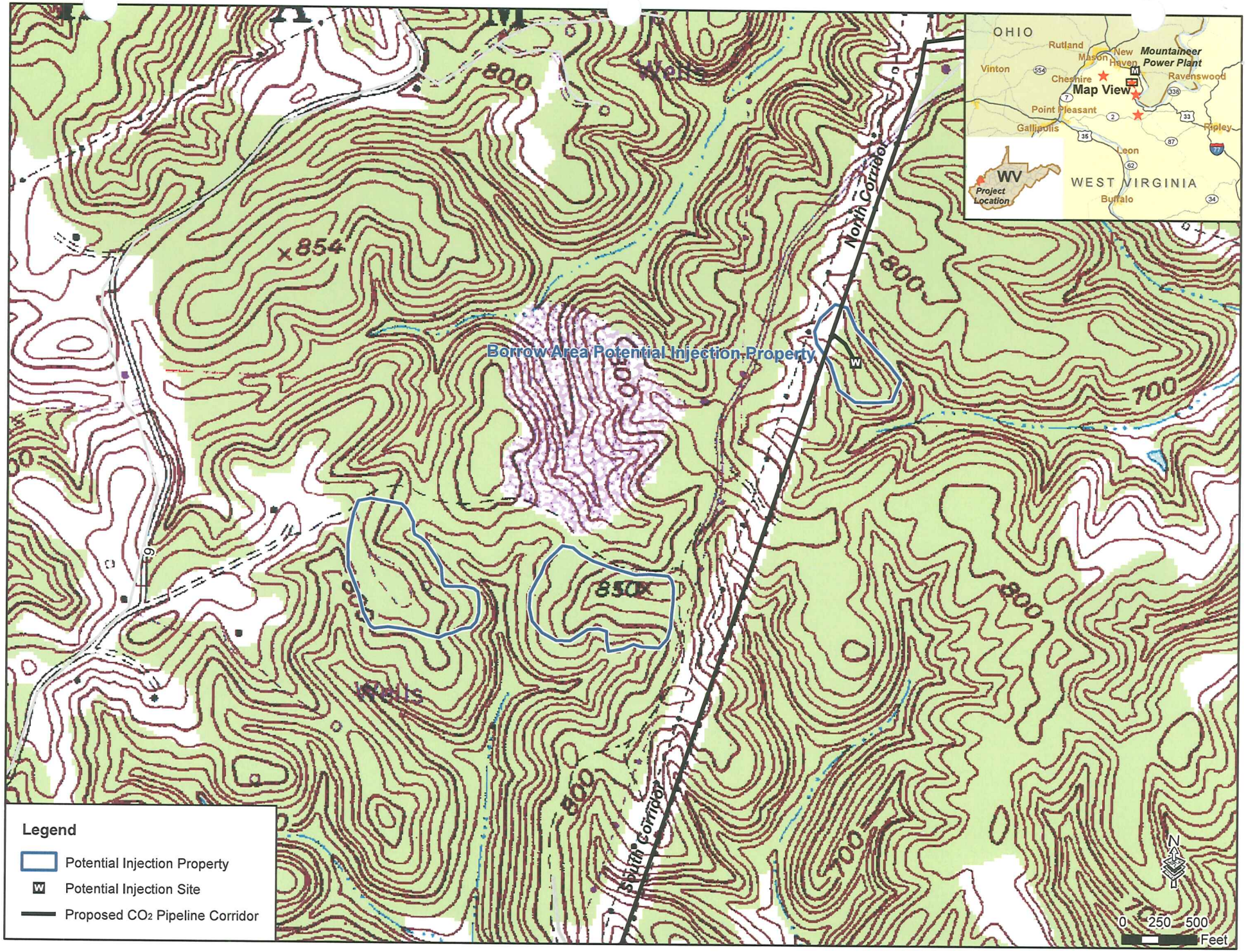
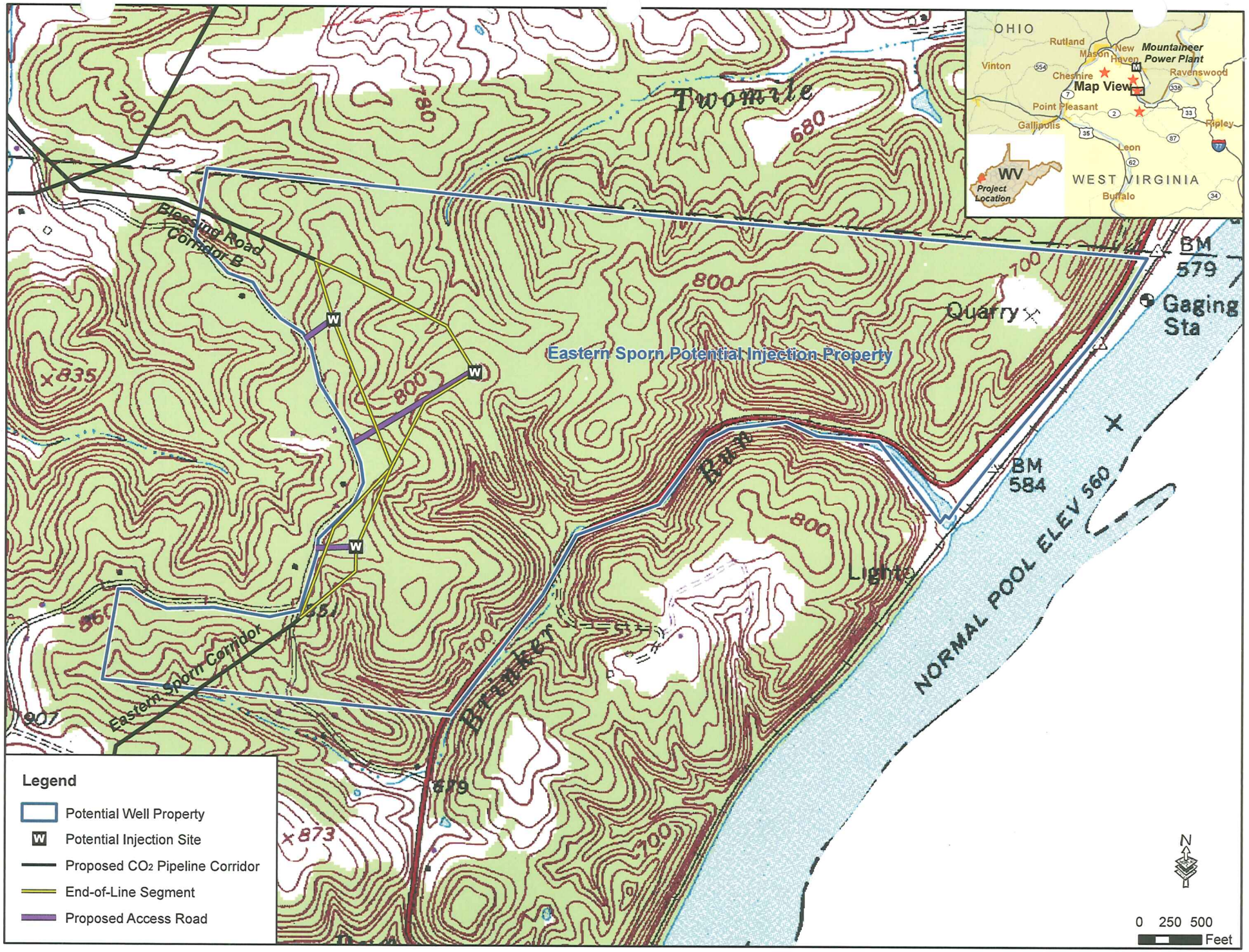
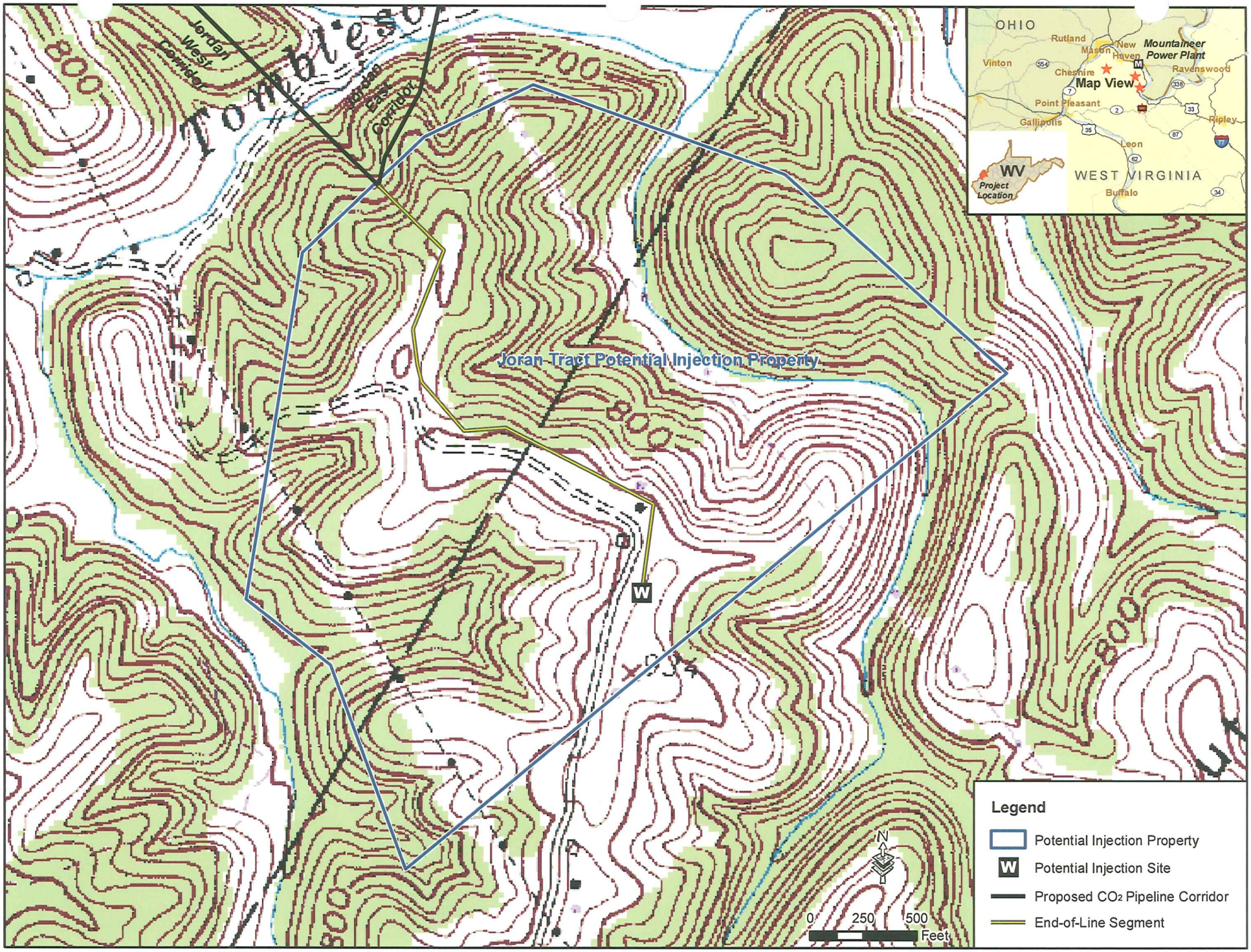
Legend
Mountaineer Plant Property
Potential Injection Site
Proposed CO_2 Pipeline Corridor



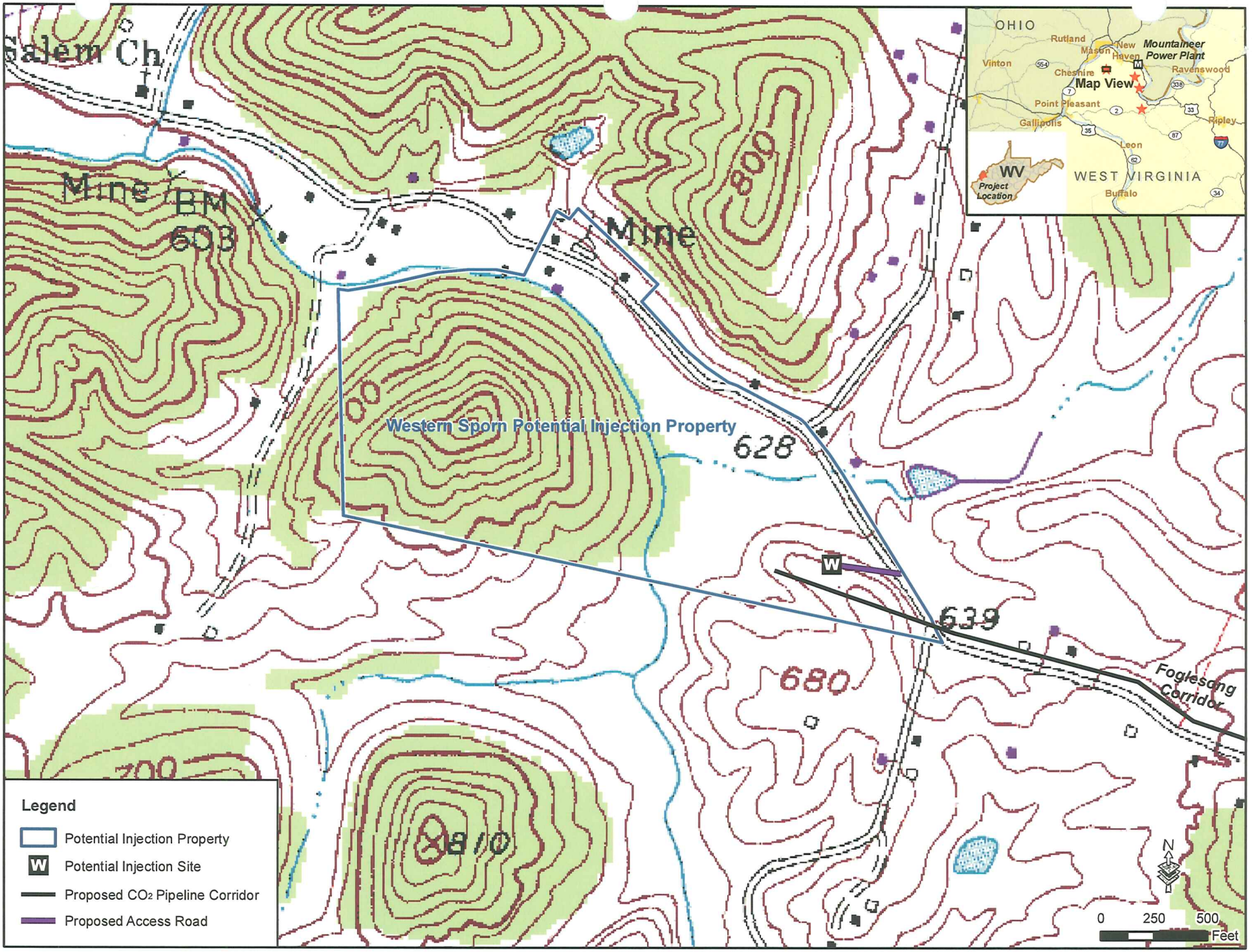
Borrow Area Potential Injection Property



Eastern Sporn Potential Injection Property



Jordan Tract Potential Injection Property



Western Sporn Potential Injection Property

WEST VIRGINIA
Division of Culture and History

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300
Randall Reid-Smith, Commissioner
Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EEO/AA Employer

September 22, 2010

Mr. Mark W. Lusk
NEPA Document Manager
US Department of Energy
3610 Collins Ferry Road
PO Box 880
Morgantown, WV 26507

RE: Mountaineer CCS II Project
FR#: 10-1133-MS-1

Dear Mr. Lusk:

We have reviewed the information submitted for the above referenced project to determine potential effects to cultural resources. As required by Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

Thank you for providing updated information regarding the proposed project and the status of cultural resource studies. Your letter indicates that we will receive a technical report for survey conducted within areas proposed for construction of the characterization well and that the results of additional field work to be conducted within the project area will be submitted at a later date.

On August 30, 2010, we received a letter report from Mr. Timothy Sera of TRC documenting cultural resource work for the characterization. Recently, we provided our comments in a letter dated September 20. A copy of this letter is enclosed. It is our understanding that cultural resource work is currently ongoing in the remainder of the proposed project area. We will provide comments regarding that work upon receipt the resulting technical report(s). We also understand that you plan to submit a draft environmental impact statement for the project in January 2011. We will do our best to review that document as soon as possible. We look forward to continuing the consultation process.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Lora A Lamarre, Senior Archaeologist, or Shirley Stewart Burns, Structural Historian, at (304) 558-0240.*

Sincerely,

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/LAL/SSB

enclosure

4425 Forbes Boulevard
Lanham, Maryland 20706

Main 301-306-6981
Fax 301-306-6986

August 27, 2010

Ms. Susan Pierce
Deputy State Historic Preservation Officer
West Virginia Division of Culture and History
The Cultural Center
Capitol Complex
1900 Kanawha Boulevard East
Charleston, WV 25305-0300

RE: Mountaineer CCS II Project, Mason County, West Virginia – Request for SHPO Approval to Install a Characterization Well at the Location of the AEP Borrow Area No. 1(FR # 10-1133-MS)

Dear Ms. Pierce:

Previous informal consultation has been initiated with your office by TRC Environmental Corp. (TRC) and Potomac Hudson Engineering (PHE) on behalf of American Electric Power Service Corporation (AEP) and the Department of Energy (DOE) in a letter dated June 1, 2010, titled "*Request for Consultation Regarding Proposed Project in Mason County, West Virginia"* which introduced the overall proposed Project and the initial characterization well studies. This letter requested early coordination/informal consultation with your office regarding proposed cultural resource investigations in the vicinity of the characterization well sites and associated access roads. By response letter dated July 1, 2010, your office concurred with the proposed Phase I archaeological survey and with the definition of the Area of Potential Effect (APE) and methodology for the historic architectural investigation.

Since July 2010, TRC has been conducting cultural resources surveys (archaeological and historic architectural) of all proposed impact areas and within the APE of the Project including the proposed characterization well sites, pipeline corridors, and carbon dioxide capture and injections sites. The full cultural resource survey will be completed in September 2010, at which time a full Technical Report will be prepared and submitted to your office. The full Technical Report will address all fieldwork conducted in support of the Project and will be completed in accordance with West Virginia State Historic Preservation Office (*WVSHPO) Guidelines*. In advance of your review of the full Technical Report, AEP is seeking your approval to install a characterization well and associated access road at the existing AEP Mountaineer Plant.

AEP identified four potential sites, all on AEP-owned properties, for the location of the characterization well. AEP later determined that the preferred location for the geologic characterization well would be at the AEP Mountaineer Plant, specifically within an area identified as Borrow Area #1 ("BA-1"). BA-1 was selected as the preferred site, because the entire site is previously disturbed and no wetlands and minimal biological resources are present.

This letter is specific to BA-1 for the purpose of seeking your advanced concurrence with our recommendation of no effect to cultural resources at this site. Advanced concurrence for this property will enable characterization well installation to commence in a timely manner. Included below is a description of BA-1, along with a report on the cultural resources background and field investigation undertaken for this site.

Borrow Area Project Area Description

The characterization well site identified as BA-1 is located at the existing AEP Mountaineer Plant. BA-1 is one of three borrow areas that were considered for a potential geologic characterization well. The other two borrow areas are no longer being considered for initial characterization work. All three borrow areas fall within the existing clay borrow pits that have been actively mined for clay for use in lining disposal cells within the plant landfill, which began operation in 1980. Generally, this area consists of upland ridge finger landforms and steep slope at elevations ranging from 700 to 840 ft. AMSL; however, the landscape has been heavily denuded of vegetation and modified from prior extraction and disposal activities. Where vegetation exists, it has populated previously disturbed areas and consists of expanses of short grasses or briars, and scrub undergrowth. Maps of the area can be found in **Figures 1 & 2.**

Literature Review and Site File Search

TRC has conducted a literature review and site file search at the WVSHPO and Archives in Charleston as part of the cultural resources investigations of the overall Project. Local histories, cartographic data, and documentation on the prehistoric and historical resources in the area have been reviewed. Based on this review there are no National Register-listed or eligible properties or historic structures within a one-mile radius of Borrow Area No. 1. Two previously recorded archaeological sites have been recorded within a one-mile radius of the borrow area. Both sites (46MS275 and 46MS276) are reported as remnants of prehistoric mounds located approximately one-mile east of the Borrow Area on the Ohio River floodplain, adjacent to Route 62. Neither site has been evaluated for National Register eligibility.

Field Methods and Results

A Phase I archaeological survey was conducted at all three of the borrow areas and the land adjacent to the borrow areas. The survey was largely limited to visual inspection and pedestrian survey due to a high degree of prior ground disturbances **(Photos 1 and 2).** Soils in the three borrow areas are primarily mapped as Gilpin-Upshur complex (GpC and GpD), a well-drained soil series found primarily on hill slope shoulders, with smaller contributing areas of Landfill (Ld) soils on the northern and western boundaries of the borrow areas. Pedestrian survey and shovel test excavation in these areas indicated that the original surficial deposits have been largely removed or altered.

Borrow Area No. 1 (ca. 7 acres), as well its associated access road, was subjected to close visual inspection and pedestrian survey and was found to have been subjected to extensive ground disturbance associated with clay mining **(Photo 3)**. Recently planted grasses are present in this area. No shovel test pits (STPs) were excavated in this area due to the ground disturbance and past removal of soil deposits. No cultural material was observed or recovered from this area. Similar disturbed conditions are present in Borrow Area 7, an 8-acre area located to the east. Borrow Area 8 is a 5-acre area located east of the active mining area adjacent to an existing transmission corridor **(Photo 4)**. This area is dominated by a thin ridge finger and steeply sloping gradient extending southeast from the transmission line. At Borrow Area 8, due to limited surface visibility atop the ridge finger, seven STPs were excavated along a single transect at 15-m intervals **(see Figure 2)**.

Each STP excavated showed mixed and graded soils evident of past disturbance. For example, ST A-3, located approximately 15 m east of the existing transmission line, displayed a light brown (10YR 6/3) mottled with strong brown (7.5YR 5/6) highly compacted clay soil with a mixture of sandstone and gravel. All STPs exhibited similar soil characteristics, and visual inspection of the landform clearly indicated that past industrial activity has altered the landscape. No cultural material was observed or recovered.

In sum, all three of the borrow areas have been highly impacted from past and ongoing land alteration activities. Examples of graded areas where large volumes of original ground surface have been removed are ubiquitous. As such, the potential for identifying undisturbed archaeological resources within this area is non-existent and we recommend that construction activity associated with installation of the geologic characterization well within Borrow Area No. 1 and access road to the site will have no impact on archaeological resources.

On July 27, 2010, TRC conducted a visual analysis and historic architectural survey within the 500-foot APE of Borrow Area No. 1. There are no architectural resources 50 years or older within the APE; therefore, the construction of the characterization well and access road will have no impact on architectural resources.

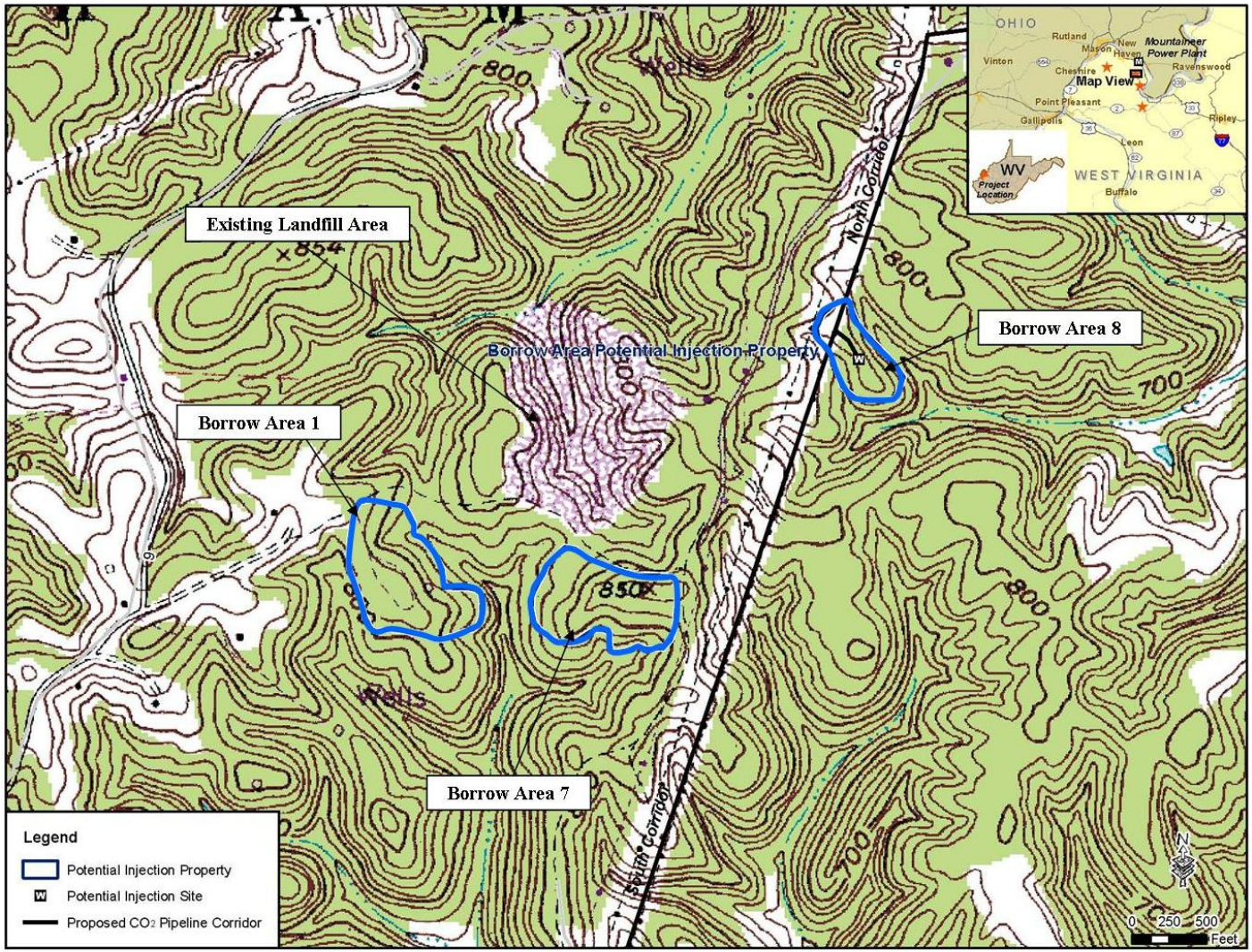
We look forward to your concurrence with this recommendation in order for AEP to move forward with installation of the characterization well in Borrow Area No. 1. Should you have any questions or require any additional information please do not hesitate to contact me at (301) 306-6981, or tsara@trcsolutions.com. For questions concerning Architectural History, please contact Mr. Geoffrey Henry at (202) 352-2109, ghenry@trcsolutions.com.

Sincerely yours,
Timothy R. Sara, RPA

Senior Archaeologist and
Program Manager

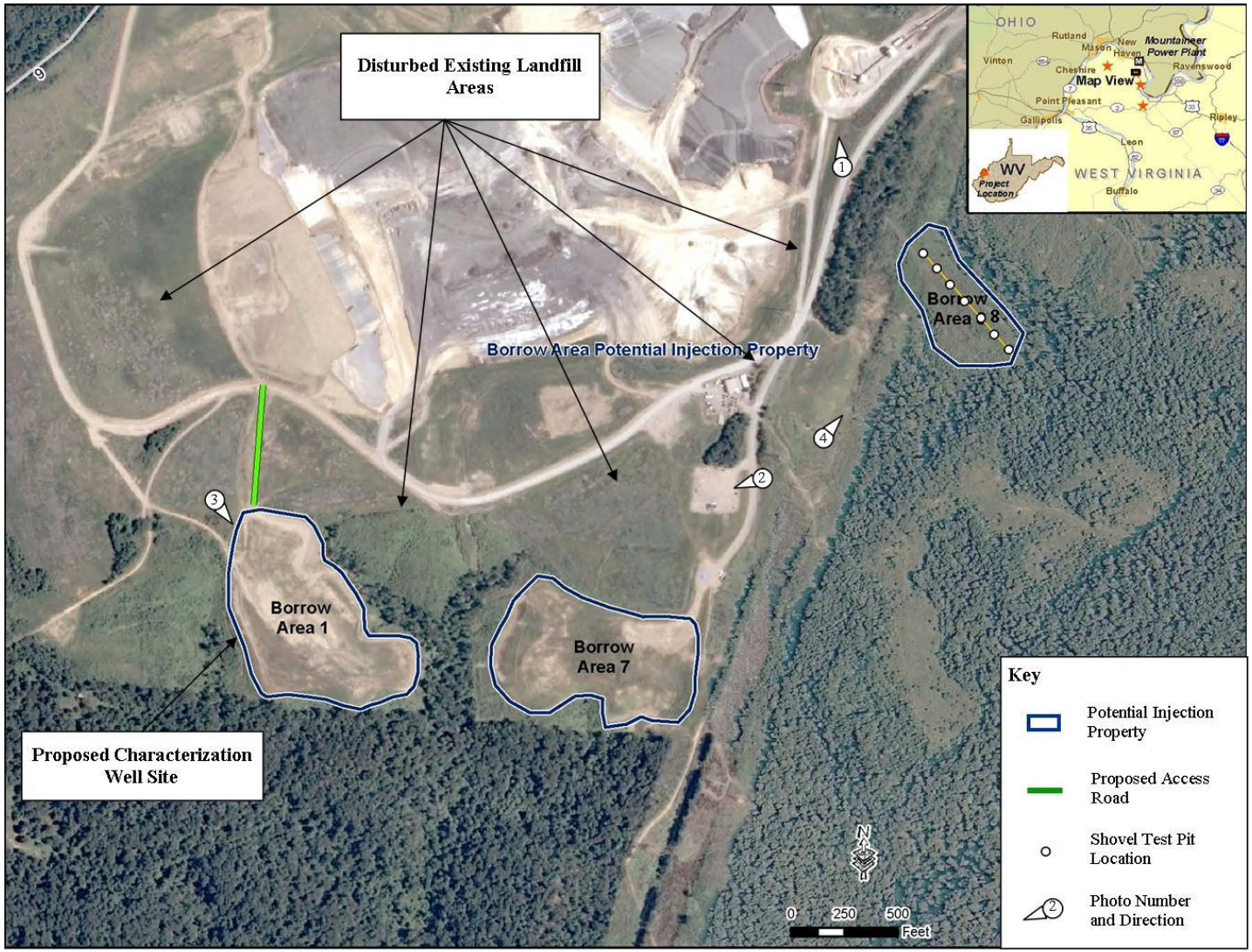
cc: M. Lusk, DOE/NETL
M. McMillian, DOE/NETL
B. Whipple, PHE
F. Blake, AEP
B. Sherrick, AEP
C. Cooper TRC
G. Henry, TRC

enclosures



Borrow Area Potential Injection Property

Figure 1. ***New Haven*** **USGS 7.5'Topographic Map depicting the location of proposed characterizations well/potential injection sites within AEP Borrow Area.**



Borrow Area Potential Injection Property

Figure 2. Aerial photograph of AEP Borrow Area, depicting proposed characterizations well and access road; location of archaeological test pits also shown.

Photo 1. General conditions of Little Broad Run landfill; view to north.

Photo 2. Ash and gypsum disposal cell within Little Broad Run landfill, showing general disturbance conditions; view to southwest.

Photo 3. View to southeast of Borrow Area 1, location of proposed characterization well site.

Photo 4. Overview of western portion of Borrow Area 8 showing disturbed, graded area; view to northeast.

WEST VIRGINIA
Division of Culture and History

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300
Randall Reid-Smith, Commissioner
Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EEO/AA Employer

September 20, 2010

Mr. Timothy R. Sera
Senior Archaeologist & Program Manager
TRC
4425 Forbes Boulevard
Lanham, MD 20706

RE: Mountaineer CCS II Project
Characterization Well Installation at AEP Borrow Area
FR#: 10-1133-MS-2

Dear Mr. Sera:

We have reviewed the information submitted for the above referenced project to determine potential effects to cultural resources. As required by Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

According to the submitted information, American Electric Power (AEP) is seeking approval to install a characterization well and associated access road at the existing AEP Mountaineer Plant. This request is being made in advance of our review of the full technical report documenting the results of cultural resource surveys for the proposed Mountaineer CCS II Project. Three proposed locations, known as Borrow Areas 1, 7 and 8, were considered. It is our understanding that the characterization well will be constructed within an area identified as Borrow Area #1 (BA-1).

Archaeological Resources:
According to the submitted information, all three proposed characterization well locations were subjected to Phase I survey. Borrow Areas 1 and 7 were subjected to visual inspection and pedestrian survey and found to have been extensively disturbed by past activities associated with clay mining. Borrow Area 8 underwent shovel probe excavation in addition to visual inspection. Soils observed in the shovel probes were mixed indicating past disturbance. No cultural materials were recovered from any of the borrow areas. As a result, we concur that the likelihood of encountering intact archaeological resources within these areas in very limited. No further archaeological work is warranted for this portion of the proposed project area. We ask that the survey results for this portion of the project be included in the final report.

Architectural Resources:
A telephone conversation between you and Shirley Stewart Burns of my staff confirmed that there are no above ground components to this project and that all proposed activities will occur underground and will not directly or indirectly impact any buildings and/or structures. With this understanding, it is our opinion that the proposed installation of this characterization well will have no impact to architectural resources eligible for or included in the National Register of Historic Places. No further consultation regarding architectural resources is necessary.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Lora A Lamarre, Senior Archaeologist, or Shirley Stewart Burns, Structural Historian, at (304) 558-0240.*

Sincerely,

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/LAL/SSB

4425 Forbes Boulevard
Lanham, Maryland 20706

Main 301-306-6981
Fax 301-306-6986

October 14, 2010

Ms. Susan Pierce
Deputy State Historic Preservation Officer
West Virginia Division of Culture and History
The Cultural Center
Capitol Complex
1900 Kanawha Boulevard East
Charleston, WV 25305-0300

RE: Mountaineer CCS II Project, Mason County, West Virginia – Request for SHPO Concurrence of No Significant Impacts Related to Geologic Characterization Activities at the Jordan Property (FR # 10-1133-MS)

Dear Ms. Pierce:

The following letter respectfully requests your concurrence of no significant impact to cultural resources due to planned activities on a five-acre plot located at the AEP Jordan property. As described further below, the Phase I/II survey of the Jordan Property did not identify any NRHP-eligible archaeological or architectural resources.

On June 1, 2010, informal consultation was initiated with your office regarding the proposed Mountaineer Carbon Dioxide Capture and Sequestration II Project in Mason County, West Virginia. That letter requested early coordination/informal consultation specific to proposed fieldwork related to initial geologic characterization studies. By letter of July 1, 2010, your office concurred with the proposed Phase I archaeological survey and with the definition of the Area of Potential Effect (APE) and methodology for the historic architectural investigation.

The cultural resource surveys were completed in July and August, 2010. A complete Technical Report of the surveys for the entire project area is currently being prepared in accordance with all West Virginia State Historic Preservation Office guidelines. The full report is expected to be submitted to your office within the next two weeks. Prior to submittal of the full Technical Report and as a follow up to my call with Shirley Stewart-Burns of your staff on October 12, your advanced concurrence of no significant cultural resource impacts is respectfully requested for a five-acre area at the Jordan Property, which is proposed for performing preliminary geologic characterization studies. (see Attachment A)

Similar advanced concurrence of no significant cultural resource impacts was previously received from your office on September 20, 2010 for a five-acre plot at the AEP Borrow Area. The advanced concurrence at the Borrow Area, and as now requested for the Jordan Property will permit geologic characterization studies to commence in a timely manner. Concurrence on the balance of the project area will be requested with submittal of the full Technical Report.

The following provides a description of the Jordan Property, along with a report on the cultural resources background and prior field investigations.

Jordan Property - Project Area Description

The Jordan Property is a 170-acre parcel of land located approximately 10.5 miles south of the AEP Mountaineer Plant. The land is mostly undeveloped and partially forested. The characterization well project area is approximately 5 acres, which can be described as developed/disturbed open space. Shirley Road/County Road 62/19 crosses the property and will be used to access the project area. The proposed pipeline corridor and access road at the Jordan Property are also located in developed/disturbed open space.

Literature Review and Site File Search

TRC conducted a literature review and site file search in June 2010 at the WVSHPO and Archives in Charleston as part of the cultural resources investigations of the overall Project. Local histories, cartographic data, and documentation on the prehistoric and historical resources in the area have been reviewed. Based on this review, no NRHP-listed or eligible historic resources were identified within a one-mile radius of the Jordan Property. Likewise, no previously identified resources were found within the 500-foot APE defined for assessment of indirect effects to architectural resources. In addition, no previously identified archaeological sites were found at the Jordan Property.

Field Methods and Results - Archaeology

The landform of the Jordan Property slopes sharply away from the 5-acre characterization well site to the west and east. An immature growth conifer forest dominates the ridge back, and it appears that much of the survey area has been clear-cut and replanted. As a result, many of the shovel test pits (STP) excavated in the area displayed little topsoil overlaying compact clay.

In total, 70 STPs were excavated at 15-meter intervals along five survey transects. A ca. 1940 house (described more fully in the architectural section below), abandoned at an unknown date, along with associated outbuildings were encountered near Shirley Road in the central portion of the archaeological survey area. Several pieces of modern trash (glass, plastic, etc.) were noted in the shovel tests in this area. No additional cultural material was recovered in the survey area. As such, the potential for identifying undisturbed archaeological resources within this area is non-existent. Therefore, TRC concludes that construction activity associated with installation of the geologic characterization well at the 5-acre Jordan Property site will have no impact on archaeological resources.

Field Methods and Results – Historic Architecture

In consultation with the WVSHPO, TRC/PHE developed a Project APE, defined as the "geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist." For assessment of direct effects, the APE is defined as the area of construction of any above-ground structure or building. For indirect effects, such as noise or visual effects, the Project APE was defined as any area within 500 feet from the proposed characterization well sites. The surroundings of the proposed Jordan Property characterization well site are wooded and the characterization well itself will not be visible beyond 500 feet.

On July 27, 2010, TRC conducted a visual analysis and historic architectural survey within the 500-foot APE of the Jordan Property characterization well site. The survey recorded all architectural resources 50 years or older. As a result of this survey, TRC identified two properties with buildings 50 years or older, the Durst House property (MS-0163) and a house and barn on the Jordan Property located on Shirley Road (MS-0164). TRC completed WVSHPO Historic Property Inventory (HPI)

forms for the surveyed resources. The HPI forms, along with labeled black-and-white photographs, and marked USGS Quad maps, are contained in Attachment B of this report.

MS 0163 – Durst House 1086 Shirley Road (CR 62/19)

The historic buildings on this property stand on the east side of Shirley Road (CR 62/19) in a rural, undeveloped setting, consisting of a mixture of farmland, pastures, and woodland. Existing AEP power lines and a transmission tower stand on the property, just south of the main house. The main house on the property is 1-story, 4-bay, frame house with a side-gable roof covered with standing seam metal. There is a 1-story, hip-roofed porch with turned posts on the front elevation and a 1-story porch on the rear elevation. The house has two entrances on the front, each with a single-leaf, 4-paneled wood door. The windows have 6/6 double hung sash. The house is covered with bricktex siding and is in overall poor condition. Also on the property are a ca. 1900 frame hay barn with side gable roof and vertical board siding in poor condition and a ca. 1900 tractor shed with side-gable roof with vertical board siding in fair condition. There is a non-historic mobile home to the rear of the main house.

Based on its architectural characteristics, the house appears to date from the 1870's. No site-specific historical research was conducted on the property, but a building at this location is shown on the 1908 and 1928 USGS 15 minute series maps (Ravenswood Quad).

MS-0164 – Unidentified House, Shirley Road

These buildings are located on the Jordan Property, on either side of Shirley Road (CR 62/19), approximately 2,500 feet north of the property at 1086 Shirley Road. The buildings stand in a rural, undeveloped setting, consisting of a mixture of farmland, pastures, and woodland. The house's immediate surroundings are overgrown. The main house on this property appears to date from the 1940s and is a 1-story, 3-bay, frame house clad with German siding and with a side-gable roof covered with composition shingle and exposed wooden rafter ends. There is a 1-story, shed-roofed porch with posts on the rear elevation. The house has a central entrance with a single leaf wood door. The windows and doors have been mostly removed, although there is a picture window on the front elevation. The house is abandoned and in deteriorated condition. Located to the south of the main house is a derelict gambrel-roofed frame hay barn with an attached 4-bay open tractor shed.

National Register Criteria of Evaluation

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, mandates that Federal agencies consider the effects of Federally funded and permitted undertakings on historic resources listed in or eligible for listing in the NRHP. TRC evaluated the surveyed resources at the Jordan Site for eligibility for listing in the NRHP according to the NRHP Criteria contained in *National Register Bulletin 15-How to Apply the National Register Criteria for Evaluation* (National Park Service, 1997, revised for internet 2002).

In addition to satisfying one or more of the NRHP Criteria, an historic resource must also retain its integrity, defined as the ability of the historic resource to convey its significance. The NRHP recognizes seven aspects of integrity which in combination are essential to conveying its significance. These aspects include integrity of location, design, setting, materials, workmanship, association and feeling.

MS-0163, Durst House

The Durst House is not known to be associated with an historic event or series of events significant on the national, state, or local level and is not NRHP-eligible under Criterion A. The Durst House is not known to be associated with an individual significant on the national, state, or local level and is not NRHP-eligible under Criterion B. The Durst House and outbuildings do not represent the work of a recognized architect or master builder and do not embody the characteristics of a style, method, or period of construction. The Durst House is not NRHP-eligible under Criterion C. The application of bricktex siding to the main house's exterior impacts its integrity of materials.

MS-0164, Unidentified House, Shirley Road

The buildings on this property are not known to be associated with an historic event or series of events significant on the national, state, or local level and are not NRHP-eligible under Criterion A. They are not known to be associated with an individual significant on the national, state, or local level and is not NRHP-eligible under Criterion B. The main house and outbuilding do not represent the work of a recognized architect or master builder and do not embody the characteristics of a style, method, or period of construction. The buildings on this property are not NRHP-eligible under Criterion C. The absence of windows and doors on the main house impacts its integrity of materials and workmanship. The house and outbuildings are abandoned and lack integrity of association.

Assessment of Effects to the Surveyed Architectural Resources at the Jordan Site

Although TRC recommends that both surveyed resources (MS-0163 and MS-0164) are not NRHP-eligible per Criteria A, B, and C, TRC evaluated potential effects from the characterization well activity at the Jordan Property in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, which requires an analysis of the proposed Project to assess its effects to NRHP-listed and -eligible historic resources. Guidelines for this evaluation are set forth in the Advisory Council on Historic Preservation (ACHP)'s regulations at 36 CFR, Part 800. TRC applied the Criteria of Effects to assess direct and indirect (noise and visual) effects from the characterization well activities to the two surveyed architectural resources located in the project APE. There will be no direct effects to the two surveyed resources. The assessment of indirect effects was based on a visual analysis and verification in the field. Because the only aboveground feature that will be installed at the site would be a well casing (approximately 3 feet in height), TRC concluded that the characterization well activities will have no effect on the Durst House (MS-0164) and the unidentified house on Shirley Road (MS-0164).

We look forward to your concurrence with the NRHP recommendations for cultural resources on the Jordan Property and the conclusion that there will be no historic resources affected by the characterization well activities in order for AEP to move forward with installation of the characterization wells on the property.

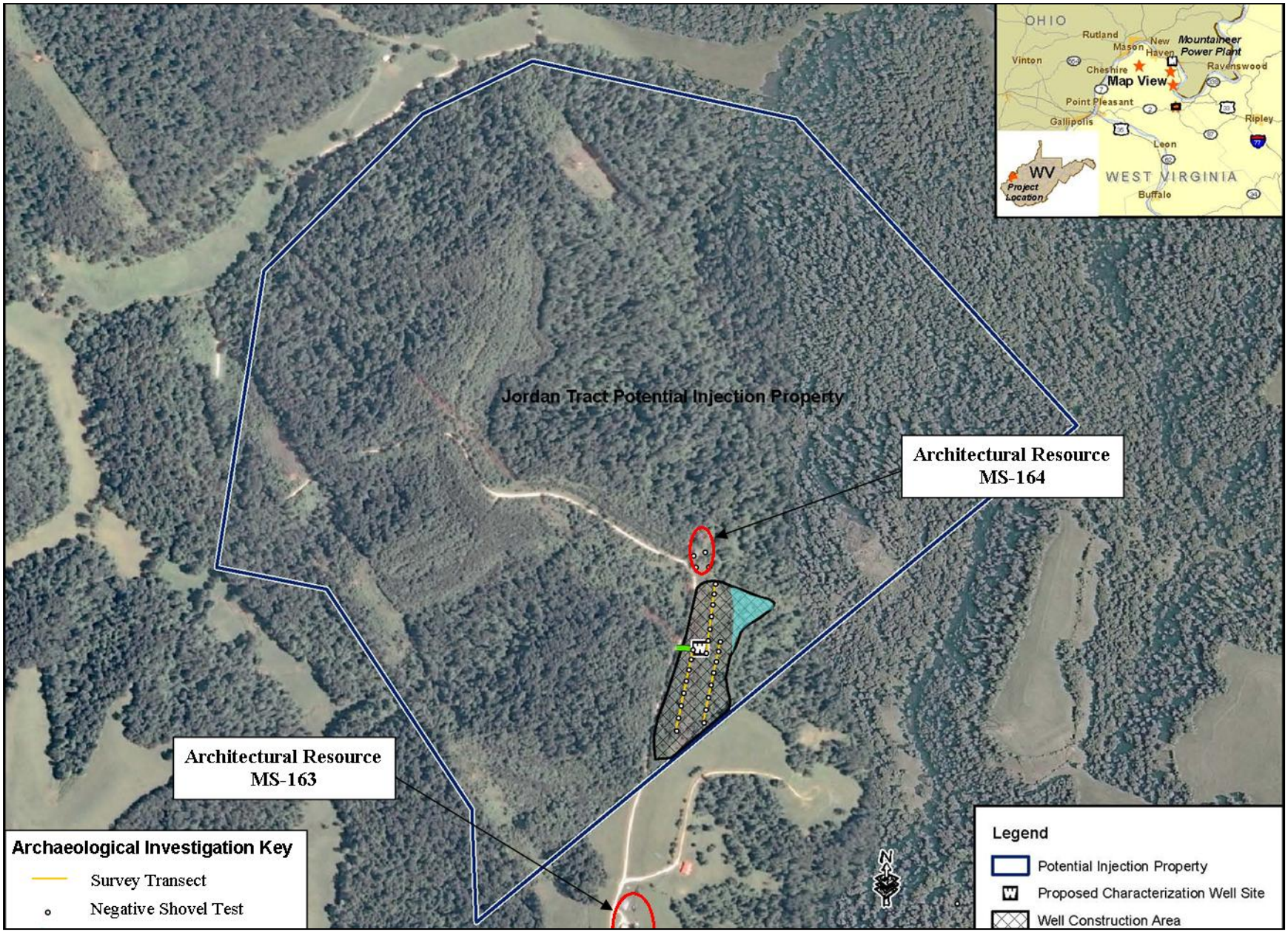
Should you have any questions or require any additional information please do not hesitate to contact me at (202) 352-2109, ghenry@trcsolutions.com. For questions concerning Archeology, please contact Mr. Tim Sara at (301) 306-6981, or tsara@trcsolutions.com.

Sincerely yours,
Geoffrey B. Henry

Program Manager—Architectural History

cc: M. Lusk, DOE/NETL
M. McMillian, DOE/NETL
B. Whipple, PHE
F. Blake, AEP
B. Sherrick, AEP
C. Cooper TRC
T. Sara, TRC

Attachment A Map of Jordan Property
Attachment B West Virginia HPI forms for MS-0163 and MS-0164



Attachment A: Map of Jordan Property

Attachment B

West Virginia HPI Forms

Internal Rating: _____

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 1086 Shirley Road (CR 62/19)	**Common/Historic Name/Both** X O O Durst House	**Field Survey #**	**Site # *(SHPO Only)*** MS 0163
Town or Community Letart vicinity	**County** Mason	**Negative No. (Digital photo)** Heavy foliage and sunlight prevented clear photos of the house.	**NR Listed Date**
Architect/Builder	**Date of Construction** ca. 1870	**Style** Vernacular	
Exterior Siding/Materials Bricktex siding	**Roofing Material** Standing seam metal	**Foundation** Brick piers	
Property Use or Function Residence X Commercial O Farm X	**UTM# 17 0419565E 4300470N (NAD27)**	**Photograph** (2" x 3" Contact)	
Survey Organization & Date TRC Environmental Corp. July 27, 2010	**Quadrangle Name** Mount Alto (Rev. 1975)		
	Part of What Survey/FR# Mountaineer CCS II Project FR # 10-1133-MS		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.

Present Owners	Owners Mailing Address
Carl Durst Phone #	

Describe Setting

Buildings stand on the east side of Shirley Road in a rural, undeveloped setting, consisting of a mixture of farmland, pastures, and woodland. Existing AEP power lines and tower stand on property, south of the main house.

_____112.4__ Acres

N/A _Archaeological Artifacts Present

Description of Building or Site (Original and Present) **__1_____Stories _____4___Front Bays**

The main house on the property is 1-story, 4-bay, frame house with a side-gable roof covered with standing seam metal. There is a 1-story, hip-roofed porch with turned posts on the front elevation and a 1-story porch on the rear elevation. The house has two entrances on the front, each with a single-leaf, 4-paneled wood door. The windows have 6/6 double hung sash. The house is in poor condition.

(Use Continuation Sheets)

Alterations [X] Yes [ ] No **If yes, describe: The house has non-historic bricktex siding.**

Additions [ ] Yes [X] No **If yes, describe:**

Describe All Outbuildings: There is a ca. 1900 frame hay barn with side gable roof and vertical board siding in poor condition. There is a ca. 1900 tractor shed with side-gable roof with vertical board siding in fair condition. There is a non-historic mobile home to the rear of the main house.

(Use Continuation Sheets)

Statement of Significance (Ravenswood Quad). **A building at this location is shown on the 1908 and 1928 USGS 15 minute series maps**

(Use Continuation Sheets)

Bibliographical References

Mason County Tax Assessor

USGS Map, Ravenswood Quad (1908 and 1928) ***(Use Continuation Sheets)***

Form Prepared By: Geoffrey Henry, Program Manager—Architectural History **Date: July 10, 2010**

Name/Organization: TRC Environmental Corp.

Address: 4425 Forbes Blvd., Suite B, Lanham MD 20706
Phone #: 301-306-6981, ext. 14

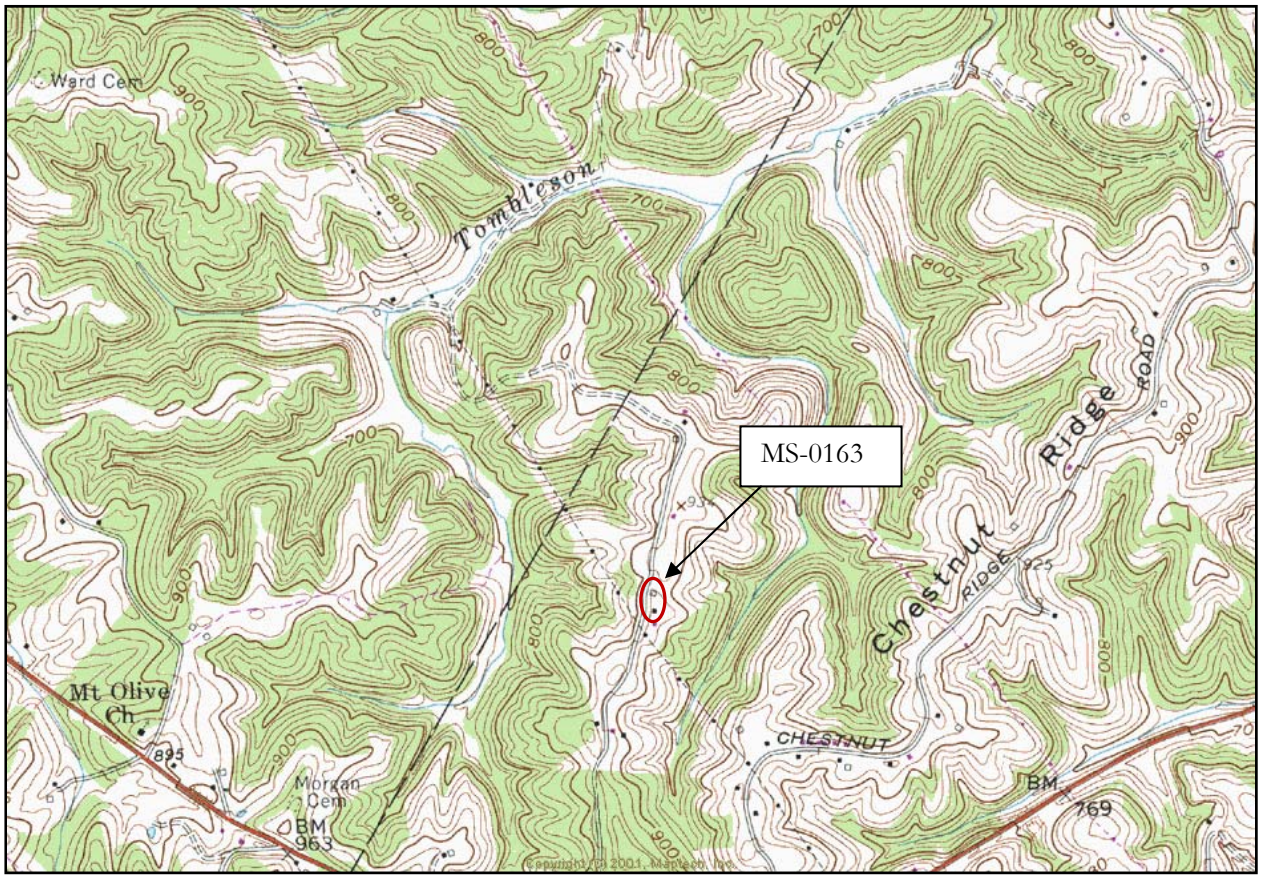
West Virginia Division of Culture and History
State Historic Preservation Office

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME Durst House **SITE#** MS-0163

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME Durst House **SITE#** MS-0163



MS-0163
Durst House at 1086 Shirley Road (CR 62/19)
UTM 17 0419565E 4300470N (NAD27)
USGS Mt. Alto Quadrangle (Rev. 1975)

Internal Rating: _____

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address Shirley Road (CR 62/19), 2500 ft. north of 1086 Shirley Rd.	**Common/Historic Name/Both** X O O	**Field Survey #**	**Site # *(SHPO Only)*** MS 0164
Town or Community Letart vicinity	**County** Mason	**Negative No.** Digital photograph	**NR Listed Date**
Architect/Builder	**Date of Construction** ca. 1940	**Style** Vernacular	
Exterior Siding/Materials German siding	**Roofing Material** Composition shingle	**Foundation** Poured concrete slab	
Property Use or Function Residence X Commercial O Other O	**UTM# 17 0419666E 4300598N (NAD27)**	**Photograph** (2" x 3" Contact)	
Survey Organization & Date TRC Environmental Corp. July 27, 2010	**Quadrangle Name** Mount Alto		
	Part of What Survey/FR# Mountaineer CCS II Project FR # 10-1133-MS		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.

Present Owners	Owners Mailing Address
Appalachian Power Company **Phone #**	

Describe Setting

Building stands in a rural, undeveloped setting, consisting of a mixture of farmland, pastures, and woodland. The house's immediate surroundings are overgrown.

_____24_____ Acres

N/A _Archaeological Artifacts Present

Description of Building or Site (Original and Present) **__1____Stories ___3_____Front Bays**

The main house on the property is 1-story, 3-bay, frame house clad with German siding and with a side-gable roof covered with composition shingle and exposed rafter ends. There is a 1-story, shed-roofed porch with posts on the rear elevation. The house has a central entrance with a single leaf wood door. The windows have been mostly removed, although there is a picture window on the front elevation. The house is abandoned and in deteriorated condition.

(Use Continuation Sheets)

Alterations [X] Yes [ ] No **If yes, describe: The house no longer has windows and doors.**

Additions [ ] Yes [X] No **If yes, describe:**

Describe All Outbuildings

Located to the south of the main house is a derelict gambrel-roofed frame hay barn with an attached 4-bay open tractor shed.

(Use Continuation Sheets)

Statement of Significance (Ravenswood Quad). **No building is shown at this location on the 1908 or 1928 USGS 15 minute series map**

(Use Continuation Sheets)

Bibliographical References

Mason County Tax Assessor, Mason County Register of Deeds

USGS Map, Ravenswood Quad (1908 and 1928) ***(Use Continuation Sheets)***

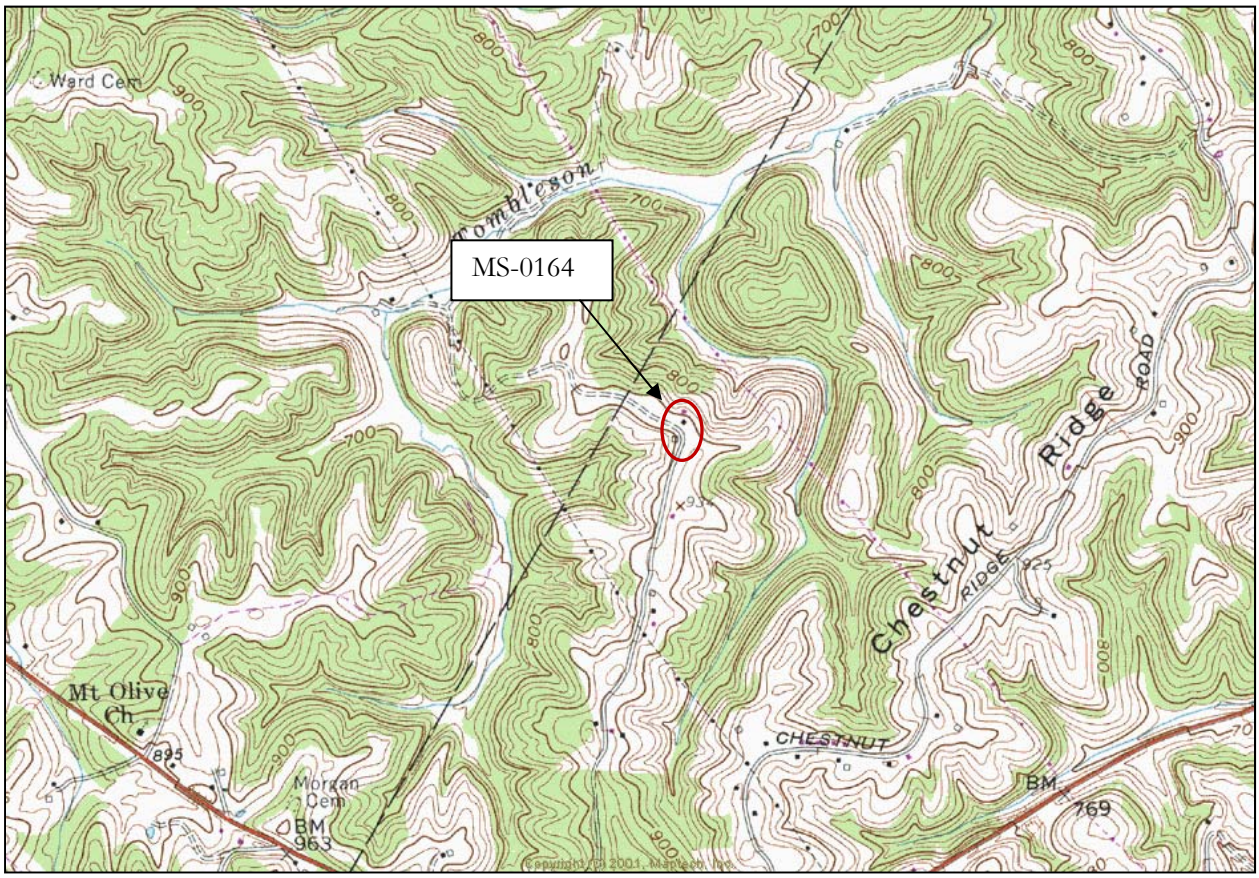
Form Prepared By: Geoffrey Henry, Program Manager—Architectural History **Date: July 10, 2010**

Name/Organization: TRC Environmental Corp.

Address: 4425 Forbes Blvd., Suite B, Lanham MD 20706
Phone #: 301-306-6981, ext. 14

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_____ **SITE#** MS-0164



MS-0164
House at Shirley Road (CR 62/19), 2500 ft. north of 1086 Shirley Rd.
UTM 17 0419666E 4300598N (NAD27)
USGS Mt. Alto Quadrangle (Rev. 1975)

WEST VIRGINIA
Division of Culture and History

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300
Randall Reid-Smith, Commissioner
Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EEO/AA Employer

November 8, 2010

Mr. Geoffrey B. Henry
TRC
4425 Forbes Boulevard
Lanham, MD 20706

RE: Mountaineer CCS II Project
Jordan Property Characterization Activities
FR#: 10-1133-MS-3

Dear Mr. Henry:

We have reviewed the information submitted for the above referenced project to determine potential effects to cultural resources. As required by Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

According to the submitted information, American Electric Power (AEP) is seeking approval to install a characterization well and associated access road at the AEP Jordan Property. This request is being made in advance of our review of the full technical report documenting the results of cultural resource surveys for the proposed Mountaineer CCS II Project. It is our understanding that the area proposed for construction of the characterization well, pipeline corridor and access consists of five developed acres within the largely undeveloped 170-acre Jordan Property.

Archaeological Resources:
According to the submitted information, the proposed five acre project area was subjected to Phase I survey. It is our understanding that deflated or eroded soils were encountered. Modern debris was noted within the project area near an extant ca. 1940 house; however, no cultural materials were recovered. As a result, we concur that there is no likelihood of encountering intact significant archaeological resources within this five acre project area. No further archaeological work is warranted for this portion of the proposed project area. We ask that the survey results for this portion of the project be included in the final report.

Architectural Resources:
Submitted project information indicates that you have identified two potential historic resources within the area of potential effect (APE) for this aspect of the project. These include an unidentified building located along Shirley Road as well as the Durst House, which also is located on Shirley Road. It is your opinion that neither is eligible for inclusion in the National Register of Historic Places under Criteria A, B, or C. We are unable to concur with this assessment based on the submitted information. The photographs for both potential resources are unclear and the buildings are not adequately discernible in these photographs. In addition, there is no indication that any research occurred to verify that these buildings are not eligible under Criteria A or B. If the buildings retain integrity, which cannot be discerned by the present submission, then additional research would be necessary in order to assert that neither has eligibility under Criteria A or B. In the future, such research would include an exploration of county histories along with the already completed deed exploration. Future assertions of ineligibility under Criteria A and/or B must include such research in order to be a declarative statement rather than a speculative assertion.

Submitted information also included an assessment of effect of the project on the two potential historic resources. Submitted information states that there will be no direct impact to the buildings and that there is the potential of a visual impact. This potential visual impact consists of one well casing, approximately three feet tall. It is your opinion that the potential three foot characterization well casing will have no adverse effect to the buildings. We concur with this assessment. No further consultation regarding architectural resources is necessary with regards to this aspect of the project; however, should your project change or become altered in anyway that would additionally impact these two buildings, please contact our office at that time for further consultation.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Lora A Lamarre, Senior Archaeologist, or Shirley Stewart Burns, Structural Historian, at (304) 558-0240.*

Sincerely,

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/LAL/SSB

WEST VIRGINIA
Division of Culture and History

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300
Randall Reid-Smith, Commissioner
Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EEO/AA Employer

January 10, 2011

Mr. Timothy R. Sera
Senior Archaeologist & Program Manager
TRC
4425 Forbes Boulevard
Lanham, MD 20706

RE: Mountaineer CCS II Project – Phase I Archaeological Survey
FR#: 10-1133-MS-5

Dear Mr. Sera:

We have reviewed the draft Phase I archaeological survey report that was submitted for the above referenced project to determine potential effects to cultural resources. As required by Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

Archaeological Resources:
According to the draft report, a Phase I archaeological survey was conducted in all proposed construction areas of the proposed Mountaineer Carbon Dioxide Capture and Storage (CCS II) Project. In addition, it is our understanding that American Electric Power is proposing to upgrade a barge unloading facility on the Ohio River near the AEP Mountaineer plant and that this area was also reviewed. It is our understanding that one prehistoric isolated find was identified within the proposed CCS II project area. We concur that this resource is not eligible for inclusion in the National Register of Historic Places. However, it appears that a WV Isolated Find form has not been completed. If this is the case, please submit a draft form (which can be downloaded from this web address: http://www.wvculture.org/shpo/forms.html) to Kristin Scarr via email so that a trinomial number can be assigned. Ms. Scarr's email address is Kristin.D.Scarr@wv.gov. A hard copy of the form can be submitted with the final report. It is our understanding that certain sections of the proposed project area were not included in the survey due to access denial. The report does not appear to make recommendations regarding these areas. Please ensure that the final report addresses these areas and makes appropriate recommendations.

Cemetery Resources:
According to the report, the Brinker Family Cemetery (46MS355) was documented during the survey. The cemetery contains approximately 10 burials dating from 1884 to 1908 and appears to be typical of its type within the Appalachian region. The report indicates that the cemetery might be eligible for the National Register of Historic Places under Criterion D, but states that it will not be

directly impacted by the proposed project. It is not clear, however, whether the cemetery falls within the proposed project's Area of Potential Effect (APE) as it pertains to indirect effects. If the cemetery falls within the APE for indirect effects, the report should discuss whether it meets Criteria A, B and C and Criteria Considerations C and D as well as Criterion D. If the cemetery is not within the APE, the report need not address eligibility at all.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Lora A Lamarre-DeMott, Senior Archaeologist, at (304) 558-0240.*

Sincerely,

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/LAL

ADDENDUM

PROPOSED UPGRADES TO EXISTING BARGE UNLOADING AREA
MOUNTAINEER CCS II PROJECT
MASON COUNTY, WEST VIRGINIA

ADDENDUM

PROPOSED UPGRADES TO EXISTING BARGE UNLOADING AREA MOUNTAINEER CCS II PROJECT MASON COUNTY, WEST VIRGINIA

Introduction

AEP is considering two options to support the delivery of equipment and materials via barge traffic during construction of the CO_2 capture facility. Under the first option, AEP would utilize the existing barge unloading platform to remove material from parked barges using a mobile crane. The second option, the "bridge option," would require the use of a temporary mobile bridge to span the area between the river bank and the parked barge. Barges would then be unloaded by driving the payload off using specialized mobile carriers. Figures 1, 2, and 3 show the location of the barge unloading area. The bridge option would allow AEP to receive and unload materials and equipment that could not be accommodated via crane unloading under the first option. Unloading by this method involves rolling deliveries from the barge over the bridge to an existing haul road. In the event that AEP implements the bridge option, up to 30 additional barge deliveries would be expected during the construction period for the CO_2 capture facility.

Technical Description

Under the first option, AEP would use the existing facility and no modifications or additional construction would be required. The second option would require site preparation along the river bank to support the placement of the mobile bridge. Site preparation would include clearing of vegetation, grading of a portion of the river bank to achieve a 7 percent grade, and the placement of aggregate to stabilize and reinforce the river bank (Figures 4, 5, and 6). No dredging-related work would be required within the Ohio River. A temporary "spud barge" would be used to stabilize the delivery barge for unloading for the bridge option. The spud barge would be anchored in place with up to four H-piles that would temporarily be placed on the river bottom for stabilization. The piles would be removed after work has been completed. The footprint for the bridge option would be up to 3,600 square feet in size (120 feet in width x 30 feet in length). An existing haul road from the barge unloading area to the Mountaineer Plant would be used to transport materials and equipment to the construction area. Up to 6,400 square feet of additional area may be required to support improvements to the haul road and the construction of a lay down area.

Previous 2005 Archaeological Investigation of Barge Facility

The area under consideration for the bridge option was subject to a previous Phase I archaeological survey conducted in 2005 in association with the development of the limestone unloading facility for the Flue Gas Desulphurization process, which is adjacent to the current proposed project location (Figures 7, 8, and 9). The 2005 survey was conducted by Big Blue Archaeological Research, Inc., in conjunction with Bluestone Research, LLC, on behalf of AEP as part of an application for a U.S. Army Corps of Engineers (USACE) permit for construction of the barge facility (Blake and Morton 2005; FR-05-409-MS). The survey was conducted under the guidelines of the WVSHPO and included deep testing of river bank deposits within a 16.1-acre area.

The 2005 survey examined all areas that were either undisturbed or contained less than 20% slope within the 16.1-acre survey area; this included four “fields” which met these conditions. The archaeological

consulting team excavated 41 shovel tests, 19 auger tests, and one test unit within these areas. No archaeological resources were recorded.

One deep test unit excavated in "Field #1" located in proximity to the new proposed construction area, recorded four soil horizons with the deepest horizon extending to 2.5 m below surface (Figure 10). The upper soil horizon (Stratum I) consisted of a dark grayish brown silt loam with weak granular structure extending from the surface to 21 cm. Stratum II was recorded as a brown silt loam with weak, medium sub-angular structure and maximum thickness of 15 cm. Stratum III consisted of a 25 to 30-cm thick deposit of brown silt loam with a moderate, medium and coarse, sub-angular blocky structure. The fourth stratum extended from 60 cm to the base of excavation at 2.5 m and was described as dark yellowish brown silty clay with subangular blocky structure with clay content increasing with depth. No evidence of deeply buried cultural deposits was recorded and the consultant recommended no further investigation. Based on WVSHPO review of these findings, a USACE permit was issued to AEP allowing the barge facility construction to proceed.

At present, a review of the 2010 aerial in comparison to the 1998 USGS quadrangle map shows that the shoreline area within project area has been modified from filling and shoreline stabilization, presumably from the 2005 construction activity. As such, deposits in the area have likely been disturbed, or consist of construction fill. As such, it is unlikely that undisturbed archaeological deposits exist in this area.

Recommendations

Based on the previous 2005 archaeological survey work, absence of findings, and modifications to the shoreline from modern construction activity, TRC concludes that it is highly unlikely that the proposed Barge Unloading Facility area contains undisturbed archaeological deposits; therefore, no further archaeological study is recommended.

Reference Cited

Blake, Jerrell and Allan T. Morton (WVSHPO File: FR-05-409-MS)

2005 *Phase I Cultural Resources Survey for the Proposed Barge Loading and Offloading Berths and Limestone Storage Pile at the Mountaineer Plant in Mason County, West Virginia*. Submitted to American Electric Power, Columbus, OH, by Big Blue Archaeological Research, Inc.

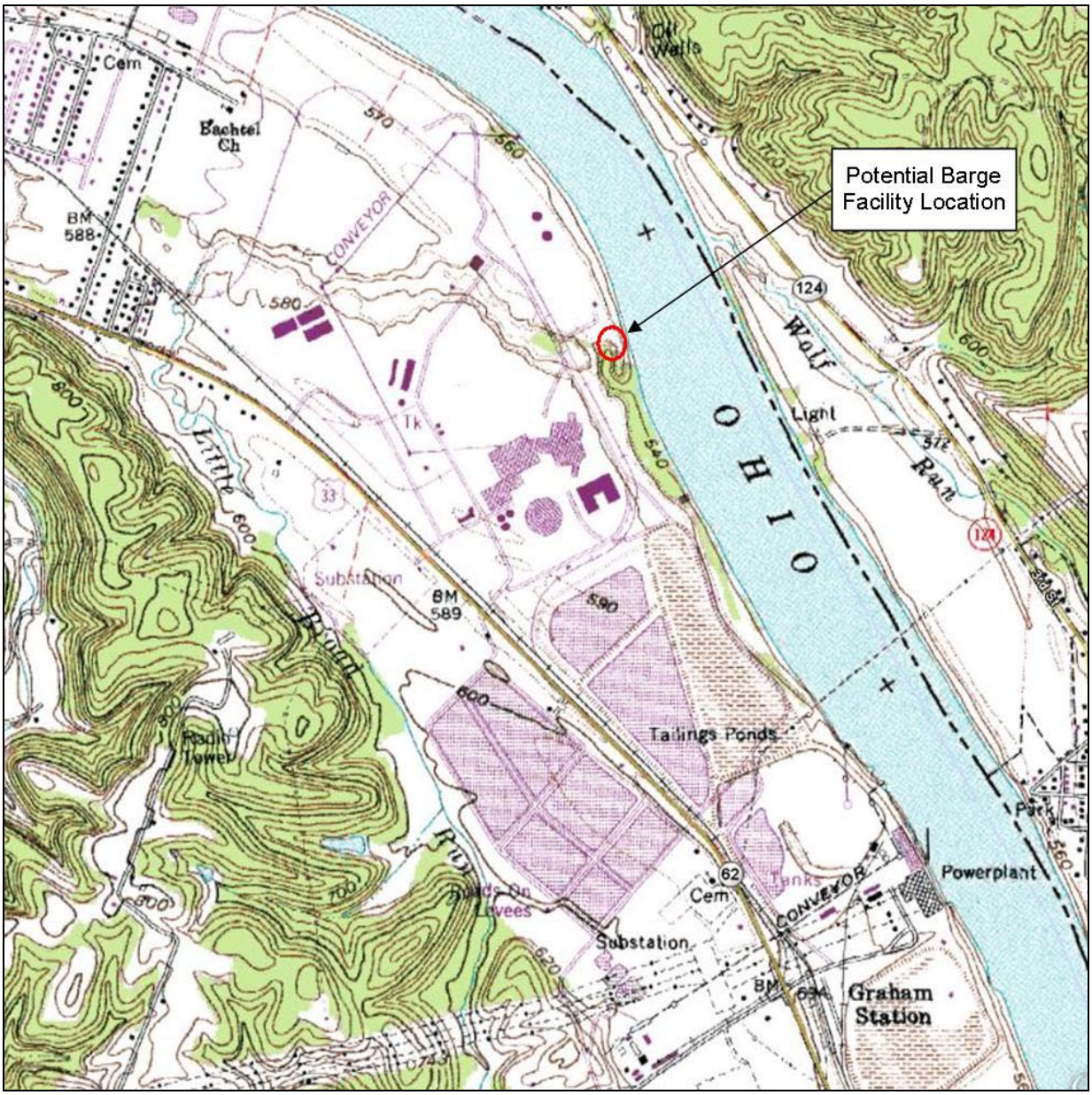


Figure 1. Proposed Barge Unloading Facility Upgrade location on 1998 *USGS 7.5' New Haven* topographic map.

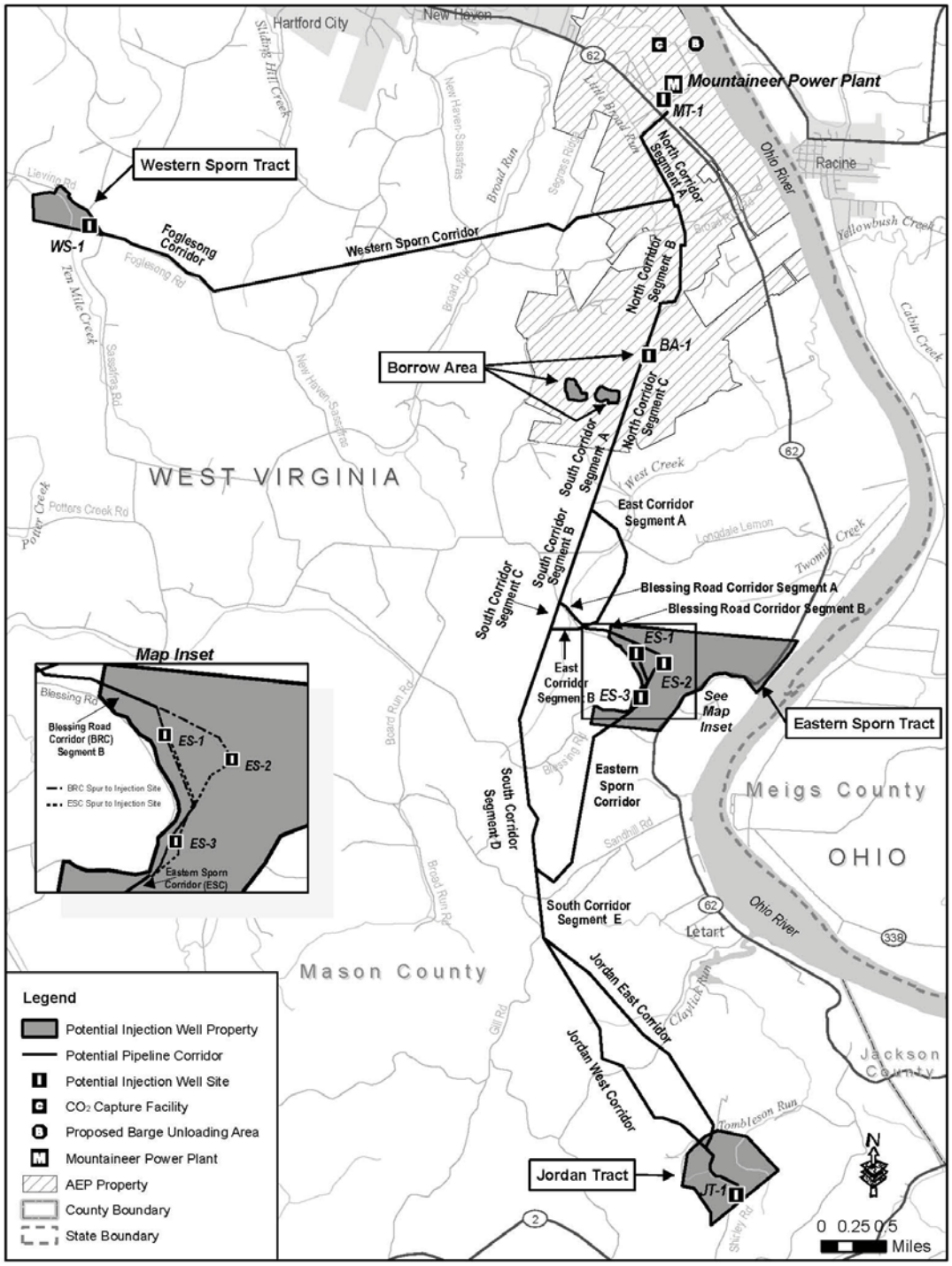


Figure 2. Proposed Barge Unloading Facility Upgrade location on overall Mountaineer CCS II project map (symbolized by "B" in northern portion of project).

Figure 3. Proposed Barge Unloading Facility Upgrade area on 2010 aerial photo, general view.

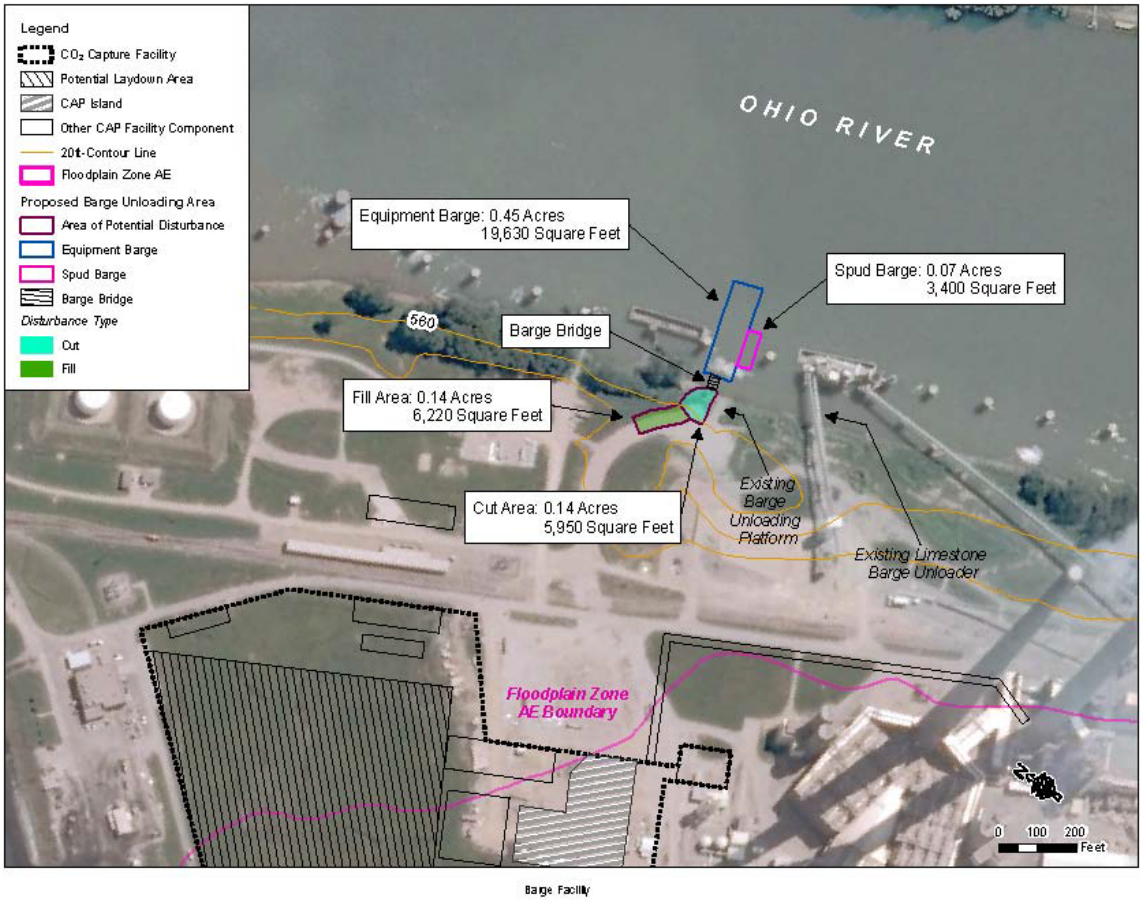


Figure 4. Proposed Barge Unloading Facility Upgrade - detail on aerial photo.

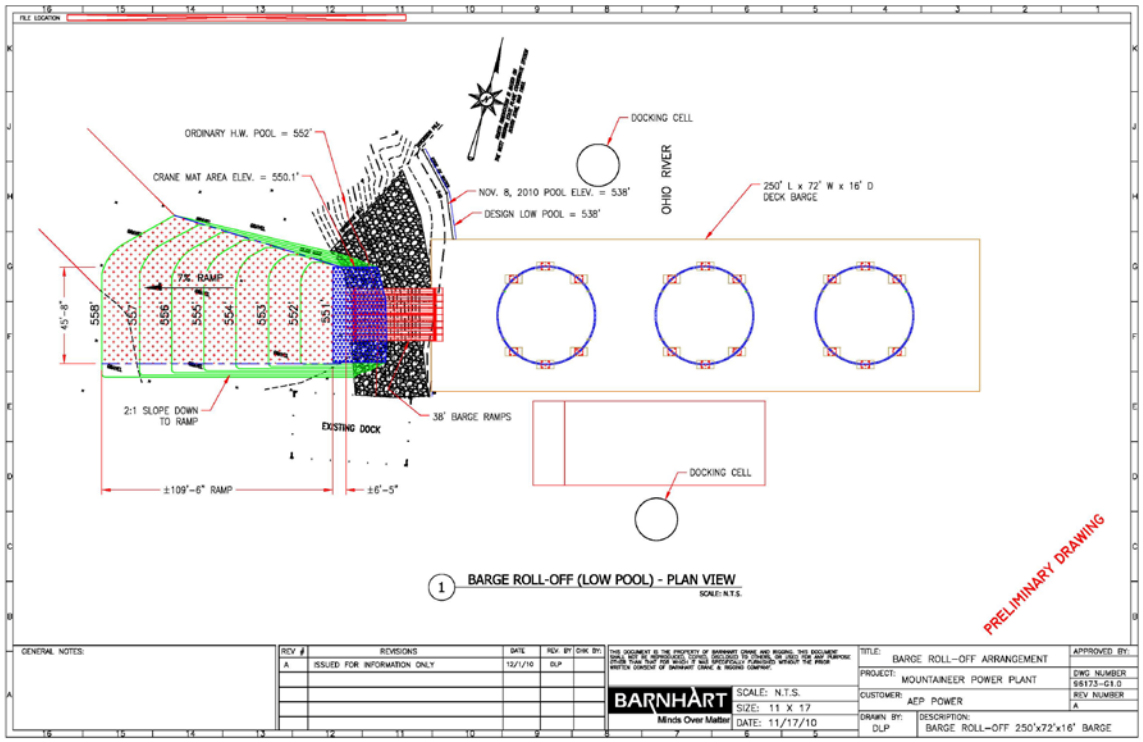


Figure 5. Engineering Design – Plan View of proposed Barge Unloading Facility Upgrade.

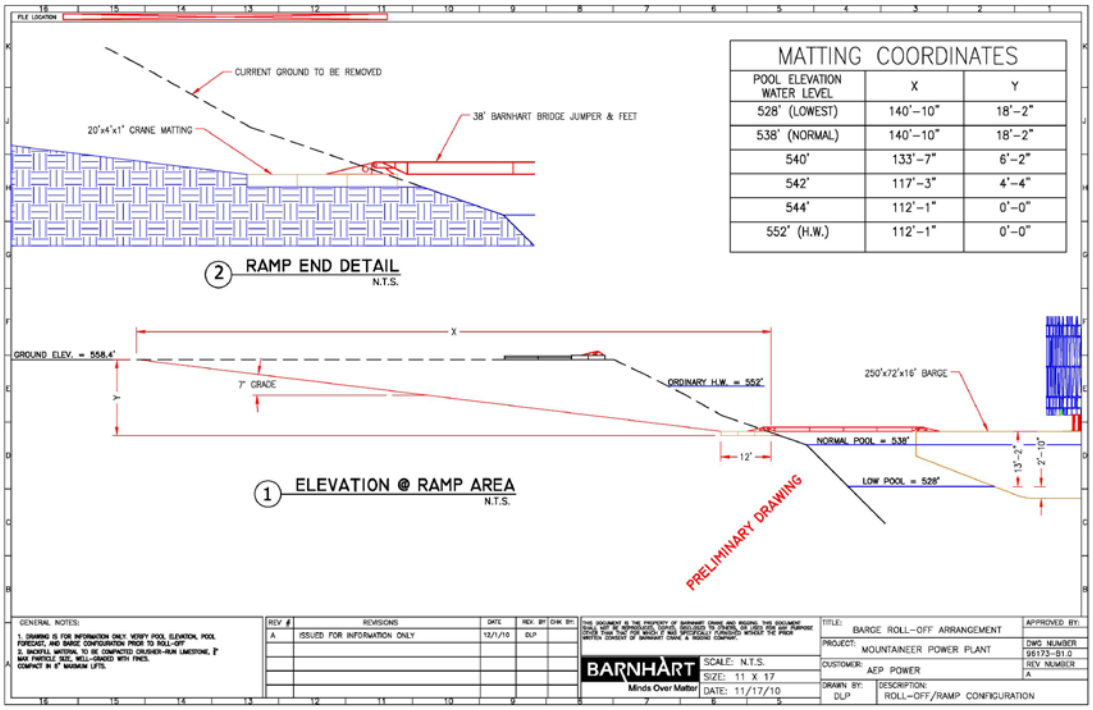


Figure 6. Engineering Design – Elevation of proposed Barge Unloading Facility Upgrade.

Figure 2. Portion of the USGS New Haven, WV topographic map showing the location of the project area.

Figure 7. Location of 2005 Survey Area on 1998 *USGS 7.*5' *New Haven* topographic map (Figure 2 from Blake and Morton 2005).

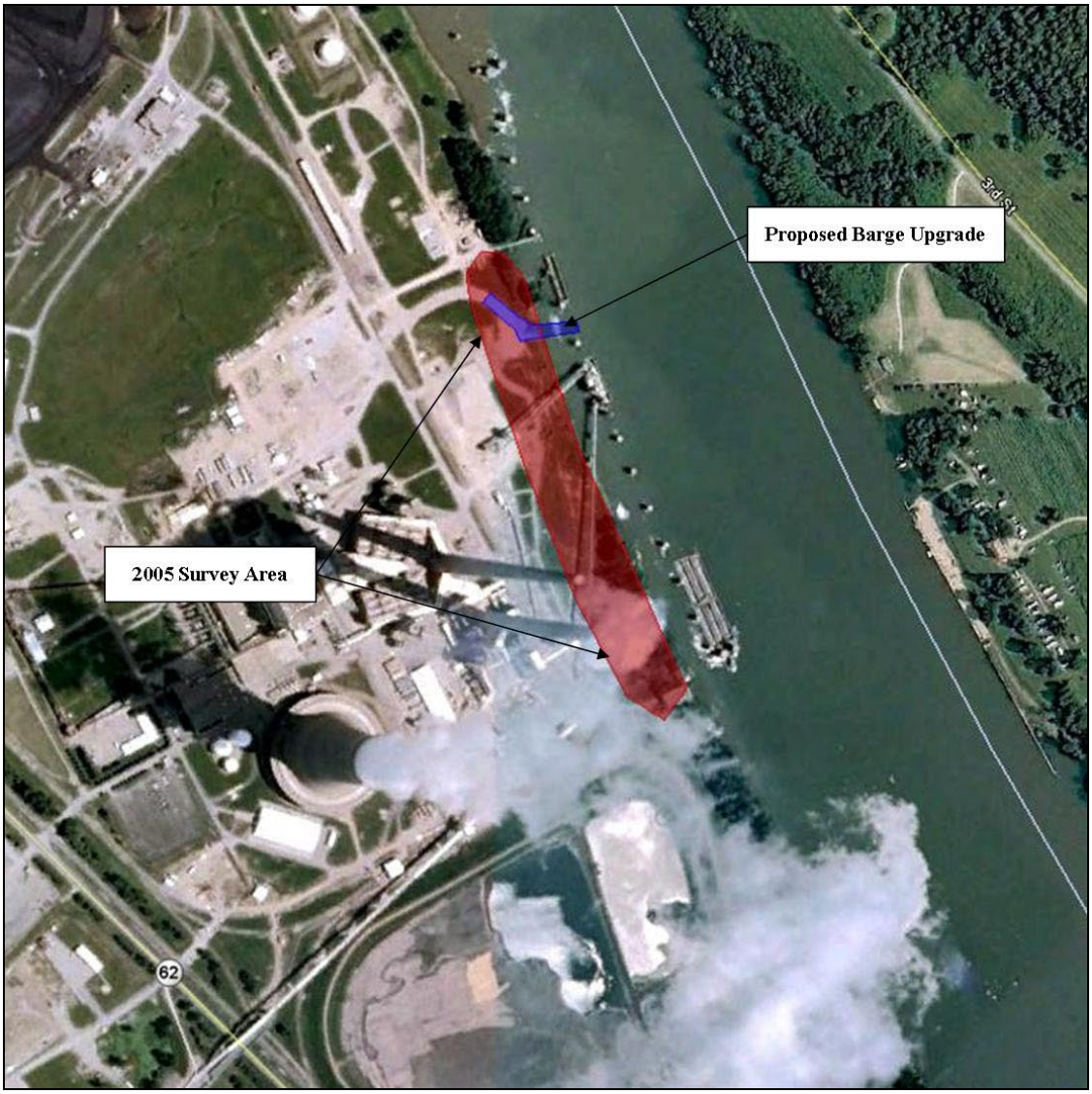


Figure 8. Composite of 2005 Survey Area and proposed Barge Upgrade area.

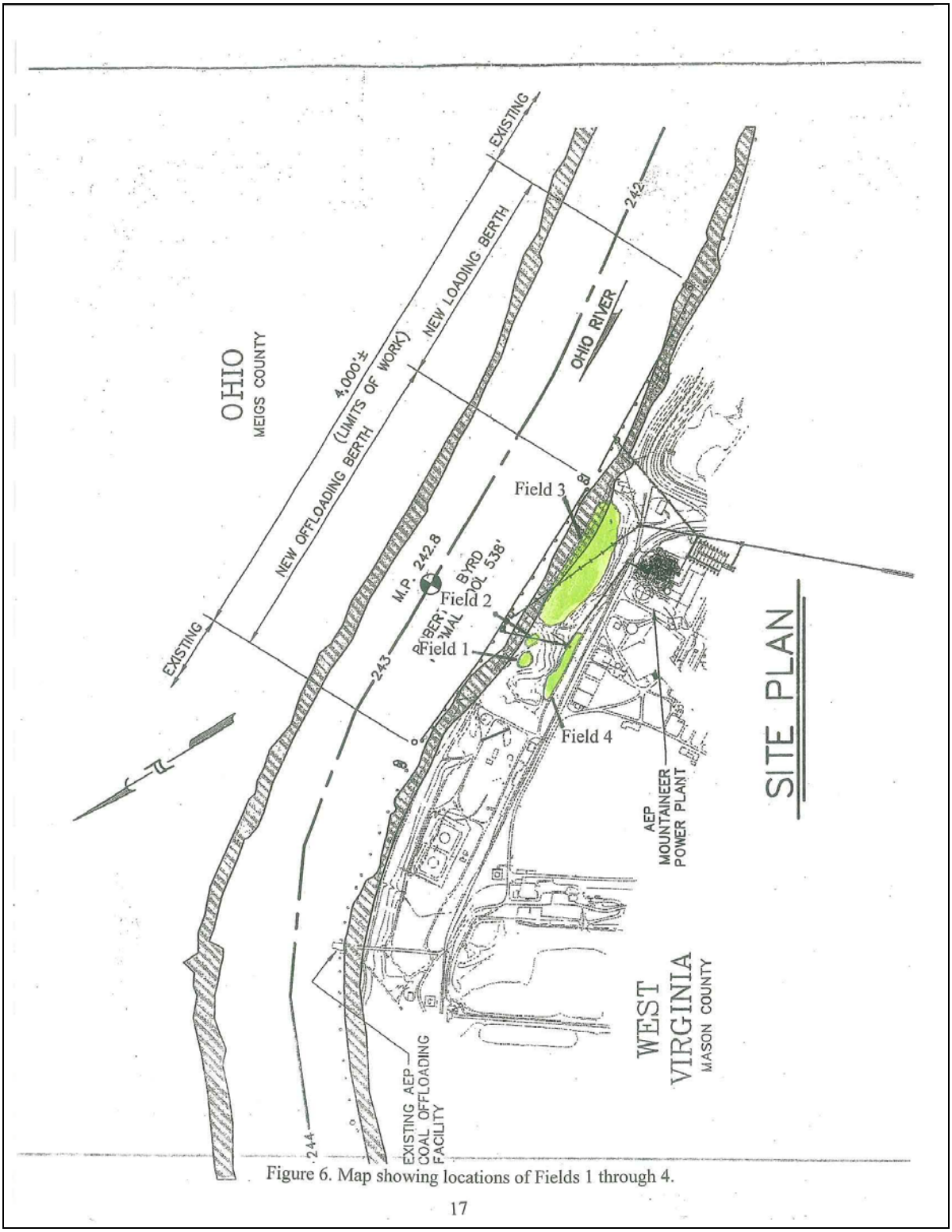


Figure 9. Site Plan of 2005 Survey Area (Figure 6 from Blake and Morton 2005).

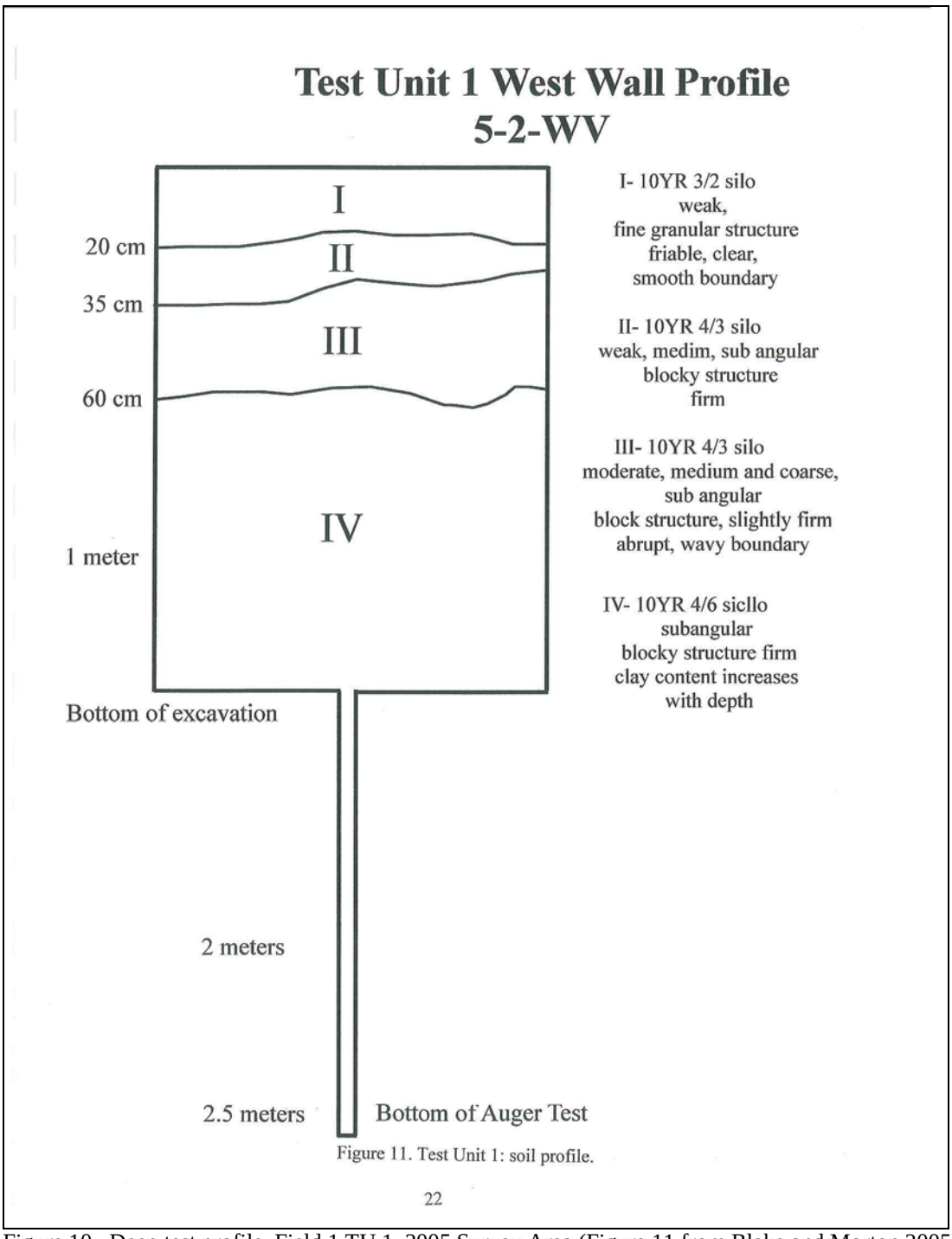


Figure 10. Deep test profile, Field 1 TU 1, 2005 Survey Area (Figure 11 from Blake and Morton 2005).

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PHASE I/II HISTORIC ARCHITECTURAL SURVEY

MOUNTAINEER CCS II PROJECT
MASON COUNTY, WEST VIRGINIA

FR # 10-1133-MS

Prepared for:

American Electric Power
and
U.S. Department of Energy

Prepared by:

TRC ENVIRONMENTAL, INC.
4425 Forbes Boulevard
Lanham, Maryland 20706

December 2010

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Geoffrey B. Henry M.A., Principal Investigator

Authored by:

Geoffrey B. Henry M.A. and Robert Wall Ph.D.
with contributions by Ellen Jenkins, B.S.

December 2010

EXECUTIVE SUMMARY

American Electric Power (AEP), with the support of the U.S. Department of Energy (DOE), as lead Federal agency, proposes to develop the Mountaineer CCS II Project (Project), a carbon dioxide (CO_2) capture and storage (CCS) project at AEP's Mountaineer Power Plant located near New Haven, in Mason County, West Virginia. The DOE is considering whether to provide financial assistance to AEP under the Clean Coal Power Initiative (CCPI) Program to support construction and operation of the Mountaineer CCS II Project, and is preparing an environmental impact statement (EIS) for the Project (DOE/EIS-0445). The captured CO_2 would be transported by pipeline (primarily underground) to proposed injection site(s) on two to four AEP-owned properties, all located within an estimated 12 miles of the AEP Mountaineer Plant. The CO_2 would then be injected for permanent geologic storage into one or more geologic formations approximately 1.5 miles below ground. AEP is also conducting geologic and hydro-geologic characterization activities to support preliminary project engineering and design. As part of these activities, preliminary characterization work is planned at some potential well sites.

TRC Environmental Corp. (TRC) and Potomac-Hudson Engineering (PHE) conducted a Phase I/II survey of standing structures 50 years or older within the Mountaineer CCS II Project Area of Potential Effect (APE) in July 2010. The survey was conducted in accordance with the methods presented by TRC/PHE in a June 1, 2010 letter to the West Virginia State Historic Preservation Office (WVSHPO). The WVSHPO approved the proposed methodology on July 2, 2010.[1] Fieldwork conducted by TRC identified a total of 18 architectural resources 50 years or older in the APE. Of this number, four resources have been surveyed previously, two of which have been determined eligible for listing in the National Register of Historic Places (NRHP) by the WVSHPO. TRC evaluated the remaining 14 architectural resources for NRHP eligibility and recommends two historic resources—Lieving Farm (NRHP Criteria A, B, and C) in the APE of the AEP Western Sporn Tract and the Baltimore & Ohio Railroad at Letart Falls (NRHP Criterion A) in the APE of the AEP Eastern Sporn Tract—eligible for individual listing in the NRHP. There are no NRHP-eligible resources within the APE of the Jordan Tract, Borrow Area, or potential pipeline corridors.

To support preliminary project engineering and design, AEP plans to develop up to three characterization wells that will be used to characterize subsurface conditions and assess their suitability for CO_2 storage. On August 27, 2010, AEP requested advance approval from the WVSHPO to proceed with development of the initial characterization well at the Borrow Area property. The West Virginia Deputy State Historic Preservation Officer provided approval for geologic characterization activities at the Borrow Area site on September 20, 2010.[2] On October 15, 2010, AEP requested advance approval from the WVSHPO for the second characterization well site at the Jordan Tract.[3] By letter of November 8, 2010 the WVSHPO provided approval for geologic characterization activities at the Jordan Tract.

Additionally, AEP is proposing construction of a barge unloading facility on the Ohio River, near the AEP Mountaineer Plant. TRC conducted a survey of architectural resources within the

[1] See Attachment A of this report.
[2] Id.
[3] Id.

APE of this proposed facility and determined that there will be No Adverse Effect to historic resources from the undertaking. The results of this investigation are reported in Attachment E.

AEP is submitting this report and completed West Virginia Historic Property Inventory (HPI) forms for the newly surveyed resources for review and concurrence by the WVSHPO (Attachment F). Following determinations of NRHP eligibility by the WVSHPO, AEP and DOE will provide assessments of any anticipated direct or indirect effects to NRHP-eligible historic resources from the Project in the EIS currently being prepared.

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FIGURES

ATTACHMENTS

1.0 PROJECT DESCRIPTION

1.1 Introduction

American Electric Power (AEP) proposes to develop a carbon dioxide (CO_2) capture and storage (CCS) project at AEP's Mountaineer Power Plant located near New Haven, in Mason County, West Virginia. The Project is referred to as the proposed Mountaineer CCS II Project (or "Project" hereafter in this report). This Project involves the capture of CO_2 from the existing Mountaineer coal-fired power plant, and the transport of the captured CO_2 by pipeline to well locations for permanent geologic storage in saline formation(s) approximately 1.5 miles below the surface. DOE proposes to provide financial assistance to AEP under the Clean Coal Power Initiative (CCPI) Program to support construction and operation of the Mountaineer CCS II Project. DOE is currently preparing an EIS for this proposed Project.

1.2 Capture Process

The Project would construct a CO_2 capture system using Alstom's chilled ammonia process (CAP) at a previously disturbed site within the boundaries of the existing 1,300 megawatt (MW) Mountaineer Plant. The capture system would occupy an area of approximately 500 feet by 1,000 feet.

1.3 Pipeline

The Project would annually capture approximately 1.5 million metric tons of CO_2 that will be transported by pipelines (primarily underground) to well sites located within 12 miles of the capture facility. Proposed corridors for the pipeline would be located primarily within existing electric transmission line and roadways.

1.4 Well Sites

The captured CO_2 would be transported by pipeline to potential well sites on up to four AEP-owned properties located within 12 miles of the plant. Five areas are under consideration for potential well sites: (1) Mountaineer Plant; (2) Borrow Area; (3) Jordan Tract; (4) Eastern Sporn Tract; and (5) Western Sporn Tract. The CO_2 would be injected for permanent geologic storage into one or more geologic formations approximately 1.5 miles below ground. Existing infrastructure (roadways, utilities) would be used to the extent practical; however, upgrades or construction of additional infrastructure may be required.

1.5 Proposed Above-Ground Structures

AEP has developed conceptual arrangements and layouts for the CO_2 capture process to be constructed at the Mountaineer Plant, which is an existing heavily developed, industrial site. The proposed pipeline corridors would be entirely below-ground except at vertical rock outcroppings. The only features that would be visible along the pipeline are the 4.5-foot-tall pipeline location markers and cathodic protection test stations. Above-ground structures at the well sites would be

minimal, and would consist of a portion of the incoming pipeline, well head(s), and potentially small equipment or storage building. Detailed information on the proposed structures and buildings will be provided in a separate report assessing anticipated effects to NRHP-eligible historic resources that will be submitted to WVSHPO.

1.6 Preliminary Geologic Characterization Wells

To support preliminary project engineering and design, AEP plans to develop up to three geologic characterization wells that will be used to characterize subsurface conditions and assess their suitability for the CO_2 storage. AEP properties under consideration for geologic characterization wells are, in order of preference: (1) Borrow Area; (2) Jordan Tract; (3) Eastern Sporn Tract; and (4) Western Sporn Tract.

By letter of August 27, 2010, AEP requested advanced approval from the WVSHPO to proceed with development of the initial geologic characterization well at the Borrow Area property. The West Virginia Deputy State Historic Preservation Officer provided written approval for geologic characterization activities at the Borrow Area site on September 20, 2010.[4] On October 15, 2010, AEP requested advanced approval from the WVSHPO for the second characterization well site at the Jordan Tract. Because no NRHP-eligible resources were identified within the APE of the Jordan Tract, AEP requested separate, advanced approval from the WVSHPO to proceed with development of geologic characterization activities at the Jordan Tract. By letter of November 8, 2010 the WVSHPO provided approval for geologic characterization activities at the Jordan Tract.

The locations of the proposed injection sites and pipeline corridors are shown in Figure 1.

[4] Id.

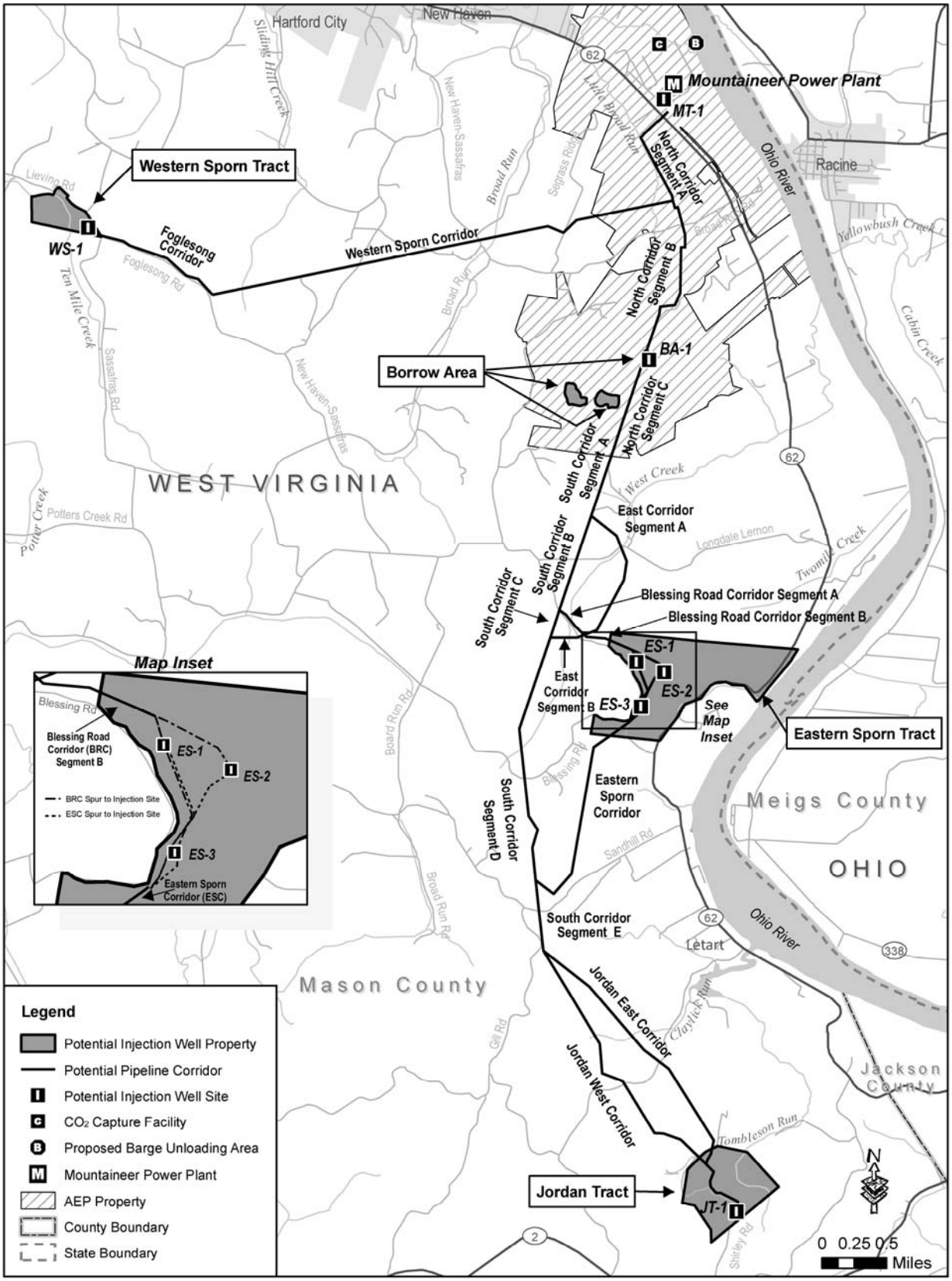

Figure 1. Project Location Map, Mountaineer CCS II Project

2.0 SURVEY METHODOLOGY

2.1 Introduction

As part of the environmental and cultural resource studies for the Project, TRC/PHE conducted a Phase I/II survey of standing structures—including buildings, structures, objects, districts, and sites—50 years or older within the Project's Area of Potential Effect (APE) in July 2010. The survey's objectives were to identify historic resources listed in or eligible for listing in the National Register of Historic Places (NRHP), to provide evaluations of NRHP eligibility for the surveyed resources, and to provide assessments of potential direct and indirect effects to historic resources from the proposed Project.

The Phase I/II architectural survey by TRC/PHE followed all applicable state guidelines, including *Guidelines for Phase I Surveys, Phase II Testing, Phase III Mitigation, and Cultural Resource Reports*, published by the West Virginia State Historic Preservation Office (WVSHPO) in 2001. The Phase I/II architectural survey consisted of four phases: 1) definition of the APE; 2) background research; 3) fieldwork; and 4) evaluation of the surveyed architectural resources for listing in the NRHP.

The survey was conducted in accordance with the methods presented by TRC/PHE in a June 1, 2010 letter to the WVSHPO. The WVSHPO approved the methodology on July 2, 2010.[5]

2.2 National Register Criteria of Evaluation

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, mandates that Federal agencies consider the effects of Federally funded and permitted undertakings on historic resources listed in or eligible for listing in the NRHP. There are four criteria under which an historic resource (building, object, structure, site, or district) may be listed in the NRHP. These criteria are contained in Chapter VI "How to Identify the Type of Significance of a Property" contained in *National Register Bulletin 15-How to Apply the National Register Criteria for Evaluation* (National Park Service, 1997, revised for internet 2002):

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects:

> ***A.*** *That are associated with events that have made a significant contribution to the broad patterns of our history; or*
>
> ***B.*** *That are associated with the lives of significant persons in our past; or*
>
> ***C.*** *That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*

[5] See Attachment A of this report.

D. *That have yielded or may be likely to yield, information important in history or prehistory.*

Ordinarily cemeteries, birthplaces, graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

a. *A religious property deriving primary significance from architectural or artistic distinction or historical importance; or*

b. *A building or structure removed from its original location but which is primarily significant for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or*

c. *A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building associated with his or her productive life; or*

d. *A cemetery that derives its primary importance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or*

e. *A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or*

f. *A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or*

g. *A property achieving significance within the past 50 years if it is of exceptional importance."*

In addition to possessing or satisfying one or more of the NRHP Criteria, a historic resource must also retain its integrity, defined as the ability of the historic resource to convey its significance. The NRHP recognizes seven aspects of integrity, which in combination are essential to conveying its significance. These aspects include integrity of location, design, setting, materials, workmanship, association and feeling and are further defined in Chapter VIII of Bulletin 15: "How to Evaluate the Integrity of a Property."

(1) ***Location is the place where the historic property was constructed or the place where the historic event occurred****. The relationship between the property and its location is often important to understanding why the property was created or why something happened. The actual location of a historic property, complemented by its setting, is particularly important in recapturing the sense of historic events and persons. Except in rare cases, the relationship*

between a property and its historic associations is destroyed if the property is moved. (See Criteria Consideration B in Part VII: How to Apply the Criteria Considerations, for the conditions under which a moved property can be eligible.)

(2) ***Design is the combination of elements that create the form, plan, space, structure, and style of a property.*** *It results from conscious decisions made during the original conception and planning of a property (or its significant alteration) and applies to activities as diverse as community planning, engineering, architecture, and landscape architecture. Design includes such elements as organization of space, proportion, scale, technology, ornamentation, and materials. A property's design reflects historic functions and technologies as well as aesthetics. It includes such considerations as the structural system; massing; arrangement of spaces; pattern of fenestration; textures and colors of surface materials; type, amount, and style of ornamental detailing; and arrangement and type of plantings in a designed landscape.*

(3) ***Setting is the physical environment of a historic property.*** *Whereas location refers to the specific place where a property was built or an event occurred, setting refers to the character of the place in which the property played its historical role. It involves how, not just where, the property is situated and its relationship to surrounding features and open space. Setting often reflects the basic physical conditions under which a property was built and the functions it was intended to serve. In addition, the way in which a property is positioned in its environment can reflect the designer's concept of nature and aesthetic preferences.*

(4) ***Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.*** *The choice and combination of materials reveal the preferences of those who created the property and indicate the availability of particular types of materials and technologies. Indigenous materials are often the focus of regional building traditions and thereby help define an area's sense of time and place. A property must retain the key exterior materials dating from the period of its historic significance. If the property has been rehabilitated, the historic materials and significant features must have been preserved. The property must also be an actual historic resource, not a recreation; a recent structure fabricated to look historic is not eligible. Likewise, a property whose historic features and materials have been lost and then reconstructed is usually not eligible. (See Criteria Consideration E in Part VII: How to Apply the Criteria Considerations for the conditions under which a reconstructed property can be eligible.)*

(5) ***Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.*** *It is the evidence of artisans' labor and skill in constructing or altering a building, structure, object, or site. Workmanship can apply to the property as a whole or to its individual components. It can be expressed in vernacular methods of construction and plain finishes or in highly sophisticated configurations and ornamental detailing. It can be based on common traditions or innovative period techniques. Workmanship is important because it can furnish evidence of the technology of a craft, illustrate the aesthetic principles of a historic or prehistoric period, and reveal individual, local, regional, or national applications of both technological practices and aesthetic principles.*

(6) ***Feeling is a property's expression of the aesthetic or historic sense of a particular period of time.*** *It results from the presence of physical features that, taken together, convey the property's historic character.*

(7) ***Association is the direct link between an important historic event or person and a historic property.*** *A property retains association if it is the place where the event or activity occurred and is sufficiently intact to convey that relationship to an observer. Like feeling, association requires the presence of physical features that convey a property's historic character. For example, a Revolutionary War battlefield whose natural and manmade elements have remained intact since the 18th century will retain its quality of association with the battle.*

2.3 Area of Potential Effect

Consultation with the WVSHPO has been an important part of the project planning process (Attachment A contains copies of all project-related correspondence with WVSHPO). A letter initiating informal consultation regarding the pre-project geologic characterization studies was sent by TRC/PHE on behalf of AEP to the WVSHPO on June 1, 2010. By letter of July 2, 2010, the WVSHPO acknowledged TRC's consultation letter. A second consultation letter more fully describing the proposed Project was sent by DOE to WVSHPO on August 20, 2010 *(*Attachment A).

In consultation with the WVSHPO, TRC/PHE developed a project Area of Potential Effect (APE), defined as the "geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist." For assessment of direct effects, the APE is defined as the area of construction of any above-ground structure or building. For indirect effects, such as noise or visual effects, the project APE was defined as any area within 500 feet from the proposed pipeline corridor and well sites. The current conditions and surroundings of the area identified for two of the potential well sites (Mountaineer Plant Site and Borrow Area) are already heavily developed by industry or are heavily wooded, such that is not expected to be visible beyond 500 feet, or pose significant noise effects beyond baseline conditions. The potential pipeline corridors generally follow existing developed transmission and/or road rights-of-way and would be entirely underground, except for vertical rock outcroppings, and thus the pipeline is expected to have negligible, if any, visibility.

For any project-related facilities that would be constructed on the existing AEP Mountaineer Plant site, the APE is defined as the footprint of these proposed facilities, as well as those areas immediately adjacent to the proposed site. The proposed Project would occupy approximately 33 acres within a 450-acre contiguous property owned by AEP, much of which is an extensively developed industrial site. The existing infrastructure has a large footprint, and contains many large structures and systems, including a boiler building (approximately 300 feet tall), cooling tower (approximately 400 feet tall), and two stacks (each approximately 1,000 feet tall). The viewshed of any proposed above-ground project-related facilities at the Mountaineer Power Plant was not used to define the APE. The existing facility creates a greater visual impact than the proposed facilities, which would be considerably smaller. Based on field reconnaissance, no

resources beyond the properties immediately adjacent to the Mountaineer plant would fall within the viewshed of the proposed site.

2.4 Background Research

Before initiating fieldwork, TRC conducted background research on previously identified historic architectural resources within the project APE at the WVSHPO archives in Charleston. Local histories, historic maps and atlases, cultural resource management reports, and other relevant documentation on the historical resources in the area were reviewed. TRC also conducted a search for any NRHP-listed and -eligible properties, and consulted GIS-based maps of historic architectural sites within a 1-mile radius of potential well sites, access roads, pipeline corridors and the Mountaineer Plant property.

2.5 Previous Surveys in the AEP Mountaineer CCS II APE

2.5.1 NRHP-Listed Properties

There are no NRHP-listed historic resources located within a 1-mile radius of potential well sites, pipeline corridors or the Mountaineer Plant property.

2.5.2 Mountaineer Integrated Gasification Combined Cycle Facility Survey

In December 2005, GAI Consultants Inc. (GAI) conducted a survey to identify archaeological and architectural resources potentially affected by the development of a proposed Integrated Gasification Combined Cycle facility to be constructed within the existing Mountaineer Plant boundary. The results of this survey are contained in "*Management Summary, Mountaineer IGCC Plant Phase I Cultural Resources and Geomorphology Survey, Mason County, West Virginia*" (GAI 2005). GAI identified four historic resources within the Mountaineer Plant APE:

- **MS-0177 Graham Station Cemetery.** The Graham Station Cemetery is located on the southwest side of State Route 62, near the Mountaineer Plant. The cemetery contains nearly 1,500 headstones with dates ranging from the 1850s to the present. By letter dated February 2, 2006, the WVSHPO determined the Graham Station Cemetery is not eligible for NRHP listing (Attachment A).
- **MS-0178 Baltimore and Ohio (B&O) Railroad (Ohio River Division).** The B&O Railroad line (Ohio River Division) is located on the southwest side of State Route 62 approximately 3 miles southeast of New Haven, near the Mountaineer Plant. By letter dated February 2, 2006, the WVSHPO determined this section of the B&O Railroad is NRHP-eligible under Criterion A (Attachment A).
- **MS-0179 Graham Station Baptist Church.** The Graham Station Baptist Church is located on the southwest side of State Route 62 approximately 3 miles southeast of New Haven, near the Mountaineer Plant. This one-story, wood-framed church building is built on a rusticated concrete block foundation. The building has vinyl siding and a gable roof clad in composition shingles. Shed-roof-covered steps and handicap access ramps are located on the east corner of the building, adjacent to the tower, and lead to the modern, flush, wood double doors. The window apertures are lancet-shaped with modern windows. By letter dated February 2, 2006, the WVSHPO determined the Graham Station Baptist Church is not eligible for NRHP listing (Attachment A).

- **MS-0180 Graham Station School.** The Graham Station School is located on the southwest side of State Route 62 approximately 3 miles southeast of New Haven, near the Mountaineer Plant. This one-story, wood-framed school building is built on a fieldstone pier foundation. The building is weatherboarded and features cornerboards. The fenestration consists of 4-over-4, double-hung, wood sashes. The gable roof has three-V crimp metal roofing sheets. By letter dated February 2, 2006, the WVSHPO determined the Graham Station School is NRHP-eligible under Criterion A (Attachment A).

2.6 Field Survey in the Mountaineer CCS II Project Area

TRC's field survey in the Mountaineer CCS II project area was conducted in July 2010. The survey recorded all previously identified architectural resources and all resources 50 years or older not previously identified. TRC field-checked all previously surveyed resources within the project APE and updated photographs and survey information as needed. Fieldwork included digital photographic documentation to include one or more views of the surveyed individual resources. The WVSHPO assigned survey numbers (MS-0163 through MS-0180) and TRC mapped the locations of all surveyed resources on sections of the relevant USGS quadrangle maps. Table 1 lists the architectural resources newly surveyed by TRC as well as previously identified resources (also see Attachment B).

Table 1. Surveyed Resources in the Mountaineer CCS II APE

SHPO ID #	NAME	ADDRESS	In APE of :
MS 0163	Durst House	1086 Shirley Road (CR 62/19)	Jordan Tract Property
MS 0164	Vacant House and Barn	Shirley Road (CR 62/19), 2500 feet. north of 1086 Shirley Rd.	Jordan Tract Property
MS 0165	Nutter House	4439 Tombleson Run Road (CR 22)	Jordan East Corridor
MS 0166	Shed	NW corner of State Route 62 and Blessing Road (CR 62/15)	Eastern Sporn Tract
MS 0167	Grimm House	343 Blessing Road (CR 62/15)	Eastern Sporn Tract
MS 0168	B&O Railroad at Letart Falls	East side of State Route 62 at Racine Locks and Dam	Eastern Sporn Tract
MS 0169	Vacant Brick House	South side Lieving Road (CR 7)	Western Sporn Tract
MS 0170	Lieving Farm	2552 Lieving Road (CR 7)	Western Sporn Tract
MS 0171	Lieving Log House	South side Lieving Road (CR 1), opposite Lieving Farm	Western Sporn Tract
MS 0172	House and Mine Shaft	North side Lieving Road (CR 7), 500 feet east of 2552 Lieving Road	Western Sporn Tract
MS 0173	Foundation	South side Lieving Road (CR 7), east of MS 0169	Western Sporn Tract
MS 0174	Vacant House	Northeast corner of Gibbstown Road (CR 1) and Lieving Road (CR 7)	Western Sporn Tract
MS 0175	Farm	Southeast corner of Lieving Road (CR 7) and Sassafras Road (CR 7)	Western Sporn Tract
MS 0176	Brinkley Cemetery	West side State Route 62 on Eastern Sporn Tract	Eastern Sporn Tract
MS 0177	Graham Station Cemetery (previously surveyed)	West side of State Route 62	Mountaineer Plant
MS 0178	B&O Railroad (Ohio River Division) (previously surveyed)	West side of State Route 62	Mountaineer Plant
MS 0179	Graham Station Baptist Church (previously surveyed)	West side of State Route 62	Mountaineer Plant
MS 0180	Graham Station School (previously surveyed)	West side of State Route 62	Mountaineer Plant

2.7 Evaluation

Based on background research and a visual inspection during the fieldwork phase, newly surveyed resources were evaluated for their eligibility for listing in the NRHP according to the guidelines contained in *National Register Bulletin 15—How to Apply the National Register Criteria for Eligibility*. The newly surveyed resources were evaluated for significance according to the four National Register Criteria (A, B, C, and D) and were also evaluated for their architectural integrity. In addition to possessing significance under one or more of the NRHP Criteria, a resource must also retain integrity to be NRHP-eligible. Architectural integrity is the ability of a property to convey its significance. Within the concept of integrity, the NRHP recognizes integrity of design, location, materials, workmanship, setting, association, and feeling, which in various measures make up the overall integrity of the resource. As a result of the field survey and further historical research, TRC recommends the following two individual historic resources as eligible for listing in the NRHP. The completed West Virginia Historic Property Inventory forms for these properties are contained in Attachment E.

2.7.1 MS-0170 Lieving Farm, 2552 Lieving Road

The Lieving Farm is located on the north side of Lieving Road (County Route 7) east of West Columbia, in a rural hamlet setting, consisting of a mixture of occupied and vacant houses, farmland, pastures, and woodland. The property is within the boundaries of the Mountaineer CCSII Western Sporn Tract.

The main building on the Lieving Farm is 2 ½-story, 3-bay, framed Colonial Revival-style house built before 1903, with a hipped roof covered with standing seam metal. There is a 1-story, half-hip-roofed, wrap-around porch with tapered posts and wood knee-walls on the front elevation; the porch is enclosed on the east side with 8-pane casement windows. The house has an off-center front entrance with a single leaf glass-and-wood door. The windows mostly have 1/1 or 2/2 double hung sash, although the large front window has a diamond pane transom. There is a 2-story polygonal bay with gable roof on the east and a small porch on the west and north.

There is a 1-story, 4-bay concrete block garage/service station (ca. 1925) located immediately to the east of the main house, with a porch/service bay on the west. There is a 1-story gable-roofed frame office/outbuilding to the north of the house. There is a large frame stable/barn with vertical board siding on a hillside to the northeast of the house.

A September 15, 1903 deed from Albert Hoffman to Frank B. Lieving for this 55-acre property mentions a pre-existing dwelling and barn. Lieving, who was later Mason County Sheriff, founded the Lieving Coal Company at this location. A coal tipple nearby was built in 1947 but was destroyed by fire in 1960, after which the company and most of the land was sold to Appalachian Power Company and the coal mine abandoned (Mason County History Book Committee 1987: 34). It is believed Lieving built the present gas station which is mentioned in a 1929 lease (Mason County Deed Book 108, page 407). The house and barn are shown on the 1908 and 1928 USGS 15-minute series maps (Point Pleasant Quad).

The Lieving Farm is NRHP-eligible under Criterion A for its association with the history of the Lieving Coal Company and coal mining in Mason County during the first half of the 20th century, and under Criterion B as the home of Frank B. Lieving, founder and president of the locally important Lieving Coal Company. The Lieving Farm is NRHP-eligible under Criterion C in the area of architecture for embodying the distinctive characteristics of the Colonial Revival style.

2.7.2 MS-0168 Section of B&O Railroad at Letart Falls.

The single-track Baltimore & Ohio (now CSX) Railroad line runs through a mostly rural and sparsely developed area, east of State Route 62 and the Mountaineer CCS II Project's Eastern Sporn tract, and west of the Ohio River. This section of the B&O also runs adjacent to the US Army Corps of Engineer's Racine Locks and Dam at Letart Falls.

There are two non-historic metal electrical signal buildings located on the west side of the tracks at CR 12.

This was the route of the 218-mile-long Ohio River Railroad built in 1883, and acquired by the B&O in 1901. Throughout the last half of the nineteenth century and continuing until the 1930s, the B&O was the primary transportation route for agricultural and industrial goods traveling to, from, and through Mason County. (Mason County History Book Committee 1987: 38) Towns located along the B&O such as New Haven, Hartford, Point Pleasant, Graham Station, and Letart grew in importance as a result of railroad traffic. Industrial plants, as well as mills and factories, were located along the B&O mainline or its many spurs and branches. The B&O Railroad through this section of Mason County is NRHP-eligible under Criterion A for its association with the transportation history of Mason County in the 19th and 20th centuries.

3.0 HISTORIC CONTEXT OF THE PROJECT AREA

This section describes the themes of early settlement, transportation, coal mining, and industrial development that are important in the history of Mason County and the project region, as well as its historically important towns and rural communities.

3.1 Early Settlement

Mason County was created from portions of Kanawha County in 1804. Point Pleasant, established in 1794, is the county seat for Mason County. Point Pleasant is located at the mouth of the Kanawha River. The county was named for George Mason, a member of the Constitutional Convention in Philadelphia in 1787 and a Virginian who also helped to write Virginia's constitution. Formerly a territory occupied by the Shawnee, Mingo, and various Iroquoian tribes in the 17th century and into the 18th century, Mason County was first visited by European explorers in 1669 when LaSalle explored the Ohio River valley. Later French explorers claimed the lands for France and Louis XV, which ultimately led to the conflict of the French and Indian War of the 1750s. A large Shawnee village was located in the mid-1700s within what is now Mason County.

Christopher Gist, representing the Ohio Company, traveled through Mason County in 1750. Others, including land speculators such as George Washington, came to the region in the 1770s. At that time, Washington held a large amount of acreage in what is now Mason County. Other settlers of the early 1770s included Andrew Lewis, George Muse, Peter Hog, Andrew Stephens, Andrew Waggener, John Polson, John West, Charles Thurston, Dr. Craik, and Hugh Mercer (Comstock 1973). Many of these early landholders either sold their lands to others or passed it on to their heirs. Many of these early settlers faced conflicts with local native populations. It was not until after the American Revolution that much of the Euro-American settlers' conflicts with local native groups (e.g., Shawnee) ceased.

The Battle of Point Pleasant, in October 1774, is the best known conflict in the region between local Indian populations and Euro-American colonists. This conflict resulted from the rapid colonization west of the Allegheny Mountains. Such settlement in these western lands had been declared illegal by the Proclamation of 1763 but colonization persisted. The Virginia colonial militia, led by General Anthony Lewis, defeated the Indians at Point Pleasant, in spite of heavy casualties. This led to the end of what is known as Lord Dunmore's War which had begun in the spring of 1774 and ended shortly after the Battle of Point Pleasant.

Among the earliest settlers to the Graham District were William Graham, John Roush, Michael Seagrist, and James Wolfe, who came in 1800 (Ferguson 1967:61). The Reverend William Graham oversaw the founding of Graham Station in 1798. Designed as a Presbyterian colony, the settlement failed shortly after its founding. The location of Graham Station shows on John Wood's 1822 map of the county. Many of the early settlers established farms along the fertile Ohio River floodplain and tobacco and livestock production were important to the farming economy of the region through much of the 19th century (Comstock 1973).

The first grist mill in the area was built by Thomas Hoffman on Big Broad Run in 1820. A saw mill was built upstream on the same creek the following year (Comstock 1973:41). The first steam powered mill was built in 1836 by Michael Zirckel.

3.2 Transportation

By 1808, the establishment of early roads such as the one from Watkins Mill to Graham Station, facilitated movement of farm products to eastern markets. Livestock drivers took hogs, sheep, and cattle to market from the Ohio and Kanawha region (Ferguson 1967:81). This led to the establishment of a number of inns and taverns along these routes. Later, the Charleston and Point Pleasant Turnpikes were completed in 1851 and 1861, respectively (Ferguson 1967:87). In much of the interior, further away from the Ohio River, roadways were primarily developed along major creeks. Overall, the lack of good roads through much of the rugged uplands characterizing Mason County during the nineteenth century accounts for its rural character even today. The 1822 John Wood map of Mason County shows physical features such as Little Broad Run, Big Broad Run, and Slide Hill Creek, but it depicts little cultural information with the exception of Grayham's Station, located just north of West Creek on the map.

Before the coming of the railroad, steamships were used along the Ohio River to provide transportation in the mid-1800s. This was soon surpassed by the railroad industry. For example, the Atlantic and Northwestern Railroad connected the region to Charleston, West Virginia (Mason County History Book Committee 1987). Later the Ohio River Railroad ran along the river from Wheeling to Point Pleasant, transporting oil and later passengers (Mason County History Book Committee 1987:420). By the turn of the century, regional rail systems connected to the Baltimore and Ohio Railroad linking New Haven, Hartford and other Ohio River communities. Passenger service on these railroads continued through much of the 20th century.

3.3 Coal Mining and Industrial Development

Early coal mining in the 19th century was done with slope mines. Salt mining was established by the 1840s, but was subsequently replaced by a rapidly growing coal industry in the late 1800s. Early salt mining operations were undertaken by the Mason County Mining and Manufacturing Company which employed Irish laborers to extract and process the salt before the products were shipped out via the Ohio River (Gibbs 1975:7). In the early days of coal mining, coal was used primarily to fuel furnaces in the salt and iron industry. Coal mining developed more quickly with improvements in transportation that facilitated moving the coal to markets. As early as 1817, coal had been used primarily in the process of drying salt brine. By the 1830s, the first commercial coal was being produced in the region. Later in the 19th century, the timber industry complemented coal as a second major extractive industry along with oil and natural gas. These industries still persist today but have not supported a large population. Other 20th century industries include manufacture of porcelain, and the energy industry.

3.4 Communities in the Project Area

Early towns developed primarily along the Ohio River. For example, New Haven, formerly called Gabhart's Mill, then New London, was settled in the mid-1800s (Ferguson 1967:73).

Early settlers practiced some mining and salt operations. Its first post office was established in 1864. By 1880, the population of New Haven was 541.

Hartford was founded in 1853 and named in 1863 after Hartford, Connecticut. Early settlers included capitalists such as Morgan Buckley and William Healy (Gibbs 1975) who were interested in exploiting the coal and salt resources of the area. Many of the early companies involved in mining operations focused on both salt and coal. These companies included the Hartford City Salt and Coal Company and the Valley City Salt and Coal Company. Many companies often owned most of the operation beyond the mining property. This included furnaces for processing the raw product, stave mills and cooper shops for making barrels to contain the product, boats for transporting it to market, and even company housing for the workers.

The population of Hartford increased rapidly, reaching 1,162 by the 1880 census but declining shortly thereafter. The population was 515 in 1900 and dwindled to 358 by 1910. The decline in population was likely due to the decrease in operations of coal and salt production companies (Ferguson 1967:71) and the lack of supporting industries to maintain the population.

4.0 SURVEY FINDINGS

The results of the fieldwork and NRHP eligibility evaluation of the surveyed architectural resources are reported in Attachment B. This table lists each resource by WVSHPO survey number/name/address and includes information on building type; an assessment of the resource's integrity based on observed alterations to the building and its setting; and TRC's evaluation on whether the building is eligible for NRHP listing based on the NRHP criteria and integrity standards. Architectural resources that previously have been determined NRHP-eligible by the WVSHPO or are considered NRHP-eligible as a result of this survey are shaded in gray in this table. Attachment C contains one or more photographs of the newly surveyed architectural resources. Attachment D shows the location of surveyed architectural resources and project sites on sections of the relevant USGS quadrangle maps. Attachment E contains the findings of an architectural survey conducted by TRC within the APE of a proposed barge unloading facility. Attachment F contains copies of the West Virginia Historic Property Information forms completed for the newly surveyed historic resources in the project APE.

5.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Summary and Conclusions

TRC and PHE conducted a Phase I/II survey of standing structures 50 years or older within the Mountaineer CCSII Project APE in July 2010 and identified a total of 18 architectural resources 50 years or older. Of this number, four resources have been surveyed previously, two of which—Graham Station School and the B&O Railroad (Ohio River division)—have previously been determined by the WVSHPO to be NRHP eligible. These two resources are in the APE of the AEP Mountaineer Plant. TRC evaluated the remaining 14 architectural resources for NRHP eligibility and recommends two historic resources—Lieving Farm (within the Western Sporn Tract APE) and the B&O Railroad line near the Racine Locks and Dam (within the Eastern Sporn Tract APE)—eligible for individual listing in the NRHP. There are no NRHP-eligible historic resources within the APE of the Jordan Tract, Borrow Area, or potential pipeline corridors.

On August 27, 2010, AEP requested advanced approval from the West Virginia Division of Cultural and History to proceed with development of the initial characterization well at the Borrow Area property. The West Virginia Deputy State Historic Preservation Officer provided approval for geologic characterization activities at the Borrow Area site on September 20, 2010. On October 15, 2010, AEP requested advanced approval from the WVSHPO for the second characterization well site at the Jordan Tract. Because no NRHP-eligible resources were identified within the APE of the Jordan Tract, AEP requested separate, advanced approval from the WVSHPO to proceed with development of geologic characterization activities at the Jordan Tract. By letter of November 8, 2010 the WVSHPO provided approval for geologic characterization activities at the Jordan Tract.

5.2 Recommendations

Historic Property Inventory forms for the 14 newly surveyed architectural resources and this report are being submitted to the WVSHPO for its review and concurrence with TRC's survey findings and NRHP evaluations. Following determinations of NRHP eligibility by the WVSHPO, AEP and DOE will provide assessments of any anticipated direct or indirect effects to NRHP-eligible historic resources from the Project in an environmental impact statement now under preparation.

6.0 BIBLIOGRAPHY

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ATTACHMENT A

AGENCY CORRESPONDENCE

WEST VIRGINIA
DIVISION OF
CULTURE & HISTORY

The Cultural Center
1900 Kanawha Blvd., E.
Charleston, WV
25305-0300

Phone 304.558.0220
Fax 304.558.2779
TDD 304.558.3562
www.wvculture.org
EEO/AA Employer

February 2, 2006

Mr. John H. Van Hassel
Environmental Services
AEP
1 Riverside Plaza
Columbus, OH 43215

RE: American Electric Power
Mountaineer IGCC Plant Site
FR#: 05-1218-MS-2

Dear Mr. Van Hassel:

We have reviewed the Letter Report submitted for the above referenced project. As required by Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

Archaeological Resources:
The report satisfactorily addresses our concerns regarding the presence of intact archaeological sites within the area proposed for construction of the IGCC Mountaineer Plant. It is our understanding that 4 archaeologically sensitive areas were investigated through pedestrian survey and the excavation of backhoe trenches and shovel test pits. Evidence of deep disturbance was observed in a majority of the area investigated. Excavation of shovel test pits in undisturbed areas did not result in the identification of new archaeological sites. No further archaeological work is recommended. We concur with this recommendation. It is our opinion that this project will have no effect to any known archaeological site that is eligible for or included in the National Register of Historic Places.

Architectural Resources:
The West Virginia State Historic Preservation Office has reviewed the aforementioned report to evaluate potential impacts to architectural resources eligible for or listed in the National Register of Historic Places resulting from the proposed AEP IGCC Mountaineer Plant in Mason County. We have separated our review of architectural resources surveyed as part of the report as follows for clarity:

Graham Station Baptist Church: We concur with your determination that the Graham Station Baptist Church is not eligible for inclusion in the National Register of Historic Places. The church has been modified and therefore no longer retains the integrity to be considered for inclusion in the National Register of Historic Places.

Graham Station School: We cannot concur with your determination that the Graham Station School is not eligible for inclusion in the National Register of Historic Places. The building appears to be an intact example of a late-19th Century schoolhouse. Therefore, this office is of the opinion that this resource is potentially eligible for inclusion in the National Register of Historic Places under Criterion A as an example of educational trends. Furthermore, due to the building retaining a high level of integrity of design and materials, this resource may also be eligible for inclusion in the National Register of Historic Places under Criterion C. However, due to existing visual intrusions surrounding the Graham Station School, this office is of the opinion that the above-referenced project will have No Adverse Effect to this architectural resource.

Baltimore and Ohio Railroad (B&O): We cannot concur with your determination that the B&O Railroad is not eligible for inclusion in the National Register of Historic Places. This office is of the opinion that this resource is eligible for inclusion in the National Register of Historic Places under Criterion A for its role in trends of transporation in the movement of people and materials. However, due to existing visual intrusions surrounding the rail line, this office is of the opinion that the above project will have No Adverse Effect to this National Register of Historic Places eligible resource.

No further consultation is necessary with this office regarding this project.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact me at (304) 558-0240.*

Sincerely,

Susan M. Pierce

Susan M. Pierce, Director
WV State Historic Preservation Officer

SMP:rcb/cmk

4425 Forbes Boulevard
Lanham, Maryland 20706

Main 301-306-6981
Fax 301-306-6986

June 1, 2010

Ms. Susan Pierce
Deputy State Historic Preservation Officer
West Virginia Division of Culture and History
The Cultural Center
Capitol Complex
1900 Kanawha Boulevard East
Charleston, WV 25305-0300

RE: *Request for Consultation Regarding Proposed Project in Mason County, West Virginia.*

TRC Environmental, Inc. (TRC), in association with Potomac-Hudson Engineering, Inc. (PHE) invites initial consultation with the West Virginia State Historic Preservation Office (WVSHPO) on a proposed project in Mason County, West Virginia. Our client, American Electric Power (AEP) and the lead federal agency, the U.S. Department of Energy (DOE), propose to develop a carbon dioxide capture and storage (CCS) project at the AEP Mountaineer Power Plant. The project is referred to as the Mountaineer CCS II Project (Project).

AEP is seeking financial assistance from the DOE for the Mountaineer CCS II Project. As such, AEP will be supporting DOE in the preparation of an Environmental Impact Statement (EIS), as well as future consultation that will be conducted under Section 106 of the National Historic Preservation Act. The EIS and DOE's consultation will address all aspects of the Mountaineer CCS II Project. However, as characterization wells and corridor selection efforts are being undertaken by AEP for feasibility considerations, preliminary studies are expected to precede the EIS and formal Section 106 consultation. For that reason, early consultation to obtain your input on potential cultural resources in these areas and our approach to investigating these areas is sought before undertaking the efforts.

The proposed consultation is with regard to cultural resource studies supporting the National Environmental Policy Act (NEPA) EIS and any other applicable approvals. The consultation is proposed to ensure properly focused pre-project site characterizations and subsequent project compliance with all applicable federal and state historic preservation laws over the course of the project. Following is a brief description of the Project and plans for characterization work in support of project planning and EIS development.

Project Description

The Project would capture approximately 1.5 million tonnes of carbon dioxide (CO_2) annually from a 235 megawatt slipstream of flue gas from the existing 1300 megawatt Mountaineer Power Plant located near New Haven, West Virginia. The captured CO_2 would be transported by pipeline to injection sites located within approximately 12 miles of the plant. The captured CO_2 would be injected for permanent storage into geologic formations located approximately 1.5 miles underground. AEP will conduct geologic and hydrogeologic characterization activities to support preliminary project engineering and design. As part of these ac

tivities, preliminary characterization work is planned at potential injection well sites and within potential pipeline corridors between the Mountaineer plant and the well sites. Up to three deep characterization wells will be developed to characterize subsurface conditions and assess their suitability for the injection and storage of CO_2. Four properties owned by AEP have been identified for potential characterization wells. In order of preference to support characterization activities, they are: (1) the Jordan Tract; (2) the AEP Landfill property; (3) the Eastern Sporn Tract; and (4) the Western Sporn Tract. Conceptual pipeline corridors to each of these four locations have been preliminarily identified. The final locations and design of the proposed corridors, characterization wells and access roads for these sites will be refined upon completion of associated environmental studies.

Attachment A contains maps depicting the location of the Mountaineer Plant, characterization well properties, and preliminary conceptual corridors.

Cultural Resources Studies

Our initial focus is to conduct cultural resources studies (literature review and fieldwork) in order to determine if any potentially significant cultural resources would be impacted by the characterization activities and, ultimately, the overall Project. TRC/PHE proposes to conduct both a Phase I Archaeological Survey and a Historic Architectural Resources Survey to identify cultural resources that are listed or are eligible for listing in the National Register of Historic Places (National Register), and to determine the potential effects of the characterization well development or corridor location on those properties. This work will be conducted in accordance with all applicable federal and WVSHPO guidelines and is summarized below.

Literature Review and Site File Search

A literature review and site file search will be conducted at the WVSHPO and Archives in Charleston prior to initiation of field surveys. Local histories, cartographic data, and other relevant documentation on the prehistoric and historical resources in the area will be reviewed. For the purposes of this research, TRC/PHE will conduct a review of state archaeological site files, National Register-listed and -eligible properties, previously surveyed historic structures, and associated GIS-based maps of archaeological and historic architectural sites within a one-mile radius of the characterization well sites, access roads and potential pipeline corridors. Any other relevant sources

that may contain information on historical and archaeological sites in the project sites' vicinities will also be consulted.

Archaeological Survey

The Phase I Archaeological Survey will be conducted in accordance with the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* and the WVSHPO *Guidelines for Phase I, II, and III Archaeological Investigations and Technical Report Preparation* (n.d.). Field methods will consist of both pedestrian and shovel test survey to locate archaeological resources. Per *Guidelines*, shovel test pits (STPs) will be excavated at an interval of 15 meters within all proposed impact areas of the Project once those locations are known. Guidelines regarding single or multiple transects in the corridors will be followed based on potential corridor widths. A pedestrian survey will be conducted in lieu of shovel testing where steep slope, exposed bedrock, and/or ground disturbance precludes the utility of shovel testing. The archaeological survey will initially focus on sites selected for initial characterization wells, access roads to these sites, and potential pipeline corridors. Further field studies of the overall Project, including selected proposed corridors and injection well locations will be conducted as the Project design is developed. Technical Reports following the WVSHPO *Guidelines* will be produced and submitted for WVSHPO review to document the background research and results of fieldwork. The initial Technical Report will document the background research and results of fieldwork for the characterization well sites and associated access roads. A follow-on Technical Report submitted at a later date will document the field results of the corridor investigations and remaining project sites.

Architectural Survey

TRC will conduct a survey of architectural resources according to all applicable federal and WVSHPO standards within an Area of Potential Effect (APE) of 500 feet from the proposed characterization well sites and pipeline corridors. The proposed characterization well sites' surroundings are heavily wooded and the characterization activity is not expected to be visible beyond 500 feet. The potential pipeline corridors generally follow existing developed transmission and/or road rights-of-way, and the pipeline is expected to have minimal visibility. The survey will record resources 50 years and over, identify all resources listed in or eligible for listing in the National Register, and assess any potential effects to these resources from the project. The results of the identification process, along with recommendations of National Register eligibility for historic architectural resources within the APE will be submitted to the WVSHPO for review. Following WVSHPO concurrence with the National Register eligibility recommendations, TRC/PHE will assess any effects to these resources from the characterization well sites and present these findings in a separate report.

<u>Ongoing Consultation</u>

It is proposed that consultation with the WVSHPO will be ongoing as design, NEPA EIS scoping, and other activities in support of the Project are advanced. It is understood that further refinement of the APE for architectural resources and for the cultural resources field studies may be required to determine the effects to potentially significant historic properties in the Project area. In that regard, while we are not yet formally proposing an APE for any of the other project components, any

thoughts you may wish to share in advance on that topic would be welcomed. On behalf of AEP and the DOE, TRC/PHE will continue to provide your office with updated Project design plans for your review. The project team is available to participate in one or more face-to-face meetings or teleconferences with your office to facilitate your review of the Project if necessary.

Your response to this letter, acknowledging your interest in participating in this consultation, and in commenting on our determination of the APE, for the proposed characterization well investigations is greatly appreciated. We would appreciate a response as soon as practical within the 30 day review period, in order to help more quickly focus on potential impacts to cultural resources as the Project moves forward.

Should you require any additional information please do not hesitate to contact me at (301) 306-6981, or tsara@trcsolutions.com. For questions concerning Architectural History, please contact Mr. Geoffrey Henry at (202) 352-2109, ghenry@trcsolutions.com.

Sincerely yours,
Timothy R. Sara, RPA

Senior Archaeologist and
Program Manager

cc: M. Lusk, DOE/NETL
M. McMillian, DOE/NETL
B. Whipple, PHE
F. Blake, AEP
B. Sherrick, AEP
C. Cooper TRC
G. Henry, TRC

enclosures

WEST VIRGINIA
Division of Culture and History

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300
Randall Reid-Smith, Commissioner
Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EO/AA Employer

July 1, 2010

Mr. Timothy R. Sara
Senior Archaeologist
TRC
4425 Forbes Boulevard
Lanham, MD 20706

RE: Mountaineer CCS II Project
FR#: 10-1133-MS

Dear Mr. Sara:

We have reviewed the above referenced project to determine potential effects to cultural resources. As required by Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

According to submitted information, American Electric Power (AEP) and the U.S. Department of Energy (DOE) propose to develop a carbon dioxide capture and storage (CCS) project at the AEP Mountaineer Power Plant in Mason County. It is our understanding that four properties have been identified for potential location of characterization wells. In addition, the proposed project will also involve the construction of a pipeline and access roads associated with each characterization well.

Archaeological Resources:
The submitted document indicates that a literature review, site file search and Phase I archaeological survey will be conducted for the proposed project area. The Phase I survey will consist of pedestrian survey and shovel pit excavation at 15 meter intervals and will initially focus on sites selected for characterization wells, access road and potential pipeline corridors. Additional field work will be conducted for selected corridors and injection well locations as project design is developed. Technical reports presenting the results of the survey will be submitted for our review. All work will be conducted in accordance with the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* and this office's *Guidelines for Phase I, II, and III Archaeological Investigations and Technical Report Preparation* (2001). We concur with this proposal and will provide further comment upon receipt of the resulting technical report or as requested.

Architectural Resources:
Submitted information indicates that TRC will conduct a literature review, site file search of National Register and architectural survey files and complete an architectural survey of the project area. TRC has tentatively defined the area of potential effect (APE) as 500 feet from the proposed characterization well sites and pipeline corridors. According to submitted information, the proposed characterization well sites will be placed in areas that are heavily wooded and the pipeline corridors generally follow existing developed transmission and/or road rights-of-way. Submitted information states that it is expected that the project will have minimal visibility. The survey will record all resources 50 years and older, identify all resources listed in or eligible for listing in the National Register and assess any potential effect to these resources. We also request that when submitting the architectural survey report that you forward the dimensions of all above ground components of this project. Additionally, we would request that you use a viewshed analysis to assist you in finalizing an appropriate APE. With these two additions, we concur with this proposal and will provide further comment upon receipt of the resulting architectural survey report, or as requested.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Lora A Lamarre, Senior Archaeologist, or Shirley Stewart Burns, Structural Historian, at (304) 558-0240.*

Sincerely,

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/LAL/SSB

August 23, 2010

Ms. Susan Pierce
Deputy State Historic Preservation Officer
West Virginia Division of Culture and History
The Cultural Center
Capitol Complex
1900 Kanawha Boulevard East
Charleston, WV 25305-0300

RE: Request for Consultation, Mountaineer CCS II Project, Mason County, WV, FR # 10-1133-MS

Dear Ms. Pierce:

The American Electric Power (AEP) and U.S. Department of Energy (DOE), as lead Federal agency, propose to develop a carbon dioxide (CO_2) capture and storage (CCS) project at AEP's Mountaineer Power Plant located near New Haven, in Mason County, West Virginia. The proposed project is referred to as the Mountaineer CCS II Project (or "Project" hereafter in this transmittal).

Previous consultation has been initiated with your office by TRC Environmental Corp. (TRC) and Potomac Hudson Engineering (PHE) on behalf of AEP and DOE in a letter dated June 1, 2010, entitled "*Request for Consultation Regarding Proposed Project in Mason County, West Virginia.*" The previous request for consultation introduced the overall proposed Project and the initial characterization well studies, as well as requested early coordination/consultation with the West Virginia Division of Culture & History, State Historic Preservation Office (WVSHPO) regarding proposed cultural resource investigations in the vicinity of the characterization well sites and associated access roads. In a letter dated July 1, 2010, your office concurred with the proposed Phase I archaeological survey, the definition of the Area of Potential Effect (APE), and the methodology for the historic architectural investigation.

As previously introduced in the June 1, 2010 letter, AEP is seeking financial assistance from DOE for the proposed Project. As such, DOE is preparing an environmental impact statement (EIS) and is continuing consultation with the WVSHPO under Section 106 of the National Historic Preservation Act (NHPA) of 1966 regarding the proposed Project and the EIS process. The following provides a brief description of the proposed Project to be analyzed within the EIS and the methodology that will be followed to characterize the affected environment and assess potential impacts to cultural resources. The study area or APE for cultural resources includes the AEP Mountaineer Power Plant Site, associated corridors and rights-of-way for the CO_2 transport pipeline, as well as the properties where the CO_2 injection and monitoring wells could be located, as shown in Figures 1 through 6.

Proposed Agency Action

The Proposed Action under consideration by DOE would provide financial assistance to AEP under the Clean Coal Power Initiative (CCPI) Program to support construction and start-up of the Mountaineer CCS II Project. AEP proposes to construct a commercial scale CCS system at their existing Mountaineer Power Plant near New Haven, West Virginia, as depicted in Figure 1. This Project would capture CO_2 from the existing Mountaineer pulverized coal power plant, compress the captured CO_2 to supercritical conditions, and transport the captured CO_2 by pipeline to injection well(s) for permanent geologic storage in saline reservoir(s) approximately 1.5 miles below the surface.

As part of the proposed Project, AEP would construct a carbon capture facility using Alstom's chilled ammonia process (CAP) within the boundaries of the existing 1,300-megawatt (MW) Mountaineer Plant. The facility would occupy an area of approximately 500 feet by 1,000 feet, and would process a 235-MW slip-stream of flue gas after it exits the plant's flue gas desulfurization system. Approximately 1.5 million metric tons of CO_2 would be captured annually, treated, and compressed for geologic storage.

The processed CO_2 would be transported by pipeline (primarily underground) to the proposed injection site(s) on two to four of AEP's properties, located within an estimated 12 miles of the Mountaineer Plant (refer to Figure 1). The CO_2 would then be injected for permanent geologic storage into one or more geologic formations approximately 1.5 miles below ground. The Project would be designed to remove 90 percent of the CO_2 from the 235–MW slip stream and would demonstrate a commercial-scale deployment of the CAP for CO_2 capture, as well as demonstrate permanent geologic storage of CO_2 in deep underground saline formations.

Cultural Resources Studies

Cultural resource studies are currently being conducted for the characterization well sites in accordance with the previous consultation initiated by PHE/TRC. The results of these studies will be reported to your office in September 2010 and will be incorporated into the EIS document.

Cultural resources studies (literature review and fieldwork) will also be conducted in support of the Project to determine if any potentially significant cultural resources would be impacted by the overall Project. DOE proposes to conduct both a Phase I Archaeological Survey and a Historic Architectural Resources Survey to identify cultural resources listed or eligible for listing in the National Register of Historic Places (National Register), and to determine the potential effects of the Project on those resources. This work will be conducted in accordance with all applicable federal and WVSHPO guidelines and is summarized below. The results of these additional studies will be reported to your office in September 2010 along with the results of the characterization well studies.

Literature Review and Site File Search

DOE has previously conducted a literature review and site file search at the WVSHPO and Archives in Charleston as part of the cultural resources investigations of the characterization well

sites and pipeline corridors. Local histories, cartographic data, and other relevant documentation on the prehistoric and historical resources in the area have been reviewed. DOE conducted a review of state archaeological site files, National Register-listed and -eligible properties, previously surveyed historic structures, and associated GIS-based maps of archaeological and historic architectural sites within a one-mile radius of the potential characterization well sites, well site access roads, and potential pipeline corridors. Other relevant sources containing information on historical and archaeological sites in the vicinity of the Project were also consulted. DOE is expanding the literature review and site file search to include information on the entire APE associated with the Project, including the AEP Mountaineer Plant Site, as well as the proposed CO_2 injection sites.

Archaeological Survey

DOE conducted a Phase I Archaeological Survey of the potential characterization well sites and the pipeline corridors in accordance with the consultation initiated with your office in June 2010, and your letter of response dated July 1, 2010. DOE is currently preparing a Technical Report following the *WVSHPO Guidelines* that will document the background research, results of fieldwork for the characterization well sites, and results of additional fieldwork to be conducted within the Project area, as detailed below. This report will be submitted in September 2010.

The guidelines followed for the Phase I Archaeological Survey of the characterization well sites will also be followed for the Phase I Archaeological Survey for the remaining APE of the Project, including the Mountaineer Plant Site, the proposed injection well sites and the proposed pipeline corridors not already surveyed. The Phase I survey will be conducted in accordance with the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* and the *WVSHPO Guidelines for Phase I, II, and III Archaeological Investigations and Technical Report Preparation* (1995). Field methods will consist of both pedestrian and shovel test surveys to locate archaeological resources. Per the guidelines, shovel test pits (STPs) will be excavated at an interval of 15 meters within all proposed impact areas of the Project. Guidelines regarding single or multiple transects in the corridors will be followed based on potential corridor widths. A pedestrian survey will be conducted in lieu of shovel testing where steep slope, exposed bedrock, and/or ground disturbance precludes the utility of shovel testing.

Architectural Survey

DOE conducted an architectural survey of the potential characterization well sites and the pipeline corridors in accordance with the informal consultation initiated with your office in June 2010 and your letter of response dated July 1, 2010. DOE is currently preparing a Technical Report for Historic Architectural Resources that will document the background research, results of architectural fieldwork for the characterization well sites and results of additional fieldwork to be conducted within the Project area, as detailed below. This report will be submitted in September 2010.

DOE will conduct additional surveys of architectural resources according to all applicable federal and WVSHPO standards within an APE of 500 feet from the CO_2 injection well sites and all proposed CO_2 pipeline corridors. As stated in the June 1, 2010 letter to your office, the AEP-owned properties where the CO_2 injection wells would be located are either already developed (AEP Mountaineer Plant Site and AEP Borrow Site) or are heavily wooded and not expected to

be visible beyond 500 feet. The potential pipeline corridors generally follow existing developed transmission corridors and/or road rights-of-way and the pipeline is expected to be constructed primarily underground and have minimal visibility. In accordance with your letter dated July 1, 2010, the location and dimensions of all Project-related aboveground resources along the CO_2 pipeline corridors or at the CO_2 injection sites will be included in the Technical Report for Historic Architectural Resources, mentioned previously.

For the Project-related facilities that would be constructed on the existing AEP Mountaineer Plant Site, the APE is defined as the footprint of these proposed facilities, as well as those areas immediately adjacent to the proposed site. Current facilities at the Mountaineer Plant Site include large buildings, an approximately 400-foot-tall cooling tower, and two approximately 1,000-foot-tall stacks on the northwest end of the property. The view shed of any proposed aboveground Project-related facilities at the Mountaineer Plant was not used to define the APE, as the presence of existing facilities generates a greater visual impact than the proposed facilities, which would be considerably smaller. Based on preliminary field reconnaissance, no resources beyond the adjacent properties would fall within the view shed of the proposed site.

The architectural survey will record resources 50 years and over, identify all resources listed in or eligible for listing in the National Register, and assess any potential effects to these resources from the Project. The results of the identification process, along with recommendations of National Register eligibility for historic architectural resources within the APE will be submitted to the WVSHPO for review. Following WVSHPO concurrence with the National Register eligibility recommendations, DOE will assess any effects to these resources from any aboveground facilities constructed at the Mountaineer Plant Site, along the pipeline corridors, and at the proposed CO_2 injection well sites and present these findings in the Technical Report.

Ongoing Consultation

DOE proposes that consultation with the WVSHPO will be ongoing as design and other activities in support of the Project are advanced. DOE will provide your office a copy of the Draft EIS for review and comment. The Draft EIS is anticipated to be released in January 2011. Your response to this letter, acknowledging your interest in participating in the Section 106/NHPA consultation, and in commenting on our determination of the APE for the architectural investigations would be greatly appreciated.

We would appreciate a response as soon as practical within the 30-day review period in order to help us more quickly focus on potential impacts to cultural resources as the Project moves forward.

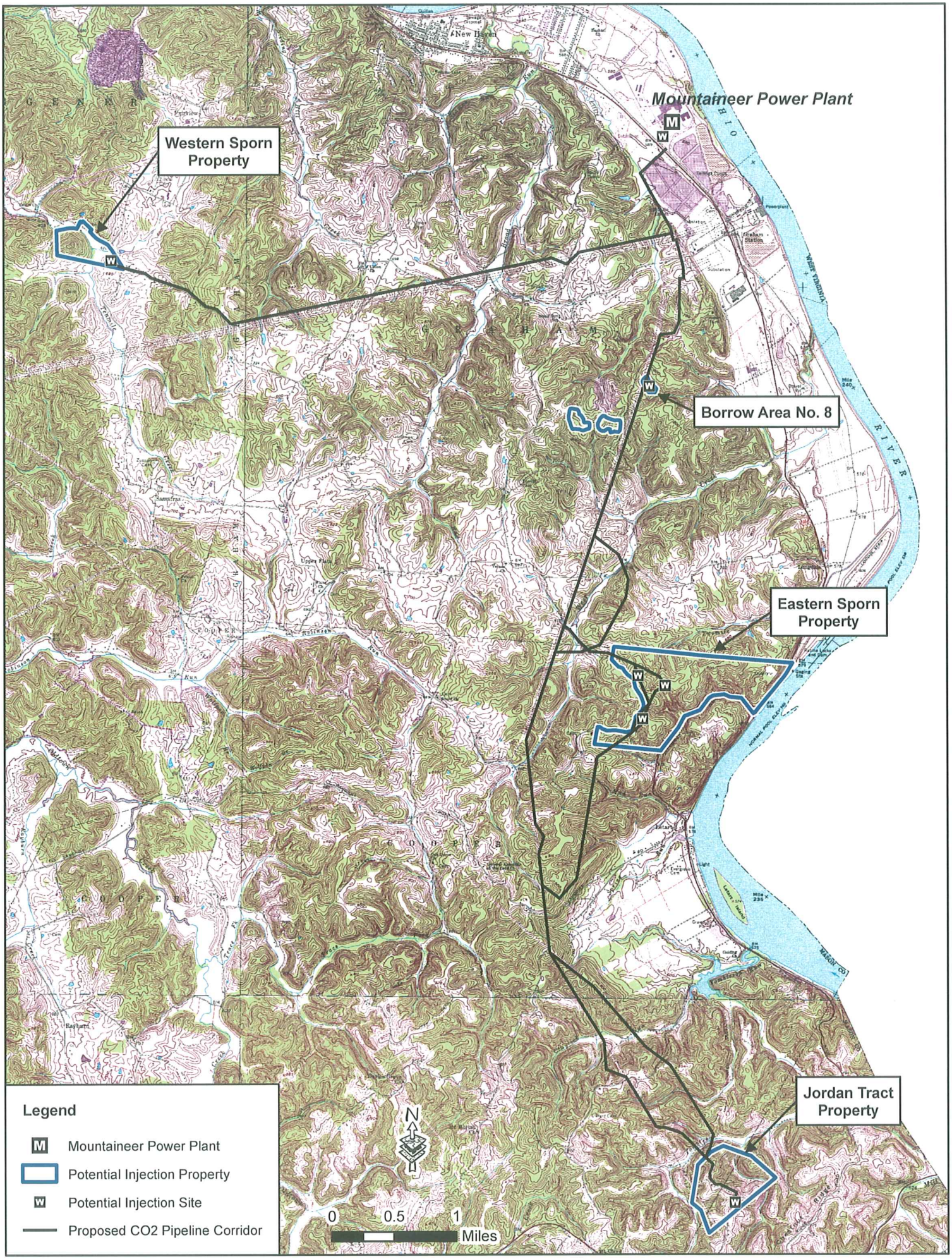
If you need additional information please do not hesitate to contact me at (304) 285-4145 or Mark.Lusk@NETL.DOE.gov.

Sincerely,

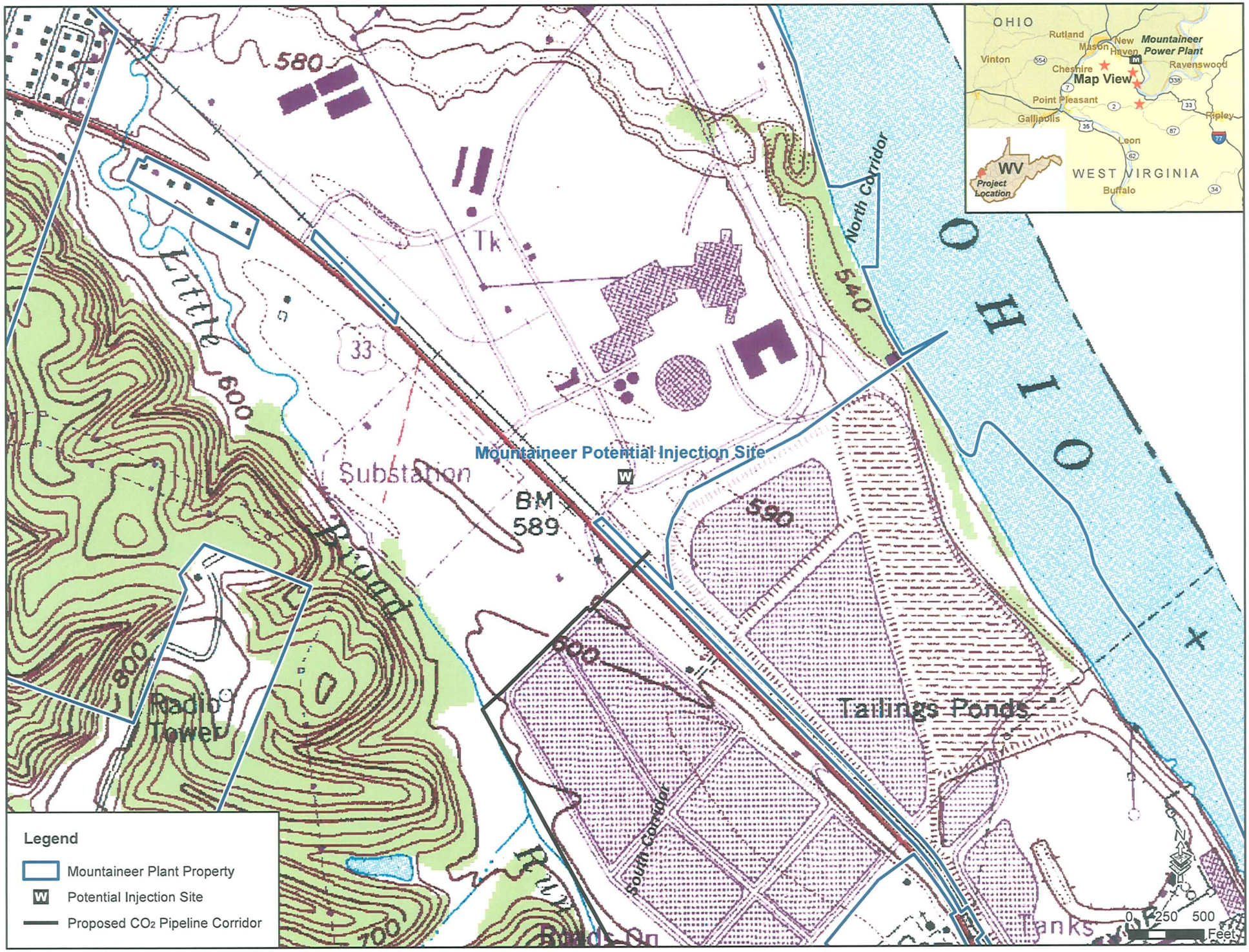
Mark W. Lusk
NEPA Document Manager
National Energy Technology Laboratory

cc: M. McMillian, DOE/NETL
F. Blake, AEP
B. Sherrick, AEP
B. Whipple, PHE
T. Sara, TRC

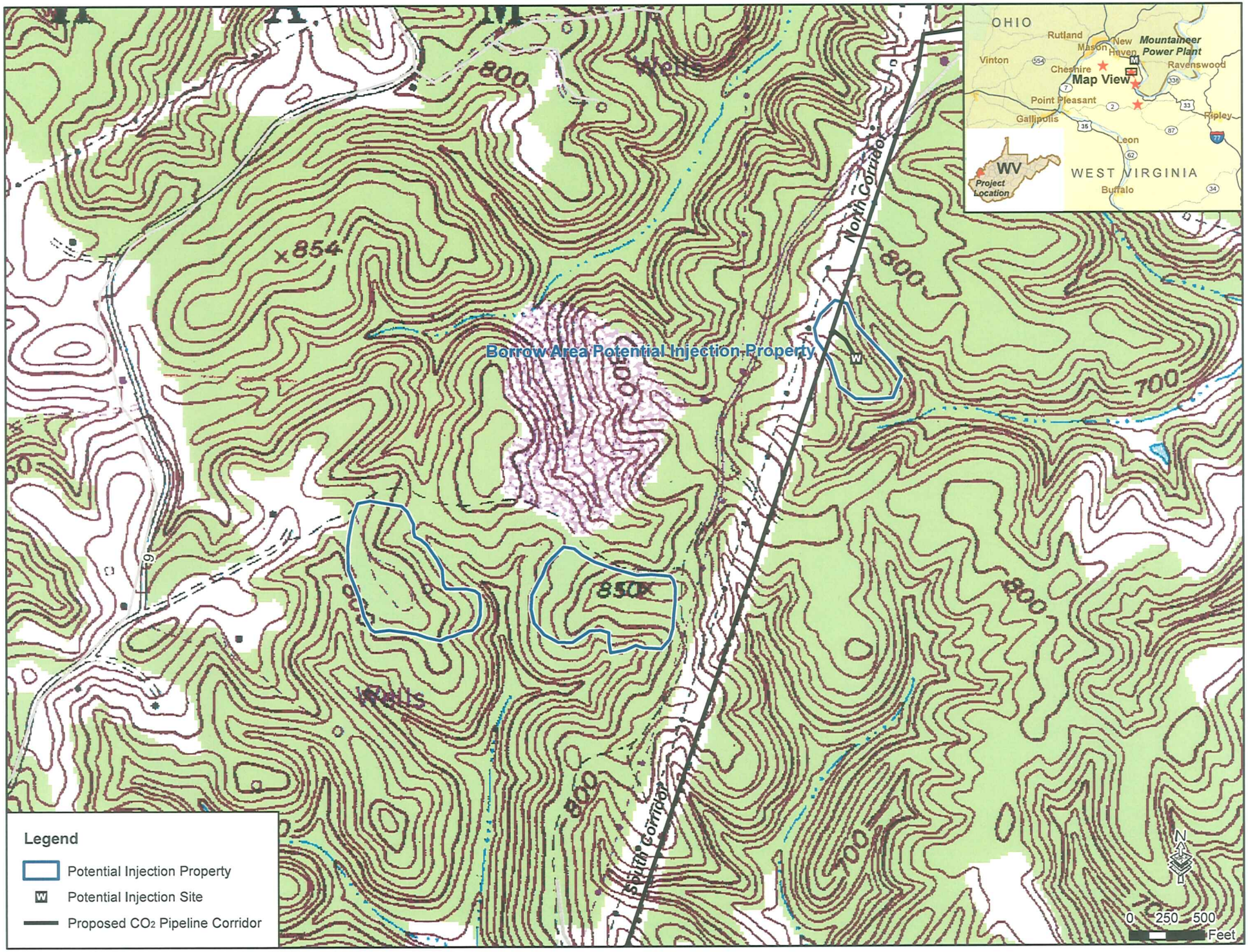
enclosures



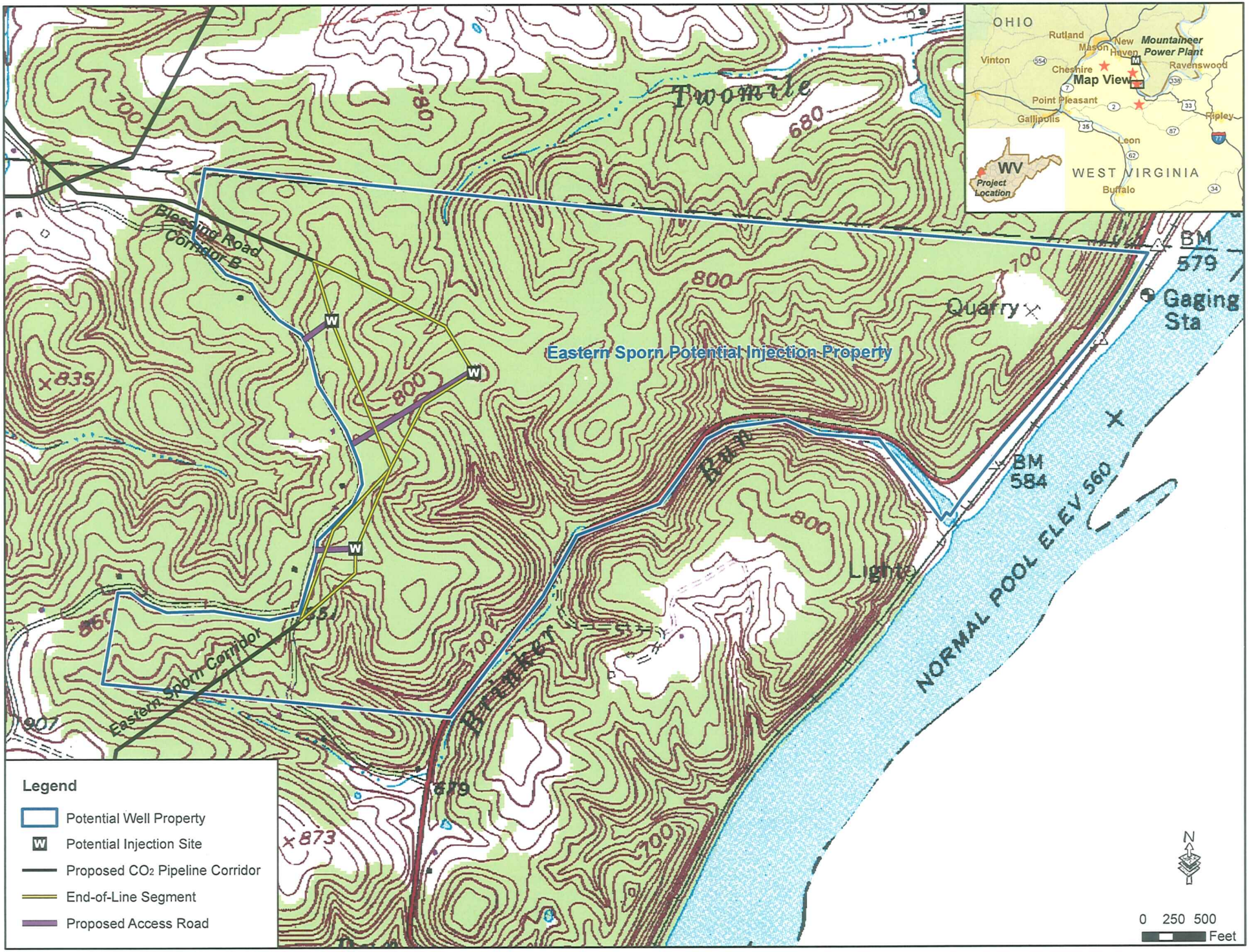
Project Area Overview Map



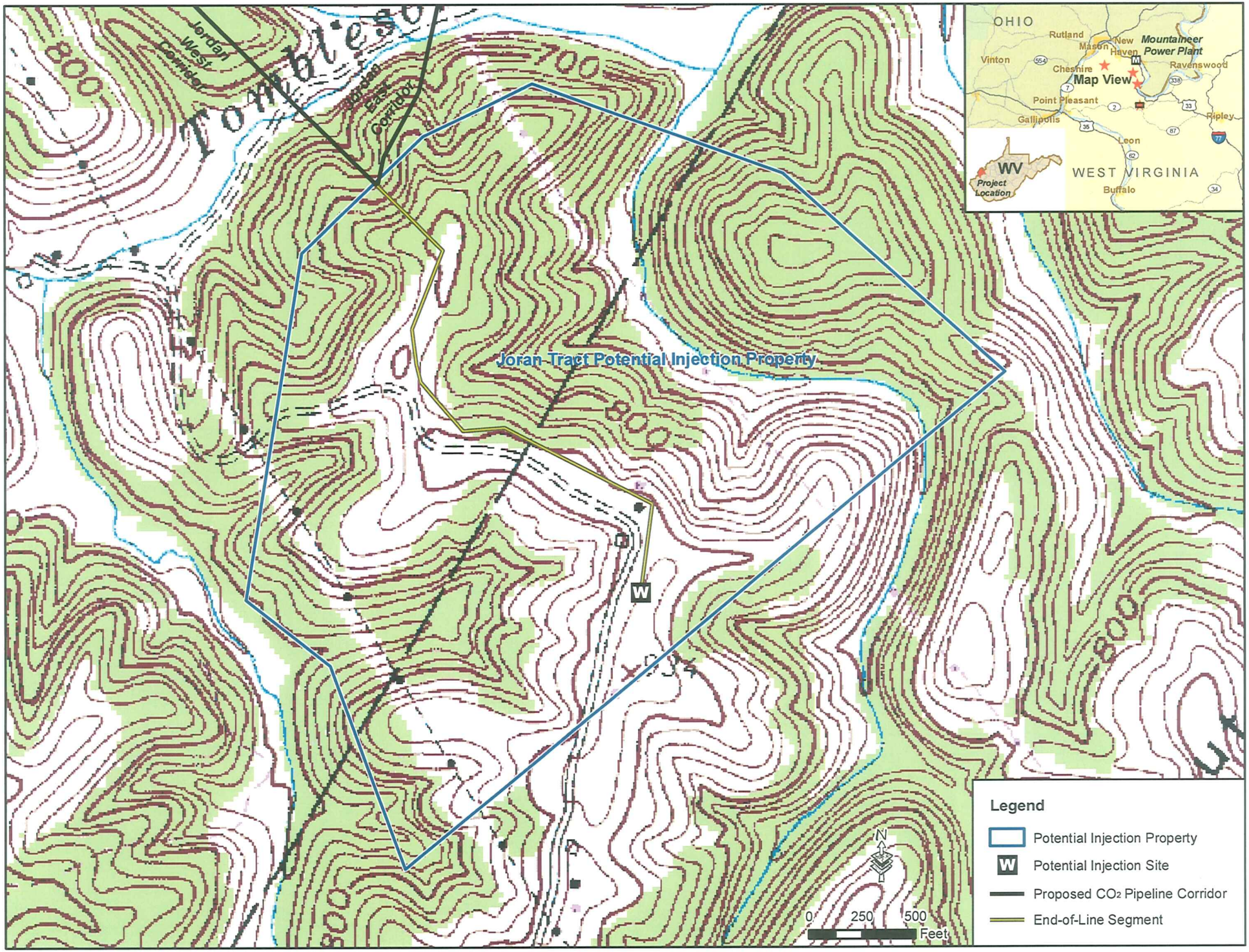
Mountaineer Potential Injection Site



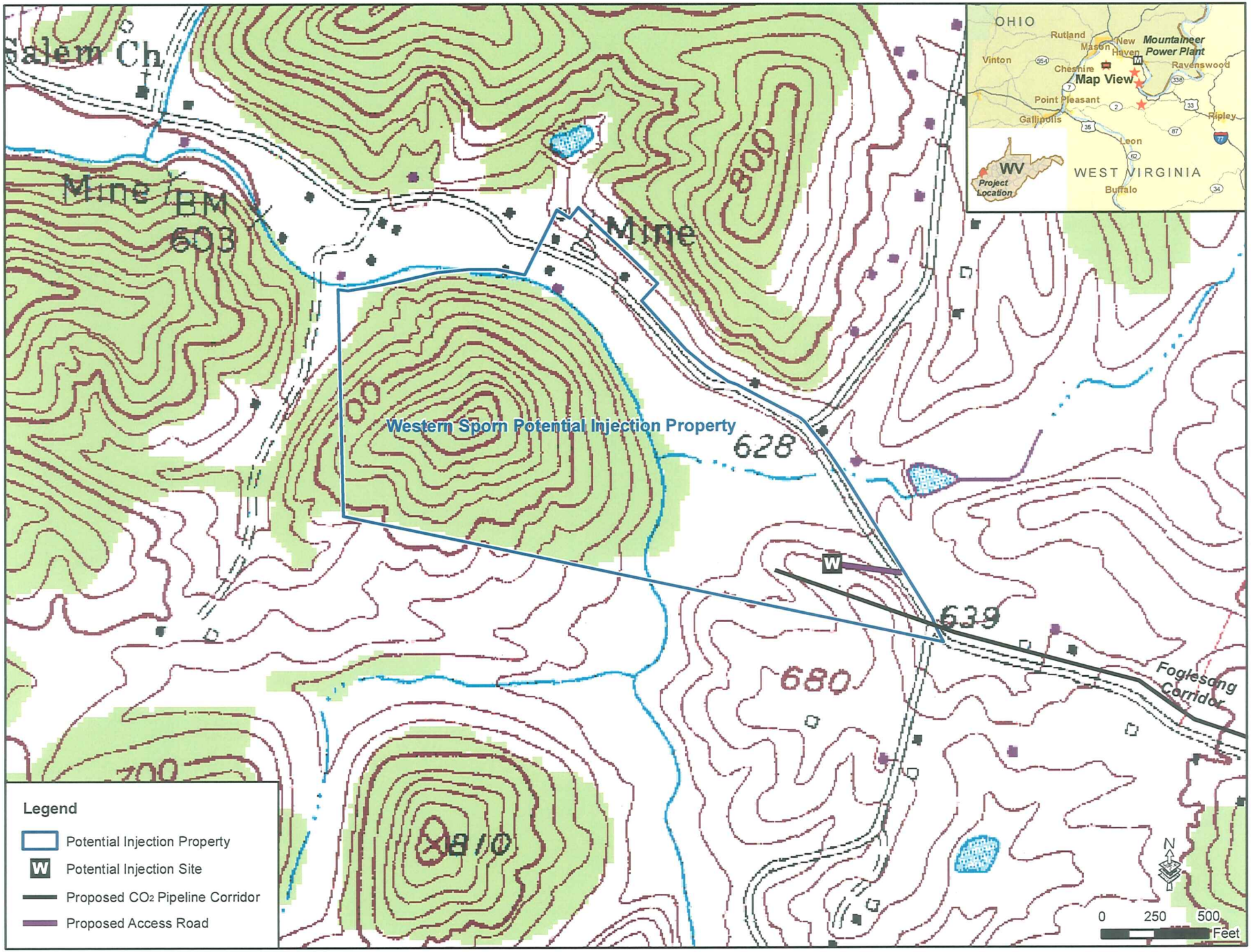
Borrow Area Potential Injection Property



Eastern Sporn Potential Injection Property



Joran Tract Potential Injection Property


Salem Ch
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Western Sporn Potential Injection Property
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Corridor
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OHIO
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Mason
New
Haven
Mountaineer
Power Plant
Vinton
Cheshire
Map View
Ravenswood
Point Pleasant
Gallipolis
Ripley
Leon
WV
Project
Location
WEST VIRGINIA
Buffalo
Legend
Potential Injection Property
Potential Injection Site
Proposed CO2 Pipeline Corridor
Proposed Access Road
N
0
250
500
Feet

4425 Forbes Boulevard
Lanham, Maryland 20706

Main 301-306-6981
Fax 301-306-6986

October 14, 2010

Ms. Susan Pierce
Deputy State Historic Preservation Officer
West Virginia Division of Culture and History
The Cultural Center
Capitol Complex
1900 Kanawha Boulevard East
Charleston, WV 25305-0300

RE: Mountaineer CCS II Project, Mason County, West Virginia – Request for SHPO Concurrence of No Significant Impacts Related to Geologic Characterization Activities at the Jordan Property (FR # 10-1133-MS)

Dear Ms. Pierce:

The following letter respectfully requests your concurrence of no significant impact to cultural resources due to planned activities on a five-acre plot located at the AEP Jordan property. As described further below, the Phase I/II survey of the Jordan Property did not identify any NRHP-eligible archaeological or architectural resources.

On June 1, 2010, informal consultation was initiated with your office regarding the proposed Mountaineer Carbon Dioxide Capture and Sequestration II Project in Mason County, West Virginia. That letter requested early coordination/informal consultation specific to proposed fieldwork related to initial geologic characterization studies. By letter of July 1, 2010, your office concurred with the proposed Phase I archaeological survey and with the definition of the Area of Potential Effect (APE) and methodology for the historic architectural investigation.

The cultural resource surveys were completed in July and August, 2010. A complete Technical Report of the surveys for the entire project area is currently being prepared in accordance with all West Virginia State Historic Preservation Office guidelines. The full report is expected to be submitted to your office within the next two weeks. Prior to submittal of the full Technical Report and as a follow up to my call with Shirley Stewart-Burns of your staff on October 12, your advanced concurrence of no significant cultural resource impacts is respectfully requested for a five-acre area at the Jordan Property, which is proposed for performing preliminary geologic characterization studies. (see Attachment A)

Similar advanced concurrence of no significant cultural resource impacts was previously received from your office on September 20, 2010 for a five-acre plot at the AEP Borrow Area. The advanced concurrence at the Borrow Area, and as now requested for the Jordan Property will permit geologic characterization studies to commence in a timely manner. Concurrence on the balance of the project area will be requested with submittal of the full Technical Report.

The following provides a description of the Jordan Property, along with a report on the cultural resources background and prior field investigations.

Jordan Property - Project Area Description

The Jordan Property is a 170-acre parcel of land located approximately 10.5 miles south of the AEP Mountaineer Plant. The land is mostly undeveloped and partially forested. The characterization well project area is approximately 5 acres, which can be described as developed/disturbed open space. Shirley Road/County Road 62/19 crosses the property and will be used to access the project area. The proposed pipeline corridor and access road at the Jordan Property are also located in developed/disturbed open space.

Literature Review and Site File Search

TRC conducted a literature review and site file search in June 2010 at the WVSHPO and Archives in Charleston as part of the cultural resources investigations of the overall Project. Local histories, cartographic data, and documentation on the prehistoric and historical resources in the area have been reviewed. Based on this review, no NRHP-listed or eligible historic resources were identified within a one-mile radius of the Jordan Property. Likewise, no previously identified resources were found within the 500-foot APE defined for assessment of indirect effects to architectural resources. In addition, no previously identified archaeological sites were found at the Jordan Property.

Field Methods and Results - Archaeology

The landform of the Jordan Property slopes sharply away from the 5-acre characterization well site to the west and east. An immature growth conifer forest dominates the ridge back, and it appears that much of the survey area has been clear-cut and replanted. As a result, many of the shovel test pits (STP) excavated in the area displayed little topsoil overlaying compact clay.

In total, 70 STPs were excavated at 15-meter intervals along five survey transects. A ca. 1940 house (described more fully in the architectural section below), abandoned at an unknown date, along with associated outbuildings were encountered near Shirley Road in the central portion of the archaeological survey area. Several pieces of modern trash (glass, plastic, etc.) were noted in the shovel tests in this area. No additional cultural material was recovered in the survey area. As such, the potential for identifying undisturbed archaeological resources within this area is non-existent. Therefore, TRC concludes that construction activity associated with installation of the geologic characterization well at the 5-acre Jordan Property site will have no impact on archaeological resources.

Field Methods and Results – Historic Architecture

In consultation with the WVSHPO, TRC/PHE developed a Project APE, defined as the "geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist." For assessment of direct effects, the APE is defined as the area of construction of any above-ground structure or building. For indirect effects, such as noise or visual effects, the Project APE was defined as any area within 500 feet from the proposed characterization well sites. The surroundings of the proposed Jordan Property characterization well site are wooded and the characterization well itself will not be visible beyond 500 feet.

On July 27, 2010, TRC conducted a visual analysis and historic architectural survey within the 500-foot APE of the Jordan Property characterization well site. The survey recorded all architectural resources 50 years or older. As a result of this survey, TRC identified two properties with buildings 50 years or older, the Durst House property (MS-0163) and a house and barn on the Jordan Property located on Shirley Road (MS-0164). TRC completed WVSHPO Historic Property Inventory (HPI)

forms for the surveyed resources. The HPI forms, along with labeled black-and-white photographs, and marked USGS Quad maps, are contained in Attachment B of this report.

MS 0163 – Durst House 1086 Shirley Road (CR 62/19)

The historic buildings on this property stand on the east side of Shirley Road (CR 62/19) in a rural, undeveloped setting, consisting of a mixture of farmland, pastures, and woodland. Existing AEP power lines and a transmission tower stand on the property, just south of the main house. The main house on the property is 1-story, 4-bay, frame house with a side-gable roof covered with standing seam metal. There is a 1-story, hip-roofed porch with turned posts on the front elevation and a 1-story porch on the rear elevation. The house has two entrances on the front, each with a single-leaf, 4-paneled wood door. The windows have 6/6 double hung sash. The house is covered with bricktex siding and is in overall poor condition. Also on the property are a ca. 1900 frame hay barn with side gable roof and vertical board siding in poor condition and a ca. 1900 tractor shed with side-gable roof with vertical board siding in fair condition. There is a non-historic mobile home to the rear of the main house.

Based on its architectural characteristics, the house appears to date from the 1870's. No site-specific historical research was conducted on the property, but a building at this location is shown on the 1908 and 1928 USGS 15 minute series maps (Ravenswood Quad).

MS-0164 – Unidentified House, Shirley Road

These buildings are located on the Jordan Property, on either side of Shirley Road (CR 62/19), approximately 2,500 feet north of the property at 1086 Shirley Road. The buildings stand in a rural, undeveloped setting, consisting of a mixture of farmland, pastures, and woodland. The house's immediate surroundings are overgrown. The main house on this property appears to date from the 1940s and is a 1-story, 3-bay, frame house clad with German siding and with a side-gable roof covered with composition shingle and exposed wooden rafter ends. There is a 1-story, shed-roofed porch with posts on the rear elevation. The house has a central entrance with a single leaf wood door. The windows and doors have been mostly removed, although there is a picture window on the front elevation. The house is abandoned and in deteriorated condition. Located to the south of the main house is a derelict gambrel-roofed frame hay barn with an attached 4-bay open tractor shed.

National Register Criteria of Evaluation

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, mandates that Federal agencies consider the effects of Federally funded and permitted undertakings on historic resources listed in or eligible for listing in the NRHP. TRC evaluated the surveyed resources at the Jordan Site for eligibility for listing in the NRHP according to the NRHP Criteria contained in *National Register Bulletin 15-How to Apply the National Register Criteria for Evaluation* (National Park Service, 1997, revised for internet 2002).

In addition to satisfying one or more of the NRHP Criteria, an historic resource must also retain its integrity, defined as the ability of the historic resource to convey its significance. The NRHP recognizes seven aspects of integrity which in combination are essential to conveying its significance. These aspects include integrity of location, design, setting, materials, workmanship, association and feeling.

MS-0163, Durst House

The Durst House is not known to be associated with an historic event or series of events significant on the national, state, or local level and is not NRHP-eligible under Criterion A. The Durst House is not known to be associated with an individual significant on the national, state, or local level and is not NRHP-eligible under Criterion B. The Durst House and outbuildings do not represent the work of a recognized architect or master builder and do not embody the characteristics of a style, method, or period of construction. The Durst House is not NRHP-eligible under Criterion C. The application of bricktex siding to the main house's exterior impacts its integrity of materials.

MS-0164, Unidentified House, Shirley Road

The buildings on this property are not known to be associated with an historic event or series of events significant on the national, state, or local level and are not NRHP-eligible under Criterion A. They are not known to be associated with an individual significant on the national, state, or local level and is not NRHP-eligible under Criterion B. The main house and outbuilding do not represent the work of a recognized architect or master builder and do not embody the characteristics of a style, method, or period of construction. The buildings on this property are not NRHP-eligible under Criterion C. The absence of windows and doors on the main house impacts its integrity of materials and workmanship. The house and outbuildings are abandoned and lack integrity of association.

Assessment of Effects to the Surveyed Architectural Resources at the Jordan Site

Although TRC recommends that both surveyed resources (MS-0163 and MS-0164) are not NRHP-eligible per Criteria A, B, and C, TRC evaluated potential effects from the characterization well activity at the Jordan Property in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, which requires an analysis of the proposed Project to assess its effects to NRHP-listed and -eligible historic resources. Guidelines for this evaluation are set forth in the Advisory Council on Historic Preservation (ACHP)'s regulations at 36 CFR, Part 800. TRC applied the Criteria of Effects to assess direct and indirect (noise and visual) effects from the characterization well activities to the two surveyed architectural resources located in the project APE. There will be no direct effects to the two surveyed resources. The assessment of indirect effects was based on a visual analysis and verification in the field. Because the only aboveground feature that will be installed at the site would be a well casing (approximately 3 feet in height), TRC concluded that the characterization well activities will have no effect on the Durst House (MS-0164) and the unidentified house on Shirley Road (MS-0164).

We look forward to your concurrence with the NRHP recommendations for cultural resources on the Jordan Property and the conclusion that there will be no historic resources affected by the characterization well activities in order for AEP to move forward with installation of the characterization wells on the property.

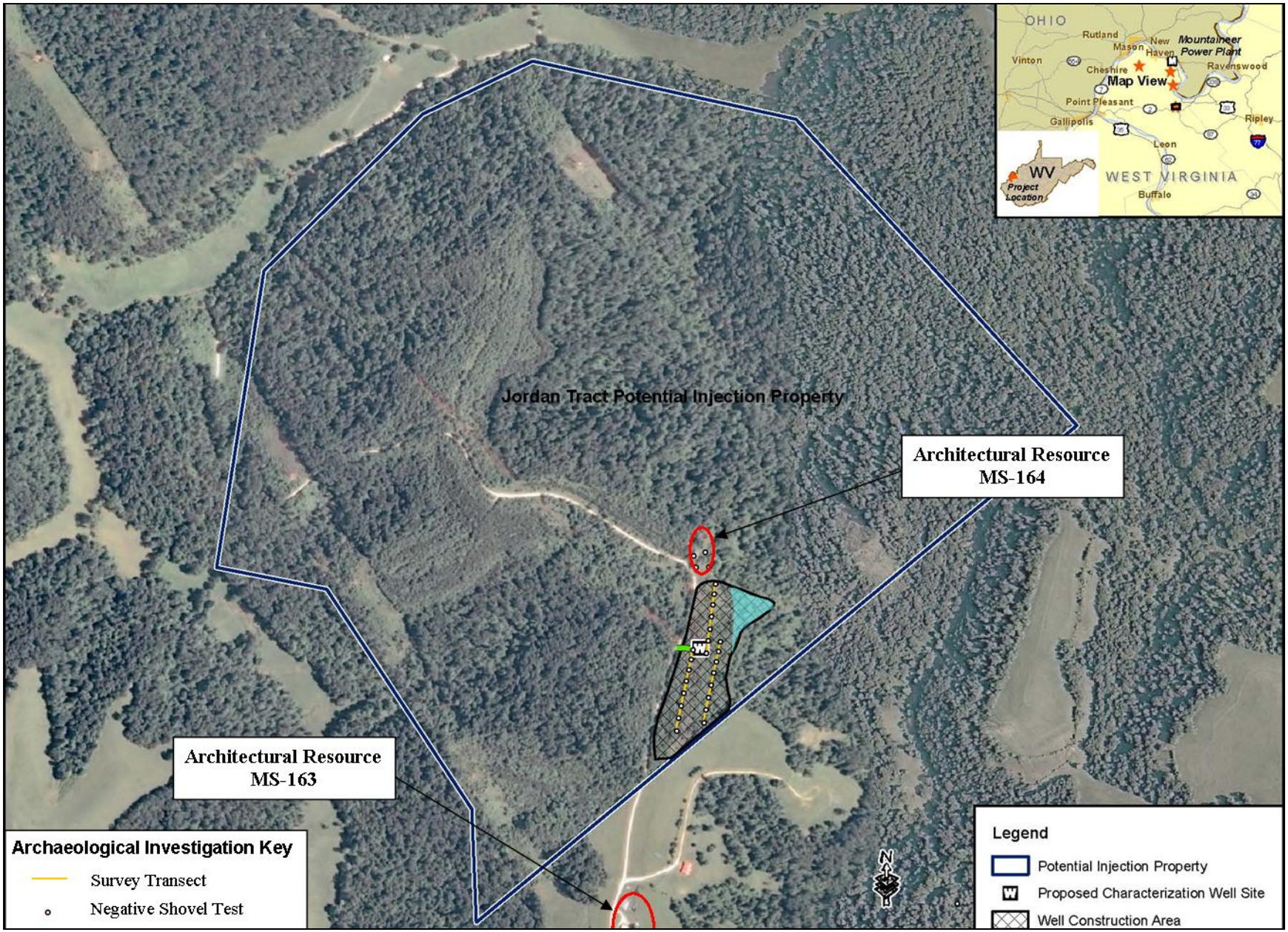
Should you have any questions or require any additional information please do not hesitate to contact me at (202) 352-2109, ghenry@trcsolutions.com. For questions concerning Archeology, please contact Mr. Tim Sara at (301) 306-6981, or tsara@trcsolutions.com.

Sincerely yours,
Geoffrey B. Henry

Program Manager—Architectural History

cc: M. Lusk, DOE/NETL
M. McMillian, DOE/NETL
B. Whipple, PHE
F. Blake, AEP
B. Sherrick, AEP
C. Cooper TRC
T. Sara, TRC

Attachment A Map of Jordan Property
Attachment B West Virginia HPI forms for MS-0163 and MS-0164



Attachment A: Map of Jordan Property

Attachment B

West Virginia HPI Forms

Internal Rating: _____

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 1086 Shirley Road (CR 62/19)	**Common/Historic Name/Both** X O O Durst House	**Field Survey #**	**Site # *(SHPO Only)*** MS 0163
Town or Community Letart vicinity	**County** Mason	**Negative No. (Digital photo)** Heavy foliage and sunlight prevented clear photos of the house.	**NR Listed Date**
Architect/Builder	**Date of Construction** ca. 1870	**Style** Vernacular	
Exterior Siding/Materials Bricktex siding	**Roofing Material** Standing seam metal	**Foundation** Brick piers	
Property Use or Function Residence X Commercial O Farm X	**UTM# 17 0419565E 4300470N (NAD27)**	**Photograph** (2" x 3" Contact)	
Survey Organization & Date TRC Environmental Corp. July 27, 2010	**Quadrangle Name** Mount Alto (Rev. 1975)		
	Part of What Survey/FR# Mountaineer CCS II Project FR # 10-1133-MS		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.

Present Owners	Owners Mailing Address
Carl Durst Phone #	

Describe Setting

Buildings stand on the east side of Shirley Road in a rural, undeveloped setting, consisting of a mixture of farmland, pastures, and woodland. Existing AEP power lines and tower stand on property, south of the main house.

_____112.4__ Acres

N/A _Archaeological Artifacts Present

Description of Building or Site (Original and Present) **__1_____Stories _____4___Front Bays**

The main house on the property is 1-story, 4-bay, frame house with a side-gable roof covered with standing seam metal. There is a 1-story, hip-roofed porch with turned posts on the front elevation and a 1-story porch on the rear elevation. The house has two entrances on the front, each with a single-leaf, 4-paneled wood door. The windows have 6/6 double hung sash. The house is in poor condition.

(Use Continuation Sheets)

Alterations [X] Yes [ ] No **If yes, describe: The house has non-historic bricktex siding.**

Additions [ ] Yes [X] No **If yes, describe:**

Describe All Outbuildings: There is a ca. 1900 frame hay barn with side gable roof and vertical board siding in poor condition. There is a ca. 1900 tractor shed with side-gable roof with vertical board siding in fair condition. There is a non-historic mobile home to the rear of the main house.

(Use Continuation Sheets)

Statement of Significance (Ravenswood Quad). **A building at this location is shown on the 1908 and 1928 USGS 15 minute series maps**

(Use Continuation Sheets)

Bibliographical References

Mason County Tax Assessor

USGS Map, Ravenswood Quad (1908 and 1928) ***(Use Continuation Sheets)***

Form Prepared By: Geoffrey Henry, Program Manager—Architectural History **Date: July 10, 2010**

Name/Organization: TRC Environmental Corp.

Address: 4425 Forbes Blvd., Suite B, Lanham MD 20706
Phone #: 301-306-6981, ext. 14

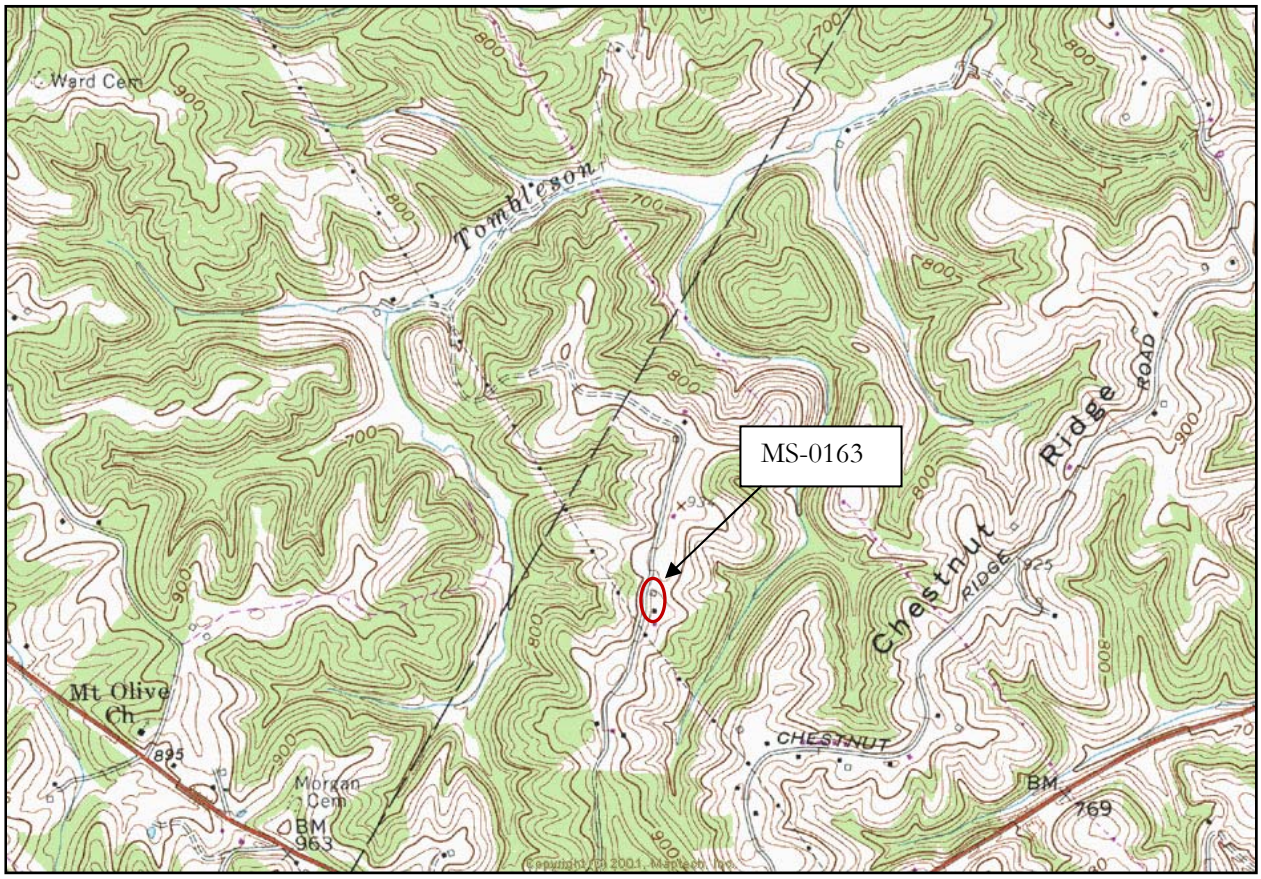
West Virginia Division of Culture and History
State Historic Preservation Office

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME Durst House **SITE#** MS-0163

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME Durst House **SITE#** MS-0163



MS-0163
Durst House at 1086 Shirley Road (CR 62/19)
UTM 17 0419565E 4300470N (NAD27)
USGS Mt. Alto Quadrangle (Rev. 1975)

Internal Rating: _____

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address Shirley Road (CR 62/19), 2500 ft. north of 1086 Shirley Rd.	**Common/Historic Name/Both** X O O	**Field Survey #**	**Site # *(SHPO Only)*** MS 0164
Town or Community Letart vicinity	**County** Mason	**Negative No.** Digital photograph	**NR Listed Date**
Architect/Builder	**Date of Construction** ca. 1940	**Style** Vernacular	
Exterior Siding/Materials German siding	**Roofing Material** Composition shingle	**Foundation** Poured concrete slab	
Property Use or Function Residence X Commercial O Other O	**UTM# 17 0419666E 4300598N (NAD27)**	**Photograph** (2" x 3" Contact)	
Survey Organization & Date TRC Environmental Corp. July 27, 2010	**Quadrangle Name** Mount Alto		
	Part of What Survey/FR# Mountaineer CCS II Project FR # 10-1133-MS		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.

Present Owners	Owners Mailing Address
Appalachian Power Company **Phone #**	

Describe Setting

Building stands in a rural, undeveloped setting, consisting of a mixture of farmland, pastures, and woodland. The house's immediate surroundings are overgrown.

_____24_____ Acres

N/A _Archaeological Artifacts Present

Description of Building or Site (Original and Present) **__1____Stories ___3_____Front Bays**

The main house on the property is 1-story, 3-bay, frame house clad with German siding and with a side-gable roof covered with composition shingle and exposed rafter ends. There is a 1-story, shed-roofed porch with posts on the rear elevation. The house has a central entrance with a single leaf wood door. The windows have been mostly removed, although there is a picture window on the front elevation. The house is abandoned and in deteriorated condition.

(Use Continuation Sheets)

Alterations [X] Yes [ ] No **If yes, describe: The house no longer has windows and doors.**

Additions [ ] Yes [X] No **If yes, describe:**

Describe All Outbuildings

Located to the south of the main house is a derelict gambrel-roofed frame hay barn with an attached 4-bay open tractor shed.

(Use Continuation Sheets)

Statement of Significance (Ravenswood Quad). **No building is shown at this location on the 1908 or 1928 USGS 15 minute series map**

(Use Continuation Sheets)

Bibliographical References

Mason County Tax Assessor, Mason County Register of Deeds

USGS Map, Ravenswood Quad (1908 and 1928) ***(Use Continuation Sheets)***

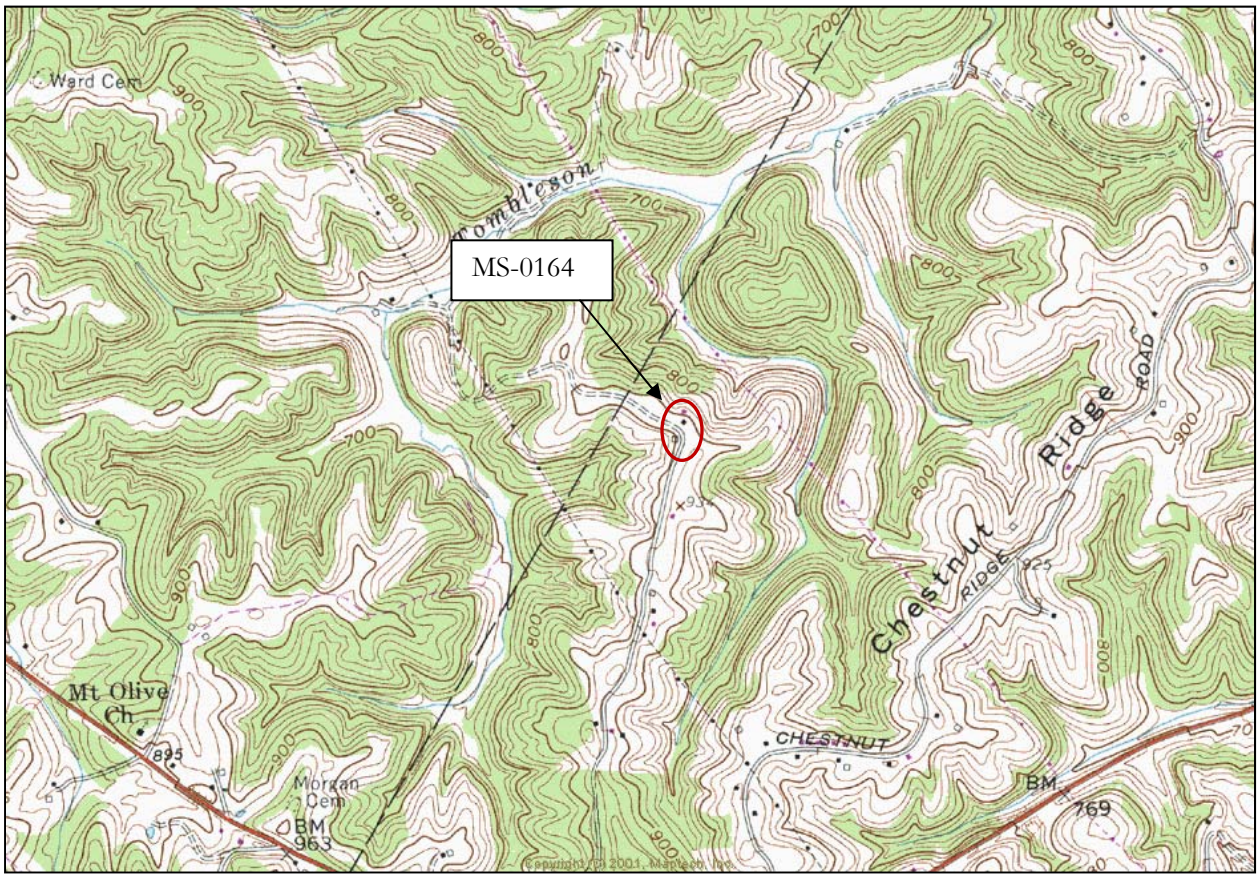
Form Prepared By: Geoffrey Henry, Program Manager—Architectural History **Date: July 10, 2010**

Name/Organization: TRC Environmental Corp.

Address: 4425 Forbes Blvd., Suite B, Lanham MD 20706
Phone #: 301-306-6981, ext. 14

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_____ **SITE#** MS-0164



MS-0164
House at Shirley Road (CR 62/19), 2500 ft. north of 1086 Shirley Rd.
UTM 17 0419666E 4300598N (NAD27)
USGS Mt. Alto Quadrangle (Rev. 1975)

WEST VIRGINIA
Division of Culture and History

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300
Randall Reid-Smith, Commissioner
Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EEO/AA Employer

November 8, 2010

Mr. Geoffrey B. Henry
TRC
4425 Forbes Boulevard
Lanham, MD 20706

RE: Mountaineer CCS II Project
Jordan Property Characterization Activities
FR#: 10-1133-MS-3

Dear Mr. Henry:

We have reviewed the information submitted for the above referenced project to determine potential effects to cultural resources. As required by Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

According to the submitted information, American Electric Power (AEP) is seeking approval to install a characterization well and associated access road at the AEP Jordan Property. This request is being made in advance of our review of the full technical report documenting the results of cultural resource surveys for the proposed Mountaineer CCS II Project. It is our understanding that the area proposed for construction of the characterization well, pipeline corridor and access consists of five developed acres within the largely undeveloped 170-acre Jordan Property.

Archaeological Resources:
According to the submitted information, the proposed five acre project area was subjected to Phase I survey. It is our understanding that deflated or eroded soils were encountered. Modern debris was noted within the project area near an extant ca. 1940 house; however, no cultural materials were recovered. As a result, we concur that there is no likelihood of encountering intact significant archaeological resources within this five acre project area. No further archaeological work is warranted for this portion of the proposed project area. We ask that the survey results for this portion of the project be included in the final report.

Architectural Resources:
Submitted project information indicates that you have identified two potential historic resources within the area of potential effect (APE) for this aspect of the project. These include an unidentified building located along Shirley Road as well as the Durst House, which also is located on Shirley Road. It is your opinion that neither is eligible for inclusion in the National Register of Historic Places under Criteria A, B, or C. We are unable to concur with this assessment based on the submitted information. The photographs for both potential resources are unclear and the buildings are not adequately discernible in these photographs. In addition, there is no indication that any research occurred to verify that these buildings are not eligible under Criteria A or B. If the buildings retain integrity, which cannot be discerned by the present submission, then additional research would be necessary in order to assert that neither has eligibility under Criteria A or B. In the future, such research would include an exploration of county histories along with the already completed deed exploration. Future assertions of ineligibility under Criteria A and/or B must include such research in order to be a declarative statement rather than a speculative assertion.

Submitted information also included an assessment of effect of the project on the two potential historic resources. Submitted information states that there will be no direct impact to the buildings and that there is the potential of a visual impact. This potential visual impact consists of one well casing, approximately three feet tall. It is your opinion that the potential three foot characterization well casing will have no adverse effect to the buildings. We concur with this assessment. No further consultation regarding architectural resources is necessary with regards to this aspect of the project; however, should your project change or become altered in anyway that would additionally impact these two buildings, please contact our office at that time for further consultation.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Lora A Lamarre, Senior Archaeologist, or Shirley Stewart Burns, Structural Historian, at (304) 558-0240.*

Sincerely,

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/LAL/SSB

ATTACHMENT B

TABLE OF SURVEYED ARCHITECTURAL RESOURCES

Table B-1. Surveyed Architectural Resources

WV ID #	NAME	Resource Type	Address	In APE of	Integrity	NRHP Evaluation
MS 0163	Durst House	House and Farm Buildings	1086 Shirley Road (CR 62/19)	Jordan Tract	Lacks integrity of materials.	Not Eligible
MS 0164	Vacant House and Barn	House and Barn	Shirley Road (CR 62/19), 2500 ft. north of 1086 Shirley Rd.	Jordan Tract	Lacks integrity of materials, workmanship and association.	Not Eligible
MS 0165	Nutter House	House and Barn	4439 Tombleson Run Road (CR 22)	Jordan East Corridor	Lacks integrity of materials and workmanship.	Not Eligible
MS 0166	Shed	Shed	NW corner of State Route 62 and Blessing Road	Eastern Sporn Tract	Lacks integrity of materials and design.	Not Eligible
MS 0167	Grimm House	House	343 Blessing Road (CR 62/15)	Eastern Sporn Tract	Lacks integrity of materials and workmanship.	Not Eligible
MS 0168	B&O Railroad at Letart Falls	Railroad	East side of State Route 62 at Racine Locks and Dam	Eastern Sporn Tract	Retains integrity.	Eligible
MS 0169	Vacant Brick House	House	South side Lieving Road (CR 7)	Western Sporn Tract	Lacks integrity of materials and association.	Not Eligible
MS 0170	Lieving Farm	House and Farm Buildings	2552 Lieving Road (CR 7)	Western Sporn Tract	Retains integrity.	Eligible
MS 0171	Lieving Log House	House	South side Lieving Road (CR 1), opposite Lieving Farm	Western Sporn Tract	Lacks integrity of materials, workmanship, and design.	Not Eligible
MS 0172	House and Mine Shaft	House and Mine Shaft	North side Lieving Road (CR 7), 500 feet east of 2552 Lieving Road	Western Sporn Tract	Lacks integrity of materials, design, workmanship, and association.	Not Eligible
MS 0173	Foundation	Foundation	South side Lieving Road (CR 7), east of MS 0169	Western Sporn Tract	Lacks integrity of materials, design, workmanship and association.	Not Eligible
MS 0174	Vacant House	House	Northeast corner of Gibbstown Road (CR 1) and Lieving Road (CR 7)	Western Sporn Tract	Lacks integrity of materials.	Not Eligible
MS 0175	Farm	House and Farm Buildings	Southeast corner of Lieving Road (CR 7) and Sassafras Road (CR 7)	Western Sporn Tract	Lacks integrity of materials.	Not Eligible
MS 0176	Brinkley Cemetery	Cemetery	West side State Route 62 on Eastern Sporn Tract	Eastern Sporn Tract	Retains integrity	Not Eligible
MS 0177	Graham Station Church Cemetery*	Cemetery	West side of State Route 62	Mountaineer Plant	Retains integrity. Many stones post-1960.	Not eligible
MS 0178	B&O Railroad*	Railroad	West side of State Route 62	Mountaineer Plant	Retains integrity	Eligible
MS 0179	Graham Station Baptist Church*	Church	West side of State Route 62	Mountaineer Plant	Retains integrity	Not Eligible
MS 0180	Graham Station School*	School	West side of S 62	Mountaineer Plant	Retains integrity.	Eligible

Notes: *Previously surveyed.
Shaded resources are recommended NRHP-eligible or have been determined NRHP-eligible by WVSHPO

Attachment B

ATTACHMENT C

PHOTOGRAPHS OF NEWLY SURVEYED ARCHITECTURAL RESOURCES

MS-0163: Durst House, looking east

MS-0163: Durst House Barn, looking north

MS-0164: House, looking northwest

MS-0164: Barn and Tractor Shed, looking south

MS-0165: Nutter House, looking north

MS-0165: Nutter House Barn, looking south

MS-0166: Outbuilding, looking northeast

MS-0167: Grimm House, looking northwest

MS-0168: B&O Railroad at Letart, looking north

MS-0169: Brick Building, looking southeast

MS-0170: Lieving Farm House, looking northwest

MS-0170: Lieving Farm Garage, looking north

MS-0170: Lieving Farm Barn, looking northwest

MS-0170: Lieving Farm Office, looking northeast

MS-0171: Lieving Log House, looking south

MS-0172: House, looking north

MS-0172: Mineshaft Remains, looking north

MS-0173: Slab Foundation, looking southwest

MS-0174: House, looking northeast

MS-0174: Garage, looking northeast

MS-0175: House, looking southeast

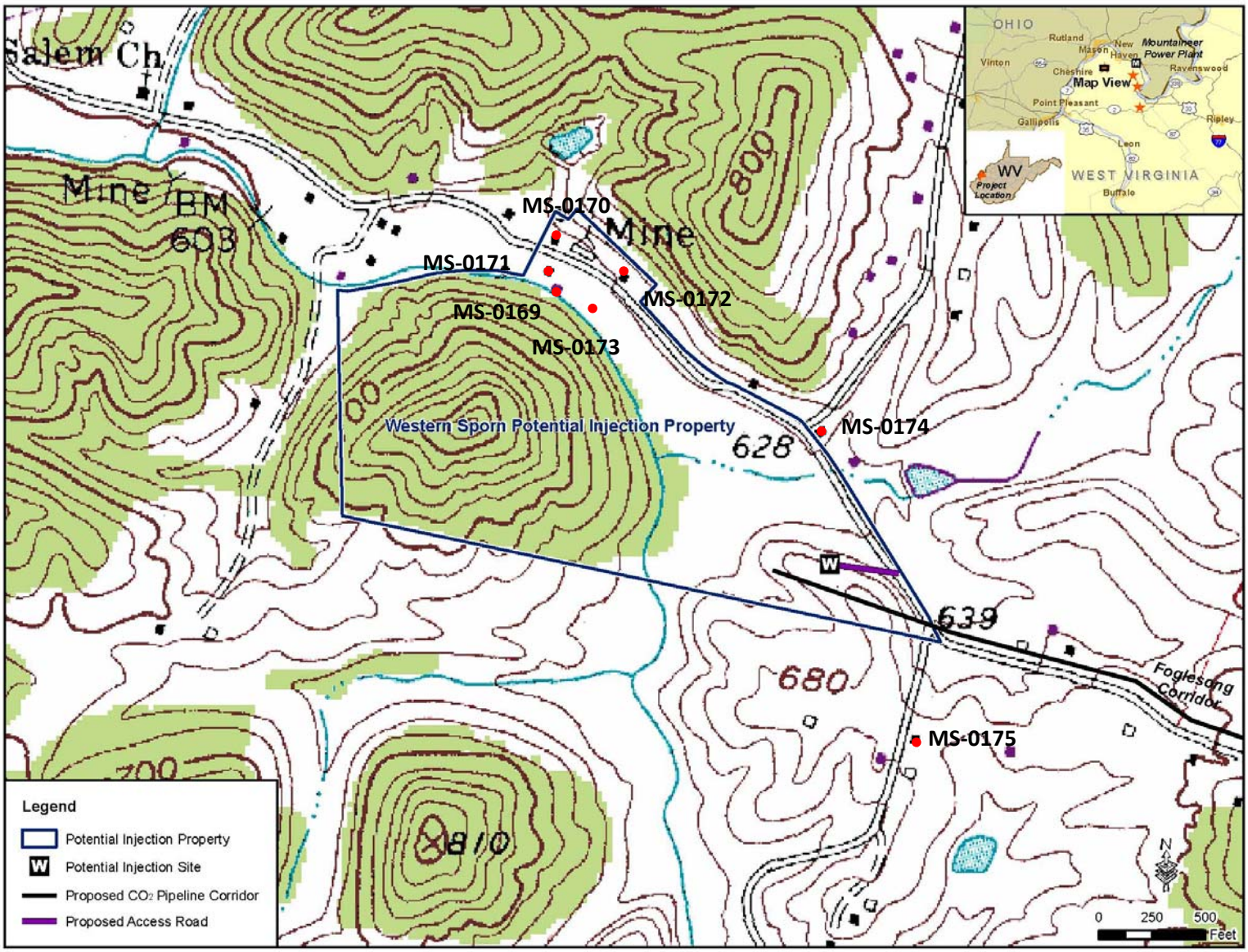
MS-0175: Barn, looking southeast

MS-0176: Brinker Family Cemetery, looking north

MS-0176: Brinker Family Cemetery (headstone of Jacob and Almenia Brinker), looking north

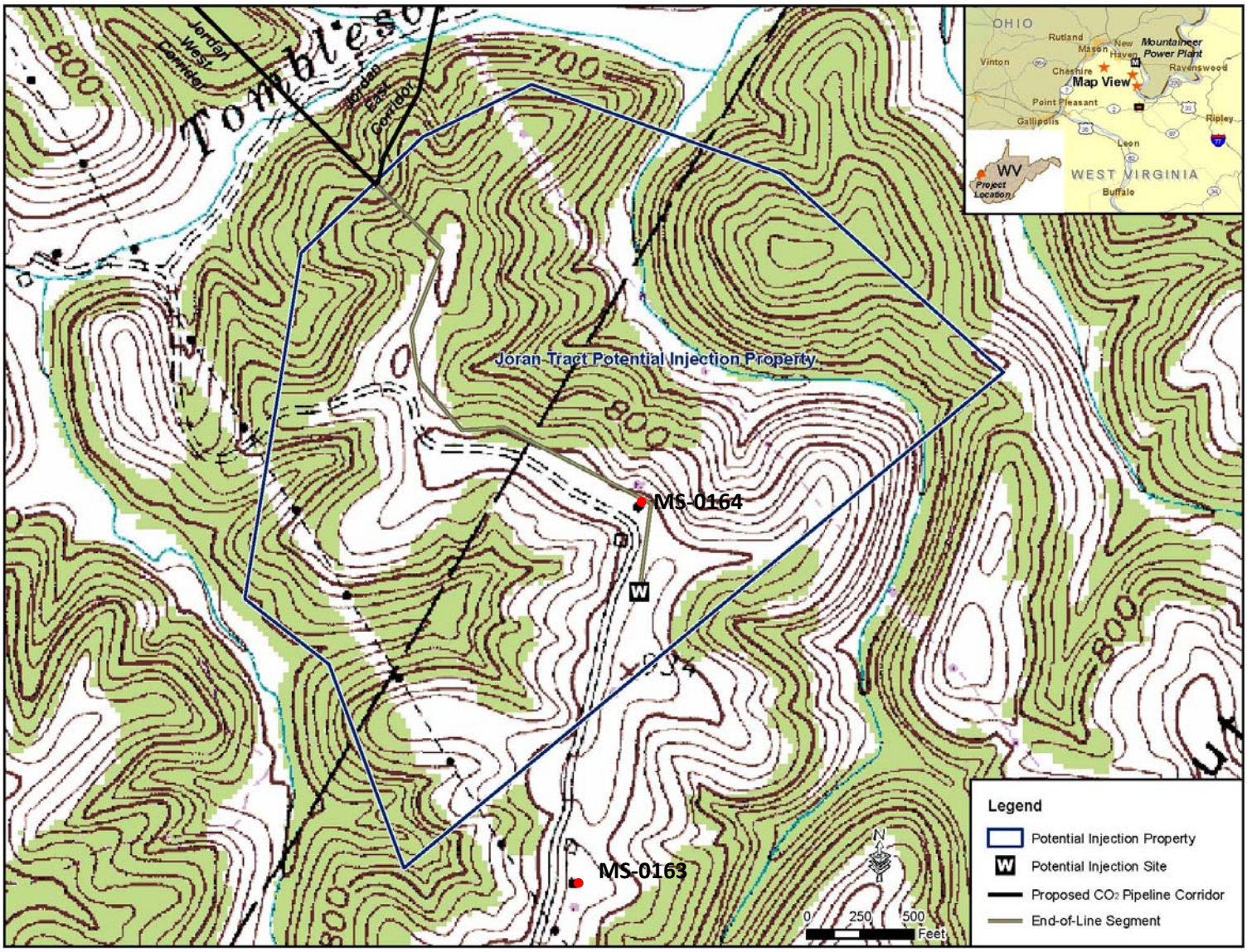
ATTACHMENT D

USGS QUADRANGLE MAPS WITH LOCATIONS OF SURVEYED ARCHITECTURAL RESOURCES



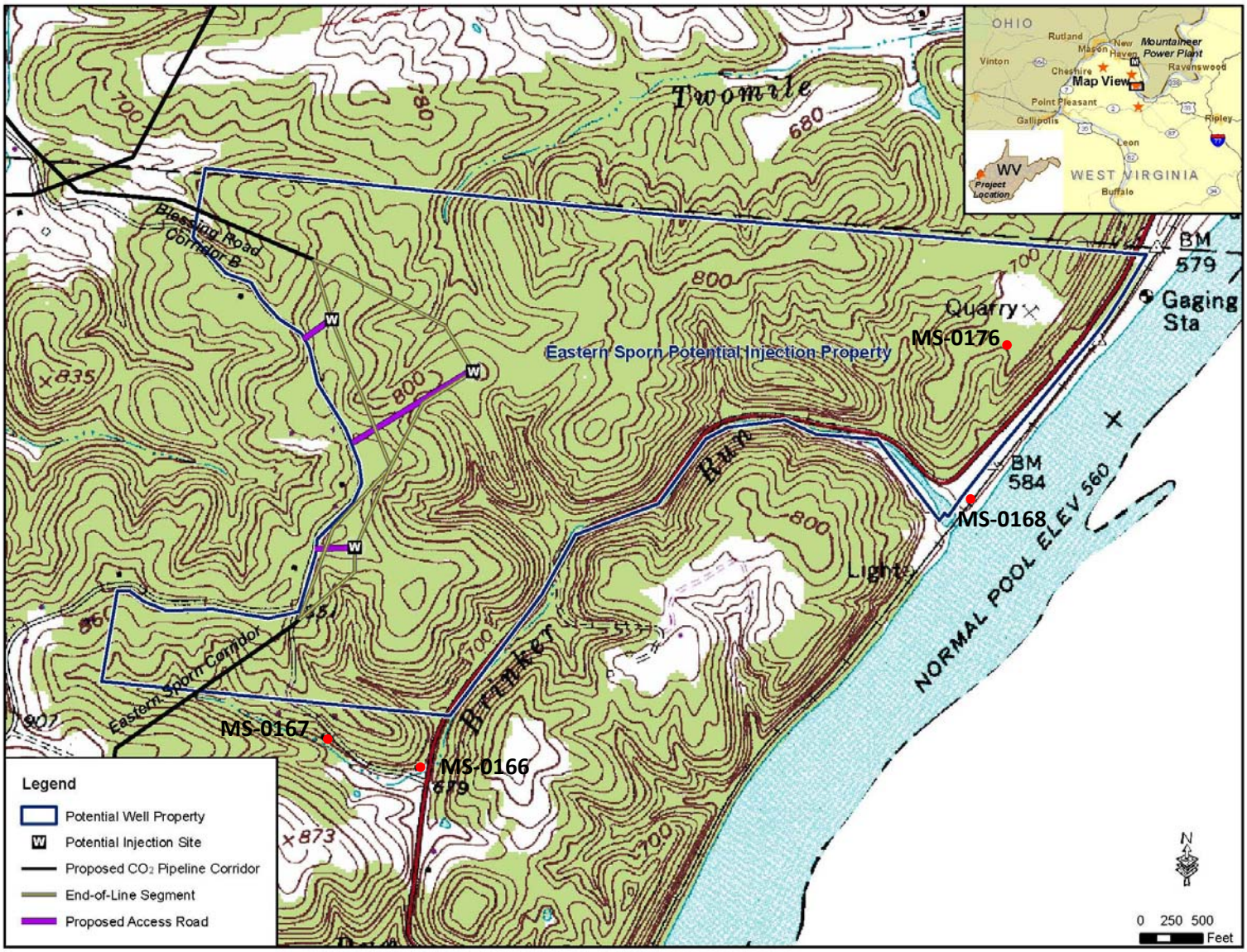
PHASE I/II HISTORIC ARCHITECTURAL SURVEY
MOUNTAINEER CCSII PROJECT
MASON COUNTY, WEST VIRGINIA

WESTERN SPORN TRACT



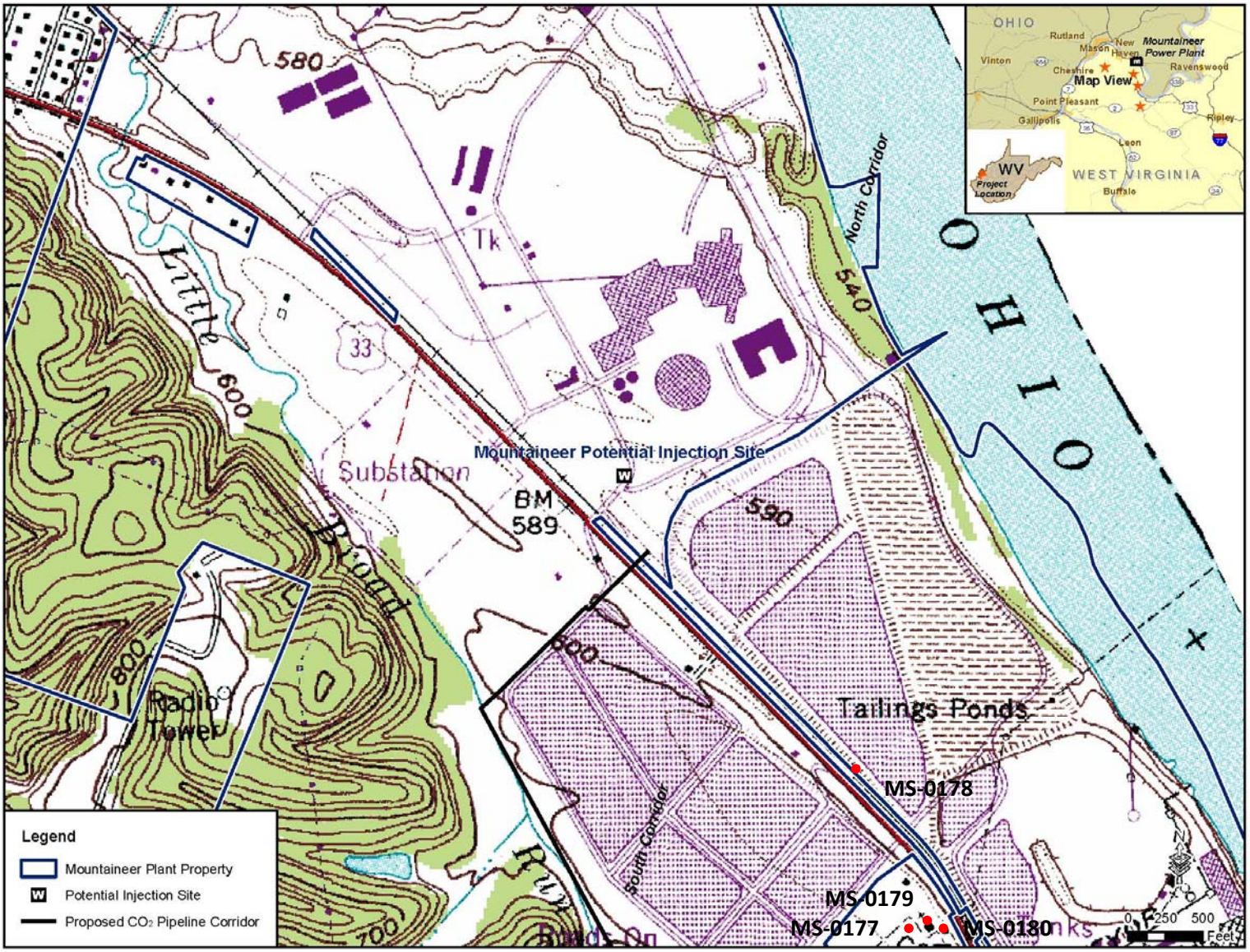
PHASE I/II HISTORIC ARCHITECTURAL SURVEY
MOUNTAINEER CCSII PROJECT
MASON COUNTY, WV

JORDAN TRACT



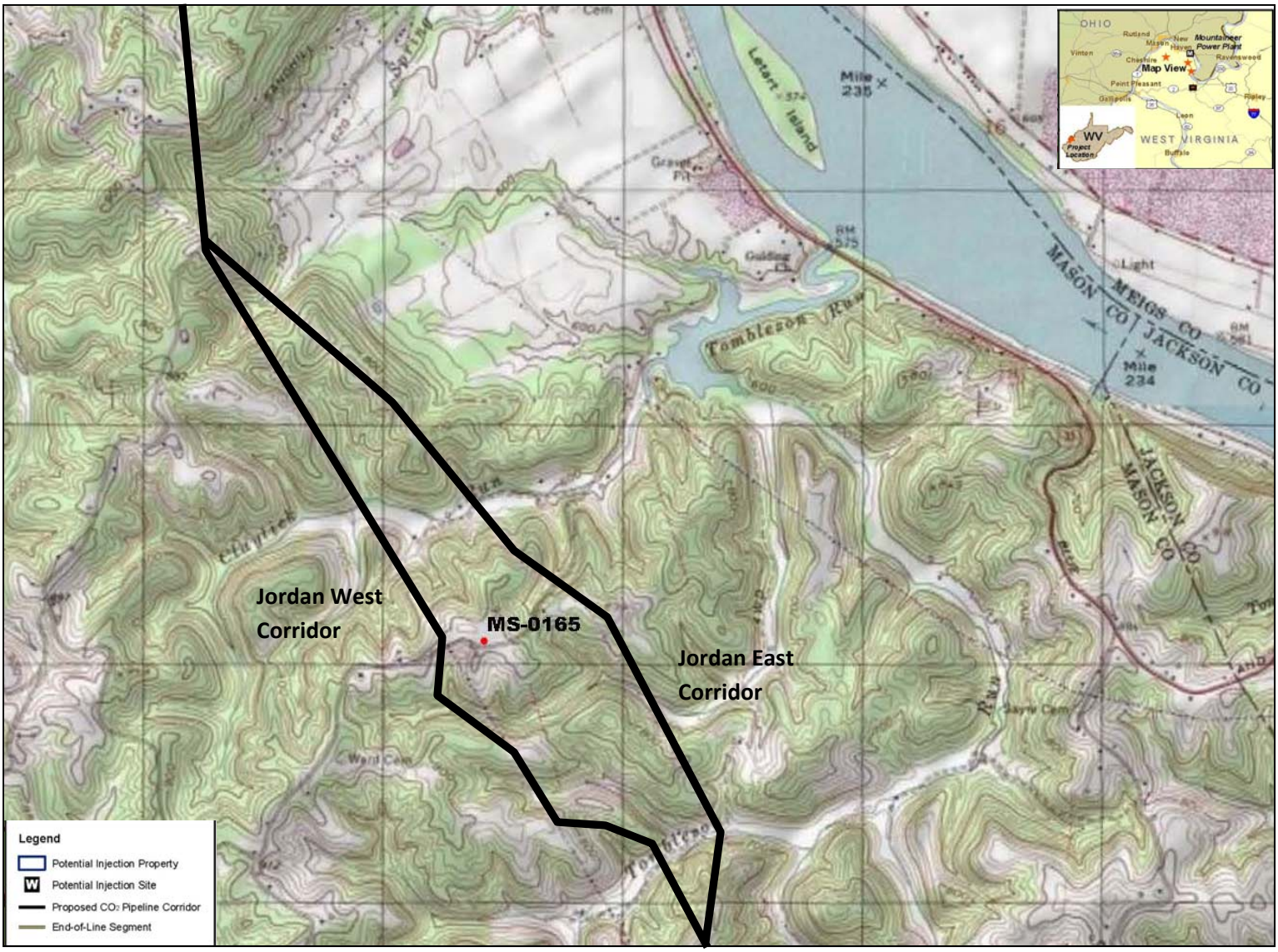
PHASE I/II HISTORIC ARCHITECTURAL SURVEY
MOUNTAINEER CCSII PROJECT
MASON COUNTY, WV

EASTERN SPORN TRACT



PHASE I/II HISTORIC ARCHITECTURAL SURVEY
MOUNTAINEER CCSII PROJECT
MASON COUNTY, WV

MOUNTAINEER TRACT



PHASE I/II HISTORIC ARCHITECTURAL SURVEY
MOUNTAINEER CCSII PROJECT
MASON COUNTY, WV

JORDAN WEST AND JORDAN EAST CORRIDORS

ATTACHMENT E

BARGE UNLOADING FACILITY,
AEP MOUNTAINEER PLANT

Proposed Upgrades to Existing Barge Unloading Area
Mountaineer CCS II Project
Results of Architectural Survey

1. Introduction

AEP is considering two options to support the delivery of equipment and materials via barge traffic during construction of the CO_2 capture facility. Under the first option, AEP would utilize the existing barge unloading platform to remove material from parked barges using a mobile crane. The second option, the "bridge option," would require the use of a temporary mobile bridge to span the area between the river bank and the parked barge. Barges would then be unloaded by driving the payload off using specialized mobile carriers. The area to be used for bridge unloading is within the Mountaineer Plant property along the Ohio River (Figures E-1 and E-2). The site is located next to the existing barge unloading platform, extending approximately 80 to 120 feet downstream of the barge unloading platform.

The bridge option would allow AEP to receive and unload materials and equipment that could not be accommodated via crane unloading under the first option. Unloading by this method involves rolling deliveries from the barge over the bridge to an existing haul road. In the event that AEP implements the bridge option, up to 30 additional barge deliveries would be expected during the construction period for the CO_2 capture facility.

Under the first option, AEP would use the existing facility and no modifications or additional construction would be required. The second option would require site preparation along the river bank to support the placement of the mobile bridge. Site preparation would include clearing of vegetation, grading of a portion of the river bank to achieve a 7 percent grade, and the placement of aggregate to stabilize and reinforce the river bank. No dredging-related work would be required within the Ohio River. A temporary "spud barge" would be used to stabilize the delivery barge for unloading for the bridge option. The spud barge would be anchored in place with up to four H-piles that would temporarly be placed on the river bottom for stabilization. The piles would be removed after work has been completed.

Figure E-1 shows the barge loading facility location. The footprint for the bridge option would be up to 3,600 square feet in size (120 feet in width and 30 feet in length). An existing haul road from the barge unloading area to the Mountaineer Plant would be used to transport materials and equipment to the construction area. Up to 6,400 square feet of additional area may be required to support improvements to the haul road and the construction of a lay down area.

2. Architectural Survey and NRHP Evaluation

TRC conducted a Phase I/II survey of standing structures 50 years or older within the visual APE of the AEP barge loading facility. There are four previously recorded historic resources and no newly identified historic resources; however, none of these resources is within the visual APE of the proposed facility due to topography and intervening structures. The previously identified historic resources and their NRHP-eligibility status are listed below:

- **MS-0177 Graham Station Cemetery.** The Graham Station Cemetery is located on the southwest side of State Route 62, near the Mountaineer Plant. The cemetery contains nearly 1,500 headstones with dates ranging from the 1850s to the present. The WVSHPO determined the Graham Station Cemetery is not eligible for NRHP listing.
- **MS-0178 Baltimore and Ohio (B&O) Railroad (Ohio River Division).** The B&O Railroad line (Ohio River Division) is located on the southwest side of State Route 62 approximately 3 miles southeast of New Haven, near the Mountaineer Plant. The WVSHPO determined this section of the B&O Railroad is NRHP-eligible under Criterion A. The location of the B&O Railroad Ohio River Division is shown on Figure 2 of this Attachment.
- **MS-0179 Graham Station Baptist Church.** The Graham Station Baptist Church is located on the southwest side of State Route 62 approximately 3 miles southeast of New Haven, near the Mountaineer Plant. This one-story, wood-framed church building is built on a rusticated concrete block foundation. The building has vinyl siding and a gable roof clad in composition shingles. Shed-roof-covered steps and handicap access ramps are located on the east corner of the building, adjacent to the tower, and lead to the modern, flush, wood double doors. The window apertures are lancet-shaped with modern windows. The WVSHPO has determined the Graham Station Baptist Church not eligible for NRHP listing.
- **MS-0180 Graham Station School.** The Graham Station School is located on the southwest side of State Route 62 approximately 3 miles southeast of New Haven, near the Mountaineer Plant. This one-story, wood-framed school building is built on a fieldstone pier foundation. The building is weatherboarded and features cornerboards. The fenestration consists of 4-over-4, double-hung, wood sashes. The gable roof has three-V crimp metal roofing sheets. The WVSHPO determined the Graham Station School is NRHP-eligible under Criterion A. The location of the Graham Station School is shown on Figure 2 of this attachment.

The HPI forms for the four previously recorded architectural resources within the AEP barge loading facility are located in Attachment F.

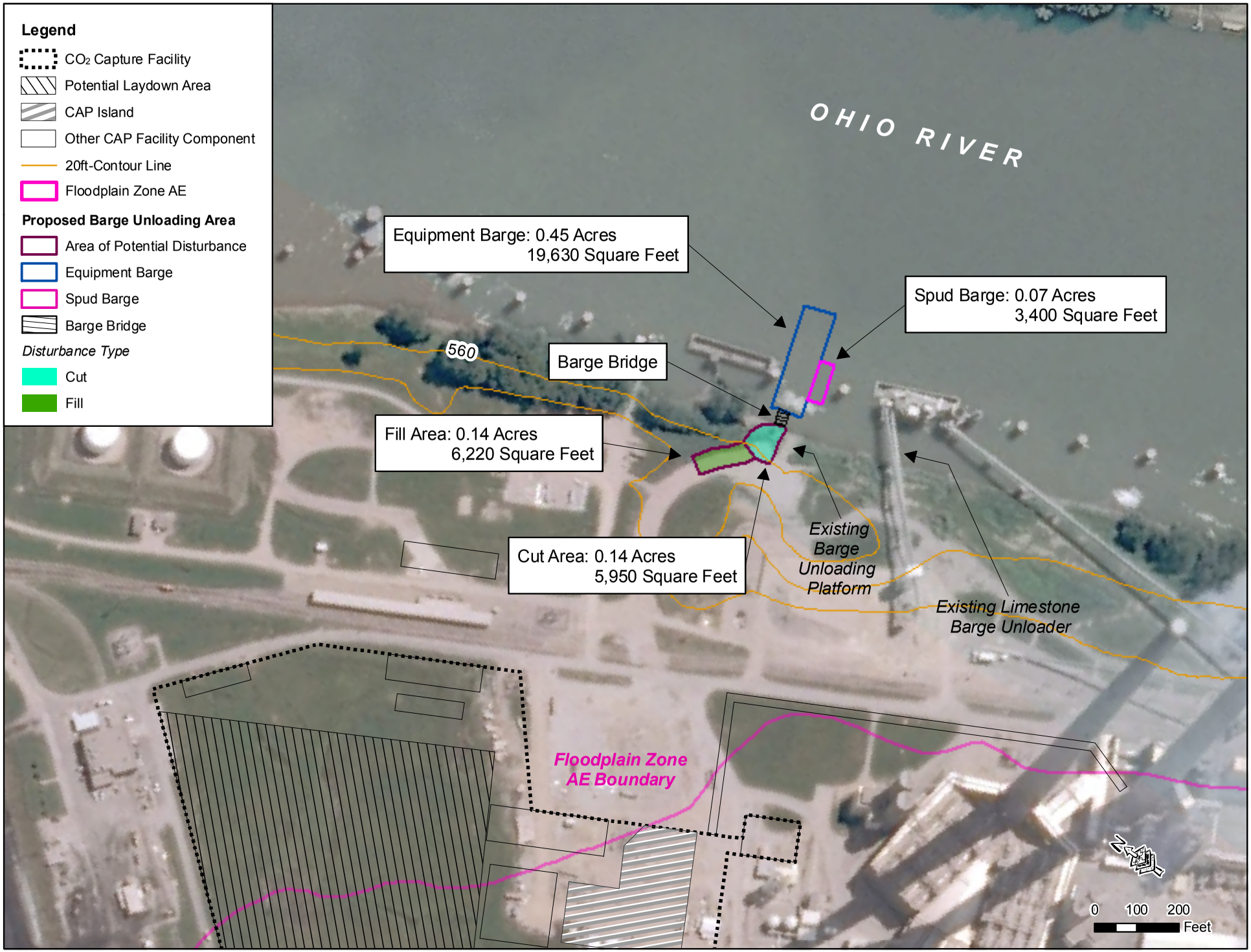


Figure E-1
Barge Facility

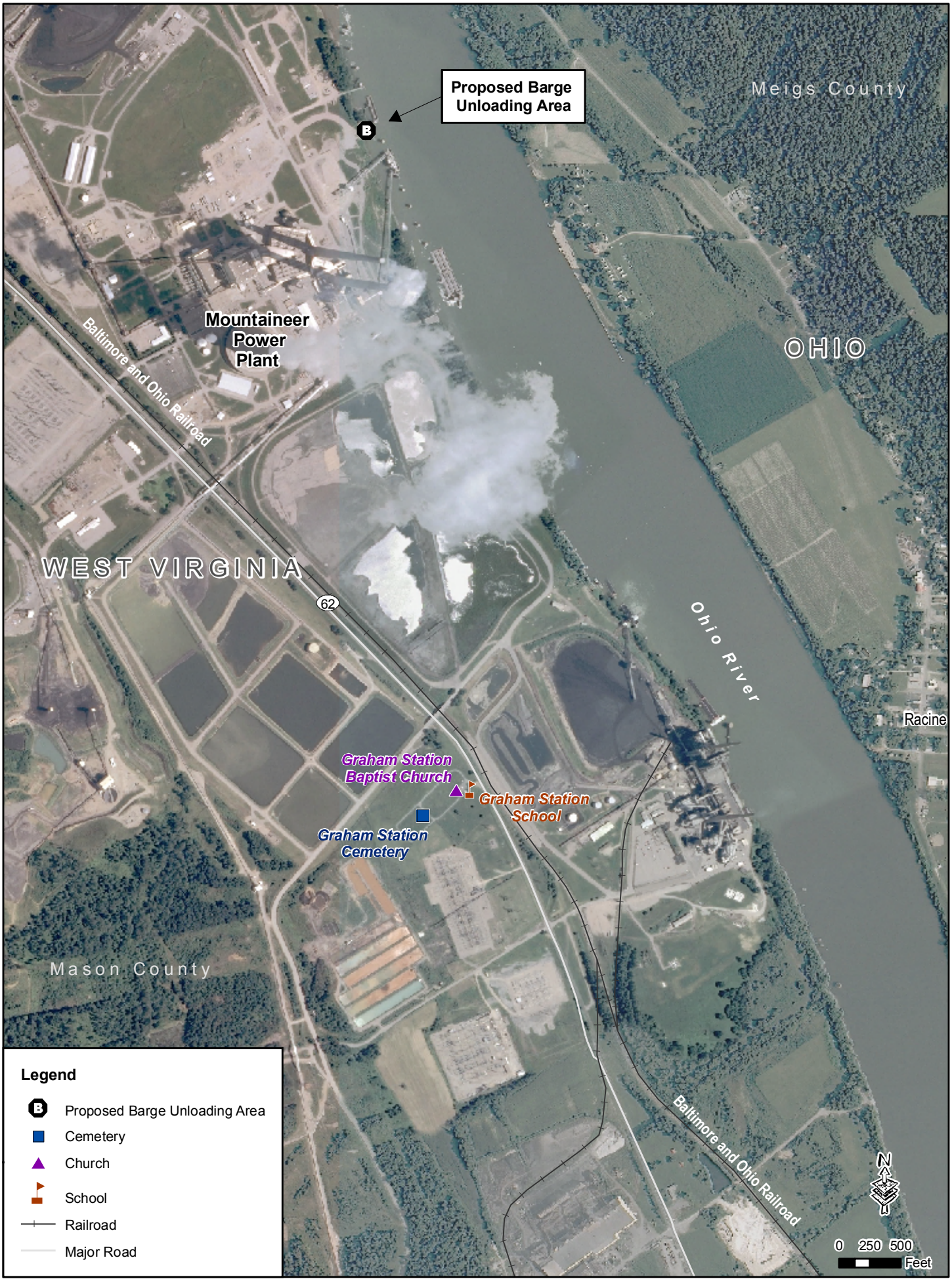


Figure E-2. Proposed Barge Unloading Area and Nearby Architectural Resources

ATTACHMENT F

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORMS FOR NEWLY SURVEYED ARCHITECTURAL RESOURCES

Internal Rating: _____

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 1086 Shirley Road (CR 62/19)	**Common/Historic Name/Both** X O O Durst House	**Field Survey #**	**Site # *(SHPO Only)*** MS 0163
Town or Community Letart vicinity	**County** Mason	**Negative No.** (Digital photo) Heavy foliage and sunlight prevented clear photos of the house.	**NR Listed Date**
Architect/Builder	**Date of Construction** ca. 1870	**Style** Vernacular	
Exterior Siding/Materials Bricktex siding	**Roofing Material** Standing seam metal	**Foundation** Brick piers	
Property Use or Function Residence X Commercial O Farm X	**UTM# 17 0419565E 4300470N (NAD27)**	**Photograph** (2" x 3" Contact)	
Survey Organization & Date TRC Environmental Corp. July 27, 2010	**Quadrangle Name** Mount Alto (Rev. 1975)		
	Part of What Survey/FR# Mountaineer CCS II Project FR # 10-1133-MS		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.

Present Owners	Owners Mailing Address
Carl Durst Phone #	

Describe Setting

Buildings stand on the east side of Shirley Road in a rural, undeveloped setting, consisting of a mixture of farmland, pastures, and woodland. Existing AEP power lines and tower stand on property, south of the main house.

_____112.4__ Acres

N/A _Archaeological Artifacts Present

Description of Building or Site (Original and Present) __1_____Stories _____4___Front Bays

The main house on the property is 1-story, 4-bay, frame house with a side-gable roof covered with standing seam metal. There is a 1-story, hip-roofed porch with turned posts on the front elevation and a 1-story porch on the rear elevation. The house has two entrances on the front, each with a single-leaf, 4-paneled wood door. The windows have 6/6 double hung sash. The house is in poor condition.

(Use Continuation Sheets)

Alterations [X] Yes [ ] No — If yes, describe: The house has non-historic bricktex siding.

Additions [ ] Yes [X] No — If yes, describe:

Describe All Outbuildings: There is a ca. 1900 frame hay barn with side gable roof and vertical board siding in poor condition. There is a ca. 1900 tractor shed with side-gable roof with vertical board siding in fair condition. There is a non-historic mobile home to the rear of the main house.

(Use Continuation Sheets)

Statement of Significance (Ravenswood Quad). A building at this location is shown on the 1908 and 1928 USGS 15 minute series maps

(Use Continuation Sheets)

Bibliographical References

Mason County Tax Assessor

USGS Map, Ravenswood Quad (1908 and 1928) *(Use Continuation Sheets)*

Form Prepared By: Geoffrey Henry, Program Manager—Architectural History **Date:** July 10, 2010

Name/Organization: TRC Environmental Corp.

Address: 4425 Forbes Blvd., Suite B, Lanham MD 20706

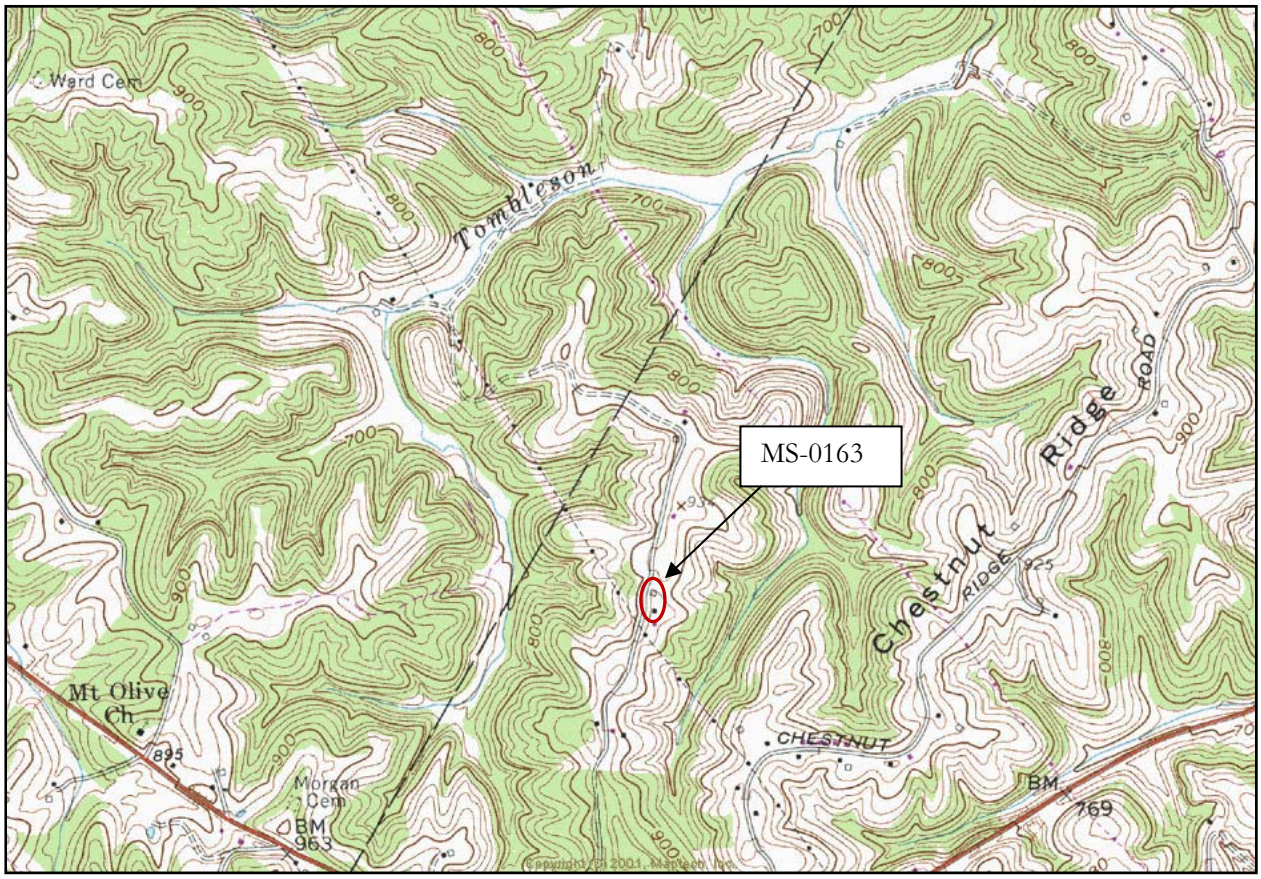
Phone #: 301-306-6981, ext. 14

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME Durst House **SITE#** MS-0163

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME Durst House **SITE#** MS-0163



MS-0163
Durst House at 1086 Shirley Road (CR 62/19)
UTM 17 0419565E 4300470N (NAD27)
USGS Mt. Alto Quadrangle (Rev. 1975)

Internal Rating: _____

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address Shirley Road (CR 62/19), 2500 ft. north of 1086 Shirley Rd.	**Common/Historic Name/Both** X O O	**Field Survey #**	**Site # *(SHPO Only)*** MS 0164
Town or Community Letart vicinity	**County** Mason	**Negative No.** Digital photograph	**NR Listed Date**
Architect/Builder	**Date of Construction** ca. 1940	**Style** Vernacular	
Exterior Siding/Materials German siding	**Roofing Material** Composition shingle	**Foundation** Poured concrete slab	
Property Use or Function Residence X Commercial O Other O	**UTM# 17 0419666E 4300598N (NAD27)**	**Photograph** (2" x 3" Contact)	
Survey Organization & Date TRC Environmental Corp. July 27, 2010	**Quadrangle Name** Mount Alto		
	Part of What Survey/FR# Mountaineer CCS II Project FR # 10-1133-MS		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.

Present Owners	Owners Mailing Address
Phone #	

Describe Setting

Building stands in a rural, undeveloped setting, consisting of a mixture of farmland, pastures, and woodland. The house's immediate surroundings are overgrown.

_____24_____ Acres

N/A _Archaeological Artifacts Present

Description of Building or Site (Original and Present) **__1____Stories ___3_____Front Bays**

The main house on the property is 1-story, 3-bay, frame house clad with German siding and with a side-gable roof covered with composition shingle and exposed rafter ends. There is a 1-story, shed-roofed porch with posts on the rear elevation. The house has a central entrance with a single leaf wood door. The windows have been mostly removed, although there is a picture window on the front elevation. The house is abandoned and in deteriorated condition.

(Use Continuation Sheets)

Alterations [X] Yes [ ] No **If yes, describe: The house no longer has windows and doors.**

Additions [ ] Yes [X] No **If yes, describe:**

Describe All Outbuildings

Located to the south of the main house is a derelict gambrel-roofed frame hay barn with an attached 4-bay open tractor shed.

(Use Continuation Sheets)

Statement of Significance (Ravenswood Quad). **No building is shown at this location on the 1908 or 1928 USGS 15 minute series map**

(Use Continuation Sheets)

Bibliographical References

Mason County Tax Assessor, Mason County Register of Deeds

USGS Map, Ravenswood Quad (1908 and 1928) ***(Use Continuation Sheets)***

Form Prepared By: Geoffrey Henry, Program Manager—Architectural History **Date: July 10, 2010**

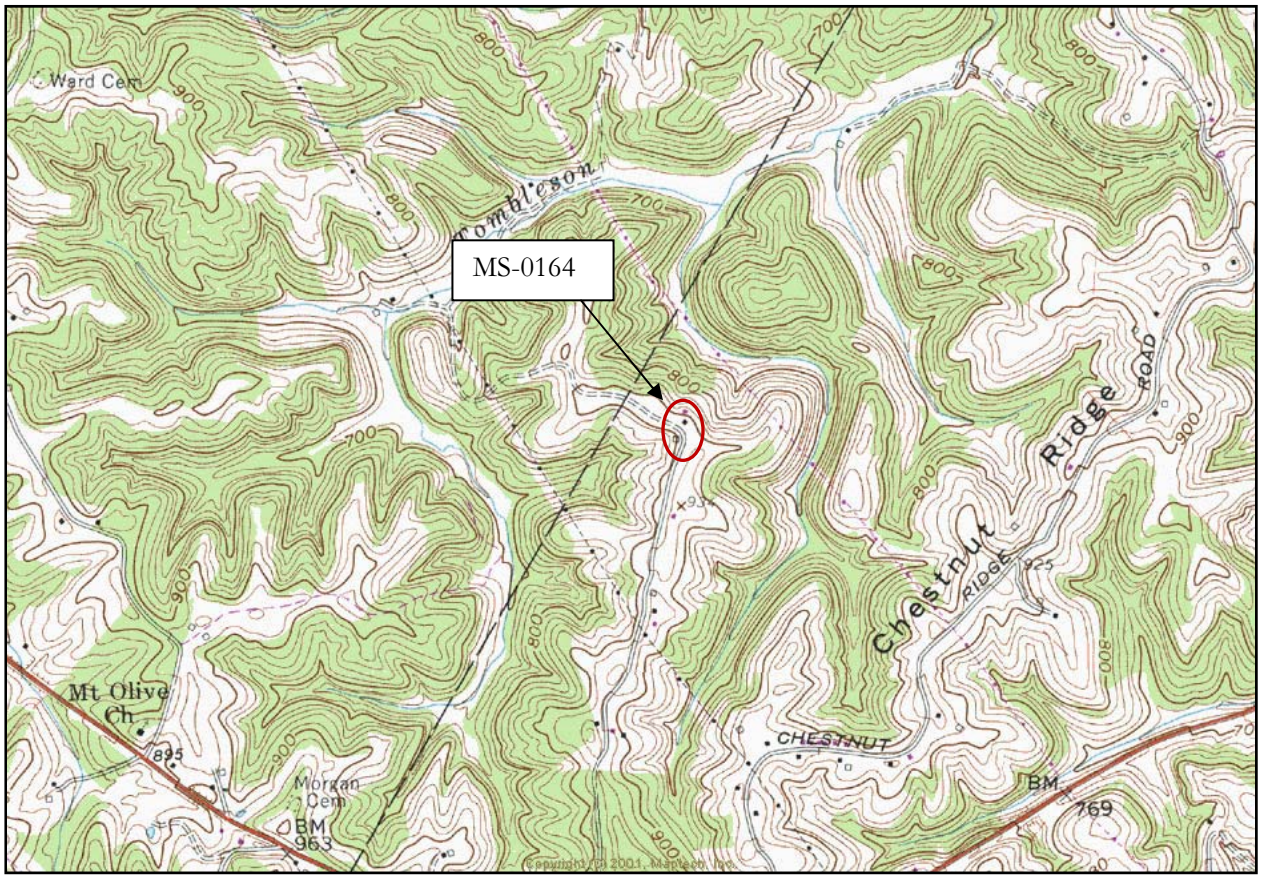
Name/Organization: TRC Environmental Corp.

Address: 4425 Forbes Blvd., Suite B, Lanham MD 20706
Phone #: 301-306-6981, ext. 14

West Virginia Division of Culture and History
State Historic Preservation Office

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_____ **SITE#** MS-0164



MS-0164
House at Shirley Road (CR 62/19), 2500 ft. north of 1086 Shirley Rd.
UTM 17 0419666E 4300598N (NAD27)
USGS Mt. Alto Quadrangle (Rev. 1975)

Internal Rating: _____

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 4439 Tombleson Run Road (CR 22)	**Common/Historic Name/Both** X O O Nutter House	**Field Survey #**	**Site # *(SHPO Only)*** MS 0165
Town or Community Letart vicinity	**County** Mason	**Negative No.** Digital photograph	**NR Listed Date**
Architect/Builder	**Date of Construction** ca. 1930	**Style** Dutch Colonial	
Exterior Siding/Materials Vinyl siding	**Roofing Material** Composition shingle	**Foundation** Concrete block	
Property Use or Function Residence X Commercial O Other O	**UTM# 17 0418416E 4302094N (NAD27)**	**Photograph** (2" x 3" Contact)	
Survey Organization & Date TRC Environmental Corp. July 27, 2010	**Quadrangle Name** Mt. Alto (Rev. 1975)		
	Part of What Survey/FR# Mountaineer CCS II Project FR # 10-1133-MS		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.

Present Owners	Owners Mailing Address
Nutter Phone #	

Describe Setting

Building stands in a rural, undeveloped setting, consisting of a mixture of farmland, pastures, and woodland. Existing AEP Power lines and towers are visible from the house and barn.

_____ Acres

N/A _Archaeological Artifacts Present

Description of Building or Site (Original and Present) 1 1/2_____Stories ____3_____Front Bays

The main house on the property is 1 1/2–story, 3-bay, frame house clad with vinyl siding and a gambrel roof covered with composition shingles. There is a 1-story, shed-roofed enclosed porch on the front elevation and a 1-story porch on the rear elevation. The house has a central entrance with a single-leaf wood door. The replaced metal windows have 1/1 double hung sash and there is a gable-roofed dormer on the front elevation. The house is in good although altered condition.

(Use Continuation Sheets)

Alterations [X] Yes [ ] No If yes, describe: The house has non-historic siding, window sash, and doors.

Additions [ ] Yes [ ] No If yes, describe: There is a small non-historic rear ell.

Describe All Outbuildings: To the south of the house is a large frame stable with vertical board siding, central entrance on the long side, and a side-gable roof with a salt-box profile. Adjacent to the main house is a non-historic garage.

(Use Continuation Sheets)

Statement of Significance There is no building at this location shown on the 1908 or 1928 USGS 15 minute series map (Ravenswood Quad)

(Use Continuation Sheets)

Bibliographical References

Mason County Tax Assessor, Mason County Register of Deeds,

USGS Map, Ravenswood Quad (1908 and 1928) *(Use Continuation Sheets)*

Form Prepared By: Geoffrey Henry, Program Manager—Architectural History **Date:** July 10, 2010

Name/Organization: TRC Environmental Corp.

Address: 4425 Forbes Blvd., Suite B, Lanham MD 20706

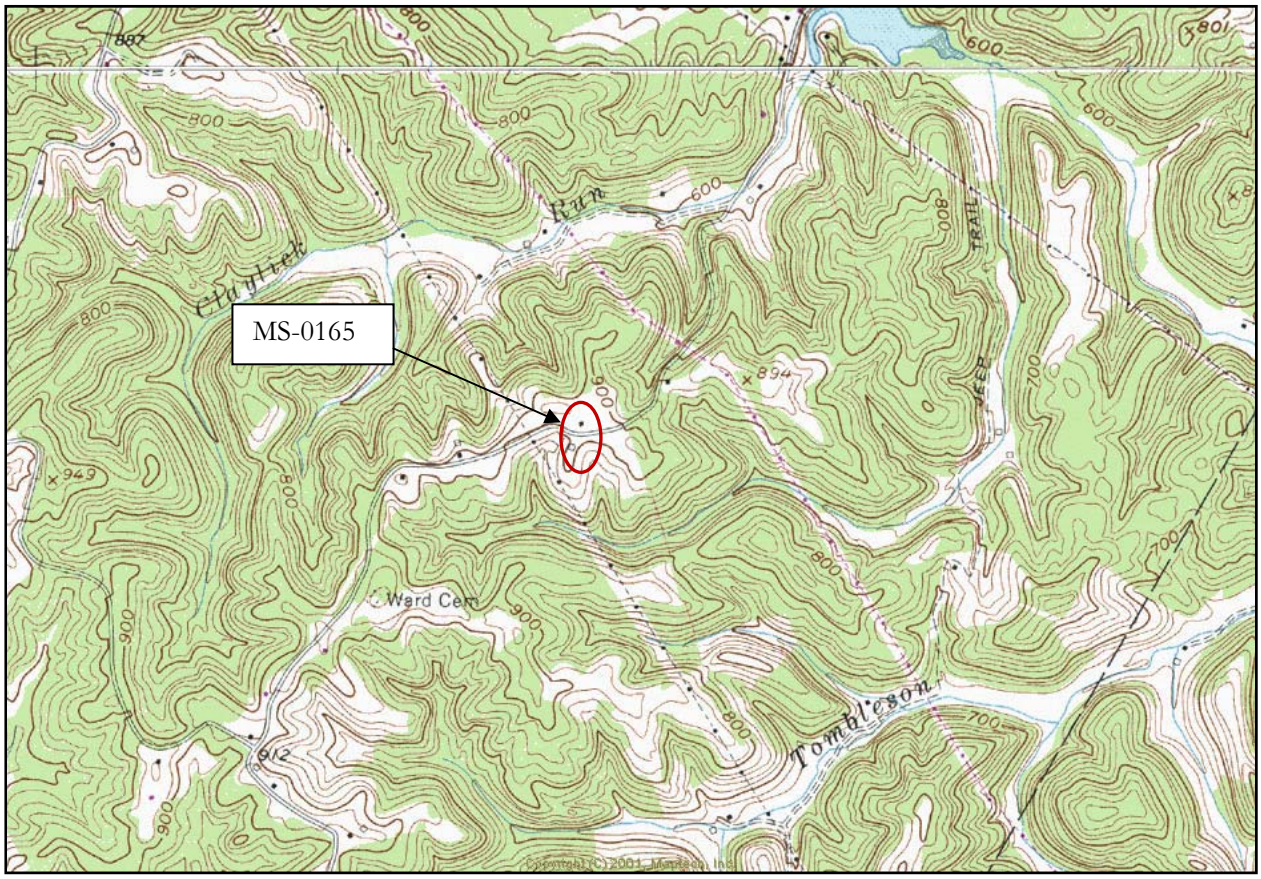
Phone #: 301-306-6981, ext. 14

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME Nutter House **SITE#** MS-0165

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME__Nutter House_____ **SITE#**__MS-0165_____



MS-0165
Nutter House at 4439 Tombleson Run Road (CR 22)
UTM 17 0418416E 4302094N (NAD27)
USGS Mt. Alto Quadrangle (Rev. 1975)

Internal Rating: _____

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address NW corner of Rt 62 and Blessing Road (CR 62/15)	**Common/Historic Name/Both** X O O Outbuilding	**Field Survey #**	**Site # *(SHPO Only)*** MS 0166
Town or Community Letart vicinity	**County** Mason	**Negative No.** Digital photograph	**NR Listed Date**
Architect/Builder	**Date of Construction** ca. 1930	**Style** Vernacular	
Exterior Siding/Materials Vertical board	**Roofing Material** Standing seam metal	**Foundation** Unknown	
Property Use or Function Residence O Commercial O Other Vacant	**UTM# 17 0418404E 4306277N (NAD27)**	**Photograph** (2" x 3" Contact)	
Survey Organization & Date TRC Environmental Corp. July 27, 2010	**Quadrangle Name** New Haven (Rev. 1987)		
	Part of What Survey/FR# Mountaineer CCS II Project FR # 10-1133-MS		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.

Present Owners	Owners Mailing Address
Phone #	

Describe Setting

Building stands in a rural, undeveloped setting, consisting of a mixture of farmland, pastures, and woodland.

_____8.8_____ Acres

N/A _Archaeological Artifacts Present

Description of Building or Site (Original and Present) **___1___Stories _____1____Front Bays**

This shed is in derelict condition. It is covered with vertical board siding, has a shed roof covered with standing seam metal, and is open on the north elevation.

(Use Continuation Sheets)

Alterations [ ] **Yes** [X] **No** **If yes, describe:**

Additions [ ] **Yes** [ ] **No** **If yes, describe:**

Describe All Outbuildings The main house on the property is located at the top of a paved driveway to the north and is non-historic.

(Use Continuation Sheets)

Statement of Significance This is the only pre-1960 building on this property.

(Use Continuation Sheets)

Bibliographical References

Mason County Tax Assessor, Mason County Register of Deeds,

USGS Map, Ravenswood Quad (1908 and 1928) ***(Use Continuation Sheets)***

Form Prepared By: Geoffrey Henry, Program Manager—Architectural History **Date: July 10, 2010**

Name/Organization: TRC Environmental Corp.

Address: 4425 Forbes Blvd., Suite B, Lanham MD 20706
Phone #: 301-306-6981, ext. 14

West Virginia Division of Culture and History
State Historic Preservation Office

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_____ **SITE#** MS-0166

MS-0166
Outbuilding at NW corner of CR 62 and Blessing Road (CR 62/15)
UTM 17 0418404E 4306277N (NAD27)
USGS New Haven Quadrangle (Rev. 1987)

Internal Rating: _____

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 343 Blessing Road (CR 62/15)	**Common/Historic Name/Both** X O O Grimm House	**Field Survey #**	**Site # *(SHPO Only)*** MS 0167
Town or Community Letart vicinity	**County** Mason	**Negative No.** Digital photograph	**NR Listed Date**
Architect/Builder	**Date of Construction** ca. 1860	**Style** Vernacular	
Exterior Siding/Materials Log with aluminum siding	**Roofing Material** Standing seam metal	**Foundation** Concrete block	
Property Use or Function Residence X Commercial O Other O	**UTM# 17 0418404E 4306277N (NAD27)**	**Photograph** (2" x 3" Contact)	
Survey Organization & Date TRC Environmental Corp. July 27, 2010	**Quadrangle Name** New Haven (Rev. 1987)		
	Part of What Survey/FR# Mountaineer CCS II Project FR # 10-1133-MS		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.

Present Owners Grimm Phone #	Owners Mailing Address

Describe Setting

Building stands on the west side of the road in a rural, undeveloped setting, consisting of a mixture of farmland, pastures, and woodland. A prominent berm is located on the east side of the road.

__67_____ Acres

N/A _Archaeological Artifacts Present

Description of Building or Site (Original and Present) **_____1____Stories ____3___Front Bays**

The main house on the property is 1–story, 3-bay, log house with aluminum siding and a side-gable roof covered with standing seam metal. There is a non-historic, 1-story, shed -roofed porch with metal posts on the front elevation and a 1-story porch on the rear elevation. The house has a central entrance with a single-leaf wood door. The windows have replaced 1/1 and 2/2 double hung sash (two of them retained their mid-19th century ramped lintels) and there is a picture window on the front elevation. The house is in fair condition.

(Use Continuation Sheets)

Alterations [X] Yes [ ] No **If yes, describe: The house has non-historic siding, window sash, and doors.**

Additions [ ] Yes [X] No **If yes, describe:**

Describe All Outbuildings None

(Use Continuation Sheets)

Statement of Significance (Ravenswood Quad). **A building at this location is shown on both the 1908 and 1928 USGS 15 minute series maps**

(Use Continuation Sheets)

Bibliographical References

Mason County Tax Assessor, Mason County Register of Deeds,

USGS Map, Ravenswood Quad (1908 and 1928) ***(Use Continuation Sheets)***

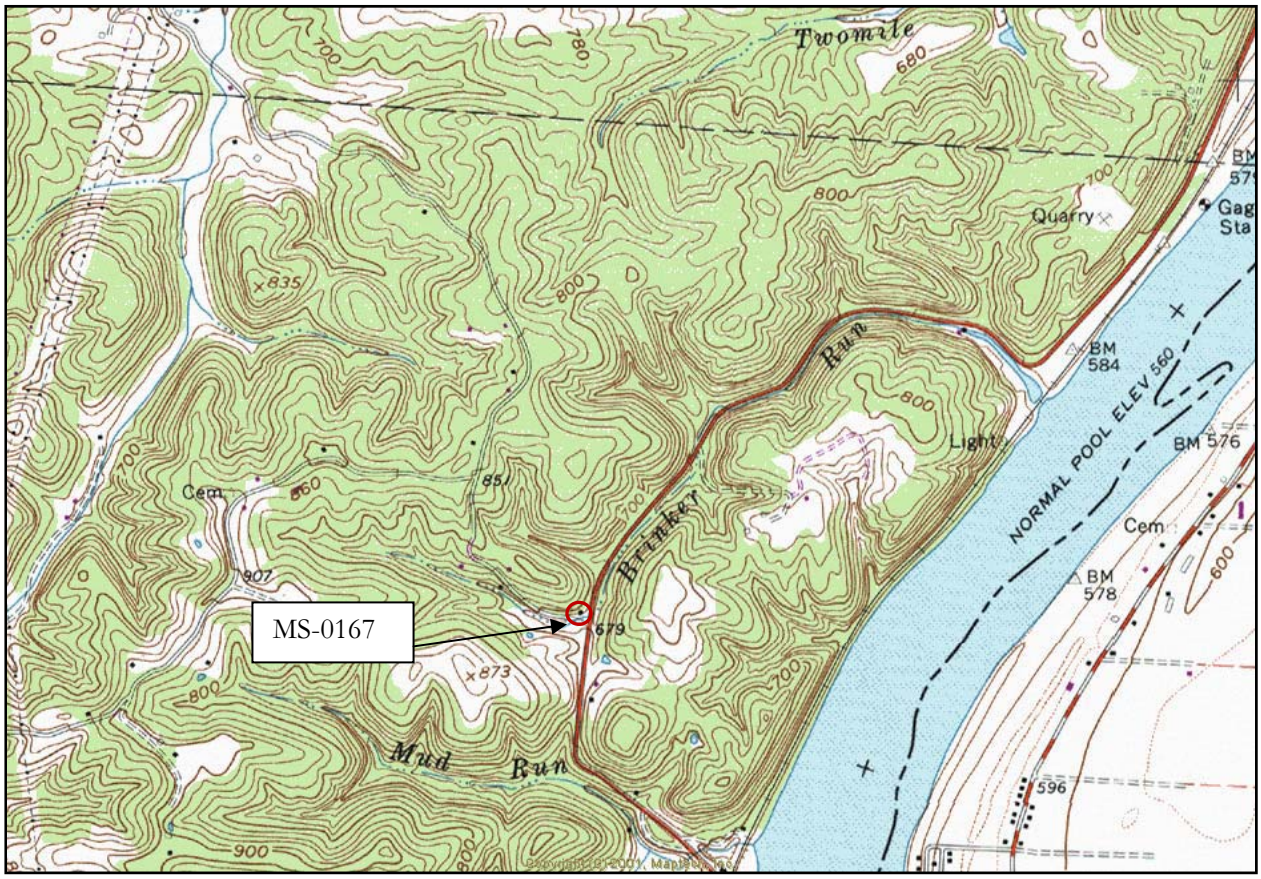
Form Prepared By: Geoffrey Henry, Program Manager—Architectural History **Date: July 10, 2010**

Name/Organization: TRC Environmental Corp.

Address: 4425 Forbes Blvd., Suite B, Lanham MD 20706
Phone #: 301-306-6981, ext. 14

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME Grimm House **SITE#** MS-0167



MS-0167
Grimm House at 343 Blessing Road (CR 62/15)
UTM 17 0418404E 4306277N (NAD27)
USGS New Haven Quadrangle (Rev. 1987)

Internal Rating: _____

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address CSX Railroad Tracks	**Common/Historic Name/Both** O X O Baltimore & Ohio (B&O) Railroad	**Field Survey #**	**Site # *(SHPO Only)*** MS 0168
Town or Community Between Letart and Longdale, near Racine Lock and Dam	**County** Mason	**Negative No.** Digital photograph	**NR Listed Date**
Architect/Builder	**Date of Construction** ca. 1883	**Style** N/A	
Exterior Siding/Materials N/A	**Roofing Material** N/A	**Foundation** N/A	
Property Use or Function Residence O Commercial O Other Railroad	**UTM# 17 (Various Points)**	**Photograph** (2" x 3" Contact)	
Survey Organization & Date TRC Environmental Corp. July 27, 2010	**Quadrangle Name** (Various-Cheshire, New Haven, Mt. Alto)		
	Part of What Survey/FR# Mountaineer CCS II Project FR # 10-1133-MS		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.

Present Owners CSX Corporation Phone #	Owners Mailing Address

Describe Setting

The single-track B&O railroad line runs through a mostly rural and sparsely developed area, east of US 33 and west of the Ohio River and is adjacent to the Corps of Engineer's Racine Lock and Dam at Letart Falls.

_____N/A____ Acres

N/A _Archaeological Artifacts Present

Description of Building or Site (Original and Present) **_____Stories _____Front Bays**

The single-track B&O railroad line runs north-west through the Mountaineer CCS II project area, to the east of the Eastern Sporn tract. There are two non-historic metal electrical signal buildings located on the west side of the tracks near CR 12.

(Use Continuation Sheets)

Alterations [X] Yes [ ] No **If yes, describe: The house has non-historic siding, window sash, and doors.**

Additions [ ] Yes [ ] No **If yes, describe:**

Describe All Outbuildings N/A

(Use Continuation Sheets)

Statement of Significance This was the route of the 218-mile-long Ohio River Railroad built in 1883, and acquired by the Baltimore & Ohio Railroad in 1901. The B&O transported oil and coal along this route, as well as running passenger trains. The latter stopped at Letart, Longdale, New Haven, Hartford, and Graham Station among other stops in eastern Mason County before passenger service was discontinued in the 1930s. Freight service still runs on a limited basis.

(Use Continuation Sheets)

Bibliographical References

Mason County Tax Assessor, Mason County Register of Deeds,

USGS Map, Point Pleasant Quad (1908 and 1928) ***(Use Continuation Sheets)***

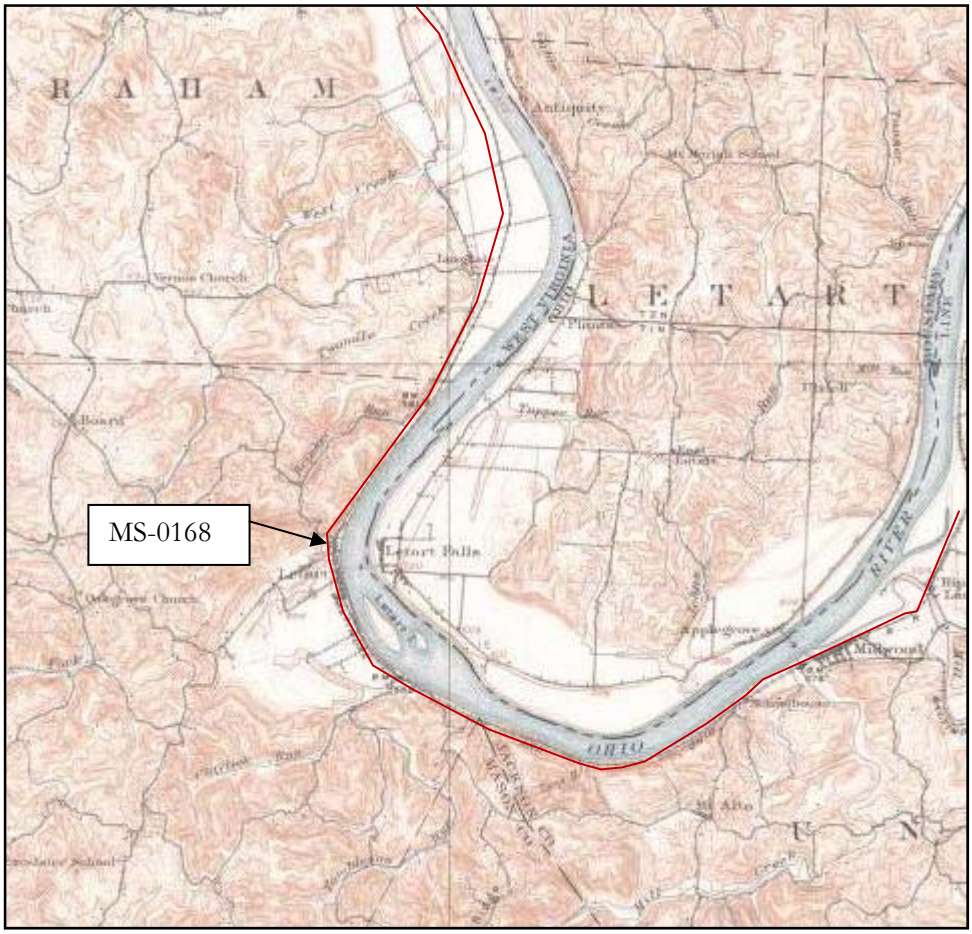
Form Prepared By: Geoffrey Henry, Program Manager—Architectural History **Date: July 10, 2010**

Name/Organization: TRC Environmental Corp.

Address: 4425 Forbes Blvd., Suite B, Lanham MD 20706
Phone #: 301-306-6981, ext. 14

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_B&O Railroad_____ **SITE#**___MS-0168_____



MS-0168
Baltimore and Ohio (B&O) Railroad
UTM Various
USGS Ravenswood Quadrangle (1908)

Internal Rating: _____

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address South side Lieving Road	**Common/Historic Name/Both** O O O	**Field Survey #**	**Site # *(SHPO Only)*** MS 0169
Town or Community West Columbia vicinity	**County** Mason	**Negative No.** Digital photograph	**NR Listed Date**
Architect/Builder	**Date of Construction** ca. 1950	**Style** Vernacular	
Exterior Siding/Materials Brick veneer	**Roofing Material** Composition shingle	**Foundation** Slab	
Property Use or Function Residence X Commercial O Other Office?	**UTM# 17 0411222E 4313106N (NAD27)**	**Photograph** (2" x 3" Contact)	
Survey Organization & Date TRC Environmental Corp. July 27, 2010	**Quadrangle Name** Cheshire (Rev. 1989)		
	Part of What Survey/FR# Mountaineer CCS II Project FR # 10-1133-MS		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.

Present Owners	Owners Mailing Address
Appalachian Power Company Phone #	

Describe Setting

Building stands in a small hamlet, consisting of a mixture of lived-in and vacant farm houses, farmland, pastures, and woodland.

_____112___ Acres

N/A _Archaeological Artifacts Present

Description of Building or Site (Original and Present) **_____1____Stories ___3___Front Bays**

This is 1–story, 3-bay, frame building with brick veneer siding and a hipped roof covered with composition shingles. There is an entrance with a single leaf glass door. Several windows have been removed but there is a picture window on the front elevation. The building is abandoned and in poor condition. There are two slab foundations to the east indicating this may have been part of a complex.

(Use Continuation Sheets)

Alterations [X] Yes [ ] No **If yes, describe: The house no longer has most of its windows intact.**

Additions [ ] Yes [ ] No **If yes, describe:**

Describe All Outbuildings None

(Use Continuation Sheets)

Statement of Significance Due to its appearance, the building may have been an office.

(Use Continuation Sheets)

Bibliographical References

Mason County Tax Assessor, Mason County Register of Deeds,

USGS Map, Point Pleasant Quad (1908 and 1928) ***(Use Continuation Sheets)***

Form Prepared By: Geoffrey Henry, Program Manager—Architectural History **Date: July 10, 2010**

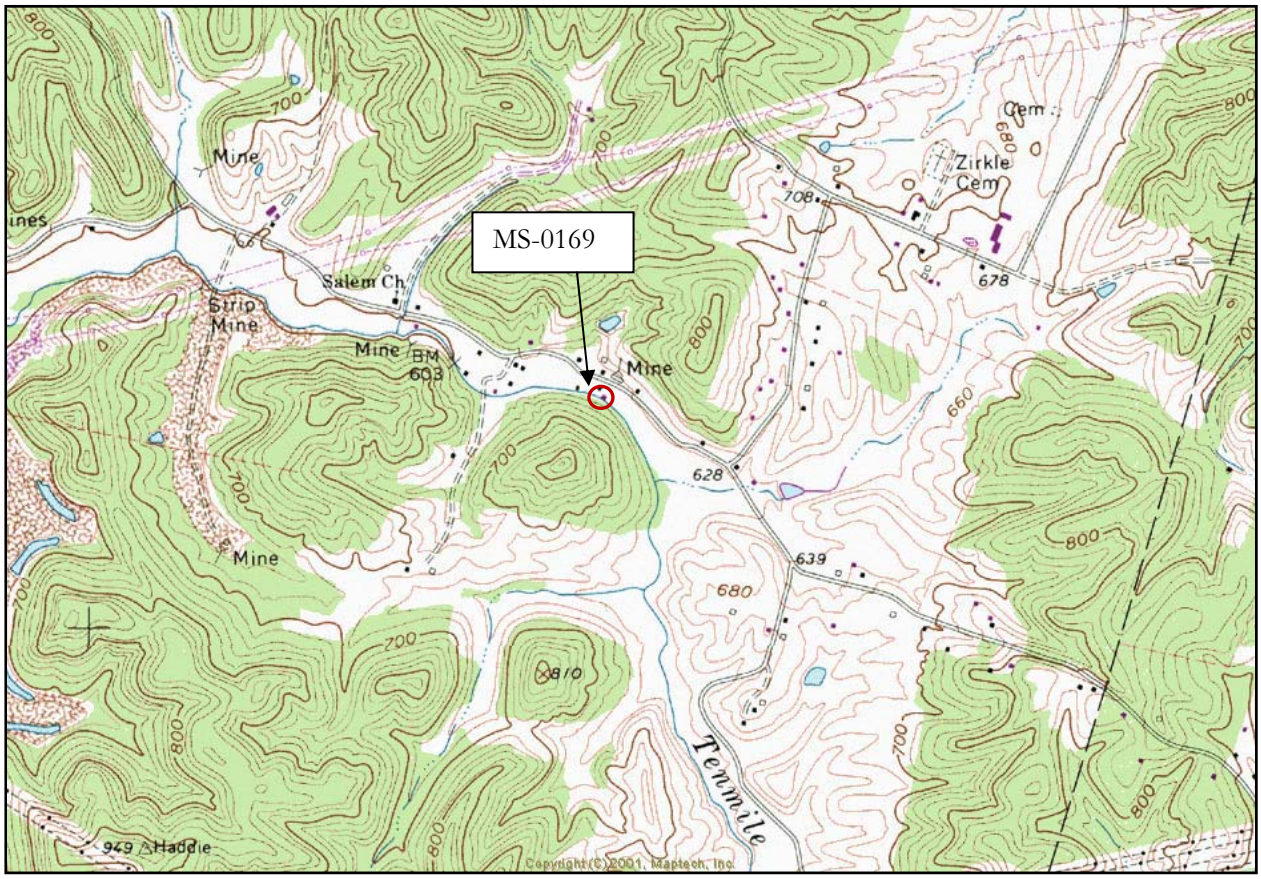
Name/Organization: TRC Environmental Corp.

Address: 4425 Forbes Blvd., Suite B, Lanham MD 20706
Phone #: 301-306-6981, ext. 14

West Virginia Division of Culture and History
State Historic Preservation Office

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_____ **SITE#** MS-0169



MS-0169
House on South side of Lieving Road
UTM 17 0411222E 4313106N (NAD27)
USGS Cheshire Quadrangle (Rev. 1989)

Internal Rating: _____

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address 2552 Lieving Road	Common/Historic Name/Both X O O Lieving Farm	Field Survey #	Site # *(SHPO Only)* MS 0170
Town or Community West Columbia vicinity	County Mason	Negative No. Digital photograph	NR Listed Date
Architect/Builder	Date of Construction Before 1903	Style Colonial Revival	
Exterior Siding/Materials Weatherboard	Roofing Material Standing seam metal	Foundation Rusticated concrete block	
Property Use or Function Residence X Commercial O Other Farm; gas station	UTM# 17 0411219E 4313183N (NAD27)	Photograph (2" x 3" Contact)	
Survey Organization & Date TRC Environmental Corp. July 27, 2010	Quadrangle Name Cheshire (Rev. 1989)		
	Part of What Survey/FR# Mountaineer CCS II Project FR # 10-1133-MS		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.

Present Owners Appalachian Power Company Phone #	Owners Mailing Address

Describe Setting

This complex stands in a rural hamlet setting, consisting of a mixture of occupied and vacant houses, farmland, pastures, and woodland

_____ Acres

N/A _Archaeological Artifacts Present

Description of Building or Site (Original and Present) **2 1/2_Stories ____3_____Front Bays**

The main building on the property is 2 1/2 –story, 3-bay, frame house with a hipped roof covered with standing seam metal. There is a 1-story, half-hipped-roofed, wraparound porch with tapered posts and knee walls on the front elevation and that is enclosed on the east side with 8-pane casement windows. The house has an off-center front entrance with a single leaf glass-and-wood door. The windows mostly have 1/1 or 2/2 double hung sash, although the large front window has a diamond pane transom. There is a 2-story polygonal bay with gable roof on the east and a small porch on the west and north.

(Use Continuation Sheets)

Alterations ☐ Yes ☒ No **If yes, describe:**

Additions ☐ Yes ☐ No **If yes, describe:**

Describe All Outbuildings: There is a 1-story, 4-bay concrete block garage/service station (ca. 1925) located immediately to the east, with a porch/service bay on the west. There is a 1-story gable-roofed frame office/outbuilding to the north of the house. There is a large frame stable/ barn with vertical board siding on a hillside to the east of the house.

(Use Continuation Sheets)

Statement of Significance: See continuation sheet.

(Use Continuation Sheets)

Bibliographical References

Mason County Tax Assessor, Mason County Register of Deeds.

USGS Map, Point Pleasant Quad (1908 and 1928) ***(Use Continuation Sheets)***

Form Prepared By: Geoffrey Henry, Program Manager—Architectural History **Date: July 10, 2010**

Name/Organization: TRC Environmental Corp.

Address: 4425 Forbes Blvd., Suite B, Lanham MD 20706
Phone #: 301-306-6981, ext. 14

West Virginia Division of Culture and History
State Historic Preservation Office

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_____Lieving Farm_____ **SITE#**_____MS-0170_____

Statement of Significance:

A September 15, 1903 deed from Albert Hoffman to Frank B. Lieving for this 55-acre property mentions a pre-exiting dwelling and barn. Lieving, who was later Mason County Sheriff, founded the Lieving Coal Company at this location. A coal tipple nearby was built in 1947 but destroyed by fire in 1960, after which the company and most of the land was sold to Appalachian Power Company and the coal mine abandoned. It is believed Lieving built the present gas station, which is mentioned in a 1929 lease. (Deed Book 108, page 407) The house and barn are shown on the 1908 and 1928 USGS 15-minute series maps (Point Pleasant Quad).

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_____Lieving Farm_____ **SITE#**_____MS-0170_____

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

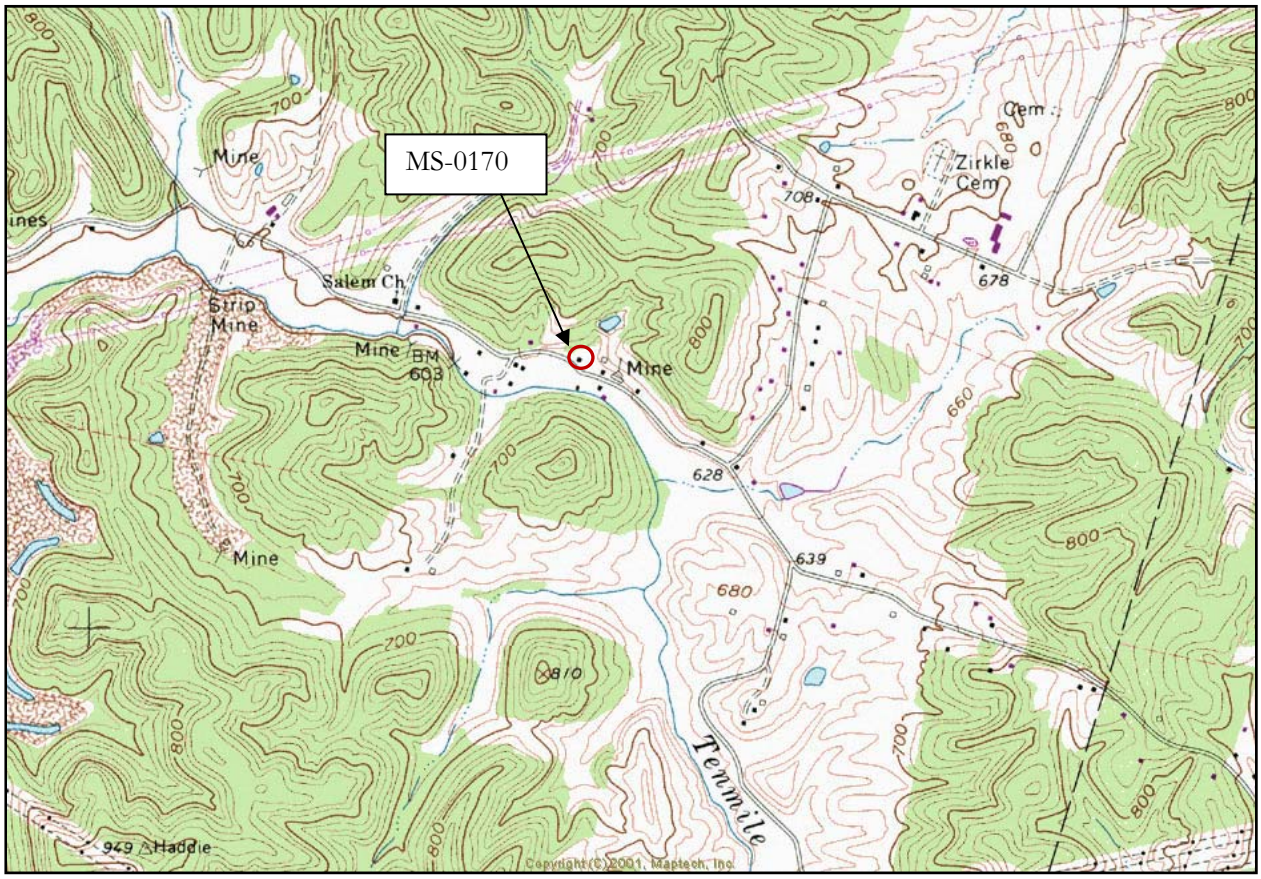
NAME_____Lieving Farm_____ **SITE#**_____MS-0170_____

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_____Lieving Farm_____ **SITE#**_____MS-0170_____

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_____Lieving Farm_____ **SITE#**_____MS-0170_____



MS-0170
Lieving Farm at 2552 Lieving Road
UTM 17 0411219E 4313183N (NAD27)
USGS Cheshire Quadrangle (Rev. 1989)

N
W E
S

Internal Rating: _____

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address Opposite 2552 Lieven Road	**Common/Historic Name/Both** X O O Lieving Log House	**Field Survey #**	**Site # *(SHPO Only)*** MS 0171
Town or Community West Columbia vicinity	**County** Mason	**Negative No.** Digital photograph	**NR Listed Date**
Architect/Builder	**Date of Construction** Mid-late 19th century	**Style** Vernacular	
Exterior Siding/Material Log	**Roofing Material** Standing seam metal	**Foundation** Stone and concrete block	
Property Use or Function Residence X Commercial O Other O	**UTM# 17 0411213E 4313135N (NAD27)**	**Photograph** (2" x 3" Contact)	
Survey Organization & Date TRC Environmental Corp. July 27, 2010	**Quadrangle Name** Cheshire		
	Part of What Survey/FR# Mountaineer CCS II Project FR # 10-1133-MS		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.

Present Owners	Owners Mailing Address
Appalachian Power Company Phone #	

Describe Setting

Building stands on north bank of Ten Mile Creek and south of Lieving Road in a small hamlet made up of lived-in and vacant farmhouses.

_____112____ Acres

N/A _Archaeological Artifacts Present

Description of Building or Site (Original and Present) **1 1/2_Stories ____3_____Front Bays**

The main building on the property is 1 1/2 –story, 3-bay, log house with framing members exposed and chinked with cement. The house has a side-gable roof covered with standing seam metal. There is a 1-story, shed-roofed, porch on the north façade with wood posts. There is an exterior end shouldered chimney built of cut and coursed granite on the west gable end. The house has a center entrance on the north with a single leaf wood door. The windows mostly have 1/1 or 2/2 double hung sash and there are fixed sash windows on the half-story on the north façade. There is a 1-story, 3-bay, gable-roofed wing on the rear with a shed-roofed porch on the east.

(Use Continuation Sheets)

Alterations [X] Yes [ ] No **Heavily restored log house with new chinking, chimney, windows, piers, door, and siding.**

Additions [ ] Yes [X] No **If yes, describe:**

Describe All Outbuildings:

(Use Continuation Sheets)

Statement of Significance: A building is shown at this location on the 1908 and 1928 USGS 15 minute series maps (Point Pleasant Quad). Although it may be at its original location and have some historic fabric, the house has been heavily restored to look "historic.'

(Use Continuation Sheets)

Bibliographical References

Mason County Tax Assessor, Mason County Register of Deeds,

USGS Map, Point Pleasant Quad (1908 and 1928) ***(Use Continuation Sheets)***

Form Prepared By: Geoffrey Henry, Program Manager—Architectural History **Date: July 10, 2010**

Name/Organization: TRC Environmental Corp.

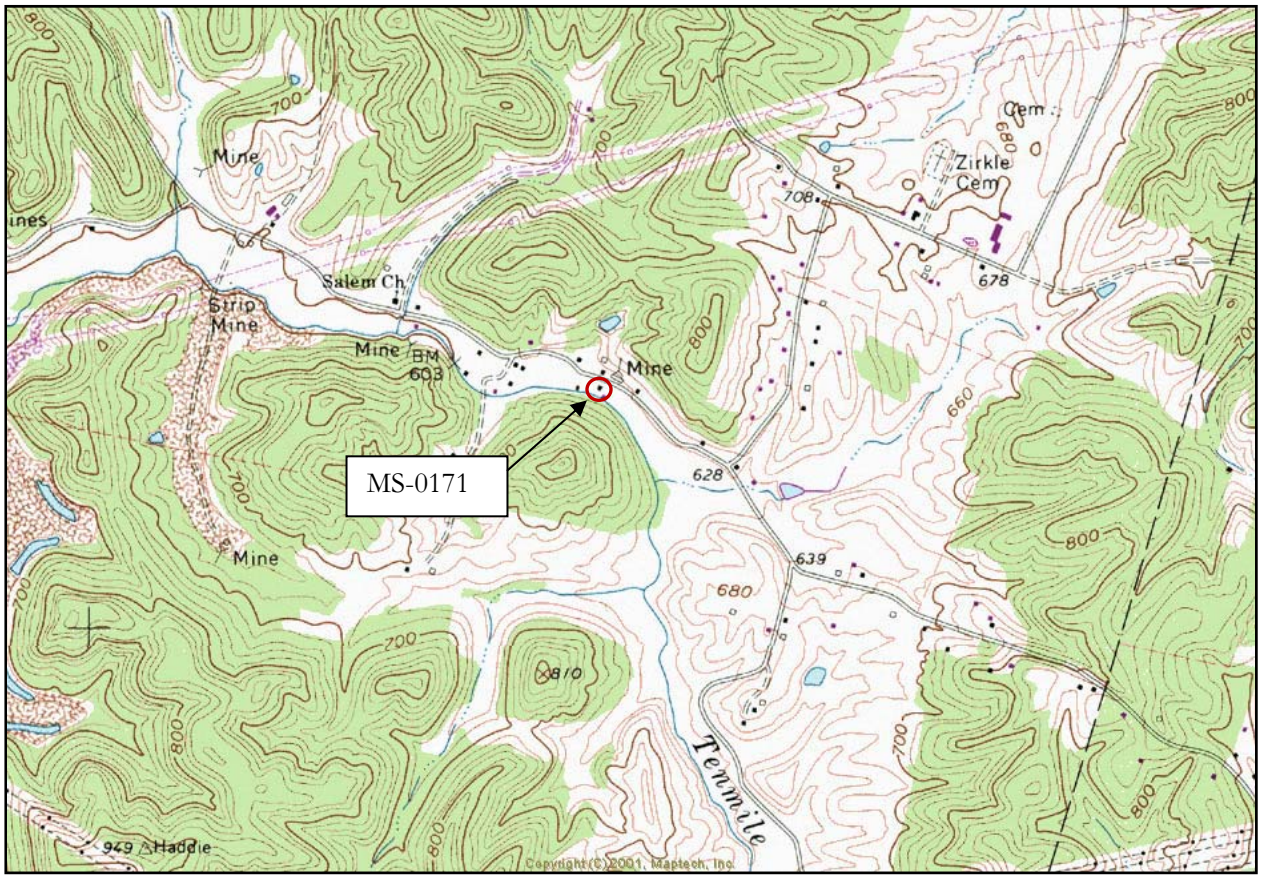
Address: 4425 Forbes Blvd., Suite B, Lanham MD 20706
Phone #: 301-306-6981, ext. 14

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_Lieving Log House_____ **SITE#**__MS-0171_____

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_Lieving Log House_____ **SITE#**__MS-0171_____



MS-0171
Lieving Log House opposite of 2552 Lieving Road
UTM 17 0411213E 4313135N (NAD27)
USGS Cheshire Quadrangle (Rev. 1989)

Internal Rating: _____

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address North side Lieving Road, 500 feet east of 2552 Lieving Road	**Common/Historic Name/Both** O O O House and Mineshaft	**Field Survey #**	**Site # *(SHPO Only)*** MS 0172
Town or Community West Columbia vicinity	**County** Mason	**Negative No.** Digital photograph	**NR Listed Date**
Architect/Builder	**Date of Construction** ca. 1910	**Style** Vernacular	
Exterior Siding/Materials Weatherboard and plywood	**Roofing Material** Corrugated metal	**Foundation** Unknown	
Property Use or Function Residence X Commercial O Other Vacant	**UTM# 17 0411317E 4313122N (NAD27)**	**Photograph** (2" x 3" Contact)	
Survey Organization & Date TRC Environmental Corp. July 27, 2010	**Quadrangle Name** Cheshire (Rev. 1989)		
	Part of What Survey/FR# Mountaineer CCS II Project FR # 10-1133-MS		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.

Present Owners	Owners Mailing Address
Phone #	

Describe Setting

Building stands in a small hamlet setting, consisting of a mixture of occupied and vacant farmhouses, farmland, pastures, and woodland .

_____ Acres

N/A _Archaeological Artifacts Present

Description of Building or Site (Original and Present) **____1 1/2_____Stories _____3____Front Bays**

This is a 1 1/2–story, 3-bay, frame house with a side–gable roof covered with corrugated metal and a central gabled dormer. There is a 1-story, flat-roofed porch enclosed with plywood. The house has a central entrance. The windows have 3/1 double hung sash. The house is vacant and in poor condition.

(Use Continuation Sheets)

Alterations [X] Yes [ ] No **If yes, describe: The house has porch siding, some replaced window sash.**

Additions [ ] Yes [ ] No **If yes, describe:**

Describe All Outbuildings: To the rear of the house, there is a portion of an abandoned mine shaft and some metal pipes leading down to the road.

(Use Continuation Sheets)

Statement of Significance A building at this location is shown on the 1908 and 1928 USGS 15-minute series maps (Point Pleasant Quad). This building may been associated with the Lieving Coal Company that carried out coal mining operations here until the 1960s.

(Use Continuation Sheets)

Bibliographical References

Mason County Tax Assessor, Mason County Register of Deeds,

USGS Map, Point Pleasant Quad (1908 and 1928) ***(Use Continuation Sheets)***

Form Prepared By: Geoffrey Henry, Program Manager—Architectural History **Date: July 10, 2010**

Name/Organization: TRC Environmental Corp.

Address: 4425 Forbes Blvd., Suite B, Lanham MD 20706
Phone #: 301-306-6981, ext. 14

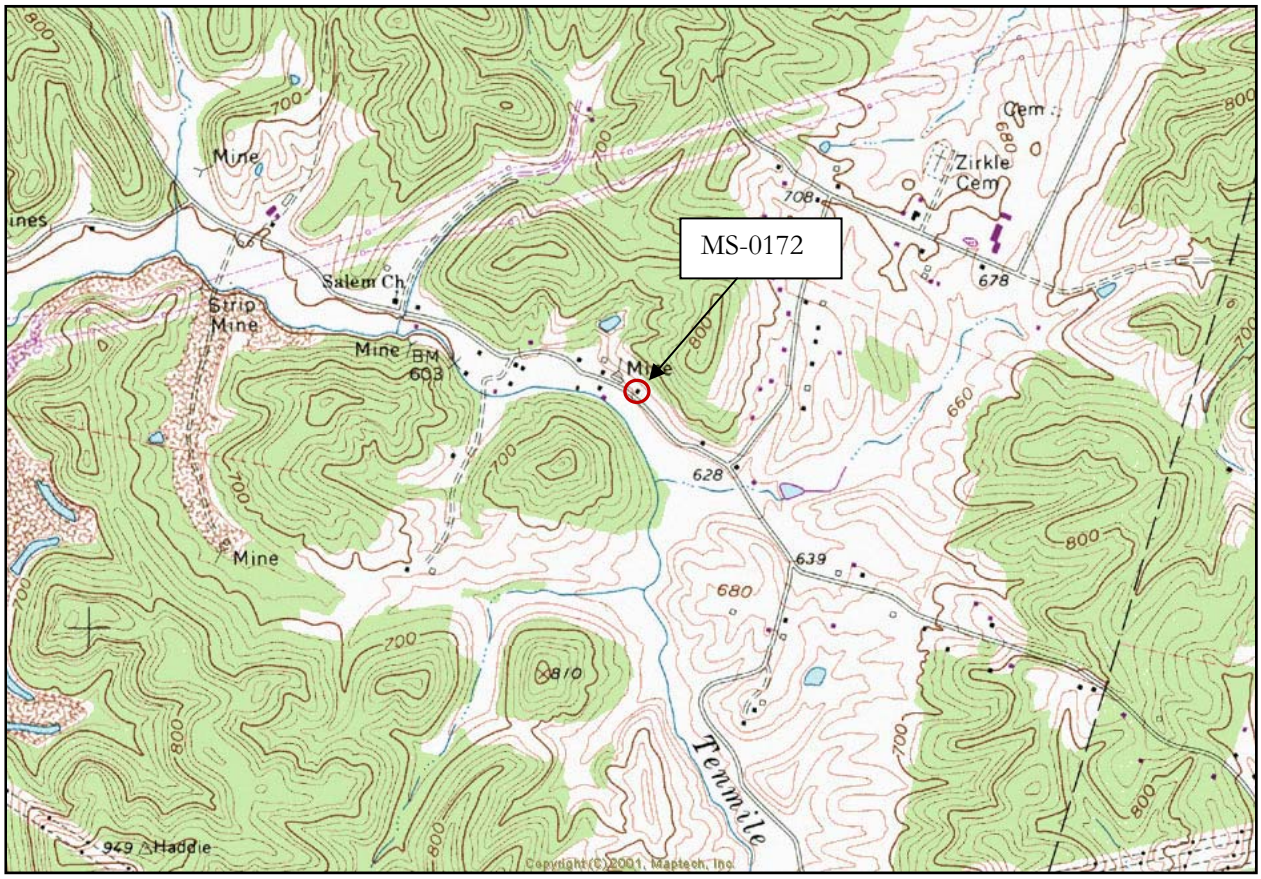
West Virginia Division of Culture and History
State Historic Preservation Office

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_____ **SITE#** MS-0172

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_____ **SITE#** MS-0172



MS-0172
House and Mineshaft on North side of Lieving Road, 500' east of 2552 Lieving Road
UTM 17 0411317E 4313122N (NAD27)
USGS Cheshire Quadrangle (Rev. 1989)

Internal Rating: _____

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address South side Lieving Road	**Common/Historic Name/Both** O O O	**Field Survey #**	**Site # *(SHPO Only)*** MS 0173
Town or Community West Columbia vicinity	**County** Mason	**Negative No.** Digital photograph	**NR Listed Date**
Architect/Builder	**Date of Construction** ca. 1950	**Style** N/A	
Exterior Siding/Materials N/A	**Roofing Material** N/A	**Foundation** Poured concrete slab	
Property Use or Function Residence O Commercial O Other Site	**UTM# 17 0411277E 4313085N (NAD27)**	**Photograph** (2" x 3" Contact)	
Survey Organization & Date TRC Environmental Corp. July 27, 2010	**Quadrangle Name** Cheshire (Rev. 1989)		
	Part of What Survey/FR# Mountaineer CCS II Project FR # 10-1133-MS		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.

Present Owners	Owners Mailing Address
Appalachian Power Company Phone #	

Describe Setting

Site stands in a small hamlet, consisting of a mixture of occupied and vacant farm houses, farmland, pastures, and woodland.

_____112___ Acres

N/A _Archaeological Artifacts Present

Description of Building or Site (Original and Present) _____0____Stories ___0___Front Bays

There are three poured concrete-slab foundations located on the south side of Lieving Road. Because they are near a 1-story brick building also with a concrete slab foundation, they may have been part of a complex, perhaps associated with the Lieving Coal Company operations carried out in this area.

(Use Continuation Sheets)

Alterations [X] Yes [ ] No — If yes, describe: The buildings have been demolished, leaving only foundations.

Additions [ ] Yes [ ] No — If yes, describe:

Describe All Outbuildings None

(Use Continuation Sheets)

Statement of Significance Nothing is shown at this location on the 1908 and 1928 USGS 15-minute series maps (Point Pleasant Quad).

(Use Continuation Sheets)

Bibliographical References

Mason County Tax Assessor, Mason County Register of Deeds,

USGS Map, Point Pleasant Quad (1908 and 1928) *(Use Continuation Sheets)*

Form Prepared By: Geoffrey Henry, Program Manager—Architectural History **Date:** July 10, 2010

Name/Organization: TRC Environmental Corp.

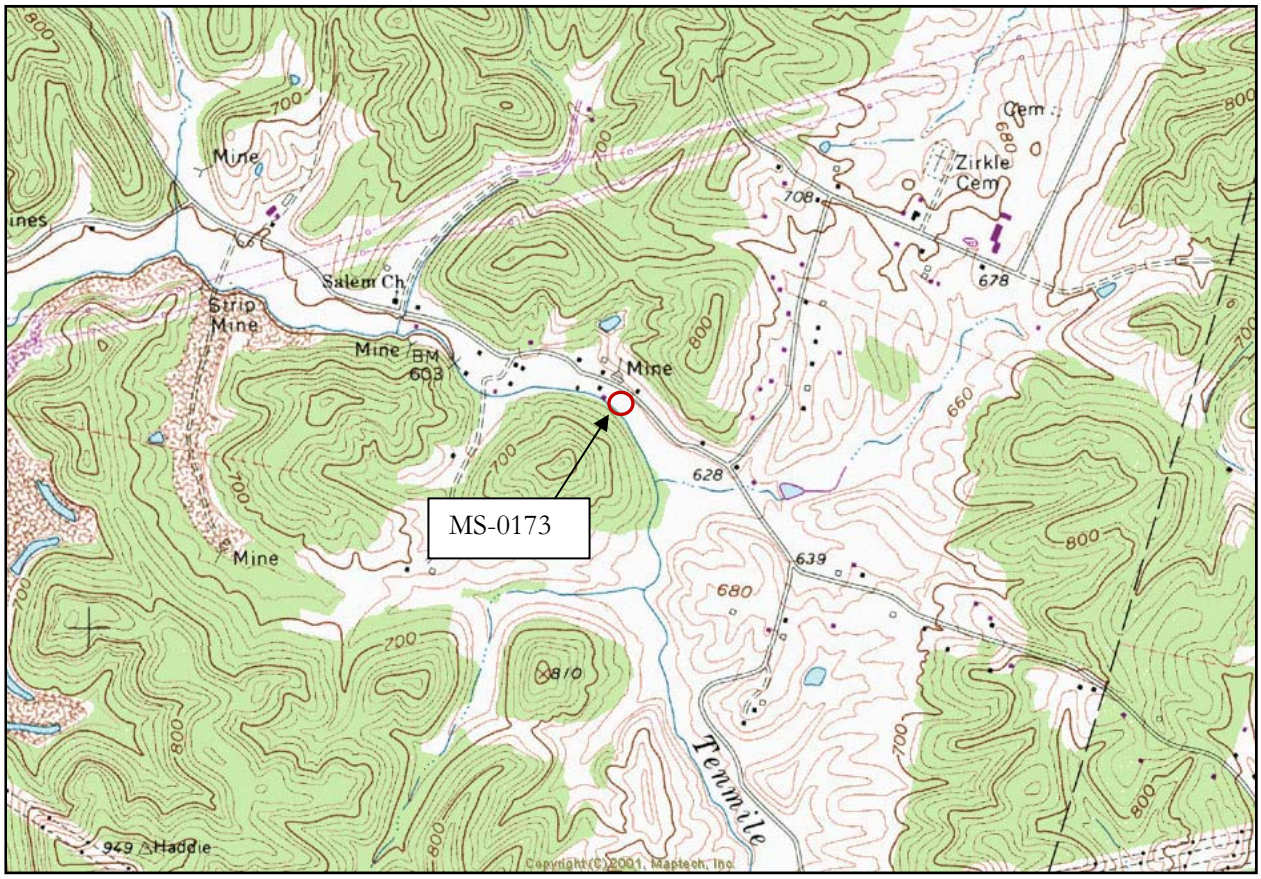
Address: 4425 Forbes Blvd., Suite B, Lanham MD 20706

Phone #: 301-306-6981, ext. 14

West Virginia Division of Culture and History
State Historic Preservation Office

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_____ **SITE#** MS-0173



MS-0173
Slab Foundations on South Side of Lieving Road
UTM 17 0411277E 4313085N (NAD27)
USGS Cheshire Quadrangle (Rev. 1989)

Internal Rating: _____

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address Northeast corner of Gibbstown Road (CR 1) and Lieving Road	**Common/Historic Name/Both** X O O	**Field Survey #**	**Site # *(SHPO Only)*** MS 174
Town or Community West Columbia vicinity	**County** Mason	**Negative No.** Digital photograph	**NR Listed Date**
Architect/Builder	**Date of Construction** ca. 1920	**Style** Vernacular	
Exterior Siding/Materials Aluminum and weatherboard siding	**Roofing Material** Asphalt shingle	**Foundation** Brick and concrete block	
Property Use or Function Residence X Commercial O Other Vacant	**UTM# 17 0411605E 4312903N (NAD27)**	**Photograph** (2" x 3" Contact)	
Survey Organization & Date TRC Environmental Corp. July 27, 2010	**Quadrangle Name** Cheshire (Rev. 1987)		
	Part of What Survey/FR# Mountaineer CCS II Project FR # 10-1133-MS		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.

Present Owners	Owners Mailing Address
Phone #	

Describe Setting

Building stands in a small hamlet, surrounded by a mixture of occupied and vacant farmhouses, farmland, pastures, and woodland.

_____ Acres

N/A _Archaeological Artifacts Present

Description of Building or Site (Original and Present) **___1 1/2_____Stories ___3_____Front Bays**

The main house on the property is 1 1/2–story, 3-bay, frame house with a side–gable roof and a rear gable-roofed ell. There is a 1-story, shed-roofed porch with wood posts on the side elevation. The house has a central entrance with a single leaf wood door. The windows have 2/2 double hung sash. The house is vacant and in poor condition.

(Use Continuation Sheets)

Alterations [X] Yes [ ] No **If yes, describe: The house has non-historic siding and some windows have been removed.**

Additions [ ] Yes [ ] No **If yes, describe:**

Describe All Outbuildings: There is a 1-story, 1-bay gable-roofed frame garage located to the north of the house.

(Use Continuation Sheets)

Statement of Significance A building at this lcaotion is shown on the 1928 USGS 15-minute series map (Point Pleasant Quad).

(Use Continuation Sheets)

Bibliographical References

Mason County Tax Assessor, Mason County Register of Deeds,

USGS Map, Point Pleasant Quad (1928) ***(Use Continuation Sheets)***

Form Prepared By: Geoffrey Henry, Program Manager—Architectural History **Date: July 10, 2010**

Name/Organization: TRC Environmental Corp.

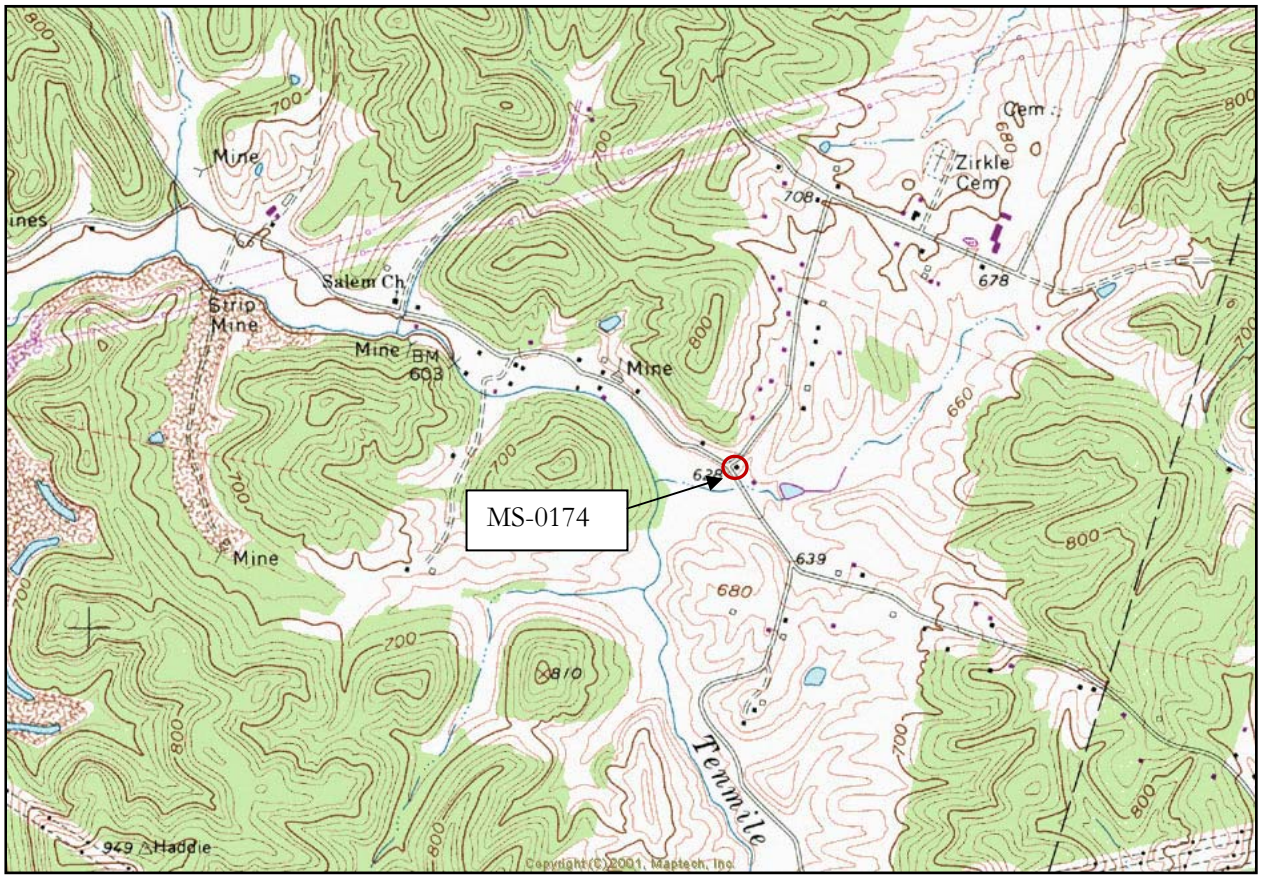
Address: 4425 Forbes Blvd., Suite B, Lanham MD 20706
Phone #: 301-306-6981, ext. 14

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_____ **SITE#** MS-0174

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_____ **SITE#** MS-0174



MS-0174
House at Northeast corner of Gibbstown Road (CR 1) and Lieving Road
UTM 17 0411605E 4312903N (NAD27)
USGS Cheshire Quadrangle (Rev. 1989)

Internal Rating: _____

WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address Southeast corner of Sassafras Road and Lieving Roads	**Common/Historic Name/Both** X O O	**Field Survey #**	**Site # *(SHPO Only)*** MS 175
Town or Community Sassafras vicinity	**County** Mason	**Negative No.** Digital photograph	**NR Listed Date**
Architect/Builder	**Date of Construction** ca. 1900	**Style** Vernacular	
Exterior Siding/Materials Vinyl siding	**Roofing Material** Standing seam metal	**Foundation** Brick and non-historic concrete block	
Property Use or Function Residence X Commercial O Other	**UTM# 17 0411737E 4312462N (NAD27)**	**Photograph** (2" x 3" Contact)	
Survey Organization & Date TRC Environmental Corp. July 27, 2010	**Quadrangle Name** Cheshire (Rev. 1989)		
	Part of What Survey/FR# Mountaineer CCS II Project FR # 10-1133-MS		

Sketch Map of Property
Or Attach Copy of USGS Map

Site No.

Present Owners	Owners Mailing Address
Phone #	

Describe Setting

Building stands on a hilltop in an area of farmland, pastures, and woodland.

_____ Acres

N/A _Archaeological Artifacts Present

Description of Building or Site (Original and Present) **___2_____Stories ___3_____Front Bays**

The main house on the property is 2–story, 3-bay, frame house with a side-gable roof and a rear gable-roofed ell. There is a 1-story, shed-roofed porch with wood posts on the rear (north) elevation, and an enclosed porch now used as the main entrance. The house has a central entrance on the south with a single leaf wood door. The windows have 2/2 double hung sash.

(Use Continuation Sheets)

Alterations [X] Yes [ ] No **If yes, describe: The house has non-historic siding, windows, and doors.**

Additions [X] Yes [ ] No **If yes, describe: Enclosed porch on the north.**

Describe All Outbuildings: There are two deteriorated frame barns to the south, and two non-historic sheds to the east.

(Use Continuation Sheets)

Statement of Significance A building at this location is shown on the 1908 and 1928 USGS 15-minute series (Point Pleasant Quad).

(Use Continuation Sheets)

Bibliographical References

Mason County Tax Assessor, Mason County Register of Deeds,

USGS Map, Point Pleasant Quad (1908 and 1928) ***(Use Continuation Sheets)***

Form Prepared By: Geoffrey Henry, Program Manager—Architectural History **Date: July 10, 2010**

Name/Organization: TRC Environmental Corp.

Address: 4425 Forbes Blvd., Suite B, Lanham MD 20706
Phone #: 301-306-6981, ext. 14

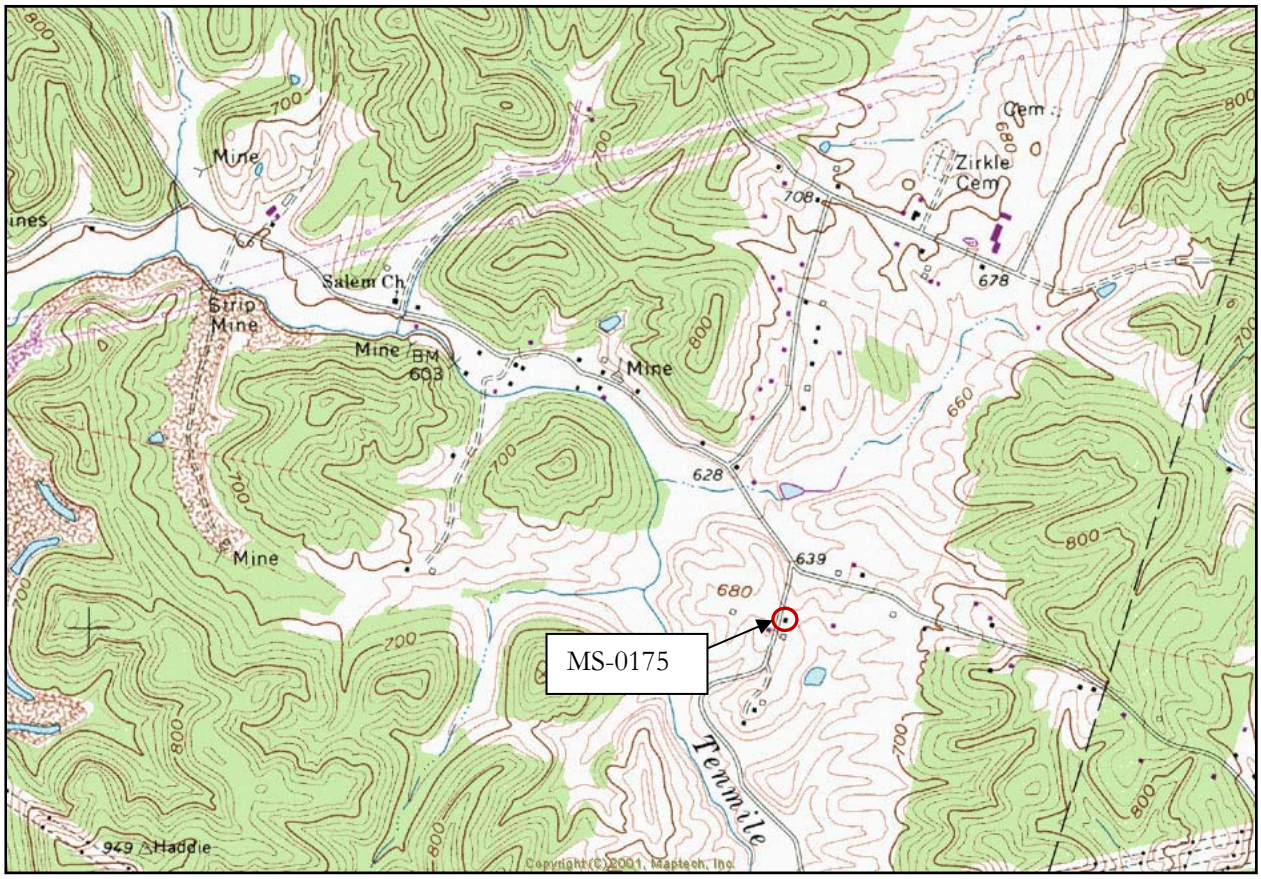
West Virginia Division of Culture and History
State Historic Preservation Office

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_____ **SITE#** MS-1075

WEST VIRGINIA HISTORIC PROPERTY FORM
CONTINUATION SHEET

NAME_____ **SITE#** MS-1075_____



MS-0175
House at Southeast corner of Sassafras Road and Lieving Roads
UTM 17 0411737E 4312462N (NAD27)
USGS Cheshire Quadrangle (Rev. 1989)

West Virginia Cemetery Survey Form

NR rating:_____

(Revised February 3, 2010)

1. Site Number (OFFICE USE ONLY): _____MS 0176_____

2. Cemetery Name, Historic: Brinkley Cemetery Cemetery Name, Common: Brinkley Family Cemetery

3. County: Mason 4. 7.5' Quadrangle Name: New Haven (Rev. 1987)____

5. UTM Zone: 17_____ NAD: 27_____
Easting: 0420066_____ Northing: 4307253_____
Easting:_____ Northing:_____

6. Location: West side of CR 62, north of Letart

7. Ownership: Public: Municipal_____ County_____ State_____ Federal_____

Private: Family___X_ Church_____ Denomination_____

Fraternal_____ Other_____

8. Burial Population: Approximately 10_____

_____

9. Predominant Surnames: Brinkley (all)_____

10. Mass Grave: Yes_____ No__X___ Explain: _____

11. Public Accessibility: Unrestricted_____
Restricted___X__
For permission to visit, contact Appalachian Electric Power (owner)

12. Access into cemetery: By foot__X___ By car_____

13. Terrain: ____Hilly and heavily forested_____

14. Bounded by: Fence_____ Wall_____ Hedge_____ Other_____

15. Condition: Well-maintained_____ Poorly maintained_____ Overgrown, easily identifiable__X_ Overgrown, unidentifiable_____ Unidentifiable, but known to exist through tradition or other means (identify source) _____

16. Disturbances: ____None_____

17. Cemetery Size and Orientation (please give dimensions in feet, and indicate compass direction for long and short axis): _____

West Virginia Cemetery Survey Form

NR rating:_____

Site Number: __MS 0176_____ Cemetery Name: Brinkley Cemetery_____

18. Historical Background (use continuation sheet if necessary): _____
_____
_____
_____

19. Gravestones (Please list the number of gravestones that fit in the categories below. If this is guess or an approximation, put "circa" before the number. Include photographs and/or sketches of representative decorative carvings.):

Number of headstones____10 Number of burials_10____ Footstones? Yes_____ No___X_

Number of gravestones with burial dates from the 18th century_____ 19th century___5__

20th century__5___ 21st century_____

Please list the earliest headstone date __1884_____ Most recent date_____1908____

Number of gravestones of each material: Slate_____ Marble_____ Granite___X__
Sandstone_____ Fieldstone_____
Other_____

Number of gravestones that are: Readable__9___ Eroded_____ Badly Tilted_____
Cracked/Broken_____ Broken but standing_____ Broken, no longer standing_____
Location of stones no longer standing_____

Restoration efforts, if any: _____
_____
_____

20. Please attach: 1) a copy of the topographic quadrangle map indicating the cemetery's location, and 2) general photograph(s) of the cemetery showing its setting and/or location. If you have any reference information about the cemetery (books, personal communication, etc.) please include a list.

Recorder: Patrick Walters, Archaeologist Date: August 10, 2010
Address: TRC Environmental Corp., 4425 Forbes Boulevard, Lanham MD
Telephone Number: 301-306-6981

Please return form to:
Historic Preservation Office
The Cultural Center
1900 Kanawha Boulevard East
Charleston, West Virginia 25305-0300

Thank you for your interest in the West Virginia Cemetery Survey.

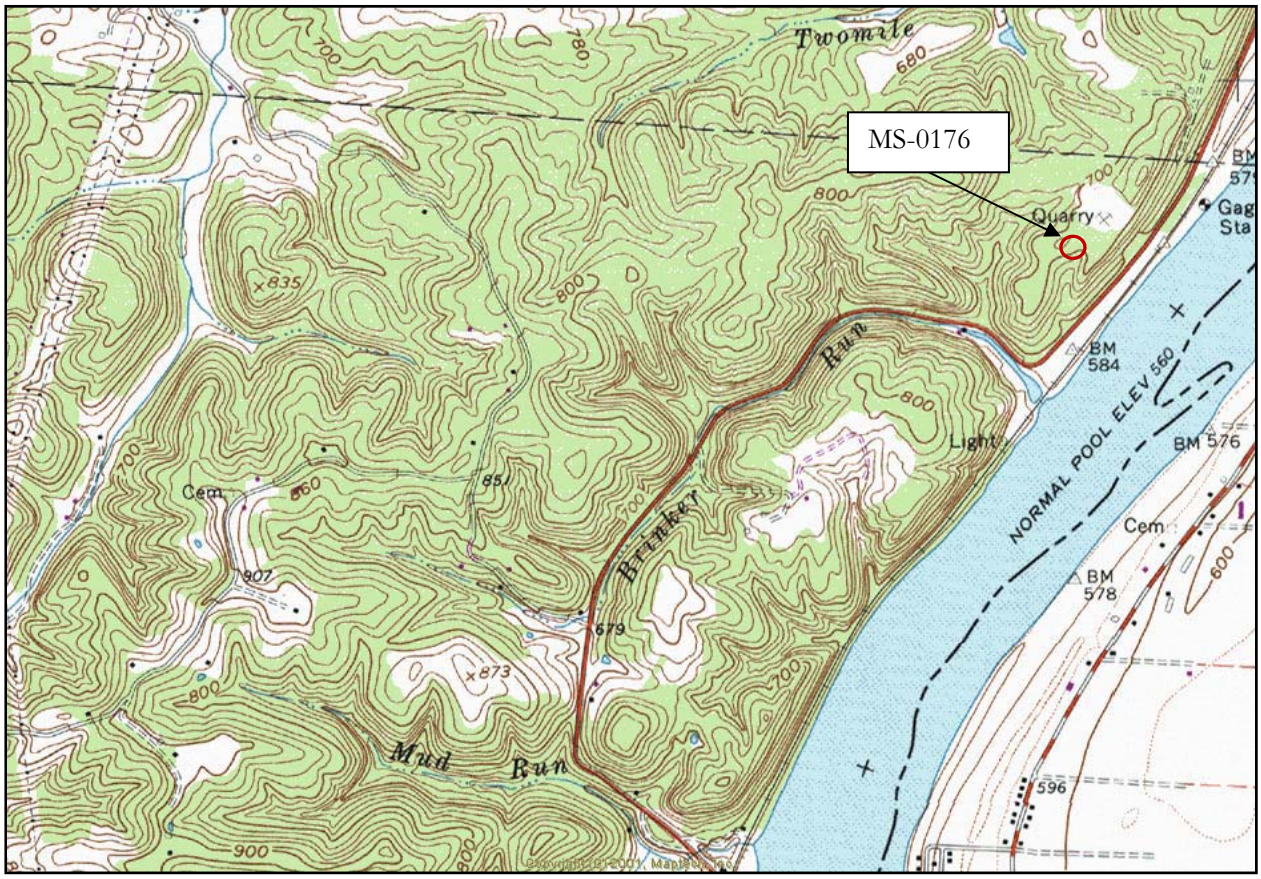
West Virginia Cemetery Survey Form

NR rating:_____

Site Number: MS 0176 Cemetery Name: Brinkley Cemetery

West Virginia Cemetery Survey Form NR rating:_____

Site Number: MS 0176 Cemetery Name: Brinkley Cemetery



MS-0176
Brinkley Family Cemetery
UTM 17 0420066E 4307253N (NAD27)
USGS New Haven Quadrangle (Rev. 1987)