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**A Preliminary Archaeological Survey
of Proposed Gas Well Locations in
Green Township (Scioto County) and
Elizabeth Township (Lawrence County)
Ohio**

**Deborah B. Black, Christopher S. Peebles and
Ronald E. Zielinski**

October 24, 1978

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PRINTED IN THE UNITED STATES OF AMERICA

Available from
National Technical Information Service
U. S. Department of Commerce
5285 Port Royal Road
Springfield, Virginia 22161
Price: Printed Copy \$4.50; Microfiche \$3.00

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Issued: October 24, 1978

*Division of Great Lakes, Museum of Anthropology,
University of Michigan

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Abstract

The present archaeological survey and cultural resource assessment was conducted for the United States Department of Energy, Morgantown Energy Technology Center in areas to be disturbed by gas well drilling and holding pond construction.

The project area is the Pine Creek drainage system, which is a tributary of the Ohio River in Scioto and Lawrence Counties, Ohio. The literature search indicated that prehistoric archaeological sites do occur and have been documented in the Pine Creek drainage system. Presently, no archaeological sites have been reported in locations of direct impact. The literature search also indicated that historic features from the early iron industry period, ca. 1840-1870, are likely to occur throughout the project area. Field reconnaissance identified three prehistoric archaeological sites and one historic site in and adjacent to the proposed locations of disturbance.

Two sites were determined to be of significant research value and may be nominated to the National Register of Historic Places. Consequently, recommendations were made to minimize the adverse effects of the proposed drilling project on these archaeological sites.

Introduction

In August 1977, an archaeological survey was conducted on 13 proposed, two-acre, gas-well sites. Five of the proposed well sites are located in Green Township, Scioto County, Ohio; and eight of the proposed well sites are situated in Elizabeth Township, Lawrence County, Ohio (See Figures 1, 2, 3 and 4). Although the two-acre areas are expected to be the maximum areal extent of disturbance from gas well and holding pond construction, they may not be the maximum areal extent of disturbance caused by the development of access roads to the well sites (See Conclusions and Recommendations, page 23).

The 13 proposed well locations were archaeologically surveyed in the following manner: seven well locations were surveyed on August 11-15, 1977; six well locations were surveyed on August 30-31, 1977; and one well location was test excavated on September 1, 1977.

The survey was conducted by members* of the Museum of Anthropology, University of Michigan and was reported in accordance with the standards set by the Ohio Historic Preservation Office and within the guidelines set by the National Park Service Directive, 36CFR66, January 28, 1977, for the preservation of historic and prehistoric data.

*Authors Deborah B. Black and Christopher S. Peebles are members of the Division of Great Lakes, Museum of Anthropology, University of Michigan.

FIGURE 1 - Map of Ohio showing the two survey counties, Scioto and Lawrence, and Montgomery County, the resident county of Mound Facility.

FIGURE 2 - Archaeological survey area showing seven of the proposed well sites (four in Green Township, Scioto County, Ohio; three in Elizabeth Township, Lawrence County, Ohio).

FIGURE 3 - Archaeological survey area showing five of the proposed well sites in Elizabeth Township, Lawrence County, Ohio.

FIGURE 4 - Archaeological survey area showing one of the proposed well sites in Green Township, Scioto County, Ohio.

Background

Physiographic

The Green Township -- Elizabeth Township study area is located on the unglaciated section of the Allegheny Plateau in southeastern Ohio. The area is drained by a mature stream called Pine Creek. The Pine Creek drainage system has its headwaters in Vernon and Green Townships, Scioto County, and in Decatur and Elizabeth Townships, Lawrence County. The creek flows south then west through the survey area before flowing northwest to enter the Ohio River at Wheelersburg. The floodplain of Pine Creek ranges from 0.2 to 1.7 km in breadth in the survey area. Major tributaries to Pine Creek in the survey area are Sperry Fork, Little Pine Creek, Poplar Fork, and Cooney Branch. The highlands of the drainage consist of long narrow ridges indented by hollows and gullies where small streams have worked headwards up the slopes. The local relief is 260 ft. Flat land occurs principally in the Pine Creek floodplain and along tributary streams. The largest such flat area occurs at Powellsville.

Soils of the unglaciated valley walls are shallow, loam-to-silty clay loams developed on Pennsylvanian sandstone and shale [1]. Angular fragments of sandstone occur on the surface. The slopes are either covered by secondary forests of oak and tulip or used for pasture. Forest cover on the valley slopes at the time of European contact was chiefly mixed mesophytic [2] with beech, white oak, sugar maple, and tulip trees.

Soils of the low floodplain areas consist of well-drained silt loam on terraces and elevations above present stream channels,

and soils at low elevations directly along stream channels consist of well-drained fine sandy loam to heavy loam [1]. Today, floodplain soils are principally under cultivation for corn and soybeans. At the time of European contact, forest cover at the foot of hills was predominantly beech [2].

Previous archaeological research

Prior to field reconnaissance, the archaeological site files of the Ohio Historical Center (Columbus, Ohio) and published archaeological field reports were consulted. The purpose of this literature search was threefold: 1) to ascertain the extent of previous archaeological research in the study area, 2) to determine the presence of previously reported sites in or near direct impact areas, and 3) to assess the potential for finding archaeological sites within the direct impact areas.

Through the literature search, it was learned that a systematic archaeological survey has never been conducted in the Pine Creek drainage system. Late nineteenth century and early twentieth century reports of archaeological sites were recorded in 1914 [3]. Since 1914, several sites in the general area have been reported to the Ohio Historical Center site files by members of the Archaeological Society of Ohio. In a few instances, brief descriptions of reported sites in the general Pine Creek area have been published in the Ohio Archaeologist.

There was insufficient information concerning reported archaeological sites to evaluate the following: 1) the presence or absence of certain prehistoric groups in the Pine Creek drainage, 2) patterns of association between reported sites and physiographic features, and 3) the

subsistence-settlement patterns of specific cultural groups within the study area. Based on a review of the extant archaeological data, the following general statements may be offered: the majority of reported sites in the Pine Creek drainage and surrounding small creek drainage systems represent prehistoric habitation on alluvial terraces; a few rock-shelters, mounds, and habitation areas have been noted on and along ridge systems; no previously reported sites occur in or adjacent to proposed well locations.

The potential of an area for human habitation is governed by the area's proximity to water, animal and plant foods, and other subsistence resources such as raw material for tool manufacture. The ease of access to subsistence resources, and the abundance of subsistence resources during a particular season of the year, determine whether a site is a favorable location for seasonal habitation.

Large habitation areas representing intensive subsistence activities may be expected to occur along perennial streams and other bodies of water where a number of economic activities such as hunting, fishing, and horticulture can be concentrated. In the central Ohio valley, large habitation sites are known to have been occupied by prehistoric and early historic hunters and gatherers and agriculturalists during warm seasons of the year when the local resource base could support aggregations of people.

Small habitation sites, representing short-term subsistence activities by small groups of people, may occur in areas more remote from major sources of water. These small habitation areas are often associated with specific extractive activities such as

hunting and chert quarrying but may be seasonal base camps occupied during periods of multiple subsistence activities. In the central Ohio valley, numerous small habitation areas have been found and patterns of dispersed settlement have been noted in the seasonal round of both prehistoric and early historic aborigines.

In the Green Township -- Elizabeth Township study area, large habitation sites may have occurred along terraces of the Pine Creek floodplain and on gentle slopes rising from the floodplain. Well-drained, high-bottom soils would have provided the best sites for occupation.

Small habitation sites may be expected to occur on well-drained alluvial soils along streams or on ridge tops where limestone springs are located, but these sites are not expected to occur on slopes of the local ridge systems with grades that approach 20%.

An intensive archaeological survey (conducted by Nancy Wilson of the University of Michigan Museum of Anthropology) in Athens County, Ohio [4] indicates that well-drained terrace soils adjacent to the confluence of a stream and any tributary stream consistently produce evidence of archaeological sites. In the Green Township -- Elizabeth Township study area, a similar pattern of sites at stream confluences may occur as portions of this area are physiographically similar to Athens County.

The limestone and sandstone formations of the local ridge systems may be expected to produce features conducive to occupation. Chert outcrops and clay beds, which occur in the survey area, may have been the focus of prehistoric extractive activities. Since seasonal use of rock overhangs for shelter

has been well documented from the archaeological record, sandstone overhangs of sufficient size to provide shelter in the survey area may have been sites of habitation.

Historic

Prior to field reconnaissance, a literature search of local county histories and pioneer memoirs was conducted to ascertain the location of any early historic economic centers, public structures such as churches or schools, and early homestead structures which may lie in or adjacent to the proposed well locations. Information concerning aboriginal settlement in the study area at the time of European contact was also sought.

European settlement of the study area began with the French Land Grant of 1795. Prior to 1795, 500 families emigrated from France to the United States in response to promises, made by the Scioto Land Company, of land in southeastern Ohio. Upon arriving in the New World, these immigrants found that the Scioto Land Company could not meet its obligations; and a representative from the immigrant colony was sent to the Philadelphia Congress to seek compensation. A congressional act in 1795, the French Land Grant, provided the immigrant families with ownership of land patents along the Ohio River east of the Scioto River. Five of the proposed well sites in Green Township, Scioto County lie in the French Land Grant properties. Records of the early French settlement place the nucleus of economic activity at Haverhill, which is outside the study area.

The French inhabitants of Green Township sold their lands to a New Hampshire colony in 1806. Today, only a few descendants

of the original French settlers live in Green Township. The New Hampshire Yankees settled the best lands for cultivation along the Ohio River and its tributaries. In 1810, the local population numbered 507 [5]. In 1812, Green Township was organized as a recognized unit of local government. During the 1820's, a number of iron furnaces were constructed in Green Township at Franklin Furnace, Junior Furnace, Union Furnace, and Ohio Furnace. In 1830, a group of Germans purchased land in the eastern back portion of the township since the prime floodplain lands along the Ohio River had already been taken [5]. During the 1830's through the 1850's, the population of Green Township grew in response to the economic activity of the furnace industry. Economic activities associated with the furnaces included lumbering for charcoal, mining for coal and iron ore, and the manufacture of iron, and railroads. Although the furnaces flourished during the Mexican and Civil Wars, they blew out one-by-one and were discontinued. During the height of the furnace industry, the Green Township population numbered 2,513 [5]. By 1900, the population had dropped to 1,332. Archaeological features and standing structures from the early iron industry period lie throughout the study area.

Although the hamlet of Powellsville in Green Township is not associated with the early furnace industry, it is an early settlement community within the survey area. Two gas well locations lie within Powellsville's limits (See Figure 1). This hamlet was laid out by William Powell, John Washington, and Irwin Washington. During the 1840's, William Powell's sons operated a tannery, shoeshop, and general mercantile. The Freewill Baptist church and Powellsville school, built in 1886, were situated in

the hamlet. The two proposed well sites in Powellsville would not have adverse impact on early historic features.

Elizabeth Township was organized in 1816. Early settlers immigrated to the area from Pennsylvania and Virginia in 1797. These immigrants were chiefly of Dutch and Irish descent. As in Green Township, the floodplain lands were cultivated, the ridges lumbered, and during the late nineteenth century iron furnaces flourished at Hanging Rock and Ironton. Proposed well sites in Elizabeth Township do not lie in or near the early historic economic centers. No recorded historic structures lie in areas of direct impact.

Local county histories and pioneer memoirs fail to produce information concerning aboriginal habitation in the study area at the time of European contact. Native American Shawnee settlements are recorded for the Early Historic period along the Ohio River at the mouth of the Scioto River. It is possible that native peoples at the time of European settlement used portions of the study area during seasons of dispersed settlement or while performing extractive activities such as hunting.

Discussion

Survey methods

Two survey methods were used. Where the ground surface was free of vegetation, a complete walk-over survey was conducted. In cultivated fields, transects were walked at four meter intervals. A small transect interval was chosen because: 1) cultivated lands on the Pine Creek floodplain have a high potential for cultural resources, and 2) the maturity of crops limited visibility. All bulldozed

trails and lanes in the proposed well locations were walked over and inspected for surface materials. Where ground cover prevented direct observation of the ground, shovel tests were made at 10 meter intervals. Each shovel test was approximately 30 by 30 cm in size and extended to a depth of about 20 to 35 cm, depending upon root structures and sandstone and limestone fragments.

The exact position of where access roads will run is not known. Where previously established lanes or bulldozed trails lead to a well location and might possibly be used for access, the position of the previously disturbed area was noted. A walk-over survey of established lanes and trails was made during field reconnaissance wherever lanes and trails connect proposed well sites with paved access routes.

During walk-over examination of cultivated portions of the well sites and shovel testing of vegetated portions of the well sites, specific evidence of prehistoric and early historic occupation was sought. Prehistoric evidence sought consisted of: stone tools, chert flakes and chert debris residual from tool manufacture, ceramic sherds, distinct changes in soil color caused by organic debris residual from habitation, signs of hearth features including soil color changes, fire-cracked rock, charcoal, carbonized food remains (such as burned bone and nut hulls), and signs of prehistoric burials including soil color changes, human bone, and accompanying artifacts. Historic evidence sought consisted of: standing historic structures, foundations of structures, and historic midden debris including nonperishable ceramic sherds, glass sherds, metal objects, carbonized organic material, signs of hearth construction including

fire-cracked rock and charcoal, and features from the early iron industry including mining depressions, horse-slip terraces, and wagon roads.

Proposed well locations and field reconnaissance

WELL LOCATION A

Owner: Paul Staker, Road 522, Powellsville.

Location: Wheelersburg Quad, French Land Grant, Green Twp., Scioto Co., 0.68 km ENE of the center of Powellsville, on Road 522 (See Figures 2 and 5).

Topographic Features: The site lies on Poplar Fork, which is a tributary of Pine Creek. The land configuration is flat. The soil is well-drained high bottom loam.

Vegetation: Pasture.

Archaeological Site Potential: Site potential is high because of its proximity to the stream, flat-land configuration, and well-drained soils.

Survey Methods and Results: The surveyors made shovel tests at 10 meter intervals throughout the two-acre area. No evidence of archaeological sites was found. Mr. and Mrs. Staker could not remember any archaeological finds on the well site. It was observed that access to the site could be made directly from Road 522 and would not disturb previously undisturbed land outside the surveyed well location.

WELL LOCATION B

Owner: Rev. Elmer Miller, Road 522, Powellsville, Scioto Co.

Location: Wheelersburg Quad, French Land Grant, Green Twp., Scioto Co., 0.8 km south of the center of Powellsville (See Figures 2 and 6).

Topographic Features: The site lies on a southwest facing slope above an intermittent drain. The grade of the slope approaches 20%.

Vegetation: Secondary forest.

Archaeological Site Potential: Site potential is low because of the steepness of the slope.

Survey Methods and Results: The surveyors made shovel tests at 10 meter intervals throughout the two-acre site. No evidence of archaeological sites was found. Rev. Miller and Mrs. Miller could report no information concerning archaeological sites in the survey area. Access to the proposed well site may disturb as much as 0.8 linear km of previously undisturbed land outside the surveyed two-acre site.

WELL LOCATION C

Owner: Evelyn Bradley and Henry Cook, Disterdick Road.

Location: Wheelersburg Quad, French Land Grant, Green Twp., Scioto Co., 2.65 km southeast of the center of Powellsville (See Figure 2 and 7).

Topographic Features: The site lies on a WSW facing slope above Pine Creek. The grade of the slope approaches 20%.

Vegetation: Secondary forest.

Archaeological Site Potential: Site potential is low because of the steepness of the slope.

Survey Methods and Results: The surveyors made shovel tests at 10 meter intervals throughout the two-acre survey area. No evidence of archaeological sites was found. Access to the proposed well site may disturb as much as 0.5 linear km of previously undisturbed land outside the two-acre survey area.

FIGURE 5 - Archaeological survey area showing proposed well location A in Green Township, Scioto County, Ohio

FIGURE 6 - Archaeological survey area showing proposed well location B in Green Township, Scioto County, Ohio.

FIGURE 7 - Archaeological survey area showing proposed well location C in Green Township, Scioto County, Ohio.

FIGURE 8 - Archaeological survey area showing proposed well location D in Green Township, Scioto County, Ohio.

WELL LOCATION D

Owner: John and Agnes Kline, Disterdick Road.

Location: Wheelersburg Quad, French Land Grant, Green Twp., Scioto Co., 4.5 km southeast of the center of Powellsville (See Figures 2 and 8).

Topographic Features: The site lies adjacent to Pine Creek on low bottom land that is seasonally flooded. The soil is well-drained, fine, sandy-to-loam.

Vegetation: Cultivated soybeans.

Archaeological Site Potential: Site potential is relatively low as seasonally better drained soil lies in the immediate area on the floodplain.

Survey Methods and Results: A walk-over survey was conducted along transects placed four meters apart. The southwestern boundary of the two-acre survey

FIGURE 9 - Archaeological survey area showing proposed well location E in Elizabeth Township, Lawrence County, Ohio.

area lies directly beneath and parallel to an electric fence that crosses Pine Creek (See Figure 8). A very slight rise was found in the two-acre site. No artifactual materials were recovered. Mrs. Kline reported no archaeological finds made along this floodplain area. Access to this location may be made from a farm lane without disturbing previously undisturbed land outside the two-acre area.

WELL LOCATION E

Owner: John and Ida Hacker, Dark Lick Road.

Location: Greenup, Ky.-Ohio Quad, SE 1/4 of Section 14, Elizabeth Twp., Lawrence County (See Figures 2 and 9).

Topographic Features: The site lies on a west facing slope above an intermittent drain. The grade of the slope approaches 20%.

Archaeological Site Potential: Site potential is low because of the steepness of slope.

Survey Methods and Results: The surveyors made shovel tests at 10 meter intervals throughout the two-acre area. No evidence of rockshelters or surficial sites was found. Access to the well site may be made from a lane off Dark Lick Road and up the slope through an area previously disturbed by very small-scale resource stripping.

WELL LOCATION F

Owner: Jerome T. Kline, Disterdick Road.

Location: Pedro Quad, NE 1/4 of NE 1/4 of Section 15, Elizabeth Twp., Lawrence Co. (See Figures 3 and 10).

Topographic Features: The site lies on the floodplain in a meander of Pine Creek. The soil is well-drained high bottom loam.

Vegetation: Cultivated corn and corn stubble.

Archaeological Site Potential: Site potential is high because of proximity to major stream, flat-to-gently rolling land configuration, and well-drained soils.

Survey Methods and Results: Mr. Jerry Kline of Disterdick Lane reported that a neighbor has found projectile points along Pine Creek in the study area. Mr. Kline has been unable to find archaeological materials, though he has looked previously, in the vicinity of the proposed two-acre well site.

The surveyors conducted a walk-over survey along transects spaced four meters apart in Well Location F. Evidence of intensive prehistoric habitation was found by the surveyors in this two-acre area on a slight terrace and

its descending slope. The areal extent of the site is approximately 100 meters by 25 to 62 meters (See Figure 10). Fire-cracked rock, resulting from human habitation, was found continuously distributed over the archaeological site. Chert debris and tools were found in four general areas (See Figure 10). Area A contained a relatively dense scatter of lithic material along the top of the slight terrace. Area B contained a large linear scatter of lithic material in the corn stubble. Area B appeared on the ground as a separate concentration from Area A. Area C contained a tight concentration of lithic material. Area D contained a general scatter of lithic material on a very gentle slope descending from the slight terrace to Pine Creek. Two diagnostic projectile points from the Early Archaic cultural period, ca 7000-6000 B.C., were recovered from the site. The cultural time level determination is based on the Kanawha Valley projectile point series [6]. Test excavation of the site to determine the possible extent of any plowzone and subplowzone cultural features was not conducted because of the maturity of the corn and the limited time allotted for reconnaissance survey.

An inventory of lithic material collected from the habitation site (See Table 1) and a discussion of the site follow. All archaeological materials collected from the site are at Mound Facility and will subsequently be curated and stored by the Ohio Historical Center. An Ohio Archaeological Inventory Form has been prepared for the Ohio Historic Preservation Office (See Appendix).

Discussion: The archaeological site that was found on Well Location F is of

significant research value. The density of chert material and fire-cracked rock suggests that plowzone and undisturbed subplowzone features may exist. The site is significant to the study of lithic technology, Archaic settlement-subsistence patterns, and potentially significant to the subsistence-settlement analysis of other cultural components that may have occupied the site. Additional study of the site and test excavation may determine that the site is eligible for inclusion in the National Register of Historic Places.

If at all possible, it is advised that this site be eliminated from the gas well drilling program. Detailed recommendations to either avoid or mitigate adverse impact on the archaeological site are made in the concluding section of this report (See Conclusions and Recommendations, page 22).

WELL LOCATION G

Owner: Anthony and Ruby Boll, Road 650.

Location: Pedro Quad, SW 1/4 of Section 10, Elizabeth Twp., Lawrence Co (See Figures 3 and 11).

Topographic Features: The site lies partially on a ridge top and mostly on a WSW facing slope above an intermittent drain. The grade of the slope approaches 20%. A limestone spring lies on the ridge ESE of the well location. Vanport limestone containing flint material outcrops on the ridge top, whereas shales and sandstone outcrop on the slope.

Vegetation: Secondary forest and scrub.

Archaeological Site Potential: There is some potential on the slope for rock shelters. There is high potential on the ridge for habitation because of the limestone spring and limestone outcrops that bear flint material.

Table 1 - INVENTORY OF CULTURAL MATERIAL FROM THE KLINE SITE

Items	Area A		Area B		Area C		Area D	
	No. of Items	Weight (g)	No. of Items	Weight (g)	No. of Items	Weight (g)	No. of Items	Weight (g)
Unprepared Chert Core	10	2172.6	12	573.1	4	740.1	3	157.7
Prepared Chert Core	3	103.3	2	67.4	-	--	-	--
Waste Flakes	111	1514.7	109	487.9	56	171.4	10	61.4
Miscellaneous Chipping Debris	12	--	-	--	-	--	-	--
Total	136	3790.6	133	1128.4	60	911.5	13	219.1
Av. Flake Weight, g		19.8		9.6		17		16.8
Utilized Flakes	4		-		3		-	
Uniface	7		3		1		-	
Biface	3		1		-		-	
Projectile Point	1		2		-		-	
Slate Tool	1		-		-		-	
Surin	1		1		-		-	
Fire-Cracked Rock	Present		Present		Present		Present	
Miscellaneous Chert Blocks and Shatter	21		13		-		-

FIGURE 10 - Archaeological survey area showing proposed well location F in Elizabeth Township, Lawrence County, Ohio.

FIGURE 11 - Archaeological survey area showing proposed well location G in Elizabeth Township, Lawrence County, Ohio.

Survey Methods and Results: Mr. Boll reported no finds of archaeological material in the survey area. He could recall finding rock overhangs on the property, but he did not believe they are of sufficient size to have provided shelter for human habitation.

In order to approach the well location on August 13, 1977, the surveyors traversed a bulldozed trail that had been previously made by Mr. Boll to contain a recent forest fire. The surveyors crossed the intermittent drain, ascended the ridge slope south of the proposed well location, and then walked along the ridge to approach the well location at its highest elevation (See Figure 11). While traversing the ridge top, large nodules and rough blocks of bluish dark gray-to-brownish gray Vanport chert, from the Vanport Limestone of the Lower Allegheny Series of the Pennsylvanian Rock System [7, 8] were found outcropping and lying on the ridge surface. Small depressions in the ridge top, which are reminiscent of aboriginal quarry depressions in the Flint Ridge outcrops of Vanport chert in Licking County (Ohio), were encountered. Large primary decortication flakes of limestone were observed adjacent to these chert blocks and depressions. This area has been marked "quarry" on Figure 11. Approximately 100 meters to the north, along the ridge top, a limestone spring was encountered near the southeast corner of the proposed well location. Several flakes of Vanport chert residual from aboriginal knapping were found surrounding the spring and along the ridge to the north. Since secondary forest and scrub vegetation hindered visibility,

surface concentrations of chert may have been overlooked. Still further to the north, on the ridge top above Well Location G, the surveyors collected several flakes residual from aboriginal chert knapping (See Table 2). The surveyors conducted shovel testing at 10 meter intervals throughout the proposed well location. Although shovel tests did not produce artifactual material, a small concentration of aboriginally knapped flakes was found on the forest floor on the slope descending from the ridge top area.

On September 1, 1977, four test trenches 0.5 by 3.0 meters in size were made on the upper slope of Well Location G (See Figure 11). The test trenches were taken to a depth of 20 cm into the clay subsoil. The purpose of the test excavation was: 1) to ascertain whether the concentration of flakes found on the surface of Well Location G by the surveyors (on August 13, 1977) was an isolated cultural feature or evidence of extensive prehistoric occupation extending down slope from the ridge top knapping site, 2) to ascertain the depth to which potential archaeological materials extend, and 3) to ascertain the nature of any cultural materials that may extend down slope from the ridge top site into Well Location G. Cultural materials were uncovered in only one of the four test trenches, Test Trench No. 1. This trench lies adjacent to the location where the surface concentration of flakes was found. The cultural materials were found at a depth of 10 cm at the interface of the humus and clay subsoil. Shovel tests were made along the ridge top on September 1, 1977, to verify that cultural materials on the ridge top site also lie within 10 cm of the ground surface.

Access to Well Location G can be made along one of Mr. Boll's bulldozed trails, which run along the slope, well below the ridge top. Access along one of the bulldozed trails on the slope will not disturb previously undisturbed land.

An inventory (See Table 2) and discussion of the archaeological materials follow. All archaeological materials collected from the site will be subsequently curated and stored by the Ohio Historical Center (Columbus, Ohio). An Ohio Archaeological Inventory Form has been prepared for the Ohio Historical Preservation Office (See Appendix).

Discussion: The surface concentration of archaeological materials and artifacts found in Test Trench No. 1 represents debris from aboriginal chert knapping activity. Because an aboriginal source

of chert and a chert knapping area occur on the adjacent ridge top, surface concentration and test trench materials are believed to be extents of the quarry and knapping site. Since these artifacts may have been moved down slope by runoff and erosion, they may not have been found in situ. Reconnaissance survey and test excavation revealed that the potential for archaeological materials in Well Location G is relatively high within 20 meters of the ridge top. Beneath the 780 ft elevation, no evidence of archaeological materials was found.

This ridge top site is of significant research value. Actual sources of aboriginal chert, quarry sites, and associated chert knapping activities have been rarely documented. This site is significant to studies of: 1) chert extractive activities, 2) associated lithic technology, 3) use of the local chert source within

Table 2 - INVENTORY OF CULTURAL MATERIAL FROM THE BOLL SITE

<u>Location</u>	<u>Items</u>	<u>No. of Items</u>	<u>Weight, g</u>
Surface Collection: Ridge Top	Sample cores	8	4099.2
	Cores with flakes removed	5	263.2
	Waste flakes	54	128.0
	Utilized flakco	1	
	Retouched uniface	1	
	Possible channel flake fragment	1	
	Miscellaneous chipping shatter	8	31.1
	Daub	1	
Surface Concentration in Well Location G	Waste flakes		22.1
Test Trench No. 1 in Well Location G	Biface fragment	1	
	Chert block fragment	1	
	Waste flake	1	

and outside the Pine Creek drainage system, 4) use of the local chert source by temporally and culturally differing groups of people, 5) movement of local chert once quarried, and 6) subsistence-settlement patterns in the central Ohio valley. Additional study of the site may provide supportive data for nomination of the site to the National Register.

Detailed recommendations to avoid adverse effects on the archaeological site are made in the concluding section of this report (See Conclusions and Recommendations, page 23).

WELL LOCATION H

Owner: Anthony and Ruby Boll, Road 650.

Location: Pedro Quad, SE 1/4 of SW 1/4 of Section 10, Elizabeth Twp., Lawrence Co. (See Figures 3 and 12).

FIGURE 12 - Archaeological survey area showing proposed well location H in Elizabeth Township, Lawrence County, Ohio.

Topographic Features: The site lies on a south facing slope above an intermittent drain. The grade of the slope approaches 20%.

Vegetation: Grass and secondary forest.

Archaeological Site Potential: Site potential is low because of the steepness of the slope.

Survey Methods and Results: The surveyors made shovel tests at 10 meter intervals throughout the two-acre area. Part of the area has been disturbed by housing construction. No evidence of archaeological sites was found. Mr. Boll could report no finds of artifactual material in the area. Although access to the site may be made from the road, approximately 50 meters of previously undisturbed land outside the two-acre survey area would be disturbed.

FIGURE 13 - Archaeological survey area showing proposed well location I in Elizabeth Township, Lawrence County, Ohio.

WELL LOCATION I

Owner: Orville and Erla Conley, Road 522.

Location: Pedro Quad, NE 1/4 of the NW 1/4 of Section 9, Elizabeth Twp., Lawrence Co. (See Figures 3 and 13).

Topographic Features: The site lies on a north facing slope above Pine Creek.

The grade of the slope approaches 20%.

Vegetation: Pasture and secondary forest.

Archaeological Site Potential: Site potential is low because of the steepness of the slope.

Survey Methods and Results: The surveyors made shovel tests at 10 meter intervals throughout the two-acre area. No evidence of archaeological sites was found. Mrs. Conley could report no finds of archaeological material on the property. Although access to the proposed well site may be made from a lane, approximately 0.15 km of previously undisturbed land outside the two-acre will location would be disturbed.

FIGURE 14 - Archaeological survey area showing proposed well location J in Green Township, Scioto County, Ohio.

WELL LOCATION J

Owner: James Witt.

Location: Greenup, Ky.-Ohio Quad, French Land Grant, Green Twp., Scioto Co., Ohio, 1.7 km NNW of Ohio Furnace at the head of Big Doney Hollow (See Figures 4 and 14).

Topographic Features: The site lies in an intermittent drain. The grade of the slope approaches 15%. The area has been partially disturbed historically, ca. 1840-1870, by iron mining and a wagon road.

Vegetation: Secondary forest.

Archaeological Site Potential: Site potential is low because of the steepness of the slope and drainage.

Survey Methods and Results: The surveyors made shovel tests at 10 meter intervals in undisturbed portions of the well location. The intermittent drain was walked, its surface was examined, and

FIGURE 15 - Archaeological survey area showing proposed well location K in Elizabeth Township, Lawrence County, Ohio.

its banks were trowelled at occasional intervals. No evidence of prehistoric occupation was found. Historic features from the early iron industry, including: iron mining pits, horse-slip terraces, and a wagon road, were found along the western edge of the survey area. Because these historic features extend outside the proposed well location, any small disturbance of the western edges of the well site during development will not threaten the historic data base. Access to the well site can be made partially along a lane NNE of the well location. Approximately 0.5 km of access would disturb the terrace produced by iron mining. Recently, this terrace has been used for access for lumbering and by cattle. Disturbance of the historic terrace would be minimal since grading and forest clearance would not be extensive.

WELL LOCATION K

Owner: John D. Shannon, Disterdick Road.
Location: Wheelersburg Quad. SW 1/4 of Section 12, Elizabeth Twp., Lawrence Co. (See Figures 2 and 15).
Topographic Features: The site is on a SSE facing slope above an intermittent drain. The grade of the slope approaches 20%.
Vegetation: Secondary forest and scrub.
Archaeological Site Potential: Site potential is low because of the steepness of the slope.
Survey Methods and Results: The surveyors conducted shovel testing at 10 meter intervals throughout the well location and recovered no artifacts. However, four chert flakes, two retouched uniface tools, one uniface modified through usage, one chert core, and two pieces of chert chipping debris were found

on a bulldozed trail on the slope leading to the well site. An interview with John Shannon produced the information that several projectile points have been found on the floodplain of the intermittent drain at the base of the slope proposed for gas well development. These projectile points are no longer in the possession of the landowner. It is believed that the artifacts recovered by the archaeologists were pushed up slope by the bulldozer, which produced a trail across the floodplain site and up the slope previous to the archaeological survey. Access to Well Location K can be made along a farm lane and the bulldozed trail, which will not disturb previously undisturbed land. If access to the well location is confined to the established trail, further damage to the floodplain habitation site will be avoided.

WELL LOCATION L

Owner: Anthony and Ruby Boll, Road 650.
Location: Wheelersburg, Quad, NW 1/4 of the NE 1/4 of Section 7, Elizabeth Twp., Lawrence Co. (Figures 2 and 16).
Topographic Features: The site lies on a north facing ridge shoulder and slope above an intermittent drain. The grade of the slope approaches 20%.
Vegetation: Secondary forest.
Archaeological Site Potential: Site potential is low because of the steepness of slope.
Survey Methods and Results: The surveyors made shovel tests at 10 meter intervals. No archaeological evidence was found. Access to the well location can be made partially along a farm lane off of Road 522. Approximately 0.5 km of previously undisturbed land would be disturbed by access to the well site.

FIGURE 16 - Archaeological survey area showing proposed well location L in Elizabeth Township, Lawrence County, Ohio.

WELL LOCATION M

Owner: Anthony and Ruby Boll, Road 650.

Location: Pedro Quad, SW 1/4 of the SE 1/4 of Section 2, Elizabeth Twp., Lawrence Co. (See Figures 3 and 17).

Topographic Features: The site lies on a SSE facing slope above the confluence of two intermittent drains. The grade of the slope approaches 15%.

Vegetation: Secondary forest.

Archaeological Site Potential: Site potential is low because of the steepness of slope.

Survey Methods and Results: The surveyors made shovel tests at 10 meter intervals. No archaeological materials were recovered. Access to the site may be made from Road 522. As much as 0.2 km of previously undisturbed land would be disturbed by access to the site.

FIGURE 17 - Archaeological survey area showing proposed well location M in Elizabeth Township, Lawrence County, Ohio.

Conclusions and Recommendations

Field reconnaissance of 13 gas well locations was conducted, and nine of the 13 intensively surveyed well locations produced no archaeological material. These nine well locations are: A, B, C, D, E, H, I, L, and M (See Figures 2 and 3). Two of the well locations, F and G (See Figure 3) lie on archaeological sites of significant research value (See the respective well location descriptions pages 15 and 16). Well location J borders cultural features of historic interest from the early iron industry period, ca. 1840-1870. Drilling and holding pond construction on Well Location J will not disturb the historic data base. Access to that well location could be made across the historic features without significantly disturbing them. Well Location K lies up slope from a prehistoric habitation site.

The archaeological site has been previously disturbed by a farm lane and bulldozed trail. Access to Well Location K could be made along the lane and bulldozed trail without causing further damage to the archaeological site.

Three alternatives are recommended to either avoid or mitigate adverse impact on the archaeological site located on Well Location F.

- 1) An alternative location can be chosen for gas well and holding pond construction.
- 2) If a buffer zone of undisturbed land is provided next to the site to ensure no adverse effect on cultural resources, gas well and holding pond construction can be placed to any side of the archaeological site using deviated drilling.
- 3) A research plan can be created and implemented to test the archaeological site for National Register eligibility, and pursuant to this, to retrieve data from the site in an appropriate manner under the advisement of the Ohio Historic Preservation Office.

Two alternatives are recommended to avoid adverse impact on the archaeological site located on Well Location G.

- 1) An alternative well location can be chosen,
- 2) Gas well and holding pond construction can be confined to the slope beneath the ridge top shoulder (See dotted line on Figure 11).

It is further recommended that no access be made along the ridge top since the archaeological site lies within and beneath the shallow humus zone and is

beneath the shallow humus zone and is sensitive to any form of surface disturbance.

Field reconnaissance revealed that access to proposed Well Locations B, C, H, I, J, L, and M will potentially disturb 2.2 linear km of previously undisturbed land. It is advisable to have an archaeological survey conducted along chosen access routes.

Because the potential always exists that archaeological sites may be deeply buried, construction workers should be alerted to the possibility that archaeological materials may be uncovered. If any major archaeological features such as concentrations of artifacts or early historic structural foundations are found, R. E. Zielinski, Mound Facility (513-866-7444) and Bert C. Drennen of the Ohio Historic Preservation Office (614-466-5347) should be notified immediately.

Acknowledgements

Several individuals are to be acknowledged for their assistance and advice in completing this survey. The writers wish to thank Martha P. Otto and Bert C. Drennen of the Ohio Historical Center for their assistance in researching the state archaeological site files, Dr. Charles I. Frye of the Muskingum College Geology Department for his assistance in researching the geologic formations within the study area, and Dr. Arthur A. Saxe and Susan R. Loughridge of the Ohio University Regional Archaeological Preservation Office for relating their personal observations and advice concerning archaeological survey in the unglaciated ridge systems of southeastern Ohio. Two members of the Division of Great Lakes, Museum of Anthropology, University of Michigan, are to be acknowledged for their assistance in preparing this report. Dr. Doreen Ozker prepared the inventories of artifacts collected

from archaeological sites in the study area (Tables 1 and 2). Thomas K Black, III, prepared the gas well location maps (Figures 5-17).

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Appendix

OHIO ARCHAEOLOGICAL INVENTORY

1. Site Number		4. Site Name KLINE SITE	
2. County Lawrence		5. Other Names For Site	
3. Township Elizabeth			
6. City or Town Powellsville		14. Land Form floodplain	
7. Map Reference Pedro, Ohio Quad		15. Elevation 600'	
8. Township & Range Number T2N R19W		16. Soil Type well-drained high bottom silt loam	
9. Section Number 15 (NE 1/4 of NW 1/4)		17. Floral Cover cultivated corn	
10. Latitude 38° 37' 30"		18. Condition of Site excellent, undisturbed except for plowzone	
11. Longitude 82° 45' "		19. Present Use cultivation	
12. U.T.M. Reference		20. Type of Site habitation	
Zone Easting Northing		21. Drainage System Pine Creek Drainage	
13. Verbal Site Location on floodplain in meander of Pine Creek at base of ridge slope in the NE1/4 of NW1/4 of Section 15, Elizabeth Twp.; Lawrence Co.		22. Dimensions of Site 100 meters by 25 to 62 meters	
		23. Ownership: Public ☐ Private ☒ Jerome Kline Disterdick Road	
		24. Form Prepared by Deborah Bush Black	
		25. Organization University of Michigan Museum of Anthropology	
		26. Location of Negatives	
		27. Date of Survey 7/12/77	
		28. Survey Conditions excellent visibility	
		29. Cultural Classification or Time Period Early Archaic (based on the Kanawha Proj. Point series)	
30. Artifacts Collected Ohio Historical Center Catalogue numbers A3970/1 - A3970/20 and A3970/38 - A3970/43			
31. References D. B. Black, C. S. Peebles, and R. E. Zielinski, A Preliminary Archaeological Survey of Proposed Gas Well Locations in Green Township (Scioto County) and Elizabeth Township (Lawrence County) Ohio, MLM-2501 (Oct. 24, 1978), 32 pp.			
32. Remarks Test excavation needed to determine eligibility for the National Register.			
33. Use opposite side to copy portion of topographic map with site located, attachment of contact print, sketch of site plan, or continuation of items 1-32			

OHIO ARCHAEOLOGICAL INVENTORY

1. Site Number		4. Site Name BOLL SITE	
2. County Lawrence		5. Other Names For Site	
3. Township Elizabeth			
6. City or Town Powellsville		14. Land Form unglaciaded ridge	23. Ownership: Public ☐ Private ☒ Anthony and Ruby Boll County Road 620
7. Map Reference Pedro, Ohio Quad		15. Elevation 800-820'	24. Form Prepared by Deborah Bush Black
8. Township & Range Number T2N R19W		16. Soil Type loam to silty clay loam	
9. Section Number 10 (SW 1/4)		17. Floral Cover secondary forest and scrub	
10. Latitude 38 ° 38 ' 20 "		18. Condition of Site partially disturbed by bulldoze trail	25. Organization University of Michigan Museum of Anthropology
11. Longitude 82 ° 43 ' 45 "		19. Present Use pasturage	26. Location of Negatives
12. U.T.M. Reference		20. Type of Site Quarry, chert knapping site, and possibly habitation	
<div style="display: flex; justify-content: space-around;"> <div>Zone</div> <div>Eastings</div> <div>Northings</div> </div>		21. Drainage System Pine Creek Drainage	27. Date of Survey 7/13/77 and 8/1/77
13. Verbal Site Location on ridgetop running NNW to SSE in the SW 1/4 of Section 10, Elizabeth Twp., Lawrence County		22. Dimensions of Site approximately 300-400 meters by 100 meters	28. Survey Conditions sparse to dense vegetation
			29. Cultural Classification or Time Period
30. Artifacts Collected Ohio Historical Center catalogue numbers A3970/21 - A3970/32			
31. References D. B. Black, C. S. Peebles, and R. E. Zielinski, <u>A Preliminary Archaeological Survey of Proposed Gas Well Locations in Green Township (Scioto County) and Elizabeth Township (Lawrence County) Ohio, MLM-2501 (Oct. 24, 1978), 32 pp.</u>			
32. Remarks The archaeological site is on the surface of the forest floor. Test excavation revealed archaeological material within the first four inches of the humus zone. The chert knapping site surrounds a limestone spring. Quarry depressions into the Vanport Flint deposit occur on the ridgetop to the south of the spring. Further investigation of the site may reveal habitation material other than chert chipping debris around the spring.			
33. Use opposite side to copy portion of topographic map with site located, attachment of contact print, sketch of site plan, or continuation of items 1-32			

OHIO ARCHAEOLOGICAL INVENTORY

1. Site Number		4. Site Name SHANNON SITE	
2. County Lawrence		5. Other Names For Site	
3. Township Elizabeth			
6. City or Town Vicinity of ☒ Powellsville		14. Land Form floodplain of inter-mittent drain	23. Ownership: Public ☐ Private ☒ John D. Shannon of Disterdick Road
7. Map Reference Wheelersburg, Ohio Quad		15. Elevation 600-620'	24. Form Prepared by Deborah Bush Black
8. Township & Range Number T2N R19W		16. Soil Type well-drained silt loam	25. Organization University of Michigan Museum of Anthropology
9. Section Number 12 (SE1/4 of SW1/4)		17. Floral Cover cultivated corn	26. Location of Negatives
10. Latitude 38° 38' 20"		18. Condition of Site partially disturbed by lane and bulldoze trail	27. Date of Survey 7/31/77
11. Longitude 82° 46' 35"		19. Present Use cultivation	28. Survey Conditions poor, mature corn and weeds
12. U.T.M. Reference		20. Type of Site habitation	29. Cultural Classification or Time Period
<div style="display: flex; justify-content: space-around;"> <div>Zone</div> <div>Eastings</div> <div>Northings</div> </div>		21. Drainage System Pine Creek Drainage	
13. Verbal Site Location on floodplain of intermittent drain tributary to Pine Creek in the SE 1/4 of the SW 1/4 of Section 12, Elizabeth Twp., Lawrence Co.		22. Dimensions of Site	

30. Artifacts Collected Ohio Historical Center Catalogue numbers A3970/33 - A3970/37

31. References D. B. Black, C. S. Peebles, and R. E. Zielinski, A Preliminary Archaeological Survey of Proposed Gas Well Locations in Green Township (Scioto County) and Elizabeth Township (Lawrence County) Ohio, MLM-2501 (Oct. 24, 1978), 32 pp.

32. Remarks The dimensions of this site could not be ascertained. Mr. John Shannon reported finds of several projectile points on the site. The projectile points are no longer with the landowner.

33. Use opposite side to copy portion of topographic map with site located, attachment of contact print, sketch of site plan, or continuation of items 1-32.

REPRODUCTION OF SPECIMEN RECORD FORM^a

Acc. No.	Item	No. of Items	Weight (g)	Provenience	Date
A3970/1	Unprepared chert core	10	2172.6	Kline Site: Area A	7/12/77
/2	Prepared chert core	3	103.3	Kline Site: Area A	7/12/77
/3	Waste flakes	111		" " Area A	7/12/77
/4	Utilized flakes	4		" " Area A	7/12/77
/5	Unifacial tools	7		" " Area A	7/12/77
/6	Projectile point	1		" " Area A	7/12/77
/7	Slate	1		" " Area A	7/12/77
/8	Unprepared chert core	12	301	Kline Site: Area B	7/12/77
/9	Prepared chert core	2	67.4	" " Area B	7/12/77
/10	Waste flakes	109	487.9	" " Area B	7/12/77
/11	Unifacial tools	3		" " Area B	7/12/77
/12	Biface	1		" " Area B	7/12/77
/13	Projectile point	2		" " Area B	7/12/77
/14	Biface fragments	3		Kline Site: Area A	7/12/77
/15	Unprepared chert core	4	740.1	Kline Site: Area C	7/12/77
/16	Waste flakes	56	171.4	" " Area C	7/12/77
/17	Utilized flakes	3		" " Area C	7/12/77
/18	Unifacial flakes	1		" " Area C	7/12/77
/19	Unprepared chert core	3	157.7	Kline Site: Area D	7/12/77
/20	Waste flakes	10	61.4	" " Area D	7/12/77
/21	Sample cores	8	4079.2	Boll Site: Ridge top	7/13/77
/22	Cores with flakes removed	5	263.2	" " Ridge top	7/13/77
/23	Waste flakes	54	128	" " Ridge top	7/13/77
/24	Utilized flakes			" " Ridge top	7/13/77
/25	Modified flake, possibly retouched	1		" " Ridge top	7/13/77
/26	Possible channel flake fragment	1		" " Ridge top	7/13/77
/27	Miscellaneous chipping shatter	8	31.1	" " Ridge top	7/13/77
/28	Daub	1		" " Ridge top	7/13/77
/29	Waste flakes	4		Boll Site: Surface	7/13/77
/30	Biface fragment	1		Boll Site: Test Trench	8/1/77
/31	Chert block fragment	1		" " Test Trench	8/1/77
/32	Flake	1		" " Test Trench	8/1/77
/33	Core with flakes removed	1		Shannon Site	7/31/77
/34	Utilized flake	1		" "	7/31/77
/35	Waste flake	4		" "	7/31/77
/36	Retouched unifaces	2		" "	7/31/77
/37	Chipping debris	2		" "	7/31/77
/38	Biface	1		Kline Site: Area C	7/12/77
/39	Burin	1		Kline Site: Area B	7/12/77
/40	Miscellaneous chert blocks and shatter	13		Kline Site: Area B	7/13/77
/41	Miscellaneous chipping debris	12		Kline Site: Area A	7/12/77
/42	Miscellaneous chert blocks	21+shatter		Kline Site: Area A	7/12/77
/43	Burin	1		Kline Site: Area A	7/12/77

^aOhio Historical Society, Dept. of Archaeology.

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