Phase II Archaeological Evaluation

The Ritter No. 1 Site (33HY0167)
Harrison Township, Henry County, Ohio

April 2016

Prepared for:
Henry County Transportation Improvement District
660 N. Perry Street
Napoleon, Ohio 43545

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Results of a Phase II Archaeological Evaluation of the Ritter No. 1 Site (33HY0167) for the New Maumee River Crossing Project (PID #22984), Harrison Township, Henry County, Ohio

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April 2016 (Revised)

EXECUTIVE SUMMARY

In the Fall of 2014, The Mannik & Smith Group, Inc. (MSG) conducted a Phase I archaeological survey for the proposed New Maumee River Crossing (PID #22984) in the city of Napoleon and Harrison Township, Henry County, Ohio. The proposed bridge is expected to span the Maumee River, connecting State Route 110 on the south to Industrial Drive on the north. The New Maumee River Crossing project is being advanced by the TID with oversight by the Ohio Department of Transportation (ODOT) (in cooperation with the Federal Highway Administration [FHWA]) as part of the Local Public Agency (LPA) program. Because the current project is under the jurisdiction of the FHWA, it is subject to review under Sections 106 and 110 of the National Historic Preservation Act of 1966 (as amended), Section 4(f) of the Department of Transportation Act of 1966, the National Environmental Policy Act of 1969, and related laws and regulations.

As a result of the Phase I survey, a prehistoric artifact scatter consisting of non-diagnostic lithic debitage and fire-cracked rock (FCR) was identified within the project area in a corn field on the south side of the Maumee River. This artifact scatter was interpreted by the Principal Investigator as an extension of previously recorded archaeological site 33HY0167, the Ritter No. 1 site. Originally identified in 1981, the Ritter No. 1 site was recorded as a late Paleoindian – Early Archaic lithic scatter, possibly a workshop, located on a natural levee approximately 164 ft. (50 m) south of the river. The 2014 survey conducted by MSG, which included shovel testing and controlled surface survey, resulted in the recovery of 68 lithic artifacts (including FCR and lithic debitage from the whole spectrum of the reduction process). Although no diagnostic artifacts were recovered, MSG recommended that 33HY0167 was potentially eligible for the National Register of Historic Places (NRHP) under Criterion D (information potential) for its ability to yield significant data that could be used to address several important research questions in the archaeology of the Paleoindian and Archaic periods in northwest Ohio, including questions pertaining to the changing patterns of lithic source utilization and population movements during the Paleoindian-Archaic transition; changes in lithic technology that may be correlated with evolving subsistence strategies; and changing patterns of landscape utilization and social organization during this time period.

In an Inter-Office Communication dated March 10, 2015, ODOT's Office of Environmental Services (OES) agreed that Phase II investigations were required to (a) establish the relationship of the new site to 33HY0167 (if any), and (b) formally evaluate the site for NRHP eligibility. Based on the guidance provided in the IOC, MSG conducted a Phase II investigation of the archaeological site in April 2015. The Phase II investigation, which was limited to the site extent within the project's direct Area of Potential Effects (APE), included a magnetic gradient survey (conducted by Ohio Valley Archaeology, Inc.); timed, controlled surface survey of 16-square foot (5-square meter) blocks; manual excavation of selected magnetic anomalies; spatial analysis of the recovered lithic assemblage; botanical analysis of selected feature fill samples (conducted by independent archaeobotanical consultant Ms. Kathryn Parker, M.A.); and accelerator mass spectrometry (AMS) dating of charcoal samples from feature contexts.

Based on the results of the Phase I and Phase II field investigations and subsequent analysis, it is the opinion of the Principal Investigator that the archaeological remains within the project area do indeed represent a portion of the Ritter No. 1 site due to a continuous distribution of artifacts between the New Maumee River Crossing Project Area and the originally recorded extent of 33HY0167.

The magnetic gradient survey resulted in the identification of 17 magnetic anomalies of potential archaeological interest, which appear to be clustered between the N940-N980 survey grid lines, corresponding to the western end of a natural levee on which 33HY0167 was originally recorded.

The Phase II surface collection resulted in the recovery of 274 prehistoric artifacts, representing a variety of artifact types (including a variety of lithic debitage types, lithic tool forms, FCR, and unmodified but possibly heat-treated tool stone nodules) as well as a large variety of lithic raw materials from central and southern Indiana; southwestern, central, north-central, and northwestern Ohio; southeastern and northeastern Michigan; and the Niagara region of New York. Among the tools recovered were three Bottleneck Stemmed projectile points dating to the Late Archaic period (ca. 3800-3000 B.P.).

A total of nine magnetic anomaly locations were investigated through test excavation units: Anomalies 1, 5, 8, 10, 11, 12, 14, 16 and 17. The anomalies chosen for test excavation represented the entire spectrum of OVAI's rating system, including anomalies rated as *Excellent* (n=1), *Good* (n=2), *Fair-Good* (n=1), *Fair* (n=2), and *no rating* (n=2). Only one test unit (Anomaly 1) failed to yield any evidence of cultural activity. The remaining eight test units all revealed at least one cultural feature or cultural deposit, ranging in age from the mid-Late Archaic (Anomaly 5) to the terminal Late Woodland/Late Prehistoric transition (Anomalies 11.1 and 14.1). Prehistoric feature types include hearths, possible storage/cache pits, and possible earth ovens/roasting pits, and a post mold; two prehistoric living surfaces were also identified. In addition, two features related to a single historic-period agricultural structure were identified.

Soil samples were collected from selected feature fill and non-feature cultural deposits and subjected to flotation for the purpose of recovering macrobotanical remains (see Appendix D). Only two of these samples yielded remains that could be identified by taxon, and of these just one yielded identifiable macrobotanical remains associated with a prehistoric cultural feature – Feature 11.1, a Terminal Late Woodland/Late Prehistoric transition-period post mold, which yielded fragments of hickory (*Carya* sp.) and basswood (*Tilia americana*) (both common to northern Ohio throughout prehistory).

While questions concerning site integrity were included in the initial research design for the Phase II investigation of 33HY0167, the paucity of botanical remains and the complete lack of faunal remains recovered during this investigation prompted a more thorough examination of site formation processes. The general lack of organic preservation within the site, and particularly in association with older archaeological deposits, can be explained with reference to the prominent soil type within the project area, Haney loam. This soil type has a high gravel content as well as highly acidic BE and Bt soil horizons, both characteristics that are not conducive to the preservation of organic material.

The original research design for Phase II investigations within the New Maumee River Crossing Project Area was based on the presumption of a Paleoindian/Early Archaic occupation. Following the identification of multiple temporal components within the project area, the research design was revised to include consideration of important research questions for multiple prehistoric periods. Overall, the research questions posed for the Phase II archaeological investigation of the New Maumee River Crossing Project Area was divided into site-specific research questions (including questions related to site integrity and formation processes) and comparative research questions that place 33HY0167 into broader regional and temporal frameworks. The results of the Phase I and Phase II investigations of 33HY0167 have provided either firm or at least tentative answers to many of these questions.

In terms of site integrity, it is clear that intact features as well as apparent buried living surfaces are not only present but fairly numerous within the project area, particularly between the N940-N960 survey grid lines. The New Maumee River Crossing Project Area does exhibit stratigraphic integrity, and several interesting patterns have been observed within the aggregated Phase I-II surface collection assemblage that may or may not relate to temporally specific intra-site spatial patterning. However, the attempt to discern intra-site spatial patterning in the locations of sub-plow zone contexts is complicated by the small number of sub-plow zone deposits assigned to each prehistoric temporal period (no more than two in any instance) along with the extension of the site outside the current project boundaries.

One interesting discrepancy between the surface collection assemblage and the location of magnetic anomalies is a relatively higher density of artifacts in the northern third of the project area, to the north of the cluster of magnetic anomalies. Two possible explanations for this discrepancy have been offered: that areas of higher density outside the moderate-density zone are the result of either post-depositional disturbance (e.g., plowing activity or downslope erosion) or of cultural activity that resulted only in surface or near-surface artifact deposits and an absence of subsurface feature contexts (or the presence of only features that lack a distinctive magnetic signature). Several other patterns that have been observed within the surface collected assemblage include a slightly better correspondence between the occurrence of exotic tool stone varieties within the surface collected assemblage and the densest cluster of magnetic anomalies, than between local tool stone varieties within the surface assemblage and the cluster of magnetic anomalies; a generally wide distribution of both formal tools and debitage across the project area, in contrast to the more restricted distribution of FCR and expedient tools (the latter being more closely aligned to overall patterns of artifact density as well as the densest cluster of magnetic anomalies); the 100% co-occurrence of other artifact forms with expedient (flake) tools, and the co-occurrence of other artifact forms with FCR, formal tools and debitage approximately two-thirds of the time; the clear spatial association of simple and complex flakes with the densest cluster of magnetic anomalies; and the approximately 40% co-occurrence of shatter, simple flakes and complex flakes with one or more of each other across the site. Additional investigation of 33HY0167 would be necessary to shed more light on these issues.

In terms of comparative research questions, 33HY0167 has yielded data associated with multiple occupations representing several temporal periods. While the Phase I and Phase II investigations did not produce any evidence of a Paleoindian or Early Archaic occupation of the site as expected, this may be a function of the limited New Maumee River Crossing Project Area; the site clearly extends outside of the current project boundaries, so the absence of a Paleoindian/Early Archaic component within the project area does not necessarily mean the absence of such within the site as a whole. However, occupations dating to the Late Archaic, early Middle Woodland, Middle/Late Woodland transition, and Terminal late Woodland/Late Prehistoric transition have been identified within the current project area. These components have yielded, and have the ability to yield additional data that can address a variety of research questions, including issues of settlement-subsistence patterning, band mobility and craft specialization during the Late Archaic period in northwestern Ohio; settlement-subsistence patterning and interaction with other cultural groups (including participation in the Hopewell Interaction Sphere) during the Middle Woodland period in northwestern Ohio; and settlement-subsistence patterning and unresolved questions regarding the culture history of the Late Woodland period in northwestern Ohio.

For these reasons, MSG recommends that the portion of 33HY0167 that is present within the New Maumee River Crossing Area is eligible for the NRHP under Criterion D (information potential). If impacts to the site resulting from the construction and use of the proposed bridge cannot be avoided, then MSG recommends that the HCTID negotiate an appropriate mitigation strategy with ODOT and the OSHPO. Such a mitigation strategy may include one or more of the following: data recovery excavations within the project footprint; detailed comparisons to, and investigations of the relationship of 33HY0167 to, nearby sites (including GIS-based approaches to landscape analysis); and public outreach and education regarding 33HY0167 and the general archaeology of the mid-Maumee River Valley region.

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APPENDICES

1.0 INTRODUCTION AND SITE BACKGROUND

In the Spring and Fall of 2015, The Mannik & Smith Group, Inc. (MSG) conducted a Phase II evaluation of archaeological site 33HY0167 (the Ritter No 1. Site) for the proposed New Maumee River Crossing (PID #22984) in the city of Napoleon and Harrison Township, Henry County, Ohio (Figures 1.1-1.2). The evaluation was conducted under contract with the Henry County Transportation Improvement District (TID). The construction of the bridge will provide a reduction in downtown congestion and improve traffic safety in the City of Napoleon. The proposed bridge is expected to span the Maumee River, connecting State Route 110 on the south to Industrial Drive on the north. The New Maumee River Crossing project is being advanced by the TID with oversight by the Ohio Department of Transportation (ODOT) (in cooperation with the Federal Highway Administration [FHWA]) as part of the Local Public Agency (LPA) program. Because the current project is under the jurisdiction of the FHWA, it is subject to review under Sections 106 and 110 of the National Historic Preservation Act of 1966 (as amended), Section 4(f) of the Department of Transportation Act of 1966, the National Environmental Policy Act of 1969, and related laws and regulations.

This report presents the results of the Phase II evaluation of 33HY0167. Section 1.0 includes a description of the environmental setting of the project area; a summary of previous investigations of 33HY0167; and a brief description of the scope of work for the Phase II evaluation of the site.

Several key members of MSG's project team contributed to this investigation. Dr. Robert Chidester, RPA, (who meets federal professional qualifications [36 CFR 61] as an archaeologist) served as the Principal Investigator. Chandler Herson (of Great Northern Archaeology, LLC), MSG Crew Chiefs John Molenda and Phillip Bauschard, and MSG Field Technicians Adam Darkow, Michael Millman, Lavinia True-Raffoul, David Wicks, and Hannelore Willeck assisted Dr. Chidester in the completion of field investigations. Artifact processing and cataloging were completed by Ms. Kate Hayfield and Mr. Bauschard, and analysis was conducted by Dr. Chidester and Mr. Bauschard. Dr. Chidester and Mr. Bauschard are the principal authors of this report, with assistance from Ms. Hayfield and GIS Specialist Bryan Agosti.

1.1 Environmental Setting

1.1.1 Physiography and Geology

The study area, which lies within the Central Lowland Physiographic Province, is situated in an area of low relief, the Glacial Lake Plain (Feldman et al. 1977). Fluctuating glacial lake levels defined the character of northwest Ohio during Holocene times. The glacial lake waters that covered northern Ohio deposited fine lake silts and clays (Forsyth 1968:14). Henry County is composed entirely of the resulting lake plains, with a few sandy ridges formed by glacial lake shores representing the only topographic variability (Flesher et al. 2005:11). The relatively low terrain that characterizes this region is a reflection of its location within the former Great Black Swamp, a poorly drained morass that cut off northwest Ohio from the rest of the state until it was drained in the late nineteenth century (Mayfield 1969; Camp 2006:50-52). In terms of prehistoric settlement patterns and archaeological site potential, ridges running through the area would have been attractive transportation corridors and habitation zones.

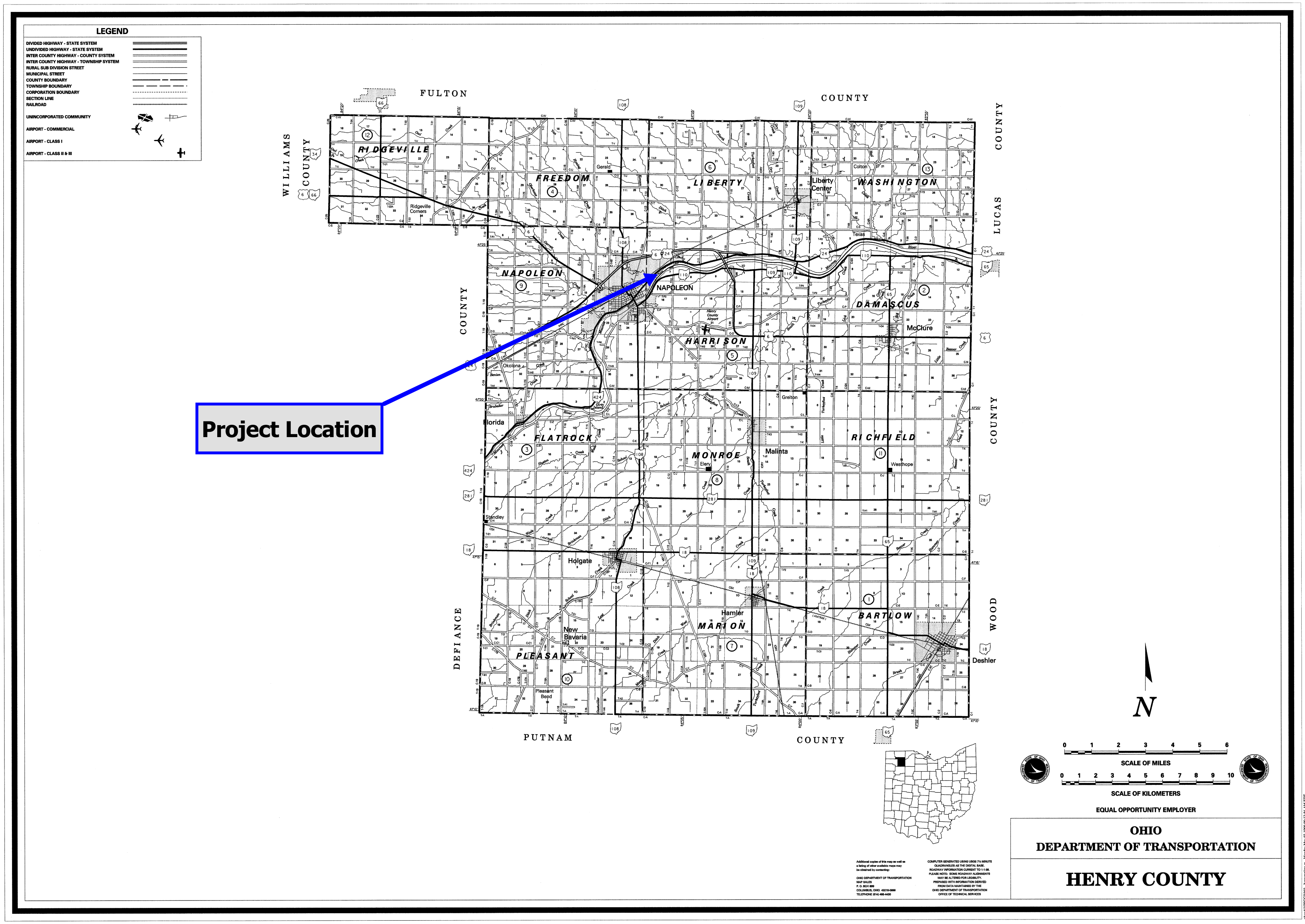

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Figure 1.1
Henry County Map
New Maumee River Crossing
Napoleon, Henry County, Ohio

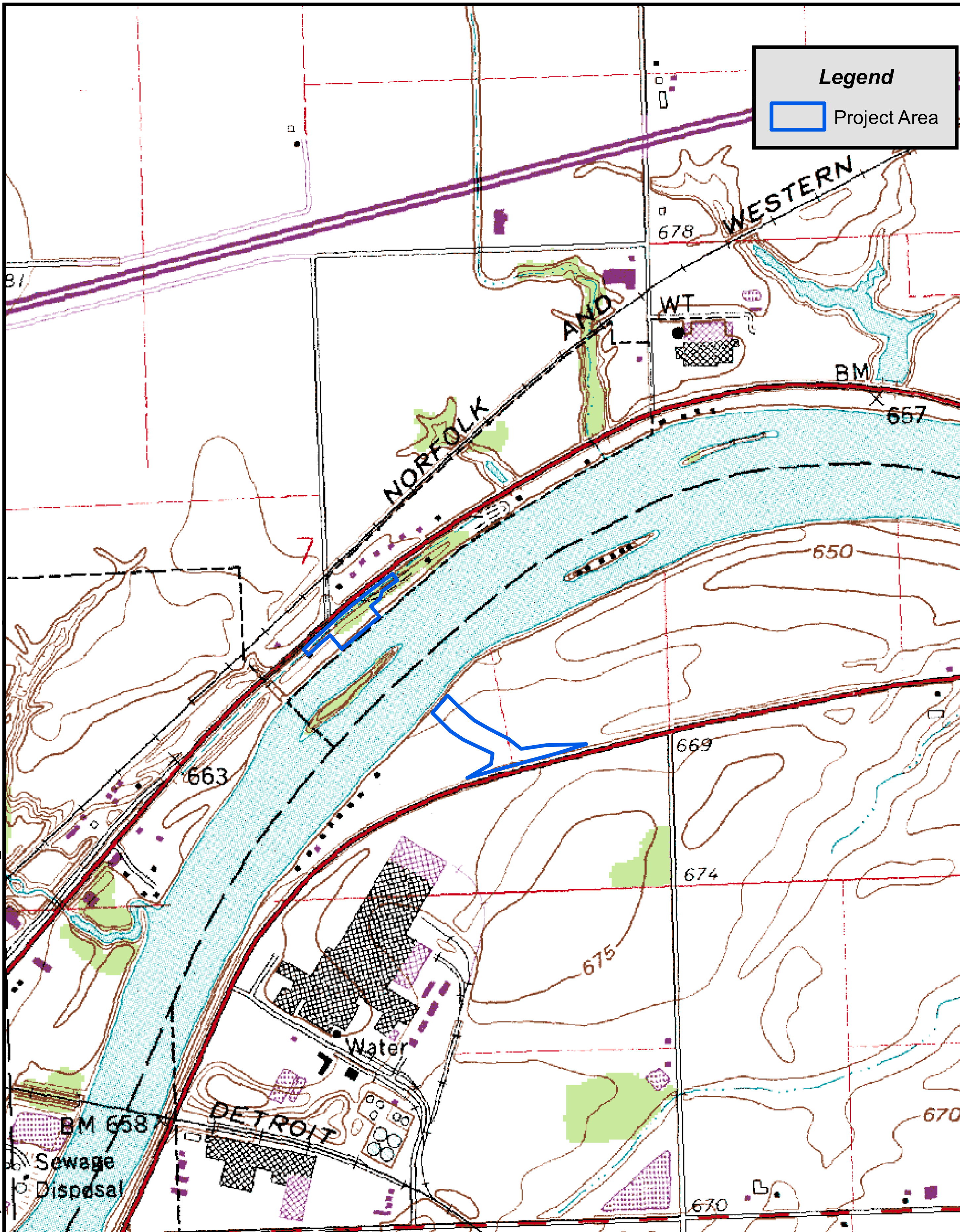

Figure 1.2: Project Location
New Maumee River Crossing
Napoleon, Ohio

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Notes
USGS Quadrangle, 7.5' Series Topographic
Napoleon East, OH 1960 Revised 1977

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The post-glacial, water-deposited sands of the Lake Plain region are not a good source of stone, particularly those stone varieties (igneous and metamorphic) typically procured by prehistoric peoples for use in stone tool manufacture and/or for use during food processing and preparation. Glacial till deposits exposed along deeply incised stream channels would, however, have provided sources of metamorphic and igneous rocks. It is also possible that non-local, glacially-deposited cherts (also known as pebble cherts) would have been available for chipped stone tool manufacture along the incised streams of the area (Lee and Hayfield 2010:7).

In addition to pebble cherts, two Devonian-age limestone formations in northwestern Ohio are known to contain chert, which can occur in either nodular form or bedded form. What was once called the Delaware or Traverse formation by archaeologists is now recognized as the Ten Mile Creek Dolomite formation and the underlying Silica Shale formation by geologists (Lee and Hayfield 2010:7). Archaeologists typically cited Stout and Schoenlaub (1945:32) when describing the Delaware formation in northwestern Ohio as being composed of several limestone and shale members which outcrop in Lucas, Wood, Henry and Defiance counties. Stauffer (1908:272) is often cited by archaeologists when referring to one section of the former Delaware formation along Ten Mile Creek near Silica which bears a white, fossiliferous chert. This chert is referred to in the archaeological literature as Ten Mile Creek chert in order to distinguish it from the classic, brown to gray Delaware chert variety that is more frequently found within the Delaware formation, particularly in central Ohio. The Delaware formation is underlain by the older Columbus formation, now recognized as the Dundee Limestone formation by geologists (Lee and Hayfield 2010:7). The Dundee formation in northwestern Ohio is composed of limestone and dolomite members. The occurrence of chert within the Dundee formation in northwestern Ohio is rare but it does occur. Stout and Schoenlaub (1945:24) report a white, fossiliferous chert from a sample of the Dundee (Columbus) formation taken at Whitehouse, in southwestern Lucas County. Although the local Devonian-age chert is predominantly white to light gray, there are local occurrences of other colors of chert, which are due to minor mineral impurities in the source rock at the time of deposition, and archaeologists specializing in northwestern Ohio consider all three of the archaeologically described Devonian-age cherts (Delaware, Ten Mile Creek, and Columbus) to be local chert materials (Lee and Hayfield 2010:7).

1.1.2 Paleoclimate and Paleoecology

Northwest Ohio is located in the Till Plains topographic region that covers much of the western half of the state. The Till Plains region underwent dramatic climatic and ecological change during the period from ca. 13,000 B.P. to ca. 10,000 B.P. Following the retreat of the Wisconsinan glaciers and lasting until ca. 13,000 B.P., pollen records indicate that western Ohio was characterized by spruce parkland with small populations of larch, fir, oak, ash, and ironwood. Extensive open areas were inhabited by wormwood, grass and various sedges. Temperatures ranged from -16°C (3.2°F) during the winter to 15°C (59°F) during the summer. An abrupt warming period took place in the Till Plains region around 13,000 B.P., resulting in a decline of spruce and other conifers and a corresponding increase in the presence of deciduous tree species such as oak, ash and ironwood; temperatures increased to -11°C (12.2°F) during the winter and 23°C (73.4°F) during the summer in the eastern Till Plains. The new climate and ecology in the Till Plains remained stable until approximately 11,000 B.P. (Shane 1994:11-12).

Beginning around 11,000 B.P. and lasting for the next 1,000 years, the Till Plains experienced major climatic upheaval and resulting ecological changes. This time period corresponds to a major period of hemispheric climate cooling known as the Younger Dryas. In the Till Plains region, this period began with a dramatic return to spruce and pine parkland followed by an equally dramatic population crash among these and other conifers. Temperatures fell again to 21-22°C (69.8-71.6°F) during the summer and -18 to -16°C (-0.4 to 3.2 °F) during the winter. Following this period of flux the region returned to a warming trend around 10,000 B.P. Temperatures rose to -5 to -2°C (23-28.4°F) during the winter and 23°C (73.4°F) during the summer, near modern ranges. Accompanying this trend was the near extinction of many conifer species on the Till Plains and a corresponding increase of oak, hickory, walnut and similar species (Shane 1994:12-14).

Throughout the Late Pleistocene (ending at 10,000 ^{14}C years before present), the Ohio region boasted a diverse mammalian fauna, due in part to its location at the boundary of two faunal provinces. Species known to be present in northwestern Ohio include the Giant Beaver (*Castoroides ohioensis*), the Short-faced Bear (*Arctodus simus*), the Flat-headed Peccary (*Platygonus compressus*), the Elk-moose (*Cervalces scotti*), the American Mastodon (*Mammut americanum*), Mammoth (*Mammuthus sp.*), Elk (*Cervus elaphus*), Caribou (*Rangifer tarandus*), Porcupine (*Erethizon dorsatum*), and the American Marten (*Martes americana*). However, there is little if any evidence that many of these species were hunted by Paleoindians. Many of these species became extinct during the Late Pleistocene mass extinction episode, and many others are no longer extant in Ohio (McDonald 1994).

The Xerothermic Interval, which began about 5900 B.P., represented a warm/dry maximum in the region and is considered to be the origin of the "Prairie Peninsula" (Transeau 1935), which existed in the western Lake Erie region until about 4900 B.P. (Ogden 1977). Cooler and increasingly moist conditions in the Lake Erie basin (Ogden 1977) and northern Indiana (Williams 1974) after 4000 B.P. are suggested by the rise of a rich mesophytic forest including oak, hickory, beech, and walnut. By this time Lake Erie had risen to within about 8 ft (2.5 m) of its modern level, leaving only the Maumee Bay area and the upper portions of Sandusky Bay above water. By about 1500 B.P., the lower portions of Maumee Bay had been inundated. Increases in beech and maple in contiguous regions indicated the continuation of the cooling and moistening trends. These trends were temporarily reversed between about 700 to 550 B.P., but then continued after 550 B.P. with the onset of the "little ice age," a cold snap that extended into the nineteenth century A.D., when Lake Erie reached its modern levels (Graves 1977).

1.1.3 Soils

Site 33HY0167 is found within the Millgrove-Mermill-Haskins soil association, which is described as consisting of nearly level, very poorly to somewhat poorly drained loamy soils that formed in water-worked material. Prior to the draining of the Great Black Swamp in the 19th century, this soil association was characterized by swamp forest in flat uplands (Flesher et al. 2005:15). Three soil types representing two soil series from this association are located within the boundaries of this site (see Figure 1.3). The majority of the project area is characterized by Haney loam, 0-2% slopes (HdA) and Haney loam, 2-6% slopes (HdB); a small area of Medway silt loam (Md) occupies the northern tip of the project area. The Haney and Medway soil series and their profiles are characterized in further detail below.

1.1.3.1 Haney Series

Haney series soils are very deep, moderately well drained soils that occur on stream terraces, outwash plains and glacial drainage channels. These soils formed in loamy and gravelly outwash (National Cooperative Soil Survey [NCSS] 2013). HdA is mapped in the southern half of the project area, while HdB is mapped in the northern half of the project area. This latter area corresponds to the western edge of a natural levee or ridge on which 33HY0167 was first identified (see Section 1.2 below). The Ap horizon of Haney loam typically consists of a dark grayish brown loam. Beneath the Ap horizon is an eluvial BE horizon that consists of a strongly acidic, brown loam that closely resembles the underlying Bt (subsoil) horizon. The Bt horizon consists of a very strongly acidic, brown clay loam (NCSS 2013).

1.1.3.2 Medway Series

Medway series soils are very deep, moderately well drained soils that occur on flood plains. They were formed in loamy alluvium (NCSS 2007). Md is mapped in the northern tip of the project area; to the east, it occupies the levee mentioned above. The A or Ap horizon of Medway soils typically consists of a very dark brown to black silt loam. Beneath the A horizon is an AB horizon consisting of very dark grayish brown silt loam, while the subsoil consists of a brown to yellowish-brown loam Bw horizon (NCSS 2007).

1.2 Previous Investigations of 33HY0167

MSG conducted a Phase I survey of the New Maumee River Crossing Project Area in the Fall of 2014 (Chidester et al. 2015). This survey included two areas, one on the north side of the river and one on the south side of the river (Figure 1.4). Visual inspection of the area on the north side of the river was conducted in order to evaluate the integrity of a portion of the former Miami & Erie Canal that runs through the project area. This portion of the canal was recorded as archaeological site 33HY0346. This historic-period site was not recommended eligible for the NRHP, and so was not included in the Phase II investigation; it will not be further discussed here.

Prior to conducting the Phase I survey, MSG conducted a literature review that revealed the presence of 33HY0167 approximately 656 ft (200 m) east of the New Maumee River Crossing Project Area. Originally identified during a survey conducted by the University of Toledo's Laboratory of Ethnoarchaeology in 1980 (Stothers et al. 1981), the Ritter No. 1 site was recorded as a late Paleoindian – Early Archaic lithic scatter, possibly a workshop, located on a natural levee approximately 164 ft (50 m) south of the river.

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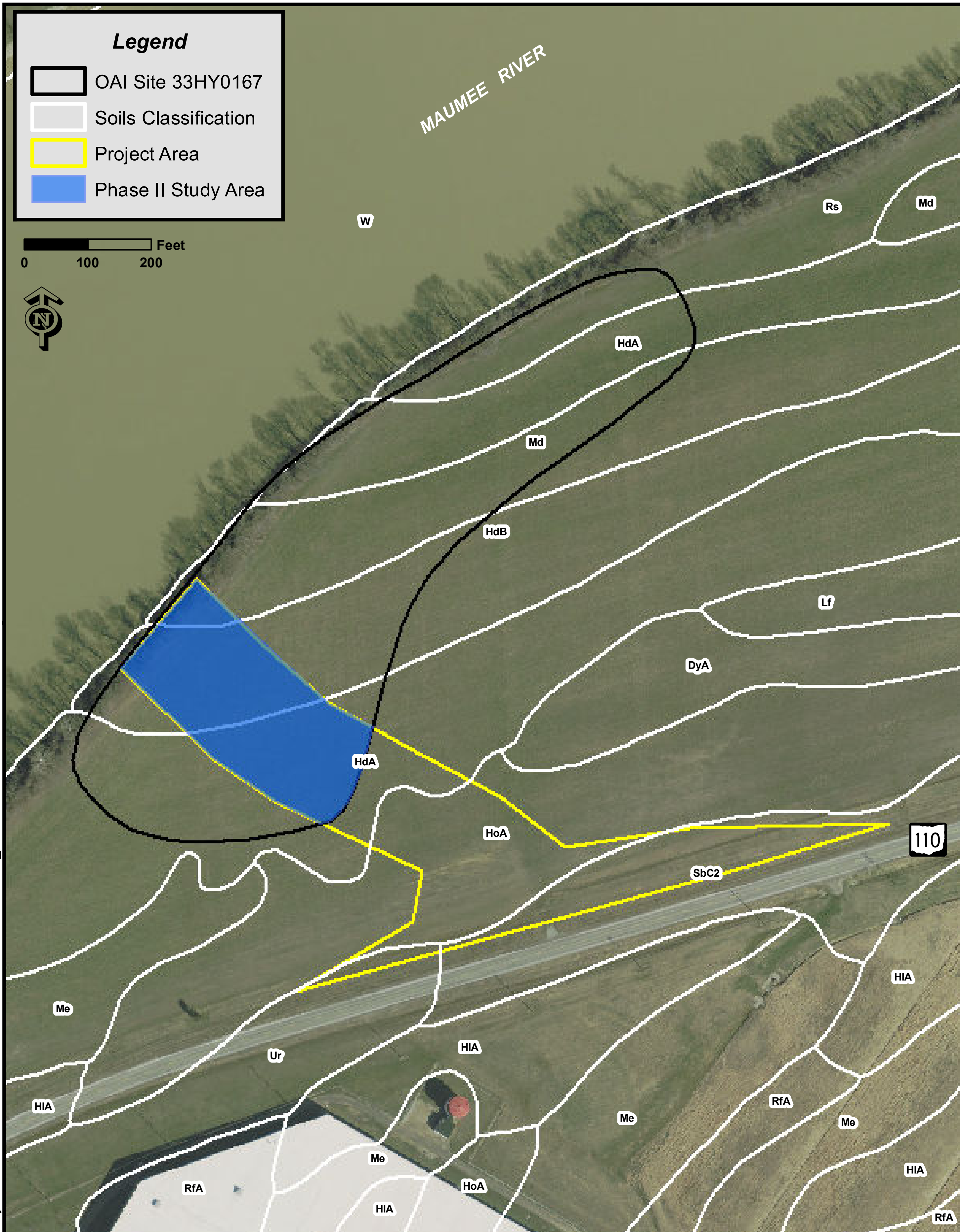

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Figure 1.3: Soil Types within the Phase II Study Area
New Maumee River Crossing
Napoleon, Ohio

Notes
The soils data is provided by the U.S. Department of Agriculture, Natural Resources Conservation Service. The Henry County photography, dated April 2011, is provided by OGRIP as part of the Ohio Statewide Imagery Program.

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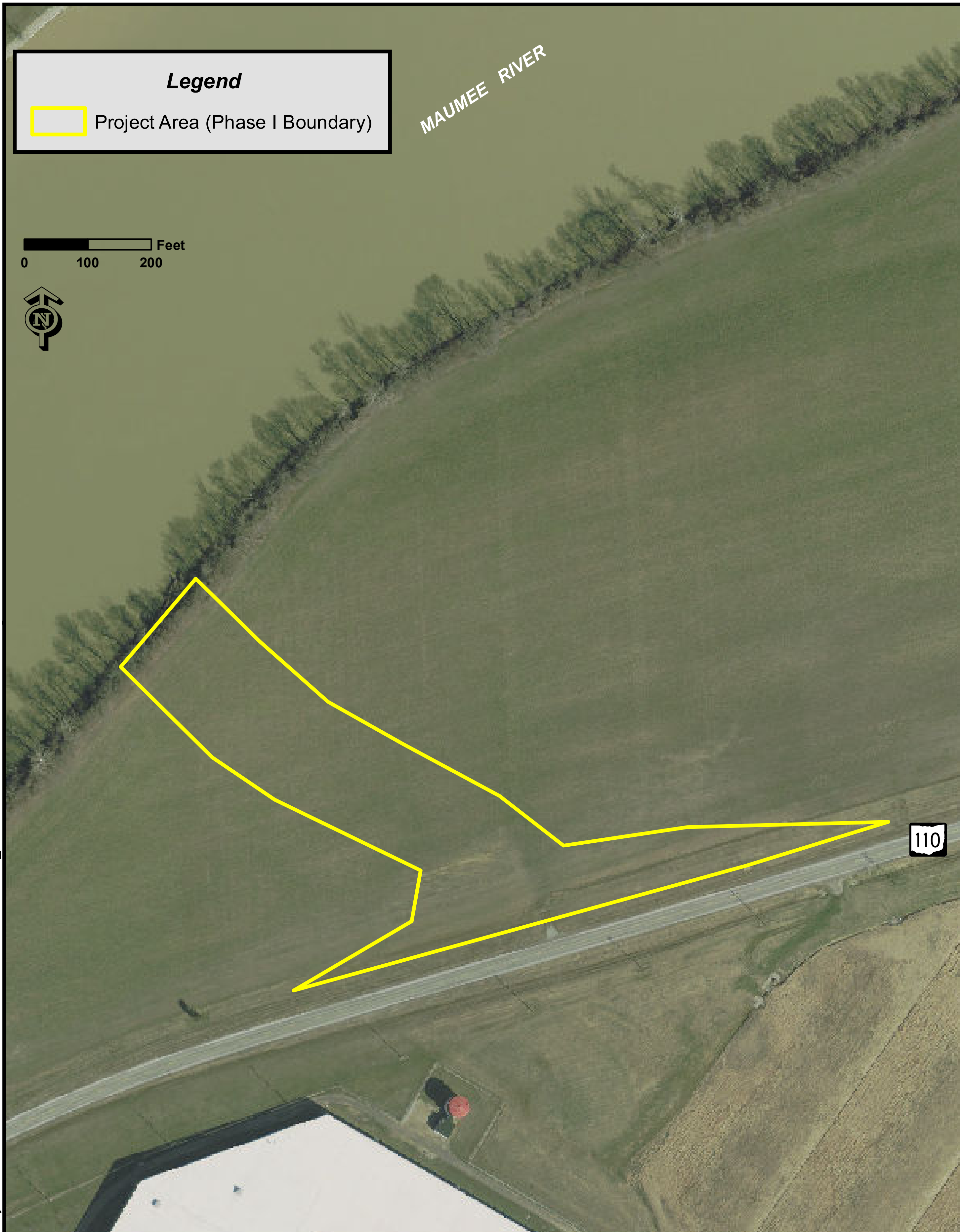

Figure 1.4: Phase I Survey Boundary
New Maumee River Crossing
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Unfortunately, the original survey report and Ohio Archaeological Inventory (OAI) form only provide a single set of coordinates for the site along with maximum dimensions; no detailed map of the site boundaries was included. However, assuming that the coordinates provided on the OAI form represent the centroid coordinates of the site and given the stated site dimensions (164 ft [50 m] north-south by 656 ft [200 m] east-west), the western end of 33HY0167 appeared to come within approximately 328 ft (100 m) of the eastern edge of the New Maumee River Crossing Project Area (Figure 1.5).

The survey report prepared by Stothers et al. (1981) contains only summary information regarding the results of the survey; no detailed site descriptions are offered. The OAI form for 33HY0167 is similarly lacking in detail. In addition to the (presumably centroid) coordinates and approximate dimensions, the site form notes that the Ritter No. 1 site is located approximately 164 ft (50 m) south of the river, with the long axis of the site paralleling the river bank. The OAI form also notes that five projectile points (two Hi-Lo points, one Kirk point, one notched, Archaic beveled point, one side notched point, and one corner notched point) were recovered from the site along with an unspecified amount of lithic debitage, leading the investigators to characterize the site as dating to the late Paleoindian and Early Archaic periods. One of the members of the original survey team recalled that the site had been delineated based primarily on testimony from a local collector (Brian Redmond, Cleveland Museum of Natural History, pers. comm. 2013).

MSG conducted both systematic surface survey (at 33-ft [10-m] intervals) and shovel testing (at 49-ft [15-m] intervals) within the portion of the New Maumee River Crossing Project Area located on the south side of the river. This survey effort revealed a prehistoric artifact scatter consisting of non-diagnostic lithic debitage and fire-cracked rock (FCR). In an attempt to delineate the site boundaries, the field crew extended the surface collection effort outside of the project area; this resulted in the documentation of a continuous distribution of artifacts between the New Maumee River Crossing Project Area and the originally recorded extent of 33HY0167 (Figure 1.6). Therefore, the artifact scatter recorded by MSG was interpreted by the Principal Investigator as an extension of the Ritter No. 1 site.

The 2014 survey conducted by MSG resulted in the recovery of 68 lithic artifacts (including FCR and lithic debitage from the whole spectrum of the reduction process). Although no diagnostic artifacts were recovered, the lack of ceramic artifacts was interpreted as additional support for a pre-Woodland date for the site. MSG recommended that 33HY0167 was potentially eligible for the National Register of Historic Places (NRHP) under Criterion D (information potential) for its ability to yield significant data that could be used to address several important research questions in the archaeology of the Paleoindian and Archaic periods in northwest Ohio, including questions pertaining to the changing patterns of lithic source utilization and population movements during the Paleoindian-Archaic transition; changes in lithic technology that may be correlated with evolving subsistence strategies; and changing patterns of landscape utilization and social organization during this time period.

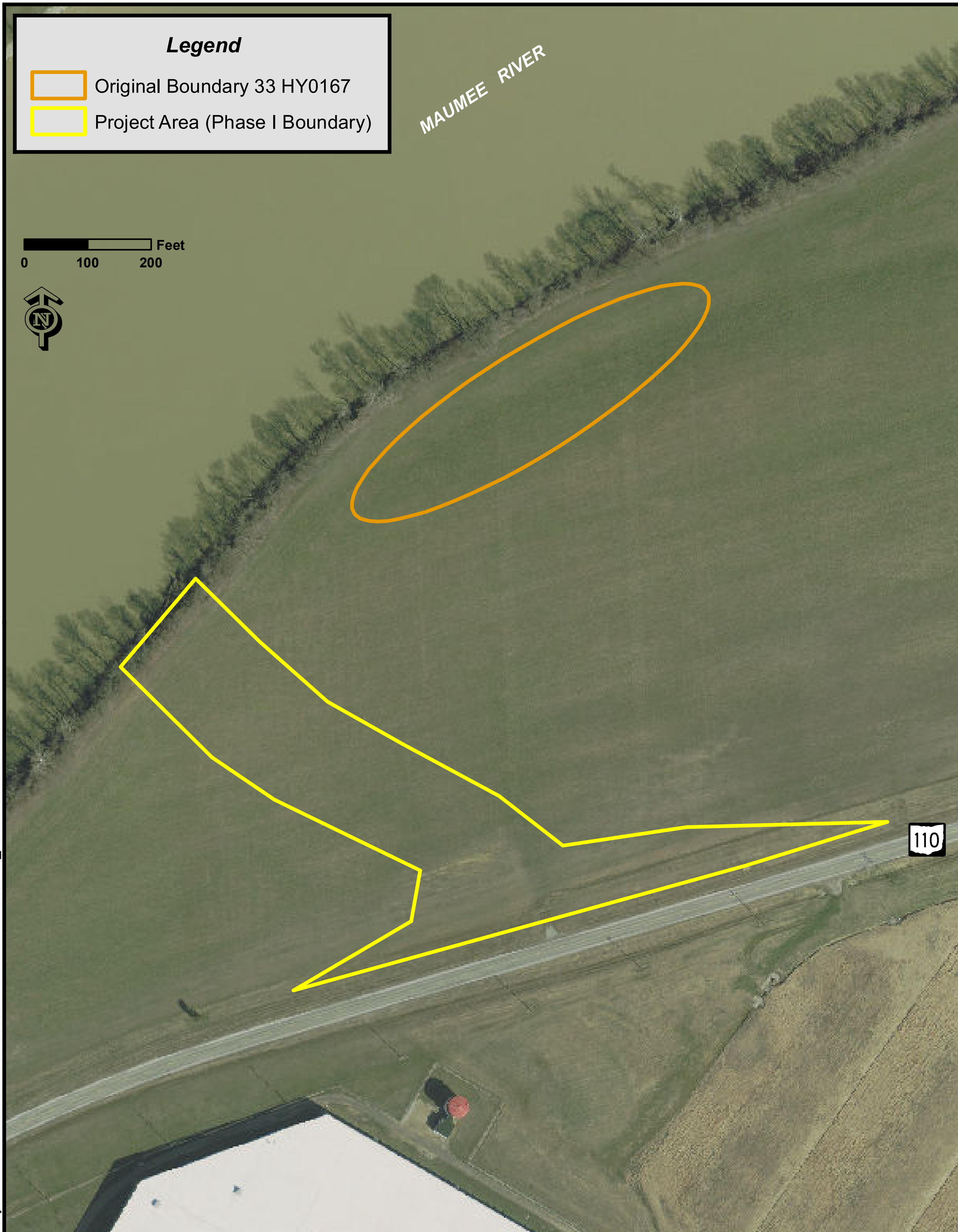

Figure 1.5: Originally Recorded Site Boundary, 33HY0167
New Maumee River Crossing
Napoleon, Ohio

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Notes The Henry County photography, dated April 2011, is provided by OGRIP as part of the Ohio Statewide Imagery Program.

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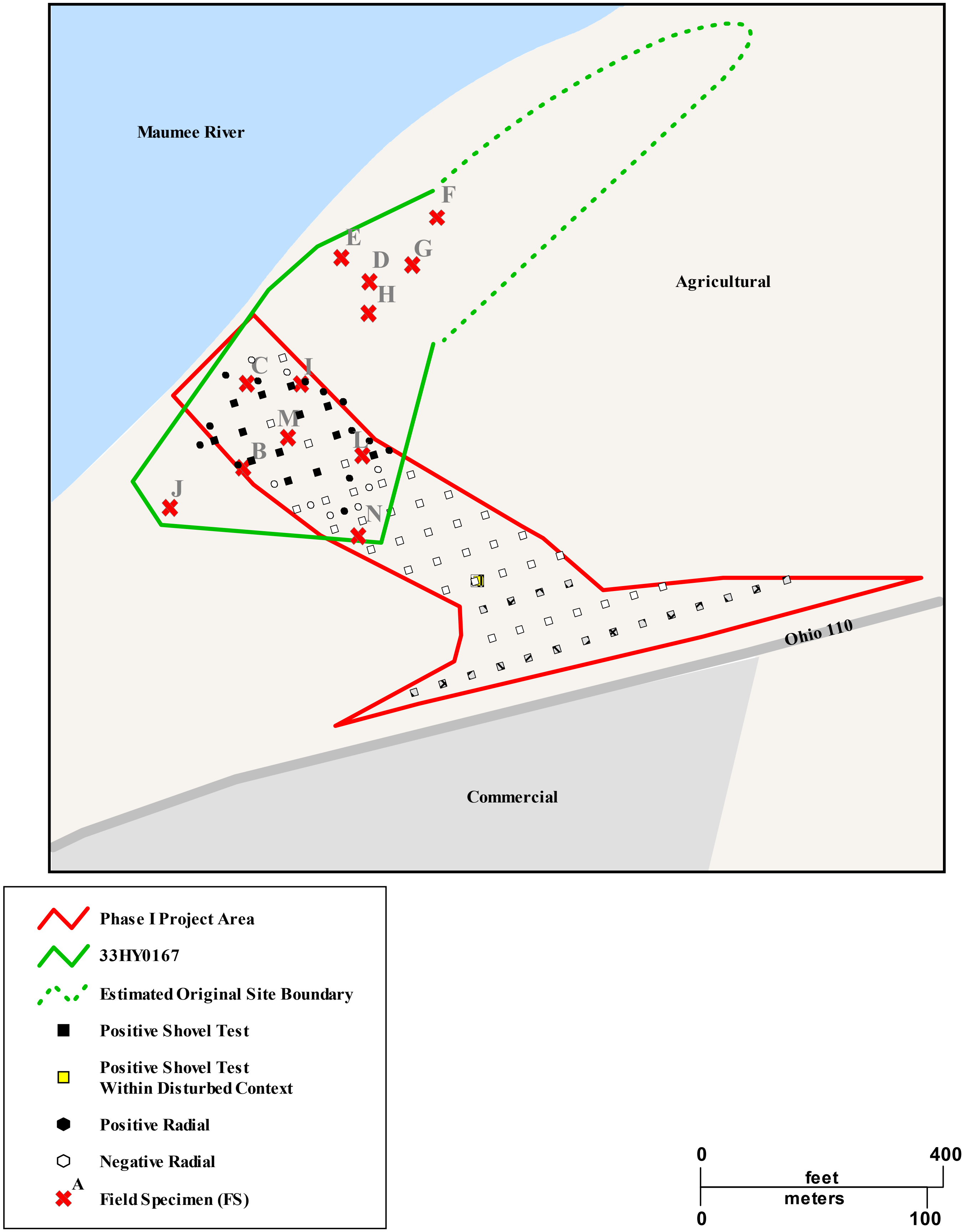

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Figure 1.6
Survey Results
Phase I Archaeological Survey
New Maumee River Crossing Project
Napoleon, Henry County, Ohio

1.3 Phase II Investigation of 33HY0167

In an Inter-Office Communication dated March 10, 2015, ODOT's Office of Environmental Services (OES) expressed doubt about the identification of the newly identified lithic scatter as an extension of the Ritter No. 1 site, but agreed that Phase II investigations were required to (a) establish the relationship of the new site to 33HY0167 (if any), and (b) formally evaluate the site for NRHP eligibility. Based on the guidance provided in the IOC, MSG conducted a Phase II investigation of the archaeological site in April and November 2015. The Phase II investigation, which was limited to the site extent within the project's direct Area of Potential Effects (APE) (Figure 1.7), included a magnetic gradient survey (conducted by Ohio Valley Archaeology, Inc.; see Appendix A); timed, controlled surface survey of 16-square foot (5-square meter) blocks; manual excavation of selected magnetic anomalies; spatial analysis of the recovered lithic assemblage; botanical analysis of selected feature fill samples (conducted by independent archaeobotanical consultant Ms. Kathryn Parker, M.A.; see Appendix D); and accelerator mass spectrometry (AMS) dating of charcoal samples from feature contexts (conducted by Beta Analytic, Inc.; see Appendix E).

Subsequent sections of this report detail the research design for the Phase II investigations of 33HY0167 (Section 2); a description of the methods utilized during fieldwork and laboratory analysis (Section 3); a detailed description of the results of fieldwork (Section 4); analysis and evaluation of the Phase II results, including an evaluation of 33HY0167 against the criteria for NRHP eligibility (Section 5); and a summary and recommendations regarding the need for additional investigation within the New Maumee River Crossing Project Area (Section 6).

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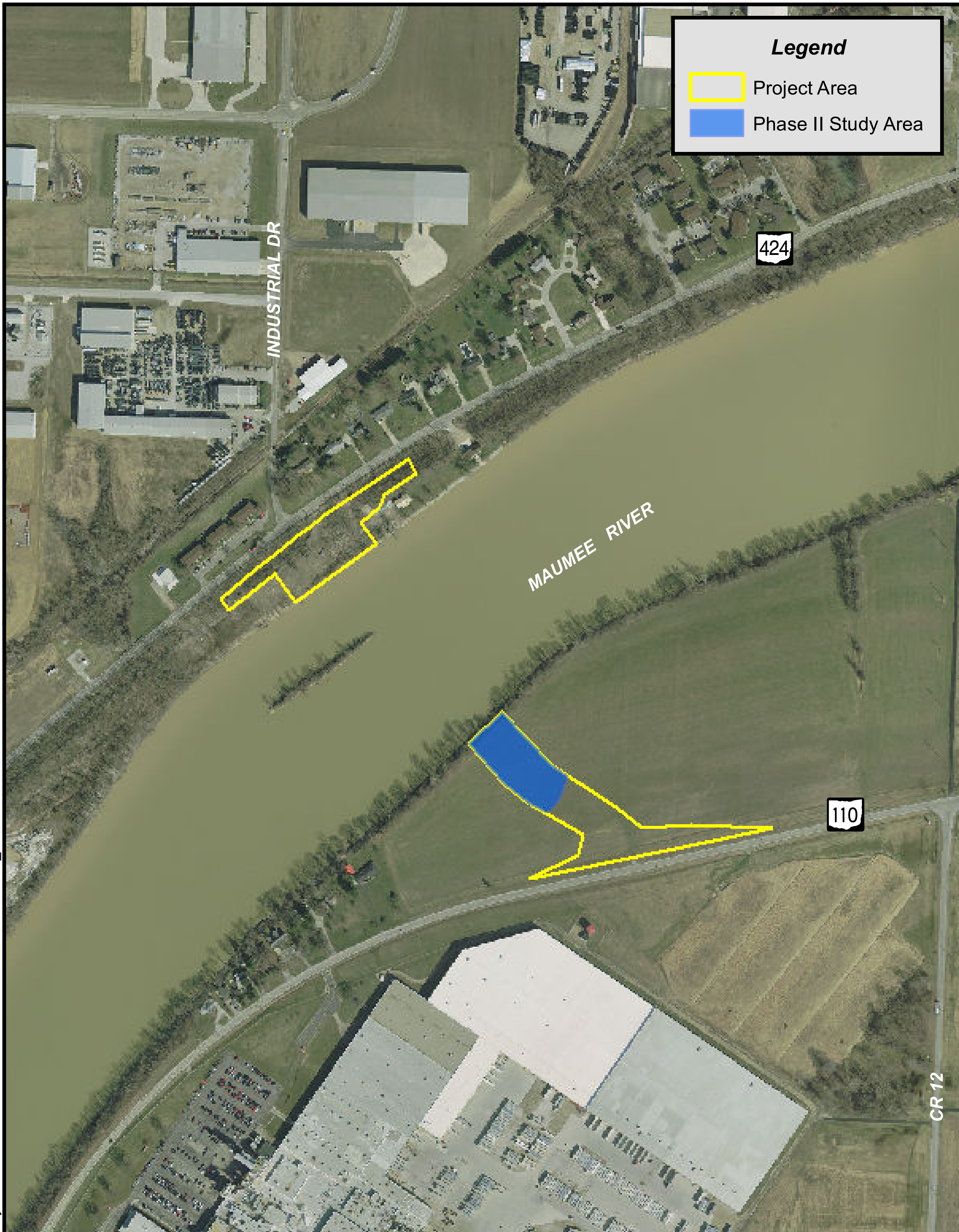

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Figure 1.7: Study Area Boundaries
New Maumee River Crossing
Napoleon, Ohio

Notes
The Henry County photography, dated April 2011, is provided by OGRIP as part of the Ohio Statewide Imagery Program.

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2.0 RESEARCH DESIGN

A general discussion of the prehistoric contexts of Henry County were included in the Phase I survey report for the New Maumee River Crossing Project (Chidester et al. 2015) and will not be repeated here. This section presents a more detailed discussion of important research domains relevant to the prehistory of northwestern Ohio and the specific research questions that were posed for the current Phase II investigation.

It should be reiterated that at the outset of the Phase II investigation of 33HY0167, it was assumed that the site contained a Paleoindian/Early Archaic component. Therefore, the research design was initially based on research questions pertaining to this period of prehistory in northwest Ohio. However, fieldwork did not result in the identification of such a component within the current project area, but rather the identification of Late Archaic, Middle Woodland, and Late Woodland/Late Prehistoric components. Therefore, all of these time periods will be included in the following discussion.

2.1 Research Domains in the Archaeology of the Paleoindian and Early Archaic Periods of Ohio

Over decades of research and analysis of early human history in the lower Great Lakes region, David Stothers and his colleagues and students associated with the Western Lake Erie Archaeological Research Program at the University of Toledo amassed a truly impressive corpus of data concerning the Paleoindian and Archaic periods in northwestern and north-central Ohio prehistory. Before proceeding to an examination of their interpretations of this data for northwest Ohio, however, it will be useful to provide a statewide context for current understandings of Paleoindian and Early Archaic settlement systems and mobility ranges.

Much of what we think we know about Paleoindian and Early Archaic societies, and particularly the transition between the two, in the lower Great Lakes and surrounding regions is based on limited and sometimes quite equivocal data (i.e., Cleland and Ruggles 1996; Kuehn 1998; Lepper 1994; Payne 1982; Prufer 2001; Prufer and Long 1986; Purtill 2009; Raber et al. 1998; Shott 1999; Stothers, Schneider and Pape 2001; Valasik 2009; Wright 1978). Many of the sites dating to these early periods are known only from surface collections or, if they have been subjected to subsurface investigations, have failed to yield intact cultural features such as hearths or structures (Purtill 2009; Stothers 1996; but see Abel 1994; Cleland and Ruggles 1996; and Lepper 1994 for examples of Early Archaic sites with intact features). Lithic artifacts are by far the most numerous category of material culture represented at these sites, although other types of materials (e.g., bone implements, faunal remains, red ochre, and plaited basketry) are sometimes present in small, usually poorly preserved amounts (e.g., Adovasio et al. 2001).

Much fruitful research concerning the late Paleoindian-Early Archaic period in Ohio has been published over the past 15 to 20 years. Cultural resource management projects have been the most important generator of data statewide on mobility, settlement and subsistence patterns, and technology during this period (i.e., Kozarek et al. 1994; Lee and Hayfield 2010; Lepper 1994; Purtill 2004), although academic studies (i.e., Abel 1994; Bowen 1990, 1991, 1992b, 1994; Mullett 2009; Stothers 1996; Stothers, Abel and Schneider 2001; Stothers, Schneider and Pape 2001) have also contributed significant data and interpretations. A recently published essay by Matthew Purtill (2009) provides the most comprehensive overview of the Ohio Archaic period to date.

Just prior to the beginning of the Early Archaic period (ca. 9000 B.C.), the Ohio region had undergone a dramatic environmental shift that involved a transition from largely coniferous forest cover (which receded north) to mixed deciduous woodland, particularly oak and hickory (which expanded into Ohio from the south). From ca. 9500-5750 B.C., paleoclimatic data indicates that the climate was generally warmer and dryer than today (Shane 1987, 1994; Shane et al. 2001). According to Purtill (2009:580), Early Archaic-period sites in Ohio tend to be concentrated along the northern Lake Erie shore, and particularly in the Lake Plains region of northwestern and north-central Ohio, which was dominated by open forests. Whether this distribution pattern is a result of survey coverage bias, differential formation processes in various parts of the state, or is an actual reflection of Early Archaic population distribution in Ohio is unclear.

Early Archaic sites are distinguished from late Paleoindian sites by the replacement of older lanceolate projectile point forms with side- and corner-notched hafted bifaces (Purtill 2009:566, 569). While numerous cultural taxonomies outlining a bewildering array of phases, traditions, horizons, and complexes have been proposed by various scholars to describe Archaic-period tool assemblages in Ohio (i.e., Abel et al. 2001; Blank 1970; Bowen 1991; McKenzie 1967; Prufer and Sofsky 1965; Stothers and Abel 1993; Stothers, Abel and Schneider 2001; Vickery 1976), Purtill (2009:569) proposed an arrangement of 57 point types into 20 horizons. For the Early Archaic, which Purtill dates to 8950-6450 cal B.C., the horizons include Early Side Notched (10,500-6600 cal B.C.), Charleston (9000-7950 cal B.C.), Thebes (8800-7500 cal B.C.), Kirk-Palmer (8800-7500 cal B.C.), Kirk Stemmed (7950-6800 cal B.C.), Large Bifurcate (7950-5800 cal B.C.), and Small Bifurcate (7500-6500 cal B.C.). Two explanations have been advanced for the formal variability in tool types during the Early Archaic: Some researchers have argued that distinct ethnic groups manufactured different tool types while others believe that different tool types simply served different functions for whatever people or peoples were making and using them. Other lithic tool types frequently recovered from Early Archaic components include steep-edged end scrapers, large blades and blade cores, drills, burins, bifacially chipped tools that resemble adzes, unifacially beveled, crescent-shaped bifaces, and various ground-stone tools (Purtill 2009:569-570, 572).

While a variety of chert types were used for tool manufacture, Upper Mercer and Flint Ridge cherts (from east-central Ohio), Wyandot chert (from Harrison County, Indiana) and Paoli chert (from northern Kentucky) dominated tool assemblages from different parts of Ohio from the beginning of the Early Archaic until ca. 7500 B.C. At this time, hafted bifaces belonging to the Small Bifurcate horizon appeared all over the region and were made predominantly of local cherts (Purtill 2009:570-572). This chronological trend in lithic source utilization has provided much of the impetus for the debate over population mobility during the late Paleoindian-Early Archaic period, which is detailed below.

Other aspects of Early Archaic life in Ohio are as of yet poorly understood. Evidence for subsistence strategies has largely been indirectly inferred from tool assemblages and site locations. In the Lake Plains region of northwestern Ohio, evidence for some tool assemblage continuity between the late Paleoindian period and the initial Early Archaic period led Stothers (1996) to hypothesize that caribou hunting continued to play a major role in subsistence activities. In the more rugged terrain of the Glaciated and Unglaciated Plateau regions of eastern Ohio, on the other hand, Blank (1970:342) long ago suggested that white-tailed deer, elk and moose were the primary focus of hunting activities, a shift that is believed not to have occurred in northwestern Ohio until ca. 6800 B.C. There is minimal but growing evidence for the exploitation of plant resources (particularly nuts) during the Early Archaic (Purtill 2009:586). Solid evidence for mortuary ceremonialism during the Early Archaic is known from just one site in Ohio, a rockshelter near Bolivar in Tuscarawas County, which yielded a feature of dark-stained earth containing cremated human bones and four broken St. Albans bifaces (Stothers, Abel and Schneider 2001:250).

2.1.1 Lithic Sources, Paleoindian-Early Archaic Mobility and Band Ranges

Stothers and his colleagues (Stothers 1996; Stothers, Abel and Schneider 2001) have used data concerning the distribution of stone tools fashioned from different lithic sources to construct a complex model for Paleoindian and Early Archaic mobility and band ranges in the lower Great Lakes region. During both periods in northwestern Ohio, Stothers argues that a large majority of lithic tools were fashioned from exotic (i.e., non-local) raw materials during early cultural-chronological horizons; over time, however, both the Paleoindian and Early Archaic periods witnessed a gradual shift to primary reliance on local raw materials for stone tool production (Stothers 1996:173; Stothers, Abel and Schneider 2001:239-241). Thus, for instance, 65 percent of fluted bifaces that have been recovered from the Middle and Lower Maumee Valley dating to the Paleoindian Gainey Phase (ca. 10,000-8600 B.C.) were fashioned of either Upper Mercer or Flint Ridge cherts, while 80 percent of later Barnes/Parkhill fluted bifaces (ca. 8600-8400 B.C.) from the same region were made of local Ten Mile Creek chert (Stothers 1996:182). Similarly, during Stothers's Kirk Horizon and Large Bifurcate complex (ca. 8000-5800 B.C. and ca. 6900-6500 B.C.) in the same region, 30 percent of projectile points that have been recorded were made of Upper Mercer or Flint Ridge cherts (as opposed to 28 percent made of local Pipe Creek or Ten Mile Creek cherts), while 70 percent of points recovered dating to the later Early Archaic Small Bifurcate complex (ca. 6500-5000 B.C.) were manufactured from local Pipe Creek or Ten Mile Creek cherts (as opposed to just 10 percent made of Upper Mercer or Flint Ridge cherts) (Stothers 1996:199-200; see Table 1).

Stothers interpreted these parallel trends separated in time as evidence that during both the Paleoindian and Early Archaic periods, southern-derived populations advanced into northern Ohio but continued to make periodic trips back to high-quality chert sources located in their original home territories, only adopting local northern Ohio chert sources over time as they "settled in" to their new habitats (Stothers 1996:173; Stothers, Abel and Schneider 2001:239-241). Stothers (1996:174, 204) considered but rejected two other possibilities: first, that the presence of tools in northern Ohio manufactured from exotic raw materials represented social and/or economic interaction in the form of trade or exchange relationships between central Ohio and northern Ohio bands; and second, that the presence of non-local raw materials in northern Ohio represents "personnel exchange" (exogamous marriage) between central Ohio and northern Ohio bands. Stothers rejected these scenarios as unlikely. In his words, they "would adequately account for situations in which tools fashioned of non-local source material were of low frequency . . . However, many Paleoindian and Early Archaic site assemblages from throughout the Midwest and American Northeast are characterized by virtually entire lithic assemblages fashioned of non-local resource materials" (Stothers 1996:174). He also mentioned a third possibility, a lithic procurement system that was "decoupled" or "disembedded" from band settlement and mobility patterns, in which small work parties only occasionally made trips to quarries when necessary to restock raw material supplies, rather than as part of annual migration patterns (Stothers 1996:174; after Spiess and Wilson 1989). While he did not explicitly reject this hypothesis, he did not give it further consideration either, apparently deeming it to be compatible with his preferred explanation of the colonization of northern Ohio by southern-derived populations during both the Paleoindian and Early Archaic periods.

The hypothesis of parallel southern colonizations does beg one further question: If populations from central and southern Ohio colonized northern Ohio at the beginning of the Early Archaic period, what happened to the older late Paleoindian populations in this area? Stothers, Abel and Schneider recognize two possibilities. The *in situ* late Paleoindian populations may have been culturally assimilated by the colonizing southern populations, or they may have moved into Michigan and southern Ontario themselves, following retreating ecological zones northward as temperatures in the lower Great Lakes region gradually warmed. There is evidence for both scenarios, and Stothers and his colleagues readily admit that it is entirely possible that both processes were in play at the same time (Stothers, Abel and Schneider 2001:241).

While Stothers and his colleagues made some valid criticisms of the interpretations of the Norman P and Henderson sites, their hypothesis of parallel Paleoindian and Early Archaic colonization events does not seem to adequately account for the data that Stothers himself presented. Based on accumulated data from a number of sites in northwestern Ohio (particularly in the Maumee River Valley), Stothers stated that 30 percent of Early Archaic Kirk Horizon and Large Bifurcate Complex (ca. 8000-6500 B.C.) points were made of non-local cherts from central Ohio sources. This percentage is only slightly higher than the 20 percent of points manufactured from non-local cherts for the late Paleoindian Barnes/Parkhill Phase (ca. 8600-8400 B.C.), and nearly identical to the number of points made of local cherts during the Kirk Horizon and Large Bifurcate Complex (28 percent). Furthermore, if even only a small percentage of the unidentified cherts used to manufacture projectile points during this same period (42 percent of all recorded points) are assumed to be local pebble cherts collected from eroding streambeds, then the claim for the predominance of exotic cherts in northwestern Ohio during this earliest part of the Early Archaic is simply incorrect. These data certainly do not appear to support Stothers' assertion that "many Paleoindian and Early Archaic site assemblages from throughout the Midwest and American Northeast are characterized by *virtually entire lithic assemblages* fashioned of non-local resource materials" (Stothers 1996:174; emphasis added).

While a 30 percent ratio of non-local cherts may not support the interpretation of a large-scale population movement, it still seems reasonable to believe that this percentage is too high to represent trade/exchange relationships and/or a system of exogamous marriage (Stothers 1996:174). A more systematic evaluation of existing data must be combined with more controlled, systematic excavations of well-preserved Early Archaic sites in northwestern Ohio in order to adequately address this particular research domain.

2.2 Research Domains in the Archaeology of the Late Archaic Period of Northwest Ohio

Unlike the Paleoindian and Early Archaic periods in Ohio, regional diversity in cultural practices and styles is evident in the archaeological record of Ohio. Therefore, the discussion of the Late

Archaic period will be restricted to developments in northwest Ohio. This discussion is largely based on the work of David Stothers and his students from the University of Toledo.

Stothers and his colleagues viewed the Late Archaic period in northwestern Ohio as the culmination of various cultural developments from the Paleoindian through Early Woodland periods, as social complexity gradually increased in response to increasing population and greater environmental pressures. While populations in Ohio were relatively sparse during the Early Archaic and especially the Middle Archaic time periods, a veritable explosion of sites can be seen during the Late Archaic; this is the case for northwestern Ohio as well as for the rest of the state (Stothers, Abel and Schneider 2001).

Although not well defined, Stothers and his students and colleagues recognized at least two, and possibly three, cultural "phases" in northwestern Ohio during the Late Archaic period. Two of these they named the Riverside and Firelands phases. Regardless of cultural phase attribution, Late Archaic populations in northwestern Ohio practiced what Stothers, Abel and Schneider (2001:242) describe as a seasonal coalescence-dispersal settlement-subsistence system, in which regional band populations came together in large focal settlements located in major river valleys from the late Spring through early Fall, then dispersed into much smaller groups (probably nuclear or minimally extended families) that occupied small campsites in interior regions from the late Fall through early Spring. The focal, riverine settlements were well placed to exploit seasonal fish spawning runs, other aquatic resources such as mussels, and plant resources typical of the river valleys during the warm season. The small winter campsites in interior regions allowed the population to exploit game animals (particularly deer) as well as mast resources.

Within this settlement-subsistence system, Stothers and his colleagues identified three primary site types. The focal, warm-season riverine sites were base camps occupied by band-level populations consisting of groups of related families. Base camps tend to appear in clusters that may represent either several camps that were used simultaneously, or small locational shifts over time. These clusters are regularly spaced throughout primary and secondary drainage systems, and seem to represent catchment zones of approximately 6.2-9.3 miles (10-15 km) in diameter. Often located in close proximity to base camp sites were "interaction centers" consisting of large cemeteries and associated short-term settlements. These are interpreted as representing periodic population aggregation for the purposes of conducting ritual/ceremonial activities and solidifying larger regional population ties. Finally, the third site type consists of small, special-purpose extractive campsites. As already mentioned, during the cold seasons these campsites were located in forested uplands in interior regions away from the major river valleys. During the warmer seasons these extractive campsites would have been spread out in close proximity to base camps. Specific activities pursued at extractive campsites included quarrying, foraging/hunting, animal processing, fishing, and raw material storage (Stothers, Abel and Schneider 2001:242-244).

As populations increased throughout the Late Archaic, mobility was decreased and trade networks took on increased importance. These trends can be seen as a precursor to the Hopewellian florescence of the Middle Woodland period. Stothers and his colleagues suggested that in general terms, large amounts of "exotic" lithic materials at a site (e.g., lithic materials that could only be obtained from sources more than 25 miles [40 km] away from the site) were indicative of relatively high band mobility, whereas small amounts of such materials were indicative of trade and exchange networks. In northwestern Ohio, Late Archaic sites tend to exhibit large amounts of local lithic materials (primarily Delaware and Ten Mile Creek cherts) and small percentages of non-local materials, indicating the importance of trade and exchange during this period. Materials appear to have been entering the region from several directions, including central Indiana, central Ohio, and the Niagara Peninsula in New York (Stothers, Abel and Schneider 2001:253-256).

2.2.1 Site Types, Material Culture, and Social Relations during the Late Archaic Period

Despite the seemingly complete model of cultural dynamics in northwestern Ohio during this period constructed by Stothers and his colleagues and students, several questions remain at least partially unanswered. For instance, they provide an inventory of sites within one identified catchment zone, centered on the Riverside site located at the second rapids of the Maumee River. This site inventory includes the Riverside site itself, a base camp; Asmus 2, a raw material and equipment cache site and possibly a secondary base camp; Missionary Island, an interaction center with cremation burials and a slate workshop; the Dodge site, a warm-season fishing station; at least five cold-season interior hunting/foraging stations; and possibly up to 10 additional extractive campsites within 1 mile (1.5 km) of the Riverside base camp (Stothers, Abel and Schneider 2001:244-246).

Within this site inventory, only one lithic workshop is specifically identified – the slate workshop at the Missionary Island site, which may have produced ritual or ceremonial slate objects. However, Stothers et al. have also suggested that during the Late Archaic period local populations experienced the growth of craft specialization as they shifted from a system of generalized reciprocity between groups to a system of institutionalized reciprocity, most likely due to increasing competition for resources (Stothers, Abel and Schneider 2001:256-257). Presumably, then, lithic workshops specializing in the production of more mundane, everyday tools can also be expected within catchment zone site inventories. How such sites fit within the settlement-subsistence system and settlement patterning in general appears to have been little investigated. Furthermore, even the model of increasing craft specialization seems to have simply been inferred from other developments, rather than actually demonstrated with reference to specific examples of identified craft specialization.

2.3 Research Domains in the Archaeology of the Middle Woodland Period of Northwest Ohio

As with the Late Archaic period, a great deal of regional diversity was present in Ohio during the Woodland period, and therefore the following discussion will be limited to northwest Ohio. Again, much of this information is based on the work of David Stothers and his students from the University of Toledo.

The Middle Woodland period (ca. 2000-1500 B.P.) in much of Ohio is associated with the florescence of the Hopewell culture; even outside of the core Hopewell culture area in southern Ohio, much of the rest of the state was integrated into the so-called Hopewell Interaction Sphere, which reached as far as the Upper Peninsula of Michigan, Illinois, the Gulf Coast, and the Carolinas (Pacheco 1996). In north-central Ohio, sites belonging to the so-called Esch phase have been identified as part of the Hopewell Interaction Sphere. Although this phase is not well understood due to the fact that few Esch phase sites have been studied, it appears that resident Middle Woodland populations were interacting (at least minimally) with Scioto Hopewell Complex populations to the south (Abel 1995:28; Pratt 1981). Evidence from sites that have been investigated indicates intensifying resource exploitation as well as use of cultigens such as maize, beans, and squash. Seasonal band dispersion and aggregation still occurred, but base camps appear to have been occupied more intensively for longer periods of time. Esch phase occupation was centered on the Huron River valley in modern Erie County (Stothers et al. 1979:55).

Esch phase populations appear to have overlapped a geographically more dispersed population that occupied much of southwestern Ontario, southeastern Michigan and northwestern Ohio, reaching as far east as the Huron River valley and identified by Stothers et al. (1979) as Western Basin Middle Woodland (WBMW) populations. In contrast to Esch phase sites, WBMW sites lack any evidence of being part of the Hopewell Interaction Sphere. The WBMW Tradition appears to have evolved out of "a uniform and homogenous Late Archaic cultural base" (Stothers et al. 1979:49). This tradition was limited to a zone stretching about 40 miles inland from the lake. WBMW sites have yielded distinctive ceramics that differ from other Middle Woodland populations in the Lower Great Lakes, being characterized by heavy cord-roughening, a lack of decoration below the neck, rounded or subconical bases, and flattened, splayed, wedge-shaped lips. Projectile points found on early WBMW sites are dominated by large corner-notched types that appear to represent a continuum from Early Woodland point types, while later WBMW sites have yielded smaller side- and corner-notched varieties similar to Jacks Reef Corner Notched and Otter Creek points. Late WBMW sites exhibit both these types as well as Levanna- and Madison-like point types, which became increasingly popular in the region during the Late Woodland period (Stothers et al. 1979:51).

Similar to the suite of material culture described above, WBMW sites appear to exhibit settlement-subsistence patterning that connects it to both earlier Late Archaic/Early Woodland populations and later Late Woodland populations in the region. This settlement-subsistence system has been described as a "Bipolar Settlement Pattern Model." At one end of the spectrum is a focal settlement pattern that is characterized by riverine-oriented, intensively (possibly permanently) occupied base camps supported by a network of "satellite stations" occupied seasonally according to the availability of specific resources. At the other end of the spectrum is a seasonal coalescence-dispersal settlement pattern. In this system, sites exhibit seasonal scheduling in the form of late spring through early fall base camps located in major river valleys and occupied by aggregated bands, which dispersed into smaller family or small extended groups that occupied seasonal campsites in the upland interior during the late fall through early spring months. Sites fitting both of these patterns have been identified in the Maumee Bay – Maumee River valley region of northwest Ohio (Stothers et al. 1979:54). Maize horticulture only appears late in the Middle Woodland sequence in northwest Ohio (Stothers et al. 1981:12), indicating that year-round sedentism may have been a relatively late development in this region.

In addition to site size and density patterns related to the settlement-subsistence system, information about the social structure of WBMW populations has been inferred largely from mortuary practices. Excavated burials have shown that males are typically found in primary, single interments, whereas women and children tend to be found in secondary, group interments. This pattern appears to hold across both cemetery burial patterns throughout much of the WBMW territory and mound burials on its eastern fringe (a rare possible sign of Hopewellian influence). This pattern has been suggested to represent a patrilineal-patrilocal society that practiced female exogamy and patrilocal burial patterns (Conway 1976). It has been observed that this pattern tends to be associated with pre-agricultural societies (Stothers et al. 1979:54).

2.3.1 Cultural Continuity and Cultural Boundaries in the Western Basin Middle Woodland

Apart from one published article (Stothers et al. 1979), brief treatment in an unpublished doctoral dissertation (Pratt 1981), and scattered technical reports (e.g., Conway 1976), the WBMW Tradition has received little attention. This is likely due in part to certain difficulties in identifying WBMW sites as such. One such difficulty is the likely small, ephemeral nature of late fall through early spring, inland hunting camps characteristic of the seasonal coalescence-dispersal settlement pattern; another is that certain types of satellite stations typical of the focal settlement pattern may well have been aceramic. In this latter situation, a Middle Woodland site is not likely to be recognized as such absent diagnostic projectile points or reliable radiometric dates from feature contexts. This difficulty in identifying WBMW sites is reflected in the results of the Mid-Maumee River Valley survey conducted by the University of Toledo in 1981: Of a total of 185 prehistoric components distributed among 158 archaeological sites recorded by the survey, just 5 components (2.7%) were identified as dating to the Middle Woodland (Stothers et al. 1981:22-24).

The relative lack of information regarding WBMW cultural dynamics means that several fundamental research questions regarding this time period in northwest Ohio have yet to be fully addressed. Regarding the proposed bipolar settlement pattern model, were the focal settlement and seasonal coalescence-dispersal patterns being practiced at the same time, or might they represent chronological developments within the Middle Woodland period? If they were being practiced contemporaneously, what are the implications for cultural variation and diversity within the WBMW Tradition? If they were instead temporally sequential developments (with Stothers et al. [1979:54] suggesting that the coalescence-dispersal model may have developed out of local Early Woodland patterns, eventually giving way to the focal settlement pattern), is this reflected in changing aspects of the "typical" material culture assemblage from sites associated with each pattern? Furthermore, how can we distinguish between satellite stations associated with focal settlements and seasonal campsites associated with the dispersal phase of the coalescence-dispersal pattern?

Another outstanding issue is the degree to which WBMW populations were isolated from neighboring cultural groups, particularly Hopewellian populations. No evidence for Hopewellian influence has been discerned at WBMW sites in the form of Hopewellian ceramic or lithic styles, exotic trade goods from various regions within the Hopewell Interaction Sphere, etc. Stothers et al. (1979) have interpreted the Hopewell Interaction Sphere as a function of the need to check a tendency towards negative reciprocity between neighboring populations that have approached the carrying capacity of their specific territories, and do not have access to new, empty territories in which a portion of the existing population can "bud off." However, due to the proximity of WBMW populations to Lake Erie, the carrying capacity of this region would have been greater than in central and southern Ohio due to the much greater availability of fish. Thus, Great Lakes-oriented populations would not have needed to participate in the Hopewell Interaction Sphere as a means of ensuring adequate access to subsistence resources. However, they may have chosen to participate (or not) based on several other factors, including “ethnic, linguistic, and theological differences.” These differing choices may be reflected in the WBMW and their Esch phase neighbors, who also had access to abundant fish resources from Lake Erie but chose to participate in the Hopewell Interaction Sphere. Ultimately, the widespread adoption of maize agriculture may have led to the demise of the Hopewell Interaction Sphere by greatly increasing carrying capacity in all territories regardless of available natural resources, thus diminishing the imperative to avoid negative reciprocity between populations (Stothers et al. 1979:58).

Despite the apparent choice of WBMW populations to remain isolated from the Hopewell Interaction Sphere, some interaction with the outside world is evident. The use of burial mounds on the eastern fringe of the WBMW territory has already been mentioned. Continued, if minimal, interaction with other regional populations may also be evident in such trends of lithic raw material utilization. In general, the published literature on the Woodland period in northwest Ohio has little to say on the issue of lithic technology (apart from the identification of biface horizons), instead focusing heavily on ceramic styles as indicators of cultural organization and change. However, if statistically significant patterns of temporal change in the utilization of “local” versus “exotic” tool stone materials can be identified at WBMW sites, this may be another way in which to investigate the issue of cultural interaction during this time period.

2.4 Research Domains in the Archaeology of the Late Woodland Period of Northwest Ohio

Archaeological understandings of the regional culture history of the area surrounding the western end of Lake Erie have undergone substantial evolution since the 1970s, largely due to the synthesis of information from dozens of sites in southwestern Ontario, southeastern Michigan, and northwestern Ohio. As a result of this synthesis, Stothers and his colleagues developed a culture history for the Late Woodland Period in the western Lake Erie basin. According to these researchers, the region was occupied by an Iroquoian cultural group that they have labeled the Western Basin Tradition (WBT). The WBT has been further subdivided into four sequential phases: the Gibraltar (ca. 1450-1200 B.P.), Riviere au Vase (ca. 1200-950 B.P.), Younge (ca. 950-750 B.P.), and Springwells (ca. 750-650 B.P.) phases (Bechtel and Stothers 1993; Schneider 2000; Stothers 1999; Stothers and Bechtel 2000).

According to this culture history, the WBT developed out of local populations resident in this region during the Middle Woodland period, and therefore exhibited a great deal of cultural continuity with earlier time periods. However, certain changes are apparent within the broad span of the WBT culture history. During the Gibraltar and Riviere au Vase phases, WBT populations practiced a coalescence-dispersal settlement-subsistence pattern in which band-level populations (up to several dozen individuals) came together to occupy larger settlements in primary river valleys during the late Spring through early Fall, then dispersed into smaller groups (perhaps even nuclear-family groups) that occupied small, temporary camps in interior upland settings from the late Fall through early Spring. This pattern was based on the relative abundance of riverine and lacustrine resources in river valleys during the warmer months and the need to exploit the more dispersed resources (game animals, mast resources, etc.) of interior regions during the colder months. Due to this seasonal variability in resource exploitation, WBT populations never attained formal village life and even the warm-season focal settlements remained fairly small. Within this settlement-subsistence system, several types of sites have been identified. These include hamlets located in the major river valleys during the warm months, warm-season regional cemetery and ossuary burial sites, small seasonal special-purpose camps (both warm and cold seasons), and even smaller, short-term foraging camps (Bechtel and Stothers 1993:112-114; Schneider 2000:14).

This settlement-subsistence pattern continued into the Younge Phase, but had begun to change by the end of this period. While maize is present on WBT sites as early as the Gibraltar Phase, it did not become a major part of the subsistence base until the Younge Phase. The requirements of maize agriculture resulted in a reversal of seasonal patterns, as agricultural hamlets occupied during the growing and harvesting seasons began to appear in inland areas while foraging and special-purpose extractive sites were occupied in both inland areas and river valleys, with seasonality of occupation depending on the specific resources being exploited. This new pattern continued during the Springwells Phase of the WBT (Schneider 2000:15-17).

At some point during the Younge Phase, WBT populations vacated the Sandusky Bay region as Sandusky Tradition Wolf Phase populations began encroaching from the east. During the later Younge Phase and throughout the Springwells Phase, WBT populations were gradually pushed out of northwestern Ohio as well, apparently dispersing to the Saginaw Valley in Michigan, northern and central Indiana, and southwestern Ontario (Schneider 2000:18).

It should be noted that not everyone who has investigated Late Woodland sites within the WBT geographical area agrees with the culture history proposed by Stothers and his colleagues. G. Michael Pratt (1993) and David Brose (2000) have argued that the Wolf Phase does not represent an intrusive cultural tradition, but rather an *in situ* cultural development. In this scenario, climatic shifts associated with the onset of the "Little Ice Age" ca. A.D. 1250 made maize agriculture unsustainable in much of northwestern Ohio. After A.D. 1350, large sites are uncommon with the exception of the lower Maumee Valley, where maize agriculture was still possible due to "lake effect" weather patterns. Instead, larger Younge Phase settlements were replaced by smaller, ephemeral Wolf Phase settlements that represented a return to a foraging way of life for WBT populations. Over time, however, Wolf Phase settlements in the lower Maumee Valley grew into large, palisaded agricultural villages (Pratt 1993:23; Brose 2000:100; see also Bowen 1992a).

2.4.1 Settlement-Subsistence Patterning, Site Typologies, Cultural Continuity, and Material Culture in the Maumee River Valley

Toward the end of his career, Stothers published a synthesis of his decades-long research on the WBT (Stothers and Bechtel 2000) in which he appears to have "flipped the script," so to speak, on several key parts of the Late Woodland culture history presented above. In this article, Stothers and Bechtel argued, firstly, that grave goods recovered from Gibraltar Phase cemetery and mound burial sites included exotic trade goods as well as lithic artifacts manufactured from non-local Pipe Creek and Upper Mercer cherts, and these grave goods represented a continuation of local participation in the widespread regional trade and exchange networks that characterized the Middle Woodland period (Stothers and Bechtel 2000:23). This statement appears to be in direct contradiction with the evidence and interpretation of the supposed non-Hopewellian WBMW presented in Stothers et al. 1979, which article is not cited in Stothers and Bechtel 2000.

Secondly, Stothers and Bechtel assert that the St. Clair-Detroit River region was the "homeland" of the WBT, which originated ca. A.D. 500-600 as a result of migration from Iroquoian Princess Point Complex populations from southwestern Ontario. Following this initial movement into the St. Clair-Detroit River region, smaller "daughter" WBT populations moved into the Saginaw Valley of Michigan and the Maumee River Valley of northwestern Ohio (Stothers and Bechtel 2000:36). Implicit in this model (although not explicitly acknowledged by Stothers and Bechtel) is either the replacement or assimilation of previously existing, Middle Woodland populations by new, Ontario-derived WBT populations in these areas, which is in direct contradiction to earlier interpretations of cultural continuity from the Late Archaic through the Late Woodland in northwestern Ohio (see Bechtel and Stothers 1993:112-113; Schneider 2000:13-14; Stothers et al. 1979).

Any large-scale demographic change, whether in the form of population replacement or assimilation, should be visible in the archaeological record in the form of changing material culture assemblages. Stothers himself made this argument in regards to trends in material culture during the Paleoindian and Early Archaic periods in northwest Ohio (see Section 2.1.1). Indeed, Stothers's own definitions of the sequential WBT phases, as well as the inferred cultural affinity between populations living as far apart as the Saginaw Valley of Michigan, the Sandusky Bay area of north-central Ohio, and the area around modern-day London, Ontario, were largely based on ceramic typologies and seriations. Given the complete lack of ceramics recovered from 33HY0167, a discussion of WBT ceramics is beyond the scope of this work. Unfortunately, Stothers and Bechtel (2000) do not address how ceramic styles may have changed from the Middle to Late Woodland periods based on the implied demographic change during the Gibraltar Phase.

Similarly, there remains a dispute over demographic change during the Terminal Late Woodland/early Late Prehistoric period in northwestern Ohio. Pratt's excavation of the Johnson site (33HY0207), located approximately 6.2 miles (10 km) upstream from 33HY0167, provided support for the model of *in situ* cultural development in the form of a retreat from maize agriculture as a response to changing climatic conditions (Pratt 1993). In their publications, however, Stothers, his colleagues and students fail to even mention an alternative to their interpretation of intrusive Sandusky Tradition, Wolf Phase populations pushing WBT Tradition, Springwells Phase populations out of northwestern Ohio. These competing models appear never to have been systematically investigated through a comparison of data from multiple sites.

Another open research question in the archaeology of the Late Woodland period in northwestern Ohio involves the site typology offered by Stothers and others. Presumably, sites serving different functions (e.g., warm-season hamlets, activity-specific satellite resource exploitation sites, burial sites, and cold-season hunting/foraging camps) should exhibit different patterning within their respective material culture assemblages. Furthermore, these patterns may have changed over time as the settlement-subsistence system changed from a riverine orientation during the warm season to an interior, agricultural orientation during the warm season during the Younge Phase. While Stothers, his colleagues and students, and a few other archaeologists have published descriptions of numerous sites (see, e.g., Bechtel and Stothers 1993; Buchman 1969, 1970, 1971, 1972, 1973, 1974; Cufr 1970; Prahl 1969, 1974; Pratt 1981; Redmond 1983, 1984;

Schneider 1994; Stothers 1973, 1976; Stothers and Graves 1983; Stothers and Miller 1977) (and numerous other unpublished site reports are referenced in the citations of these published accounts), artifact assemblages are generally described only in summary form, with detailed descriptions being reserved in most cases for ceramic artifacts only.

2.5 Research Questions for the Ritter No. 1 Site (33HY0167)

Based on the results of the Phase I archaeological survey for the New Maumee River Crossing project, the general prehistoric contexts of northwest Ohio and the specific research domains previously established for the prehistoric period in this region, MSG has defined a number of specific research questions to be addressed using data from the Ritter No. 1 site. Some of the research questions pertain to the physical integrity and internal organization of the site, while others are intended to assess the site's ability to yield data pertinent to more general temporal/regional research questions. These research questions include:

- Do the archaeological resources present within the New Maumee River Crossing project area represent an extension of 33HY0167, or a separate site?
- Are intact features present within the site? Does the site exhibit internal spatial patterning and/or stratigraphic integrity? Does the patterning of artifacts within the plow zone accurately reflect sub-plow zone spatial patterning, if any?
- If features are present, do they contain artifacts, ecofacts, or other evidence that could help to identify site function, seasonality and/or age, or that could contribute to paleoenvironmental reconstructions?
- Can specific prehistoric temporal components (e.g., Early Archaic, Late Archaic, Early Woodland, etc.) be identified within the site? If so, what temporal periods are represented? Can the site be dated to more specific cultural/technological horizons?
- If a Paleoindian/Early Archaic component is present:
  - How does this component compare to other Paleoindian/Early Archaic sites in the region (in terms of spatial organization, artifact patterning, etc.)?
  - Can the site yield data that could be used to address the debate over lithic source utilization and population movements in northwestern Ohio during these time periods?
  - Can the site yield data that could shed light on subsistence activities during the Early Archaic period?
- If a Late Archaic component is present:
  - Can the site be associated with a known catchment zone, or can a likely catchment zone be identified? Within the typical inventory of sites within a catchment zone, what site type does this component represent?
  - Does this component have an artifact assemblage that could be used to investigate the question of high band mobility versus trade and exchange networks during the Late Archaic period?
  - Does this component have an artifact assemblage that can be used to investigate the issue of craft specialization during the Late Archaic period in northwestern Ohio?
- If a Middle Woodland component is present:
  - Does this component represent the focal settlement pattern or the seasonal coalescence-dispersal pattern? Can the component be more precisely dated, in order to shed light on the hypothesized temporal relationship of these different settlement patterns?

    - If the Middle Woodland component represents the focal settlement pattern, what type of site within this pattern does it represent (focal habitation or satellite station)? If it represents the coalescence-dispersal pattern, what type of site within this pattern does it represent (seasonal base camp or seasonal hunting/foraging station)?
    - Can the Middle Woodland component shed light on issues of cultural interaction and cultural boundaries within the WBMW? For instance, does there appear to be a distinctive pattern of lithic raw material utilization that sets it apart from earlier or later time periods in this region? Is there any evidence of Hopewellian cultural influence at the site?
- If a Late Woodland component is present:
    - Can the Late Woodland component(s) be identified by cultural tradition (Western Basin or Sandusky) and/or phase (Gibraltar, Riviere au Vase, Younge, Springwells, Wolf)?
    - Is there evidence in the site assemblage of cultural continuity and/or cultural (demographic) change between Middle and Late Woodland components?
    - Are faunal and/or botanical remains present that can be used to determine the seasonality of Late Woodland occupation(s)?
    - Can the site be identified as to function, or place within the sequential Late Woodland settlement-subsistence systems described by Stothers and his students and colleagues, based on the artifact assemblage and/or environmental data?
    - Can the site provide data that could be used to evaluate the competing hypotheses of population replacement and *in situ* cultural development that have been proposed for the Terminal Late Woodland/Late Prehistoric transition in northwestern Ohio?

3.0 METHODS

The Phase II investigation of the New Maumee River Crossing project area was conducted in accordance with the guidelines developed by the Ohio Historic Preservation Office (OHPO 1994), as well as those contained in the IOC from ODOT-OES to Todd Audet, District 2 Deputy Director, on 10 March 2015 regarding this project. Additional guidance was provided in conversation with archaeologists from ODOT and the Ohio State Historic Preservation Office (OSHPO).

3.1 Field Investigation Methods

The first stage of the field investigation consisted of a magnetic gradient survey of the area consisting of the overlap between the site boundary of 33HY0167 (as established during the Phase I survey) and the limits of ground-disturbing activity for the New Maumee River Crossing project (see Figure 1.3). MSG subcontracted Ohio Valley Archaeology, Inc. (OVAI) to conduct the magnetic gradient survey. A full description of the methods utilized by OVAI is contained in their report to MSG, which is attached to this report as Appendix A.

Following the completion of the magnetic gradient survey, the field in which the project area is located was plowed and allowed to sit for one week, during which time it was washed by rain at least once. MSG then conducted a timed, controlled surface survey of the entire Phase II project area in 16.4-ft. (5-meter) blocks. Each block was surveyed for a three-minute period. All visible artifacts were collected, bagged and labeled by block provenience (based on the site grid established by OVAI during the magnetic gradient survey). The purpose of the surface survey was to provide information on the spatial distribution of artifacts within the plow zone, and to allow for the comparison of this distribution to the distribution of magnetic anomalies identified during the magnetic gradient survey. The results of the magnetic gradient survey are detailed in Section 4.1 and Appendix A.

Following the surface survey, MSG manually excavated the locations of nine magnetic anomalies identified by OVAI. The anomalies chosen for test excavation represent the entire spectrum of OVAI's rating system, including anomalies rated as *Excellent*, *Good*, *Fair-Good*, *Fair*, and *no rating*. These nine anomalies represent 53% of the magnetic anomalies identified within the project area by the magnetic gradient survey.

While MSG initially planned to excavate 6.6-ft. (2-m) square units to expose each of the nine anomalies, four of the units were expanded to double (overlapping) 6.6-ft. (2-m) units (each thus totaling 75 square ft. [7 square m]) in order to fully expose the locations of the magnetic anomalies. The plow zone of each unit was removed by shovel, with only a 3.3-ft. (1-m) square of plow zone soil being screened. Following the removal of the plow zone, excavation of each unit continued by either natural stratigraphic levels (where present) or arbitrary 3.9-in (10-cm) levels within the subsoil. As soil anomalies were identified within the units, they were mapped and assigned feature numbers. Trowel excavation of selected features then proceeded by natural stratigraphic levels. (Several features were not excavated due to the probability that they are the result of dead roots, rodent burrowing, etc. as opposed to cultural activity.) Some of the excavated features were bisected, while others were subjected to full-fill excavation.

All soil (except for unscreened plow zone soil) was screened through ¼-inch wire mesh, and all artifacts recovered were bagged and labeled by provenience. Organic materials were collected and wrapped in foil, and soil samples were collected from all excavated feature contexts. Digital photographs were taken of all features and other relevant contexts, and plan/profile views of excavation units and features were recorded as well. Detailed notes regarding soil types, colors, textures, and inclusions were also kept.

3.2 Laboratory Processing and Artifact Identification

All cultural materials collected in the field were washed, sorted and catalogued in MSG's laboratory facility in Maumee. Artifacts were then re-bagged in 4-mil plastic ziplock bags, and the bags were labeled according to provenience. Following is a description of the methods used by MSG to analyze the cultural materials collected during the Phase II investigation of the New Maumee River Crossing project area.

3.2.1 Lithic Artifacts

In many ways, lithic assemblages are ideal for the study of prehistoric cultures. Chert was almost universally utilized by prehistoric cultures in North America. Because the tool manufacturing process creates large amounts of lithic detritus, chert has a nearly ubiquitous presence on prehistoric sites (Meyers 1970:5). In the general vicinity of the sites, chert would have likely been gathered from either of two possible source types: primary bedded outcrops or glacial till and other secondary deposits. Several non-geological factors may also affect the availability of chert resources. These factors include seasonal differences in the accessibility of source locations and the depletion of available chert resources through continued exploitation.

Determination of chert types is based upon a macroscopic investigation of the overall properties of the chert and descriptions taken from relevant literature (e.g., DeRegnaucourt and Georgiady 1998; Justice 1987; Ritchie 1961). As much as possible, all lithic artifacts were identified by chert type. In cases where it was not possible to identify the type of chert, artifacts are generally assumed to have been manufactured from local pebble cherts from glacial deposits.

The classification scheme presented here seeks to order all prehistoric artifacts into groups based upon shared attributes (e.g., bifaces). These classes are broken down further into morphological classifications that seek to place artifacts in descriptive categories with a focus on the similarity of objects, if not their specific usage (e.g., projectile points). When possible, these descriptive categories are assigned to tertiary groups, which are types that have been shown to have chronological or cultural significance (e.g., Kirk Corner-Notched projectile points, which are diagnostic of the Early Archaic period). The primary artifact classes utilized here are lithic debitage (which includes flakes and shatter), formal tools (including cores, projectile points, bifaces, gravers, scrapers, drills, grinding stones, etc.), fire-cracked rock (FCR), and unmodified tool stone packages. It is important to note that for the purposes of this study, unmodified tool stone packages have been identified as lithic objects that display evidence of heat treatment or heat damage (such as crazing, discoloration, etc.) but that otherwise do not exhibit evidence of cultural modification, or unmodified lithic objects made of raw materials that are not naturally available in the Maumee River Valley (e.g., central Ohio chert types). Unmodified lithic objects of locally available stone types that do not exhibit any evidence of heat treatment or heat damage were cataloged as non-cultural items.

Cores may be used to identify tool production (reduction) strategies employed at a site. Reduction strategies may then help to identify the mobility strategies or the distances involved (local or long-distance) in raw material procurement for lithic toolmakers (Bamforth 1986; Beck et al. 2002; Binford 1979, 1980; Nelson 1991). Cores can be identified as blade cores or flake cores based on fracture scar directionality and shape across the core surface. Blade cores are here defined as cores with a prepared platform from which long, thin, prismatic blades have been removed in a uniform direction across the core. A prismatic blade is a relatively flat flake that is at least twice as long as it is wide, with parallel sides, generally one or two dorsal ridges (creating a prismatic cross-section), and a prepared flat platform. Flake cores are defined here as cores that may or may not have prepared platforms and exhibit flake removal from multiple directions across the core. The objective pieces removed from blade cores are considered to have a high utility and are preferable in situations of gearing up in anticipation of future needs (Rasic and Andrefsky 2001), as opposed to the objective pieces removed from flake cores which are more commonly associated with production as a result of more immediate needs. Thus, analysis of core types can tell us what type(s) of objective pieces were leaving the site and, by extension, which mobility strategies were likely employed by the site's occupants: Blade cores are more likely to be associated with a long-distance mobility strategy while flake cores are more likely to be associated with a more localized, short-distance mobility strategy.

Based on specific attributes, lithic debitage can be identified as being associated with a biface reduction event or another reductive strategy. Debitage was sorted into four primary categories based upon the individual attributes of the detritus. These categories included simple flakes (including decortication flakes), complex flakes (flakes having two or more dorsal scars and/or two or more platform facets), shatter, and remnant core fragments. Additionally, statistical characterization and evaluation of the data was expressed using frequencies of characteristics (e.g., platform facet counts and preparation evidence, flake dimensions, weight, and presence of cortex). Modified flakes demonstrate specific evidence of deliberate modification or use-wear and include both retouched and utilized flakes. All flakes were macroscopically analyzed for evidence of lithic retouch or use-wear along the edges. Lithic debitage was then used to characterize likely manufacturing (reduction) processes at the site in terms of expedience versus preparation for anticipated future needs (e.g., expediently removed and utilized flakes or flakes produced as a byproduct of the creation of an objective piece) and, when possible, tool form(s) produced or worked on at the site as evidenced by flake debitage characteristics (e.g., biface manufacture identified through a predominance of thinning flakes) (following Odell [2003] and Andrefsky [2005]). When a tool form is inferred as the objective piece at such a site, a statement can be made regarding the intended use of the objective piece and the relationship between that function and mobility. For example, one is more likely to associate bifacial tools with a gearing up process which is commonly associated with long distance travel, whereas simple flakes, possibly utilized, are associated with an expedient strategy wherein use of that particular material is in response to an immediate need of the manufacturer (Binford 1979; Bamforth 1986).

Analysis of lithic tools included the identification of the type of tool (e.g., projectile point, graver, scraper, drill, ground stone, etc.) and the lithic material from which the tool was fashioned. Projectile points were analyzed utilizing a synthesis of point type descriptions developed for the midwestern and northeastern United States by Ritchie (1961) and Justice (1987). By considering the intentions of the tool manufacturer, a statement can be made regarding the relationship between the manufacturer, the material type, the material source, and mobility strategy. In this way a better understanding can be gained of the manufacturer's relationship to the landscape and the surrounding environment.

Bifacial tools are defined here as lithic material with reduction scars occurring on both faces, exhibiting a thinning of parallel sides and profile shape. Note that this definition allows for the inclusion of bifacial cores as unfinished bifacial tools. Unifacial tools are defined here as lithic material with reduction scars occurring on only one face and thinning of either one or both parallel sides evidenced by relatively uniform flaking of the uniface edge or a portion of the edge. Reworking or re-sharpening of edges is identified by the presence of regularly spaced flakes superimposed on the original flake scars for either or both faces of an edge. A predominance of broken rather than whole bifacial tools may indicate that the material was part of a long-distance mobility strategy, based on the assumption that under circumstances that warrant higher curation rates (in this example, greater distance from the quarry) whole tools would be unlikely to have been discarded (Bamforth 1986). Thus, if we know roughly where the material was acquired, we can elucidate the relationship between the site location, the lithic material, and the intentions of the manufacturer. The presence of re-sharpened biface edges may be another method of determining whether a tool was part of a predominantly local or long distance strategy (Kelly 1988). Analysis of the sharpened edges of bifacial tools can be beneficial considering that a greater proportion of reworked edges has been associated with long distance, long use-life, curated strategies (Bamforth and Becker 2000).

When analyzing large artifact assemblages from prehistoric sites, a stratified random sampling strategy will be employed to avoid sampling bias and reduce the total sample size to a more manageable number. Statistical analyses conducted on assemblages of debitage require specimen counts equal to or greater than 30 individuals so that significant statistical statements can be made. For sites with large debitage samples a random sample of 30 will be selected for analysis in order to establish statistically valid characteristics. A minimum number of cores, bifaces, unifaces, or utilized flakes will not be required at sites. Sampled debitage from each site will be selected randomly through a systematic process (i.e., every 3rd, 5th, 10th, flake, etc.) to avoid bias.

3.2.2 Prehistoric Ceramics

No prehistoric ceramics were recovered during the current investigation.

3.2.3 Faunal Remains

No faunal remains were recovered during the current investigation.

3.3 Analysis

In addition to the identification and analysis of lithic artifacts following the procedures described above, MSG pursued three primary methods of analysis of the assemblage resulting from the Phase II investigation. First, MSG utilized Geographic Information Systems (GIS) software (specifically, ArcGIS 10.3) and standard methods of statistical analysis (conducted using the PAST 2.17 statistical software package) to examine spatial patterning within the site. Second, MSG subcontracted Ms. Kathryn Parker, M.A. to conduct archaeobotanical analysis of the soil samples collected from feature contexts. The methods used by Ms. Parker are described in her summary report to MSG (Parker 2015a, 2015b; attached to this report as Appendix D). Finally, organic remains were sent to the Beta Analytic, Inc. laboratories in Miami, Florida for accelerator mass spectrometry (AMS) dating. Beta Analytic uses the INTCAL13 database, a 2-sigma calibration and a 95 percent confidence interval (p=0.05). The methods and results of the AMS dating are contained in Appendix E.

3.4 Curation

In order to comply with Section 106 of the NHPA, the federal agency whose involvement has triggered the Section 106 process is responsible for making a good-faith effort to ensure that artifacts are curated at a federally recognized curation facility. However, all cultural materials collected during professional archaeological investigations are the property of the landowner. Since artifacts were only collected from 33HY0167, MSG will notify the property owner whose land contains this site that artifacts were recovered. Following the completion of all investigations at this site, the property owner will be given a choice whether to have the artifacts returned to them, or to have the artifacts curated at a professional curation facility. If the property owner requests that the artifacts from their property be returned to them, MSG will package the artifacts along with a complete catalog and ship them back to the property owner.

If the property owner wishes to donate his or her artifacts to a professional curation or research facility, MSG will arrange for the donation of the assemblage to such a facility. No decision as to a specific facility has been made at this time.

4.0 RESULTS AND ANALYSIS

The magnetic gradient survey was conducted by OVAI from April 2-3 and manual excavation was conducted by MSG from April 20-28 and November 9-13, 2015. The results of the magnetic gradient survey are summarized below and detailed in Appendix A. The results of the controlled, timed surface collection and targeted excavation of selected magnetic anomalies are detailed in Sections 4.2 and 4.3. Analysis of the results is presented in Section 5.

4.1 Magnetic Gradient Survey

The research design, methods, and results of the magnetic gradient survey conducted by OVAI are detailed in Appendix A and will only be summarized here. OVAI first established a site grid using a Leica TC405 total station. The site grid was set with grid north to the river side of the survey area, paralleling the river bank and the long axis of the project area. (All directional references in the text and on graphics in this section of the report should be understood to refer to grid north rather than magnetic north.) OVAI utilized a Foerster Ferex 4.032 DLG 4-probe fluxgate gradiometer to conduct the electromagnetic survey within the approximately 1.4-ac Phase II project area. Ten readings per meter were collected along transects spaced 50 cm apart within 131 x 131 ft (40 x 40 m) survey blocks. Initial data adjustments were made using Foerster's Ferex Dataline (v. 3.404) software. The dataset was then exported into Surfer 10.0 where it was regridded and rotated before being imported to Geoscan Research's Geoplot (v 3.00s) software for final processing. After this the data were exported back to Surfer for integration with the site map and final image production.

The magnetic gradient survey resulted in the identification of 17 anomalies that exhibited characteristics suggestive of buried archaeological features (see Figures 7-8 and Table 2 in Appendix A). A majority of these anomalies were clustered in an area of higher ground approximately 131 ft (40 m) wide centered on the grid N960 line, which corresponds to the western end of the ridge on which 33HY0167 was initially recorded by Stothers et al. (1981). An Oakfield soil corer was used to test each of the 17 anomalies of interest, with up to five cores being extracted from each anomaly location. The results of the soil coring were used to assign rankings to each anomaly using a scale of "Excellent" (almost certainly an archaeological feature), "Good-Excellent," "Good," "Fair-Good," "Fair," and no ranking (i.e., non-cultural in origin). These anomalies are described individually below; the coordinates given are the centroid coordinates of the anomaly.

Anomaly 1 was identified at N999.26 E968.47 on the site grid. It was a Monopolar Positive (MP) anomaly with a peak magnetic amplitude of 18.54, and measured approximately 9.8 ft (3.0 m) in diameter. Five soil cores revealed an average plow zone depth of 11.8 in (30 cm). The cores reached a maximum depth of 27.6 in (70 cm). One core, in the center of the anomaly, revealed wet soil and mottled fill, while another core contained small flecks of charcoal. This anomaly was interpreted as either a possible prehistoric pit feature or a large, deep rock, and was ranked as "Fair" (Burks 2015:17, 25).

Anomaly 2 was identified at N961.88 E969.34 on the site grid. It was a Dipolar Simple (DS) anomaly with a peak magnetic amplitude of 9.96, and measured approximately 6.6 ft (2.0 m) in diameter. Five soil cores revealed an average plow zone depth of 9.8 in (25 cm). The cores reached a maximum depth of 25.6 in (65 cm). Nothing was observed in any of the cores. This anomaly was interpreted as being non-cultural in origin and was not assigned a ranking (Burks 2015:17, 25).

Anomaly 3 was identified at N973.37 E975.02 on the site grid. It was a DS anomaly with a peak magnetic amplitude of 22.22, and measured approximately 11.5 ft (3.5 m) in diameter. Two soil cores revealed an average plow zone depth of 9.8 in (25 cm). The cores reached a maximum depth of 23.6 in (60 cm). Both cores revealed light-colored soil with small charcoal inclusions and probable manganese staining. This anomaly was interpreted as a possible old, subtle pit feature and was ranked as "Fair-Good" (Burks 2015:17, 25).

Anomaly 4 was identified at N964.35 E981.64 on the site grid. It was an MP anomaly with a peak magnetic amplitude of 6.42, and measured approximately 6.6 ft (2.0 m) x 4.9 ft (1.5 m). Five soil cores revealed an average plow zone depth of 9.8 in (25 cm). The cores reached a maximum depth of 23.6 in (60 cm). Nothing was observed in four of the cores, and the fifth only revealed mottled soil. This anomaly was interpreted as being non-cultural in origin and was not assigned a ranking (Burks 2015:17, 25).

Anomaly 5 was identified at N969.73 E983.16 on the site grid. It was a DS anomaly with a peak magnetic amplitude of 54.35, and measured approximately 6.6 ft (2.0 m) x 4.9 ft (1.5 m). Three soil cores revealed an average plow zone depth of 9.8 in (25 cm). A maximum depth for the cores was not recorded. Nothing was observed in two of the cores, and a large rock was encountered at a depth of 15.7 in (40 cm). This anomaly was interpreted as being non-cultural in origin and was assigned a ranking of "Rock" (Burks 2015:17, 25).

Anomaly 6 was identified at N961.51 E986.07 on the site grid. It was an MP anomaly with a peak magnetic amplitude of 12.82, and measured approximately 6.6 ft (2.0 m) x 4.9 ft (1.5 m). Five soil cores revealed an average plow zone depth of 9.8 in (25 cm). The cores reached a maximum depth of 17.7 in (45 cm). Nothing was observed in three of the cores, but a core in the center of the anomaly yielded small flecks of charcoal and another core revealed mottled soil and possible burnt sandstone pieces. This anomaly was interpreted as a possible subtle pit feature and was assigned a ranking of "Fair" (Burks 2015:17, 25).

Anomaly 7 was identified at N994.32 E987.24 on the site grid. It was an MP anomaly with a peak magnetic amplitude of 9.34, and measured approximately 6.6 ft (2.0 m) x 4.9 ft (1.5 m). Five soil cores revealed an average plow zone depth of 11.8 in (30 cm). The cores reached a maximum depth of 23.6 in (60 cm). Nothing was observed in any of the cores. This anomaly was interpreted as non-cultural in origin and was not assigned a ranking (Burks 2015:17, 25).

Anomaly 8 was identified at N968.93 E990.51 on the site grid. It was an MP anomaly with a peak magnetic amplitude of 56.94, and measured approximately 6.6 ft (2 m) in diameter. Four soil cores revealed an average plow zone depth of 9.8 in (25 cm). The cores reached a maximum depth of 19.7 in (50 cm). Nothing was observed in one core, and another core encountered a rock. However, a core in the center of the anomaly revealed small flecks of charcoal and burned rock, and another core also yielded bits of charcoal. This anomaly was interpreted as a possible old pit feature with degrading FCR and was assigned a ranking of "Good" (Burks 2015:17, 25).

Anomaly 9 was identified at N968.64 E998.95 on the site grid. It was an MP anomaly with a peak magnetic amplitude of 8.62, and measured approximately 13.1 ft (4 m) x 9.8 ft (3 m). Five soil cores revealed an average plow zone depth of 7.9 in (20 cm). The cores reached a maximum depth of 17.7 in (45 cm). Nothing was observed in four of the cores; however, a core in the center of the anomaly revealed large pieces of charcoal and mottled soil between 9.8-17.7 in (25-45 cm) below the surface. This anomaly was interpreted as a possible large pit feature and was assigned a ranking of “Fair-Good” (Burks 2015:17, 25).

Anomaly 10 was identified at N961.95 E994.24 on the site grid. It was an MP anomaly with a peak magnetic amplitude of 10.86, and measured approximately 11.5 ft (3.5 m) by 6.6 ft (2 m). One soil core revealed a plow zone depth of 7.9 in (20 cm). The core reached a maximum depth of 33.5 in (85 cm). The core yielded soft earth and large pieces of charcoal, and burned earth was observed between 27.6-33.5 in (70-85 cm) below the surface. This anomaly was interpreted as a probable earth oven with burned earth at the bottom and was assigned a ranking of “Excellent” (Burks 2015:17, 25).

Anomaly 11 was identified at N976.72 E993.86 on the site grid. It was an MP anomaly with a peak magnetic amplitude of 8.68, and measured approximately 4.9 ft (1.5 m) in diameter. Five soil cores revealed an average plow zone depth of 9.8 in (25 cm). The cores reached a maximum depth of 27.6 in (70 cm). Nothing was observed in three of the cores. However, a core in the center of the anomaly revealed soft, mottled soil and another core yielded large pieces of charcoal. No Bt soil horizon was observed in the soil cores. This anomaly was interpreted as a possible subtle pit feature and was assigned a ranking of “Fair-Good” (Burks 2015:17, 25).

Anomaly 12 was identified at N929.95 E984.76 on the site grid. It was an MP anomaly with a peak magnetic amplitude of 9.52, and measured approximately 6.6 ft (2 m) in diameter. Five soil cores revealed an average plow zone depth of 9.8 in (25 cm). The cores reached a maximum depth of 23.6 in (60 cm). Nothing was observed in any of the cores, except for several small brick fragments in the plow zone of one core. This anomaly was interpreted as non-cultural in origin and was not assigned a ranking (Burks 2015:17, 25).

Anomaly 13 was identified at N947.26 E988.18 on the site grid. It was an MP anomaly with a peak magnetic amplitude of 6.55, and measured approximately 6.6 ft (2 m) in diameter. Five soil cores revealed an average plow zone depth of 9.8 in (25 cm). The cores reached a maximum depth of 33.5 in (85 cm). Nothing was observed in three of the cores. One core in the center of the anomaly, however, revealed soft, wet, light-colored soil, and another core yielded charcoal fragments. No Bt soil horizon was observed in the soil cores. This anomaly was interpreted as a possible subtle pit feature and was assigned a ranking of “Fair-Good” (Burks 2015:17, 25).

Anomaly 14 was identified at N946.17 E990.58 on the site grid. It was an MP anomaly with a peak magnetic amplitude of 9.5, and measured approximately 5.7 ft (1.75 m) in diameter. Five soil cores revealed an average plow zone depth of 9.8 in (25 cm). The cores reached a maximum depth of 25.6 in (65 cm). Nothing was observed in two of the cores, but three cores (including one in the center of the anomaly) revealed light-colored, mottled soil and yielded possible FCR and large charcoal fragments. This anomaly was interpreted as a possible pit feature and was assigned a ranking of “Good” (Burks 2015:17, 25).

Anomaly 15 was identified at N953.88 E995.75 on the site grid. It was an MP anomaly with a peak magnetic amplitude of 7.7, and measured approximately 6.6 ft (2.0 m) x 4.9 ft (1.5 m). Five soil cores revealed an average plow zone depth of 9.8 in (25 cm). The cores reached a maximum depth of 25.6 in (65 cm). Nothing was observed in any of the cores. This anomaly was interpreted as non-cultural in origin and was not assigned a ranking (Burks 2015:17, 25).

Anomaly 16 was identified at N990.21 E959.23 on the site grid. It was an MP anomaly with a peak magnetic amplitude of 12.82, and measured approximately 6.6 ft (2 m) in diameter. Four soil cores revealed an average plow zone depth of 9.8 in (25 cm). The cores reached a maximum depth of 19.7 in (50 cm). One core revealed light-colored, soft soil, and the other three cores all yielded charcoal fragments. This anomaly was interpreted as either a subtle pit feature or a disturbed area and was assigned a ranking of "Fair" (Burks 2015:17, 25).

Anomaly 17 was identified at N958.46 E950.14 on the site grid. It was an MP anomaly with a peak magnetic amplitude of 5.38, and measured approximately 9.8 ft (3 m) x 3.3 ft (1 m). Five soil cores revealed an average plow zone depth of 9.8 in (25 cm). The cores reached a maximum depth of 33.5 in (85 cm). Nothing was observed in four of the cores, and the fifth only revealed an area of soft soil. This anomaly was interpreted as most likely representing a small area of disturbance or a natural feature and was not assigned a ranking (Burks 2015:17, 25).

Based on the results of the magnetic gradient survey and anomaly coring, OVAI recommended four anomalies for archaeological excavation: Anomalies 8, 10, 11 and 14. OVAI further recommended the excavation of 6.6 x 6.6 ft (2 x 2 m) units placed around these anomalies. In an attempt to test a wider variety of anomalies, however, MSG also chose to excavate Anomalies 1, 5, 12, 16 and 17. Thus anomalies from the full spectrum of Burks's ranking system (including "non-cultural" anomalies) were tested.

4.2 Controlled Surface Collection

Using the site datums established by OVAI for the magnetic gradient survey, MSG staked a grid over the entire site using a Trimble S-6 Robotic Total Station. MSG then conducted controlled, timed surface collection within 16.4-ft. (5-meter) blocks throughout the Phase II project area (see Section 3.1 for more detail). The following description of artifacts from surface contexts includes only those artifacts collected during the Phase II controlled surface collection. Section 5 will include an analysis of the overall surface collection from the site, including artifacts collected during both the Phase I and Phase II investigations.

A total of 244 blocks were surveyed via timed, controlled surface collection, resulting in the collection of 274 prehistoric artifacts (including lithic debitage, lithic tools, and FCR). Of the 244 survey blocks, 109 (45%) yielded artifacts. The largest number of artifacts recovered from any one survey block was 8. The average number of artifacts recovered per survey block when all survey blocks are included was 1.12 artifacts; when only positive survey blocks are counted, the average number of artifacts collected per block was 2.51 artifacts. Surface artifact density across the Phase II project area is shown on Figure 4.1.

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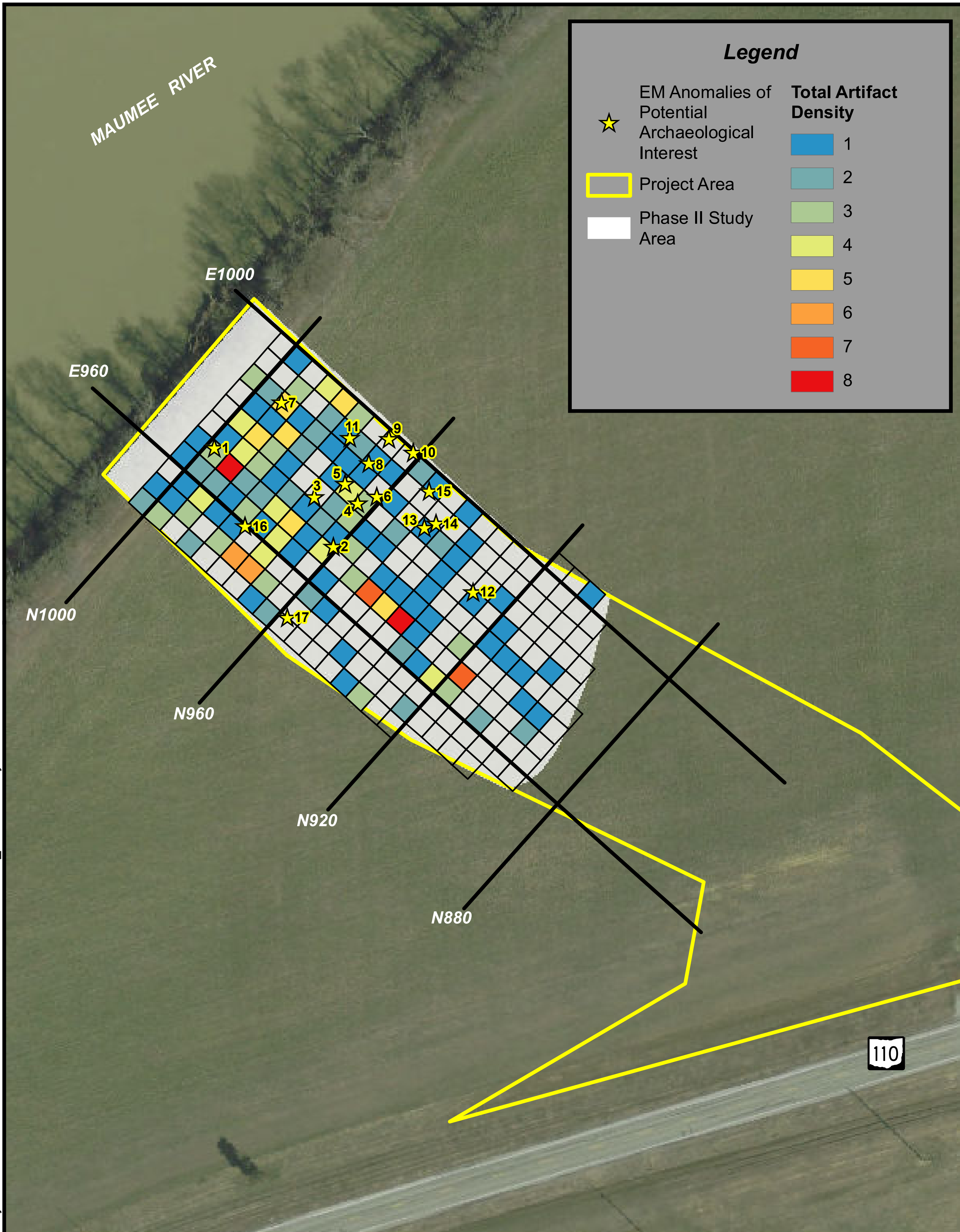

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Figure 4.1: Total Artifact Density Surface Collected Assemblage New Maumee River Crossing Napoleon, Ohio

Notes
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Feet
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Formal stone tools recovered from the surface include both chipped stone tools (n=61; 87%, SE=4.0%) and ground stone tools (n=9; 13%, SE=4.0%), including cores (n=31; 44%, SE=5.9%), bifaces (n=20; 29%, SE=5.4%; includes three diagnostic projectile points), unifaces (n=1; 1%, SE=1.2%), scrapers (n=9; 13%, SE=4.0%), hammers (n=4; 6%, SE=2.8%), abraders (n=4; 6%, SE=2.8%), and a fragment of an axe (n=1; 1%, SE=1.2%). Raw materials represented within this artifact class include Attica/Indiana Greenstone (n=2; 3%, SE=2.0%), Bayport (n=10; 14%, SE=4.2%), Cedarville/Guelph (n=11; 16%, SE=4.4%), Delaware (n=2; 3%, SE=2.0%), Dundee/Stoney Creek (n=1; 1%, SE=1.2%), Flint Ridge varieties (n=4; 6%, SE=2.8%), Greywacke (n=3; 4%, SE=2.3%), varieties of ground stone (n=9; 13%, SE=4.0%), Pipe Creek (n=3; 4%, SE=2.3%), Ten Mile Creek (n=17; 24%, SE=5.1%), unidentified tool-stone (n=2; 3%, SE=2.0%), Upper Mercer varieties (n=5; 7%, SE=3.1%), and Wyandotte (n=1; 1%, SE=1.2%). The surface density of formal stone tools is depicted in Figure 4.2.

The projectile points recovered from the site best resemble Table Rock Cluster Bottleneck-stemmed Projectile Points (ca. 3800-3000 B.P.), which date to the Late Archaic period in northwestern Ohio (Justice 1987; see Appendix C, Photos 56-61). Of these three points, one is fashioned from Cedarville/Guelph chert, one from Flint Ridge, and one from Pipe Creek chert. Based on Purtill's (2009) recent chronology, these three projectile points represent the Late Archaic-period Late Archaic Stemmed horizon that dates to approximately 6600-3000 cal B.P. However, no Bottleneck-stemmed projectile points have ever been directly dated. These three artifacts are the only diagnostic artifacts that were recovered from 33HY0167 during both the Phase I and Phase II investigations of the New Maumee River Crossing project area. Interestingly, all three of these points were recovered from survey blocks north of the N980 grid line.

In terms of tool-stone debitage, the surface collection yielded simple debitage flakes (n=63; 49%, SE=4.4%), complex debitage flakes (n=18; 14%, SE=3.1%), a bipolar debitage flake (n=1; 1%, SE=0.9%), and pieces of shatter (n=47; 36%, SE=4.2%). These pieces of debitage included both heat treated (n=11; 9%, SE=2.5%) and non-treated (n=118; 91%, SE=2.5%) examples as well as both utilized debitage (n=38; 29%, SE=4.0%) and non-utilized debitage (n=91; 71%, SE=4.0%). The raw materials from which these flakes are made include Attica/Indiana Greenstone (n=1; 1%, SE=0.9%), Bayport (n=12; 9%, SE=2.5%), Cedarville/Guelph (n=29; 22%, SE=3.7%), Delaware (n=14; 11%, SE=2.8%), Dundee/Stoney Creek (n=3; 2%, SE=1.2%), Esopus (n=2; 2%, SE=1.2%), Flint Ridge varieties (n=12; 9%, SE=2.5%), Greywacke (n=6; 5%; SE=1.9%), Pipe Creek (n=2; 2%, SE=1.2%), Silicified Sandstone (n=2; 2%, SE=1.2%), Ten Mile Creek (n=30; 23%, SE=3.7%), unidentified tool-stone (n=3; 2%, SE=1.2%), and Upper Mercer varieties (n=13; 10%, SE=2.6%). The surface density of lithic debitage is depicted in Figure 4.3.

The surface collection also yielded FCR (n=83) weighing 13.8 lbs (6,266.2 grams) in total; unmodified tool stone (a single piece of Cedarville-Guelph chert) weighing 0.01 lbs (4.4 grams); and unmodified stone (either manuports or naturally deposited glacial erratics) (n=9) weighing 3.5 lbs (1,578.7 grams) in total. The surface density of FCR is depicted in Figure 4.4.

A discussion of spatial patterning within the surface collected assemblage, based in part on Figures 4.1-4.4, will be presented in Section 5.2.1 of this report.

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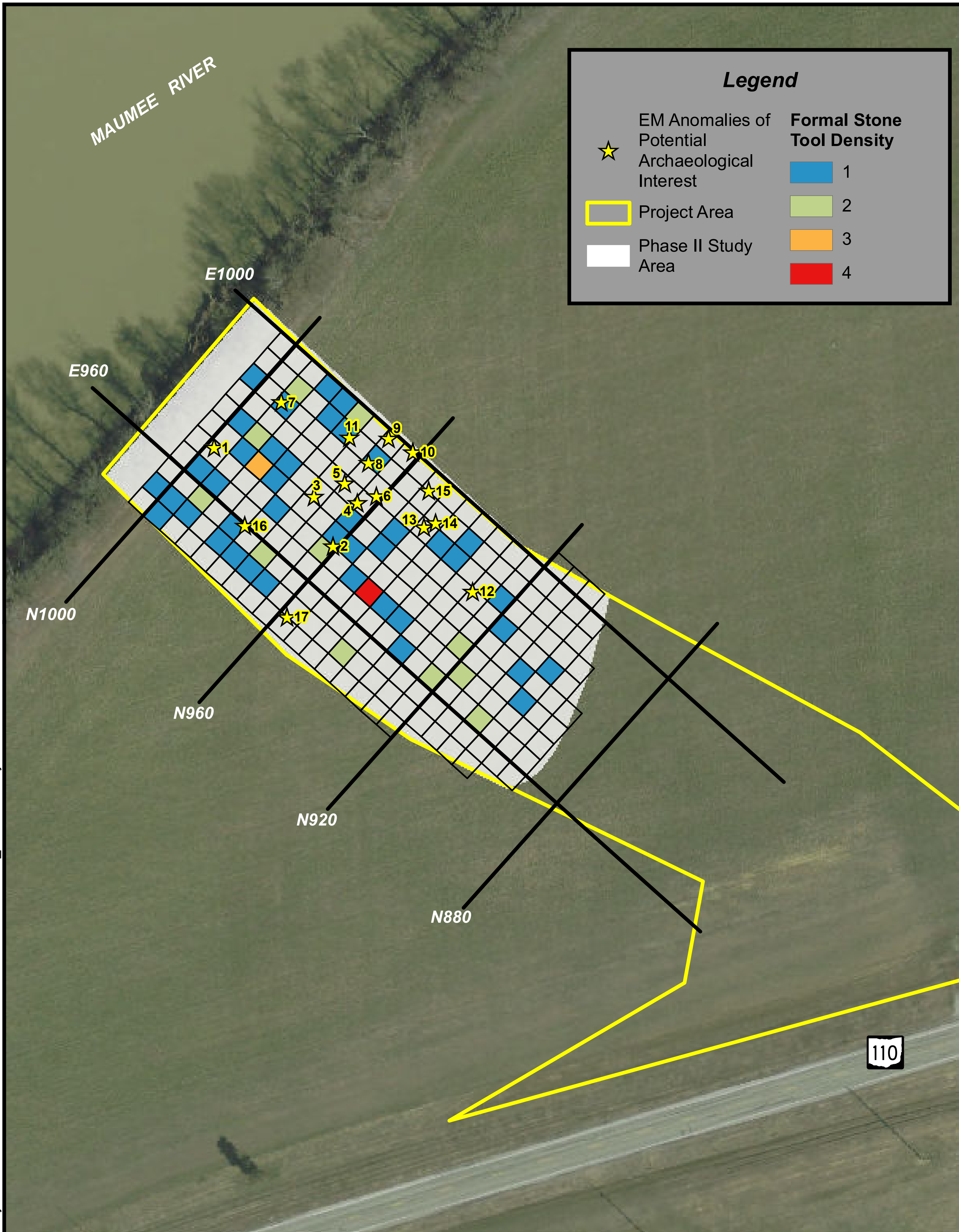

Figure 4.2: Formal Stone Tool Density Surface Collected Assemblage New Maumee River Crossing Napoleon, Ohio

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Notes
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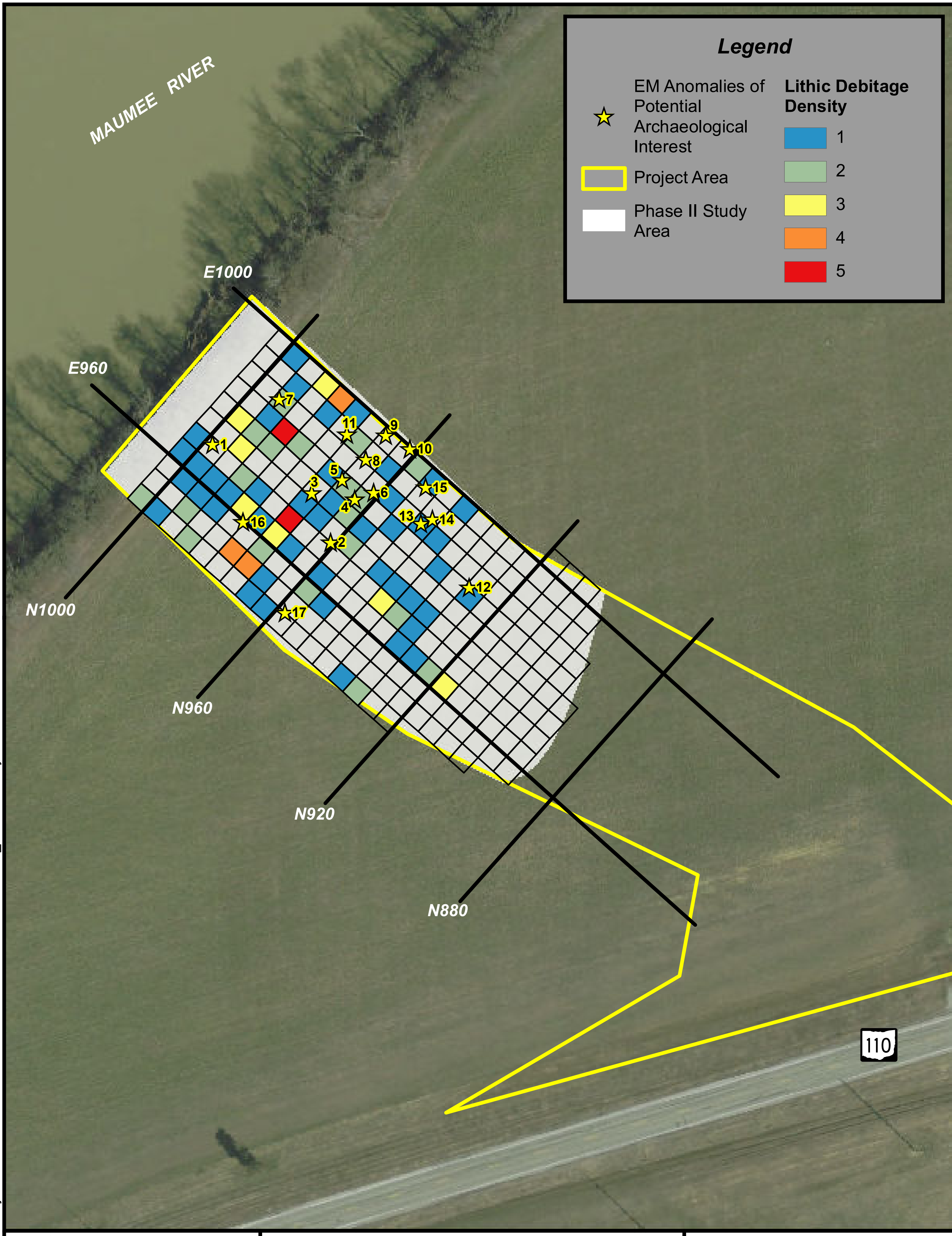

Figure 4.3: Lithic Debitage Density Surface Collected Assemblage New Maumee River Crossing Napoleon, Ohio

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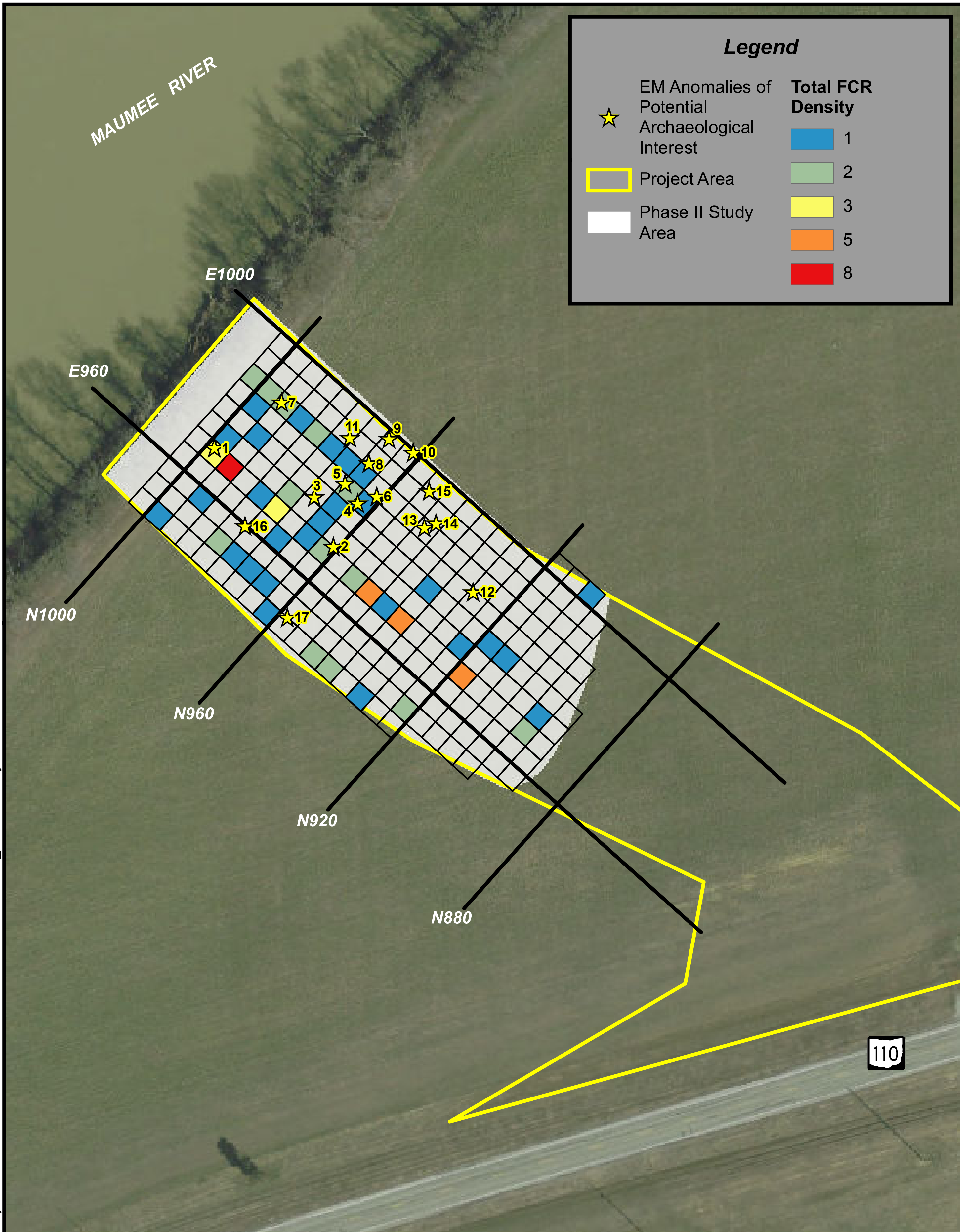

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Figure 4.4: FCR Density
Surface Collected Assemblage
New Maumee River Crossing
Napoleon, Ohio

Notes
The Henry County photography, dated April 2011, is provided by OGRIP as part of the Ohio Statewide Imagery Program.

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4.3 Manual Excavation of Selected Magnetic Anomalies

The locations of the manual excavation units described below are depicted on Figure 4.5.

4.3.1 Anomaly 1

Anomaly 1 was investigated through a 6.6 ft x 6.6 ft (2 m x 2 m) excavation unit with its southwestern corner located at N968 E989.5 on the site grid (see Figure 4.5). Based on the results of the magnetic gradient survey, this anomaly was described as a “possible pit or large rock” measuring approximately 9.8 ft (3.0 m) in diameter, and was ranked as “Fair” (Burks 2015:17).

The plow zone was removed as one level within this unit. The northwest quarter of the plow zone was screened and yielded no cultural material. The plow zone in this unit consisted of 10YR 3/4 dark yellowish brown sandy loam that extended to an average depth of 12.6 in (32 cm) below ground surface (bgs). The plow zone was located directly above a subsoil horizon; the transition between the plow zone and the subsoil was characterized as gradual with evidence of plow scarring. Two dark stains consisting of 10YR 3/3 dark brown sandy loam were observed at the top of the subsoil, as were two slightly larger areas consisting of 10YR 4/2 dark grayish brown sandy loam with clay deposits (Figure 4.6; Appendix C, Photo 5).

Following the removal of the plow zone, excavation proceeded in arbitrary levels. Level 2 consisted of 10YR 5/4 yellowish brown sandy clay that began approximately 12.6 in (32 cm) bgs, immediately beneath the plow zone, and continued to a depth of approximately 16.5 in (42 cm) bgs. All of the soil from Level 2 was screened, and no cultural material was recovered. A concentration of waterworn gravel was observed along the south wall of the unit, and appears to represent a small deposit of water-borne material. The excavation of Level 2 revealed the two dark grayish brown stains with clay deposits observed at the base of the plow zone to be ephemeral; they most likely represent small water-borne deposits. The dark brown stains continued through Level 2 and were found to contain non-cultural shale (Figure 4.7; Appendix C, Photo 6). They were interpreted as root casts that had been filled with water-borne deposits. Level 2 represents the limit of excavation for the majority of the unit; however the southeastern quarter of the unit was extended an additional level.

Level 3 was excavated as an arbitrary 7.9 in (20-cm) level in the southeastern quarter of the test unit. This level began approximately 16.5 in (42 cm) bgs, and continued to a depth of approximately 24.4 in (62 cm) bgs. The soil in Level 3 was the same color and texture as Level 2. All of the soil from this level was screened and yielded no cultural material. The gravel concentration along the south wall of the unit was revealed to be a thin lens approximately 2.0 in (5 cm) thick centered at approximately 15.0 in (38 cm) below the ground surface. Due to a lack of artefactual material and the waterworn appearance of the gravel, this lens was interpreted as a small flood deposit, or possibly the result of ice-scouring. Level 3 represents the limit of excavation within the unit. The soil description for Level 3 was the same as for Level 2, and no change was visible in the base of Level 3 (Figures 4.8-4.9; Appendix C, Photo 7).

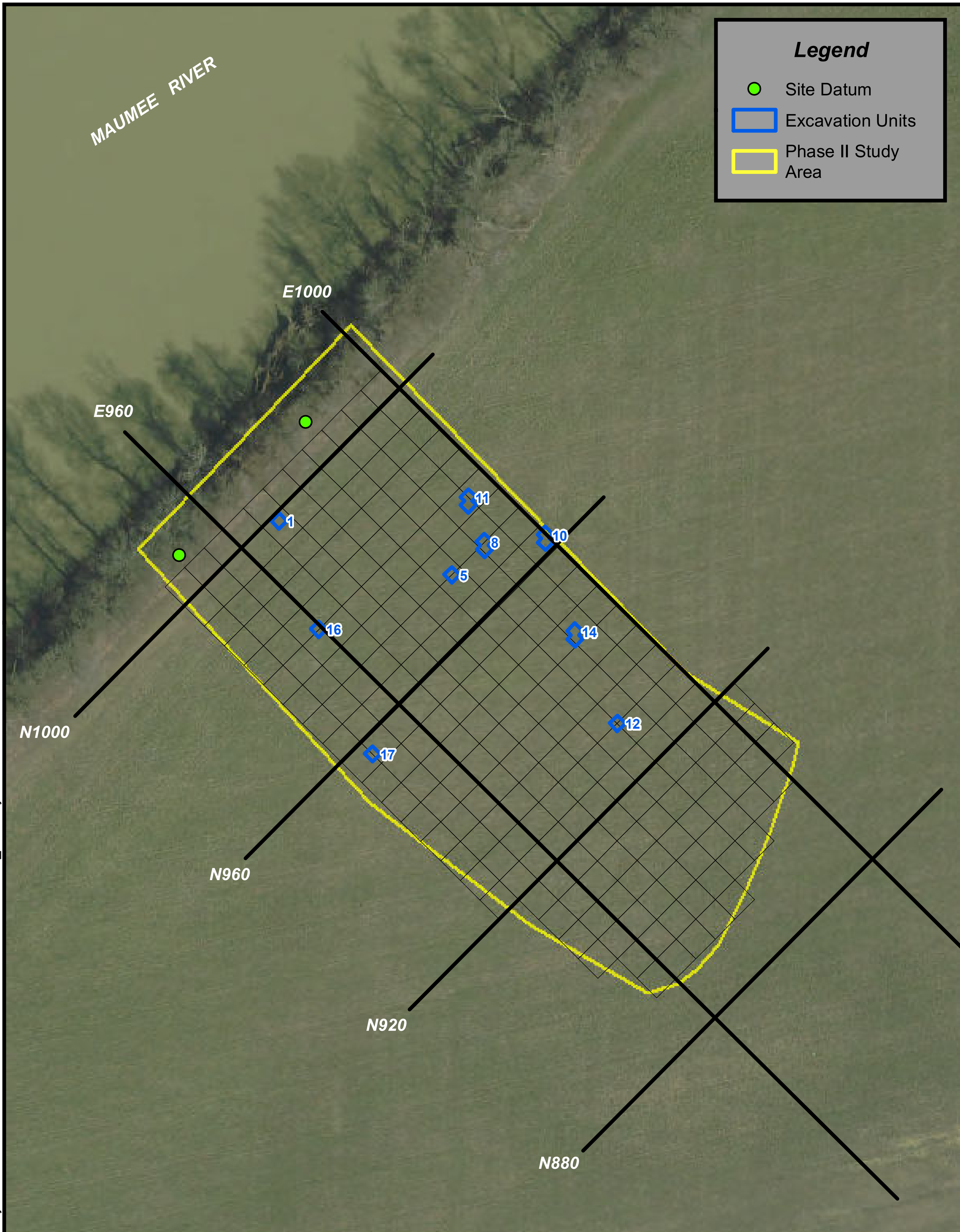

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Figure 4.5: Location of Excavation Units
New Maumee River Crossing
Napoleon, Ohio

Notes
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Feet
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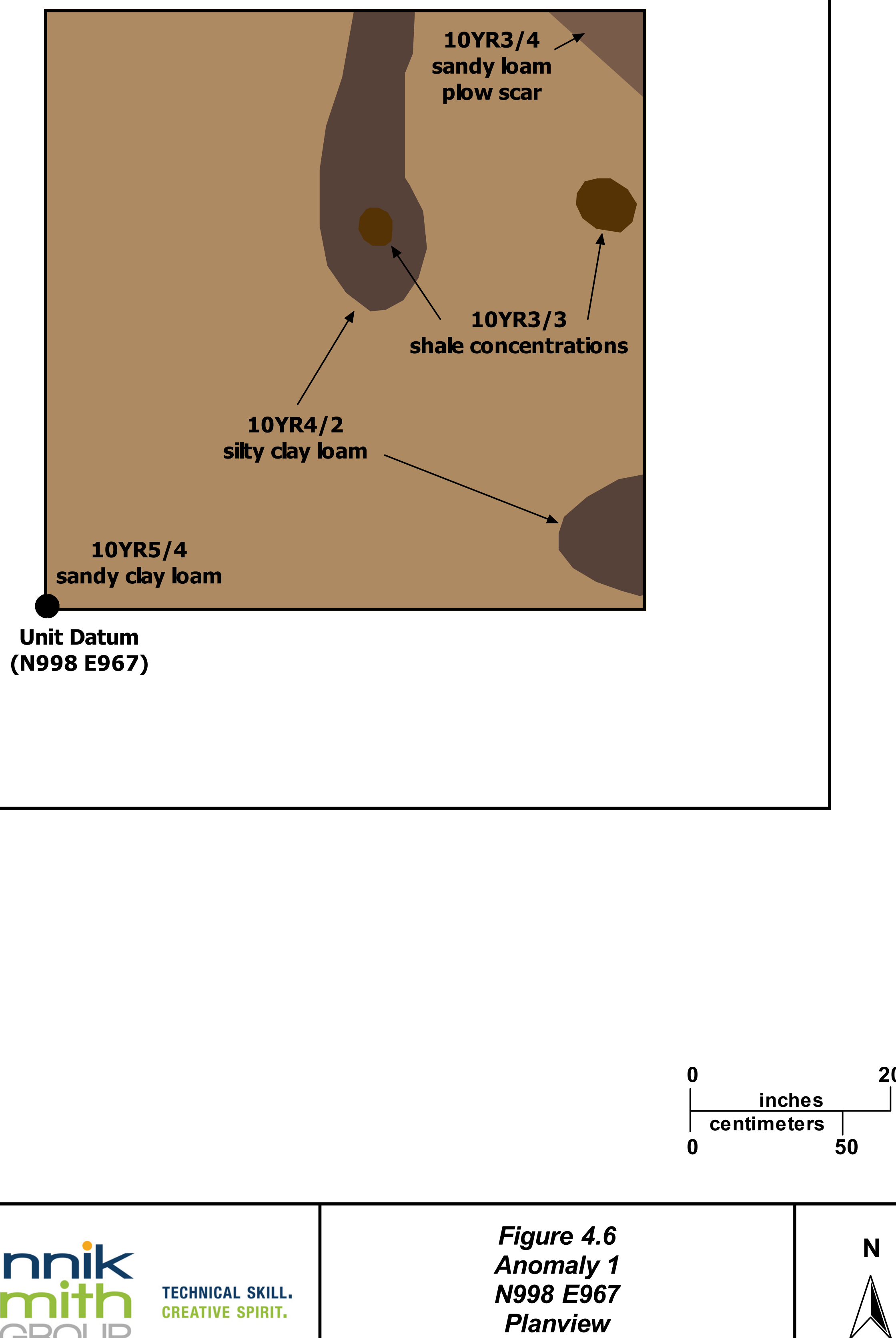

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Figure 4.6
Anomaly 1
N998 E967
Planview
Base of Plowzone

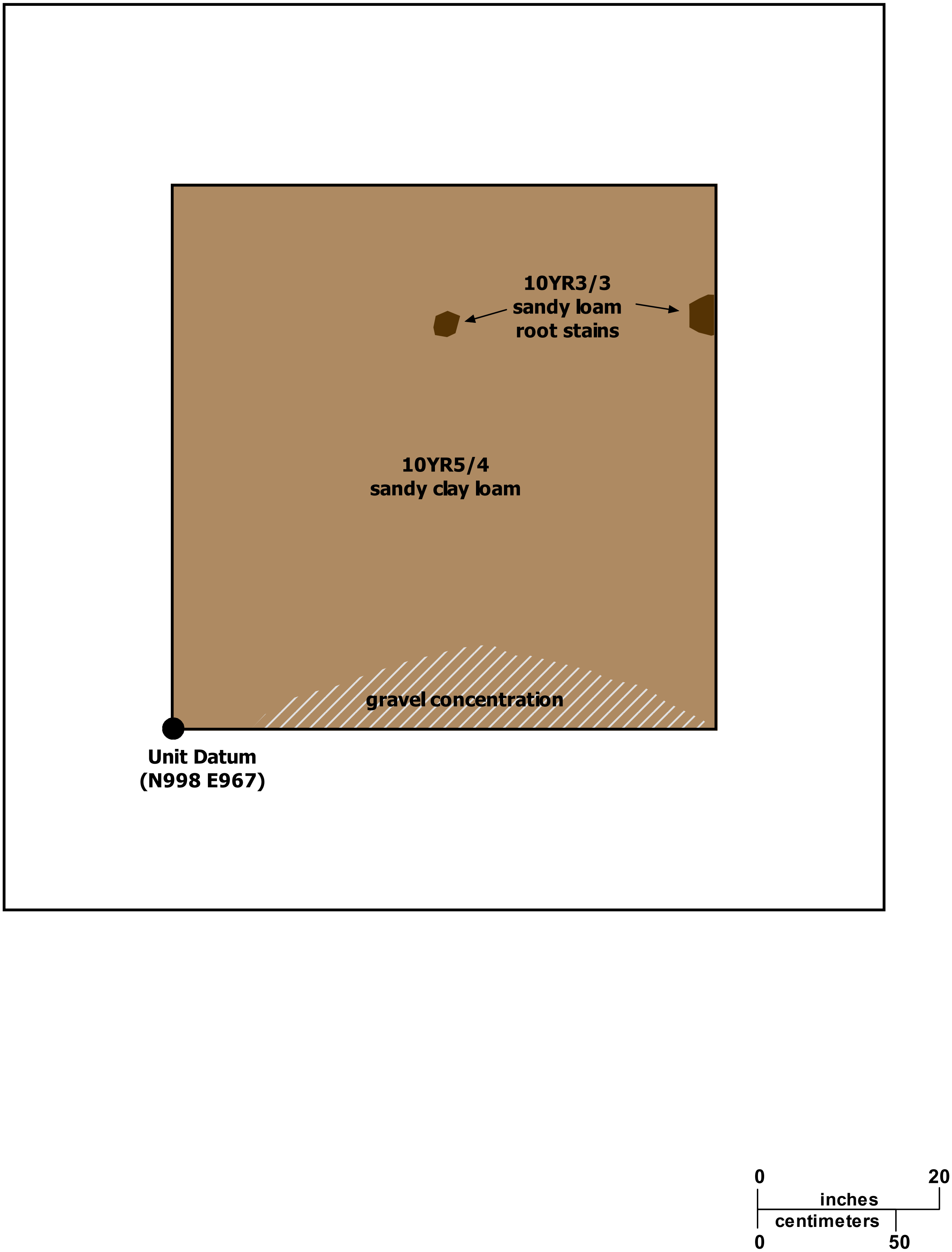

Figure 4.7
Anomaly 1
N998 E967
Planview
Base of Level 2

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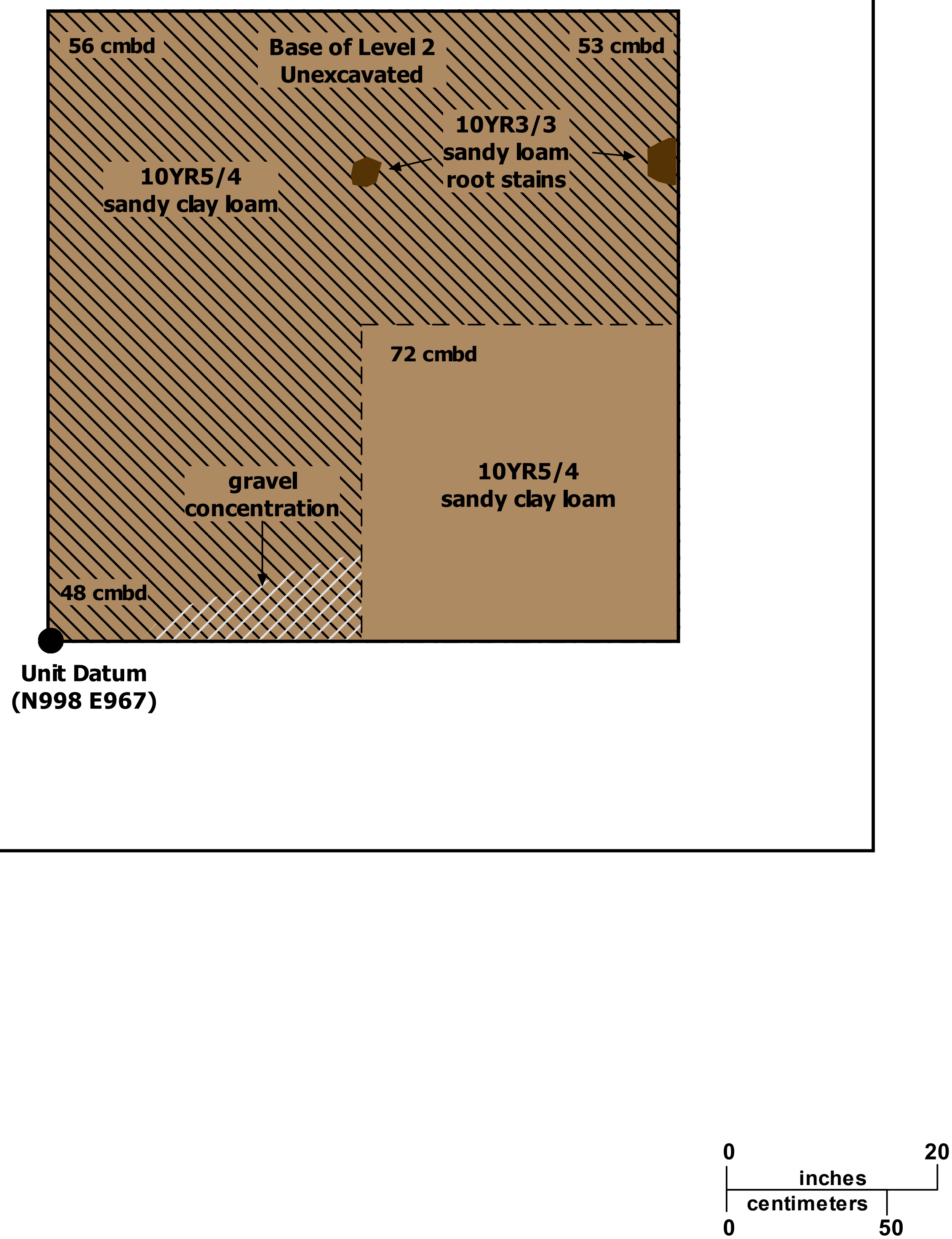

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Figure 4.8
Anomaly 1
N998 E967
Planview
Base of Level 3

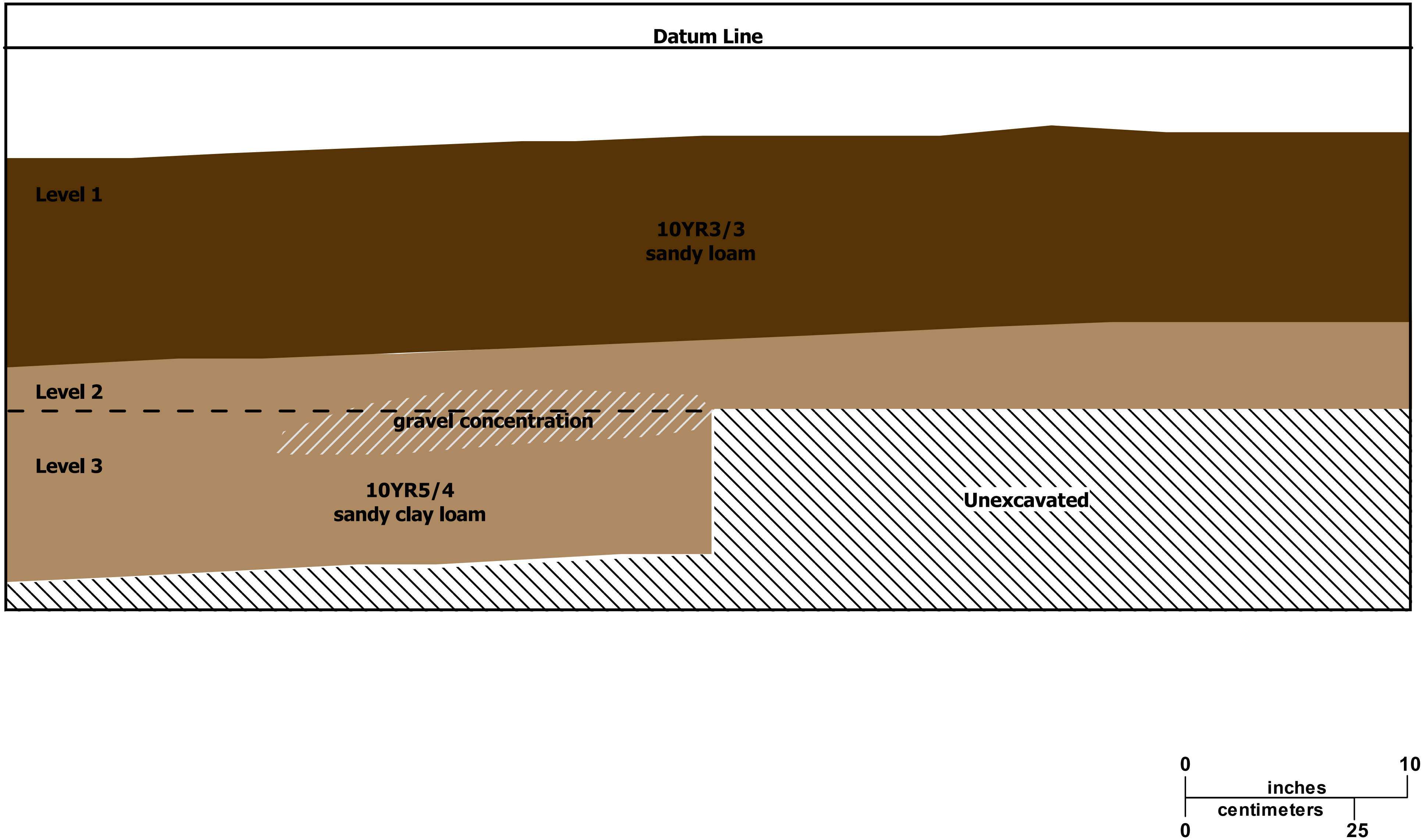

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Figure 4.9
Anomaly 1
N998 E967
South Wall Profile

In summary, three levels were excavated within Anomaly 1 – the plow zone and two sterile, arbitrary subsoil levels. No artifacts were recovered and no cultural features were identified during the excavation of Anomaly 1, although several natural features were identified as the result of water-borne material deposition. It is possible that the magnetic anomaly detected by Burks was caused by one of these natural features.

4.3.2 Anomaly 5

Anomaly 5 was investigated through a 6.6 ft x 6.6 ft (2 m x 2 m) excavation unit with its southwestern corner located at N969 E982 on the site grid (see Figure 4.5). Based on the results of the magnetic gradient survey, this anomaly was described as a "magnetic rock" somewhat ovoid in shape, located approximately 15.7 in (40 cm) bgs. The anomaly created by this rock measured approximately 4.9 ft (1.5 m) north to south by approximately 6.6 ft (2 m) east to west; it was ranked as "Nothing Observed" (Burks 2015:17).

The plow zone was removed as one level from this unit. The plow zone in this unit consisted of 10YR 4/4 dark yellowish brown silty clay loam that extended to an average depth of 12.6 in (32 cm) bgs. The plow zone was located directly above the BE soil horizon, the transition between the two being characterized as gradual. No features were visible at the interface between the plow zone and the BE horizon (Figure 4.10; Appendix C, Photo 9). The northeast quarter of the plow zone was screened and yielded six pieces of tool-stone debitage. All six pieces of debitage are complex flakes (n=6); raw materials include Flint Ridge varieties (n=5; 83%, SE=15.3%) and Upper Mercer (n=1; 17%, SE=15.3%).

Following the removal of the plow zone, excavation proceeded in arbitrary levels. Level 2 was excavated as a 3.9 in (10 cm) arbitrary level within the northern half of the unit, all of which was screened. The soil matrix in Level 2 consisted of 10YR 5/4 yellowish brown compact silty clay. The level began approximately 12.6 in (32 cm) bgs and continued to a depth of approximately 16.5 in (42 cm) bgs (Figure 4.11; Appendix C, Photo 10). This level yielded a total of 46 artifacts, almost all of which were recovered from the lower half of the level. These included 1 chipped stone tool, a core (n=1; 25%, SE=21.7%) made of Flint Ridge flint, and 3 ground stone tools, including an abrader (n=1; 25%, SE=21.7%), a hammer (n=1; 25%, SE=21.7%), and a metate (n=1; 25%, SE=21.7%). Level 2 also yielded 29 pieces of FCR weighing a total of 2.9 lbs (1,327.1 g) and 13 pieces of unmodified tool-stone weighing 5.8 lbs (2,638 g) in total. The unmodified tool-stone included Ten Mile Creek chert (n=7; 54%, SE=13.8%), Silicified Sandstone (n=4; 31%, SE=12.8%), and Quartzite (n=2; 15%, SE=9.9%).

Level 3 was excavated as a 3.9 in (10 cm) arbitrary level within the northeastern quarter of the test unit. The soil in this level consisted of the same soil matrix as Level 2 (10YR 5/4 yellowish brown silty clay). Level 3 began approximately 16.5 in (42 cm) bgs and continued to a depth of approximately 20.5 in (52 cm) bgs (Figure 4.12; Appendix C, Photo 11).

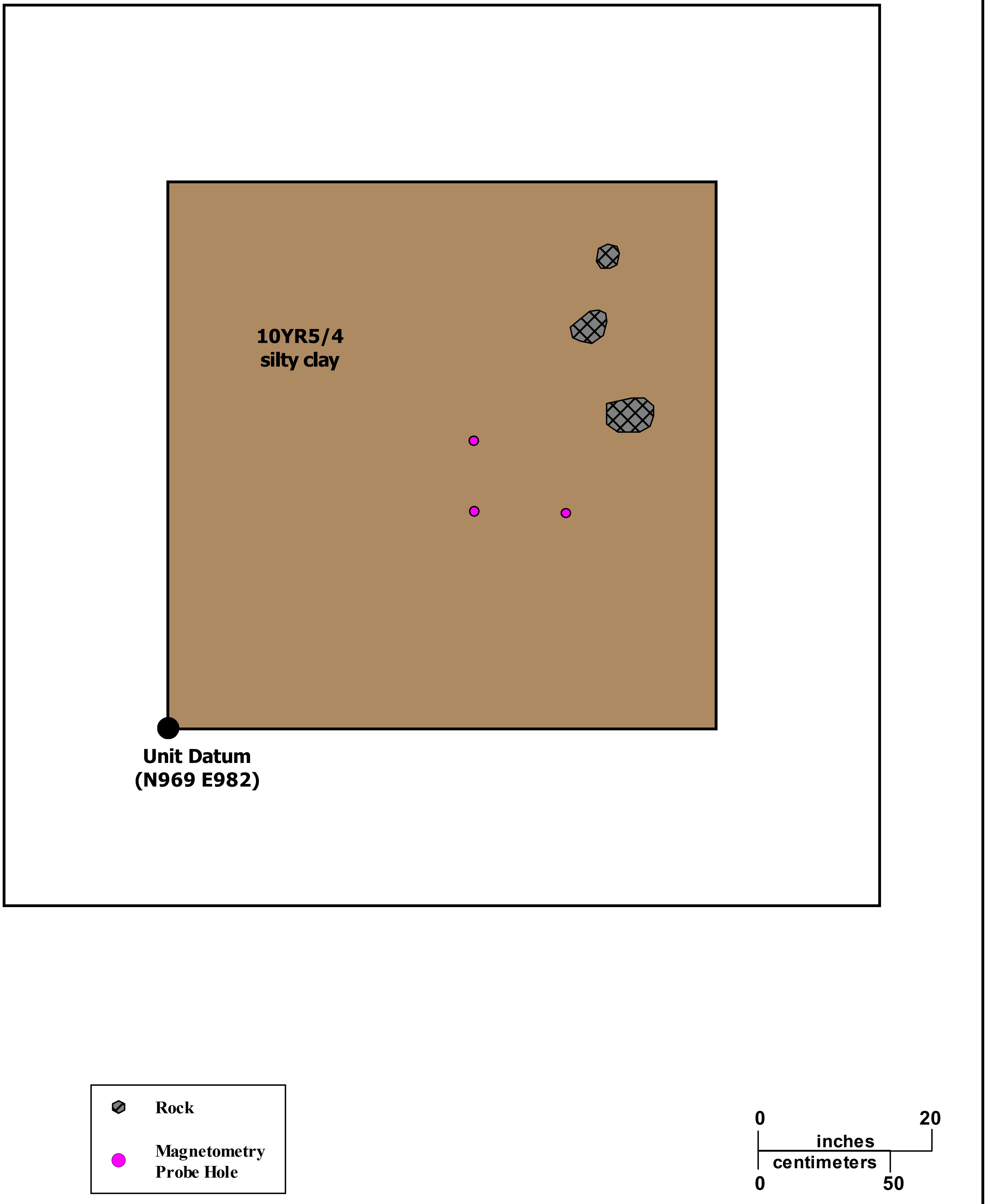

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Figure 4.10
Anomaly 5
N969 E982
Planview
Base of Plowzone

N

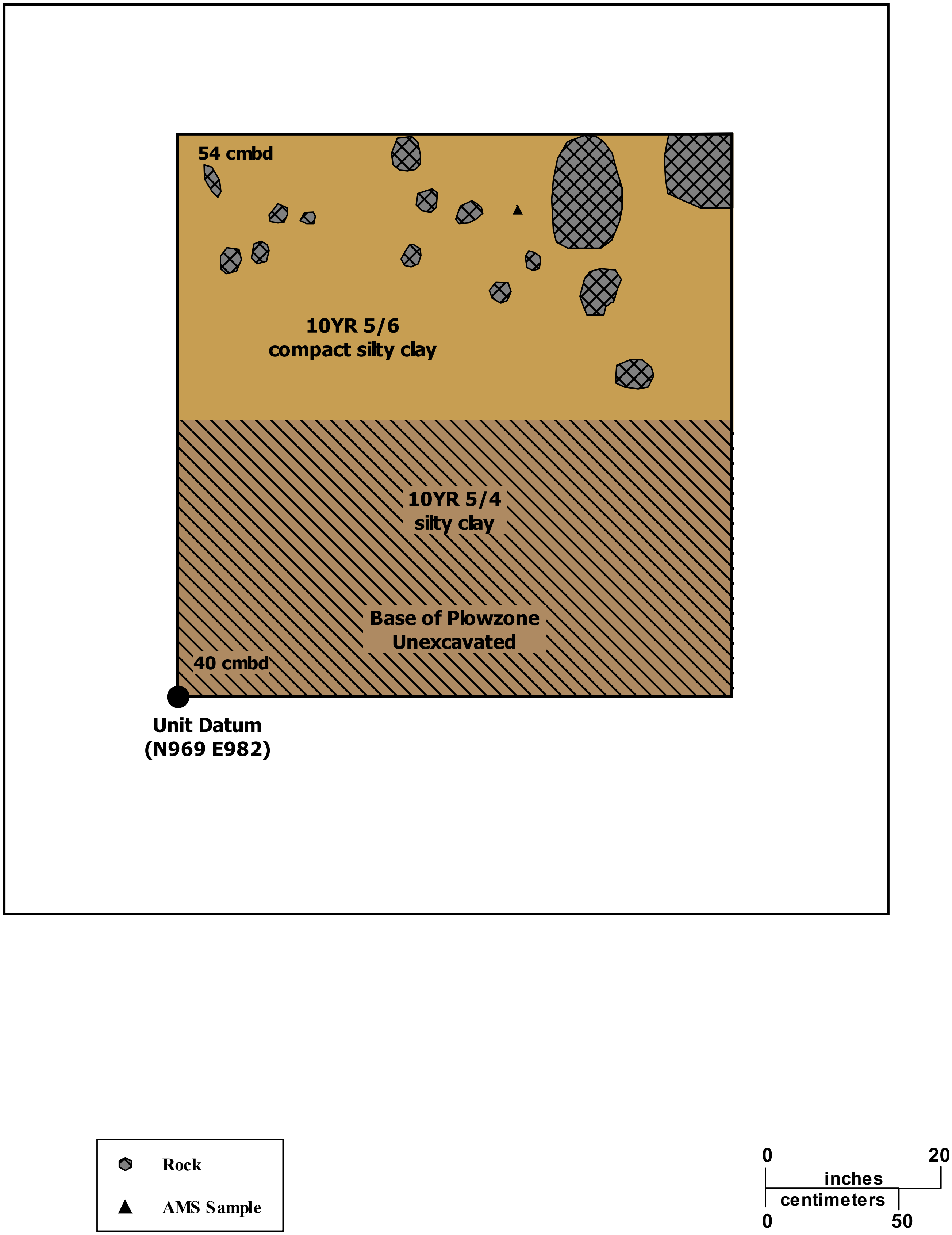

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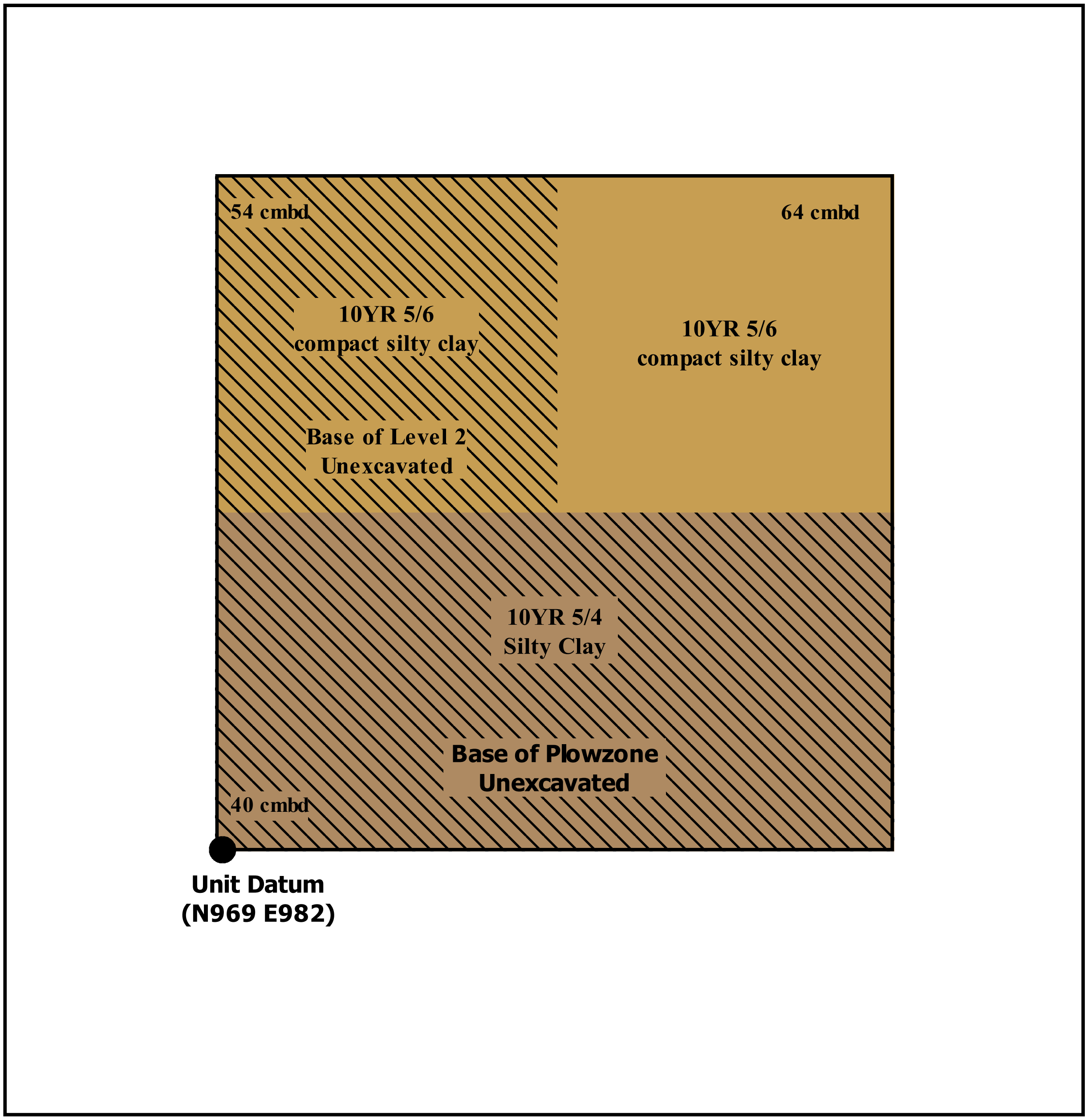
Figure 4.11
Anomaly 5
N969 E982
Planview
Base of Level 2

N



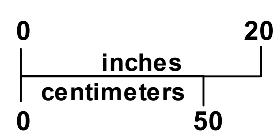


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Figure 4.12
Anomaly 5
N969 E982
Planview
Base of Level 3

All of Level 3 was screened; it yielded a total of 13 artifacts, including one chipped stone tool (a scraper made of Cedarville/Guelph chert); five apparently unmodified pieces of tool-stone weighing 0.9 lbs (446.3 g) in total; and seven pieces of FCR weighing a total of 2.5 lbs (1,138.4 g). The unmodified tool-stone materials included Greywacke (n=2; 40%, SE=21.9%), Cedarville/Guelph chert (n=1; 20%, SE=17.9%), Quartzite (n=1; 20%, SE=17.9%), and Ten Mile Creek chert (n=1; 20%, SE=17.9%).

A soil sample was collected from Level 2 and subjected to flotation (see Appendix D). Although carbon-like flecking was observed during excavation, no carbonized wood or other identifiable macrobotanical remains were identified in the flotation sample.

One organic sediment sample was recovered from Level 2 and submitted for AMS dating, as Sample G (see Appendix E). This sample returned two date ranges of 2115-2100 cal B.C. (4065-4050 cal B.P.) and 2035-1900 cal B.C. (3985-3850 cal B.P.) (p=0.05). (Calibrated at 2σ with the INTCAL 13 database [Talma and Vogel 1993; Reimer et al. 2013].) These ranges fall near the middle of the Late Archaic Period in northwestern Ohio.

Levels 2 and 3 of this excavation unit may represent an *in situ* living surface, the boundaries of which were not defined within the open unit. Although Level 2 was described in field notes as *Feature 5.1,* it closely resembles the living surface identified in the lower levels of Anomaly 12, which was not given a feature designation. Therefore, it is more appropriate to say that what was described in field notes as *Feature 5.1* is likely a living surface rather than a delimited feature such as a hearth or post mold. There did appear to be a concentration of FCR in Level 2, which was pedestaled and mapped (see Figure 4.11). The concentration appeared to center around the northern wall of the unit and continued into Level 3 (Figures 4.13-4.14; Appendix C, Photo 12). The large rock described by Burks as the source of the magnetic anomaly in this location was not encountered, although the center of the excavation unit was not excavated to a sufficient depth to uncover it. Given the presence of FCR in Levels 2 and 3, however, it is certainly possible that Burks's large rock was a piece of FCR.

4.3.3 Anomaly 8

Anomaly 8 was investigated through a double 6.6 ft x 6.6 ft (2 m x 2 m) (total 75 ft^2 [7 m^2]) excavation unit with its southwestern corner located at N968 E989.5 on the site grid (see Figure 4.5). Based on the results of the magnetic gradient survey, this anomaly was described as a "possible pit feature with FCR" measuring approximately 6.6 ft (2 m) in diameter, and was ranked as "Good" (Burks 2015:17).

The plow zone was removed as one level within this unit. The plow zone in this unit consisted of 10YR 3/4 dark yellowish brown silty clay that extended to an average depth of 7.9 in (20 cm) bgs. The plow zone was located directly above the BE soil horizon, the transition between the two being characterized by heavy, alternating plow furrows and ridges. The BE horizon consisted of 10YR 4/4 dark yellowish brown silty clay loam (Figure 4.15; Appendix C, Photo 14).

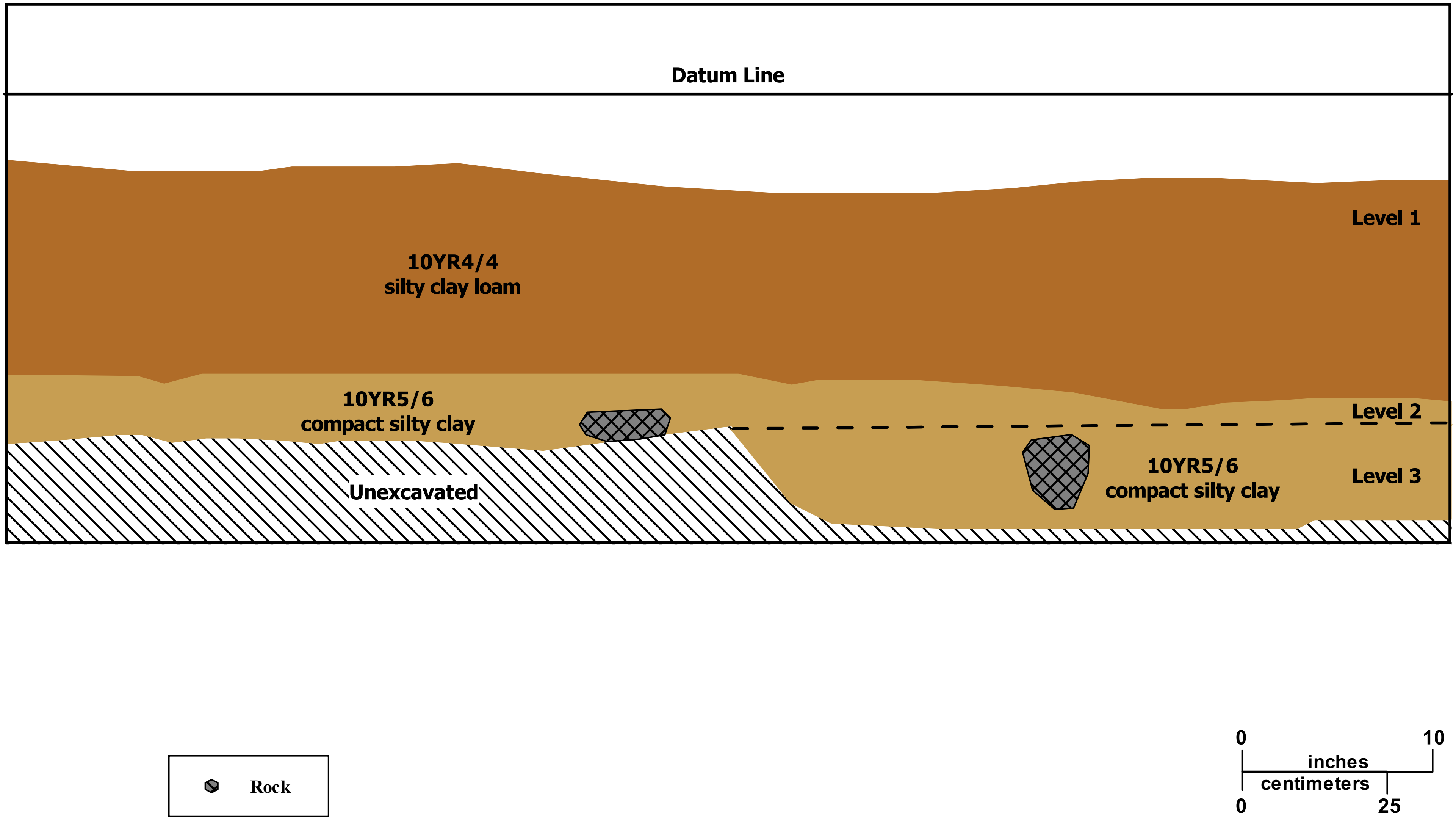

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Figure 4.13
Anomaly 5
N969 E982
North Wall Profile

N

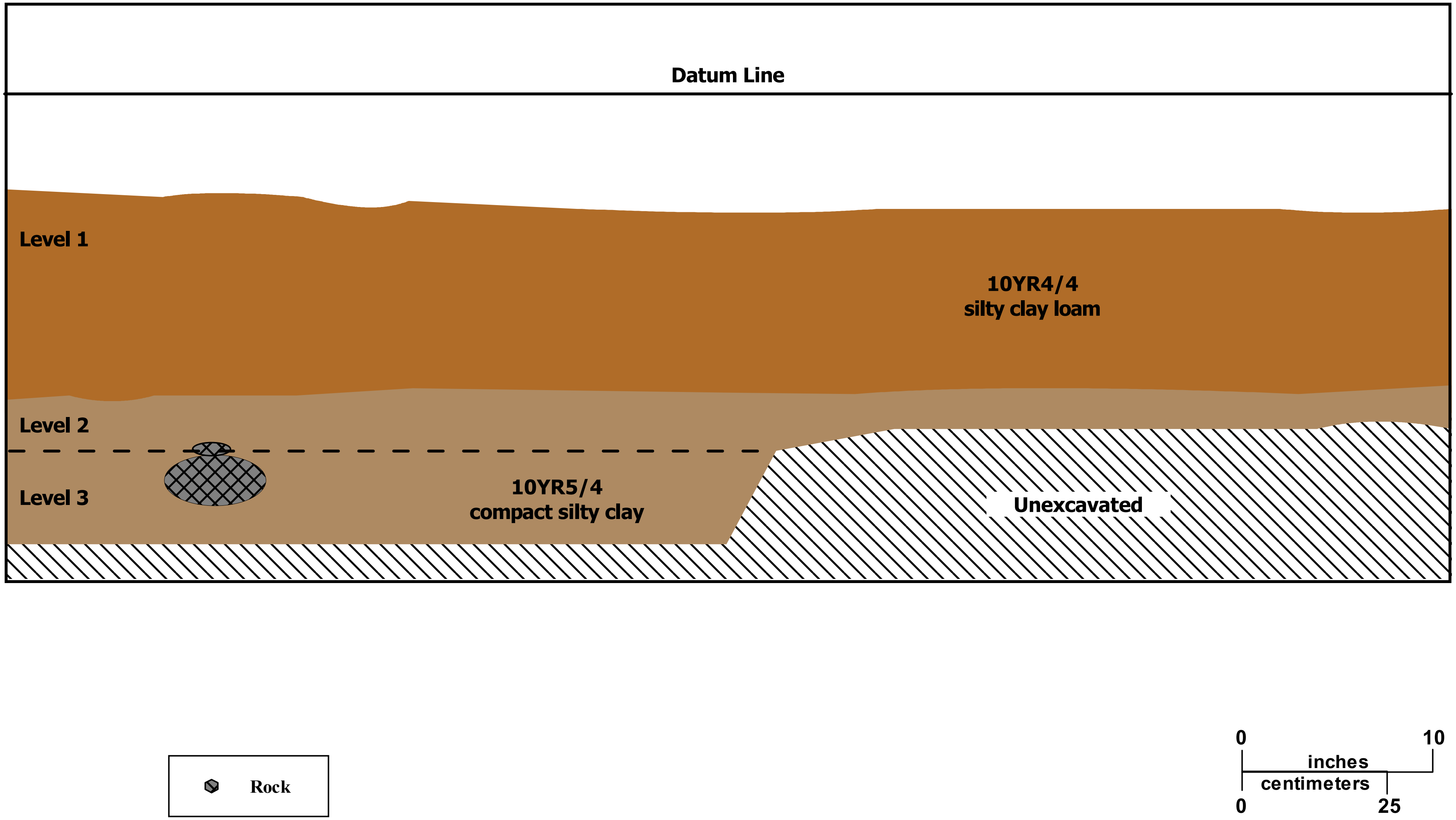

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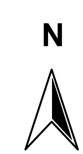
Figure 4.14
Anomaly 5
N969 E982
East Wall Profile



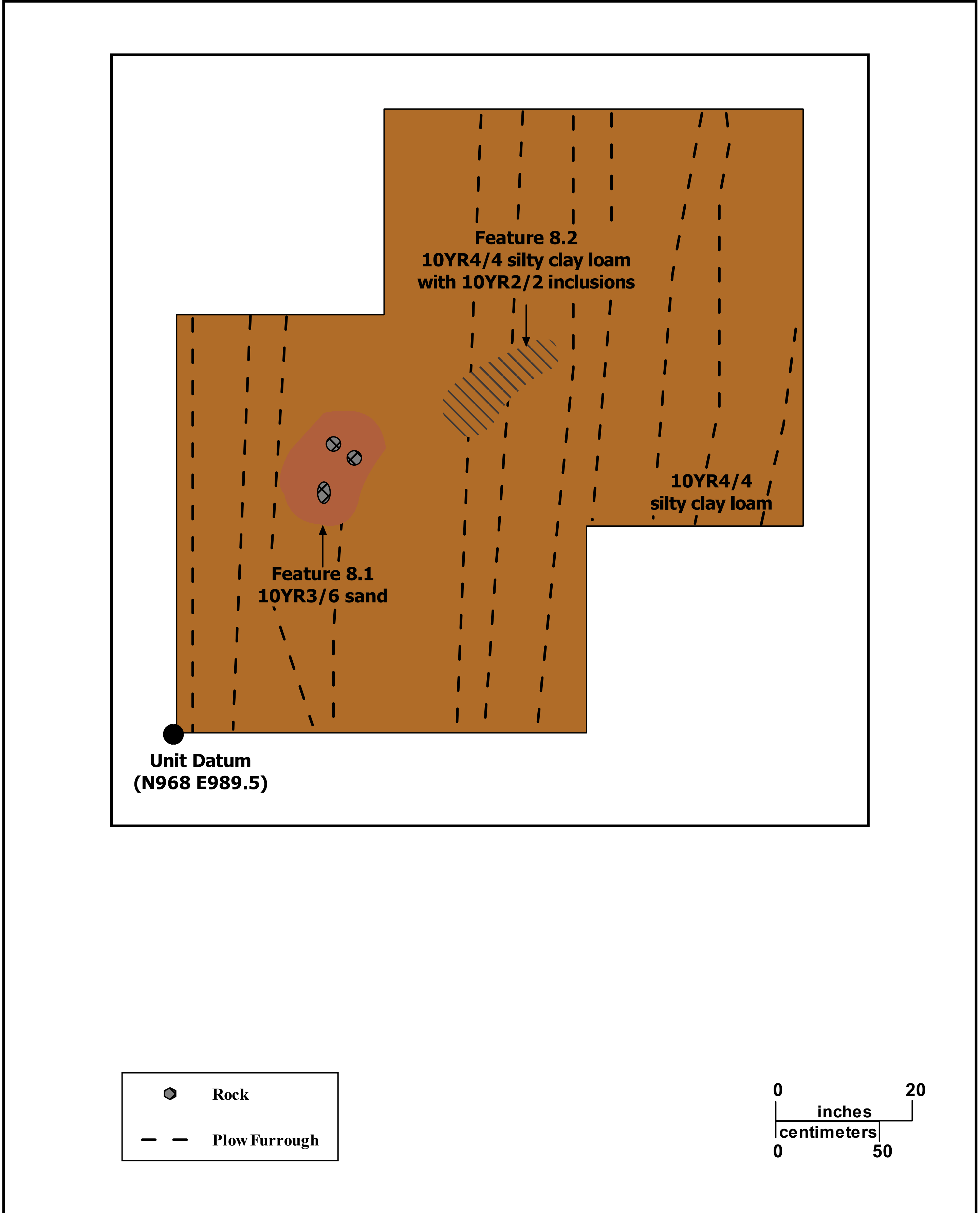


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Figure 4.15
Anomaly 8
N968 E989.5
Planview
Base of Plowzone

Only the southwestern quarter of the plow zone was screened; it yielded 10 pieces of chert debitage, including complex flakes (n=8; 80%, SE=12.7%) and shatter (n=2; 20%, SE=12.7%) made of Cedarville/Guelph (n=5; 50%, SE=15.8%), Delaware (n=3; 30%, SE=14.5%), and Ten Mile Creek (n=2; 20%, SE=12.7%) tool-stone varieties. Also recovered from the screened plow zone were six chipped stone tools/tool fragments, including cores (n=3; 50%, SE=20.4%), bifaces (n=2; 33%, SE=19.2%) and a scraper (n=1; 17%, SE=15.3%) made of Delaware (n=4; 67%, SE=19.2%), Cedarville/Guelph (n=1; 17%, SE=15.3%), and Flint Ridge (n=1; 17%, SE=15.3%) tool-stone varieties. In addition to the debitage and tools recovered, the plow zone sample also yielded five pieces of FCR weighing a total of 0.7 lbs (317.7 g).

Two features were identified and labeled at the base of the plow zone, although neither matched the shape or size of the magnetic anomaly detected in this location by Burks (see Figure 4.15). These are described individually below. Due to the presence of these features, excavation within the unit ceased at the interface between the plow zone and the BE horizon.

4.3.3.1 Feature 8.1

Feature 8.1 was first identified at the interface between the plow zone and BE soil horizon. Although much smaller than anticipated based on the size of Anomaly 8, Feature 8.1 was interpreted as the source of the anomaly and was therefore chosen for excavation. Feature 8.1 was bisected, with the northern half of the feature being excavated. It begins approximately 9.1 in (23 cm) bgs and extends to a total depth of 21.3 in (54 cm) bgs. The feature measures approximately 19.7 in (50 cm) north-south by 15.7 in (40 cm) east-west, is roughly ovoid in shape, and appears in profile to be concave with steep sides, although only the eastern edge of the feature fill could be clearly distinguished due to the presence of multiple large rocks. The feature fill consisted of 10YR 3/6 dark yellowish brown sand, with multiple large rocks visible at the top of the feature. No internal stratigraphic divisions were observed within the feature (Figures 4.16-4.17; Appendix C, Photos 15-16). The presence of Feature 8.1 immediately beneath the plow zone indicates that it had been truncated by plowing activity, although it appeared that this disturbance was not severe.

A total of 51 artifacts were recovered from the bisected feature fill, including 8 large ground stone tools (including 2 anvils, 2 hammers, 2 possible abraders, 1 mortar, and 1 unidentified piece of ground stone) and 43 pieces of FCR that weighed 23.8 lbs (10791.6 g) in total. The feature did not contain any lithic debitage, chipped stone tools, or raw tool-stone material.

A soil sample measuring 0.8 qt (750 mL) was collected from the feature fill and subjected to flotation (see Appendix D). Unfortunately, no macrobotanical remains were recovered. The analysis noted that a high concentration of gravel was observed in this sample, which is detrimental to organic preservation. Even more unfortunately, no visible organic material was recovered from Feature 8.1 and therefore the feature could not be dated via AMS dating.

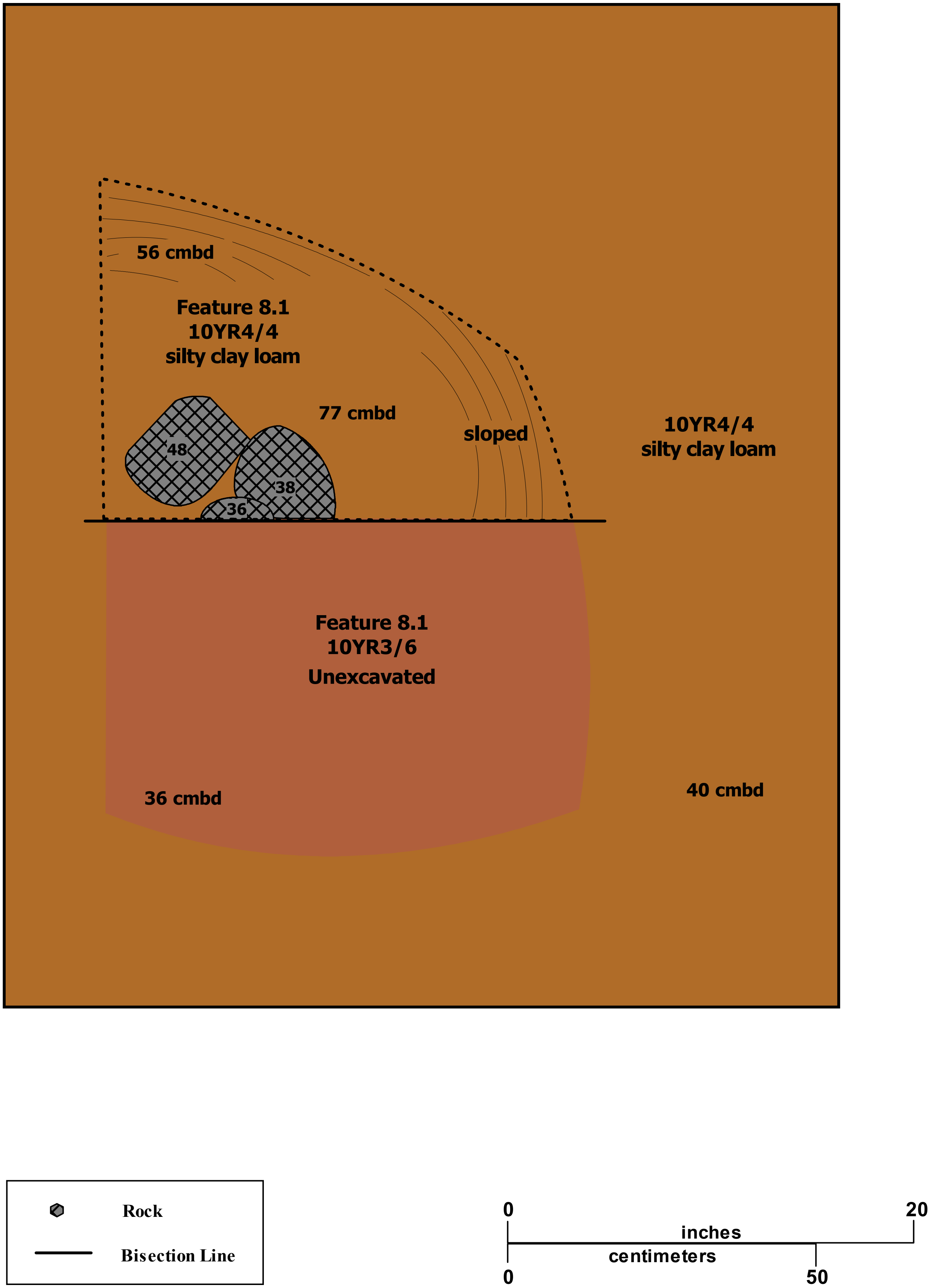

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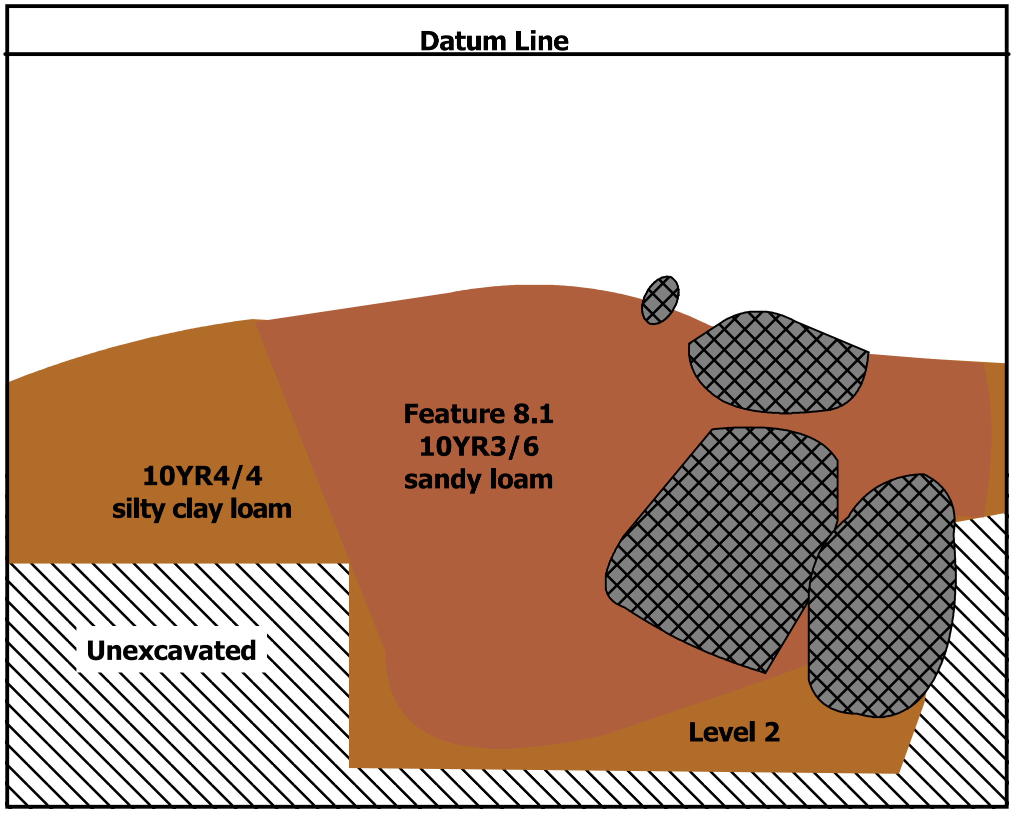
Figure 4.16
Anomaly 8
N968 E989.5
Planview
Base of Feature 8.1



Rock

0 10
inches
centimeters
0 25

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Figure 4.17
Anomaly 8
N968 E989.5
Feature 8.1
Bisection South Wall Profile

N

Interestingly, all of the ground stone tools and FCR recovered from Feature 8.1 are made of granite. One possibility suggested by this consistency is that the feature represents a cache of ground stone tool material stored in a subterranean pit, intended for future manufacture into usable tools. Another possibility is that the ground stone tools had been recycled as heating stones and that Feature 8.1 may represent a small earth oven or roasting pit. However, some studies have suggested that denser, non-porous igneous stone such as granite was particularly well suited to stone boiling cooking techniques (Purtill 2012:139, citing Brink and Dawe 2003 and Ng 2004). Stratigraphically, the feature's location immediately underneath the plow zone and within the BE horizon indicates that it may be broadly contemporaneous with Features 11.1, 14.1 and 16.1, all of which have been dated to the Middle – Late Woodland period. Unfortunately, the lack of diagnostic artifacts and organic material within this feature preclude firm identification of Feature 8.1's function and age.

4.3.3.2 Feature 8.2

Feature 8.2 was identified as an ovoid soil stain at the interface between the plow zone and BE horizons, approximately 9.1 in (23 cm) bgs. The stain measured approximately 21.7 in (55 cm) northeast-southwest by 9.8 in (25 cm) northwest-southeast (see Figure 4.15). The feature fill within this stain consisted of 10YR 4/4 dark yellowish brown silty clay loam, and was only distinguishable from the surrounding BE horizon by the inclusion of 10YR 2/2 very dark brown carboniferous mottling. This feature was interpreted as a probable root cast and was not excavated.

4.3.4 Anomaly 10

Anomaly 10 was investigated through a double 6.6 ft x 6.6 ft (2 m x 2 m) (total 75 ft^2 [7 m^2]) excavation unit with its southwestern corner located at N961 E998 on the site grid. Based on the results of the magnetic gradient survey, this anomaly was described as a probable earth oven with large fragments of wood charcoal, darker soil, and distinctly burned earth at 27.6-33.5 in (70-85 cm) bgs. The anomaly measured approximately 11.5 ft (3.5 m) by 6.6 ft (2 m) in size, and was the only anomaly ranked as "Excellent" (Burks 2015:17).

The plow zone in this unit consisted of 10YR 4/4 dark yellowish brown silty clay loam that extended to an average depth of 8.7 in (22 cm) bgs. Unlike the excavation unit for Anomaly 8, the base of the plow zone in this location was relatively level. Immediately underneath the plow zone was a BE horizon consisting of 10YR 5/6 yellowish brown silty clay. The plow zone was removed as one level, and only the central 3.3x3.3 ft (1x1 m) area of the plow zone was screened. This portion of the plow zone yielded a total of 30 artifacts. Of these, 14 pieces of debitage were recovered, including simple flakes (n=3; 23%, SE=11.7%), complex flakes (n=3; 23%, SE=11.7%), and shatter (n=7; 54%, SE=13.8%) made of materials including Cedarville/Guelph (n=4; 31%, SE=12.8%), Ten Mile Creek (n=4; 31%, SE=12.8%), Flint Ridge varieties (n=3; 23%, SE=11.7%), Four Mile Creek (n=1; 8%, SE=7.5%), and Upper Mercer (n=1; 8%, SE=7.5%). Also recovered from the plow zone sample were six stone tools, including a core fragment (n=1; 17%, SE=15.3%), bifaces (n=4; 67%, SE=19.2%), and a scraper (n=1; 17%, SE=15.3%) made of materials that include Flint Ridge (n=2; 33%, SE=19.2%), Ten Mile Creek (n=2; 33%, SE=19.2%), Cedarville/Guelph (n=1; 17%, SE=15.3%), and Four Mile Creek (n=1; 17%, SE=15.3%). Ten pieces of FCR weighing a total of 0.7 lbs (305.2 g) were also recovered. Finally, in addition to the artifacts recovered, the plow zone also yielded six pieces of identifiable, unmodified raw tool-stone, including Silicified Sandstone (n=4; 67%, SE=9.0%), Quartzite (n=1; 17%, SE=15.3%), and Ten Mile Creek (n=1; 17%, SE=15.3%) and weighing a total of 0.1 lbs (67.8 g).

One feature was identified within the BE soil horizon at the base of the plow zone, within the southwestern half of the unit (Figure 4.18; Appendix C, Photo 18). Labeled Feature 10.1, this feature is discussed below.

4.3.4.1 Feature 10.1

Feature 10.1 was identified at the interface between the plow zone and BE soil horizons, approximately 7.9 in (20 cm) bgs. Upon excavation it was found to extend to a maximum depth of 20.5 in (52 cm) bgs. In plan view the feature measured approximately 70.9 in (180 cm) north-south by 56.7 in (144 cm) east-west; it was roughly ovoid in shape, but was considerably wider in its southern half than its northern half (see Figure 4.18). In profile it appeared to be concave with steep sides. The general soil matrix within the feature was a 10YR 2/2 very dark brown silty loam with a heavy concentration of charcoal flecking.

The feature was bisected and its northern half excavated as one level. Excavation of this half of the feature yielded a total of just three artifacts, including one simple debitage flake made of Ten Mile Creek chert, one unidentified, bifacial ground stone tool made of granite, and one piece of FCR weighing 0.05 lb (24.2 g).

A soil sample measuring 0.77 qt (725 mL) was collected from the feature fill and subjected to flotation (see Appendix D). Although small flecks of carbonized wood were recovered, none of the flecks could be identified by taxon. However, one carbon sample was recovered from the feature during excavation and submitted for AMS dating, as sample D (see Appendix E). This sample returned a date range of 40 cal B.C. to 80 cal A.D. (1990-1870 cal B.P.) (p=0.05). (Calibrated at 2σ with the INTCAL 13 database [Talma and Vogel 1993; Reimer et al. 2013].) This range falls during the Middle Woodland Period in northwestern Ohio.

Although Feature 10.1 initially appeared to be a large pit feature based on the horizontal extent of its top surface, much of this top surface area was revealed upon excavation to be a result of plow smearing. It was also found that the feature extends outside of the excavation unit to the north (Figure 4.19; Appendix C, Photo 19). In profile, Feature 10.1 is a relatively small pit feature containing darkened soil with a high concentration of charcoal (Figure 4.20; Appendix C, Photo 20). Although Feature 10.1 may represent a small earth oven or roasting pit dating to the Middle Woodland period, this functional identification is highly tenuous given the lack of functionally diagnostic artifacts recovered from within the feature. It should also be noted that the base of this feature was encountered at a depth approximately 7.1 in (18 cm) higher than the burned earth observed by Burks (2015) when he conducted soil coring of Anomaly 10. It is therefore possible that a second, older feature is present underneath Feature 10.1.

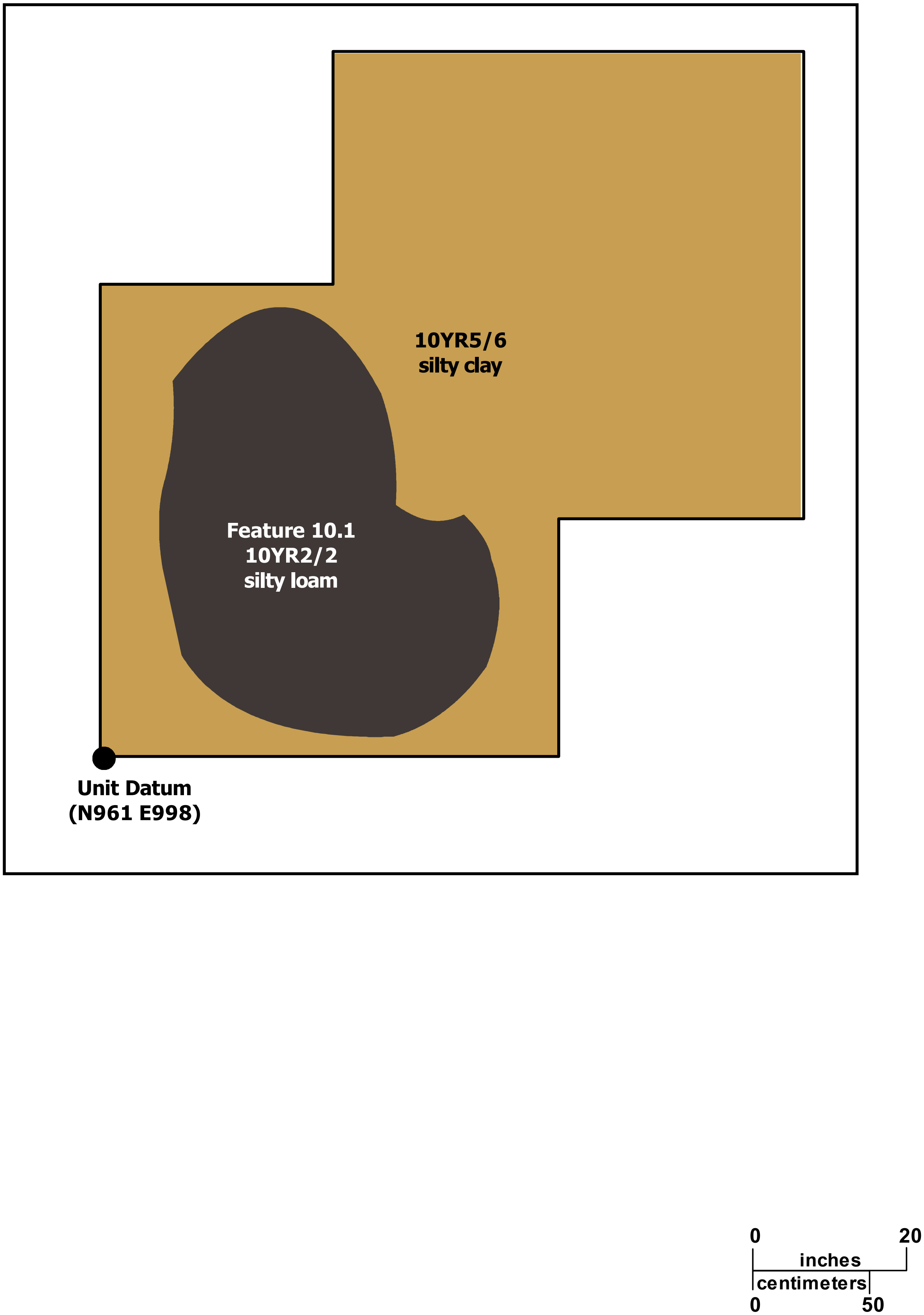

Figure 4.18
Anomaly 10
N961 E998
Planview
Base of Plowzone

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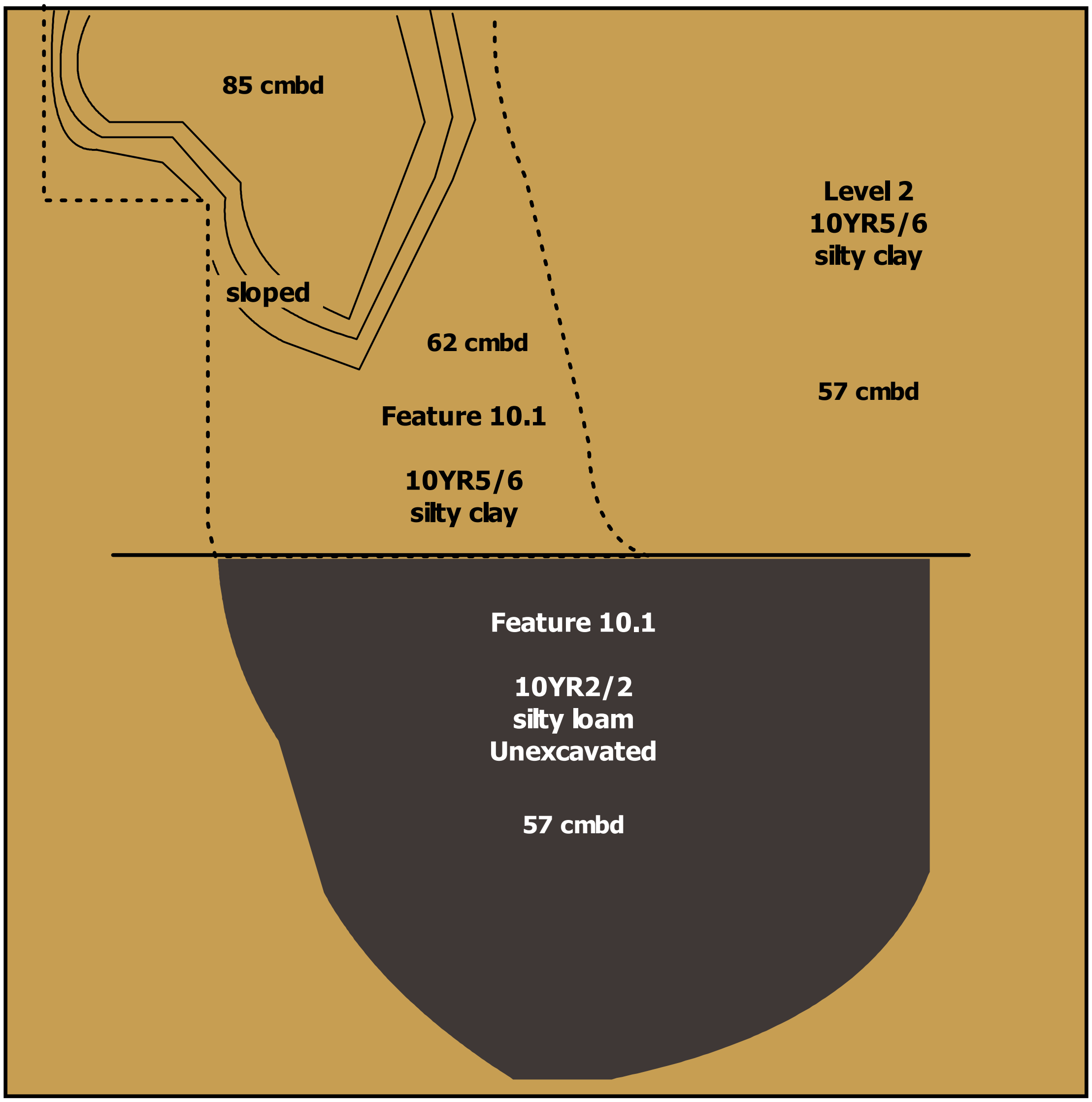

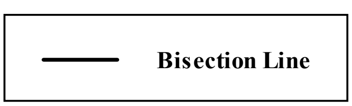

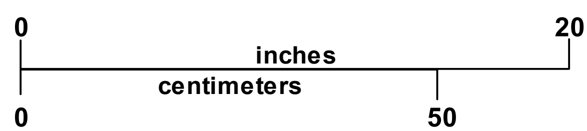

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Figure 4.19
Anomaly 10
N961 E998
Planview
Base of Feature 10.1

N

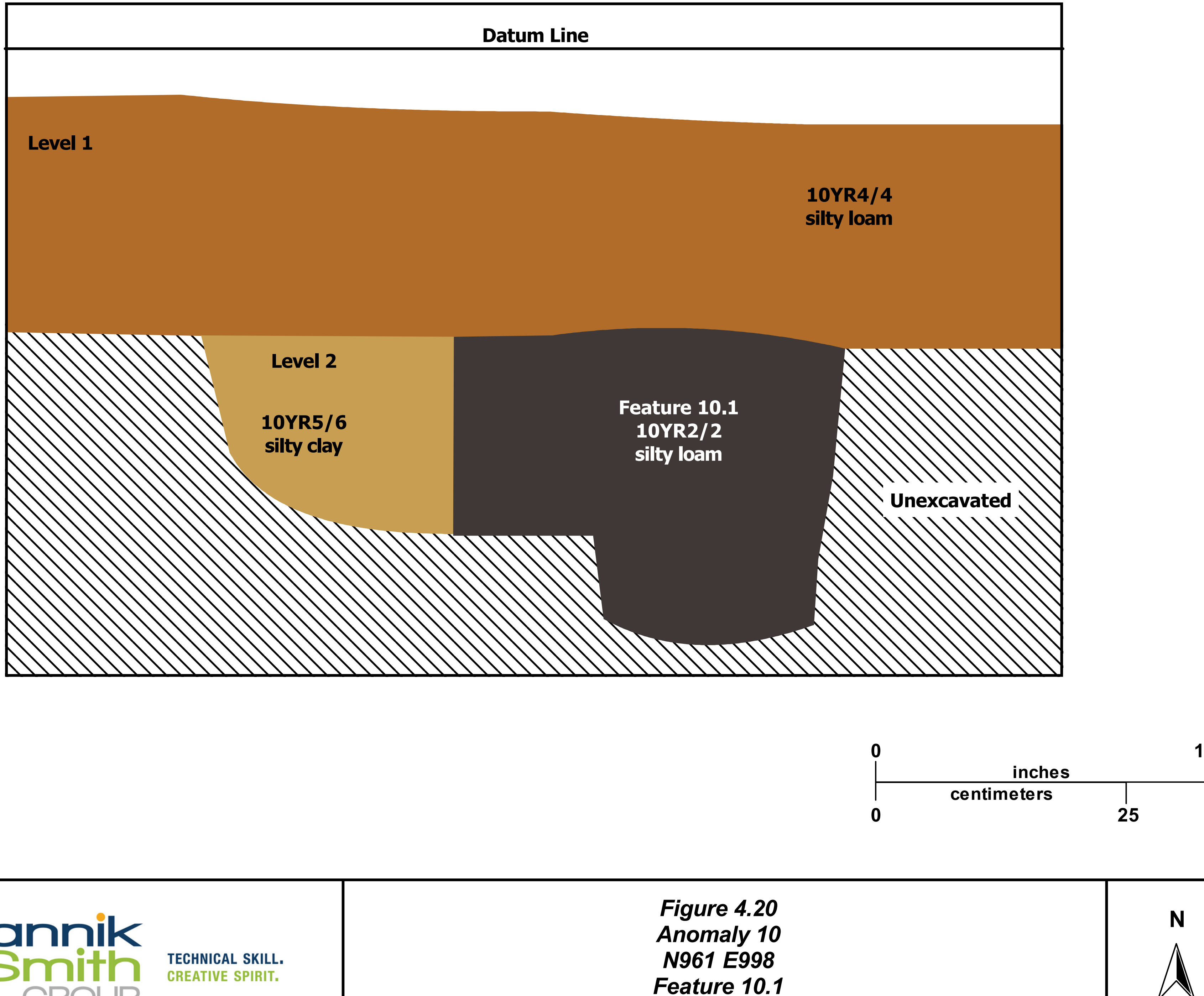

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Figure 4.20
Anomaly 10
N961 E998
Feature 10.1
Bisection North Wall Profile

4.3.5 Anomaly 11

Anomaly 11 was investigated through a double 6.6 ft x 6.6 ft (2 m x 2 m) (total 75 ft^2 [7 m^2]) excavation unit with its southwestern corner located at N976 E993 on the site grid. Based on the results of the magnetic gradient survey, this anomaly was described as a possible subtle pit feature exhibiting soft soil and containing charcoal in one of its five soil-cores. The anomaly measured approximately 4.9 ft (1.5 m) in diameter, was roughly round in shape and was ranked as "Fair-Good" (Burks 2015:17).

The plow zone was removed as one level within the excavation unit. The plow zone consisted of 10YR3/4 dark yellowish brown silty clay loam that extended to an average depth of approximately 11 in (28 cm) bgs. Immediately underneath the plow zone was a BE horizon consisting of 10YR 5/6 yellowish brown silty clay loam (Figures 4.21-4.22; Appendix C, Photos 21-22. The plow zone was removed as one level, and only the central 3.3x3.3 ft (1x1 m) area of the plow zone was screened. This portion of the plow zone yielded a total of 21 artifacts. Of these, 15 were pieces of lithic debitage, including simple flakes (n=3; 20%, SE=10.3%), complex flakes (n=10; 67%, SE=12.1%), and shatter (n=2; 13%, SE=8.7%) made of Cedarville/Guelph (n=9; 60%, SE=12.7%), Delaware (n=2; 13%, SE=8.7%), Bayport (n=1; 7%, SE=6.6%), Silicified Sandstone (n=1; 7%, SE=6.6%), Ten Mile Creek (n=1; 7%, SE=6.6%), and Upper Mercer (n=1; 7%, SE=6.6%) materials. Also recovered were two stone tools, including a fragment of a uniface (n=1; 50%, SE=35.4%) and a drill (n=1; 50%, SE=35.4%) made of Cedarville/Guelph (n=1; 50%, SE=35.4%) and an unidentified tool-stone (n=1; 50%, SE=35.4%). In addition to the debitage and stone tools, four pieces of FCR were recovered, weighing a total of 0.12 lbs (53.2 g).

One feature was identified within the BE soil horizon at the base of the plow zone, within the southwestern half of the unit (see Figure 4.21). Labeled Feature 11.1, this feature is discussed below.

4.3.5.1 Feature 11.1

Feature 11.1 was identified at the interface between the plow zone and BE soil horizons, approximately 10.6 in (27 cm) bgs. Upon excavation it was found to extend to a maximum depth of 23.2 in (59 cm) bgs. In plan view the feature was roughly ovoid in shape, measuring approximately 15.7 in (40 cm) north-south by 11.8 in (30 cm) east-west. The feature fill consisted of 10YR 3/2 very dark grayish brown silty loam with heavy charcoal inclusions.

Although Feature 11.1 did not match the magnetic anomaly detected in this location, no other potential features were observed at the base of the plow zone. (It is possible that a more deeply buried feature or living surface, such as those identified in the excavation units for Anomalies 5 and 12, was the cause of Anomaly 11.) Feature 11.1 was excavated in its entirety due to its small size. No internal stratigraphic divisions were observed within the feature (Figure 4.23; Appendix C, Photo 23), and no cultural material was recovered.

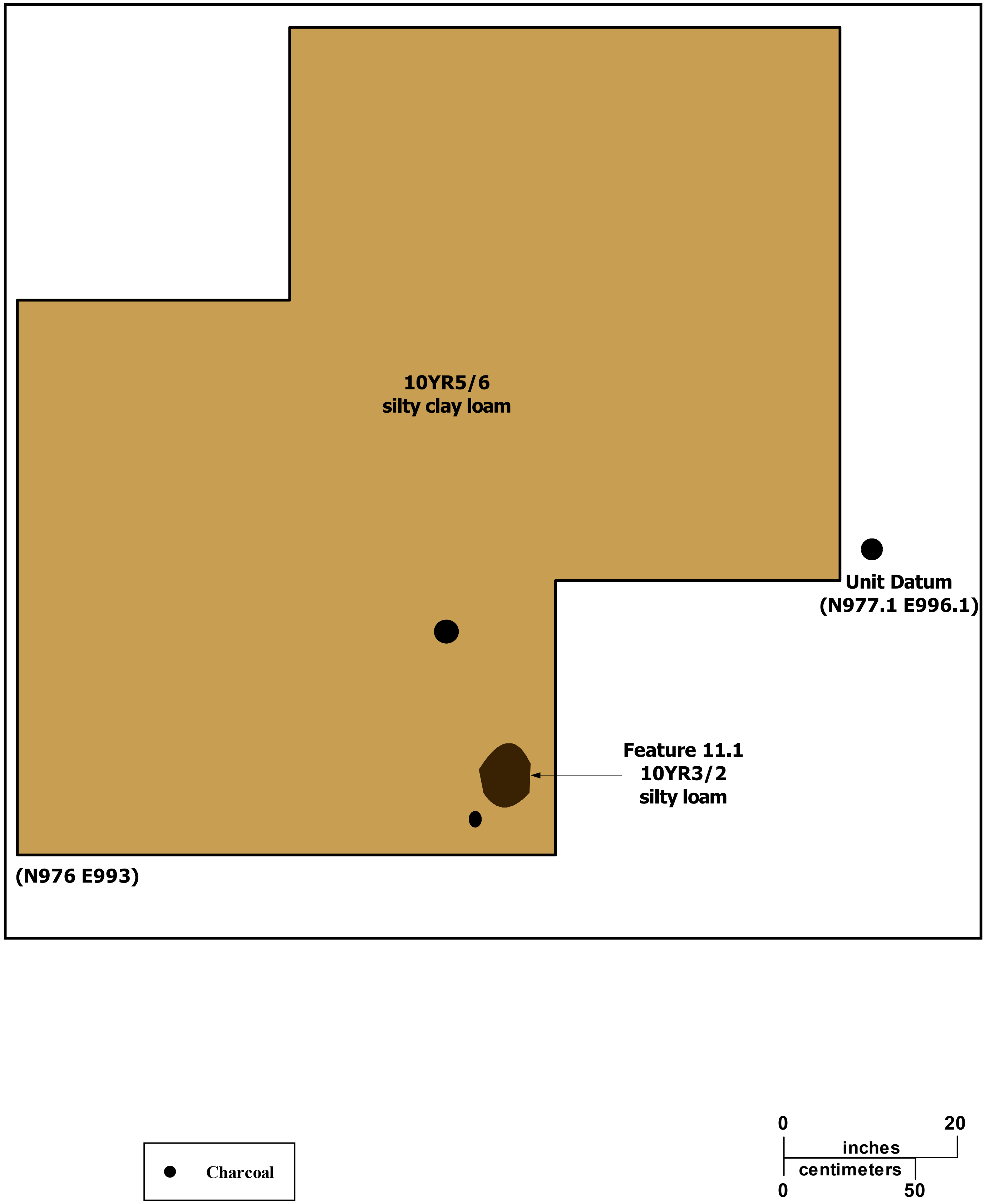

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Figure 4.21
Anomaly 11
N976 E993
Planview
Base of Plowzone

N

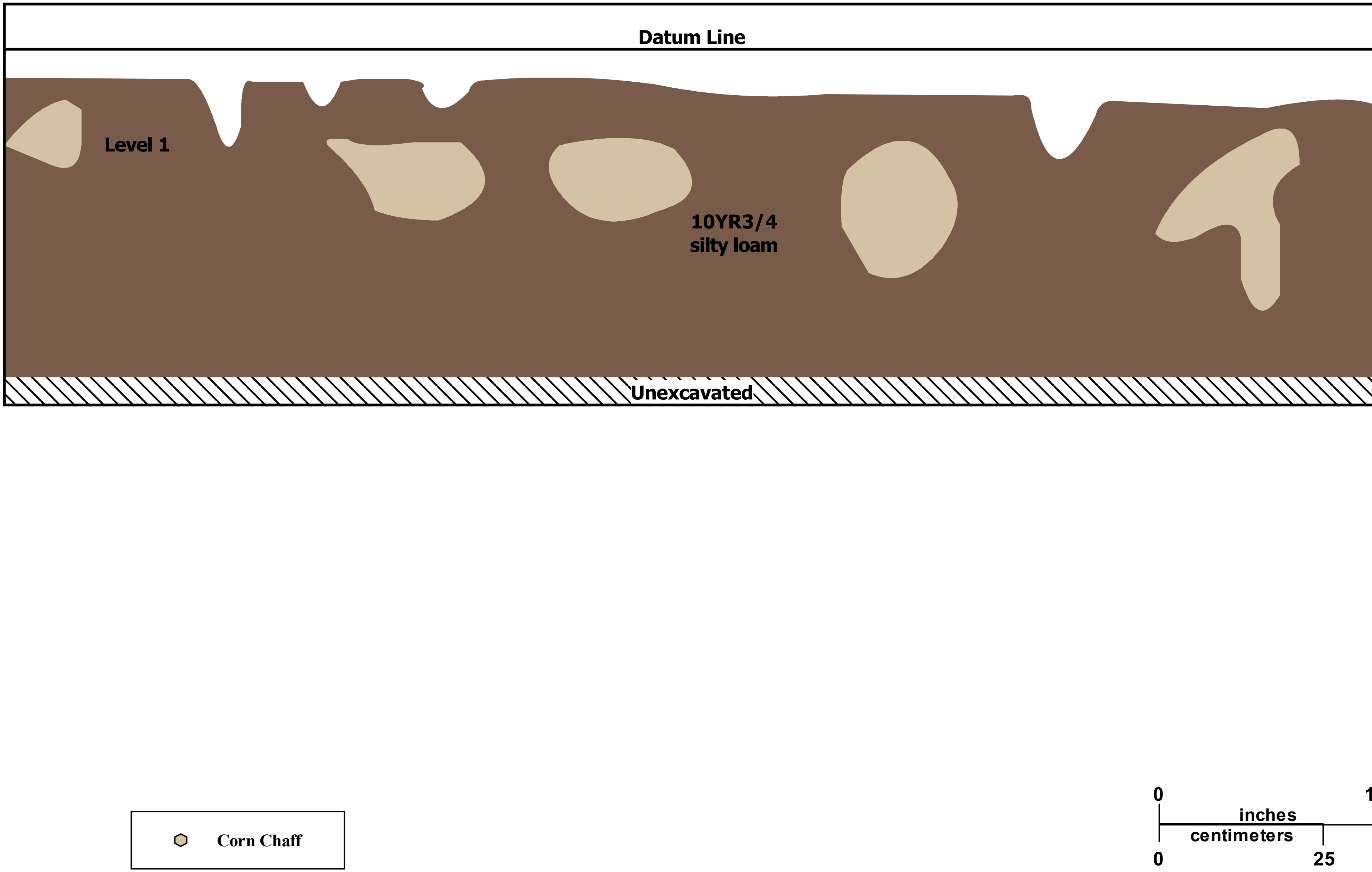

Figure 4.22
Anomaly 11
N976 E993
South Wall Profile

N

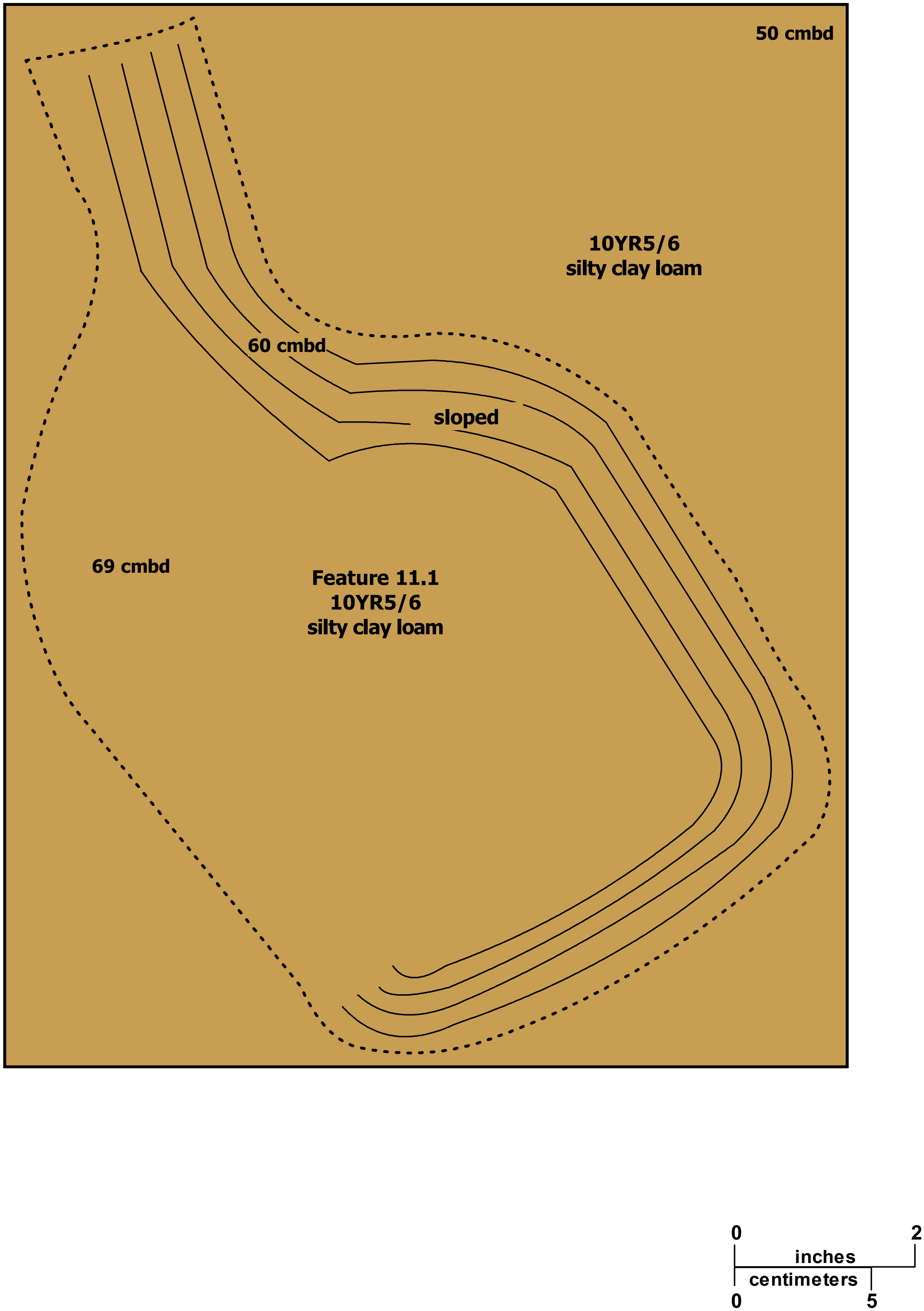

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Figure 4.23
Anomaly 11
N976 E993
Planview
Base of Feature 11.1

A soil sample measuring 0.77 qt (725 mL) was collected from the feature fill and subjected to flotation (see Appendix D). This sample yielded the largest amount of botanical remains from any of the floated soil samples from this project: 67 wood fragments. Two identifiable taxa were present, hickory (*Carya* sp.) and basswood (*Tilia americana*), both common to northern Ohio. A third unidentified taxon may represent a shrub. Several other unidentified ring porous and diffuse porous wood fragments were also present in the sample.

One charcoal sample was recovered from this feature and submitted for AMS dating as Sample B (see Appendix E). This sample returned a date range of 1020-1165 cal A.D. (930-785 cal B.P.) (p=0.05). (Calibrated at 2σ with the INTCAL 13 database [Talma and Vogel 1993; Reimer et al. 2013].) This date range falls during the terminal Late Woodland/Late Prehistoric transition period in northwestern Ohio.

The presence of multiple plant taxa and the high concentration of carbonized remains within Feature 11.1 suggest that this feature does not merely represent a root stain or animal burrow. At the same time, the feature is too small to represent an earth oven, roasting pit, or other similar feature. It may, rather, represent a post mold dating to the terminal Late Woodland/Late Prehistoric transition occupation of the site (see also the description of Feature 14.1). Given the lack of any other identifiable features within the excavation unit, it is possible that a more substantial feature such as a pit or hearth is located to the south or east, outside the excavation limits.

4.3.6 Anomaly 12

Anomaly 12 was investigated through a 6.6 ft x 6.6 ft (2 m x 2 m) excavation unit with its southwestern corner located at N929 E984 on the site grid. Based on the results of the magnetic gradient survey, this anomaly was described as being somewhat round, measuring approximately 6.6 ft (2 m) in diameter, and was determined to be "not archaeology." It was ranked as "Nothing Observed" (Burks 2015:17).

The plow zone was removed as one level within this unit. This level consisted of 10YR 3/4 dark yellowish brown sandy clay loam that extended to an average depth of 7.9 in (20 cm) bgs. The plow zone is located directly above the BE soil horizon. The southwestern quarter of the plow zone was screened, and yielded a total of 22 artifacts. Among these were four pieces of chert debitage, including a simple flake (n=1; 25%, SE=21.7%), a complex flake (n=1; 25%, SE=21.7%), and shatter (n=2; 50%, SE=25.0%) made of Ten Mile Creek (n=2; 50%, SE=25.0%), Flint Ridge-Flint (n=1; 25%, SE=21.7%), and Greywacke (n=1; 25%, SE=21.7%); four stone tools, including a fragment of a core (n=1; 25%, SE=21.7%), a scraper (n=1; 25%, SE=21.7%), a burin or perforator (n=1; 25%, SE=21.7%), and a hammer (n=1; 25%, SE=21.7%) made of Cedarville/Guelph (n=1; 25%, SE=21.7%), Flint Ridge (n=1; 25%, SE=21.7%), Quartzite (n=1; 25%, SE=21.7%), and ground stone material (n=1; 25%, SE=21.7%); six pieces of FCR weighing a total of 0.7 lbs (321.8 g); and one piece of raw tool-stone made of Cedarville/Guelph and weighing 0.008 lbs (4 g). None of these prehistoric artifacts are diagnostic of a particular time period. The plow zone also yielded seven historic artifacts, including three shards of clear window glass, three square-cut nail fragments, and one undecorated whiteware sherd.

No features were visible at the interface between the plow zone and the BE horizon (Figure 4.24; Appendix C, Photo 25). Level 2 was excavated as a 3.9 in (10 cm) arbitrary level across the entire unit. Level 2 consisted of 10YR 5/4 yellowish brown compact silty clay that began approximately 7.9 in (20 cm) bgs and continued to a depth of approximately 11.8 in (30 cm) bgs. All soil from this level was screened; no cultural material was recovered. However, several large stones that appeared to be FCR were uncovered at the base of Level 2 (Figure 4.25; Appendix C, Photo 26).

Due to the presence of possible FCR, Level 3 was excavated as a 5.9 in (15 cm) arbitrary level within the eastern half of the unit, in an attempt to see a potentially very faint feature in profile. The soil in this level consisted of a 10YR 5/4 yellowish brown friable to compact silty clay, similar to Level 2. Level 3 began at 11.8 in (30 cm) bgs and continued to an average depth of 17.7 in (45 cm) bgs. All soil from Level 3 was screened, and a total of 99 artifacts were recovered. Among these were 42 pieces of debitage, including simple flakes (n=3; 7%, SE=3.9%), complex flakes (n=12; 29%, SE=7.0%), a bipolar flake (n=1; 2%, SE=2.2%), and shatter (n=26; 62%, SE=7.5%) made of a variety of materials, including Ten Mile Creek (n=13; 31%, SE=7.1%), Cedarville/Guelph (n=9; 21%, SE=6.3%), Flint Ridge varieties (n=10; 23%, SE=2.7%), Pipe Creek (n=4; 10%, SE=4.6%), Upper Mercer (n=3; 7%, SE=3.9%), Bayport (n=2; 5%, SE=7.7%), and Attica/Indiana Greenstone (n=1; 2%, SE=2.2%). Level 3 also yielded 26 tools, including cores and core fragments (n=12; 46%, SE=9.8%), bifaces and biface fragments (n=9; 35%, SE=9.4%), scrapers (n=3; 12%, SE=6.4%), and abraders (n=2; 8%, SE=5.3%). Like the debitage, a variety of raw materials are represented within the tool assemblage, including Cedarville/Guelph (n=7; 27%, SE=8.7%), Flint Ridge varieties (n=11; 42%, SE=9.7%), Upper Mercer (n=3; 12%, SE=6.4%), ground stone varieties (rhyolite and granite) (n=2; 8%, SE=5.3%), Bayport (n=1; 4%, SE=3.8%), Onondaga (n=1; 4%, SE=3.8%), and Ten Mile Creek (n=1; 4%, SE=3.8%). Also recovered from Level 3 were 31 pieces of FCR weighing a total of 1.6 lbs (742.2 g). None of these prehistoric artifacts are diagnostic of a particular time period. In addition to these artifacts, seven nodules of apparently unmodified tool-stone were recovered, weighing 1.4 lbs (625.1 g) in total. These nodules include Ten Mile Creek (n=3; 43%, SE=18.7%), Quartzite (n=2; 29%, SE=17.2%), Cedarville/Guelph (n=1; 14%, SE=13.1%), and Silicified Sandstone (n=1; 14%, SE=13.1%) raw materials. Despite the large number of artifacts recovered from Level 3, no features were visible within the level. However, the artifacts did appear to be most heavily concentrated in an area measuring approximately 35.4 in (90 cm) north-south in the center of the excavated level (Figure 4.26; Appendix C, Photo 27).

Level 4 was excavated as a 1.9 in (5 cm) arbitrary level within the southeastern quarter of the unit. The soil in this level once again consisted of a 10YR 5/4 yellowish brown friable to compact silty clay. The level began at 17.7 in (45 cm) bgs and continued to an average depth of 19.7 in (50 cm) bgs. No features were visible at the base of Level 4 (Appendix C, Photo 28).

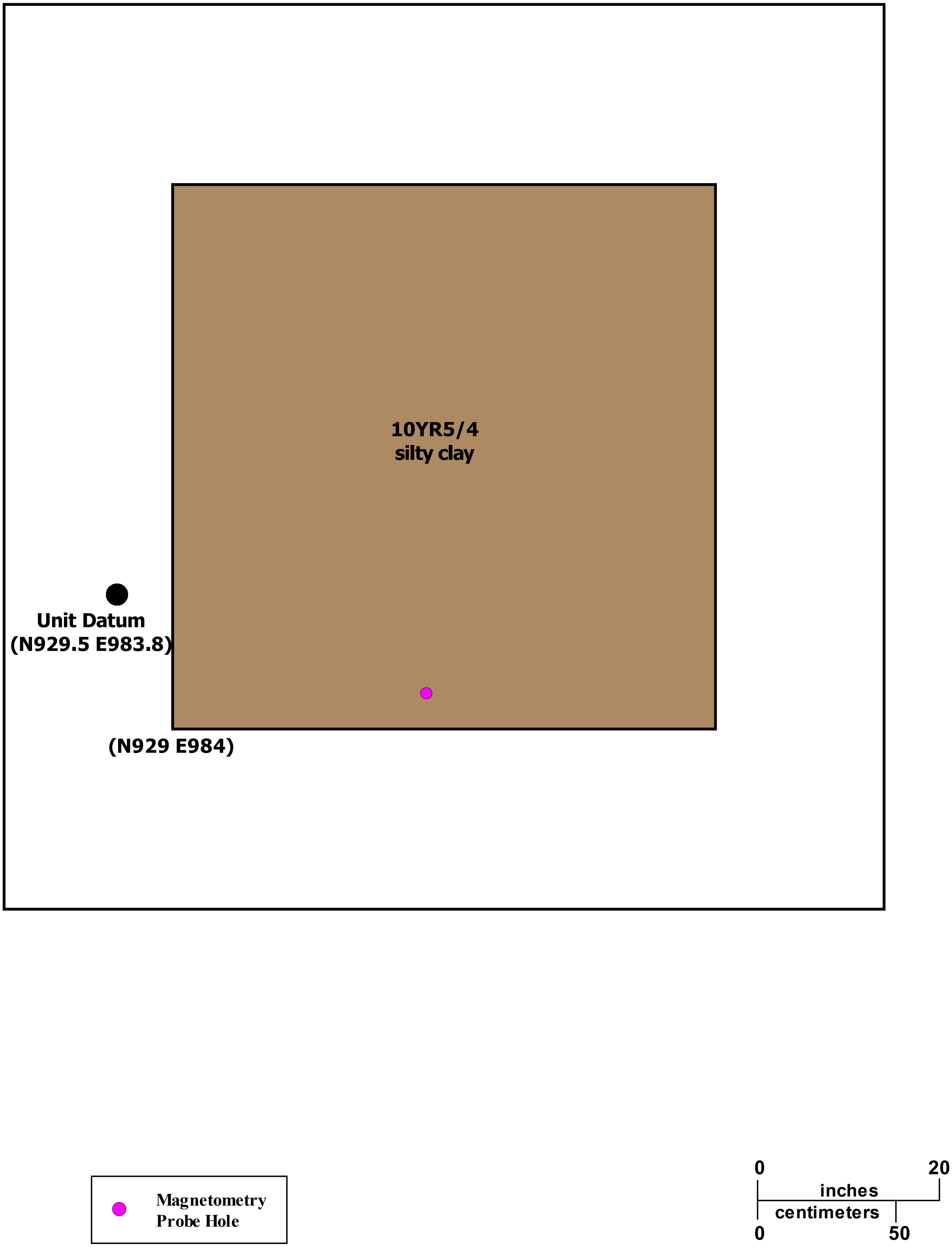

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Figure 4.24
Anomaly 12
N929 E984
Planview
Base of Plowzone

N

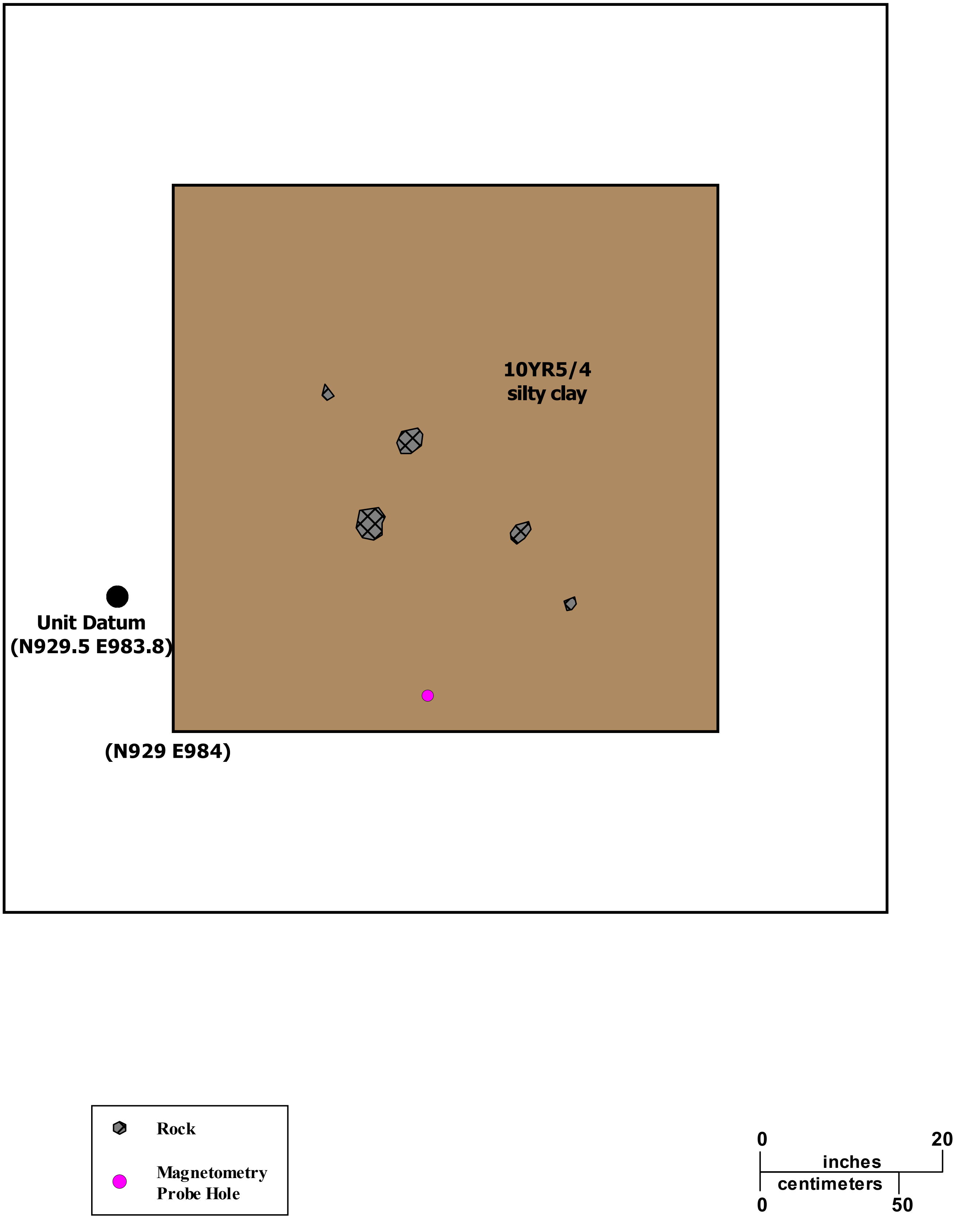

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Figure 4.25
Anomaly 12
N929 E984
Planview
Base of Level 2

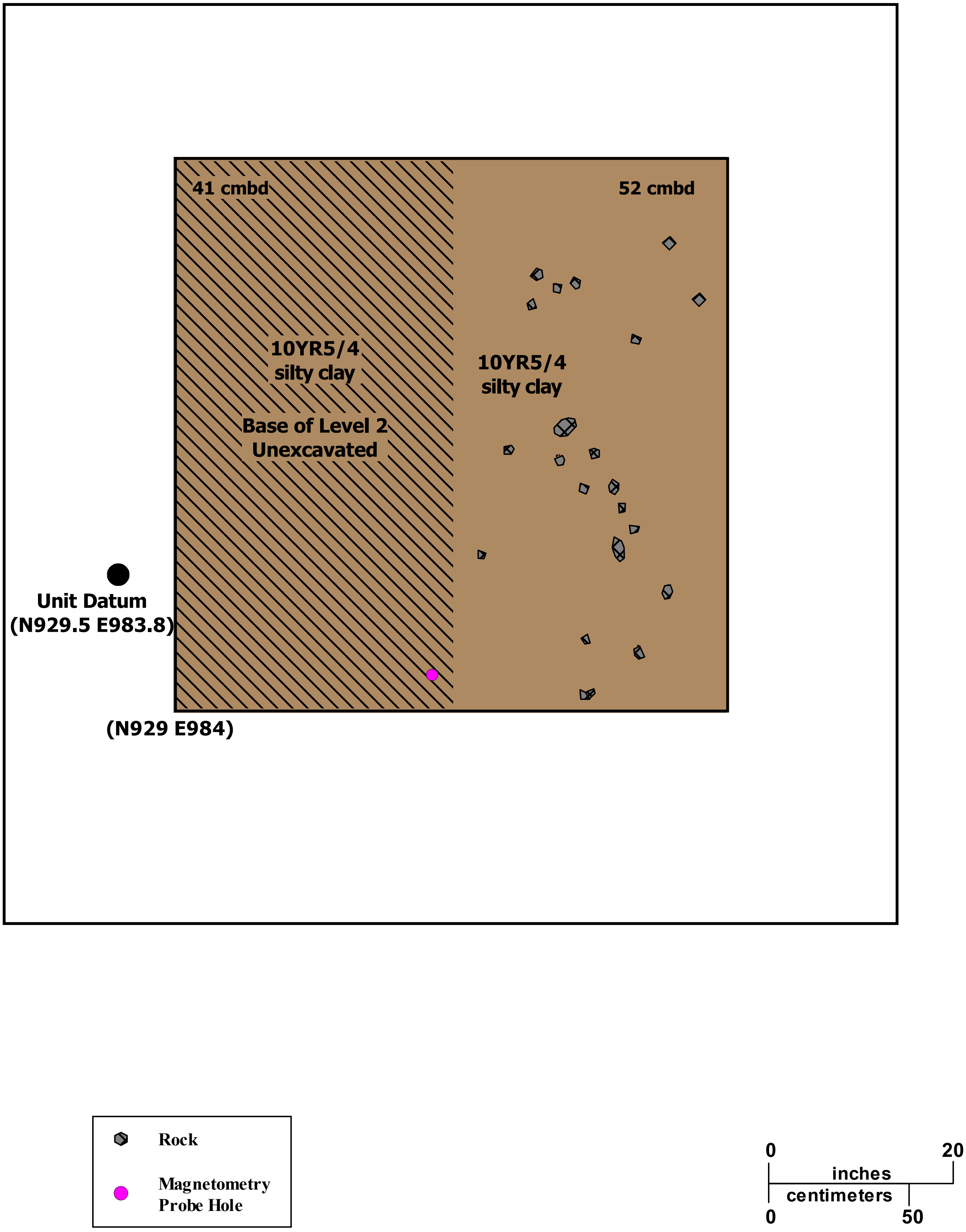

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Figure 4.26
Anomaly 12
N929 E984
Planview
Base of Level 3

All soil from this level was screened, and a total of 49 artifacts were recovered. These included 17 pieces of debitage, including simple flakes (n=5; 29%, SE=11.0%), complex flakes (n=2; 12%, SE=7.9%), and shatter (n=10; 59%, SE=11.9%) made of Ten Mile Creek (n=6; 35%, SE=11.6%), Cedarville/Guelph (n=5; 29%, SE=11.0%), Bayport (n=2; 12%, SE=7.9%), Flint Ridge varieties (n=2; 12%, SE=7.9%), Greywacke (n=1; 6%, SE=5.8%), and Upper Mercer (n=1; 6%, SE=5.8%). This level also yielded eight stone tools, including cores and core fragments (n=3; 38%, SE=17.2%), bifaces and biface fragments (n=4; 50%, SE=17.7%), and a burin (n=1; 13%, SE=11.9%) made of Cedarville/Guelph (n=3; 38%, SE=17.2%), Bayport (n=2; 25%, SE=15.3%), Flint Ridge (n=1; 13%, SE=11.9%), Quartzite (n=1; 13%, SE=11.9%), and Ten Mile Creek (n=1; 13%, SE=11.9%). Also recovered from this level were 24 pieces of FCR weighing 4.3 lbs (1,958.6 g) in total. None of these prehistoric artifacts are diagnostic of a particular time period. Finally, in addition to the debitage, tools, and FCR, Level 4 also yielded 0.5 lbs (204.5 g) (n=8) of apparently unmodified tool-stone materials, including Ten Mile Creek (n=5; 63%, SE=17.1%), Cedarville/Guelph (n=2; 25%, SE=15.3%), and Greywacke (n=1; 13%, SE=11.9%).

A soil sample was collected from Level 3 of Anomaly 12 and subjected to flotation (see Appendix D). Although carbon flecking was observed during excavation, no identifiable botanical remains were recovered from the sample. In addition, one sample of dark, organic material was recovered from Level 3 and submitted for AMS dating, as Sample I (see Appendix E). This sample was identified during AMS analysis as an organic sediment rather than carbonized botanical material. The sample returned a date range of 27,480-26,955 cal B.C. (29,430-28,905 cal B.P.) (p=0.05). (Calibrated at 2σ with the INTCAL 13 database [Talma and Vogel 1993; Reimer et al. 2013].) Since this date range was obtained from an organic sediment sample, however, it likely does not represent the period of deposition as there are a number of processes that could result in older sediment being deposited within a younger stratigraphic level.

Interpretation of this unit is obscured by the fact that the BE soil horizon is indistinguishable from the native subsoil (Figure 4.27; Appendix C, Photo 29). However, this lack of soil color definition associated with a deposit of cultural material is similar in appearance to the lithic debris scatter identified within the Anomaly 5 excavation unit (see Section 4.3.2) as well as the lithic deposit (including both lithic debitage and tools) identified within the Anomaly 17 excavation unit (see Section 4.3.9). Despite the lack of a useful radiometric date, identifiable feature fill or diagnostic artifacts from the Anomaly 12 excavation, based on its similarity in stratigraphic context with Anomaly 5 it can be speculated that the cultural material within Levels 3 and 4 of the Anomaly 12 excavation unit may represent a Late Archaic living surface.

4.3.7 Anomaly 14

Anomaly 14 was investigated through a double 6.6 ft x 6.6 ft (2 m x 2 m) (total 75 ft^2 [7 m^2]) excavation unit with its southwestern corner located at N945 E989.5 on the site grid. Based on the results of the magnetic gradient survey, this anomaly was described as a possible pit feature with large charcoal fragments and FCR. The anomaly measured approximately 5.7 ft (1.75 m) in diameter, was roughly round in shape, and was ranked as "Good" (Burks 2015:17).

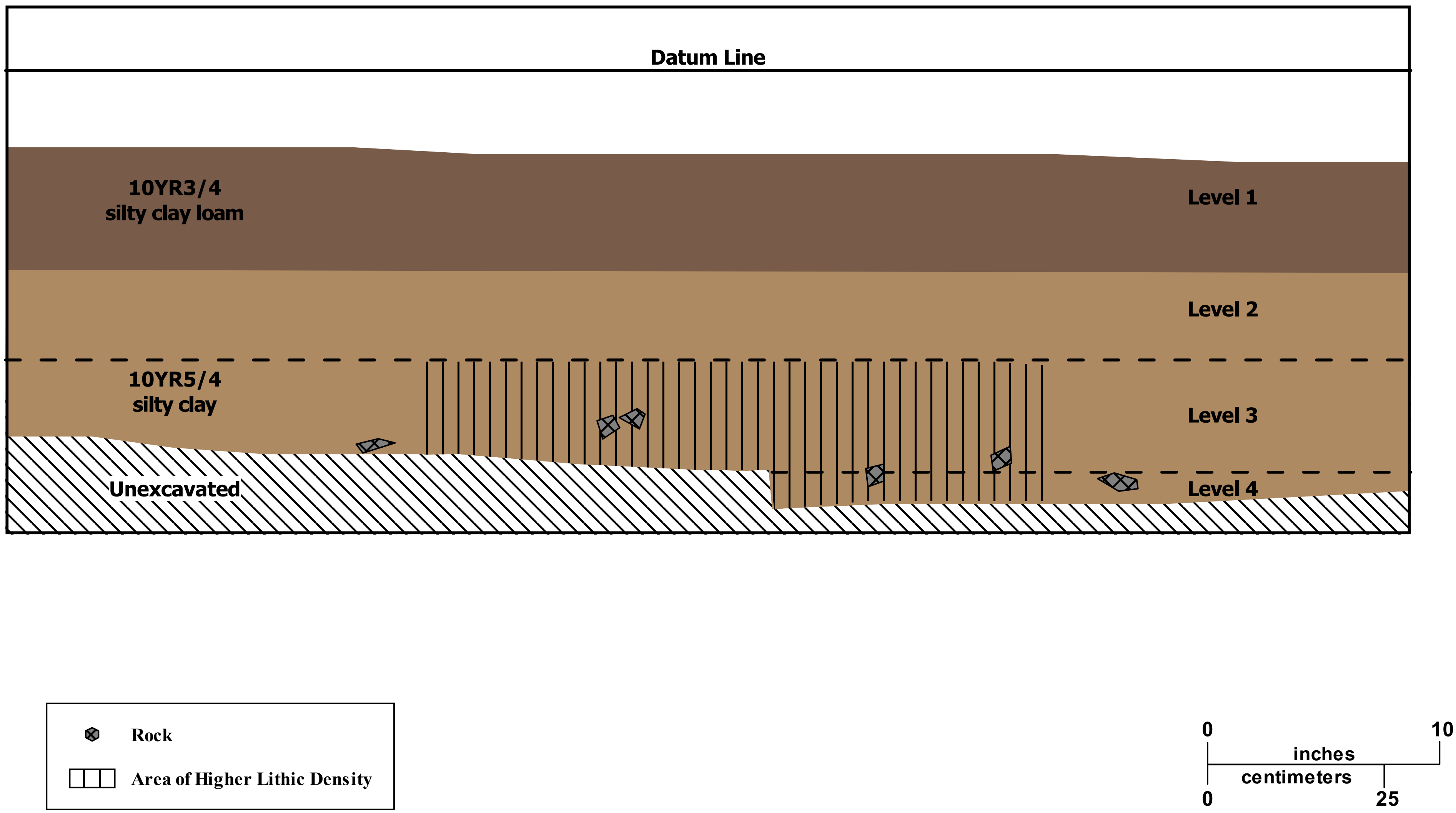
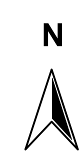


Figure 4.27
Anomaly 12
N929 E984
East Wall Profile



The plow zone in this unit consisted of a 10YR 3/4 dark yellowish brown silty clay that extended to an average depth of 8.7 in (22 cm) bgs. The plow zone was removed as one level and soil from the central 3.3x3.3 ft (1x1 m) area of the unit was screened. This level yielded a total of 42 artifacts. Among these were 33 pieces of lithic debitage, including simple flakes (n=3; 9%, SE=5.0%), complex flakes (n=12; 36%, SE=8.4%) and shatter (n=18; 55%, SE=8.7%) made of Upper Mercer (n=9; 27%, SE=7.7%), Bayport (n=4; 12%, SE=5.7%), Cedarville/Guelph (n=4; 12%, SE=5.7%), Ten Mile Creek (n=4; 12%, SE=5.7%), Four Mile Creek (n=3; 9%, SE=5.0%), Kenneth (n=3; 9%, SE=5.0%), Pipe Creek (n=2; 6%, SE=4.1%), Flint Ridge varieties (n=3; 9%, SE=5.0%), and an unidentified tool-stone (n=1; 3%, SE=3.0%). Also recovered were seven stone tools, including cores and core fragments (n=2; 29%, SE=17.2%), a biface fragment (n=1; 14%, SE=13.1%), a uniface fragment (n=1; 14%, SE=13.1%) and scrapers (n=3; 43%, SE=18.7%) made of Cedarville/Guelph (n=2; 29%, SE=17.2%), Flint Ridge varieties (n=2; 28%, SE=17.0%), Four Mile Creek (n=1; 14%, SE=13.1%), Onondaga (n=1; 14%, SE=13.1%), and Pipe Creek (n=1; 14%, SE=13.1%). Two pieces of FCR weighing 0.007 lbs (3.5 g) in total were also recovered. Finally, in addition to these artifacts, seven nodules of unmodified tool-stone material (weighing a total of 0.09 lbs [39.3 g]) were recovered, including Greywacke (n=5; 71%, SE=17.2%), Pipe Creek (n=1; 14%, SE=13.1%), and silicified sandstone (n=1; 14%, SE=13.1%). Unfortunately, none of the artifacts recovered from the Ap horizon in this unit are diagnostic of a particular time period.

A transitional level within the BE soil horizon was identified below the plow zone. This transitional level was designated as Level 2. The soil in this level consisted of a 10YR 6/4 light yellowish brown silty loam with a relatively large amount of small fragments of burned shale or slate distributed throughout the soil matrix. Level 2 was removed as a natural level across an area measuring 6.6 x 6.6 ft (2 x 2 m) in the southwestern half of the unit and exhibited an average thickness of 3 in (7.5 cm), ending at an average depth of 10.2 in (26 cm) bgs. All soil from this level was screened. Level 2 yielded a total of four artifacts, including three pieces of lithic debitage (a test cobble [n=1; 33%, SE=27.2%] and complex flakes [n=2; 67%, SE=27.2%] made of Bayport [n=2; 67%, SE=27.2%] and Ten Mile Creek [n=1; 33%, SE=27.2%] cherts) and one biface made of Ten Mile Creek chert. Level 2 did not contain any unmodified tool-stone or FCR. None of the artifacts recovered from Level 2 are diagnostic of a particular prehistoric time period. Level 2 may represent a bioturbated transition zone between the Ap and BE soil horizons, or it may represent an older and slightly deeper plow zone.

Level 2 was ended when the burned slate/shale inclusions disappeared. Level 3, which was not excavated, otherwise consisted of the same soil matrix as Level 2. Two features, designated Features 14.1 and 14.3, were identified at the base of the plow zone and were further defined at the base of Level 2. A third feature, designated Feature 14.2, was identified only at the base of Level 2 (Figures 4.28-4.29; Appendix C, Photos 31-33). All three of these features are described below.

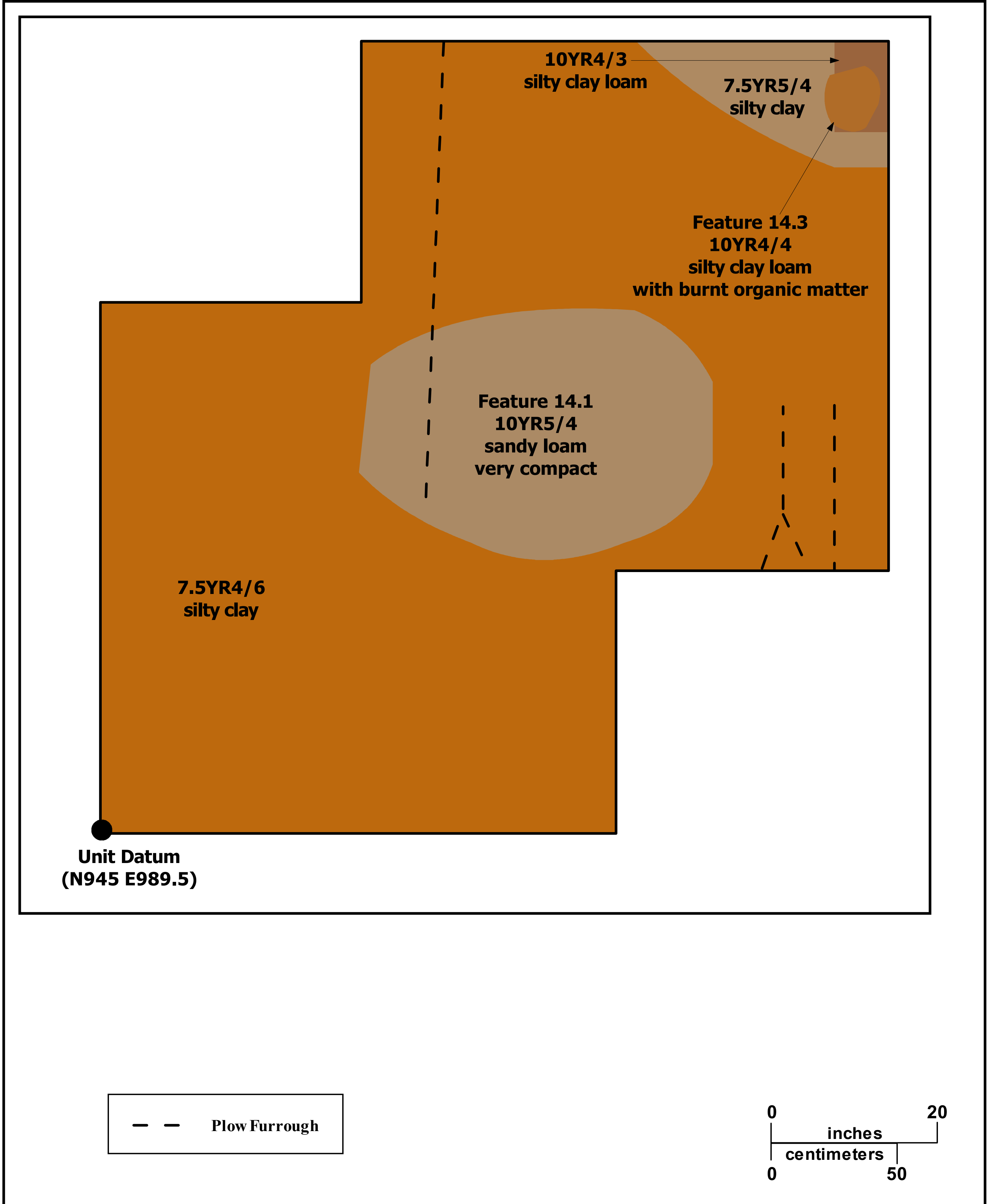


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Figure 4.28
Anomaly 14
N945 E989.5
Planview
Base of Plowzone

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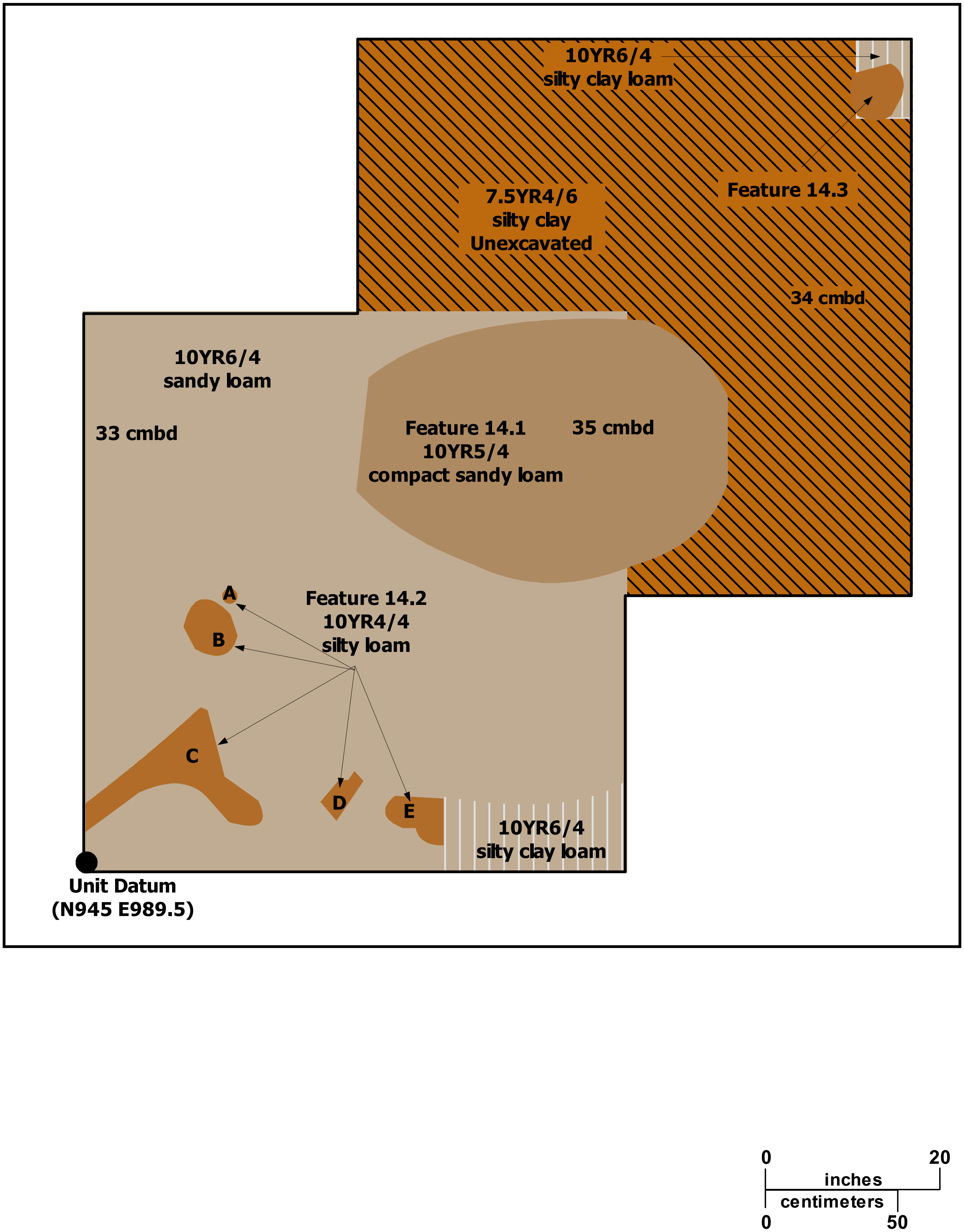

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Figure 4.29
Anomaly 14
N945 E989.5
Planview
Base of Level 2

4.3.7.1 Feature 14.1

Feature 14.1 was first identified at the interface of the plow zone and Level 2, at approximately 8.9 in (22.5 cm) bgs. Feature 14.1 consisted of an oval-shaped soil stain located in the center of the excavation unit and measuring approximately 52.0 in (132 cm) long by 36.2 in (92 cm) wide. The top surface of the feature fill consisted of heavily compacted 10YR 5/4 yellowish brown sandy loam. Due to its relatively large size, Feature 14.1 was interpreted as the primary source of Anomaly 14 and was therefore chosen for excavation.

Due to its relatively large size Feature 14.1 was bisected, with the western half of the feature being excavated (Figure 4.30; Appendix C, Photos 34-35). The top of the feature was located 8.9 in (22.5 cm) bgs, and the feature fill extended to a depth of 26.4 in (67 cm) bgs. In profile the feature appeared straight-sided with a slightly concave base. Two internal stratigraphic layers were observed within the feature (Figure 4.31; Appendix C, Photo 36). Level 1 consisted of heavily compacted 10YR 5/4 yellowish brown sandy loam with burnt slate/shale inclusions; this level was just 2.6 in (6.5 cm) in depth. Level 2 consisted of 7.5YR 4/6 strong brown silty clay that extended to the base of the feature.

Two chipped stone tools were recovered from Level 1, including an unfinished biface (n=1; 50%, SE=35.4%) and a core fragment (n=1; 50%, SE=35.4%), both made of Ten Mile Creek chert. This level also yielded two chunks of lime that were not collected. Three artifacts were recovered from Level 2, including a core fragment made of Cedarville/Guelph (n=1; 33%, SE=27.2%) and two pieces of FCR weighing 0.29 lbs (131.9 g) in total.

Two soil samples were collected from the feature fill and subjected to flotation (see Appendix D). One sample, measuring 0.67 qt (650 mL), was collected from Level 1 of the feature. A second sample, measuring 0.74 qt (700 mL), was taken from Level 2 of the feature. No macrobotanical remains were recovered from either sample. The analysis noted that a high concentration of gravel was observed in both samples, which is detrimental to organic preservation.

Two samples of what appeared to be organic material were recovered from this feature and submitted for AMS dating as Samples A (Level 1) and E (Level 2) (see Appendix E). Sample A returned a date range of 1020-1160 cal A.D. (930-790 cal B.P.) (p=0.05). (Calibrated at 2σ with the INTCAL 13 database [Talma and Vogel 1993; Reimer et al. 2013].) This range falls during the terminal Late Woodland/Late Prehistoric transition period in northwestern Ohio. (Notably, this is exactly the same date range as was returned for Feature 11.1.) Sample E, however, did not contain any charcoal or other organic material, and consisted only of sediment with dark staining on its surface that was removed during the pre-treatment process.

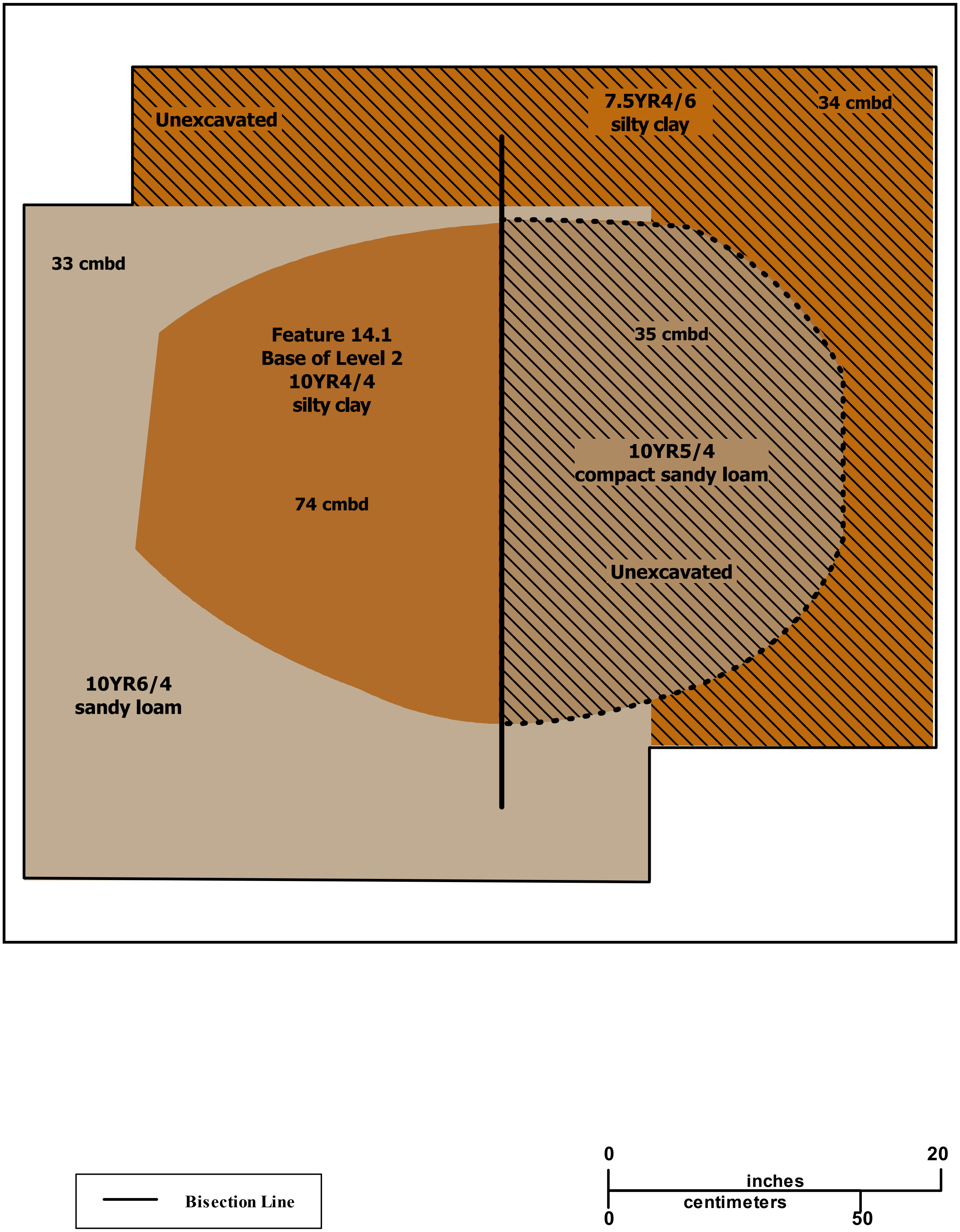

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Figure 4.30
Anomaly 14
N945 E989.5
Planview
Base of Feature 14.1

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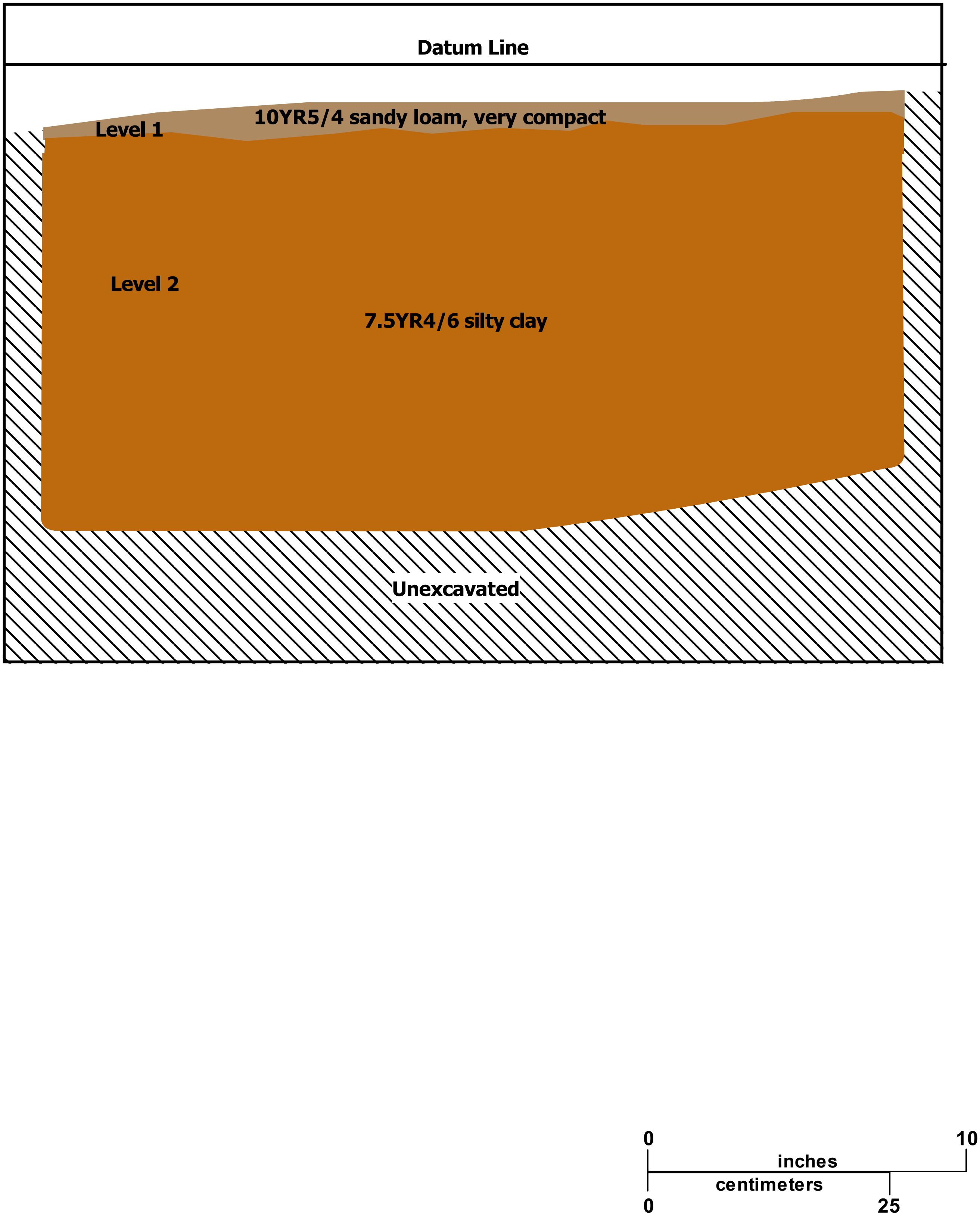

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Figure 4.31
Anomaly 14
N945 E989.5
Feature 14.1
Bisection East Wall Profile

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In summary, Feature 14.1 is a large, nearly empty pit feature exhibiting two stratigraphic levels and artifacts that include core fragments, an unfinished biface, and FCR. No macrobotanical remains were recovered from either of two samples during flotation. AMS dating of a charcoal sample from Level 1 yielded a terminal Late Woodland/Late Prehistoric transition date; no material suitable for radiocarbon dating was recovered from Level 2. The function of Feature 14.1 is unclear. It may have been an earth oven, a roasting pit, or a storage pit; however, without macrobotanical data, faunal remains, or ceramics to aid in interpretation, it is difficult to determine its function with any certainty. Level 1 may represent an intentional capping episode, although why an empty pit would have been capped is unclear. It is possible, given the high acidity of the soil, that botanical remains were once present but have long since decayed.

4.3.7.2 Feature 14.2

Feature 14.2 was first identified at the base of Level 2, at a depth of approximately 10.2 in (26 cm) bgs. The feature consisted of five discrete, circular to irregularly shaped soil stains (labeled as Features 14.2A-14.2E) arranged in a semi-circular pattern in the southwestern corner of the excavation unit, roughly paralleling the edge of Feature 14.1 but located between 23.6-31.5 in (60-80 cm) away from it (see Figure 4.29; Appendix C, Photo 33). The feature fill within these stains consisted of 10YR 4/4 dark yellowish brown silty clay loam. Although the irregular shape of these stains seemed generally indicative of root stains, their apparent semi-circular patterning and possible association with Anomaly 14 resulted in the decision to excavate one of the stains.

Due to its relatively large size and circular shape, Feature 14.2B was selected for excavation. The feature fill was 7.9 in (20 cm) deep (extending to a depth of 18.1 in [46 cm] bgs). The excavation revealed a roughly circular feature that narrowed slightly from top to bottom (Appendix C, Photo 37). No internal stratigraphic divisions were observed within the feature. No artifacts of any kind were recovered from the feature fill.

A soil sample measuring 750 mL was collected from the feature fill and subjected to flotation (see Appendix D). Unfortunately, no macrobotanical remains were recovered. No visible organic material was recovered from Feature 14.2B, and therefore the feature could not be dated via AMS dating.

While it is possible that Feature 14.2 represents a series of closely spaced post molds (perhaps for a windbreak), it appears more likely that each individual stain represents an unrelated instance of bioturbation from roots or animal burrowing. Despite their spatial proximity, Feature 14.2 cannot be firmly associated with Feature 14.1.

4.3.7.3 Feature 14.3

Feature 14.3 was first identified at the interface between the plow zone and Level 2, at a depth of 9.1 in (23 cm) bgs. Feature 14.3 was a roughly circular soil stain measuring approximately 8.7 in (22 cm) north-south by 7.5 in (19 cm) east-west, located in the northeastern corner of the excavation unit. The feature fill within this stain consisted of 10YR 4/4 dark yellowish brown silty clay with a high concentration of burnt organic matter (see Figures 4.28-4.29; Appendix C, Photos 31-32). Although the evidence that this stain represented a cultural feature was equivocal, it was selected for excavation due to its similarity to the individual components of Feature 14.2 in size, color, and spacing from Feature 14.1.

Due to its small size, Feature 14.3 was fully excavated (Appendix C, Photo 38). The feature fill extended to a depth of 17.7 in (45 cm) bgs. The excavation revealed a roughly circular feature that narrowed slightly from top to bottom. No internal stratigraphic divisions were observed within the feature. No artifacts of any kind were recovered from the feature fill.

A soil sample measuring 750 mL was collected from the feature fill and subjected to flotation (see Appendix D). One carbonized blackberry or raspberry seed (*Rubus* sp.) was recovered. Additional charred material contained in the sample was determined to represent the remnants of a ground wasp nest, suggesting that the seed was introduced by wasp activity.

One sample of organic material was recovered from this feature and submitted for AMS dating as Sample C (see Appendix E). This sample returned three date ranges, all modern: 1667-1782 cal A.D. (283-168 cal B.P.) (p=0.05), 1797-1894 cal A.D. (153-56 cal. B.P.) (p=0.05), and 1904 to post-1950 cal A.D. (46 to post-0 B.P.) (p=0.05). (Calibrated at 2σ with the INTCAL 13 database [Talma and Vogel 1993; Reimer et al. 2013].) These modern date ranges, along with the remains of ground wasp nest material, indicate that Feature 14.3 represents modern insect activity rather than cultural activity.

4.3.8 Anomaly 16

Anomaly 16 was investigated through a 6.6-ft x 6.6 ft (2-m x 2-m) excavation unit with its southwestern corner located at N979 E958 on the site grid. Based on the results of the magnetic gradient survey, this anomaly was described as a potentially burnt area or a subtle pit feature, roughly circular in shape with a diameter of approximately 6.6 ft (2 m). Anomaly 16 was ranked as “Fair” (Burks 2015:17).

The plow zone in this unit consisted of a 10YR 4/2 dark grayish brown silty clay loam that extended to an average depth of 12.2 in (31 cm) bgs. The plow zone was removed as one level, and the southwest quarter of the plow zone soil was screened. This level yielded a total of 119 artifacts. Among these were 58 pieces of lithic debitage, including simple flakes (n=6; 10%, SE=3.9%), complex flakes (n=27; 46%, SE=13.8%), and shatter (n=25; 43%, SE=6.5%) and made of a variety of materials, including Cedarville/Guelph (n=28; 50%, SE=6.7%), Flint Ridge varieties (n=14; 25%, SE=5.8%), Upper Mercer (n=8; 14%, SE=4.6%), Ten Mile Creek (n=3; 5%, SE=2.9%), Kenneth (n=1; 2%, SE=1.9%), Pipe Creek (n=1; 2%, SE=1.9%), and an unidentified tool-stone (n=1; 2%, SE=1.9%). The plow zone also yielded 18 stone tools, including bifaces and biface fragments (n=10; 56%, SE=11.7%), a uniface fragment (n=1; 6%, SE=5.6%), scrapers (n=5; 28%, SE=10.6%), a drill (n=1; 6%, SE=5.6%), and a burin or perforator (n=1; 6%, SE=5.6%). These also included a variety of raw materials, including Cedarville/Guelph (n=9; 50%, SE=11.8%), Ten Mile Creek (n=3; 17%, SE=8.9%), Upper Mercer (n=2; 11%, SE=7.4%), Flint Ridge varieties (n=2; 12%, SE=7.7%), Pipe Creek (n=1; 6%, SE=5.6%), and an unidentified toolstone (n=1; 6%, SE=5.6%). In addition to the debitage and tools, this level also contained 2.9 lbs (1,333.54 g) of FCR (n=43). Finally, 0.3 lbs (132.4 g) of apparently unmodified toolstone nodules (n=2), including Silicified Sandstone (n=1; 50%, SE=35.4%) and Ten Mile Creek (n=1; 50%, SE=35.4%) was also recovered.

The plow zone is located directly above the BE soil horizon, which begins at a depth of 12.2 in (31 cm) bgs. The BE horizon consisted of 10YR 4/6 dark yellowish brown silty clay. Three features, designated Features 16.1, 16.2, and 16.3, were identified within the BE soil horizon at the base of the plow zone (Figures 4.32-4.33; Appendix C, Photos 40-41). None of these features matched the size, shape or location of Anomaly 16. However, Feature 16.1 was interpreted as the most likely source of the magnetic anomaly, as it was the largest of the three features and was located adjacent to the anomaly as determined by Burks (2015). All three features within the Anomaly 16 excavation unit were excavated; they are described below.

4.3.8.1 Feature 16.1

Feature 16.1 was first identified at the interface between the plow zone and BE soil horizons, approximately 12.2 in (31 cm) bgs; the feature has clearly been truncated by plowing activity. Located in the northwest corner of the excavation unit and extending outside of it, the exposed portion of the feature measured approximately 51.2 in (130 cm) north-south by 34.6 in (88 cm) east-west. This appeared to be the southeastern quarter of a hearth feature. The horizontal dimensions of the feature were defined by a cluster of FCR ringed by reddened soil. The general soil matrix within the feature was 10YR 4/3 brown silty clay with what appeared to be numerous organic inclusions. The reddened area surrounding the FCR was a 10YR 4/4 dark yellowish brown silty clay (see Figure 4.32).

The feature was excavated as one level, pedestaling the FCR when possible and removing pedestals last as applicable. The maximum depth at the base of the basin-shaped feature was 18.9 in (48 cm) bgs. It appeared that the southern half of the soil stain, which was considerably shallower, represented smearing from plow disturbance (Figures 4.34-4.35; Appendix C, Photos 42-43). A total of 42 artifacts were recovered from Feature 16.1. Among these were 13 pieces of lithic debitage, including simple flakes (n=2; 15%, SE=9.9%), complex flakes (n=6; 46%, SE=13.8%), and shatter (n=5; 38%, SE=13.5%) made of Cedarville/Guelph chert (n=5; 38%, SE=13.5%), Upper Mercer chert (n=4; 31%, SE=12.8%), Flint Ridge varieties (n=2; 16%, SE=10.2%), Greywacke (n=1; 8%, SE=7.5%), and Ten Mile Creek chert (n=1; 8%, SE=7.5%). The feature also yielded four stone tools, including a core fragment (n=1; 25%, SE=21.7%), a biface fragment (n=1; 25%, SE=21.7%), and burins or perforators (n=2; 50%, SE=25.0%) made of Cedarville/Guelph (n=3; 75%, SE=21.7%) and Upper Mercer (n=1; 25%, SE=21.7%). The feature also yielded 40.9 lbs (18,582.64 g) of FCR (n=25), although the majority of this weight derives from a single large stone (40.5 lbs [18,370.5 g]) located at the base of the feature. In addition to these artifacts, 0.05 lbs (21.7 g) of coral fossils (n=2) were recovered from the feature.

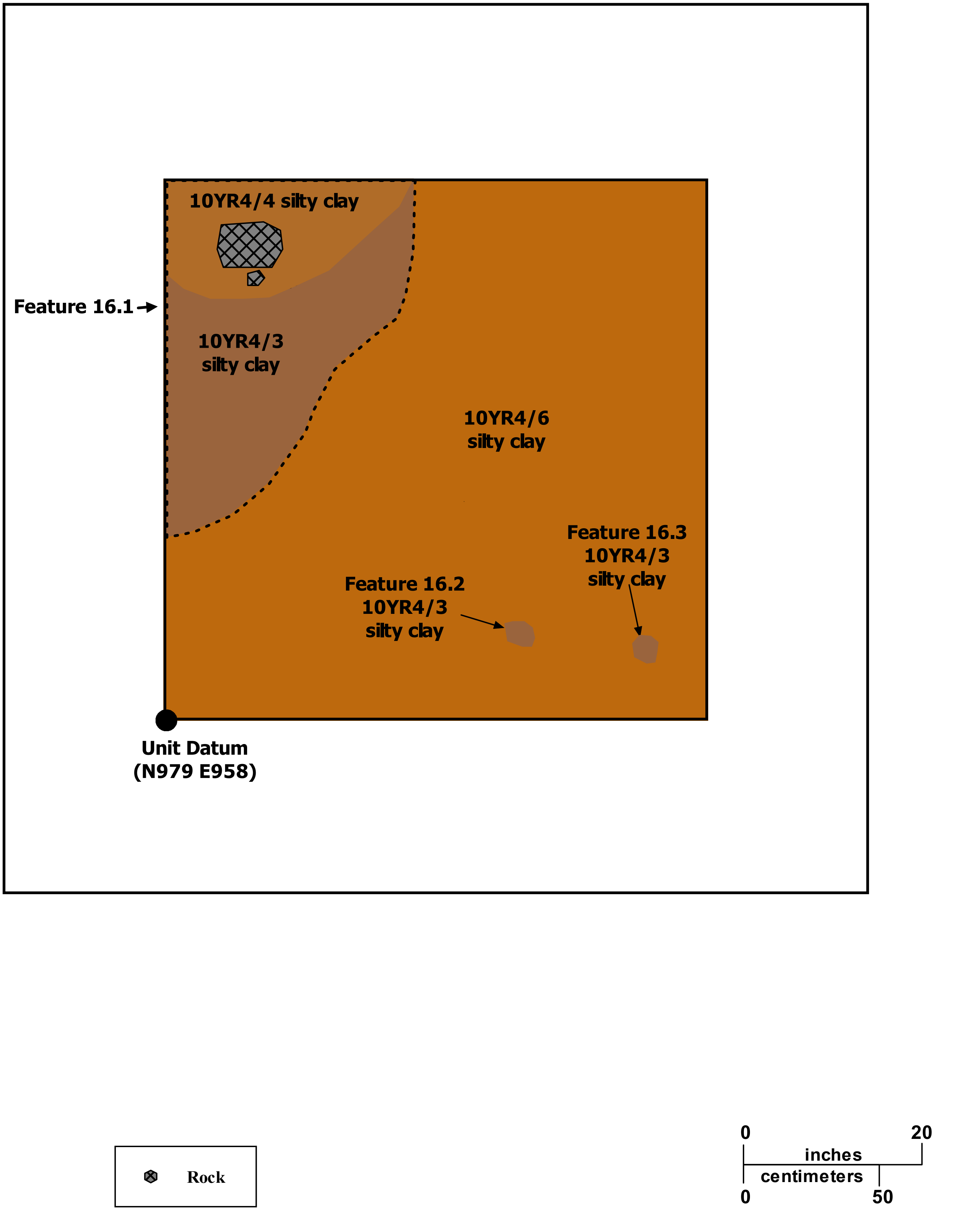

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Figure 4.32
Anomaly 16
N979 E958
Planview
Base of Plowzone

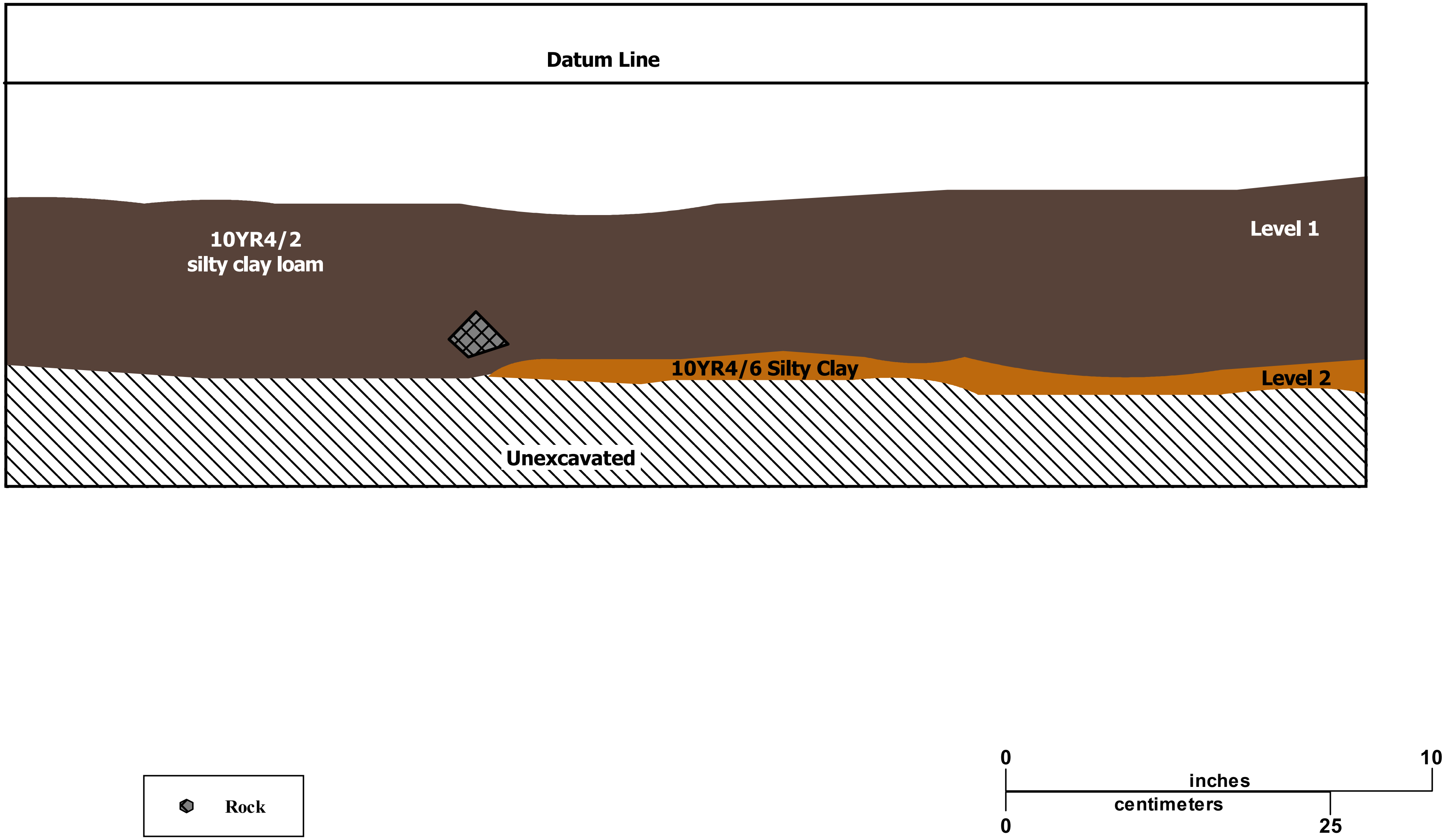

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Figure 4.33
Anomaly 16
N979 E958
East Wall Profile

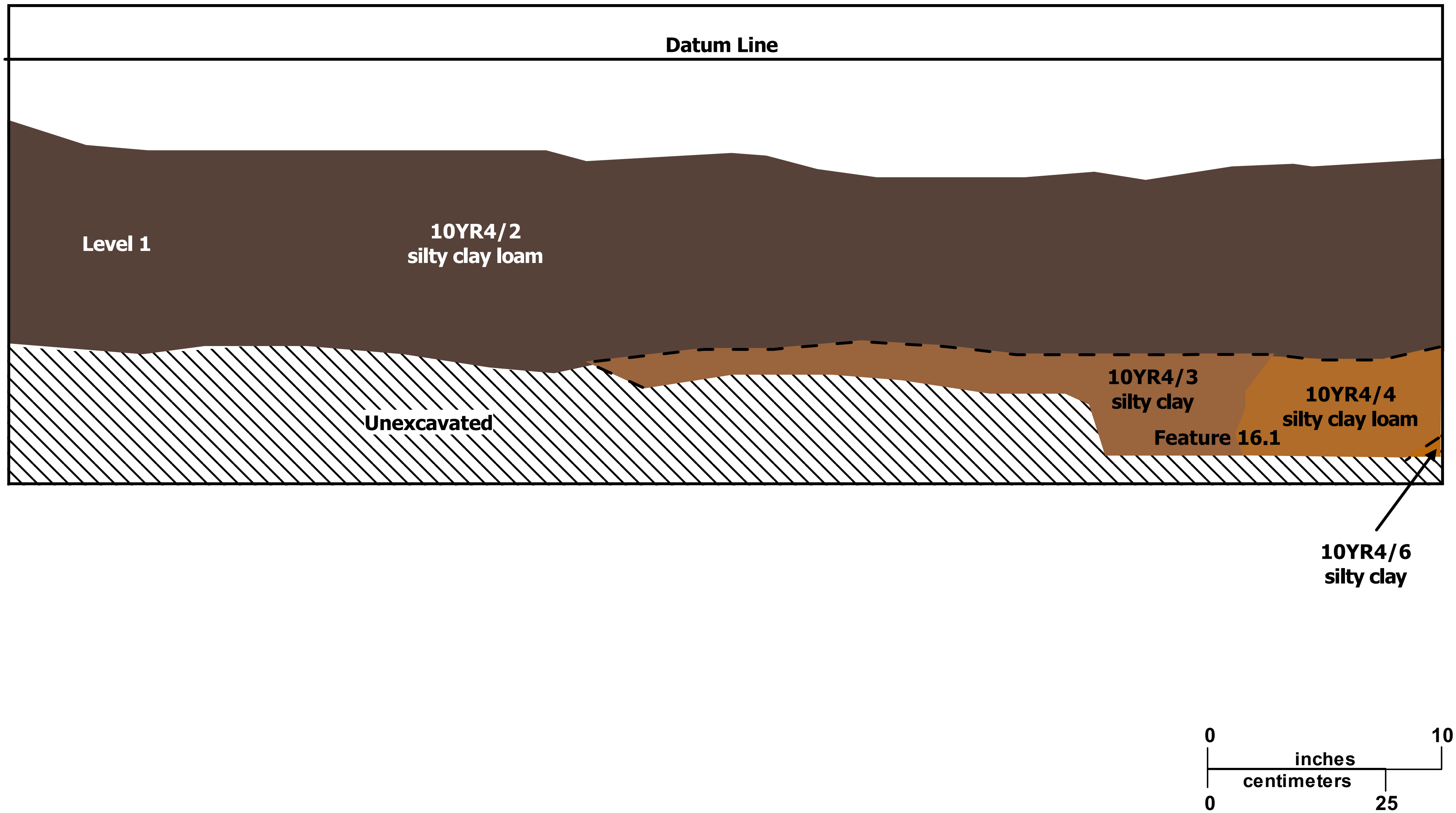

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Figure 4.34
Anomaly 16
N979 E958
West Wall Profile

N

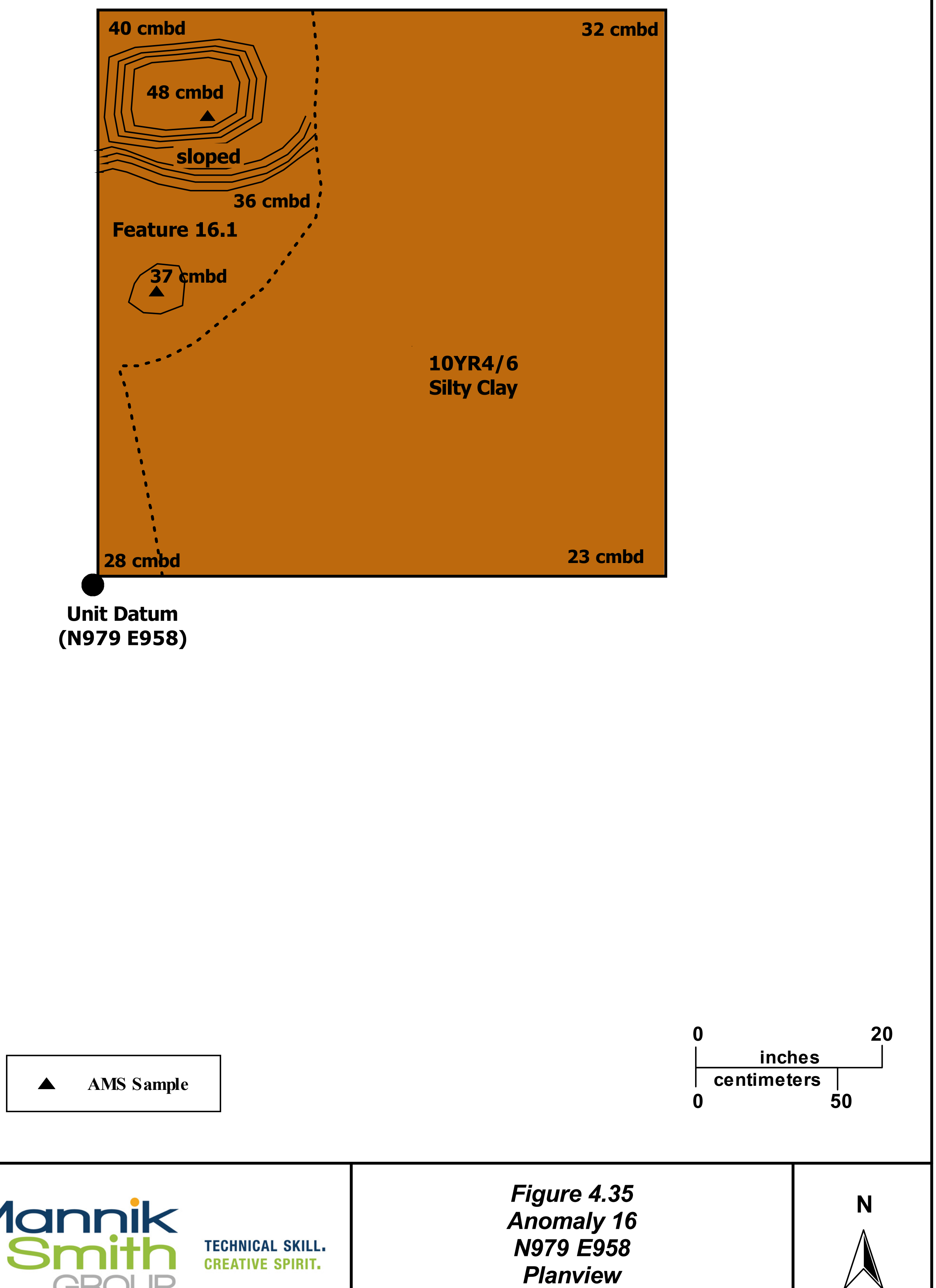

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Figure 4.35
Anomaly 16
N979 E958
Planview
Base of Feature 16.1

A soil sample was collected from the feature fill and subjected to flotation (see Appendix D). Although carbon-like flecking was observed during excavation, no botanical remains were recovered from this sample. However, two carbon samples were recovered from Feature 16.1 and submitted for AMS dating, as samples H and J (see appendix E). Sample H returned a date range of 390-540 cal A.D. (1560-1410 cal B.P.) (p=0.05), while Sample J returned ranges of 430-490 ca. A.D. (1520-1460 cal B.P.), 510-515 cal A.D. (1440-1435 cal B.P.), and 530-605 cal A.D. (1420-1345 cal B.P.) (p=0.05). (Calibrated at 2σ with the INTCAL 13 database [Talma and Vogel 1993; Reimer et al. 2013].) These date ranges straddle the Middle/Late Woodland transition in northwestern Ohio, and more specifically the transition from the WBMW tradition to the Late Woodland Gibraltar Phase (as defined by Stothers and Bechtel [2000]).

In summary, Feature 16.1 appears to represent a hearth that was utilized during the Middle/Late Woodland transition period. The feature yielded lithic debitage, a fragment of a core, a fragment of a biface, burins or perforators, and over 40 lbs (over 18,000 g) of FCR (most of which weight derives from one large stone at the base of the feature). Multiple coral fossils were recovered as well. The aforementioned ring of reddened soil surrounding the FCR lining the base of this pit feature may indicate heating *in situ*. The feature's basin shape and the fact that it contained a light amount of carbon flecking lend credence to this interpretation. However, the exact function of this apparent hearth is unclear. The lack of botanical remains in the soil sample as well as a lack of faunal remains and ceramics within the feature fill may indicate that the hearth was not used for cooking purposes, although the generally high acidity of the BE soil horizon may be responsible for the lack of organic remains. One possibility suggested by the presence of the coral fossils is that they may have been intentionally removed from fossiliferous local tool-stone such as Ten Mile Creek chert for the purpose of shedding weight and improving utility. It is possible, therefore, that this feature represents a WBMW or Gibraltar Phase hearth that was utilized for heat-treating raw tool-stone material prior to the manufacture of stone tools.

4.3.8.2 Feature 16.2

Feature 16.2 was identified at the plow zone/BE horizon interface, at approximately 9.1 in (23 cm) bgs in the southeastern quarter of the excavation unit. This roughly ovoid stain measured approximately 4.3 in (11 cm) north-south by 5.9 in (15 cm) east-west (see Figure 4.32). The entire feature was removed in one level and yielded no cultural material. The soil within the stain was a 10YR 4/3 brown silty clay loam with carbon flecking. The base of the feature was found at 16.9 in (43 cm) bgs; the feature curved to the southwest before terminating (Appendix C, Photo 44). Additionally, although a soil sample and a sample of apparently organic material for AMS dating were collected, they were not submitted for analysis. Due to the curvature of the feature near its base, it was determined that this stain likely represents a tree or shrub root cast.

4.3.8.3 Feature 16.3

Similar to Feature 16.2, Feature 16.3 was identified at the interface of the plow zone and BE soil horizons, at approximately 9.1 in (23 cm) bgs in the southeastern quarter of the excavation unit. This round stain measured approximately 3.9 in (10 cm) in diameter (see

Figure 4.32). The entire feature was removed in one level and yielded no cultural material. The soil within the stain was a 10YR 4/3 brown silty clay loam; no charcoal flecking was observed. Like Feature 16.2, this feature curved to the southeast before terminating at a depth of 16.1 in (41 cm) bgs (Appendix C, Photo 45). Additionally, although a soil sample and a sample of apparently organic material for AMS dating were collected from Feature 16.3, they were not submitted for analysis. Due to the curvature of the feature near its base, it was determined that this stain likely represents a tree or shrub root cast.

4.3.9 Anomaly 17

Anomaly 17 was investigated through a 6.6 ft x 6.6 ft (2 m x 2 m) excavation unit with its southwestern corner located at N957 E949 on the site grid. Based on results of the magnetic gradient survey, this anomaly was described as a small disturbance that may not be archaeological, measuring approximately 9.8 ft (3 m) northwest-southeast by approximately 3.3 ft (1 m) northeast-southwest. This anomaly was ranked as "Nothing Observed" (Burks 2015:17).

The plow zone was removed as one level within this unit, and the northeastern quarter of the plow zone soil was screened. The plow zone soil matrix consisted of 10YR 5/4 yellowish brown sandy clay loam that extended to an average depth of 7.9 in (20 cm) bgs. The plow zone is located directly above the BE soil horizon, and a large plow scar was encountered at this interface in the northern half of the unit. A total of 33 artifacts were recovered from the plow zone sample. Among these were 22 pieces of lithic debitage, including simple flakes (n=2; 9%, SE=6.1%), complex flakes (n=5; 23%, SE=3.8%), and shatter (n=15; 68%, SE=10.0%) made of Cedarville/Guelph (n=7; 32%, SE=10.0%), Ten Mile Creek (n=7; 32%, SE=10.0%), Flint Ridge varieties (n=3; 14%, SE=7.4%), Pipe Creek (n=2; 9%, SE=6.1%), Upper Mercer (n=2; 9%, SE=6.1%), and Greywacke (n=1; 5%, SE=4.7%). The plow zone also yielded six stone tools, including cores/core fragments (n=4; 67%, SE=19.2%), a biface fragment (n=1; 17%, SE=15.3%), and a uniface fragment (n=1; 17%, SE=15.3%) made of Ten Mile Creek (n=3; 50%, SE=20.4%), Cedarville/Guelph (n=1; 17%, SE=15.3%), Flint Ridge (n=1; 17%, SE=15.3%), and Upper Mercer (n=1; 17%, SE=15.3%). In addition to the lithic debitage and tools, the plow zone yielded 0.1 lbs (49.8 g) (n=5) of FCR. Finally, six nodules of unmodified tool-stone material weighing a total of 0.1 lbs (54.7 g) were recovered, including Cedarville/Guelph (n=4; 67%, SE=19.2%), Flint Ridge (n=1; 17%, SE=15.3%), and an unidentified tool-stone (n=1; 17%, SE=15.3%).

Two features were visible at the base of the plow zone, within the BE soil horizon. These were designated as Features 17.1 and 17.2. These features are described below. In addition, two relatively narrow, straight, parallel soil stains crossed the unit from southeast-northwest. These stains were interpreted as field tile trenches (Figure 4.36; Appendix C, Photo 47). Although none of the features or disturbances matched the size or shape of magnetic Anomaly 17, Feature 17.1 was interpreted as the most likely source of the anomaly.

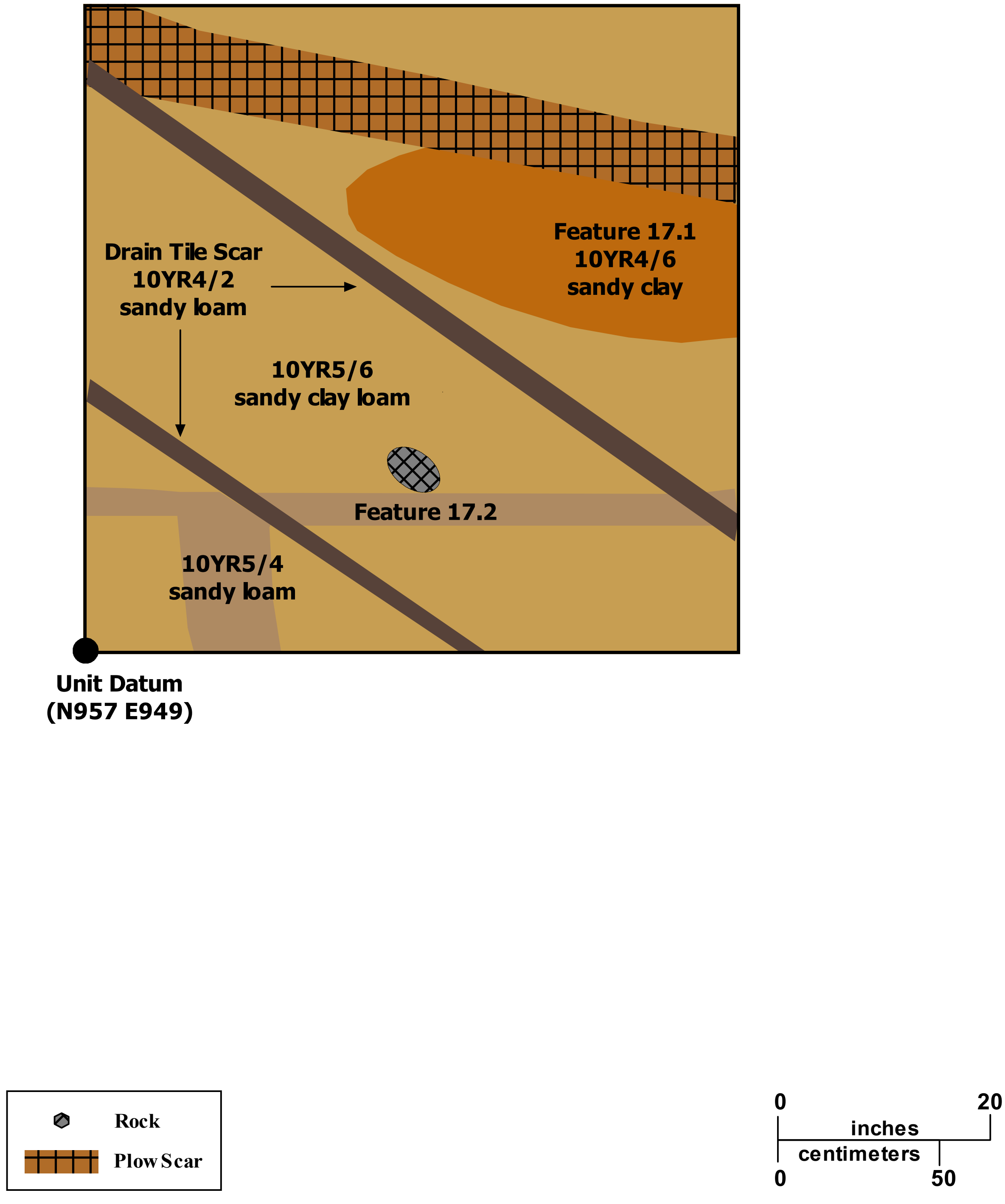

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Figure 4.36
Anomaly 17
N957 E949
Planview
Base of Plowzone

In order to determine whether a more deeply buried feature might be present, a 7.9 in (20 cm) arbitrary level (designated Level 2) was excavated within the BE soil horizon in the northwestern quarter of the unit. The soil matrix in Level 2 consisted of 10YR 5/6 yellowish brown sandy clay loam. The level began at approximately 7.9 in (20 cm) bgs and continued to a depth of approximately 15.7 in (40 cm) bgs (Figures 4.37-4.38). All soil from Level 2 was screened, and yielded a total of 60 artifacts. Among these were 41 pieces of lithic debitage, including simple flakes (n=4; 10%, SE=4.7%), complex flakes (n=8; 20%, SE=6.3%, a bipolar flake (n=1; 2%, SE=2.2%), and shatter (n=28; 68%, SE=7.3%) made of a variety of materials such as Ten Mile Creek (n=14; 34%, SE=7.4%), Flint Ridge varieties (n=15; 36%, SE=7.5%), Cedarville/Guelph (n=7; 17%, SE=5.9%), Pipe Creek (n=3; 7%, SE=4.0%), Bayport (n=2; 2%, SE=2.2%), and Silicified Sandstone (n=1; 2%, SE=2.2%). Also recovered from Level 2 were seven stone tools, including cores and core fragments (n=3; 43%, SE=9.3%), bifaces and biface fragments (n=2; 29%, SE=17.2%), a scraper (n=1; 14%, SE=13.1%), and a burin or perforator (n=1; 14%, SE=13.1%) made of Cedarville/Guelph (n=4; 57%, SE=18.7%), Flint Ridge (n=1; 14%, SE=13.1%), Pipe Creek (n=1; 14%, SE=13.1%), and Ten Mile Creek (n=1; 14%, SE=13.1%). In addition, 0.02 lbs (8.24 g) (n=12) of FCR was recovered from Level 2. Although the surface of Feature 17.1 did not appear to extend into the northwestern quarter of the excavation unit, in profile it became apparent that the artifacts recovered from Level 2 were associated with Feature 17.1.

One additional soil stain, designated Feature 17.4, was visible at the base of Level 2 (see Figure 4.37; Appendix C, Photo 48). In addition, excavation of Feature 17.2 revealed a related feature that was designated Feature 17.3. These features are described below along with Features 17.1-17.2.

4.3.9.1 Feature 17.1

Feature 17.1 was first identified at the interface between the plow zone and the BE soil horizon, at a depth of approximately 7.9 in (20 cm) bgs. The feature, which was located in the northeastern quarter of the excavation unit, was ovoid in shape and measured approximately 25.6 in (65 cm) north-south by 47.2 in (120 cm) east-west. The soil matrix within this feature was comprised of 10YR 4/6 dark yellowish brown sandy clay. Feature 17.1 has been disturbed by a large, deep plow scar near the northern end of the excavation unit as well as one of the field tile trenches (Figure 4.36; Appendix C, Photo 47).

As it was apparent that Feature 17.1 extended outside the excavation unit to the east, it was explored through the excavation of a small trench measuring 23.6 in (60 cm) north-south by 11.8 in (30 cm) east-west and positioned in the northeastern corner of the excavation unit. This trench, which included areas to the north and south of the feature fill, was placed so as to reveal the stratigraphic profile of Feature 17.1. Excavation revealed that the feature was just 1.2 in (3 cm) thick, attaining a maximum depth of 9.1 in (23 cm) bgs (Figures 4.38-4.40; Appendix C, Photo 49).

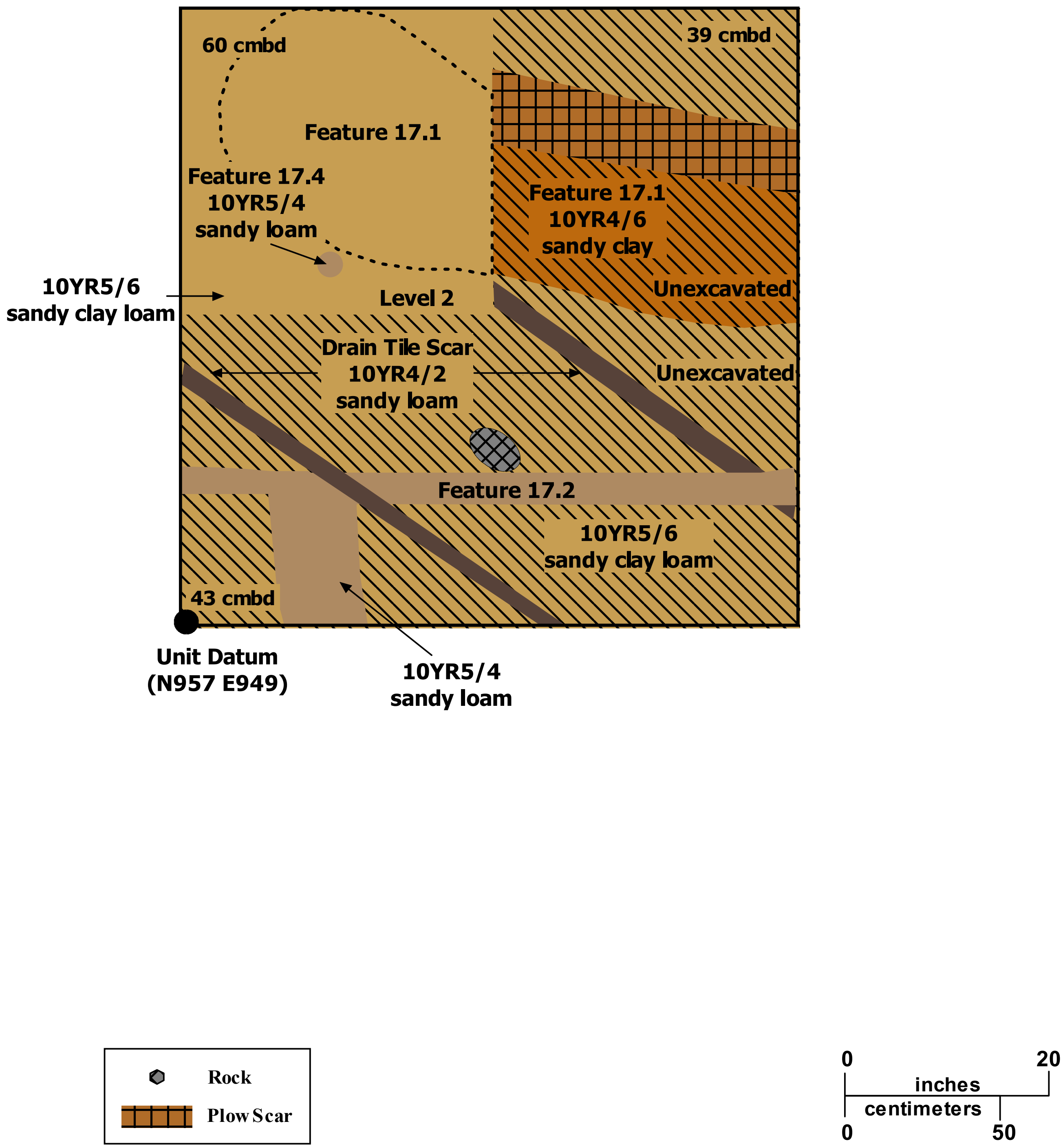


Figure 4.37
Anomaly 17
N957 E949
Planview
Base of Level 2

N

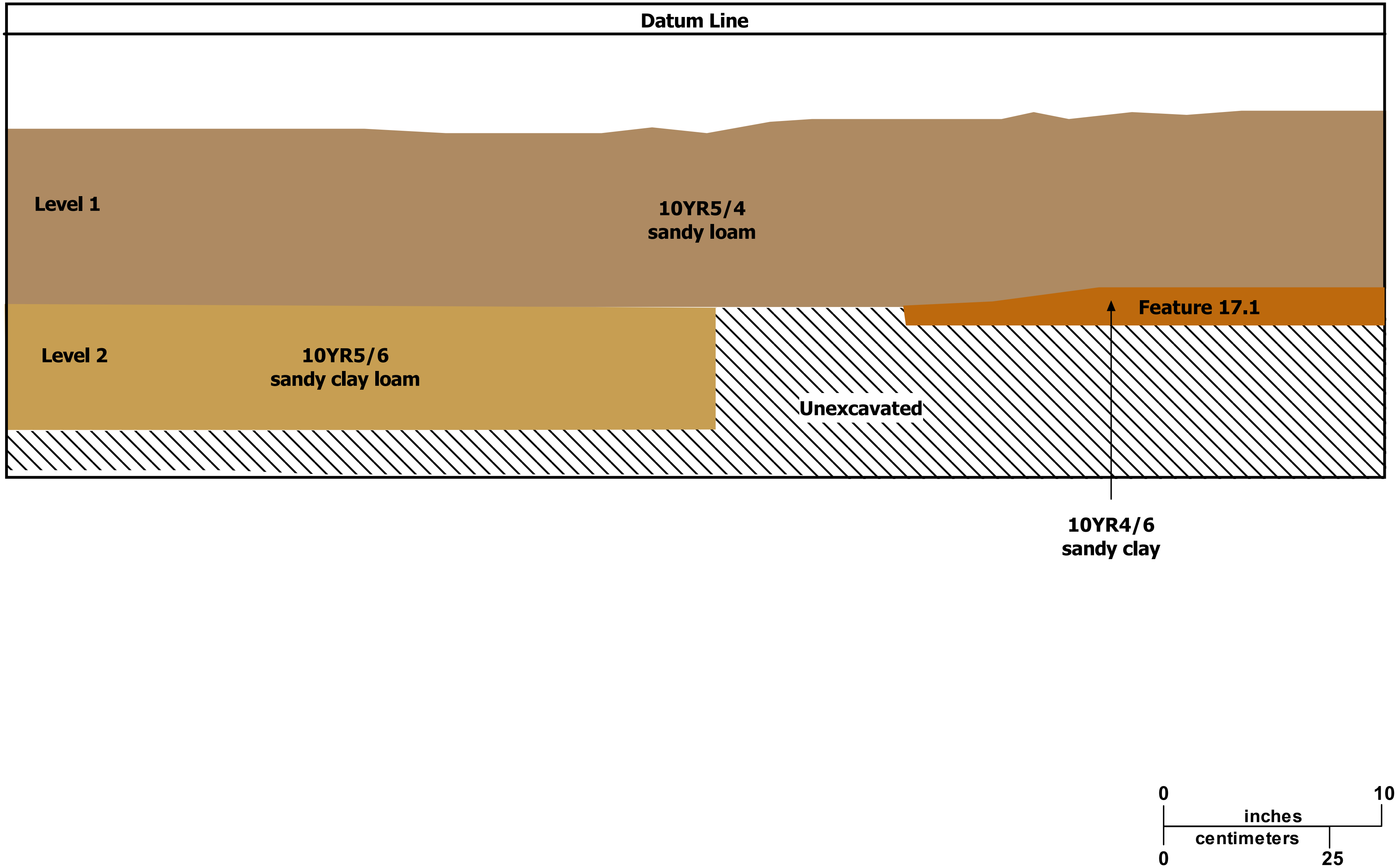
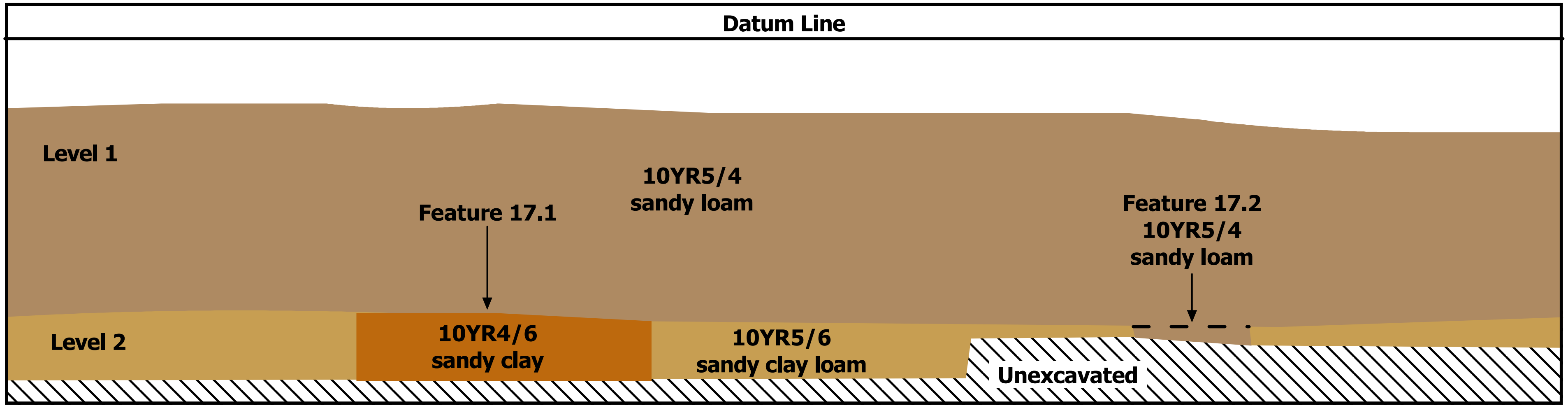


Figure 4.38
Anomaly 17
N957 E949
North Wall Profile

N



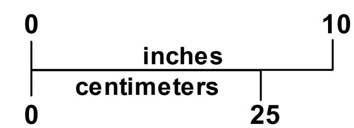


Figure 4.39
Anomaly 17
N957 E949
East Wall Profile

N

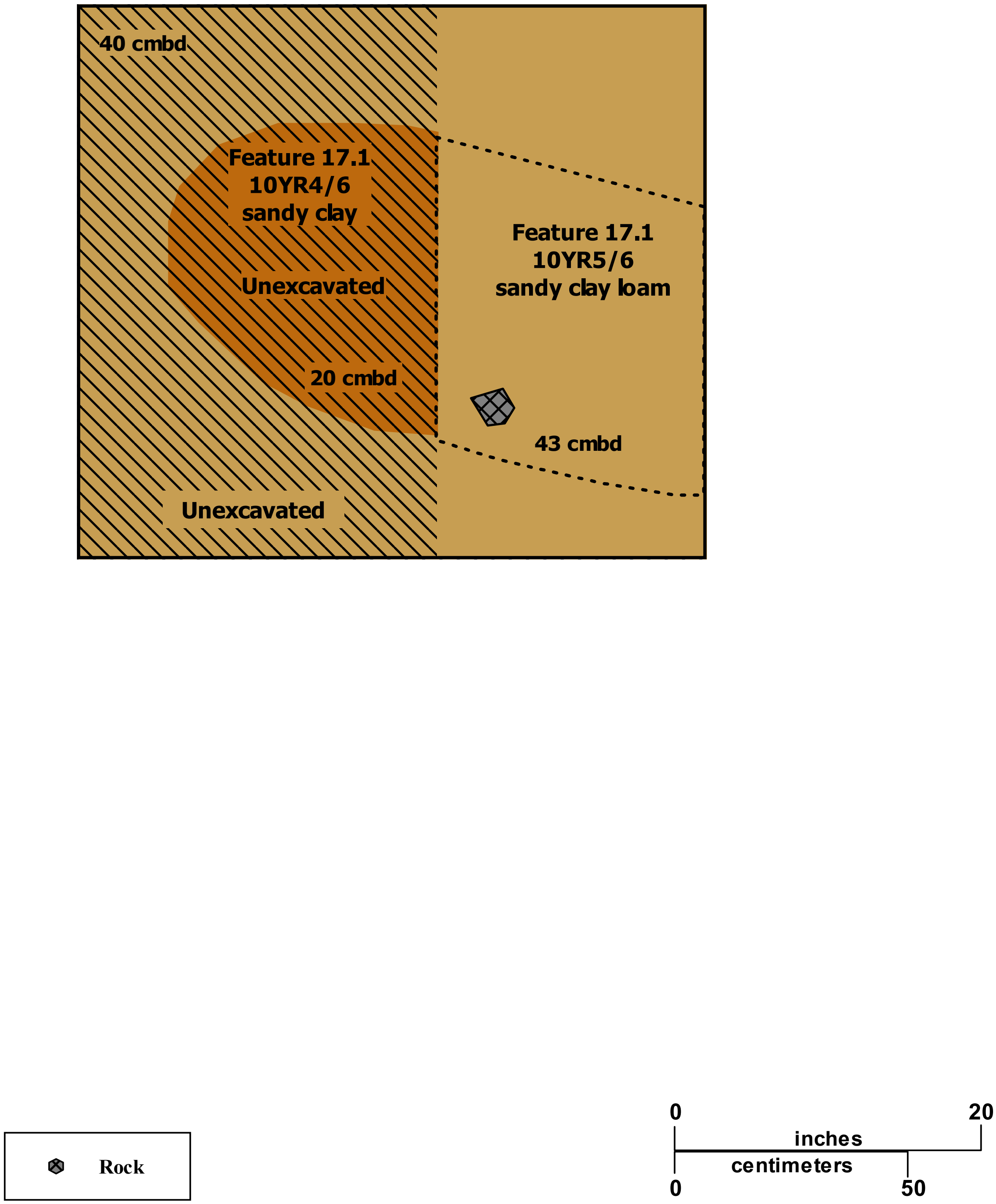


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Figure 4.40
Anomaly 17
N957 E949
Planview
Base of Feature 17.1

Feature 17.1 yielded a total of 27 artifacts. Among these were 18 pieces of lithic debitage, including simple flakes (n=3; 17%, SE=8.9%), complex flakes (n=2; 11%, SE=7.4%), and shatter (n=13; 72%, SE=10.6%) made of Cedarville/Guelph (n=10; 55%, SE=11.7%), Flint Ridge varieties (n=7; 39%, SE=11.2%), and Pipe Creek (n=1; 6%, SE=5.6%). The feature also yielded eight stone tools, including cores/core fragments (n=3; 38%, SE=17.2%), bifaces/biface fragments (n=2; 25%, SE=15.3%), unifaces/uniface fragments (n=2; 25%, SE=15.3%), and a scraper (n=1; 13%, SE=11.9%) made of Cedarville/Guelph (n=4; 50%, SE=17.7%), Flint Ridge varieties (n=3; 38%, SE=17.2%), and Ten Mile Creek (n=1; 13%, SE=11.9%). In addition to the lithic debitage and tools, Feature 17.1 yielded one piece of FCR weighing 0.002 lbs (0.8 g).

A soil sample was collected from the feature fill and subjected to flotation (see Appendix D). Several small, charred flecks of wood were recovered during this process, but could only be identified as representing ring porous and diffuse porous taxa. No organic material was observed or recovered from this feature during excavation, and therefore AMS dating could not be employed to date the feature.

Feature 17.1 may represent a living surface or the scattered remains of a hearth. The presence of lithic debris, tool fragments, and a scraper indicate that stone tool manufacture and/or hide-working activities may have taken place in this location. This feature strongly resembled Levels 2-3 in the Anomaly 5 excavation unit as well as Levels 3 and 4 in the Anomaly 12 excavation unit in that the soil matrix was very similar in appearance to the surrounding BE soil horizon, and the feature was identified primarily on the basis of a concentration of FCR and stone. However, stratigraphically Feature 17.1 appears to be at the same level as the Middle and Late Woodland features identified at the site (Features 10.1, 11.1, 14.1, and 16.1), as it is located at the top of the BE soil horizon and just below the plow zone (Figures 4.38-4.39). Ultimately, due to the lack of datable material recovered from the feature it is unclear which occupation of the site it represents. In addition, Feature 17.1 has been significantly disturbed by both plow activity and drain tile ditching.

4.3.9.2 Feature 17.2

Feature 17.2 was identified at the base of the plow zone, at a depth of approximately 8.7 in (22 cm) bgs. In plan view the feature is a two-part, linear soil stain with a 90-degree intersection between the two parts. The north-south portion of the stain measured approximately 37.4 in (95 cm) from north-south (running into the southern wall of the unit) and 11.8 in (30 cm) from east-west, while the east-west portion of the stain ran across the entire unit for a distance of 78.7 in (200 cm) and was approximately 3.9 in (10 cm) wide. Feature 17.2 has been disturbed by both of the field tile ditches that cross through the unit (see Figure 4.36).

The soil matrix within Feature 17.2 was comprised of 10YR 5/4 yellowish brown sandy clay loam. Excavation revealed that this feature was just 1.2 in (3 cm) deep, terminating at approximately 9.8 in (25 cm) bgs. Feature 17.2 yielded just a single biface fragment made of Cedarville/Guelph tool-stone. No other artifacts were recovered from this feature. Feature 17.3 was revealed at the base of Feature 17.2, directly below the 90-degree intersection (Figure 4.41; Appendix C, Photo 50).

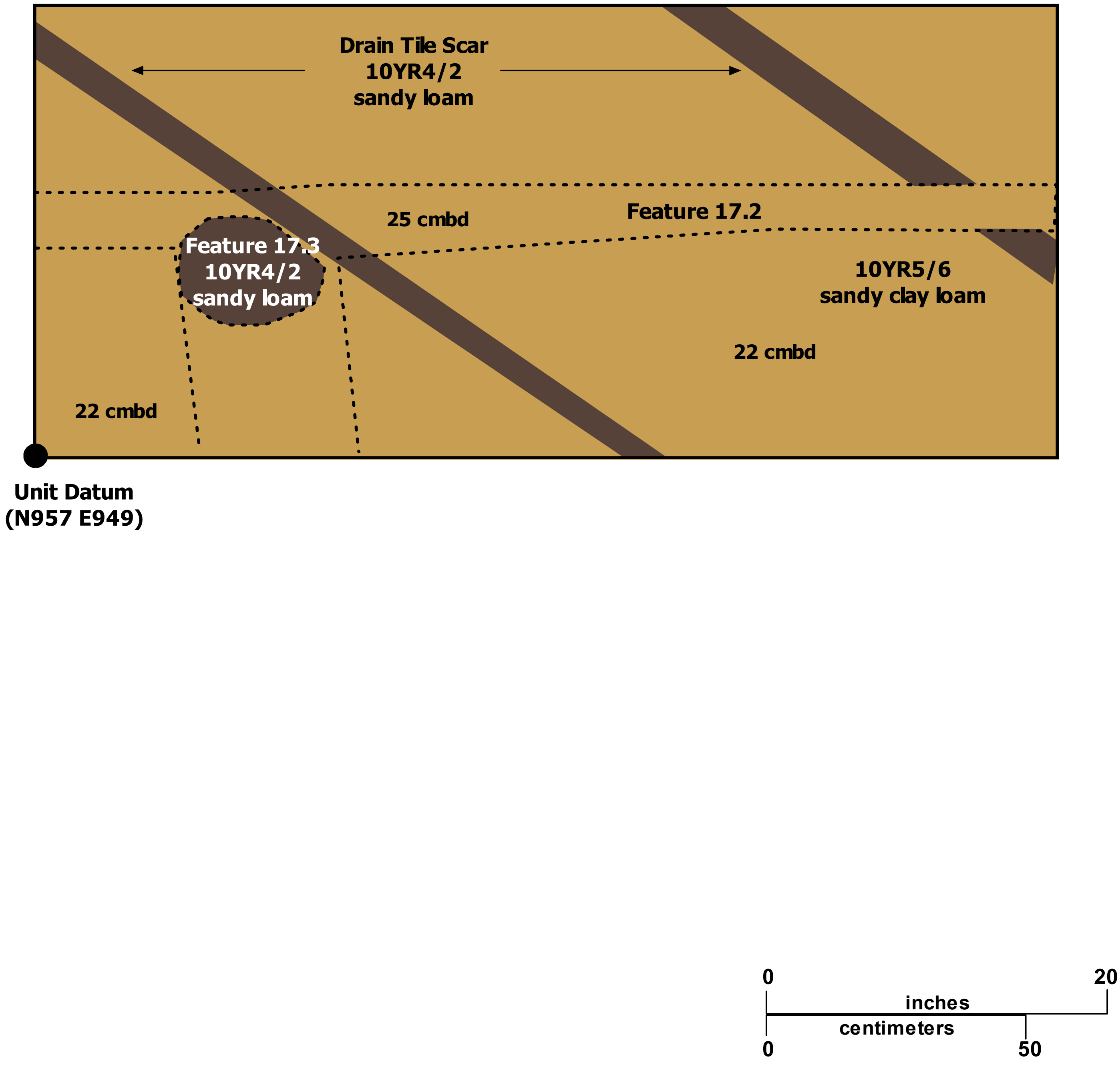

Figure 4.41
Anomaly 17
N957 E949
Planview
Base of Feature 17.2

A soil sample was collected from Feature 17.2 and subjected to flotation (see Appendix D). Several small, charred flecks of wood were recovered during this process, but could only be identified as representing ring porous and diffuse porous taxa. No organic material was observed or recovered from this feature during excavation, and therefore AMS dating could not be employed to date the feature.

Based on the linear nature of Feature 17.2 and the fact that it overlies another feature (Feature 17.3) that was found to contain plastic, this feature likely represents a shallow trench associated with a utilitarian outbuilding or other historic farm-related structure. Feature 17.2 appears to be directly associated with Feature 17.3, a probable post hole (see below). The biface fragment recovered from Feature 17.2 may have intruded down into the feature from the plow zone.

4.3.9.3 Feature 17.3

Feature 17.3 was identified directly below Feature 17.2, at a depth of 9.8 in (25 cm) bgs. Feature 17.3 was roughly circular in shape, measuring 14.9 in (38 cm) north-south by 15.7 in (40 cm) east-west. Full excavation revealed Feature 17.3 to be conical in profile (narrowing toward the bottom) and to extend to a maximum depth of 19.7 in (50 cm) bgs (Figure 4.42; Appendix C, Photo 51). This feature is located directly below the 'T'-shaped intersection of Feature 17.2. The soil within Feature 17.3 was a 10YR 4/2 dark grayish brown sandy loam surrounded by a ring of 10YR 8/1 white clay. Feature 17.3 yielded only one artifact – a piece of white plastic.

A soil sample was collected from the feature fill and subjected to flotation (see Appendix D). Several small, charred flecks of wood were recovered during this process, but could only be identified as representing ring porous and diffuse porous taxa. One partial carbonized seed was also recovered from the flotation sample, but it could not be identified by taxon.

One sample of organic material was recovered from Feature 17.3 and submitted for AMS dating as Sample F (see Appendix E). This sample returned date ranges of 1670-1780 cal A.D. (280-170 cal B.P.) ($p=0.05$) and 1800 to post-1950 cal A.D. (150 to 0 cal B.P.) ($p=0.05$). (Calibrated at 2σ with the INTCAL 13 database [Talma and Vogel 1993; Reimer et al. 2013].) These date ranges appear to confirm a modern, farming-related origin for this feature.

In summary, it appears, based on the round shape, conical profile, historic artefactual content (one piece of plastic), location beneath the corner of an overlapping linear, shallow, trench-like feature, and intrusive soil lining, that Feature 17.3 represents a historic post hole that may have served as a structural component within a historic-period utilitarian outbuilding or other farm-related structure (represented by Feature 17.2).

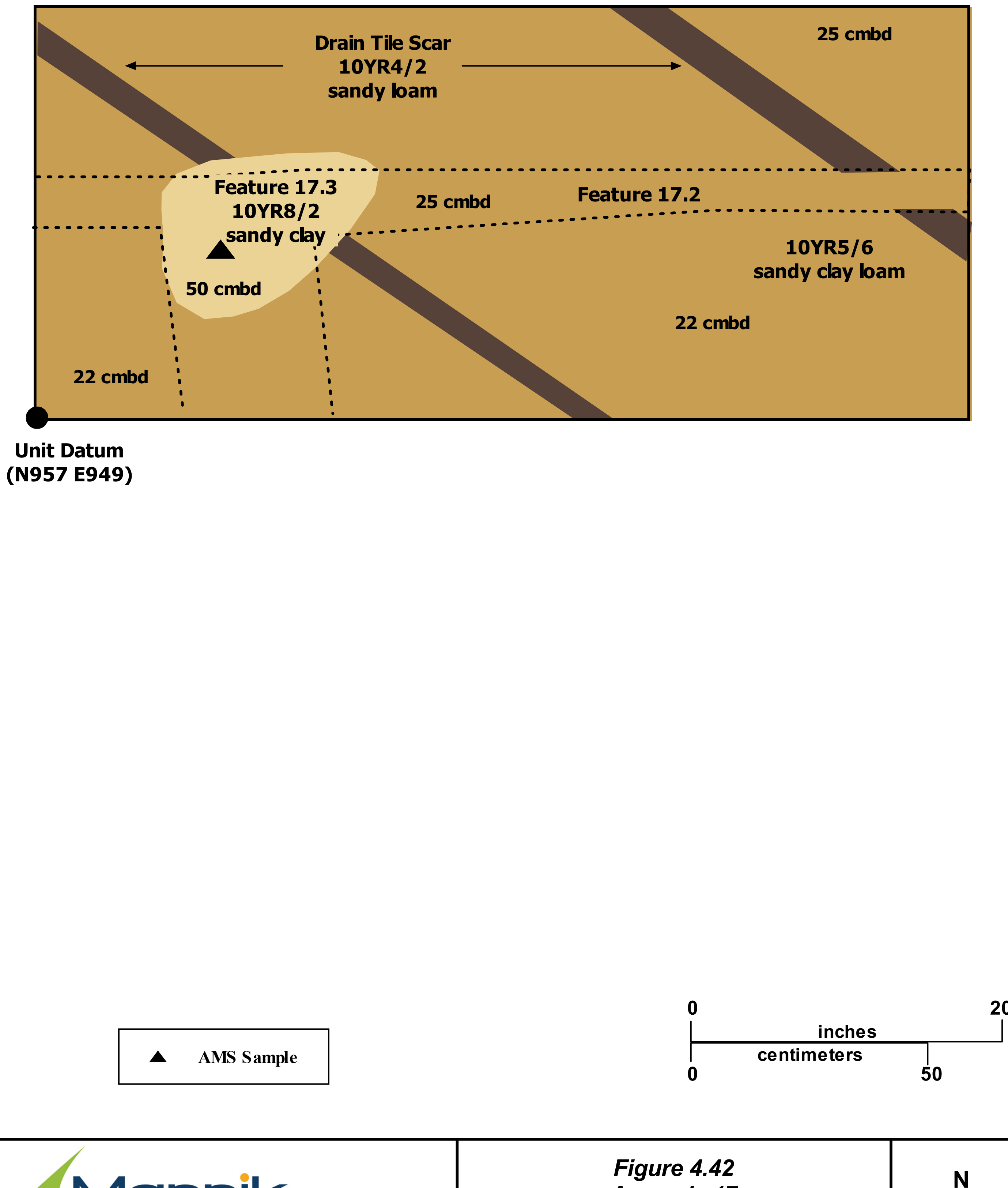

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Figure 4.42
Anomaly 17
N957 E949
Planview
Base of Feature 17.3

4.3.9.4 Feature 17.4

Feature 17.4 was identified at the base of Level 2 within the excavation unit, at a depth of 16.1 in (41 cm) bgs. Located in the northwestern quarter of the excavation unit, Feature 17.4 was circular in plan view and measured 1.2 in (3 cm) in diameter. As it was considered to be a possible post mold, the feature was completely excavated. It was cylindrical in profile and approximately 3.5 in (9 cm) in depth, terminated at 19.7 in (50 cm) bgs (Figure 4.43; Appendix C, Photo 52). The soil within Feature 17.4 consisted of 10YR5/4 sandy loam. The excavation yielded no cultural material.

The feature contained no observable carbonized material, artifacts, or FCR, and strongly resembled a root cast. A soil sample was collected from the feature fill, but due to the interpretation of the feature as a root caste, was not subjected to flotation (see Appendix D). No organic material was observed or recovered from this feature during excavation, and therefore AMS dating could not be employed to date the feature.

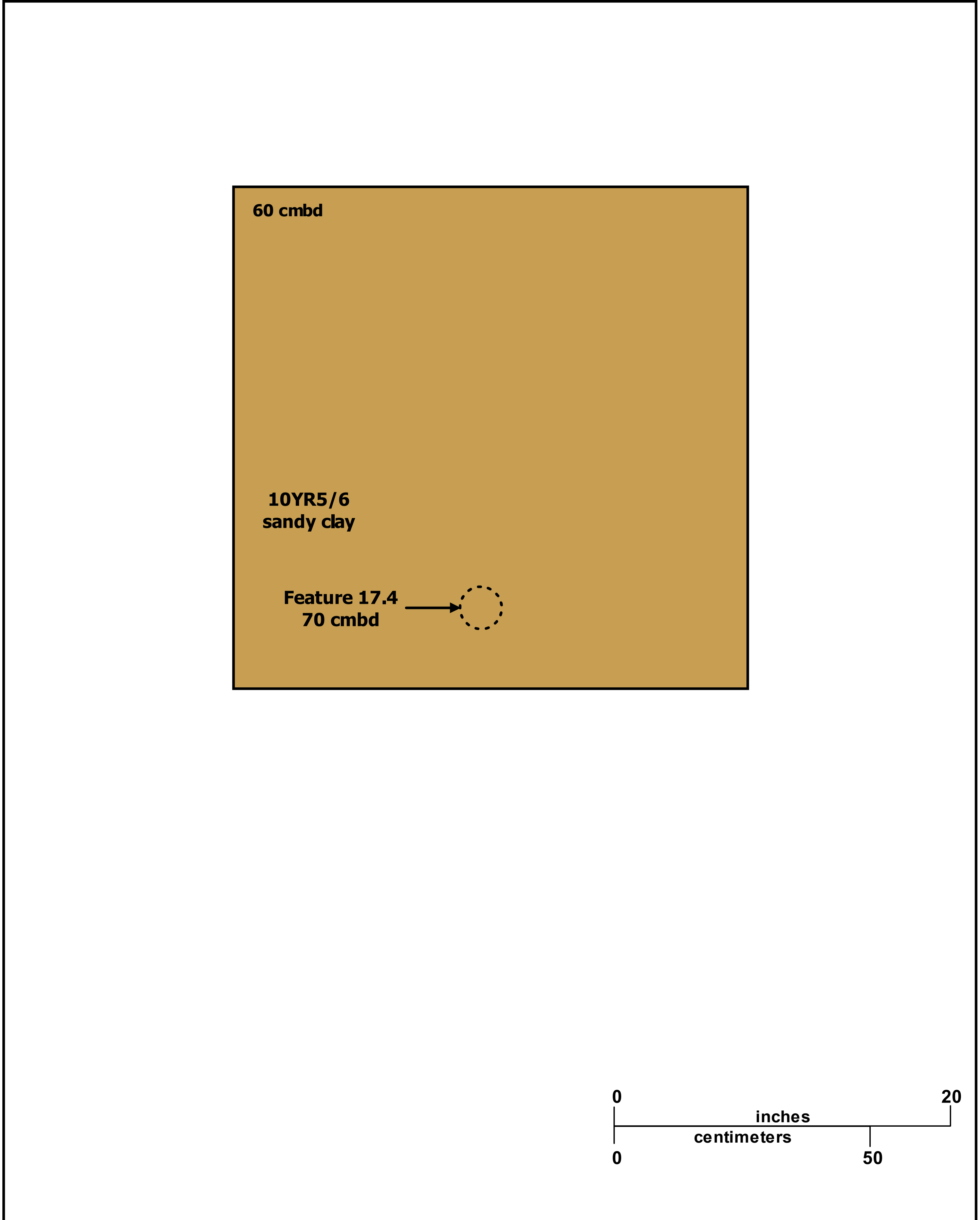

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Figure 4.43
Anomaly 17
N957 E949
Planview
Base of Feature 17.4

5.0 ANALYSIS AND EVALUATION

This section of the report presents an analysis of the results of Phase II evaluative testing of 33HY0167. This analysis has been divided into three parts: a discussion of site integrity, site formation processes, and their implications for the usefulness of the methods used during both the Phase I and Phase II investigations of the site (Section 5.1); an analysis of intra-site spatial patterning, with an emphasis on discerning whether any spatial patterning exists that might suggest an internal structure to the surface collected assemblage that could either address specific research questions on its own, or through correspondence to intact, sub-plow zone archaeological deposits (Section 5.2); and a discussion of the ability of the Ritter No. 1 site to address the research questions presented in Section 2 of this report, including a comparison of this site with other similar sites in northwestern Ohio (Section 5.3). Finally, this section of the report will conclude with an evaluation of 33HY0167 against the NRHP eligibility criteria.

5.1 Site Formation Processes and Physical Integrity of 33HY0167

5.1.1 Soil Properties and Site Formation

During the manual excavation of anomalies at 33HY0167, two aspects of the site stuck out as being unusual. First was the complete lack of faunal remains and the nearly complete lack of visible organic (i.e., botanical) material in sub-plow zone contexts. This impression was supported by the disappointing results of soil flotation and botanical analysis (see Appendix D). A total of 15 sediment samples from controlled, sub-plow zone proveniences were submitted for flotation and recovery of macrobotanical remains. Only six sediment samples yielded any botanical remains at all, and only two of these yielded remains that could be identified by taxon. Of these two samples, one was from a feature (Feature 14.3) that was determined to be natural in origin, representing a ground wasp nest dating no earlier than A.D. 1667. Thus, of the 15 sediment samples submitted for analysis, only one yielded identifiable macrobotanical remains associated with a cultural feature – Feature 11.1, which is interpreted as a possible post mold dating to the terminal Late Woodland/Late Prehistoric transition period.

Furthermore, while eight samples of organic material from controlled, sub-plow zone proveniences were successfully dated through AMS dating, two of these samples (from Features 14.3 and 17.3) returned essentially modern dates associated with either faunal disturbance or historic-period cultural activity. One other sample that was submitted for AMS dating (from Anomaly 12, Level 3) was discovered during pre-treatment to contain only organic sediment that yielded a date well beyond the earliest human occupation of North America, and another sample (from Feature 14.1, Level 2) contained no datable organic material at all (see Appendix E). Fortunately, six of the samples that were submitted were successfully dated, demonstrating that the Ritter No. 1 site includes multiple components dating from the middle Late Archaic period through the terminal Late Woodland/Late Prehistoric transition period.

The general lack of organic preservation within the site, and particularly in association with older archaeological deposits, can be explained with reference to the prominent soil type within the project area, Haney loam. As described in Section 1.1.3 of this report, Haney series soils formed in loamy and gravelly outwash and occur on stream terraces, outwash plains and glacial drainage channels (NCSS 2013). This is notable, as the macrobotanical analysis report specifically noted high concentrations of gravel in more than one sediment sample, which is not conducive to the preservation of organic materials (Parker 2015a). Furthermore, the stratigraphic profile of Haney loam is characterized by a strongly acid, eluvial BE horizon beneath the plow zone, and a very strongly acid Bt horizon below the BE horizon (NCSS 2013). This strong acidity has most likely caused the rapid decomposition of organic materials that may have originally been present within the archaeological deposits on the site. This inference is supported by the fact that only those sediment samples associated with either terminal Late Woodland/Late Prehistoric transition period deposits or with post-1650 faunal or cultural activity yielded botanical remains.

The second unusual characteristic of 33HY0167 that was observed during manual excavations is also related to the presence of Haney loam soils on the site. As observed during all phases of investigation at the site, the plow zone within the project area ranges from approximately 7.9-11.8 in (20-30 cm), averaging 9.8 in (25 cm). Beneath the plow zone is a soil horizon that was interpreted during Phase I shovel testing as well as the first fieldwork session for the Phase II evaluative testing as the native subsoil. However, this soil horizon is actually the BE horizon, which extends to an average depth of 16.1 in (41 cm) in Haney series soils (NCSS 2013). A BE horizon is defined as an E horizon that more closely resembles the B (subsoil) horizon than the A or Ap horizon in a given soil type (Soil Survey Staff 1992:518).

Indeed, in the test units for Anomalies 1, 5, 12 and 17 – the only test units in which at least a portion of the BE horizon was excavated and the Bt (subsoil) horizon was exposed – there were no visible differences in color or texture between the BE and Bt horizons. Furthermore, it is notable that in the test units for both Anomalies 5 and 12, no soil discolorations, artifact concentrations, or features of any kind were visible at the top of the BE horizon. Indeed, in the test unit for Anomaly 12 the first 3.9 in (10 cm) of the BE horizon were completely sterile; only at the base of the BE horizon was cultural material encountered. Finally, while cultural material was present in abundance at the base of the BE horizon and the top of the Bt horizon in the test units for Anomalies 5 and 12, no soil discoloration or obvious feature fill of any kind could be discerned.

These observations about the BE and Bt soil horizons within the project area have several important implications for site formation processes, methods of investigation and the interpretation of the Ritter No. 1 site. First, while the shovel testing conducted during the Phase I survey was successful in defining a concentration of cultural material that corresponded spatially with the later results of the magnetic gradient survey, the method of shovel testing was unlikely to identify the separate BE and Bt soil horizons. It was therefore also unlikely to identify the cultural deposits that are present at the base of the BE horizon and the top of the Bt horizon across at least parts of the site, as the BE horizon was interpreted as native subsoil and excavation ceased after 3.9 in (10 cm) of sterile "subsoil" had been excavated. Indeed, even manual excavation likely resulted in the under-representation of this earlier component of the site, as it is possible that the apparently Late Archaic occupation represented at the BE/Bt transition in the test units for Anomalies 5 and 12 is also present beneath some of the other, later cultural features that were excavated in the test units for Anomalies 8, 10, 11, 14 and 16; the BE horizon was not excavated in these test units.

Secondly, it is notable that the magnetic gradient survey identified both Anomalies 5 and 12, but that subsequent soil coring indicated a non-cultural origin for these anomalies. Certainly no cultural features of a type likely to be identified through soil coring were present in these locations, and the similarity of the BE and Bt horizons in color and texture would have made it very difficult to identify the presence of what has been interpreted as living surfaces in these two test units. This raises the distinct possibility that other magnetic anomalies that were identified by Burks (2015) as non-cultural in origin and that were not investigated during the Phase II testing of 33HY067 do, in fact, represent similar deep deposits of cultural material, likely associated with the Late Archaic occupation of the site.

Finally, the presence of cultural deposits buried beneath a level of sterile soil that in turn underlies the plow zone would appear to complicate the interpretation of the plow zone assemblage from this site. On the one hand, as might be expected, the screened plow zone samples from the test units associated with Anomalies 5 and 12 yielded relatively few artifacts, especially in comparison with the screened plow zone samples from the test units in which cultural features were identified immediately beneath the plow zone (Anomalies 8, 10, 11, 14, 16 and 17). Artifact counts from each of these contexts are presented in Table 5.1 for comparison.

Table 5.1 Artifact Counts from Screened Plow Zone Samples from Selected Anomalies

Artifact Category	***Anomaly 5***	***Anomaly 8***	***Anomaly 10***	***Anomaly 11***	***Anomaly 12***	***Anomaly 14***	***Anomaly 16***	***Anomaly 17***
Debitage	6	10	13	15	4	33	58	22
Formal Tools	0	6	6	2	4	7	19	6
FCR (Count)	0	5	10	4	6	2	43	5
FCR (Weight [g])	0	317.7	305.2	53.2	321.8	3.5	1333.54	49.8
Unmodified Tool Stone Nodules	0	0	2	0	1	1	0	3
Total Artifacts	***6***	***21***	***31***	***21***	***15***	***43***	***120***	***36***

This comparison indicates that artifact density within the plow zone at 33HY0167 is not a good indicator of the presence of more deeply buried, Late Archaic-period cultural deposits. On the other hand, the only three diagnostic artifacts recovered from the site during both the Phase I and Phase II investigations were all Bottleneck Stemmed projectile points dating to the Late Archaic period. It is possible that these artifacts represent a different, more recent Late Archaic occupation of the site as these projectile points have been dated to ca. 3800-3000 B.P., while Anomaly 5, Level 2 was radiocarbon dated to 2115-2100 cal B.C. (4065-4050 cal B.P.) and 2035-1900 cal B.C. (3985-3850 cal B.P.).

However, it is worth noting that according to Purtill (2009:570), no Bottleneck Stemmed projectile points have ever been recovered from directly datable contexts in Ohio. Whatever the chronology of Late Archaic occupation at 33HY0167, it is clear that the relationship between the plow zone and sub-plow zone Late Archaic archaeological deposits at this site is quite complicated, and may vary across the site.

5.1.2 Post-Depositional Disturbance

5.1.2.1 Bioturbation

A brief note about bioturbation is warranted in this section. Some sub-plow zone disturbance from both faunal and floral activity was noted during excavation. Specifically, Feature 14.3 was identified as a ground wasp nest, and Features 8.2, 14.2, 16.2, 16.3, and 17.4 were all interpreted as root casts. However, it is important to note that none of these sources of disturbance appears to have directly affected any of the cultural features that were identified within 33HY0167. Furthermore, no evidence of rodent burrowing activity was observed. Overall, it appears that bioturbation has had a negligible effect on the site.

5.1.2.2 Disturbance from Agricultural Activity

Disturbance from historic-period agricultural activity was evident in several of the test excavation units. This disturbance took three forms. The first of these was plow disturbance. In addition to the presence of a well-defined plow zone that reached as deep as 11.8 in (30 cm) in some places, several units – those associated with Anomalies 8, 14 and 17 – exhibited marked plow scarring or deep plow furroughs. The top surfaces of Features 8.1 and 17.1 appeared to have been disturbed in this manner, although the disturbance did not appear to be severe. The disturbance to Feature 14.1 appeared to be negligible. In addition, although no plow scarring was noted in the test units for Anomalies 10 and 16, the top surfaces of Features 10.1 and 16.1 proved to be the result of extensive plow smearing. Upon excavation, it was discovered that these features were substantially smaller in size than initially thought due to the plow smearing.

The second and third forms of agricultural disturbance were both present in the test unit for Anomaly 17. These were drain tile ditching and agricultural building foundations. Based on the recovery of a piece of plastic from Feature 17.3, which was the deepest and presumably oldest of these elements of disturbance within the Anomaly 17 test unit, it would appear that this disturbance occurred during the 20th century. However, as with bioturbation, these two forms of agricultural disturbance did not appear to have directly impacted Feature 17.1. In addition to the evidence from this test unit, several historic-period artifacts were recovered from the Anomaly 12 test unit, although no visible elements of disturbance were present in this unit.

In summary, the most extensive disturbance to prehistoric cultural deposits appears to have come from plowing activity. Even this disturbance was relatively modest, suggesting that the Ritter No. 1 site retains a high degree of physical integrity. Another way of investigating this question, however, is to examine the degree of correspondence between the plow zone-derived artifact assemblage and artifacts recovered from intact, sub-plow zone proveniences. Experimental studies have demonstrated that plowing activity normally produces only modest displacement effects on artifact assemblages (Odell and Cowan 1987). However, given the multiple occupation episodes represented at 33HY0167, plowing activity may very well have resulted in a mixed plow zone assemblage.

What follows is a discussion of the degree of correspondence between the artifact assemblage from the screened plow zone sample and intact, sub-plow zone proveniences in test units associated with Anomalies 5, 8, 10, 12, 14, 16 and 17. (Anomaly 1 is not included in this discussion since no artifacts were recovered from any level within this test unit, and Anomaly 11 is likewise not discussed since no artifacts were recovered from Feature 11.1.) The different assemblages from each test unit are compared both by artifact type (formal tools, debitage, FCR, and raw tool-stone) and lithic raw materials. In order to provide a standard geographical reference, raw material types will be discussed in terms of both local (i.e., readily available from sources within the Maumee River Valley) versus exotic (i.e., *not* readily available from sources within the Maumee River Valley) lithic types; exotic lithic types will be further categorized by the general geographic direction of source locations from Henry County (see Figure 5.1).

Anomaly 5

For the purposes of this analysis, the plow zone assemblage from the Anomaly 5 test unit will be compared to the combined assemblages from arbitrary Levels 2 and 3, which have been interpreted as a Late Archaic living surface. The artifact profile of the Anomaly 5 plow zone assemblage differs markedly from that recovered from Levels 2 and 3 within this test unit. This data is summarized in Table 5.2.

In terms of artifact type, the plow zone yielded just six pieces of stone tool debitage that were neither utilized or heat treated. No formal tools, FCR, or pieces of unmodified tool-stone were recovered from the plow zone. In contrast, the combined assemblage from Levels 2 and 3 does not include any lithic debitage. Rather, these levels yielded a total of five stone tools (9% of the Levels 2/3 assemblage) (including one core [n=1, 20%; SE=17.9%], one scraper [n=1, 20%; SE=17.9%], one hammer [n=1, 20%; SE=17.9%], one abrader [n=1, 20%; SE=17.9%], and one metate [n=1, 20%; SE=17.9%]), 36 pieces of FCR (65% of the Levels 2/3 assemblage) weighing a total of 5.44 lbs (2,465.5 g), and 14 pieces of unmodified tool stone (25% of the Levels 2/3 assemblage) weighing a total of 6.48 lbs (2,938.3 g).

In terms of material varieties present within the plow zone and the buried living surface levels, the flakes from the plow zone all consist of non-local lithic types derived from sources located to the southeast, including Flint Ridge (n=5; 83%; SE=15.3%) and Upper Mercer (n=1; 17%; SE=15.3%). Levels 2 and 3, however, yielded three ground stone tools (60%; SE= 21.9%) (assumed to be local in origin) and two stone tools made of non-local lithic types derived from southeastern sources (including Cedarville/Guelph [n=1; 20%; SE= 17.9%] and Flint Ridge [n=1; 20%; SE=17.9%]). Unmodified tool stone packages account for 14 of the artifacts collected and include one package from a southeastern source (one piece of unmodified Cedarville/Guelph) and 17 packages from local sources (including greywacke, quartzite, silicified sandstone, and Ten Mile Creek), presumably found in local glacial till and stream beds.

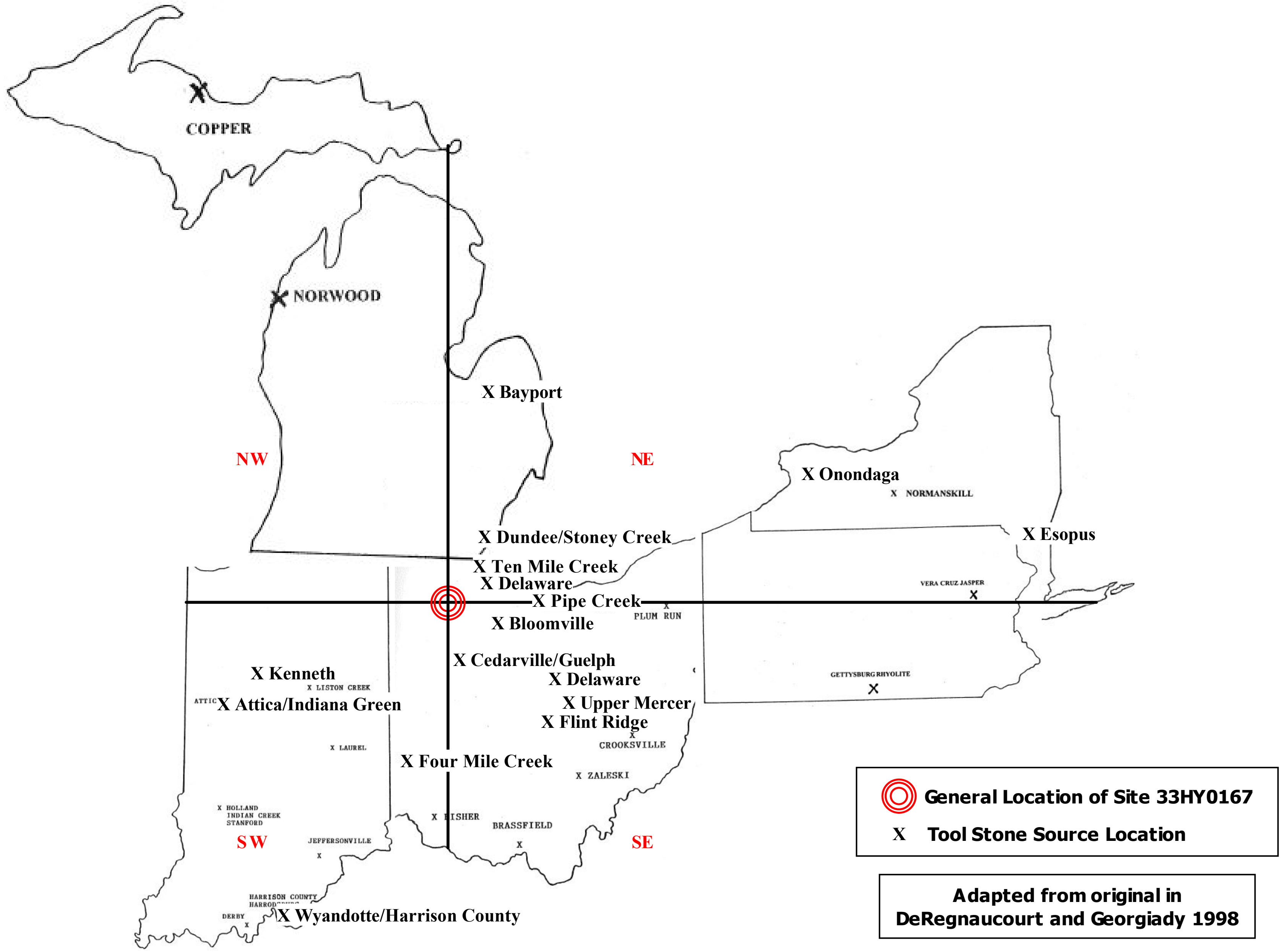

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Figure 5.1
Regional Tool Stone Material Source Locations
New Maumee River Crossing
Napoleon, Ohio

N

Table 5.2 Comparison of Plow Zone and Sub-Plow Zone Artifact Assemblages, Anomaly 5

Anomaly 5	Plow Zone			Levels 2 and 3		
	Count	Percentage	1-Standard Error	Count	Percentage	1-Standard Error
Total Artifacts	***6***	***100%***	***N/A***	***55***	***100%***	***N/A***
Formal Tools	0	0%	N/A	5	9%	+/- 3.9%
Debitage	6	100%	N/A	0	0%	N/A
FCR Count	0	0%	N/A	36	65%	+/- 6.4%
FCR Weight (grams)	0	N/A	N/A	2465.5	N/A	N/A
Unmodified Tool Stone	0	0%	N/A	14	25%	+/- 5.8%
Total Tool Stone	***6***	***100%***	***N/A***	***19***	***100%***	***N/A***
Cedarville/Guelph	0	0%	N/A	2	11%	+/- 7.2%
Flint Ridge	5	83%	+/- 15.3%	1	5%	+/- 5.0%
Greywacke	0	0%	N/A	1	5%	+/- 5.0%
Ground Stone	0	0%	N/A	3	16%	+/- 8.4%
Quartzite	0	0%	N/A	3	16%	+/- 8.4%
Silicified Sandstone	0	0%	N/A	2	11%	+/- 7.2%
Ten Mile Creek	0	0%	N/A	7	37%	+/- 11.1%
Upper Mercer	1	17%	+/- 15.3%	0	0%	N/A

In summary, the plow zone assemblage and the combined assemblage from Levels 2 and 3 within the Anomaly 5 test unit differ both in the types of artifacts recovered and the lithic raw material sources represented. Whereas the plow zone contained only lithic debitage made from non-local sources located in central Ohio, the lower levels yielded formal tools, FCR and unmodified tool stone (but no debitage), a majority of which (n=16, 76%) were made of local lithic materials and the remainder of which were made of non-local materials from sources located to the southeast of 33HY0167. This low degree of correlation, along with the sterile upper portion of Level 2 in this test unit, suggests that the plow zone assemblage may represent a different occupation than the Late Archaic living surface identified within the unit – perhaps a shallow cultural feature that was destroyed entirely by plowing activity. However, it is also possible that, given the low sample size from the plow zone, this discrepancy is the result of random statistical variation.

Anomaly 8

For the purposes of this analysis, the plow zone artifact assemblage from the Anomaly 8 test unit will be compared to the artifact assemblage from Feature 8.1, which has been interpreted as a possible raw material cache or cooking feature of unknown age. The artifact profile of the Anomaly 8 plow zone assemblage differs noticeably from that recovered from Feature 8.1. This data is summarized in Table 5.3.

Table 5.3 Comparison of Plow Zone and Sub-Plow Zone Artifact Assemblages, Anomaly 8

Anomaly 8	Plow Zone			Feature 8.1		
	Count	Percentage	1-Standard Error	Count	Percentage	1-Standard Error
Total Artifacts	***21***	***100%***	***N/A***	***51***	***100%***	***N/A***
Formal Tools	6	28%	+/- 9.8%	8	16%	+/- 5.1%
Debitage	10	48%	+/- 10.9%	0	0%	N/A
FCR Count	5	24%	+/- 9.3%	43	84%	+/- 5.1%
FCR Weight (grams)	317.7	N/A	N/A	10791.6	N/A	N/A
Unmodified Tool Stone	0	0%	N/A	0	0%	N/A
Total Tool Stone	***16***	***100%***	***N/A***	***8***	***100%***	***N/A***
Cedarville/Guelph	6	37%	+/- 12.1%	0	0%	N/A
Delaware	7	44%	+/- 12.4%	0	0%	N/A
Flint Ridge	1	6%	+/- 5.9%	0	0%	N/A
Ground Stone	0	0%	N/A	8	100%	N/A
Ten Mile Creek	2	13%	+/- 8.4%	0	0%	N/A

In terms of artifact type, the plow zone yielded lithic debitage (n=10, 48%; SE=10.9%), formal tools (n=6, 28%; SE=9.8%), and FCR (n=5, 24%; SE=9.3%) weighing a total of 0.7 lb (317.7 g). The lithic debitage category includes complex flakes (n=8, 80%; SE=12.7%) and shatter (n=2, 20%; SE=12.7%), as well as both utilized (n=3, 30%; SE=14.5%) and unutilized (n=7, 70%; SE=14.5%) debitage. The formal tools include cores (n=3, 50%; SE=20.4%), bifaces (n=2, 33%; SE=19.2%) and a scraper (n=1, 17%; SE=15.3%). In contrast, Feature 8.1 yielded both formal tools (n=8, 16%; SE=5.1%) and a much larger amount of FCR (n=43, 84%; SE=5.1%) weighing a total of 23.8 lbs (10,791.6 g), but no lithic debitage. In further contrast to the plow zone, Feature 8.1 yielded only ground stone tools, including hammers (n=3, 38%; SE=17.2%), anvils (n=2, 25%; SE=15.3%), abraders (n=2, 25%; SE=15.3%), and a mortar (n=1, 13%; SE=11.9%). No unmodified tool stone was recovered from either the plow zone or Feature 8.1.

In terms of the raw material composition present within the assemblages, the plow zone sample and Feature 8.1 differ once again. The plow zone assemblage contains a slight majority of local lithic types (including Delaware [n=7, 44%; SE=12.4%] and Ten Mile Creek [n=2, 13%; SE=8.4%]) as well as exotic lithic types from central Ohio (including Cedarville/Guelph [n=6, 37%; SE=12.1%], and Flint Ridge [n=1, 17%; SE=15.3%]). In contrast, all lithic artifacts recovered from Feature 8.1 were made of various ground stone varieties that can be found locally.

In summary, the plow zone assemblage from the Anomaly 8 test unit is varied in terms of both artifact types and raw material sources, while the assemblage from Feature 8.1 is dominated by ground stone tools and large pieces of FCR. Although Feature 8.1 was observed to have been truncated by plowing, this low degree of correlation suggests that the plow zone assemblage represents a different cultural deposit or different activity than

Feature 8.1, or perhaps a mixed deposit. One possibility is that Feature 8.2, a soil stain which was interpreted as a probable root cast, may actually have been a shallow pit or hearth feature that was mostly destroyed by plowing activity. Another possibility is that the plow zone assemblage was originally deposited as surface debris created by different (but possibly related) activities than those that resulted in the creation of Feature 8.1.

Anomaly 10
For the purposes of this analysis, the plow zone artifact assemblage from the Anomaly 10 test unit will be compared to Feature 10.1, a small pit feature of uncertain function dating to the Middle Woodland period. These two assemblages are chiefly different in that a much larger number of artifacts was recovered from the former than from the latter. This data is summarized in Table 5.4.

Table 5.4 Comparison of Plow Zone and Sub-Plow Zone Artifact Assemblages, Anomaly 10

Anomaly 10	**Plow Zone**			**Feature 10.1**		
	Count	**Percentage**	**1-Standard Error**	**Count**	**Percentage**	**1-Standard Error**
Total Artifacts	***31***	***100%***	***N/A***	***3***	***100%***	***N/A***
Formal Tools	6	19%	+/- 7.1%	1	33%	+/- 27.2%
Debitage	13	42%	+/- 8.9%	1	33%	+/- 27.2%
FCR Count	10	32%	+/- 8.4%	1	33%	+/- 27.2%
FCR Weight (grams)	305.2	N/A	N/A	24.2	N/A	N/A
Unmodified Tool Stone	2	6%	+/- 4.3%	0	0%	N/A
Total Tool Stone	***21***	***100%***	***N/A***	***2***	***100%***	***N/A***
Cedarville/Guelph	5	24%	+/- 9.3%	0	0%	N/A
Flint Ridge	5	24%	+/- 9.3%	0	0%	N/A
Four Mile Creek	2	10%	+/- 6.6%	0	0%	N/A
Ground Stone	0	0%	N/A	1	50%	+/- 35.4%
Silicified Sandstone	2	10%	+/- 6.6%	0	0%	N/A
Ten Mile Creek	6	29%	+/- 9.9%	1	50%	+/- 35.4%
Upper Mercer	1	5%	+/- 4.8%	0	0%	N/A

Cumulatively, the plow zone yielded a total of 31 artifacts, including formal tools (n=6; 19%), debitage (n=13; 42%), FCR (n=10; 32%) weighing a total of 0.7 lb (305.2 g), and unmodified tool stone packages (n=2; 6%). The category of formal tools includes a core (n=1, 17%; SE=15.3%), bifaces/biface fragments (n=4, 67%; SE=19.2%), and a scraper (n=1, 17%; SE=15.3%). The category of lithic debitage can be broken down along several lines. It includes simple flakes (n=3, 23%; SE=11.7%), complex flakes (n=3, 23%; SE=11.7%), and shatter (n=7, 54%; SE=13.8%). A majority of the debitage lacks evidence of heat treatment (n=8, 62%; SE=13.5%) while a minority exhibits evidence of heat alteration (n=5, 38%; SE=13.5%). In addition, a majority of the debitage does not show evidence of utilization (n=11, 85%; SE=9.9%) while a minority exhibits evidence of utilization (n=2, 15%; SE=9.9%).

In marked contrast to the plow zone, only three artifacts were recovered from Feature 10.1. However, the distribution of these objects among artifact categories was similar to the plow zone – this assemblage includes a formal tool (n=1; 33%), a piece of debitage (n=1; 33%), and a piece of FCR (n=1; 33%) weighing 0.05 lb (24.2 g). The single formal tool was a ground and chipped biface with a retouched utility edge, while the single piece of debitage was a utilized complex flake which did not exhibit evidence of heat treatment.

In contrast to artifact types, patterns of raw material utilization appear to differ between the plow zone and Feature 10.1 assemblages. The plow zone tool stone assemblage is characterized by a slight majority of exotic lithic types (n=13, 62%; including Cedarville/Guelph, Flint Ridge and Upper Mercer from central Ohio and Four Mile Creek from southwest Ohio) versus local lithic types (n=8; 38%; including silicified sandstone and Ten Mile Creek chert). When broken down by artifact type, however, a slightly different pattern emerges. Debitage from the plow zone is dominated by exotic lithic types (including Cedarville/Guelph [n=4, 31%; SE=12.8%], varieties of Flint Ridge [n=3, 23%; SE=11.7%], Four Mile Creek [n=1, 8%; SE=7.5%], and Upper Mercer [n=1, 8%; SE=7.5%]), with a much smaller percentage of local lithic types present (Ten Mile Creek [n=4, 31%; SE=12.8%]). Formal tools recovered from the plow zone are similarly dominated by exotic material varieties, including Cedarville/Guelph (n=1, 17%; SE=15.3%), Flint Ridge (n=2, 33%; SE=19.2%), and Four Mile Creek (n=1, 17%; SE=15.3%), with only half as many artifacts manufactured of local lithic types (Ten Mile Creek [n=2, 33%; SE=19.2%]). In contrast, both of the unmodified tool stone packages recovered from the plow zone (n=2) consist of locally available Silicified Sandstone.

Unlike the overall plow zone profile, but similar to the profile of unmodified tool stone recovered from the plow zone, the scant tool stone assemblage from Feature 10.1 consists entirely of locally available lithic materials. The single flake recovered from Feature 10.1 was made of Ten Mile Creek, while the single formal tool recovered from the feature is made of heat-altered ground stone (specifically, granite). No unmodified tool stone was recovered from the feature.

The meager amount of cultural material recovered from Feature 10.1 makes this assemblage difficult to compare to the associated plow zone assemblage. While a superficial difference is evident in the pattern of local versus exotic tool stone use between the two contexts, the large standard errors calculated for Feature 10.1 demonstrate that this difference is not a statistically confident difference. In sum, no significant differences exist between the plow zone and sub-plow zone assemblages. Given the evidence that Feature 10.1 was truncated and smeared by plowing activity, it seems likely that the plow zone assemblage from the Anomaly 10 test unit is directly related to Feature 10.1.

Anomaly 12

For the purposes of this analysis, the plow zone assemblage from the Anomaly 12 test unit will be compared to the combined assemblages from arbitrary Levels 3 and 4, which have been interpreted as a possible Late Archaic living surface. In contrast to the artifact assemblage from the other Late Archaic component identified at 33HY0167 (the Anomaly 5 test unit), the artifacts from the Anomaly 12 test unit do not exhibit a marked difference in patterns of both material form and material composition between the plow zone and sub-plow zone assemblages. This data is summarized in Table 5.5.

Cumulatively, the plow zone sample yielded a total of just 15 artifacts, including formal tools (n=4; 27%), debitage (n=4; 27%), FCR (n=6; 40%) weighing a total of 0.7 lb (321.8 g), and unmodified tool stone (n=1; 7%) weighing 0.01 lb (4 g). The formal tool category includes both chipped (n=3) and ground (n=1) stone tools, consisting of a core (n=1, 25%; SE=21.7%), a scraper (n=1, 25%; SE=21.7%), a burin or perforator (n=1, 25%; SE=21.7%), and a hammer (n=1, 25%; SE=21.7%). The lithic debitage group includes a simple flake (n=1, 25%; SE=21.7%), a complex flake (n=1, 25%; SE=21.7%), and shatter (n=2, 50%; SE=25.0%). One piece of debitage had evidence of utilization (n=1, 25%; SE=21.7%) while the others did not (n=3, 75%; SE=21.7%). Similarly, one of these pieces was heat treated (n=1, 25%; SE=21.7%) while the remainder do not show evidence of such (n=3, 75%; SE=21.7%).

Table 5.5 Comparison of Plow Zone and Sub-Plow Zone Artifact Assemblages, Anomaly 12

Anomaly 12	Plow Zone			Levels 3 and 4		
	Count	Percentage	1-Standard Error	Count	Percentage	1-Standard Error
Total Artifacts	***15***	***100%***	***N/A***	***161***	***100%***	***N/A***
Formal Tools	4	27%	+/- 11.5%	34	21%	+/- 3.2%
Debitage	4	27%	+/- 11.5%	59	37%	+/- 3.8%
FCR Count	6	40%	+/- 12.7%	55	34%	+/- 3.7%
FCR Weight (grams)	321.8	N/A	N/A	2700.8	N/A	N/A
Unmodified Tool Stone	1	6%	+/- 6.1%	13	8%	+/- 2.1%
Total Tool Stone	***9***	***100%***	***N/A***	***106***	***100%***	***N/A***
Attica/Indiana Green Stone	0	0%	N/A	1	1%	+/- 1.0%
Bayport	0	0%	N/A	7	6%	+/- 2.3%
Cedarville/Guelph	2	22%	+/- 13.8%	25	24%	+/- 4.2%
Flint Ridge	2	22%	+/- 13.8%	24	23%	+/- 4.1%
Ground Stone	1	11%	+/- 10.4%	2	2%	+/- 1.4%
Greywacke	1	11%	+/- 10.4%	1	1%	+/- 1.0%
Onondaga	0	0%	N/A	1	1%	+/- 1.0%
Pipe Creek	0	0%	N/A	4	4%	+/- 1.9%
Quartzite	1	11%	+/- 10.4%	3	3%	+/- 1.7%
Silicified Sandstone	0	0%	N/A	1	1%	+/- 1.0%
Ten Mile Creek	2	22%	+/- 13.8%	30	28%	+/- 4.4%
Upper Mercer	0	0%	N/A	7	6%	+/- 2.3%

Levels 3 and 4 yielded a much larger artifact assemblage than the plow zone sample from this test unit. The lower levels yielded a total of 161 lithic artifacts, including formal tools (n=34; 21%), debitage (n=59; 37%), FCR (n=55; 34%) weighing a total of 5.95 lbs (2700.8 g), and unmodified tool stone packages (n=13; 8%) weighing a total of 1.06 lbs (479.7 g). The debitage category includes simple flakes (n=8, 14%; SE=4.5%), complex flakes (n=14, 24%; SE=5.6%), a bipolar flake (n=1, 2%; SE=1.8%), and shatter (n=36, 61%; SE=6.4%). The category of formal tools primarily consists of chipped stone tools (n=32; 94%), although ground stone tools (n=2; 6%) are also present. Specific tool types include cores and core fragments (n=15, 44%; SE=8.5%), bifaces and biface fragments (n=13, 38%; SE=8.3%), scrapers (n=3, 9%; SE=4.9%), a burin or perforator (n=1, 3%; SE=2.9%), and abraders (n=2, 6%; SE=4.1%). The debitage assemblage includes both heat treated (n=23, 39%; SE=6.4%) and non-heat-treated (n=36, 61%; SE=6.4%) artifacts, as well as both utilized debitage (n=4, 7%; SE=3.3%) and debitage lacking evidence of use-wear (n=55, 93%; SE=3.3%). In addition to the artifacts just described, the lower levels of the unit also yielded shell and coral fossils (n=3; 0.04 lb [17.6 g]) that appear to have been removed from fossiliferous tool stone during the heat treatment process.

Multiple material varieties are represented within the plow zone assemblage. Approximately half of the artifacts are made of non-local material varieties (including Cedarville/Guelph [n=2; 22%], and Flint Ridge [n=2; 11%]), while the other half are made of locally available lithic types (including ground stone [n=1; 11%], Greywacke [n=1; 11%], Quartzite [n=1; 11%], and Ten Mile Creek [n=2; 22%]). Of the formal tools recovered from the plow zone (n=4), material varieties included Cedarville/Guelph (n=1, 25%; SE=21.7%), Flint Ridge (n=1, 25%; SE=21.7%), ground stone (n=1, 25%; SE=21.7%), and Quartzite (n=1, 25%; SE=21.7%). The plow zone debitage (n=4) included Flint Ridge (n=1, 25%; SE=21.7%), Greywacke (n=1, 25%; SE=21.7%), and Ten Mile Creek (n=2, 50%; SE=25.0%). The single piece of unmodified tool stone recovered from the plow zone is Cedarville/Guelph chert.

A similar diversity of raw material types (representing an even broader spectrum than above) is present in the tool stone assemblage from Levels 3 and 4. Not including FCR, a total of 106 lithic artifacts were recovered. Tool stone materials in this group of artifacts include one exotic variety from sources to the southwest of 33HY0167 (Attica/Indiana Green Stone [n=1; 1%]), one exotic variety from the north (Bayport [n=7; 6%]), two exotic varieties from the east (Pipe Creek [n=4; 4%] and Onondaga [n=1, 1%]), three varieties from the southeast (Cedarville/Guelph [n=25; 24%], Flint Ridge [n=24; 23%], and Upper Mercer [n=7; 6%]), and five locally available lithic types (ground stone [n=2; 2%], Greywacke [n=1; 1%], Quartzite [n=3; 3%], Silicified Sandstone [n=1; 1%], and Ten Mile Creek [n=30; 28%]).

Eight different raw materials are represented among the formal tools recovered from Levels 3 and 4 (n=34). These include Bayport (n=3, 9%; SE=4.9%), Cedarville/Guelph (n=10, 29%; SE=7.8%), Flint Ridge (n=12, 35%; SE=8.2%), varieties of ground stone (n=2, 6%; SE=4.1%), Onondaga (n=1, 3%; SE=2.9%), Quartzite (n=1, 3%; SE=2.9%), Ten Mile Creek (n=2, 6%; SE=4.1%), and Upper Mercer (n=3, 9%; SE=4.9%). A similar spectrum of raw material types can be seen among the debitage from Levels 3 and 4 (n=59), including Attica/Indiana Green Stone (n=1, 2%; SE=1.8%), Bayport (n=4, 7%; SE=3.3%), Cedarville/Guelph (n=14, 24%; SE=5.6%), Flint Ridge (n=12, 20%; SE=5.2%), Greywacke (n=1, 2%; SE=1.8%), Pipe Creek (n=4, 7%; SE=3.3%), Ten Mile Creek (n=19, 32%; SE=6.1%), and Upper Mercer (n=4, 7%; SE=3.3%). In contrast, the unmodified tool stone packages recovered from these levels (n=13) represent primarily local sources: Cedarville/Guelph (n=2, 15%; SE=9.9%), Quartzite (n=2, 15%; SE=9.9%), silicified sandstone (n=1, 8%; SE=7.5%), and Ten Mile Creek (n=8, 62%; SE=13.5%).

In summary, the plow zone and sub-plow zone artifact assemblages from the Anomaly 12 test unit exhibit some minor variations but an overall similarity of patterning. The largest difference between the Anomaly 12 plow zone and sub-plow zone assemblages is the total number of artifacts from each provenience. This is likely due in part to the difference in volume of soil screened: approximately 0.2 cubic meter of plow zone soil was screened, whereas nearly twice as much (approximately 0.35 cubic meter of soil) from Levels 3 and 4 was screened. The limited assemblage size from the plow zone makes for a large margin of error in terms of artifact type and material variety frequencies. Nevertheless, it is striking that all of the differences in percentages of artifact types between these two proveniences exhibit overlapping 1-standard error ranges. Even the average FCR weight is similar (0.12 lb [53.6 g] per artifact for the plow zone, and 0.11 lb [49.1 g] for Levels 3 and 4). Similarly, it can be observed that the tool stone artifacts recovered from the plow zone are approximately evenly divided between local and non-local lithic varieties whereas the lower levels exhibit a split of approximately one-third local lithic varieties and two-thirds exotic varieties, but the percentages of individual tool stone varieties between the two proveniences once again exhibit overlapping 1-standard error ranges.

These results are somewhat unexpected given the 3.9-in (10-cm) thick layer of sterile soil that separated the plow zone from Levels 3 and 4 in this test unit. It is possible that the plow zone and sub-plow zone assemblages represent separate occupations that just coincidentally exhibit similar patterning, for instance separate Late Archaic occupations that occurred before and after a flood episode that resulted in the deposition of a layer of sterile soil.

Anomaly 14

For the purposes of this analysis, artifacts recovered from both the plow zone and Level 2 within the Anomaly 14 test unit have been combined, since Level 2 has been interpreted as either a bioturbated transition zone between the plow zone and the BE horizon, or possibly an older and slightly deeper plow zone. These combined levels will be compared to the assemblage recovered from Feature 14.1, a pit feature of unknown function dating to the Terminal Late Woodland/Late Prehistoric transition. While some minor differences are apparent, the extremely small artifact assemblage recovered from Feature 14.1 makes meaningful comparison difficult. This data is summarized in Table 5.6.

Table 5.6 Comparison of Plow Zone and Sub-Plow Zone Artifact Assemblages, Anomaly 14

Anomaly 14	Plow Zone and Level 2			Feature 14.1		
	Count	Percentage	1-Standard Error	Count	Percentage	1-Standard Error
Total Artifacts	***47***	***100%***	***N/A***	***5***	***100%***	***N/A***
Formal Tools	8	17%	+/- 5.5%	3	60%	+/- 21.9%
Debitage	36	77%	+/- 6.1%	0	0%	N/A
FCR Count	2	4%	+/- 2.9%	2	40%	+/- 21.9%
FCR Weight (grams)	3.5	N/A	N/A	131.9	N/A	N/A
Unmodified Tool Stone	1	2%	+/- 2.0%	0	0%	N/A
Total Tool Stone	***45***	***100%***	***N/A***	***3***	***100%***	***N/A***
Bayport	6	13%	+/- 5.0%	0	0%	N/A
Cedarville/Guelph	6	13%	+/- 5.0%	1	33%	+/- 27.2%
Flint Ridge	5	11%	+/- 4.7%	0	0%	N/A
Four Mile Creek	4	9%	+/- 4.3%	0	0%	N/A
Kenneth	3	7%	+/- 3.8%	0	0%	N/A
Onondaga	1	2.5%	+/- 2.3%	0	0%	N/A
Pipe Creek	4	9%	+/- 4.3%	0	0%	N/A
Ten Mile Creek	6	13%	+/- 5.0%	2	67%	+/- 27.2%
Unidentified Tool Stone	1	2.5%	+/- 2.3%	0	0%	N/A
Upper Mercer	9	20%	+/- 6.0%	0	0%	N/A

Cumulatively the plow zone and Level 2 yielded 47 artifacts, including formal tools (n=8; 17%), debitage (n=36; 77%), FCR (n=2; 4%) weighing a total of 0.01 lb (3.5 g), and packages of unmodified tool stone (n=1; 2%) weighing 0.04 lb (20.4 g). Artifacts within the category of formal tools include cores/core fragments (n=2, 25%; SE=15.3%), bifaces/biface fragments (n=2, 25%; SE=15.3%), a uniface fragment (n=1, 13%; SE=11.9%), and scrapers (n=3, 38%; SE=17.2%). Artifacts within the debitage category can further be classified as simple flakes (n=4, 11%; SE=5.2%), complex flakes (n=14, 39%; SE=4.0%), and shatter (n=18, 50%; SE=8.3%). Both heat treated (n=4, 11%; SE=5.2%) and untreated (n=32, 89%; SE=5.2%) as well as both utilized (n=8, 22%; SE=6.9%) and non-utilized debitage (n=28, 78%; SE=6.9%) are present.

Just five artifacts were recovered from Feature 14.1, including formal tools (n=3; 60%) and FCR (n=2; 40%) weighing a total of 0.29 lb (131.9 g). Within the category of formal tools are cores/core fragments (n=2, 67%; SE=27.2%) and a biface (n=1, 33%; SE=27.2%). While no debitage or unmodified tool stone packages were recovered from this feature, the extremely limited artifact count makes it impossible to state with statistical confidence that the difference in variety of artifact types between the plow zone/Level 2 assemblage and the Feature 14.1 assemblage is not due to random variation.

In terms of material composition, the plow zone/Level 2 assemblage represents a much more diverse group of tool stone materials than Feature 14.1. The plow zone and Level 2 yielded a total of 45 tool stone artifacts. A large percentage of this sub-assemblage consists of exotic material types, including lithic varieties from source locations to the north of 33HY0167 (Bayport [n=6; 13%]), to the east (Onondaga [n=1; 2.5%] and Pipe Creek [n=4; 9%]), to the southeast (Cedarville/Guelph [n=6; 13%], Flint Ridge [n=5; 11%], and Upper Mercer [n=9; 20%]), and to the southwest (Four Mile Creek [n=4; 9%] and Kenneth [n=3; 7%]). The remaining quarter of the sub-assemblage consists of locally available lithic varieties: Ten Mile Creek (n=6; 13%), and an unidentified tool stone (n=1; 2.5%) (presumed to be a local pebble chert).

Within artifact types recovered from the plow zone and Level 2, a similar distribution of raw material varieties can be observed. The debitage category (n=36) exhibits multiple material varieties both local and exotic, including Bayport (n=6, 17%; SE=6.3%), Cedarville/Guelph (n=4, 11%; SE=5.2%), Flint Ridge (n=3, 8%; SE=4.5%), Four Mile Creek (n=3, 8%; SE=4.5%), Kenneth (n=3, 8%; SE=4.5%), Pipe Creek (n=2, 6%; SE=4.0%), Ten Mile Creek (n=5, 14%; SE=5.8%), unidentified tool stone material (n=1, 3%; SE=2.8%), and Upper Mercer (n=9, 25%; SE=7.2%). Tools recovered from these levels (n=8) are made of materials that include Cedarville/Guelph (n=2, 25%; SE=15.3%), Flint Ridge (n=2, 25%; SE=15.3%), Four Mile Creek (n=1, 13%; SE=11.9%), Onondaga (n=1, 13%; SE=11.9%), Pipe Creek (n=1, 13%; SE=11.9%) and Ten Mile Creek (n=1, 13%; SE=11.9%). The only unmodified tool stone package recovered from the plow zone is a piece of Pipe Creek chert.

Just three tool-stone artifacts, all of them classified as formal tools, were recovered from Feature 14.1. These are divided among an exotic chert type (Cedarville/Guelph [n=1, 33%; SE=27.2%]) and a local chert type (Ten Mile Creek (n=2, 67%; SE=27.2%).

In sum, the extremely small artifact assemblage from Feature 14.1 makes statistically confident comparison between this context and the plow zone/Level 2 assemblage above it difficult. Both assemblages contained formal tools and FCR, but the plow zone/Level 2 assemblage also contains a significant amount of lithic debitage. Furthermore, the formal tools recovered from Feature 14.1 represent just two sub-categories (cores and bifaces), whereas the formal tool assemblage from the plow zone and Level 2 includes four sub-categories (cores, bifaces, unifaces, and scrapers). Apart from these relatively minor differences, no significant conclusions can be drawn about the degree of similarity between the two contexts. It is worth noting that Feature 14.1 exhibited no evidence of disturbance from plowing activity. However, it is possible that the plow zone/Level 2 assemblage represents activity associated with the use of Feature 14.1.

Anomaly 16

For the purposes of this analysis, the plow zone artifact assemblage from the Anomaly 16 test unit will be compared to the assemblage recovered from Feature 16.1, which has been interpreted as a possible hearth for the heat-treatment of lithic raw materials during the stone tool production process and dates to the Middle/Late Woodland transition period. While some minor differences are apparent, overall the plow zone and feature assemblages from this test unit exhibit very similar patterning. This data is summarized in Table 5.7.

The plow zone yielded a total of 120 artifacts, including formal tools (n=19; 16%), debitage (n=58; 48%), and FCR (n=43; 36%) weighing a total of 2.94 lbs (1,333.5 g). No unmodified tool stone packages were recovered from the plow zone. The category of formal tools includes bifaces/biface fragments (n=10, 56%; SE=11.7%), a uniface (n=1, 6%; SE=5.6%), scrapers (n=5, 28%; SE=10.6%), a drill (n=1, 6%; SE=5.6%), and a burin or perforator (n=1, 6%; SE=5.6%). The debitage category includes simple flakes (n=6, 10%; SE=3.9%), complex flakes (n=27, 47%; SE=6.6%), and shatter (n=25, 43%; SE=6.5%). Of these pieces of debitage, there are heat treated (n=4, 7%; SE=3.4%) and non-treated specimens (n=54, 93%; SE=3.4%) as well as utilized (n=14, 24%; SE=5.6%) and non-utilized debitage (n=44, 76%; SE=5.6%).

Table 5.7 Comparison of Plow Zone and Sub-Plow Zone Artifact Assemblages, Anomaly 16

Anomaly 16	Plow Zone			Feature 16.1		
	Count	Percentage	1-Standard Error	Count	Percentage	1-Standard Error
Total Artifacts	***120***	***100%***	***N/A***	***42***	***100%***	***N/A***
Formal Tools	19	16%	+/- 3.4%	4	10%	+/- 4.6%
Debitage	58	48%	+/- 4.6%	13	31%	+/- 7.1%
FCR Count	43	36%	+/- 4.4%	25	59%	+/- 7.6%
FCR Weight (grams)	1,333.5	N/A	N/A	18,582.6	N/A	N/A
Unmodified Tool Stone	0	0%	N/A	0	0%	N/A
Total Tool Stone	***77***	***100%***	***N/A***	***17***	***100%***	***N/A***
Cedarville/Guelph	37	48%	+/- 5.7%	8	47%	+/- 12.1%
Flint Ridge	16	21%	+/- 4.6%	2	12%	+/- 7.9%
Greywacke	0	0%	N/A	1	6%	+/- 5.8%
Ground Stone	1	1%	+/- 1.1%	0	0%	N/A
Kenneth	1	1%	+/- 1.1%	0	0%	N/A
Pipe Creek	2	3%	+/- 1.9%	0	0%	N/A
Quartzite	1	1%	+/- 1.1%	0	0%	N/A
Silicified Sandstone	1	1%	+/- 1.1%	0	0%	N/A
Ten Mile Creek	6	8%	+/- 3.1%	1	6%	+/- 5.8%
Unidentified Tool Stone	2	3%	+/- 1.9%	0	0%	N/A
Upper Mercer	10	13%	+/- 3.8%	5	29%	+/- 11.0%

The artifact assemblage from Feature 16.1 exhibits similar patterning in the types of artifacts present. A total of 42 artifacts were recovered, among which are formal tools (n=4; 10%), debitage (n=13; 31%), and FCR (n=25; 59%) weighing a total of 40.97 lbs (18,582.6 g). The formal tools include a core (n=1, 25%; SE=21.7%), a biface (n=1, 25%; SE=21.7%), and burins or perforators (n=2, 50%; SE=25.0%). The debitage recovered from Feature 16.1 includes simple flakes (n=2, 15%; SE=9.9%), complex flakes (n=6, 46%; SE=13.8%), and shatter (n=5, 38%; SE=13.5%). Among these pieces of debitage are both heat treated (n=3, 23%; SE=11.7%) and non-treated (n=10, 77%; SE=11.7%) specimens, as well as both utilized (n=3, 23%; SE=11.7%) and non-utilized debitage (n=10, 77%; SE=11.7%). No unmodified tool stone packages were recovered from Feature 16.1. Unlike the plow zone, however, the feature did contain two coral fossils weighing a total of 0.05 lb (21.7g). As discussed in Section 4.3.7.1, it appears that these coral fossils may be the by-product of heat treatment during the tool production process.

Similar to the patterning amongst artifact types, the Anomaly 16 plow zone and Feature 16.1 exhibit similar patterning in tool stone varieties. The plow zone yielded a total of 77 tool stone artifacts, a majority of which (n=66; 86%) are exotic varieties from source locations to the southwest of Henry County (Kenneth [n=1; 1%]), to the southeast (including Cedarville/Guelph [n=37; 48%], Flint Ridge [n=16; 21%], and Upper Mercer [n=10; 13%]), and to the east (Pipe Creek [n=2; 3%]). The remainder of the tool stone assemblage is made of locally available lithic varieties, including Silicified Sandstone (n=1; 1%), Ten Mile Creek (n=6; 8%), and an unidentified tool stone (n=2; 3%) that is assumed to be a local pebble chert. Within the category of formal tools recovered from the plow zone (n=19), raw materials are similarly dominated by exotic varieties (Cedarville/Guelph [n=9, 47%; SE=11.5%], Flint Ridge [n=2, 11%; SE=7.2%], Pipe Creek [n=1, 5%; SE=5.0%], and Upper Mercer [n=2, 11%; SE=7.2%]), with a minority of local varieties (Conglomerate [n=1, 5%; SE=5.0%], Ground Stone [n=1, 5%; SE=5.0%], and Ten Mile Creek [n=3, 16%; SE=8.4%]). The debitage from the plow zone (n=56) exhibits similar patterning: Cedarville/Guelph (n=28, 50%; SE=6.7%), Flint Ridge (n=14, 25%; SE=5.8%), Kenneth (n=1, 2%; SE=1.9%) Pipe Creek (n=1, 2%; SE=1.9%), Ten Mile Creek (n=3, 5%; SE=2.9%), unidentified tool stone (n=1, 2%; SE=1.9%), and Upper Mercer (n=8, 14%; SE=4.6%). The two unmodified tool stone packages recovered from the plow zone in the Anomaly 16 test unit include only locally available varieties: Silicified Sandstone (n=1, 50%; SE=35.4%) and Ten Mile Creek (n=1, 50%; SE=35.4%).

Although much smaller than the plow zone assemblage in terms of artifact count and slightly less diverse in the total number of lithic varieties represented, the tool stone assemblage recovered from Feature 16.1 (n=17) is similarly dominated by exotic lithic varieties, all from source locations to the southeast of Henry County: Cedarville/Guelph (n=8; 47%), Flint Ridge (n=2; 12%), and Upper Mercer (n=5; 29%). Local varieties present include Greywacke (n=1; 6%) and Ten Mile Creek (n=1; 6%). Amongst the formal tools recovered from Feature 16.1 (n=4), material types present are Cedarville/Guelph (n=3, 75%; SE=21.7%) and Upper Mercer (n=1, 25%; SE=21.7%). Debitage from Feature 16.1 (n=13) includes Cedarville/Guelph (n=5, 38%; SE=13.5%), Flint Ridge (n=2, 15%; SE=9.9%), Greywacke (n=1, 2%; SE= 1.9%), Ten Mile Creek (n=1, 2%; SE=1.9%), and Upper Mercer (n=4, 31%; SE=12.8%). No unmodified tool stone was recovered from the feature.

In sum, the artifact assemblages from the Anomaly 16 plow zone and Feature 16.1 exhibit similar distributions among both artifact types and raw material varieties. This indicates that the plow zone assemblage is likely directly related to the feature assemblage. While a much larger weight of FCR was recovered from the feature context, this is explained by the recovery of a single large rock cataloged as FCR that weighed 40.5 lbs (18,370.5 g). In terms of raw tool stone varieties, both the plow zone and the feature assemblages are dominated by exotic varieties (and more specifically lithic types from source locations in central Ohio), with much smaller percentages of locally available tool stone varieties present.

There is a small but statistically valid difference in the relative percentages of lithic debitage and FCR between the two proveniences – the plow zone yielded relatively more debitage and relatively less FCR (by count) than the feature. This difference makes logical sense, however – FCR is more likely to have been intentionally deposited within a heat-treatment hearth, whereas lithic debitage would have been deposited on the ground surface outside the hearth during the reduction process.

Anomaly 17

For the purposes of this analysis, the plow zone assemblage from the Anomaly 17 test unit will be compared to the combined assemblages from Level 2 and Feature 17.1. This was done since most, if not all, of the artifacts recovered during excavation of Level 2 appear to have been associated with Feature 17.1. This feature may represent a living surface or perhaps the scattered remains of a hearth from an unknown time during prehistory (see Section 4.3.9.1). (Prehistoric artifacts recovered from Feature 17.2 were excluded from the analysis since this feature represents a disturbed context, and the artifacts recovered from it cannot be confidently associated with either the plow zone or Level 2/Feature 17.1 assemblages.) Similar to the assemblages from the Anomaly 14 and Anomaly 16 test units, the Anomaly 17 assemblages exhibit very similar patterning. This data is summarized in Table 5.8.

In total, the plow zone assemblage from the Anomaly 17 test unit yielded 36 artifacts, including formal tools (n=6; 17%), debitage (n=22; 61%), FCR (n=5; 14%) weighing a total of 0.11 lb (49.8 g), and unmodified tool stone packages (n=3; 8%) weighing a total of 0.06 lb (28.1 g). The category of formal tools includes only chipped stone tools: cores/core fragments (n=4, 67%; SE=19.2%), a biface (n=1, 17%; SE=15.3%), and a uniface (n=1; 17%; SE=15.3%). The lithic debitage sub-assemblage includes simple flakes (n=2, 9%; SE=6.1%), complex flakes (n=5, 23%; SE=3.8%), and shatter (n=15, 68%; SE=10.0%). These pieces of debitage can also be divided among heat treated specimens (n=3, 14%; SE=7.4%) and non-heat treated specimens (n=19, 86%; SE=7.4%), as well as between utilized (n=1, 5%; SE=4.7%) and unutilized (n=21, 95%; SE=4.7%) flakes.

Table 5.8 Comparison of Plow Zone and Sub-Plow Zone Artifact Assemblages, Anomaly 17

Anomaly 17	Plow Zone			Level 2 and Feature 17.1		
	Count	Percentage	1-Standard Error	Count	Percentage	1-Standard Error
Total Artifacts	***36***	***100%***	***N/A***	***87***	***100%***	***N/A***
Formal Tools	6	17%	+/- 6.3%	15	17%	+/- 4.0%
Debitage	22	61%	+/- 8.1%	59	68%	+/- 5.0%
FCR Count	5	14%	+/- 5.8%	13	15%	+/- 3.8%
FCR Weight (grams)	49.8	N/A	N/A	9.0	N/A	N/A
Unmodified Tool Stone	3	8%	+/- 4.5%	0	0%	N/A
Total Tool Stone	***31***	***100%***	***N/A***	***74***	***100%***	***N/A***
Bayport	0	0%	N/A	1	1%	+/- 1.2%
Cedarville/Guelph	10	32%	+/- 8.4%	25	34%	+/- 5.5%
Flint Ridge	5	16%	+/- 6.6%	26	35%	+/- 5.5%
Greywacke	1	3%	+/- 3.1%	0	0%	N/A
Pipe Creek	2	7%	+/- 4.6%	5	7%	+/- 3.0%
Silicified Sandstone	0	0%	N/A	1	1%	+/- 1.2%
Ten Mile Creek	10	32%	+/- 8.4%	16	22%	+/- 4.8%
Upper Mercer	3	10%	+/- 5.4%	0	0%	N/A

A total of 87 artifacts were recovered from Level 2 and Feature 17.1, including formal tools (n=15; 17%), debitage (n=59; 68%), and FCR (n=13; 15%) weighing a total of 0.02 lb (9.0 g). No unmodified tool stone packages were recovered from these proveniences. All of the formal tools were made of chipped stone and include cores/core fragments (n=6, 40%; SE=12.7%), bifaces/biface fragments (n=4, 27%; SE=11.5%), unifaces/uniface fragments (n=2, 13%; SE=8.7%), scrapers (n=2, 13%; SE=8.7%), and a burin or perforator (n=1, 7%; SE=6.6%). Debitage from these proveniences included simple flakes (n=7, 12%; SE=4.2%), complex flakes (n=10, 17%; SE=4.9%), a bipolar flake (n=1, 2%; SE=1.8%), and a large amount of shatter (n=41, 69%; SE=6.0%). Among the debitage artifacts are both heat treated debitage (n=10, 17%; SE=4.9%) and non-heat treated debitage (n=49, 83%; SE=4.9%), as well as both utilized debitage (n=4, 7%; SE=3.3%) and unutilized debitage (n=55, 93%; SE=3.3%).

In terms of tool stone artifacts, the plow zone assemblage contains 31 artifacts of various materials, including exotic lithic varieties from source locations to the southeast of Henry County (including Cedarville/Guelph [n=10; 32%], Flint Ridge [n=5; 16%], and Upper Mercer [n=3; 10%]), one variety from a source location to the east (Pipe Creek [n=2; 7%]), and locally available lithic types (including Greywacke [n=1; 3%] and Ten Mile Creek [n=10; 32%]). When considering only formal tools (n=6), this artifact class includes objects made of Cedarville/Guelph (n=1, 17%; SE=15.3%), Flint Ridge (n=1, 17%; SE=15.3%), Ten Mile Creek (n=3, 50%; SE=20.4%), and Upper Mercer (n=1, 17%; SE=15.3%). Lithic debitage recovered from the Anomaly 17 plow zone (n=22) exhibits a higher proportion of exotic lithic varieties (Cedarville/Guelph [n=7, 32%; SE=10.0%], Flint Ridge [n=3, 14%; SE=7.4%], Pipe Creek [n=2, 9%; SE=6.1%], and Upper Mercer [n=2, 9%; SE=6.1%]) than locally available tool stone materials (Greywacke [n=1, 5%; SE=4.7%] and Ten Mile Creek [n=7, 32%; SE=10.0%]). The unmodified tool stone packages recovered from the plow zone (n=3) include Cedarville/Guelph (n=2, 67%; SE=27.2%) and Flint Ridge (n=1, 17%; SE=27.2%).

A total of 74 tool stone artifacts were recovered from Level 2 and Feature 17.1. These include lithic varieties from source locations to the north (Bayport [n=1, 1%]), to the east (Pipe Creek [n=5; 7%]), and to the southeast (Cedarville/Guelph [n=25; 34%], Flint Ridge [n=26; 35%]) of Henry County, as well as locally available materials (Silicified Sandstone [n=1; 1%], and Ten Mile Creek [n=16; 22%]). Formal tools recovered from these proveniences (n=15) exhibit a similar predominance of exotic cherts (including Cedarville/Guelph [n=8, 53%; SE=12.9%], Flint Ridge [n=4, 27%; SE=11.5%], and Pipe Creek [n=1, 7%; SE=6.6%]) along with a smaller percentage of locally available materials (Ten Mile Creek [n=2, 13%; SE=8.7%]). The sub-assemblage of debitage (n=59) is similarly predominated by exotic materials (including Bayport [n=1, 2%; SE=1.8%], Cedarville/Guelph [n=17, 29%; SE=5.9%], Flint Ridge [n=22, 37%; SE=6.3%], and Pipe Creek [n=4, 7%; SE=3.3%]), with locally available varieties present in smaller amounts (including Silicified Sandstone [n=1, 2%; SE=1.8%] and Ten Mile Creek [n=14, 24%; SE=5.6%]). No unmodified pieces of tool stone were recovered from Level 2 or Feature 17.1.

Overall, the plow zone artifact assemblage and the combined assemblage from Level 2 and Feature 17.1 are strikingly similar, suggesting that a high likelihood that they are directly related. Both assemblages lack ground stone tools and exhibit similar proportions of cores, bifaces and unifaces; simple and complex flakes; heat-treated and non-heat-treated debitage; and utilized and non-utilized debitage. Given the small number of unifaces present across the New Maumee River Crossing Project Area, it is notable that both the Anomaly 17 plow zone assemblage and the aggregated Level 2/Feature 17.1 assemblage contain such specimens. The only minor difference between the two proveniences in terms of tool forms is the presence of scrapers and a burin (or perforator) in the Level 2/Feature 17.1 assemblage and the lack of such artifacts in the plow zone assemblage. The low numbers of these artifact types, however, suggest that this difference is likely well within the range of statistical variability.

The tool stone assemblage from the Anomaly 17 plow zone and the tool stone assemblage from Level 2/Feature 17.1 also exhibit similar patterning. The overall tool stone assemblages are dominated by exotic lithic varieties (approximately two-thirds of the plow zone assemblage and approximately three-quarters of the Level 2/Feature 17.1 assemblage), primarily from central Ohio sources to the southeast of Henry County; and the lower proportions of locally available lithic varieties are dominated by Ten Mile Creek chert.

5.1.2.3 Summary

The foregoing analyses of specific test units reveal some interesting patterns related to cultural deposition and post-depositional site formation processes. The only test units that revealed statistically confident differences between plow zone and sub-plow zone assemblages were Anomalies 5 and 8, indicating that multiple occupations may be represented in these test units. This explanation makes some sense for Anomaly 5 in that approximately 2.0 in (5.0 cm) of nearly sterile soil separated the plow zone from the Level 2 artifact deposit, another indicator that the assemblage may represent temporally distinct deposits of cultural material. However, there was no stratigraphic separation between the plow zone and the top of Feature 8.1. One possibility is that the artifacts recovered from the Anomaly 8 plow zone were originally deposited on the ground surface around the feature, possibly as a result of activities related to the feature.

In contrast, no statistically significant differences could be observed between the plow zone and sub-plow zone assemblages from the test units associated with Anomalies 10, 12, 14, 16 and 17. This was not a surprise for Anomalies 10 and 16, as evidence of significant feature truncation and smearing as a result of plowing activities was observed in these units. Furthermore, while such disturbance was not visible in the Anomaly 14 or 17 test units, there was no stratigraphic separation between the plow zone and sub-plow zone contexts in these units. The outlier here is the Anomaly 12 test unit which, like Anomaly 5, exhibited a layer of sterile soil 3.9 in (10.0 cm) thick that separated the plow zone and the cultural deposit that began in Level 3. It is unclear at this time what the cause of this unexpected result might be.

Finally, it is important to note that these analyses were complicated in several instances (Anomalies 10, 14 and 16) by extremely limited sample sizes from the sub-plow zone contexts. Similar to the interpretation of the Anomaly 8 test unit, however, the noticeable differences in sample size between the plow zone and sub-plow zone assemblages in these units may indicate that the plow zone assemblages represent material that was originally deposited on the ground surface outside of the associated features, perhaps representing different points along the spectrum of stone tool production tasks.

5.2 Intra-site Patterning at 33HY0167

One of the most important research questions for any Phase II evaluative testing program is whether an archaeological site exhibits internal structure, usually in the form of spatial patterning. Having already established in the previous section that post-depositional disturbances at the site have been relatively minimal, it can be assumed that the current spatial distribution of artifacts, features and other types of archaeological deposits across the site constitute a fair representation of the distribution of prehistoric cultural activity across the site. The question of spatial patterning within 33HY0167 can be examined in reference to both spatial patterning of artifact classes within the plow zone and the distribution of intact, sub-plow zone cultural deposits.

It should be noted at the outset of this discussion that this particular analysis is limited by the fact that systematic investigation of 33HY0167 has only been conducted within the project boundaries of the New Maumee River Crossing project. As discussed in Section 1 of this report, the Phase I investigation demonstrated a continuous surface distribution of artifacts between the New Maumee River Crossing Project Area and the originally recorded extent of 33HY0167. In addition, the location of cultural features along the eastern edge of the current project area strongly indicates the continuation of the site outside of the project area. Therefore, the following analysis of intra-site patterning at the Ritter No. 1 site represents an incomplete picture of overall site organization.

5.2.1 Analysis of the Surface Collected Assemblage from 33HY0167

This section discusses the spatial patterning of the artifact assemblage resulting from surface collection activities at 33HY0167. This assemblage includes artifacts that were collected during systematic pedestrian surface survey along transects spaced at 33-ft (10-m) intervals during the Phase I survey,[1] as well as artifacts that were collected during the timed, controlled surface survey of 16.4 x 16.4 ft (5 x 5 m) blocks during the Phase II investigation. In order to standardize the Phase I and Phase II datasets, all artifacts collected from the surface during the Phase I survey were assigned Phase II surface survey block proveniences based on their recorded UTM coordinates. Artifacts collected from screened plow zone samples during manual excavation of selected anomalies are not included in this discussion, as the difference in sampling methodologies makes the two types of assemblages (surface vs. sub-surface) statistically incomparable.

A variety of artifact attributes were examined for this analysis. The relative density (by count) of all artifacts, of formal stone tools, of lithic debitage, and of FCR within surface survey blocks were examined (see Figures 4.1-4.4). In addition, simple presence/absence mapping was used to examine the general spatial distributions and co-occurrence (or lack thereof) of categories of lithic tool stone varieties (with reference to the geographic categories depicted in Figure 5.1), lithic artifact forms (formal tools, expedient tools, lithic debitage, and FCR), and lithic debitage types (simple flakes, complex flakes, bipolar flakes, and shatter) (Figures 5.2-5.4).

5.2.1.1 Density and Distribution of Artifact Classes across the Project Area

In Figure 4.1 it can be seen that total artifact density, which includes all forms of debitage, formal tools, FCR, and unmodified tool stone packages, varies across the site. Although the general distribution covers nearly all of the project area, the southern third of the site (south of the N935 grid line) exhibits the lowest artifact density and the northern third of the site (north of the N965 grid line) exhibits the highest density. In terms of individual survey blocks with high artifact counts (i.e., five or more artifacts), two general clusters can be identified: one located between the E965-E970 grid lines from N915-N945 (in the southwestern quarter of the site), and a larger, more diffuse cluster located between the E950-E1000 grid lines from N970-N995 (the northern third of the site).

Two observations can be made about these distribution patterns. First, the location of the area of highest artifact density in the northern third of the site is in contrast to the area of highest density for subsurface magnetic anomalies, which generally falls between the N945 and N975 grid lines (corresponding to the western end of the natural levee on which 33HY0167 was originally recorded). Two possible explanations can be offered for this discrepancy: it could be due to post-depositional northward movement of artifacts within the plow zone (either due to plowing activity or downslope erosion toward the river), or it could reflect an area of cultural activity that resulted only in surface or near-surface artifact

[1] Artifacts from the Phase I surface collection utilized in this analysis were limited to those collected within the New Maumee River Crossing Project Area. Artifacts collected from surface contexts outside of the project area boundaries were excluded since the differing intensity of survey in these areas would skew the results of the analysis.

deposits and an absence of subsurface feature contexts (i.e., an outdoor activity area or living surface) – or perhaps feature types that do not have a magnetic signature. The second observation is similar in that the small cluster of individual high-density survey blocks in the southwestern quarter of the project area is not associated with any subsurface magnetic anomalies. Again, two possible explanations are post-depositional displacement (most likely due to plowing activity, given the linear distribution of this cluster) or cultural activity resulting only in surface or near-surface artifact deposition and the absence of feature contexts.

Similar to the total artifact count per survey block, three differing zones of formal tool density can be observed: a low-density zone south of the N930 grid line, a moderate-density zone between the N930-N965 grid lines, and a high-density zone north of the N965 grid line (see Figure 4.2). Again, however, even within the lowest-density zone, a cluster of survey blocks that yielded two formal tools each can be observed between the E960-E975 grid lines and the N905-N925 grid lines. Furthermore, in general the tools recovered from the low-density zone are clustered in the center of the southern third of the project area. This distribution, which spans several survey blocks east-west, would seem to be evidence against the possibility that this patterning is solely the result of plow disturbance.

The density of lithic debitage across the site once again demonstrates a tri-partite distribution, with the lowest-density zone (in which no debitage was collected) located south of the N915 grid line, a moderate-density zone between the N915-N955 grid lines, and the highest-density zone located to the north of the N955 grid line (see Figure 4.3). Within the moderate-density zone, one particular cluster can be observed between the E960-E975 grid lines and the N915-N950 grid lines. In the high-density zone for lithic debitage, individual survey blocks with the highest counts (i.e., three or more pieces of debitage) appear to be scattered around an axis running slightly northeast-southwest throughout this zone.

Figure 4.4 demonstrates the relative density of FCR across the project area. Unlike total artifact count, formal tools, and lithic debitage, the distribution of FCR appears to be divided into just two basic zones: a low-density zone south of the N960 grid line and a high-density zone north of this grid line. Furthermore, almost no FCR was recovered east of the E980 grid line in the low-density zone, and no FCR was recovered east of the E990 grid line in the high-density zone (although nearly every survey block along the E985 grid line in this zone yielded FCR). Within the low-density zone, the survey blocks that yielded FCR do appear to be clustered in four groups, and three blocks that yielded five pieces of FCR each are all arrayed along the E965 grid line. Interestingly, FCR density appears to demonstrate the least amount of spatial correlation with identified magnetic anomalies. Assuming that these anomalies represent cultural activity, this is a surprising finding given the documented high level of correlation between surface-collected FCR and subsurface feature contexts on prehistoric sites in Ohio (Pecora 2014).

In summary, there appears to be a general pattern of spatial distribution consisting of a high-density zone in the northern third of the project area, a moderate-density zone in the middle third of the project area, and a low-density zone within the southern third of the project area. Even within the low-density zone, a general area of higher density can be identified in the west-central portion of this zone. The overall spatial patterning contrasts with the clustering of the majority of identified magnetic anomalies within the middle third of the project area, at the western end of a natural levee. Two possible explanations for this discrepancy are that areas of higher density outside the moderate-density zone are the result of either post-depositional disturbance (e.g., plowing activity or downslope erosion) or of cultural activity that resulted only in surface or near-surface artifact deposits and an absence of subsurface feature contexts (or the presence of only features that lack a distinctive magnetic signature).

5.2.1.2 Distribution and Co-occurrence of Selected Artifact Attributes across the Project Area

Lithic Tool Stone Varieties

For the purpose of this analysis, lithic tool stone materials were first divided among locally available material varieties (including Delaware and Ten Mile Creek cherts, greywacke, ground stone varieties [granite, rhyolite, etc.], quartzite, silicified sandstone, and unidentified tool stone [assumed to be local pebble cherts]) and exotic material varieties (including Attica/Indiana Green Stone, Bayport, Cedarville/Guelph, Flint Ridge varieties, Four Mile Creek, Kenneth, Onondaga, Pipe Creek, and Upper Mercer varieties). Exotic varieties were then further divided among categories based on the geographic direction of source locations from 33HY0167 (see Figure 5.1). While these geographic categories are artificial analytical constructs, they provide a convenient shorthand that corresponds roughly to documented prehistoric/protohistoric trade routes leading to and from northwestern Ohio (see Stothers, Abel and Schneider 2001).

Since no lithic materials derived from the northwestern quadrant on Figure 5.1 have been recovered from 33HY0167, Figure 5.2 displays the spatial patterning and co-occurrence of local lithic materials as well as exotic raw materials from source locations to the southwest (including Indiana and southwestern Ohio), southeast (primarily central Ohio), and northeast (including Michigan, northern Ohio and New York) of 33HY0167. Both local and exotic tool stone appear to be fairly evenly distributed across the project area, with the exception of its southeastern corner. However, there is a noticeable “donut hole” in the distribution of local lithic varieties from approximately the N945-N970 grid lines and from the E975-E995 grid lines; this absence of local materials corresponds to the heaviest cluster of identified magnetic anomalies. Furthermore, a majority of occurrences of tool stone varieties originating from sources to the southeast are located north of the N940 grid line, and (with the exception of three isolated survey blocks in the southern half of the project area) tool stone varieties originating from sources to the north and east of 33HY0167 are confined to the northern third of the project area (north of the N965 grid line). Only three survey blocks yielded artifacts made of tool stone varieties originating to the southwest; all three of these blocks are located to the west of the E970 grid line and north of the N945 grid line.

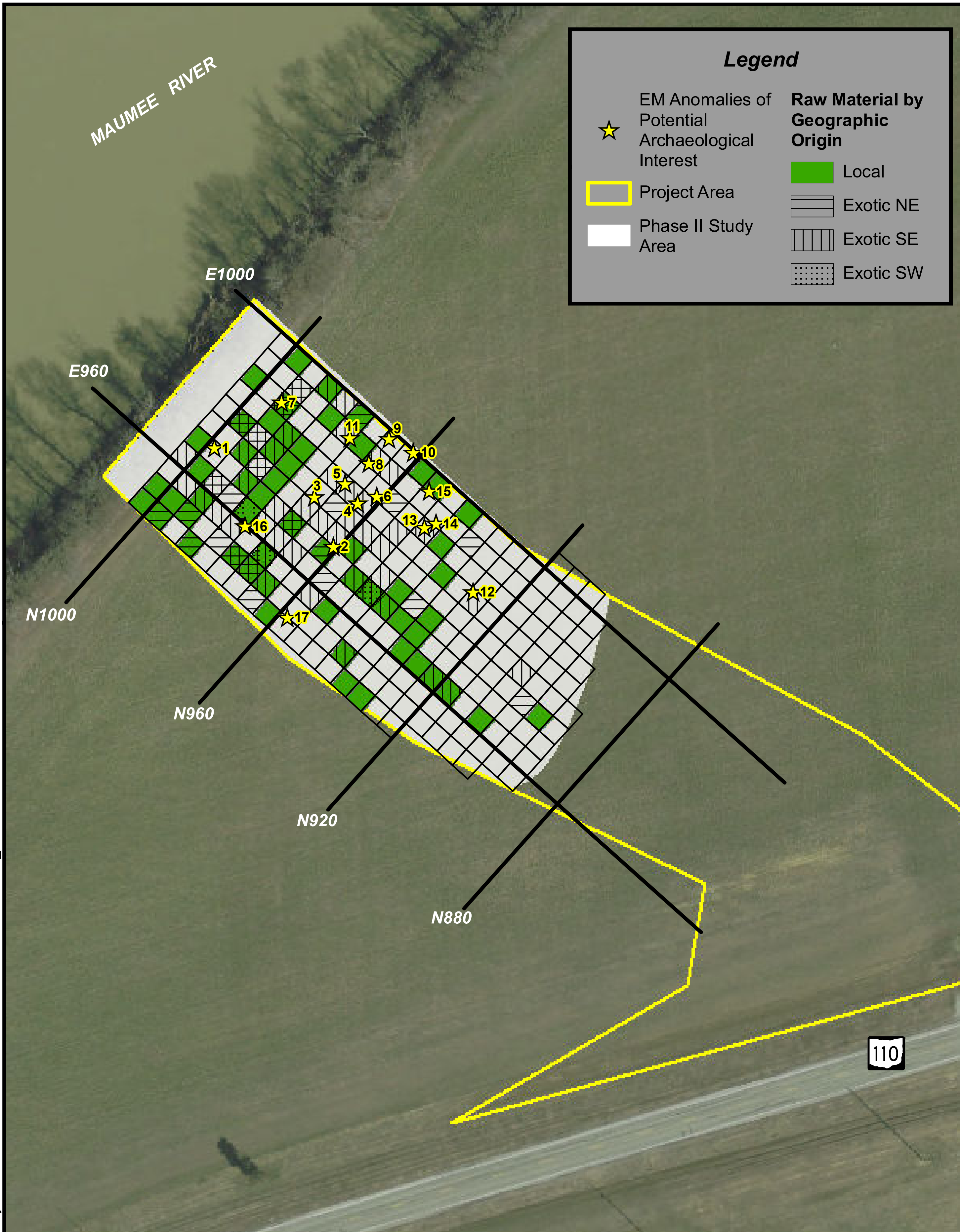

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Figure 5.2: Distribution of Raw Material Types by Geographic Origin Surface Collected Assemblage New Maumee River Crossing Napoleon, Ohio

Notes
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Tool stone was recovered from a total of 92 survey blocks. In terms of the co-occurrence of geographic categories within survey blocks, the majority of survey blocks from which tool stone was recovered yielded such artifacts from a single geographic category (n=65; 71%). Much smaller percentages of survey blocks yielded tool stone from two geographic categories (n=20; 22%) and three geographic categories (n=7; 8%). No survey blocks yielded tool stone from all four of the geographic categories. Interestingly, tool stone varieties from the northeast category were more likely to co-occur with one or more other geographic areas (n=14; 64% of all survey blocks that yielded tool stone from northern/eastern sources) than were either local varieties (n=26; 46% of all survey blocks that yielded tool stone from local sources) or varieties from the southeast (n=25; 49% of all survey blocks that yielded tool stone from sources to the southeast). While 100% of the occurrences of tool stone varieties from sources to the southwest co-occurred with varieties from other geographic areas (including, notably, 100% co-occurrence with local tool stone varieties), as noted, the sample size for this category is just three survey blocks.

Lithic Artifact Forms

For the purposes of this analysis, lithic artifacts were divided into four categories: FCR, formal tools (e.g., projectile points, cores, scrapers, ground stone tools, etc.), expedient tools (e.g., utilized flakes), and debitage (non-utilized flakes and shatter). The distribution and co-occurrence of these categories are displayed in Figure 5.3. As can be seen, the most widely distributed category of lithic forms is the category of formal tools, which are only absent from small areas in the southeastern and southwestern corners of the project area. Debitage is also fairly widely distributed, although it is absent south of the N915 grid line. FCR occurs most frequently (and is widely distributed) north of the N960 grid line, but also occurs in four small clusters and several isolated survey blocks south of the N960 grid line. The least evenly distributed artifact form is the category of expedient tools. While these artifacts are widely distributed north of the N960 grid line, they were recovered from just six scattered survey blocks south of that grid line and are completely absent south of the N925 grid line.

Lithic artifacts were recovered from a total of 123 survey blocks. In terms of the co-occurrence of artifact forms within survey blocks, the majority of survey blocks from which lithic artifacts were recovered yielded just one artifact type (n=65; 53%). A smaller but still significant percentage of survey blocks yielded two artifact forms (n=39; 32%), and much smaller percentages of survey blocks yielded three artifact forms (n=14; 11%) and all four artifact forms (n=5; 4%). Interestingly, all 30 survey blocks that yielded expedient stone tools also yielded at least one other artifact type. This is in contrast to the other artifact types, although all three of the remaining categories were more likely to co-occur with at least one other category than not: FCR co-occurred with other artifact types just over half the time (n=25; 56% of all survey blocks that yielded FCR), while both formal tools (n=34; 63% of all survey blocks that yielded formal tools) and debitage (n=50; 67% of all survey blocks that yielded debitage) co-occurred with other artifact forms approximately two-thirds of the time.

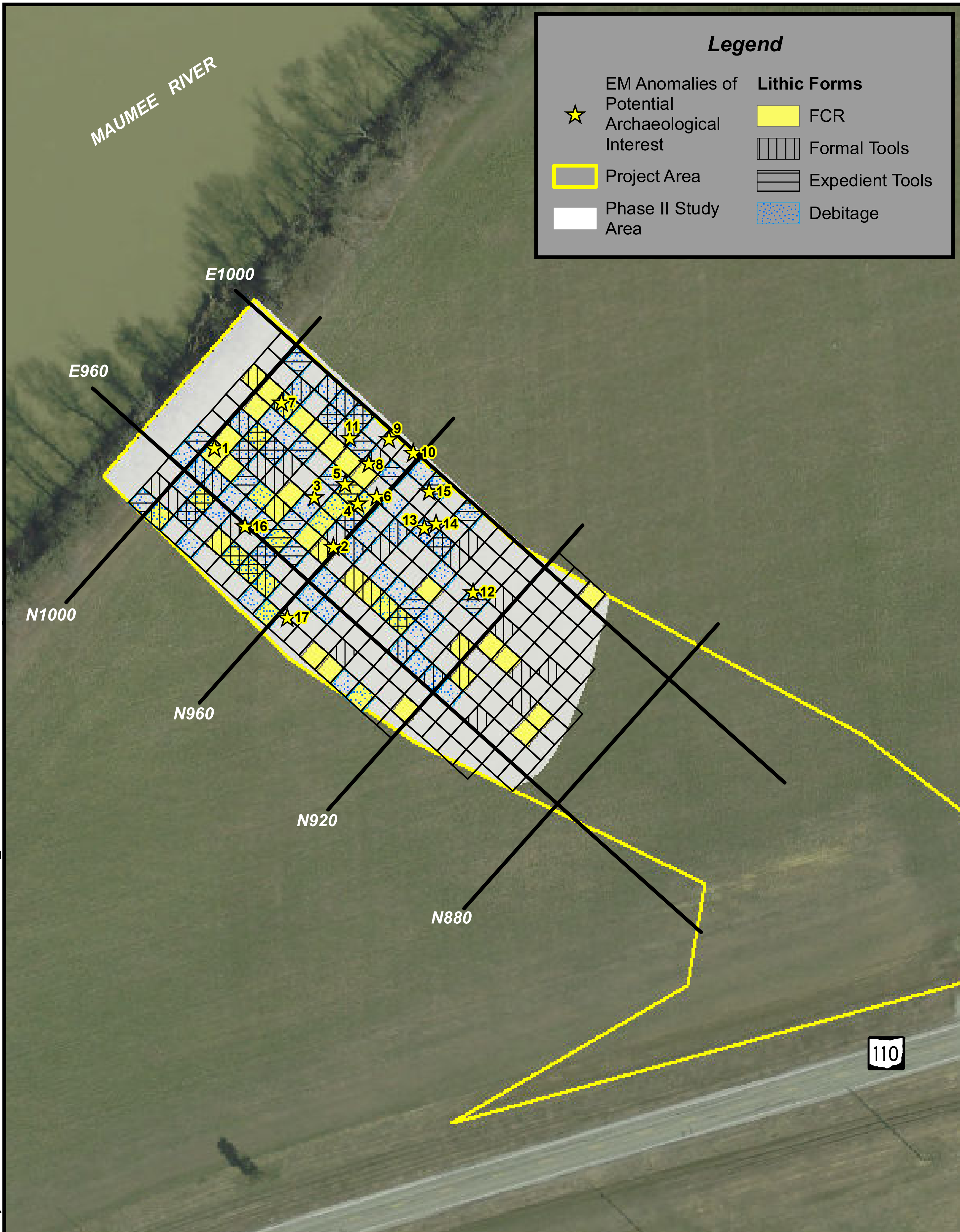

Figure 5.3: Distribution of Lithic Forms Surface Collected Assemblage New Maumee River Crossing Napoleon, Ohio

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Notes
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Lithic Debitage Types

For the purposes of this analysis, lithic debitage was divided into four groups: shatter, simple flakes, complex flakes, and bipolar flakes. The distribution and co-occurrence of these categories are displayed in Figure 5.4. As noted in the previous section, the overall distribution of debitage is fairly uniform throughout the northern two-thirds of the project area, but this artifact category is absent south of the N915 grid line. Shatter is the most evenly distributed type of debitage, but still exhibits a higher rate of occurrence north of the N965 grid line and, south of that, to the west of the E975 grid line. The occurrence of simple flakes is densest to the north of the N955 grid line, with a small cluster apparent from N930-N940 and from E965-E970; three other scattered survey blocks south of the N960 grid line also yielded simple flakes. Complex flakes are primarily located in two low-density clusters on either side of the N960 grid line along the eastern edge of the project area. One of these clusters is located from N970-N985 and E980-E995, while the other is located from N940-N955 and E975-E995. Four individual survey blocks widely scattered across the western half of the project area also yielded complex flakes. The category of bipolar flakes occurs in just a single survey block near the southern edge of the overall debitage distribution: N930 E960.

Lithic debitage was recovered from a total of 75 survey blocks. In terms of the co-occurrence of debitage types within survey blocks, a large majority of survey blocks from which debitage was recovered yielded just one type of debitage (n=56; 75%). A smaller but not insignificant percentage of survey blocks yielded two debitage types (n=16; 21%), while a negligible percentage of survey blocks yielded three types of debitage (n=3; 4%). No survey blocks yielded all four types of debitage. While the single survey block that yielded bipolar debitage did not yield any other type of debitage, the remaining debitage types all exhibit a similar rate of co-occurrence with at least one other type of debitage: 16 of 37 survey blocks that yielded shatter (43%), 19 of 41 survey blocks that yielded simple flakes (46%), and 7 of 14 survey blocks that yielded complex flakes (50%).

5.2.1.3 Summary and Interpretation

Multiple aspects of spatial patterning within the surface collected assemblage from the Ritter No. 1 site have been identified. Some are relatively simple and/or obvious patterns, such as the generally wide distribution of artifacts north of the N920 grid line and particularly north of the N960 grid line, while others are more subtle. Several of these patterns, however, stick out as potentially more important from the perspective of site interpretation. These include:

- A slightly better correspondence between the occurrence of exotic tool stone varieties within the surface collected assemblage and the densest cluster of magnetic anomalies, than between local tool stone varieties within the surface assemblage and the cluster of magnetic anomalies (which is consistent with the predominance of exotic tool stone varieties in subsurface contexts that was noted in Section 5.1.2.2);

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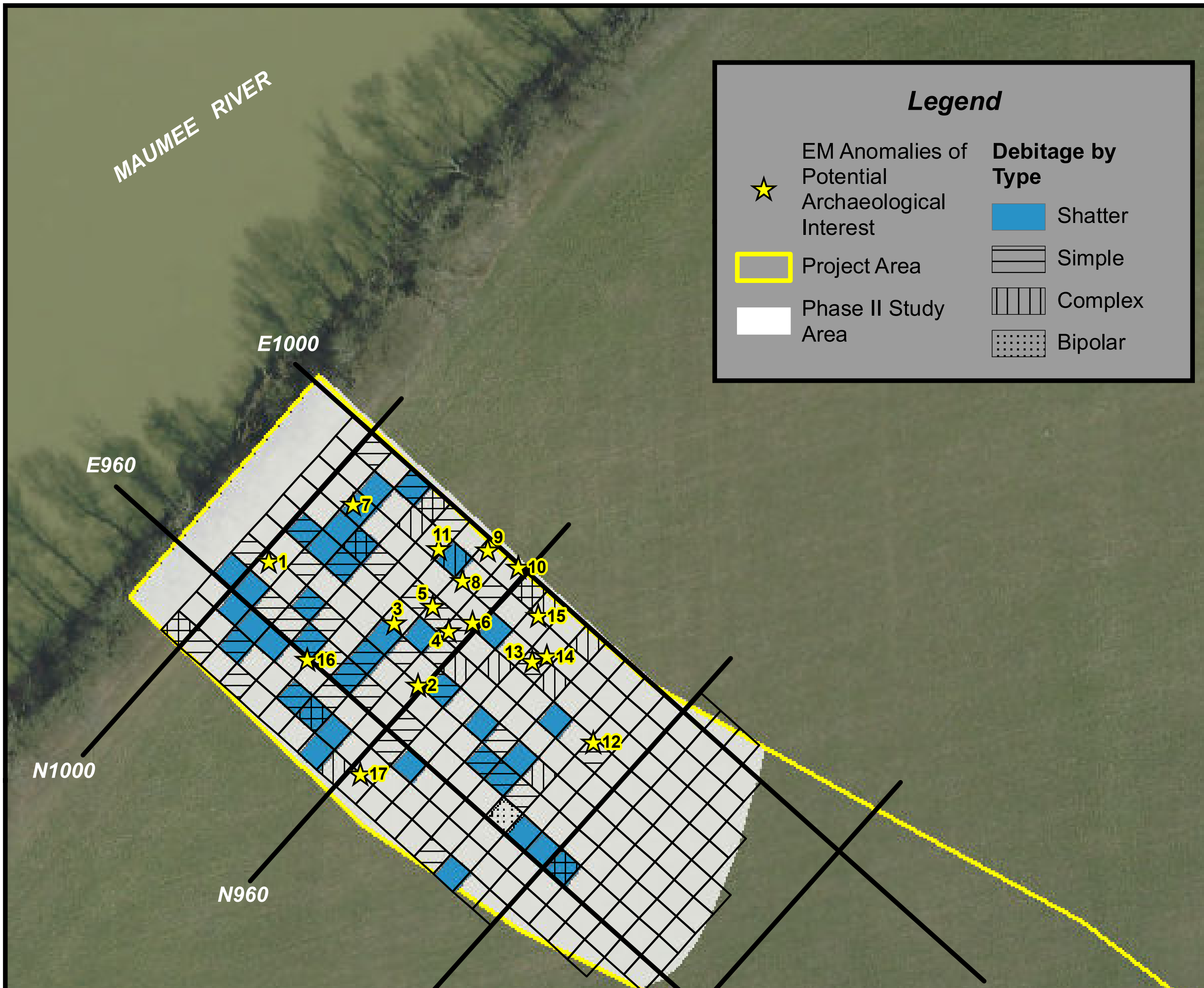

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Figure 5.4: Distribution of Debitage by Type
Surface Collected Assemblage
New Maumee River Crossing
Napoleon, Ohio

Notes
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- The generally wide distribution of both formal tools and debitage across the project area in contrast to the more restricted distribution of FCR and expedient tools, the latter being more closely aligned to overall patterns of artifact density as well as the densest cluster of magnetic anomalies;
- The 100% co-occurrence of other artifact forms with expedient (flake) tools, and the co-occurrence of other artifact forms with FCR, formal tools and debitage approximately two-thirds of the time;
- The clear spatial association of simple and (especially) complex flakes with the densest cluster of magnetic anomalies; and
- The approximately 40% co-occurrence of shatter, simple flakes and complex flakes with one or more of each other across the site.

The precise meaning of these patterns is not clear at this time. Some of them may provide clues that can assist in site interpretation (and will be discussed below in Section 5.3), while the meaning (if any) behind others may require additional investigation of the site to discern.

5.2.2 Spatial Distribution of Sub-Plow Zone Cultural Deposits

The analysis of spatial patterning among sub-plow zone cultural deposits at 33HY0167 is complicated by the presence of multiple prehistoric occupations, and is further limited by the fact that only 9 of 17 magnetic anomalies were investigated through manual excavation. However, if the different temporal components present at 33HY0167 do in fact exhibit varying spatial patterning, such variations should be apparent among the anomalies that were investigated through manual excavation. The spatial relationships among the dated, sub-plow zone components are depicted on Figure 5.5.

The identification of Anomaly 1 as non-cultural in origin provides further evidence that prehistoric occupation of the site as a whole is strongly tied to the natural levee or terrace that runs east-west between the N940 and N980 grid lines; among the anomalies now confirmed to be of cultural origin, only Anomaly 12 falls outside of this area. As can be seen on this figure, however, the spatial distribution of the temporal components does not appear to exhibit any clustering; rather, the different components are scattered across the site. Furthermore, given the small number of sub-plow zone deposits assigned to each temporal period (no more than two in any instance) along with the extension of the site outside the current project boundaries, any discussion of intra-site spatial patterning by temporal component is premature.

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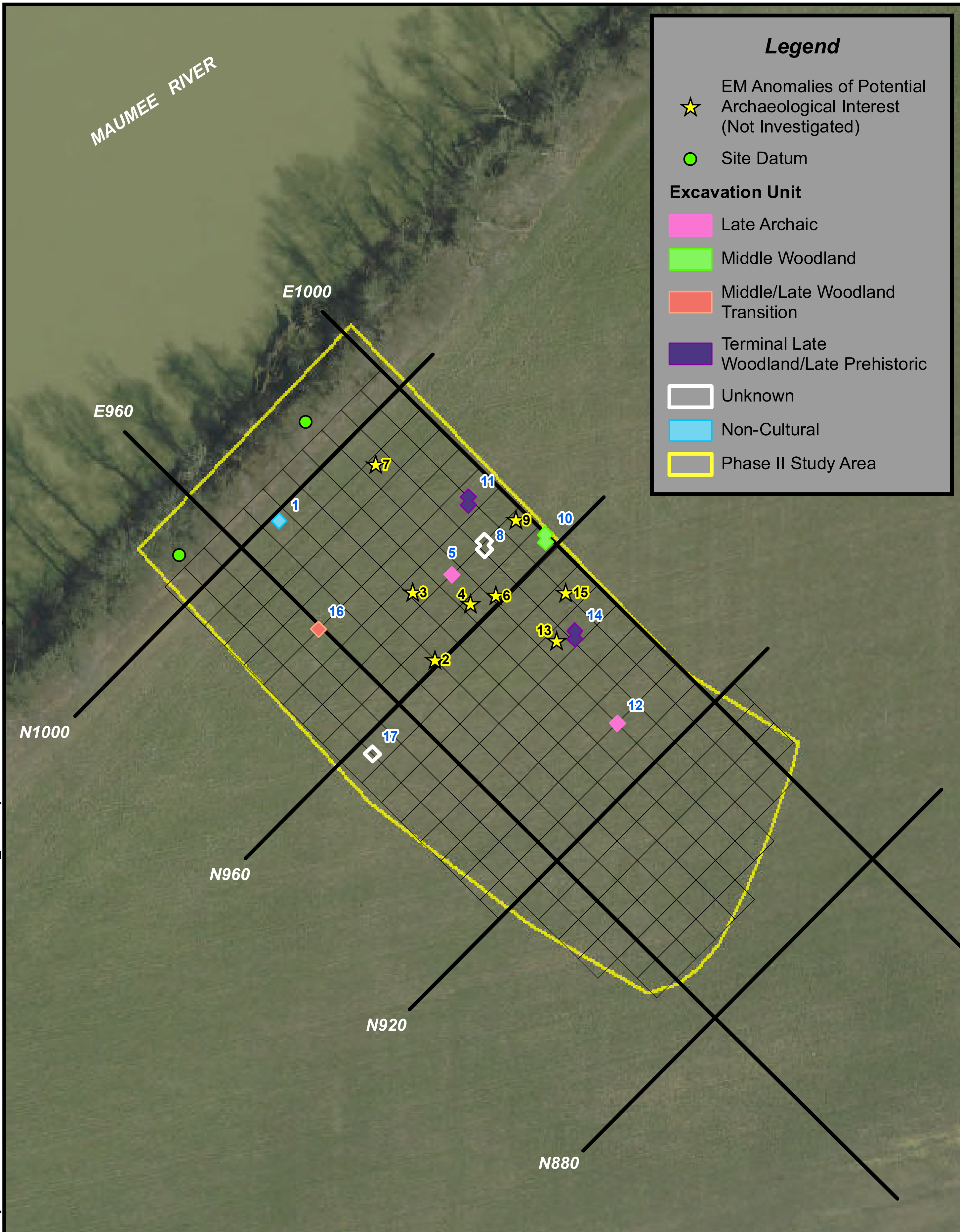

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Figure 5.5: Distribution of Temporal Components New Maumee River Crossing Napoleon, Ohio

Notes
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It is worth noting, however, that this kind of spatio-temporal palimpsest is common among prehistoric sites in the Maumee River Valley, and particularly among sites dating from the Late Archaic onward. This re-use of certain locales over a broad span of time may merely represent a preference for locations exhibiting specific environmental characteristics. On the other hand, given the cultural continuity posited for this region from the Late Archaic through at least the Late Woodland (see Bechtel and Stothers 1993; Stothers et al. 1979; Stothers, Abel and Schneider 2001) and possibly even the Late Prehistoric (see Brose 2000; Pratt 1993), such sites may represent what some archaeologists have termed "persistent places" – locations where some combination of environmental variables, accumulated human impacts to the environment, cultural knowledge, and cultural values or beliefs combined to create a desirable setting for human activity (see Bailey 2007; Purtill 2012; Schlanger 1992). However, not enough is known about 33HY0167 at this point in time to determine whether it truly represents a persistent place or merely an environmentally attractive locale.

5.3 Research Questions for the Ritter No. 1 Site

A number of research questions were posed in Section 2.5 of this report that investigation of 33HY0167 may be able to address. Some of these research questions were specific to the site (e.g., questions pertaining to the physical integrity of the site, what temporal components might be present, etc.), while others involve comparison of 33HY0167 to other known sites in the region (e.g., how the site fits into established settlement-subsistence models for particular prehistoric time periods in northwestern Ohio). Based on the results of the Phase I and Phase II investigations of the site by MSG and the analysis presented in Sections 5.1 and 5.2 of this report, this section will address the ability of 33HY0167 to yield information pertinent to the primary research domains identified for this region.

5.3.1 Site-Specific Research Questions

Question: Do the archaeological resources present within the New Maumee River Crossing project area represent an extension of 33HY0167, or a separate site?

Answer: Based on the results of the Phase I and Phase II investigations, it is the opinion of the Principal Investigator that the archaeological resources within the project area should be treated as part of 33HY0167 until or unless additional investigation to the east of the current project area demonstrates otherwise. Several points of evidence support the interpretation that the archaeological resources within the current project area represent part of 33HY0167:

- While the boundaries of the site were not clearly recorded by Stothers et al. (1981), the UTM coordinates listed on the original OAI form can be assumed to represent the centroid coordinates of the site. Given these coordinates, the dimensions of the site stated on the OAI form (164 ft. [50 m] by 656 ft. [200 m], oriented northeast-southwest along the natural levee located approximately 164 ft. [50 m] south of the river), and the results of the Phase I surface survey, there appears to be a continuous distribution of artifacts within the plow zone from the original site location to the current project area (see Figures 1.5-1.6).

- The concentration of magnetic anomalies of potential archaeological interest (eight of which have now been confirmed to represent cultural features) on the western end of the natural levee located approximately 164 ft (50 m) south of the river also corresponds to the orientation and landform location of 33HY0167 as recorded in 1981.
- In its IOC dated March 10, 2015, ODOT-OES noted that 33HY0167 and the archaeological resources within the New Maumee River Crossing Project Area are located on different soil types. However, all three soil types present within the current project area (Haney loam, 0-2% and 2-6% slopes and Medway silt loam) belong to the Millgrove-Mermill-Haskins soil association and exhibit similar physical characteristics (Flesher et al. 2005). It is unlikely that prehistoric populations would have differentiated soil types in the same way, and as finely, as modern soil scientists.

Conversely, it could be argued that the lack of an identified Paleoindian/Early Archaic component within the New Maumee River Crossing Project Area is evidence that this site *is not* the same as 33HY0167. However, given the limited nature of Phase II investigations, it is fair to state in regard to the current project area that absence of evidence at this point in time does not necessarily equate to evidence of absence. Furthermore, 33HY0167 was identified as a Paleoindian/Early Archaic period site based on testimony from local arrowhead collectors (see Section 1.2). Given the lack of any diagnostic artifacts from the Woodland period within the project area despite the demonstrated presence of multiple Woodland-period occupations of the site, the original assignment of a Paleoindian/Early Archaic temporal association for 33HY0167 must be considered suspect.

Question: Are intact features present within the site? Does the site exhibit internal spatial patterning? Does the patterning of artifacts within the plow zone accurately reflect sub-plow zone spatial patterning, if any?

Answer: Phase II test excavations have clearly demonstrated that intact archaeological features are present within the project area. Although there is a relatively high degree of mismatch between the size and shape of magnetic anomalies identified during the magnetic gradient survey and physical features identified during excavation, the latter method actually demonstrated that a higher number of cultural features and other types of deposits are present than was suggested by soil coring conducted during the magnetic gradient survey. Furthermore, it is clear from both the magnetic gradient survey and the results of Phase I and II investigations that the heaviest concentration of cultural deposits within the project area is located within a 131 ft. (40 m) wide area centered on the N960 grid line, which corresponds to the western end of the natural levee located 164 ft. (50 m) south of the river.

As discussed in Section 5.2.1, some intriguing patterns are evident in the spatial distribution of artifact types and selected attributes within the surface-collected assemblage from the Phase I and II investigations. These include a slightly better correspondence of exotic tool stone varieties than local varieties from surface contexts with the area of highest density of magnetic anomalies; less spatially diffuse distributions of FCR and expedient tools than formal tools (and a consequent higher correspondence of

FCR and expedient tools with the area of highest density of magnetic anomalies); and a clear association of both simple and complex flakes (but not lithic shatter) with the area of highest density of magnetic anomalies.

As discussed in Section 5.2.2, however, there is no obvious internal spatial patterning in the locations of sub-plow zone cultural deposits. This lack of clear spatial patterning is most likely the result of three factors: the limited area of investigation that does not include the entire archaeological site, the presence of multiple occupational episodes dating to several periods of prehistory, and the small number of dated cultural features and deposits that can be assigned to any one time period.

Due to the lack of obvious sub-plow zone spatial patterning as well as the multiple occupation episodes represented, the patterns observed within the surface collected assemblage cannot be associated with any particular temporal component within the project area at this time. However, it is likely that additional investigation of 33HY0167 both inside and outside of the current project area boundaries, as well as detailed analysis using statistical tools such as Tukey's Pairwise method and one-way analysis of variance (ANOVA), would reveal aspects of intra-site spatial patterning that are not obvious at the present time, including correlations between specific patterns observed within the surface collected assemblage and particular temporal components of the site.

Question: If features are present, do they contain artifacts, ecofacts, or other evidence that could help to identify site function, seasonality and/or age, or that could contribute to paleoenvironmental reconstructions?

Answer: A total of six prehistoric features and two prehistoric living surfaces were identified within the project area. A total of six samples of organic material representing five of these contexts were recovered and submitted for AMS dating. Based on the results of this dating, multiple occupational episodes spanning the Late Archaic through Terminal Late Woodland/Late Prehistoric transition have been identified within the New Maumee River Crossing Project Area.

No diagnostic artifacts were recovered from any of the feature or living surface contexts, or indeed from any subsurface contexts. However, several sub-plow zone contexts did yield artifact assemblages that provide indications of site function. Given the presence of multiple (but not necessarily continuous or associated) prehistoric occupation episodes within the project area, separate discussions of site functionality for each occupational component can be found in Section 5.3.2 below.

An extremely limited sample of macrobotanical remains was recovered during flotation of soil samples from the excavated features. As described in Section 5.1.1, only two of 15 soil samples subjected to flotation yielded identifiable plant taxa, one of which (a single blackberry/raspberry seed [*Rubus* sp.] was likely introduced as a result of ground wasp activity. The only soil sample to yield identifiable plant taxa that may represent cultural activity came from Feature 11.1, a possible post mold. This sample yielded charred remains of hickory (*Carya* sp.) and basswood (*Tilia americana*) as well as an unidentified taxon that may be a shrub. Both hickory and basswood were common in northern Ohio throughout prehistory. Thus, no data in the form of artifacts or ecofacts was recovered that could help to shed light on site seasonality or aid in paleoenvironmental reconstructions, and it is unlikely that additional unexcavated features within the project area would yield this type of data.

Question: Can specific prehistoric temporal components be identified within the site? If so, what temporal periods are represented? Can the site be dated to more specific cultural/technological horizons?

Answer: At least five prehistoric components have been identified at 33HY0167 within the New Maumee River Crossing Project Area, including two separate Late Archaic components, a Middle Woodland component, a transitional Middle/Late Woodland component, and a transitional Terminal Late Woodland/Late Prehistoric component. The Late Archaic components include a living surface radiocarbon dated to ca. 4000 B.P. (Anomaly 5, Level 2) and three Bottleneck Stemmed projectile points recovered from the surface of the plow zone that represent the Late Archaic Stemmed projectile point horizon and have been dated to approximately 3800-3000 B.P.

The transitional Middle/Late Woodland component may represent the WBMW Tradition, the Gibraltar Phase of the WBT, or a transitional phase between the two. The transitional Terminal Late Woodland/Late Prehistoric component may similarly represent the WBT Springwells Phase, the Sandusky Tradition Wolf Phase, or, if the Wolf Phase represents cultural changes within the WBT instead of an intrusive cultural tradition, a transitional population bridging the Springwells and Wolf phases. Unfortunately, no diagnostic artifacts dating to any part of the Woodland period were recovered. Artifacts such as decorated ceramics would allow for the assignation of these temporal components of the site to specific cultural groups.

Although the site was originally recorded as a Paleoindian/Early Archaic site, no such prehistoric components were recorded within the current project area. This does not mean, however, that such components are not present within 33HY0167, as the site clearly extends outside of the current project area boundaries.

5.3.2 Comparative Research Questions

5.3.2.1 Paleoindian and Early Archaic Periods

Questions: If a Paleoindian/Early Archaic component is present, how does this component compare to other Paleoindian/Early Archaic sites in the region (in terms of spatial organization, artifact patterning, etc.)? Can the site yield data that could be used to address the debate over lithic source utilization and population movements in northwestern Ohio during these time periods? Can the site yield data that could shed light on subsistence activities during the Early Archaic period?

Answer: As already mentioned, no Paleoindian/Early Archaic components were identified within the New Maumee River Crossing Project Area. Therefore, 33HY0167 cannot at present be compared to other such sites in the region in terms of spatial organization, artifact patterning, lithic source utilization, or subsistence activities.

5.3.2.2 Late Archaic Period

Question: If a Late Archaic component is present, can the site be associated with a known catchment zone, or can a likely catchment zone be identified? Within the typical inventory of sites within a catchment zone, what site type does this component represent?

Answer: Based on the published work of Stothers, his students and colleagues, 33HY0167 cannot at this time be associated with a known Late Archaic catchment zone and associated inventory of sites. Stothers, Abel and Schneider (2001) only discuss catchment zones located in the lower Maumee River Valley in Lucas County; discussions of catchment zones in other parts of the Maumee River Valley may exist only in the voluminous corpus of unpublished studies (originally located at the University of Toledo, and now located at the Cleveland Museum of Natural History) frequently cited by these and related researchers. However, the University of Toledo's Mid-Maumee River Valley survey of 1981 recorded a total of 37 Late Archaic site components within the study area in Henry County (Stothers et al. 1981), many of them within approximately 6-7 miles (9.7-11.3 km) of the Ritter No. 1 site both upstream and downstream. If details regarding these sites are contained in unpublished reports prepared by Stothers and his students, it should be possible through additional, intensive research and the use of modern GIS landscape modeling techniques to identify Late Archaic catchment zones in the mid-Maumee River Valley and to place the Ritter No. 1 site accordingly.

The separate Late Archaic components at 33HY0167 may represent different site functions. The three Bottleneck Stemmed projectile points are suggestive of a hunting station, although the inability to connect these three artifacts with a broader assemblage limits any attempt to interpret this component of the site. The earlier Late Archaic component represented by Anomaly 5 and most likely Anomaly 12 as well may represent a lithic workshop. While FCR was plentiful in both contexts and some ground stone tools were recovered as well, no other artifacts suggestive of domestic activity (e.g., ceramics) were recovered. Furthermore, both cultural deposits also yielded significant amounts of lithic tools, lithic debitage, and unmodified but apparently heat-treated raw tool-stone material; Anomaly 12, Levels 3 and 4 also yielded three coral fossils that may have been removed from fossiliferous tool stone. The FCR may, therefore, represent the byproducts of the lithic heat-treatment process during the production of stone tools.

Lithic workshops were not identified by Stothers, Abel and Schneider (2001) as a specific site type within the typical inventory of sites associated with Late Archaic catchment zones; the only lithic workshop they mention is a slate workshop associated with a mortuary center on Missionary Island, within the catchment zone of a base camp known as the Riverside site and located at the second rapids of the Maumee River near the village of Waterville in Lucas County. However, it can be assumed that this absence of lithic workshops from the typical site inventory is either a function of the presence of such workshops adjacent to base camp sites (and thus not identified as separate sites) or an oversight on the part of previous researchers. If the former, than the archaeological resources within the New Maumee River Crossing Project Area most likely represent a small portion of a much larger base camp site. If the latter, then 33HY0167 fills a gap in the scholarly knowledge of the Late Archaic period in northwestern Ohio.

Question: Does this component have an artifact assemblage that could be used to investigate the question of high band mobility versus trade and exchange networks during the Late Archaic period?

Answer: As mentioned in Section 2.2, Stothers, Abel and Schneider (2001) argued that large amounts of locally available lithic materials and small amounts of lithic materials from sources more than 25 miles (40 km) away from a site were an indication of trade relationships, while the reverse situation (a majority of exotic lithic varieties) was an indication of high band mobility. They also noted that the importance of trade appears to have increased over the Late Archaic period in northwestern Ohio, as exotic materials were entering the region from central Indiana, central Ohio, and the Niagara region of New York (Stothers, Abel and Schneider 2001:253-256). Thus, one would expect to find a relatively higher percentage of exotic lithic varieties in site assemblages dating to the early part of the Late Archaic, and a gradually increasing percentage of local lithic varieties (eventually becoming a substantial majority) throughout the period.

Three distinct confirmed or suspected Late Archaic contexts have been identified at 33HY0167 as a result of the current investigation. The Anomaly 5 test unit yielded radiocarbon dates of 2115-2100 cal B.C. (4065-4050 cal B.P.) and 2035-1900 cal B.C. (3985-3850 cal B.P.) (p=0.05) from Level 2, which fall during the early mid-Late Archaic period. Levels 3 and 4, which appear to represent a single deposition episode, yielded a tool stone assemblage in which a large majority of artifacts (87%) are made of locally available materials. Levels 3 and 4 within the Anomaly 12 test unit, which are similar to Levels 2 and 3 in the Anomaly 5 test unit in terms of stratigraphic position and general appearance but for which a usable radiometric date was not obtained, yielded a tool stone assemblage in which 65% of artifacts were made of exotic lithic varieties and only 35% were made of locally available lithic varieties. Finally, the three Bottleneck Stemmed projectile points (ca. 3800-3000 B.P. [Justice 1987]) that were recovered from the surface of the plow zone at the northern end of the project area are all made of exotic lithic varieties. Therefore, despite the lack of a confirmed date range for Anomaly 12, Levels 3-4 and the extremely small sample size of diagnostic Late Archaic artifacts from the surface collection, it appears that further investigation of 33HY0167 is likely to yield data that could address the issue of high band mobility versus trade and exchange networks during the Late Archaic period.

Question: Does this component have an artifact assemblage that can be used to investigate the issue of craft specialization during the Late Archaic period in northwestern Ohio?

Answer: As mentioned in Section 2.2, Stothers et al. have suggested that during the Late Archaic period local populations experienced the growth of craft specialization as they shifted from a system of generalized reciprocity between groups to a system of institutionalized reciprocity due to increasing competition for resources (Stothers, Abel and

Schneider 2001:256-257). However, this assessment appears to be based primarily on ceramic assemblages. Given that no ceramic artifacts have been recovered from 33HY0167 during any of the investigations that have been conducted there, it is obviously not possible to compare this site to others along these lines.

However, archaeologists have also approached the question of craft specialization through the detailed examination of lithic assemblages (for examples from Ohio, see, e.g., Miller 2014, 2015; Nolan 2005; Nolan et al. 2007; Seeman 1985; Yerkes 1983, 1990, 2003). One aspect of craft specialization that is often observed is increasing spatial segregation of craft activities from domestic activities. While no evidence of domestic activity in the form of floral or faunal remains, ceramics, or diagnostic features (e.g., cooking hearths) has been observed at 33HY0167, domestic activity may be indicated by some of the ground stone tool types recovered from the site (e.g., abraders, mortars, metates, etc.). Interestingly, the only intact sub-plow zone proveniences from which these artifacts were recovered were Anomaly 5, Levels 2-3; Anomaly 4, Levels 3-4; and Anomaly 8, Feature 8.1. As previously noted, Anomaly 5, Level 2 has been dated to the early mid-Late Archaic, while the other two proveniences have not been dated (although Anomaly 12, Levels 3-4 are also suspected to be of Late Archaic age). Although an extremely circumstantial suggestion at this time, it may be the case that the presence of ground stone tools representing domestic activity in Late Archaic deposits and the lack of any evidence for domestic activity in Woodland-period deposits is evidence for the development of craft specialization over time (rather than specifically within the Late Archaic period).

5.3.2.3 Middle Woodland Period

Question: If a Middle Woodland component is present, does this component represent the focal settlement pattern or the seasonal coalescence-dispersal pattern? Can the component be more precisely dated, in order to shed light on the hypothesized temporal relationship of these different settlement patterns?

Answer: One feature dating to the early part of the Middle Woodland period (Feature 10.1) and one feature dating to the terminal Middle Woodland/Late Woodland transition (Feature 16.1) were identified within the New Maumee River Crossing Project Area. The limited information collected during the Phase II investigation concerning these separate Middle Woodland occupations (including the complete lack of faunal and floral remains) makes it impossible to determine at this time which settlement pattern each represents. However, the presence of two discrete Middle Woodland occupations representing the opposite temporal ends of the period indicates that additional investigation of the site is likely to yield information on the function of these components, their place within broader settlement-subsistence systems, and therefore the temporal relationship (if any) between the focal and seasonal coalescence-dispersal settlement patterns.

Question: If the Middle Woodland component represents the focal settlement pattern, what type of site within this pattern does it represent (focal habitation or satellite station)? If it represents the coalescence-dispersal pattern, what type of site within this pattern does it represent (seasonal base camp or seasonal hunting/foraging station)?

Answer: As discussed above, the limited information concerning the two separate Middle Woodland occupations at 33HY0167 (including the complete lack of faunal and floral remains) makes it impossible at the current time to determine which settlement pattern(s) is/are represented or what site type(s) each component represents. While Feature 10.1 has been interpreted as a possible earth oven or roasting pit and Feature 16.1 has been interpreted as a possible lithic heat treatment feature, neither feature type is indicative of a specific site type. However, as above, additional investigation of the Middle Woodland component of 33HY0167 may yield information that could clarify this issue.

Question: Can the Middle Woodland component shed light on issues of cultural interaction and cultural boundaries within the WBMW? For instance, does there appear to be a distinctive pattern of lithic raw material utilization that sets it apart from earlier or later time periods in this region? Is there any evidence of Hopewellian cultural influence at the site?

Answer: As discussed in Section 2.3.1, Hopewellian influence outside the Hopewell core area is often recognized by the presence of exotic trade goods from far-flung locales, distinctive mortuary practices (particularly mound burials), and/or distinctive Hopewellian ceramic and lithic styles. No evidence for any such influences have been observed at the Ritter No. 1 site.

However, patterns of lithic raw material utilization at the site provide some evidence for extensive interaction with populations from central Ohio. While it has generally been accepted that resident populations in northwestern Ohio had come to rely primarily (in some cases, nearly exclusively) upon locally available lithic varieties by the Woodland period, the Middle Woodland components at 33HY0167 tell a different story. As demonstrated in Section 5.1.2.2, the Anomaly 10 test unit (including Feature 10.1, which has been radiometrically dated to 40 cal B.C. to 80 cal A.D. [1990-1870 cal B.P.] [p=0.05], at the beginning of the Middle Woodland) yielded a tool stone assemblage evenly divided between local (n=14; 52%) and exotic (n=13; 48%) lithic varieties; the latter were all from source locations in central and southern Ohio. The Anomaly 16 test unit (including Feature 16.1, which yielded radiometric date ranges of 390-540 cal A.D. [1560-1410 cal B.P.], 430-490 ca. A.D. [1520-1460 cal B.P.], 510-515 cal A.D. [1440-1435 cal B.P.], and 530-605 cal A.D. [1420-1345 cal B.P.] [p=0.05], all dating to the Middle/Late Woodland transition) exhibits an even more surprising predominance of exotic cherts (n=81; 85%), the majority from central and southern Ohio; locally available tool stone varieties account for just 15% (n=14) of the assemblage.

Given the increasing population pressures in Ohio during the Middle Woodland time period, it seems unlikely that the large amount of lithic varieties from central and southern Ohio at 33HY0167 represent high band mobility. Rather, a more likely explanation is increased contact and trade/exchange between the Middle Woodland occupants of the Ritter No. 1 site and these Hopewellian regions. Based on the published literature, 33HY0167 appears to be unique in this regard among Middle Woodland sites in northwestern Ohio.

5.3.2.4 Late Woodland Period

Question: If a Late Woodland component is present, can it be identified by cultural tradition (Western Basin or Sandusky) and/or cultural phase (Gibraltar, Riviere au Vase, Younge, Springwells, Wolf)?

Answer: As discussed above, Feature 16.1 yielded multiple radiometric dates placing it during the 5th-6th centuries A.D., straddling the transition from the Middle to Late Woodland periods in northwestern Ohio. Thus, it may represent a WBMW occupation or a Late Woodland WBT, Gibraltar Phase occupation. Ultimately this distinction may be of minimal importance, given the arguments that have been made for cultural continuity throughout the Woodland period (Stothers et al. 1979; Bechtel and Stothers 1993; Stothers and Bechtel 2000; Stothers, Abel and Schneider 2001).

In addition to Feature 16.1, both Features 11.1 and 14.1 yielded radiometric dates placing them during the 11th-12th centuries A.D., spanning the transition from the Late Woodland to Late Prehistoric periods. The question arises, however, whether this occupation represents the Springwells Phase or the Wolf Phase, and concomitantly, the Western Basin Tradition or the Sandusky Tradition. This issue will be discussed in more detail below.

Question: Is there evidence in the site assemblage of cultural continuity and/or cultural (demographic) change between Middle and Late Woodland components?

Answer: The presence of a Middle Woodland component (Feature 10.1), a transitional Middle/Late Woodland component (Feature 16.1), and a transitional Late Woodland/Late Prehistoric component (Features 11.1 and 14.1) allow for a tentative answer to this question. While it does not appear that occupation of the site was continuous throughout this time span, the site was clearly re-occupied at different points in time. Whether this pattern is merely coincidental (the result of the site's location in an environmentally attractive locale) or the result of local/regional cultural continuity can be investigated through a comparison of the artifact assemblages associated with each component.

As discussed in Section 5.1.2.2, there is a strong similarity between plow zone artifact profiles and sub-plow zone artifact profiles for the Woodland-period features that were investigated; it is therefore likely that the plow zone assemblages from these excavation units are directly associated with the sub-plow zone features. Therefore, the following comparison will use aggregated data for each test unit. The categories shown in Table 5.9 are the same as used in the analysis presented in Section 5.1.2.2, with the exception that tool stone varieties have been aggregated into the geographic categories used in Section 5.2.1. The columns are organized to allow for a reading of the data from earliest Woodland component on the left to latest Woodland component on the right.

Table 5.9 Comparison of Assemblages from Woodland-Period Components, 33HY0167

Anomaly	Anomaly 10			Anomaly 16			Anomaly 11			Anomaly 14		
	Count	%	1-Standard Error	Count	%	1-Standard Error	Count	%	1-Standard Error	Count	%	1-Standard Error
Total Artifacts	***38***	***100%***	***N/A***	***163***	***100%***	***N/A***	***21***	***100%***	***N/A***	***58***	***100%***	***N/A***
Formal Tools	7	18%	+/- 6.2%	22	13%	+/- 2.6%	2	10%	+/- 6.5%	11	20%	+/- 5.3%
Debitage	14	37%	+/- 7.8%	71	44%	+/- 3.9%	15	71%	+/- 9.9%	36	62%	+/- 6.4%
FCR Count	11	29%	+/- 7.4%	68	42%	+/- 3.9%	4	19%	+/- 8.6%	4	7%	+/- 3.4%
FCR Weight (grams)	329.4	N/A	N/A	19,916.1	N/A	N/A	53.2	N/A	N/A	135.4	N/A	N/A
Unmodified Tool Stone	6	16%	+/- 5.9%	2	1%	+/- 0.8%	0	0%	N/A	7	12%	+/- 4.3%
Total Tool Stone	***27***	***100%***	***N/A***	***95***	***100%***	***N/A***	***17***	***100%***	***N/A***	***54***	***100%***	***N/A***
Local	14	52%	+/- 9.6%	14	15%	+/- 3.7%	5	29%	+/- 11.0%	15	28%	+/- 6.1%
Northeast	0	0%	N/A	2	2%	+/- 1.4%	1	6%	+/- 5.8%	11	20%	+/- 5.4%
Southeast	11	41%	+/- 9.5%	78	82%	+/- 3.9%	11	65%	+/- 11.6%	21	39%	+/- 6.6%
Southwest	2	7%	+/- 4.9%	1	1%	+/- 1.0%	0	0%	N/A	7	13%	+/- 4.6%

Several interesting patterns can be observed in Table 5.9. In terms of artifact types, formal tools are the most consistent category, ranging from 10-20%. Debitage increases significantly from the Middle Woodland components (Anomalies 10 and 16) to the Terminal Late Woodland components (Anomalies 11 and 14), while FCR exhibits a significant decrease between these periods. Unmodified tool stone, on the other hand, appears to have decreased from the early Middle Woodland to the late Middle Woodland before rebounding during the Terminal Late Woodland. In terms of tool stone varieties, local materials were utilized most extensively during the early Middle Woodland, then dropped off significantly during the late Middle Woodland before rebounding somewhat during the Terminal Late Woodland. Southeastern (central Ohio) varieties represent a plurality of tool stone artifacts during all three temporal components, with a noticeable spike during the late Middle Woodland component. Both southwestern and northeastern lithic varieties are present in only small amounts during all three temporal components, although northeastern varieties exhibit a slight increase in frequency during the Terminal Late Woodland period.

While the meaning behind the changing frequencies of artifact types is unclear, the changing frequencies of lithic material varieties may represent some Hopewellian influence during the Middle Woodland period, or at least increased trade/exchange between the mid-Maumee River Valley and central/southern Ohio. The slight increases in the frequencies of lithic varieties from the northeast and southwest during the Terminal Late Woodland match the proposed cultural connections between northwestern Ohio WBT populations and related Iroquoian populations in Indiana, Michigan and New York during this time (see Section 2.4).

Question: Are faunal and/or botanical remains present that can be used to determine the seasonality of Late Woodland occupation(s)?

Answer: As already discussed, no faunal or botanical remains were recovered during any stage of investigation at 33HY0167. This is likely due to the strongly acidic BE and Bt horizons present on the site. It is therefore unlikely, although not impossible, that additional investigation will yield these types of data.

Question: Can the site be identified as to function, or place within the sequential Late Woodland settlement-subsistence systems described by Stothers and his students and colleagues, based on the artifact assemblage and/or environmental data?

Answer: As already mentioned, no data that could yield information on seasonality (which is a critical part of the sequential settlement-subsistence systems described by Stothers and his students and colleagues) has been recovered from 33HY0167, and the site-specific formation processes described in Section 5.1.1 make it unlikely that additional excavation will result in the collection of such data. This inability to identify the seasonality of the Late Woodland occupations complicates any attempt to place these occupations within the settlement-subsistence system described by Stothers and his students and colleagues for this region.

However, the complete lack of ceramic artifacts on a site known to include multiple Late Archaic through Late Prehistoric components may provide clues as to site function. As has already been demonstrated, a large number of lithic artifacts representing a variety of activities is present at 33HY0167. Feature 16.1 appears to be a hearth dating the terminal Middle Woodland or very early Late Woodland. The lack of ceramics within the feature fill, however, may indicate that this feature was not used for cooking purposes. One possibility suggested by the presence of the coral fossils within the feature fill is that they may have been intentionally removed from fossiliferous local tool-stone such as Ten Mile Creek chert for the purpose of shedding weight and improving utility. It is possible, therefore, that this feature represents a WBMW or Gibraltar Phase hearth that was utilized for heat-treating raw tool-stone material prior to the manufacture of stone tools.

Similarly, the dearth of artifacts recovered from Feature 14.1, a pit feature dating to the Terminal Late Woodland/Late Prehistoric transition, is puzzling. The lack of ceramics or botanical remains indicates that the feature was not used for food storage, although the pit may simply have been cleaned out thoroughly prior to its abandonment, and of course any botanical remains may have been subject to decomposition due to high soil acidity. However, the recovery of core fragments and an unfinished biface from the feature fill within the pit, as well as numerous pieces of lithic debitage, additional cores/core fragments, bifaces/biface fragments, a uniface fragment, scrapers, and unmodified but slightly charred or crazed tool-stone nodules (including one piece of unmodified Pipe Creek chert, which is considered an exotic chert material for northwest Ohio and would not have found its way to Henry County naturally) from the plow zone above the feature, indicate that tool manufacture and/or maintenance activities took place in the immediate vicinity of the feature. One possibility is that Feature 14.1 was used as a cache pit for raw or recycled lithic material, similar to Feature 8.1.

Thus, it appears that the portion of 33HY0167 within the New Maumee River Crossing Project Area may have been used as a lithic workshop area on multiple occasions during the early Late Woodland to the Terminal Late Woodland. Given that the resources within the project area appear to be part of a larger site, and that the project area may represent the western edge of this site, it is certainly possible that these workshop areas were peripheral to larger settlements, perhaps the warm-season focal settlements described by Stothers and his students and colleagues. While one might expect that a larger Late Woodland-period site would have been identified by Stothers et al. (1981), rather than (or in addition to) their identification of 33HY0167 as a Paleoindian/Early Archaic campsite, it bears repeating that the Ritter No. 1 site was identified primarily through an interview or interviews with a local artifact collector (see page 9 of this report), which limits the utility of the original reporting.

Furthermore, it should be noted that four small Late Woodland sites were identified by Stothers et al. (1981) in the sod field immediately to the east of the corn field in which 33HY0167 is located. These sites were assigned OAI numbers 33HY0181-0184, and were collectively referred to in later publications (e.g., Bechtel and Stothers 1993) as the Campbell Soup site. All four sites were located in eroding areas along the riverbank, and all four yielded grit-tempered ceramics. Based on the presence of ceramics (including decorated neck sherds from two of the sites), the Campbell Soup site was interpreted as a possible Younge Phase occupation. Although the OAI forms for each of the four sites recommend additional testing, it does not appear that any such testing was ever conducted.

One possibility that can be suggested is that 33HY0167 and 33HY0181-0184 all represent locations associated with a warm-season focal settlement – either portions of the primary settlement itself (perhaps representing slight spatial shifts over time) or special-purpose satellite locations. Although Stothers and his students and colleagues never directly addressed the issue of band-level territorial ranges during the Late Woodland period, they did suggest that during the Late Archaic period such territorial ranges were associated with catchment zones that appeared (based on archaeological site spacing) to be approximately 6.2-9.3 miles (10-15 km) in diameter and spaced out along the Maumee River Valley (Stothers, Abel and Schneider 2001:243). Assuming population increase from the Late Archaic to the Late Woodland, it can reasonably be surmised that territorial ranges would have either stayed the same or decreased in size. Thus, if 33HY0167 and the Campbell Soup site together represent the warm-season focal settlement of one band-level catchment zone/territorial range, we can expect to find other such focal settlements in either direction along the river. In fact, such core settlements and associated satellite site locations have been located and investigated: the Johnson site (33HY0207) approximately 5.5 miles (8.9 km) downstream from the eastern edge of the Campbell Soup sites (Pratt 1993), and the Gunn-Eberle site complex (33HY0033, 33HY0077, 33HY0081, 33HY0082, and 33HY0083) approximately 6.4 miles (10.3 km) upstream from 33HY0167 (Redmond 1983; see also Bechtel and Stothers 1993, Schneider 2000:72-78, and Stothers and Bechtel 2000) (Figure 5.6). Numerous other prehistoric activity loci have been located along the Maumee River between these three locations; these sites may well be additional special-purpose extractive camps associated with these focal settlements.

It is important to stress that the identification of 33HY0167 and 33HY0181-0184 as possible components of a warm-season focal settlement and associated satellite stations is *extremely* tentative at this time, and is based on circumstantial evidence. Detailed comparisons of the Ritter No. 1 and Campbell Soup sites to the Gunn-Eberle and Johnson sites would be required to test this hypothesis. Given the lack of systematic investigation of the Campbell Soup site, the fact that the Ritter No. 1 site appears to be unique among identified Middle and Late Woodland components in the mid-Maumee River Valley in that it lacks ceramic artifacts entirely, and the relatively simplistic analyses of lithic assemblages from the Gunn-Eberle and Johnson sites, such detailed comparisons are beyond the scope of a Phase II investigation. However, they could be incorporated into a Phase III investigation.

Question: Can the site provide data that could be used to evaluate the competing hypotheses of population replacement and *in situ* cultural development that have been proposed for the Terminal Late Woodland/Late Prehistoric transition in northwestern Ohio?

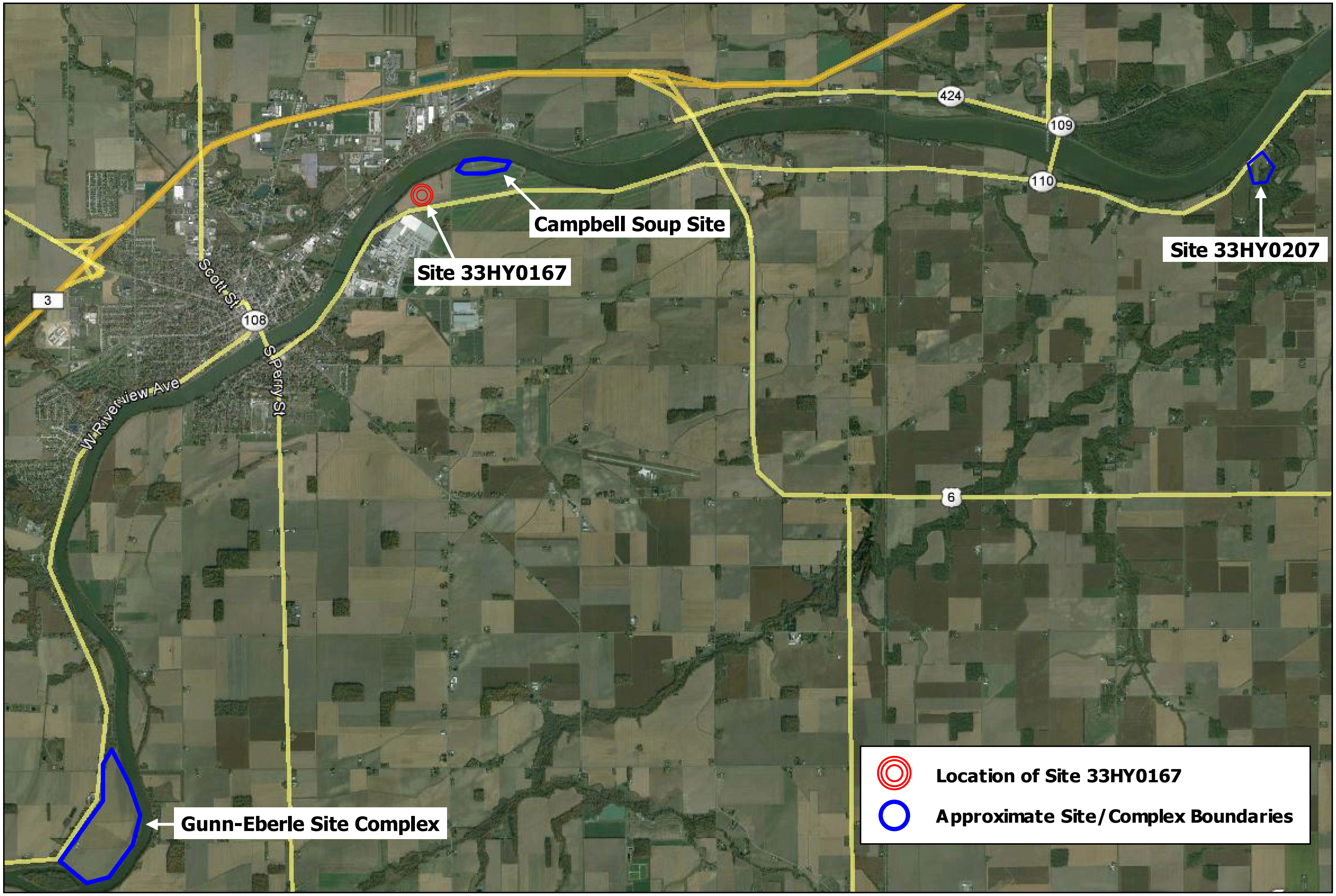

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Figure 5.6
Locations of Proposed Late Woodland Focal Settlements and Associated Sites in Henry County
New Maumee River Crossing
Napoleon, Ohio

Answer: As described in Section 2.4, there has been disagreement over the cultural dynamics during the Terminal Late Woodland/Late Prehistoric transition. Stothers and his colleagues have argued that the local Iroquoian WBT, Springwells Phase populations were pushed out of northwestern Ohio (and specifically the Maumee River Valley) by Algonkian Sandusky Tradition, Wolf Phase populations from the east (see Schneider 2000:18). Pratt (1993) and Brose (2000), on the other hand, have argued that the Wolf Phase represents an *in situ* cultural development as local populations adjusted to changing climatic conditions during the "Little Ice Age."

The differences between these cultural phases and traditions have largely been defined on the basis of ceramic styles, mortuary behavior, and ethnohistoric/linguistic data. The Ritter No. 1 site has not yielded any such data to date. However, it has yielded plentiful data on lithic technology, including raw material utilization and patterns of tool manufacture/maintenance. That lithic assemblages have not been used as another lens through which to examine this issue of cultural continuity versus demographic change at the transition between the Late Woodland and Late Prehistoric periods in northwestern Ohio is puzzling given the ubiquity of lithic artifacts on sites of these time periods. In the published literature on these periods in this region, very little attention has been paid to lithic artifacts outside of the description of diagnostic projectile point types/horizons and a basic observation that the use of local Devonian chert types (Ten Mile Creek and Delaware cherts) predominated over exotic tool stone varieties. (The predominant use of local tool stone sources has been interpreted as a result of low population mobility, while the presence of small amounts of exotic lithic types has been interpreted as the result of trade/exchange networks connecting northwestern Ohio to other regions.)

Only one occupational episode dating to the Terminal Late Woodland/Late Prehistoric period has been identified at 33HY0167 to date. However, it seems likely, given the site's history of repeated occupations, that additional components dating to (and possibly also immediately before and after) this time period are present. If so, a fine-grained analysis of the lithic assemblages from different occupations could contribute to the debate over cultural continuity versus demographic change during the Terminal Late Woodland/Late Prehistoric transition in northwestern Ohio.

5.4 NRHP Eligibility Evaluation

The objective of the current study is to determine whether the archaeological resources within the New Maumee River Crossing Project Area, interpreted as a portion of archaeological site 33HY0167, are a historically significant property. Significance evaluations of archaeological resources are made in terms of their eligibility for listing in the NRHP. According to 36 CFR 60.4 of the National Historic Preservation Act (NHPA), properties may be eligible for listing in the NRHP if they meet one or more of the following criteria:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in the districts, sites, buildings, structures and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. *Association with events that have made a significant contribution to the broad patterns of American history;*
B. *Association with the lives of historically significant persons;*
C. *Embodiment of distinctive characteristics of a type, period, or method of construction; representative of the work of a master; possession of high artistic values; or representation of a significant and distinguishable entity whose components may lack individual distinction (for archaeological sites associated with standing architecture, or yielding related architectural evidence); or*
D. *Ability to yield information important to the study of North American prehistory or history.*

Archaeological properties are most often determined to be eligible for the NRHP under Criterion D. Therefore, it is important to note that in order for archaeological remains to satisfy the criteria considerations and to yield information important to the study of North American prehistory or history, they must satisfy two conditions: They should remain within the depositional environment in which they were originally interred or accumulated (i.e., undisturbed contexts), and they should have the ability to yield data that can be used to address specific research questions within general research designs related to specific regions and time periods.

As discussed in Section 5.1, site-specific natural formation processes have complicated the archaeological record within the New Maumee River Crossing Project Area. However, the prehistoric archaeological resources present within the project area appear to exhibit both vertical and horizontal integrity, especially beneath the plow zone. While some disturbance to these resources has been caused by over 100 years of agricultural activity, and while organic remains are sparse within the project area due to a highly acidic soil environment, a proper understanding of post-depositional site formation processes allows for better, more accurate interpretations of the cultural remains within the project area.

As discussed in Sections 4 and 5.2-5.3, multiple temporal components spanning the Late Archaic through Terminal Late Woodland/Late Prehistoric transition period have been identified within the current project area. It has been demonstrated that these intact sub-plow zone cultural features and deposits have the ability to yield data that can address a wide variety of research questions relevant to the investigation of the Late Archaic, Middle Woodland, and Late Woodland/Late Prehistoric periods in northwestern Ohio.

Therefore, MSG recommends that the portion of 33HY0167 that is present within the New Maumee River Crossing Area is eligible for the NRHP under Criterion D (information potential) for its ability to yield important information regarding multiple periods of prehistory in the mid-Maumee River Valley region of northwestern Ohio.

6.0 SUMMARY AND RECOMMENDATIONS

In April and November 2015, MSG conducted Phase II archaeological testing of a portion of 33HY0167, a prehistoric archaeological site located on the south side of the Maumee River in Harrison Township, Henry County, Ohio. The Phase II investigations were requested by ODOT based on the results of a Phase I archaeological survey conducted by MSG for the New Maumee River Crossing project (PID #22984) during the fall of 2014. Originally recorded during a regional survey by University of Toledo (UT) archaeologists in 1981, 33HY0167 was initially characterized by the UT archaeologists as a possible Paleoindian/Early Archaic lithic workshop. No diagnostic artifacts were recovered during MSG's Phase I survey, so the Phase II research design was originally developed with this site characterization in mind.

MSG subcontracted OVAI to conduct a magnetic gradient survey of that portion of 33HY0167 located within the New Maumee River Crossing Project Area (see Appendix A). OVAI identified 17 magnetic anomalies of potential archaeological interest during this survey; soil coring resulted in the reduction of the number of potentially cultural anomalies to 11. The identified anomalies appear to be clustered between the N940-N980 survey grid lines, which corresponds to the western end of a natural levee on which 33HY0167 was originally recorded in 1981. On the basis of the magnetic gradient survey and soil coring, OVAI recommended test excavations of four of the anomalies. MSG then conducted a two-stage field investigation in April 2015: a timed, controlled surface collection of 16.4-ft. (5-m) blocks throughout the site boundaries within the project area, followed by test excavations of the four magnetic anomalies suggested by OVAI. Test excavations of an additional five magnetic anomaly locations (representing a wider variety of anomaly types, including two that had been characterized by OVAI as non-cultural) were conducted in November 2015.

The surface collection resulted in the recovery of 274 prehistoric artifacts, including a variety of lithic debitage types, lithic tool forms, FCR, and unmodified but possibly heat-treated tool stone nodules. In addition, the surface collection yielded an assemblage containing a large variety of tool stone from central and southern Indiana; southwestern, central, north-central, and northwestern Ohio; southeastern and northeastern Michigan; and the Niagara region of New York. Among the tools recovered were three Bottleneck Stemmed projectile points dating to the Late Archaic period. MSG integrated the Phase I and Phase II surface collection datasets in order to conduct density, distribution, and co-occurrence analyses for a selected set of artifact attributes, including artifact forms, stone tool types, debitage types, and raw material varieties.

Several interesting patterns emerged from this analysis. On the most basic level, there appears to be a general pattern of overall artifact distribution consisting of a high-density zone in the northern third of the project area, a moderate-density zone in the middle third of the project area, and a low-density zone within the southern third of the project area. Even within the low-density zone, a general area of higher density can be identified in the west-central portion of this zone. The location of the highest-density zone in the northern third of the project area contrasts with the clustering of the majority of identified magnetic anomalies within the middle third of the project area, at the western end of a natural levee. Two possible explanations for this discrepancy are that areas of higher density outside the moderate-density zone are the result of either post-depositional disturbance (e.g., plowing activity or downslope erosion toward the river) or of cultural activity that resulted only in surface or near-surface artifact deposits and an absence of subsurface feature contexts (or the presence of only features that lack a distinctive magnetic signature).

Other patterns that have been identified within the surface collected assemblage include a slightly better correspondence between the occurrence of exotic tool stone varieties within the surface collected assemblage and the densest cluster of magnetic anomalies, than between local tool stone varieties within the surface assemblage and the cluster of magnetic anomalies; a generally wide distribution of both formal tools and debitage across the project area, in contrast to the more restricted distribution of FCR and expedient tools (the latter being more closely aligned to overall patterns of artifact density as well as the densest cluster of magnetic anomalies); the 100% co-occurrence of other artifact forms with expedient (flake) tools, and the co-occurrence of other artifact forms with FCR, formal tools and debitage approximately two-thirds of the time; the clear spatial association of simple and complex flakes with the densest cluster of magnetic anomalies; and the approximately 40% co-occurrence of shatter, simple flakes and complex flakes with one or more of each other across the site.

Following the completion of the Phase II timed, controlled surface survey, a total of nine magnetic anomaly locations were investigated through test excavation units: Anomalies 1, 5, 8, 10, 11, 12, 14, 16 and 17. The anomalies chosen for test excavation represented the entire spectrum of OVAI's rating system, including anomalies rated as *Excellent* (n=1), *Good* (n=2), *Fair-Good* (n=1), *Fair* (n=2), and *no rating* (n=2). While all test units were originally opened as 6.6-ft. (2-m) square units, four of the test units (Anomalies 8, 10, 11, and 14) were expanded to double (overlapping) 6.6-ft. (2-m) units (each thus totaling 75 square ft. [7 square m]) in order to fully expose potential cultural features.

Only one test unit (Anomaly 1, which had been identified by OVAI as a possible pit feature or large rock) failed to yield any evidence of cultural activity. The remaining eight test units all revealed at least one cultural feature or cultural deposit. (Several additional soil stains and areas of obtrusive fill that were initially recorded as features were later determined to be likely root casts or rodent burrows.) The following cultural features and deposits were identified within the test units:

- Anomaly 5, Levels 2-3, which yielded AMS date ranges of 2115-2100 cal B.C. (4065-4050 cal B.P.) and 2035-1900 cal B.C. (3985-3850 cal B.P.) (p=0.05) and are interpreted here as a possible Late Archaic living surface;
- Anomaly 8, Feature 8.1, which did not yield any diagnostic artifacts or organic material suitable for radiometric dating and is interpreted here as a possible ground stone raw material cache or a small earth oven or roasting pit filled with heating stones (some of which may have been recycled ground stone tools) from an unknown time in prehistory;
- Anomaly 10, Feature 10.1, which yielded an AMS date range of 40 cal B.C. to 80 cal A.D. (1990-1870 cal B.P.) (p=0.05) and is interpreted here as a possible small, early Middle Woodland earth oven or roasting pit;
- Anomaly 11, Feature 11.1, which yielded an AMS date range of 1020-1165 cal A.D. (930-785 cal B.P.) (p=0.05) and is interpreted here as a Terminal late Woodland/Late Prehistoric transition-period post mold;
- Anomaly 12, Levels 3-4, which did not yield any diagnostic artifacts or organic material suitable for radiometric dating but is interpreted here (due to stratigraphic and visual similarity to Anomaly 5, Levels 2-3) as a possible Late Archaic living surface;
- Anomaly 14, Feature 14.1, a stratified pit feature that yielded an AMS date range of 1020-1160 cal A.D. (930-790 cal B.P.) (p=0.05) and is interpreted here as a pit feature of unknown function dating to the Terminal late Woodland/Late Prehistoric transition period;

- Anomaly 16, Feature 16.1, which yielded (from two samples of organic material) AMS date ranges of 390-540 cal A.D. (1560-1410 cal B.P.) (p=0.05), while Sample J returned ranges of 430-490 ca. A.D. (1520-1460 cal B.P.), 510-515 cal A.D. (1440-1435 cal B.P.), and 530-605 cal A.D. (1420-1345 cal B.P.) (p=0.05) and is interpreted here as a possible hearth for the heat treatment of lithic raw material prior to the manufacture of stone tools dating to the Middle-Late Woodland transition period;
- Anomaly 17, Feature 17.1, which did not yield any diagnostic artifacts or organic material suitable for radiometric dating and is interpreted here as either a living surface or the scattered remains of a hearth from an unknown time in prehistory; and
- Anomaly 17, Features 17.2 and 17.3, the latter of which yielded AMS date ranges of 1670-1780 cal A.D. (280-170 cal B.P.) (p=0.05) and 1800 to post-1950 cal A.D. (150 to 0 cal B.P.) (p=0.05) and which together are interpreted as the archaeological signature of a historic-period farm structure.

Soil samples were collected from selected feature fill and non-feature cultural deposits and subjected to flotation for the purpose of recovering macrobotanical remains (see Appendix D). A total of 15 sediment samples from controlled, sub-plow zone proveniences were submitted for flotation. Only six of these sediment samples yielded any botanical remains at all, and only two yielded remains that could be identified by taxon. Of these two samples, one was from a feature (Feature 14.3) that was determined to be natural in origin, representing a ground wasp nest dating no earlier than A.D. 1667. Thus, of the 15 sediment samples submitted for analysis, only one yielded identifiable macrobotanical remains associated with a cultural feature – Feature 11.1, the Terminal Late Woodland/Late Prehistoric transition-period post mold, which yielded fragments of hickory (*Carya* sp.) and basswood (*Tilia americana*) (both common to northern Ohio throughout prehistory).

While questions concerning site integrity were included in the initial research design for the Phase II investigation of 33HY0167, the paucity of botanical remains and the complete lack of faunal remains recovered during this investigation prompted a more thorough examination of site formation processes. The general lack of organic preservation within the site, and particularly in association with older archaeological deposits, can be explained with reference to the prominent soil type within the project area, Haney loam. Haney series soils formed in loamy and gravelly outwash and occur on stream terraces, outwash plains and glacial drainage channels (NCSS 2013). The macrobotanical analysis report noted high concentrations of gravel in multiple sediment samples, which is not conducive to the preservation of organic materials (Parker 2015a). Furthermore, the stratigraphic profile of Haney loam is characterized by a strongly acid, eluvial BE horizon beneath the plow zone, and a very strongly acid Bt horizon below the BE horizon (NCSS 2013). This strong acidity has most likely caused the rapid decomposition of organic materials that may have originally been present within the archaeological deposits on the site, an inference which is supported by the fact that what few botanical remains were recovered are associated only with either terminal Late Woodland/Late Prehistoric transition period deposits or with post-1650 faunal or cultural disturbance.

The presence of a BE soil horizon across much of the project area explains another aspect of site formation processes. The BE horizon, which is defined as an E horizon that more closely resembles the B (subsoil) horizon than the A or Ap horizon in a given soil type (Soil Survey Staff 1992:518), extends to an average depth of 16.1 in (41 cm) in Haney series soils (NCSS 2013). These characteristics of the BE horizon led to its misidentification as the Bt horizon during Phase I shovel testing and the initial Phase II test unit excavation conducted in April 2015. Notably, the oldest cultural deposits identified within the New Maumee River Crossing Project Area (Anomaly 5, Levels 2-3, which has been radiometrically dated to the Late Archaic period, and Anomaly 12, Levels 3-4, which has been interpreted as being of similar age due to stratigraphic position) were both identified only underneath a sterile layer of BE horizon soil. Therefore, it is possible that this temporal component (and perhaps even earlier components) at 33HY0167 has been underrepresented in the results of Phase I and Phase II investigations due to the initial confusion surrounding site stratigraphy.

Following the identification of multiple temporal components within the project area, the research design was revised to include consideration of important research questions for multiple prehistoric periods, not just the Paleoindian and Early Archaic periods. Overall, the research questions posed for the Phase II archaeological investigation of the New Maumee River Crossing Project Area can be divided into site-specific research questions (including questions related to site integrity and formation processes, discussed above) and comparative research questions that place 33HY0167 into broader regional and temporal frameworks. The site-specific research questions include:

- Do the archaeological resources present within the New Maumee River Crossing project area represent an extension of 33HY0167, or a separate site?
- Are intact features present within the site? Does the site exhibit internal spatial patterning and/or stratigraphic integrity? Does the patterning of artifacts within the plow zone accurately reflect sub-plow zone spatial patterning, if any?
- If features are present, do they contain artifacts, ecofacts, or other evidence that could help to identify site function, seasonality and/or age, or that could contribute to paleoenvironmental reconstructions?
- Can specific prehistoric temporal components (e.g., Early Archaic, Late Archaic, Early Woodland, etc.) be identified within the site? If so, what temporal periods are represented? Can the site be dated to more specific cultural/technological horizons?

The results of the Phase I and Phase II investigations of 33HY0167 have provided either firm or at least tentative answers to all of these questions. First, based on the results of Phase I surface survey (which demonstrated a continuous distribution of prehistoric artifacts from the New Maumee River Crossing Project Area and the originally reported location of 33HY0167), it is the Principal Investigator's opinion that the archaeological resources should be considered to represent part of the Ritter No. 1 site until and unless additional fieldwork outside of the current project area boundaries demonstrates otherwise.

Secondly, intact features as well as apparent buried living surfaces are present within the project area. These cultural deposits generally appear to be clustered in a linear area between the N940-N960 survey grid lines, which, as already mentioned, correspond to the western end of the natural levee on which the Ritter No. 1 site was originally identified. However, the attempt to discern intra-site spatial patterning in the locations of sub-plow zone contexts is complicated by the small number of sub-plow zone deposits assigned to each prehistoric temporal period (no more than two in any instance; see below) along with the extension of the site outside the current project boundaries. On the other hand, the New Maumee River Crossing Project Area does exhibit stratigraphic integrity, and several interesting patterns have been observed within the aggregated Phase I-II surface collection assemblage that may or may not relate to temporally specific intra-site spatial patterning. One interesting discrepancy between the surface collection assemblage and the location of magnetic anomalies is a relatively higher density of artifacts in the northern third of the project area, to the north of the cluster of magnetic anomalies. Two possible explanations for this discrepancy have been offered: that areas of higher density outside the moderate-density zone are the result of either post-depositional disturbance (e.g., plowing activity or downslope erosion) or of cultural activity that resulted only in surface or near-surface artifact deposits and an absence of subsurface feature contexts (or the presence of only features that lack a distinctive magnetic signature). Additional investigation of 33HY0167 would be necessary to shed more light on these issues.

Thirdly, while intact features and other cultural deposits are indeed present (and apparently numerous) below the plow zone within the project area, no artifacts, ecofacts or other evidence relating to site seasonality or the paleoenvironment were recovered during either stage of investigation at 33HY0167. As already discussed, one possible explanation for this lack of evidence could lie in the soil properties that characterize much of the project area – namely, the high acidity of the BE and Bt soil horizons as well as a relatively high gravel content, neither of which are conducive to organic preservation.

Finally, despite the general lack of organic preservation within the project area, six samples of organic material from controlled, sub-plow zone proveniences were successfully dated through AMS dating. The radiometric dates yielded by these samples demonstrate that the Ritter No. 1 site consists of multiple temporal components, including the middle Late Archaic period (Anomaly 5, Levels 2-3), the early Middle Woodland (Anomaly 10, Feature 10.1, representing the WBMW cultural tradition), the Middle Woodland-Late Woodland transition (Anomaly 16, Feature 16.1 [two samples], representing either the WBMW tradition or the Gibraltar Phase of the WBT [or a transitional phase bridging the two]), and the terminal Late Woodland/Late Prehistoric transition (Anomaly 11, Feature 11.1 and Anomaly 14, Feature 14.1, representing either the WBT Springwells Phase or the Algonkian Wolf Phase, or alternatively the WBT Wolf Phase). In addition, three Bottleneck Stemmed projectile points recovered from surface contexts near the northern end of the project area confirm a Late Archaic presence at the site.

The comparative research questions regarding 33HY0167 include:

- If a Paleoindian/Early Archaic component is present, how does this component compare to other Paleoindian/Early Archaic sites in the region (in terms of spatial organization, artifact patterning, etc.)? Can the site yield data that could be used to address the debate over lithic source utilization and population movements in northwestern Ohio during these time periods? Can the site yield data that could shed light on subsistence activities during the Early Archaic period?
- If a Late Archaic component is present, can the site be associated with a known catchment zone, or can a likely catchment zone be identified? Within the typical inventory of sites within a catchment zone, what site type does this component represent? Does this component have an artifact assemblage that could be used to investigate the question of high band mobility versus trade and exchange networks during the Late Archaic period? Does this component have an artifact assemblage that can be used to investigate the issue of craft specialization during the Late Archaic period in northwestern Ohio?
- If a Middle Woodland component is present, does this component represent the focal settlement pattern or the seasonal coalescence-dispersal pattern? Can the component be more precisely dated, in order to shed light on the hypothesized temporal relationship of these different settlement patterns? If the Middle Woodland component represents the focal settlement pattern, what type of site within this pattern does it represent (focal habitation or satellite station)? If it represents the coalescence-dispersal pattern, what type of site within this pattern does it represent (seasonal base camp or seasonal hunting/foraging station)? Can the Middle Woodland component shed light on issues of cultural interaction and cultural boundaries within the WBMW? For instance, does there appear to be a distinctive pattern of lithic raw material utilization that sets it apart from earlier or later time periods in this region? Is there any evidence of Hopewellian cultural influence at the site?

- If a Late Woodland component is present, can the Late Woodland component(s) be identified by cultural tradition (Western Basin or Sandusky) and/or phase (Gibraltar, Riviere au Vase, Younge, Springwells, Wolf)? Is there evidence in the site assemblage of cultural continuity and/or cultural (demographic) change between Middle and Late Woodland components? Are faunal and/or botanical remains present that can be used to determine the seasonality of Late Woodland occupation(s)? Can the site be identified as to function, or place within the sequential Late Woodland settlement-subsistence systems described by Stothers and his students and colleagues, based on the artifact assemblage and/or environmental data? Can the site provide data that could be used to evaluate the competing hypotheses of population replacement and *in situ* cultural development that have been proposed for the Terminal Late Woodland/Late Prehistoric transition in northwestern Ohio?

While not all of these research questions can be addressed using the results of the Phase I and Phase II investigations of the Ritter No. 1 site, many of them can be. These investigations did not produce any evidence of a Paleoindian or Early Archaic occupation of the site, in contrast to the original documentation of the site (Stothers et al. 1981). However, this discrepancy may merely be a function of the limited New Maumee River Crossing Project Area; the site clearly extends outside of the current project boundaries, so the absence of a Paleoindian/Early Archaic component within the project area does not necessarily mean the absence of such within the site as a whole.

As discussed in Section 5.3.2.2, 33HY0167 cannot be associated at this time with a known Late Archaic catchment zone/band territory. This is largely due to the fact that the published literature on this topic is focused on the lower Maumee River Valley in Lucas County. However, over three dozen Late Archaic site components were recorded in the mid-Maumee River Valley by Stothers et al. (1981); modern GIS techniques combined with a landscape approach to prehistoric settlement should be able to identify catchment zones/band territories in this region. In terms of functional classification, several aspects of the Late Archaic assemblage – namely, abundant FCR, lithic tools, lithic debitage, unmodified but apparently heat-treated raw tool-stone material, and even coral fossils that may have been removed from fossiliferous tool stone, in contrast to a general lack of artifacts indicative of domestic activity (with the exception of several ground stone tools) – suggest that the Late Archaic occupation of 33HY0167 may have been focused on the production of stone tools. Given that lithic workshops as a specific site type are nearly absent from published discussions of the Late Archaic period in northwestern Ohio, it is possible that the Late Archaic component within the New Maumee River Crossing Project Area represents a specialized activity area on the periphery of a larger settlement. Indeed, while the question of craft specialization within the Late Archaic cannot be addressed by the existing data from 33HY0167, the presence of ground stone tools during this period but their absence from later temporal components may represent evidence of gradual craft specialization in this region. Finally, the presence of three different confirmed or suspected Late Archaic contexts within the project area (the surface-collected Late Archaic projectile points, Anomaly 5, Levels 2-3, and Anomaly 12, Levels 3-4), all of which exhibit different frequencies of local versus exotic tool stone utilization, indicates that further investigation of 33HY0167 is likely to yield data that could address the issue of high band mobility versus trade and exchange networks during the Late Archaic period.

As discussed in Section 5.3.2.3, two different Middle Woodland occupations have been identified within the New Maumee River Crossing Project Area. Anomaly 10, Feature 10.1 has been dated to the beginning of the Middle Woodland period, while Anomaly 16, Feature 16.1 has been dated to the transition period from the Middle to Late Woodland periods. The limited information collected during the Phase II investigation concerning these separate Middle Woodland occupations makes it impossible to determine at this time which settlement pattern each represents. However, the presence of two discrete Middle Woodland occupations indicates that additional investigation of the site is likely to yield information on the function of these components, their place within broader settlement-subsistence systems, and therefore the temporal relationship (if any) between the focal and seasonal coalescence-dispersal settlement patterns. Regarding issues of cultural interaction, 33HY0167 has not produced the typical kinds of evidence used to argue for Hopewellian influence (e.g., exotic trade goods from far-flung locales, mound burials, and distinctive lithic and ceramic forms). On the other hand, a comparison of assemblage composition from the Middle and Late Woodland components within the Ritter No. 1 site in terms of relative frequencies of local versus exotic lithic varieties indicates a spike in the utilization of exotic tool stone types (particularly varieties originating from central and southern Ohio) during the Middle to Late Woodland transition in comparison to the early Middle Woodland and Terminal Late Woodland/Late Prehistoric periods. This would seem to indicate increased contact between the occupants of 33HY0167 and Hopewellian populations to the south during the Middle Woodland.

As discussed in Section 5.3.2.4, the Late Woodland components identified at 33HY0167 cannot be firmly assigned to specific cultural horizons. In part, however, this is due to existing disagreement over the culture history of the Terminal Late Woodland period. Feature 16.1 yielded multiple radiometric dates placing it during the 5^{th}-6^{th} centuries A.D., straddling the transition from the Middle to Late Woodland periods in northwestern Ohio. Thus, it may represent a WBMW occupation or a Late Woodland WBT, Gibraltar Phase occupation. Similarly, Features 11.1 and 14.1 yielded radiometric dates placing them during the 11^{th}-12^{th} centuries A.D., spanning the transition from the Late Woodland to Late Prehistoric periods. The question arises, however, whether this occupation represents the Springwells Phase or the Wolf Phase, and concomitantly, the Western Basin Tradition or the Sandusky Tradition (see Section 2.4.1). In terms of cultural continuity during the Late Woodland period, the preceding Middle Woodland increase in the utilization of lithic raw materials from central and southern Ohio has already been mentioned. Notably, lithic varieties from central and southern Ohio continued to predominate during the Terminal Late Woodland/Late Prehistoric transition occupation of the site, although these later contexts do exhibit a slight uptick in the frequencies of lithic varieties from regions that Stothers and Bechtel (2000) have argued were culturally aligned with the northwestern Ohio WBT populations: central Indiana, eastern Michigan and the Niagara region of New York. This trend may provide some indirect support for a culture historical model in which Terminal Late Woodland WBT populations were not driven out of the region by an invading Algonkian population, but rather evolved *in situ*. Finally, similar to earlier time periods, no data that could address issues of occupational seasonality during the Late Woodland was recovered from the Ritter No. 1 site. However, the complete lack of ceramics and the presence of artifact types representing all stages of the lithic reduction process (including unmodified but apparently heat-treated tool stone nodules) indicate that, like earlier time periods, the Terminal Late Woodland/Late Prehistoric occupation of 33HY0167 may represent a lithic workshop. Furthermore, 33HY0167 is located approximately equidistantly from two known warm-season focal settlements: the Gunn site complex (33HY0033, 33HY0077, and 33HY0081-0083) (upstream) and the Johnson site (33HY0207) (downstream). Therefore, 33HY0167 may itself represent a warm-season focal settlement or, if lithic tool production had become a highly specialized craft activity, a special-purpose satellite location; in this scenario, the nearby Late Woodland Campbell Soup site (33HY0181-0184) may represent the focal settlement. However, much additional investigation of both 33HY0167 and the Campbell Soup site would be required to confirm this hypothesis.

In summary, it is the opinion of the Principal Investigator that the archaeological resources within the New Maumee River Crossing Project Area represent an extension of previously recorded site 33HY0167 (the Ritter No. 1 site). Multiple temporal components spanning the Late Archaic through Terminal Late

Woodland/Late Prehistoric transition period have been identified within the current project area. While site-specific natural formation processes have complicated the archaeological record in this location, a proper understanding of these processes allows for better interpretation of the cultural remains at the site. In addition, that portion of 33HY0167 that is within the current project area appears to exhibit a high degree of physical integrity despite over 100 years of agricultural disturbance (primarily from plowing activity). While the overall surface-collected assemblage exhibits some aspects of spatial patterning that differ from subsurface cultural contexts, this patterning may represent cultural activity that did not result in the formation of sub-plow zone features or features that possess a distinctive magnetic signature. Furthermore, the majority of test units exhibit a general similarity between artifact assemblages from screened plow zone samples and assemblages from sub-plow zone feature and living surface contexts, indicating direct association. In those cases that do not exhibit such similarity, the discrepancies can be explained with reference to site formation processes. Furthermore, it has been demonstrated that the intact sub-plow zone cultural features and deposits within the project area have the ability to yield data that can address a wide variety of research questions relevant to the investigation of the Late Archaic, Middle Woodland, and Late Woodland/Late Prehistoric periods in northwestern Ohio.

Therefore, MSG recommends that the portion of 33HY0167 that is present within the New Maumee River Crossing Area is eligible for the NRHP under Criterion D (information potential). If impacts to the site resulting from the construction and use of the proposed bridge cannot be avoided, then MSG recommends that the HCTID negotiate an appropriate mitigation strategy with ODOT and the OSHPO. Such a mitigation strategy may include one or more of the following: data recovery excavations within the project footprint; detailed comparisons to, and investigations of the relationship of 33HY0167 to, nearby sites (including GIS-based approaches to landscape analysis); and public outreach and education regarding 33HY0167 and the general archaeology of the mid-Maumee River Valley region.

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APPENDIX A
GEOPHYSICAL SURVEY REPORT

Magnetic Gradient Survey (Phase II) on a Portion of Site 33HY0167, a Prehistoric Native American Site near Napoleon, Ohio:

New Maumee River Crossing Project (PID#22984)

Jarrod Burks, Ph.D.

2015

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OVAI Contract Report 2015-18

On the cover: an aerial view of the project area along the Maumee River, with an inset of the core from Anomaly 10 showing the burned earth at the bottom of the feature.

OVAI Contract Report #2015-18

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New Maumee River Crossing Project (PID#22984)

by

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Project Summary

On April 2nd and 3rd, and under contract with The Mannik & Smith Group, Inc. Ohio Valley Archaeology, Inc. performed a magnetic gradient survey on a portion of site 33HY0167 for the New Maumee River Crossing Project (PID#22984). Site 33HY0167 is a multicomponent prehistoric Native American site located on the natural levee along the south bank of the Maumee River at Napoleon, Ohio. Previous pedestrian and shovel testing surveys of the site have identified lithic debitage, fire-cracked rock, and Paleoindian and Early Archaic projectile points. The magnetic gradient survey covered 1.4 acres and identified 17 magnetic gradient anomalies of potential archaeological interest. Coring (with a 1-inch diameter Oakfield soil corer) of these anomalies found that ten produced possible evidence of archaeological features, including one that is a probable earth oven, two that are probable pit features, and seven that are possible subtle features or disturbances. Excavations with 2x2 meter units are recommended at four of the anomalies (Anomalies 8, 10, 11, and 14).

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Introduction

On April 2nd and 3rd of 2015, Ohio Valley Archaeology, Inc. conducted a magnetic gradient survey with anomaly coring at site 33HY0167 in an effort to locate possible prehistoric Native American archaeological features. The site is located along the south side of the Maumee River, just east/southeast of the town of Napoleon, Ohio (Figure 1). This survey was conducted under contract with the Mannik & Smith Group, Inc. as part of the Phase II archaeological investigations for the New Maumee River Crossing Project (PID#22984).

At the time of the survey, the agricultural field containing the site was covered in corn stubble, which had been mowed down in the area to be surveyed. The soils in the survey area are predominantly Haney loam, an aquic hapludalf (i.e., wet forest soil) that typically forms into loamy or gavelly outwash (USDA 2013). This hapludalf soil is located on the crest and sides of what appears to be a natural levee. Gravel- and cobble-sized igneous and other rocks are present at and just beneath the site surface. Some of these were observed to be notably magnetic during the survey. These magnetic rocks often look very similar to prehistoric cultural features in magnetic gradient data.

To date, site 33HY0167 has been defined by surface and plowzone artifacts, consisting of lithic debris, fire-cracked rock, at least one ground-stone tool fragment, and other lithic tools that include projectile points diagnostic of the late Paleoindian to Early Archaic period (Chidester et al. 2015). Whether or not these early projectile points are associated with the other occupation debris has yet to be established. But for the purposes of the magnetic survey, it is important to note that features dating to the Early Archaic period, or older, have gone through considerable pedogenic overprinting (i.e., soil formation) and thus may not contain dark, organic rich soil typical of the kinds of features commonly encountered on later sites. This is especially challenging for anomaly coring, which attempts to identify the presence of cultural feature fill based on soil color, texture, and the presence of charcoal and burned earth.

This report is presented in several sections. A methods section outlines the basics of how magnetometers work at detecting archaeological features, provides examples of what different kinds of features look like in magnetic data, and presents a framework for interpreting the results from site 33HY0167. The results of the surveys are then presented. Finally, a summary and recommendation section wraps up the report with suggestions for an archaeological testing strategy.

Geophysical Survey Methods

Geophysical survey instruments are used to locate and delineate a wide range of features on archaeology sites all over the world (e.g., Aspinall *et al*. 2008; Bevan 1998; Clark 2000; Dalan and Banerjee 1998; Gaffney and Gater 2003; Heimmer and DeVore 1995; Lowrie 1997; Weymouth 1986; Witten 2006). The speed and data storage capacity of instruments today allows for high density coverage of large areas, especially in flat, mowed terrain.

With every geophysical survey, it is important to pick the most appropriate instrument(s) for the defined objectives of the survey—different instruments can detect different kinds of archaeological features. For example, ground-penetrating radar is

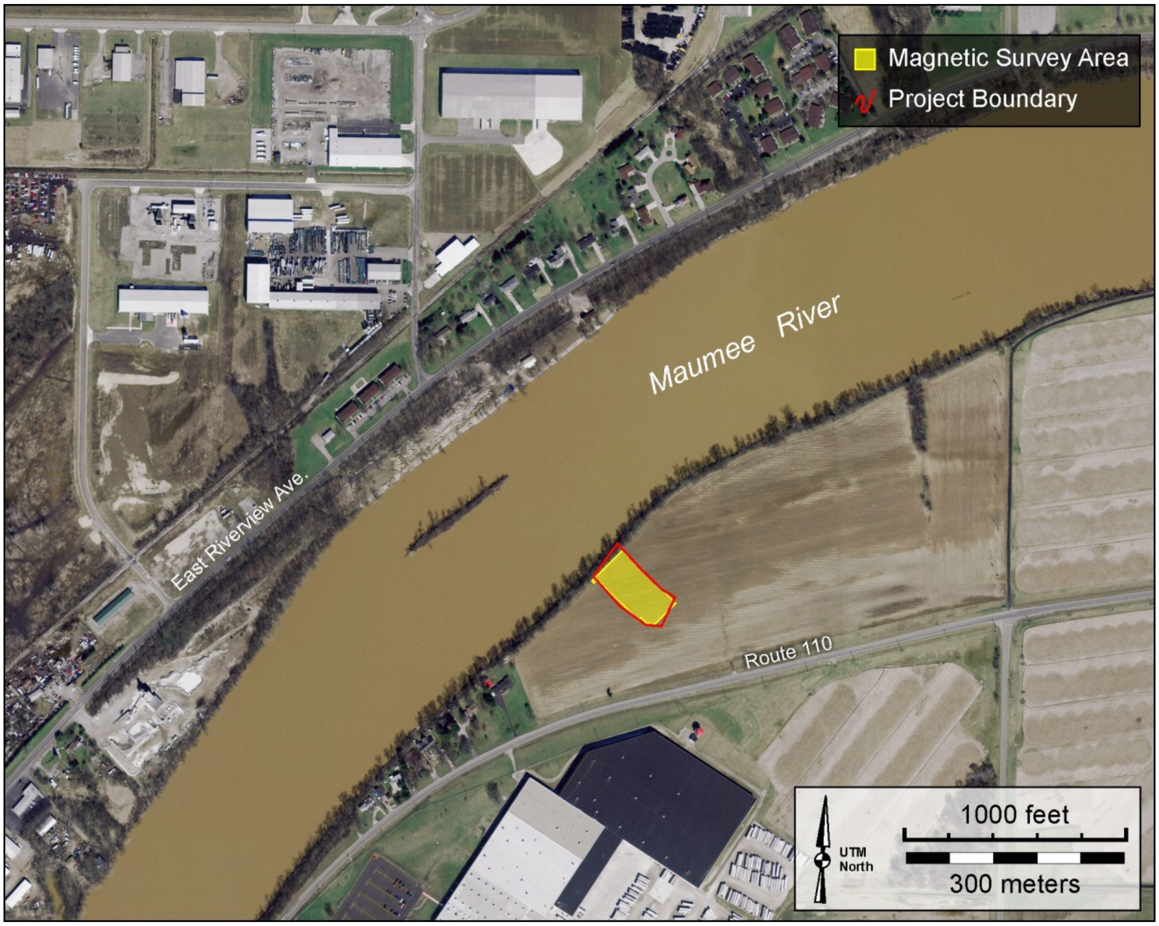

Figure 1. Location of the magnetic survey area on a 2006 aerial photograph.

excellent at detecting buried stone or brick foundations, but it is ineffective at regularly identifying sediment-filled pit features. Magnetometers, on the other hand, are ideal in Ohio for detecting pit features and burned areas, but typically cannot detect most foundations (depending on the type of building material and surrounding sediments).

For the work at site 33HY0167, the objective of the geophysical survey was to locate prehistoric Native American features, which typically include pit-type earthen features such as earth ovens, storage pits, burials, and postholes (narrow, deep pits). At site 33HY0167, such pits would be dug down into a clay and sand rich Bt horizon that should provide adequate magnetic contrast for detecting the pit features. A Foerster Ferex 4.032 DLG 4-probe fluxgate gradiometer was used for the magnetic gradient survey (Figure 2). The magnetic data were collected at a rate of ten readings per meter along transects spaced 50 cm apart.

Magnetic Gradient Survey

Magnetometers are very sensitive to ferromagnetic materials, that is, materials such as artifacts, rocks, and sediments that contain iron. Iron objects, such as large nails, farm machinery parts, and other structural and mechanical components, have very strong,

Figure 2. Geophysical instrument used during the survey work: a Foerster Ferex 4.032 DLG 4-probe fluxgate gradiometer.

unmistakable magnetic signatures. In addition to a magnetometer's ability to detect iron objects, they also can detect changes in the soil related to iron oxides—especially variability in the thickness of topsoil or archaeological midden (the refuse that tends to build up at locations where people live). Areas with enhanced magnetic susceptibility caused by the presence of archaeological midden can appear in magnetic gradient data as areas of higher background variability and strongly magnetic plow marks.

Most magnetometers react to two kinds of magnetization in archaeological sediments: thermoremanent magnetization and magnetic susceptibility (Aspinall et al. 2008; Clark 2000; Gaffney and Gater 2003). When sediments and some kinds of rocks are heated above a certain temperature, known as the ferromagnetic Curie temperature (ca. 500-700^{o}C; Lowrie 1997), they can become permanently magnetized—what is known as *thermoremanent*, or permanent, *magnetization*. Campfires and trash burning can produce more than enough heat to reach the Curie point. Upon cooling, magnetic iron oxides in the soil around or under the fire, such as magnetite and hematite, recrystalize and are fixed with a common orientation toward magnetic north. Intense heating can make an otherwise magnetically neutral (i.e., random) patch of ground highly magnetic by transforming less magnetic iron oxides (e.g., hematite) into a more magnetic iron oxide (e.g., magnetite and maghemite), and by producing magnetic ash (Linford and Canti 2001). Even sediments that have been disturbed and redeposited, such as by sweeping, raking, plowing, or other kinds of earth moving, can maintain at least some of their permanent magnetization, which is not reset until the sediments are once again heated up to a point above the Curie temperature. Objects and sediments that are permanently magnetic do not require the presence of an outside magnetic field to be detectable, unlike those materials that are magnetic because of their magnetic susceptibility.

Soils and ferromagnetic substances that have high *magnetic susceptibility* react when they are in the presence of a magnetic field. On archaeological sites it is the earth's own magnetic field that causes these magnetic reactions. Certain soil horizons and components of soil, such as organic rich topsoil (A horizon), are generally more susceptible to magnetic fields than other soil horizons (Le Borgne 1955, 1960), such as Bt (i.e., subsoil) horizons. This can be a very useful principle on many kinds of archaeology sites, where the most common kind of archaeological feature is the pit feature—a hole dug into the ground that has been filled with topsoil and/or site midden and refuse. If a hole dug a few feet into the ground is backfilled with mixed up sediments, the backfilled hole will likely have a different magnetic susceptibility than the surrounding, intact soils—especially if the hole is entirely filled with topsoil. Furthermore, human occupation of an area is known to enhance a soil's magnetic susceptibility (Dalan and Banerjee 1998; Tite and Mullins 1971). Pits filled with this magnetically enhanced soil generally are detectable on magnetic surveys. While the mechanisms behind soil susceptibility enhancement are complex and not totally understood, bacteria that use and produce small magnetic particles are known to contribute to the process (Fassbinder et al. 1990), as well as burning and the amount of certain iron oxides present in the soil (Evans and Heller 2003; Graham 1974; von Frese 1984).

Like most magnetometers, the Foerster Ferex fluxgate gradiometers used during the 33MY0167 project are passive instruments (i.e., they do not create a magnetic field), and they simultaneously detect both kinds of magnetism, remanent magnetism and magnetic susceptibility. They cannot differentiate the two. Each of the Ferex's four gradiometers consists of two fluxgate sensors spaced 65 cm apart, one atop the other. Thus, they measure the localized change in the vertical component of the magnetic field as it exists between the two sensors while the instrument is pushed back and forth across the survey area. The uppermost detector in each gradiometer senses (along one axis) the earth's background magnetic field, which in the Midwest U.S. region measures approximately 50,000-55,000 nanotesla (nT) and can vary in one day as much as a few hundred nanotesla from morning to evening (Breiner 1973). The lower detector senses the earth's background magnetic field (along one axis) *and* changes in it caused by objects or soils on the surface or as much as about two to three feet beneath (or above) the surface. Even deeper features and soils can be detected if they are strongly magnetic. Fired earth in prehistoric hearths and organic-rich soil in buried pits or ditches tend to concentrate the earth's magnetic field in measurable amounts of approximately 2-30 nT, while large iron objects or brick-filled features can measure in the hundreds or thousands of nanoteslas. Sandy soils or deep, highly organic soils can reduce the range of more subtle features to 1.5-5 nT. And this magnetic variability is not always linked to changes in soil color that are readily identifiable during excavation. Once a reading has been taken, the instrument's onboard electronics subtract the reading of the top detectors (earth's varying background magnetism) from the reading of the bottom detectors (earth's varying background magnetism plus local magnetic variability), leaving—in principle—the local magnetic gradient caused by surface and buried phenomena[1]. These numbers are then stored in the instrument until a data dump is performed.

The data were transferred from the Foerster Ferex's datalogger to a laptop computer using Foerster's Ferex Dataline (v. 3.404) software. Small spatial adjustments were made to the data in Dataline to correct for zig-zag error (what Foerster refers to as "slippage" in their Ferex manual) and in some cases a single-track "automatic compensation" was performed to remove stripping from line to line. The data were then exported as xyz files, regridded in Surfer, rotated, and imported into Geoscan Research's Geoplot (ver. 3.00s) software for further data processing and to assemble the 40 m x 40 m survey blocks into a composite block. Such processing is fairly common and involves applying mathematical algorithms to the data in an effort to reduce background noise and accentuate the potential, buried archaeological phenomena. Three processing algorithms were used in Geoplot to prepare the magnetic gradient datasets for presentation and analysis: zero mean traverse, interpolation, and low pass filter.

After processing, the data were exported from Geoplot and pulled into Surfer 10.0, where a color scale and grid were added. The surfer images were then copied into CorelDRAW for integration with the area site map, interpretation, and final image production. Data processing is necessary to prepare the data for interpretation and visualization; however, excessive processing can also produce false data anomalies. Care was taken to avoid creating false anomalies.

Interpreting Magnetic Gradient Results

There is a certain knack to interpreting magnetic gradient data at archaeology sites; general rules of thumb vary between historic-era and prehistoric sites, and across sites with differing soils. Historic sites are usually covered in iron objects that are very magnetic and the signatures of these objects can dominate a dataset, obscuring the locations of important archaeological features. At prehistoric sites, archaeological features can be subtle in magnetic data, and they often look similar to the magnetic anomalies created by rocks, animal burrows, and variations in the thickness of the A horizon/plowzone. Thus, it is important to apply a consistent approach when interpreting magnetic data, but it should be one that is flexible and inquisitive because every survey can produce unanticipated results that do not fit our expectations.

In most magnetic gradient data there are five kinds of potentially significant magnetic anomalies that occur on archaeology sites: Monopolar Positive, Dipolar Simple, Dipolar Complex, Multi-Monopolar Positive, and Monopolar Positive/Dipolar Simple[2]. Figure 3 illustrates of a selection of these anomaly types. It can be useful to classify a site's anomalies as this is one way to locate archaeological features of interest, especially on ancient Native American sites. The shape, size, intensity, and polarity (positive or negative) of magnetic anomalies is determined by the characteristics of the anomaly's source (or target), including the target's (object or archaeological feature) shape, material composition, mass, orientation, and depth. An object or feature's anomaly shape can also be affected by the magnetic signatures of nearby objects and features. And of course, anomaly shape and intensity is affected by where on the planet (especially latitude) the survey was conducted, which determines the inclination of the earth's magnetic field: approximately horizontal at the equator and vertical at the poles.

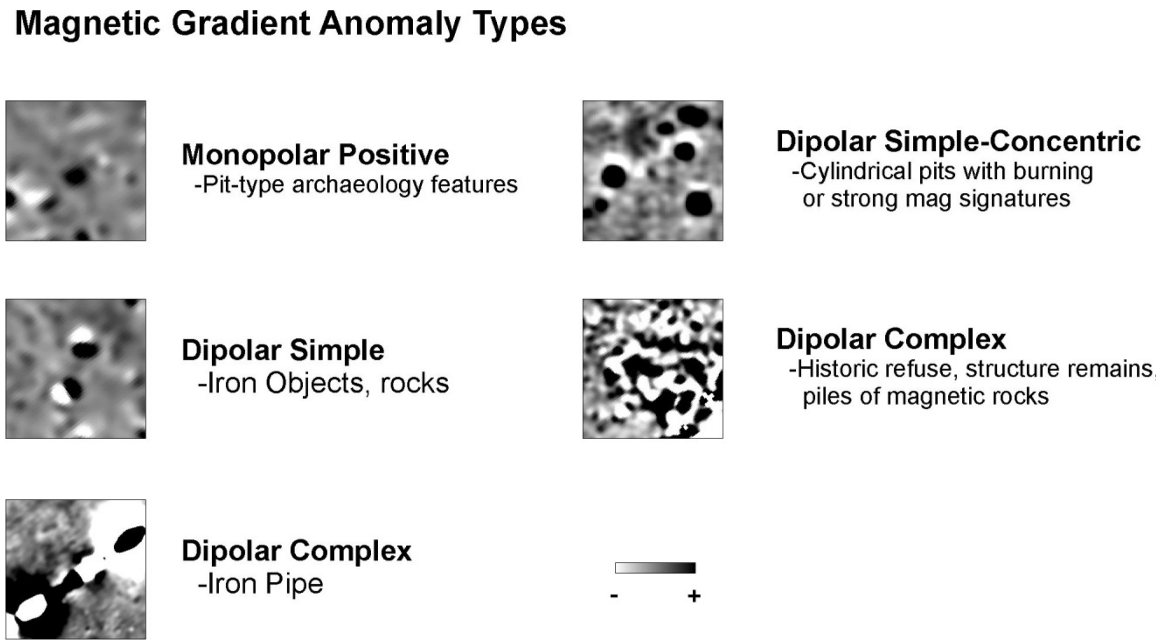

Figure 3. Magnetic gradient anomaly types used to examine the data from 33HY0167.

Most targets of interest, such as pit features, hearths, wells, foundations, cellars, and the like, produce fairly consistent kinds of magnetic anomalies that are comparable all across the U.S. and at similar latitudes around the globe where soils are formed into alluvium, glacial tills, and even eolian deposits. For example, in vertical gradiometer data like that collected at 33HY0167, prehistoric Native American pit features are almost always weakly magnetic (3–30 nT), positive monopolar anomalies, unless they are filled with highly magnetic rocks. As a type of pit feature, historic cisterns, wells, and privies can also appear as somewhat stronger, positive monopolar anomalies. However, historic pits frequently contain large amounts (high mass) of highly magnetic materials, such as bricks and iron objects. If these materials are well represented or are large in size, they can make the historic pit's magnetic signature look like that of a large bar magnet with north and south poles (i.e., dipolar). Given these consistencies between magnetic anomalies and their sources, the five anomaly classes used in this report serve to describe and summarize the magnetic survey results as well as provide an estimate for the kinds of targets found. The following descriptions help define these anomaly classes.

Monopolar Positive (MP)- Anomalies in this class are localized, positive peaks in the magnetic gradient signature of the site. They appear as isolated dark gray to black areas in grayscale data displays (Figure 3). Typically, these anomalies are created by localized areas of soil with increased magnetic susceptibility (e.g., pit features, large tree root casts, and somewhat burned surfaces). However, it is not uncommon for weakly magnetic or deeply buried objects with a dipolar magnetic signature (e.g., an iron object or a large magnetic rock) to be detected as positive or negative monopolar anomalies. If one of the poles of a dipolar anomaly is close to the surface (and close to the magnetometer) and the opposite pole is too far away to be detected (because it is too deep underground, for example), then objects that typically produce distinctive dipolar anomalies (iron objects) can be mistaken for those that typically produce monopolar anomalies (pit features). Positive monopolar targets of interest, such as pit features, can produce peak intensities ranging from 1 nT to 200 nT, though only historic period features tend to be greater than 40 nT in intensity (unless highly magnetic rocks are present). Not all pit features, prehistoric or historic, produce positive monopolar anomalies. In fact, a small percentage of pit features can produce dipolar simple and dipolar complex anomalies, especially when intensely burned, *in situ* sediments and rocks are present within the feature. Thus, prehistoric earth ovens and hearths are sometimes dipolar anomalies. Historic-era pits filled with large iron objects will also likely be dipolar.

<u>Dipolar Simple (DS)</u>- Dipolar anomalies are characterized by negative and positive peaks that are immediately adjacent to one another, making distinctive black and white anomalies in magnetic data (Figure 3). A simple dipolar anomaly has only one positive and one negative peak. These peaks can be similar in size and intensity (e.g., +6/-5 nT) or highly asymmetrical (e.g., +57/-4 nT). Iron objects and magnetic rocks are the most common sources of dipolar anomalies on archaeology sites. In general, the larger (greater mass) the iron object, the more magnetic intensity (i.e., higher highs and lower lows) it will have and the more area its magnetic signature/influence will affect. For example, most nails, while highly magnetic, are so small that when buried in the plowzone or just below surface they are difficult to detect with a gradiometer during a typical survey, unless there are many nails bunched together or the instrument is held very close to the ground. Conversely, a foot-long piece of half-inch-diameter iron rebar pounded down into the ground vertically (like a datum) is exceptionally magnetic and can be detected (as a large positive area surrounded by negative, or vice versa) from 2-3 meters away (i.e., making an anomaly 4-6 meters across). The rusted off bottoms of steel fence posts look very similar to this, only larger if they are still buried in the ground vertically. Steel well casings left in the ground are even more magnetic, and they can be detected from over 10 meters away even though the steel pipe is not visible at the surface. Exceptionally magnetic prehistoric features, such as hearths and intact earth ovens, can also produce dipolar simple anomalies. Frequently, the magnetic signature of these burned prehistoric features appears as an area of strong positive values (up to 35-40 nT) surrounded by a weak negative ring—much like the signature of a bar magnet buried in the ground vertically. These are here referred to as Dipolar Simple-Concentric type anomalies (see Figure 3 for an example). However, the positive and negative components of the signature also can be side by side, which is common for shallow, burned features. With most dipolar simple anomalies in the northern hemisphere (because of the inclination of the earth's magnetic field), the target creating the anomaly is located below, but not directly, the positive area of the anomaly (Bevan 1998).

<u>Dipolar Complex (DC)</u>- Complex dipolar anomalies have clusters of multiple negative and positive peaks of varying intensity (Figure 3). They can take on all kinds of shapes and sizes. Typically, this class of anomaly is associated with burned areas or features/disturbed areas filled with magnetically mixed sediments and objects. In-filled historic foundations and cellars, as well as some back-filled trenches and excavation pits, produce dipolar complex anomalies because the mixed fill in these features is more or less magnetic than the surrounding soils and generally contains historic objects that are

also magnetic (in fact, the example in Figure 3 is the foundation and remains of a summer kitchen). Areas of soil burned to different depths and/or temperatures can also produce this kind of anomaly (Linford and Canti 2001). Prehistoric structure and mound floors, if intact, sometimes appear as dipolar complex anomalies. Lightning strikes are an important natural source of dipolar complex anomalies. They can generate very strong magnetic fields and high temperatures, changing the remanent magnetization of the materials they strike (Verrier and Rochette 2002). Classic lightning strike anomalies, or LIRMs (Lightning Induced Remanent Magnetism anomalies) come in two varieties: those that are dipolar complex and have a tentacled appearance, and those that are horizontal with a long, narrow dipolar complex anomaly (Beard et al. 2009; Bevan 1995; Jones and Maki 2005). Lightning strike anomalies can range in size from a couple meters across to over 50 meters long (Burks 2014). Excavations at the locations of these anomalies have shown that the lightning strikes produce nothing that would be visible in a typical archaeological excavation (e.g., Maki 2005). Extensive animal burrow systems, such as those of groundhogs, sometimes produce similar anomalies, as well, though not as large or intense as lightning strikes. Dipolar complex anomalies can have weak (+5/-5 nT) or very strong (+1000/-1000 nT, or more) magnetic gradient signatures.

<u>Multi-Monopolar Positive (MMP)</u>- Anomalies in this class are groups of positive monopoles, generally arranged in linear or arcing patterns, that are usually fairly weak (1-4 nT) in intensity. Most gradiometer datasets are full of dozens or hundreds of small, weakly positive anomalies—making it difficult to pick individual features out of the mass of anomalies. However, patterned groups of anomalies (MMPs) stand out from the other small anomalies (Kvamme 2008). Architectural facilities such as prehistoric structures, post circles, or historic fences can produce linear arrangements of small, weakly positive monopolar anomalies. This class of anomaly is rare in gradiometer data, especially in survey data collected along transects separated by more than 50 cm. Exceptionally large postholes (>30 cm in diameter), or those filled with burned sediment, can be more evident in magnetic data. Likewise, the magnetic signatures of two or more closely spaced postholes can combine to make a more obvious, and larger, anomaly.

<u>Monopolar Positive/Dipolar Simple (MP/DS)</u>- In some cases it is difficult to discern whether an anomaly is monopolar positive or just a portion of a dipolar simple anomaly. These anomalies are assigned to the MP/DS class. In essence, this class serves as an "unknown" category like those used in any type of analysis or classification scheme. More often than not, these anomalies likely are iron objects or small magnetic rocks oriented in such a way that their negative pole is almost too far away to be detected.

Every magnetic gradient dataset from an archaeological site contains hundreds or even thousands of magnetic anomalies—some strong, some weak—and only some of these are caused by cultural features. While the magnetic anomaly classes presented above do not cover all variability, they do attempt, at a general level, to begin the process of segregating and categorizing the magnetic signatures of potentially cultural anomalies. Though intended to be descriptive, these five classes *do* commonly correlate with certain kinds of archaeological and natural features found just below the surface and this has been shown at many dozens of archaeology sites in Ohio and beyond. A few examples serve to illustrate this.

Dipolar simple anomalies are some of the most frequently encountered magnetic anomalies at archaeology sites. Typically they are ignored because they are associated with stray iron objects or rocks, but sometimes they indicate the locations of pit-type features or buildings. For example, Figure 4 shows a large cluster of magnetic anomalies in the location of a barn that was torn down and burned at the Dillon site in northern Ohio (from Burks 2011). Dark areas are more magnetic while light areas are less magnetic. Relatively even gray tones represent areas with little magnetic variability. The magnetic anomalies in the barn cluster are likely related to iron building hardware and other iron objects left in the barn when it was demolished. The anomalies along the north edge of the survey area (the small circular dark spots), especially to the northeast, are related to the prehistoric occupation of the site.

Magnetic gradient surveys at small, low-density prehistoric Native American sites similar to 33HY0167 are quite common—dozens of them have been conducted in Ohio, and the results of most reside in the gray literature. Two examples are provided here to give us some context for our expectations about the site 33MY0167 results. Figure 5a shows the magnetic gradient data from the 33DL1837 survey (Pecora and Burks 2007). The 33DL1837 magnetic gradient data contain a number of dipolar anomalies likely to be iron objects, especially along the west side of the survey area near the field edge. A historic-era farmstead is located just west of the survey area. To look for prehistoric pit features, which usually show up as monopolar positive anomalies or dipolar simple-concentric anomalies in the case of earth ovens, twenty anomalies were selected for soil coring with an Oakfield corer. Four of these produced dark soil, charcoal, and burned earth from below the plowzone that is typical of prehistoric pit features. Several of these were excavated and one was found to be a prehistoric earth oven while the others were determined to be related to one or more large tree stumps that were burned out in the past (probably historic era). Mechanically stripping off the plowzone from the entire survey area found that (1) all large pit features akin to the size and depth of the earth oven were detected and identified by the magnetic survey and coring, and (2) those cultural features that were not identified during the survey and coring process were small and many actually *were* detected by the magnetometer but were not selected for coring because they were too small—i.e., there were many similarly small anomalies. The 33DL1837 project shows that detecting and correctly identifying large features such as earth ovens is relatively easy and this approach rarely misses features of this size and magnetic intensity. However, small features, even if they are detected, can be easy to miss during data interpretation when many other small anomalies are present in the data. The main reason for missing these smaller anomalies is a desire to avoid excessive numbers of false positives.

The 33DL2037 site provides a second example of magnetic gradient data from a small site in Ohio. Site 33DL2037 is located on a low bluff overlooking the west side of the Olentangy River, between Columbus and Delaware (Burks 2010). The site is situated in a wooded area adjacent to two large limestone quarry pits. Spoil piles related to quarrying are nearby and much evidence of land modification is present all across the property. But a small portion of the property appeared to be relatively intact, save for plowing at some point in the past. Shovel tests located an area near the bluff that contained numerous pieces of lithic debitage consistent with quarrying activity. A small magnetic gradient survey covering a 40x40 meter area was performed to look for possible pit features. The results appear in Figure 5b. Signs of plowing are evident in the left-to-right (east-west) linear features in the magnetic data. Larger anomalies, dipolar simple and dipolar complex were found associated with two small spoil piles and they likely represent iron objects. Several other iron objects are scattered about the survey area. Coring at a large dipolar simple-concentric anomaly encountered dark soil, burned earth, and charcoal beneath the plowzone. This anomaly had the typical signature for a strongly magnetic earth oven, but with a peak magnetic intensity of 87 nT (data collected with a 50 cm gradiometer) it seemed too magnetic to be a prehistoric feature. Upon excavation, a fairly typical earth oven was found but it was packed full of highly magnetic igneous rocks—thus the overly strong magnetic signature. Coring at the monopolar positive anomaly just to the south found another pit, much less magnetic, with burned earth and relatively dark fill. The earth oven was radiocarbon dated to the Early Woodland period; the other feature dated to the Late Archaic period. The 33DL2037 work uncovered the remains of two small occupations, both focused on flint extraction and initial blank shaping. During the later occupation, an earth oven was used to cook food (presumably). This example shows us that prehistoric features can be strongly magnetic if they contain strongly magnetic objects such as igneous rocks. The same is true for historic-era pits, except they often contain other kinds of strongly magnetic objects, such as iron objects, bricks, and large sections of ceramic vessels. In this case anomaly morphology was the important factor in finding the prehistoric archaeological features, especially with the earth oven.

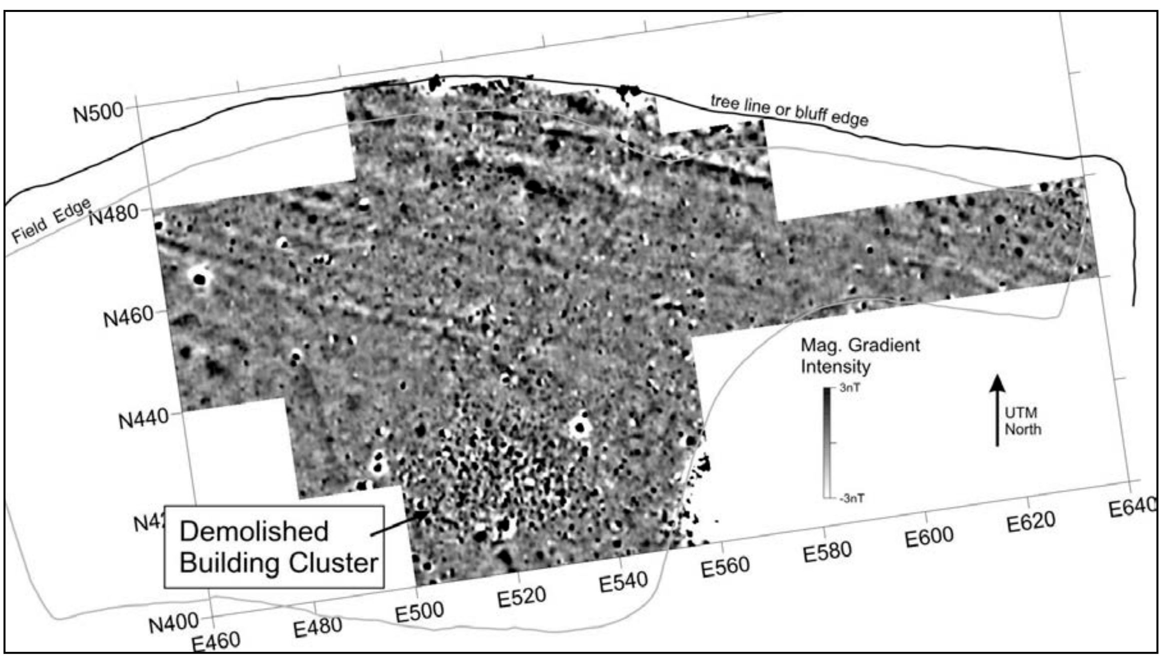

Figure 4. Example of magnetic gradient data from a demolished barn location (Dillon site, from Burks 2011).

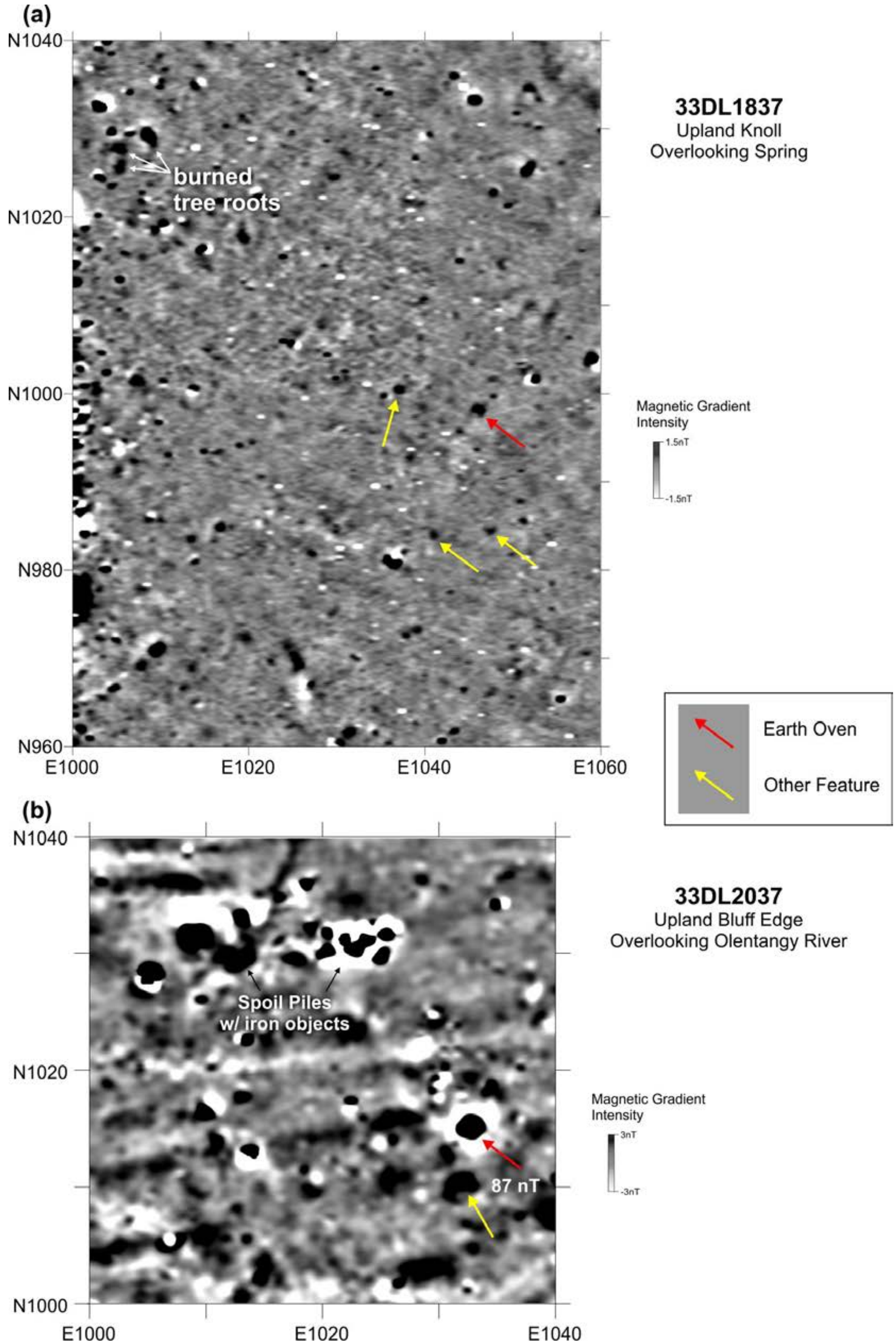

Figure 5. Examples of magnetic gradient data from two small prehistoric Native American sites in central Ohio.

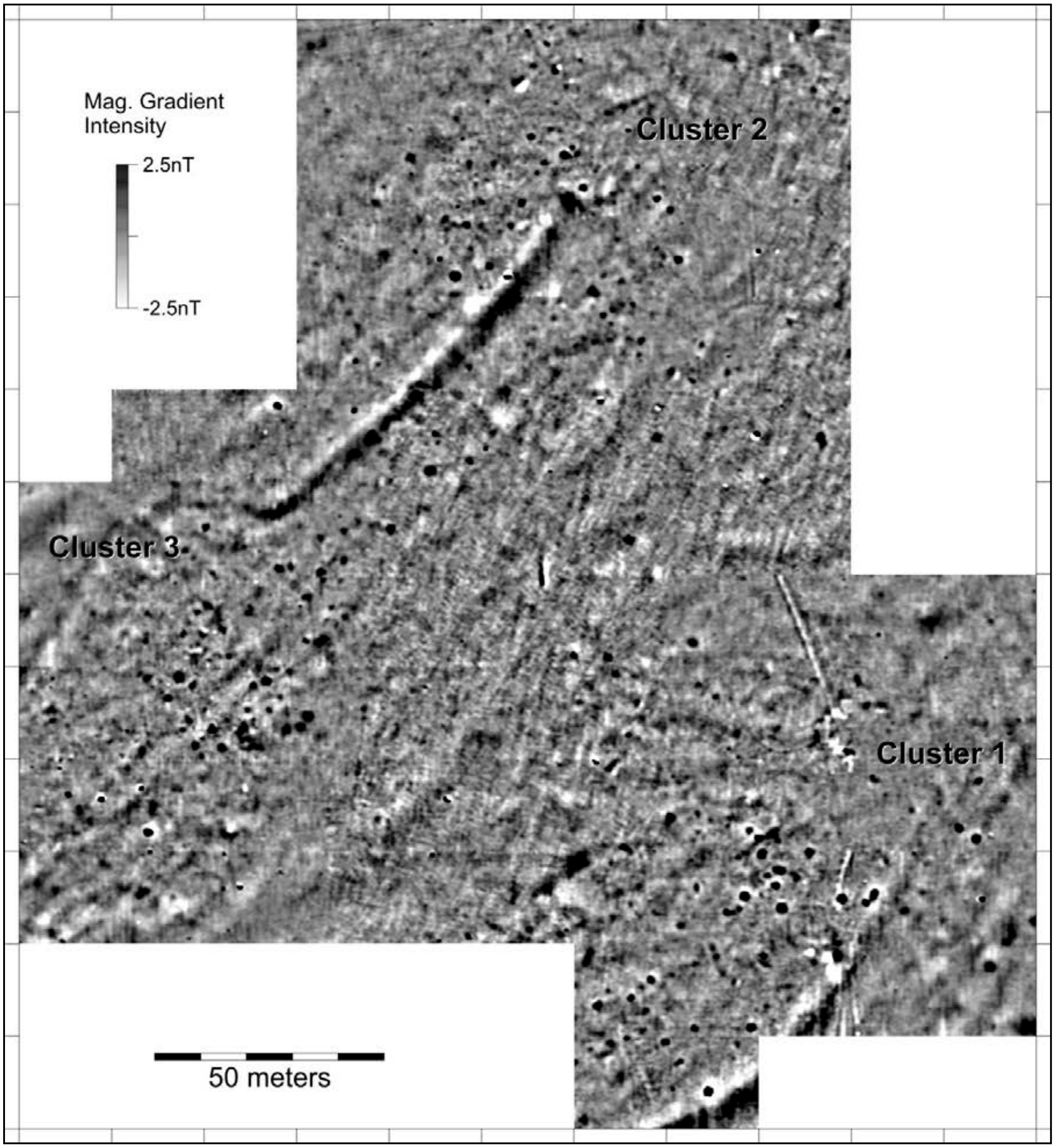

Figure 6. Example of magnetic gradient data from a larger settlement, the Brown's Bottom cluster of Hopewell household sites in Ross County, Ohio. Many of the small dark anomalies are cultural features. (See Pacheco et al. 2005, 2009a, 2009b for more on Brown's Bottom.)

At some prehistoric Native American sites every small positive anomaly in the data might be an archaeological feature, but generally pit features have a very distinctive magnetic signature that follows a consistent pattern in size, shape, and peak magnetic intensity. Figure 6 is an example of a magnetic gradient survey at a series of Hopewell household sites in Ross County, Ohio. Excavations have shown that the many small circular anomalies at each of the three anomaly/site clusters are pit features, including earth ovens (which are the magnetically strongest anomalies), storage pits, fire hearths, and at least one burial. The two long linear anomalies arcing through the survey area from southwest to northeast are old stream channel scars that have since been filled in with flood deposits and prehistoric trash (the areas of the stream channels that contained more trash were also more strongly magnetic). Many of the lighter-colored areas along the stream channels and in small areas elsewhere in the data are sand near the surface—sand has very low magnetic susceptibility and when it is plentiful it displaces the more magnetic topsoil, leaving lower magnetic gradient values in that area.

Of course, there are other things in the ground that can create magnetic anomalies that look much like the magnetic signatures of prehistoric and historic features. Some of this *equifinality* can be overcome by knowing the peak magnetic amplitude and anomaly type for each anomaly of interest. For this reason, such information was examined and recorded for select anomalies in the 33HY0167 data. Coring anomalies of archaeological interest also can quickly sort out which magnetic anomalies are likely associated with cultural features and which are rocks or other things not of interest to the archaeological investigation. This approach was used at 33HY0167.

Geophysical Survey Results

To begin the 33HY0167 magnetic survey, a Leica TC405 total station was used to set out a grid of wood stakes at 40-meter intervals, with grid north to the river side of the survey area. This orientation was chosen for the survey grid because it parallels the field edge along the river and it parallels the long axis of the project area, allowing for more complete 40x40 meter data collection blocks and a quicker survey. Closer interval stakes were set in to the south and west to fill in the grid edges. Two datums (10-inch galvanized nails wrapped in pink flagging tape and pounded flat with the surface) were established in the tree line along the top edge of the slope overlooking the river. Table 1 provides the survey grid coordinates and Universal Transverse Mercator (UTM) coordinates for the two datums. A Trimble GeoXT (sub-meter) global positioning system (GPS) was used to determine the geographic coordinates of the datums and all of the magnetic survey grid stakes. Each GPS location is an average of at least ten WAAS-corrected GPS positions.

Table 1. Coordinates related to the magnetic survey block datums.

Datum	Grid North	Grid East	UTM North*	UTM East*
Datum 1	1008.53	985.22	4587631.7	742225.7
Datum 2	1007.04	950.96	4587606.5	742204.2

* UTM Zone 16 North, Datum=NAD83

The results of the magnetic survey are presented in Figure 7, along with the project area boundary and the locations of the datums relative to the survey grid. The magnetic survey covered 1.4 acres, which included nearly all of the area with mowed corn stubble within the project boundary. Areas within the project area not covered by the survey were either unmowed or were too irregularly shaped to permit the use of the magnetometer cart. Appendix A provides a map of the survey results with a 1-meter grid overlay.

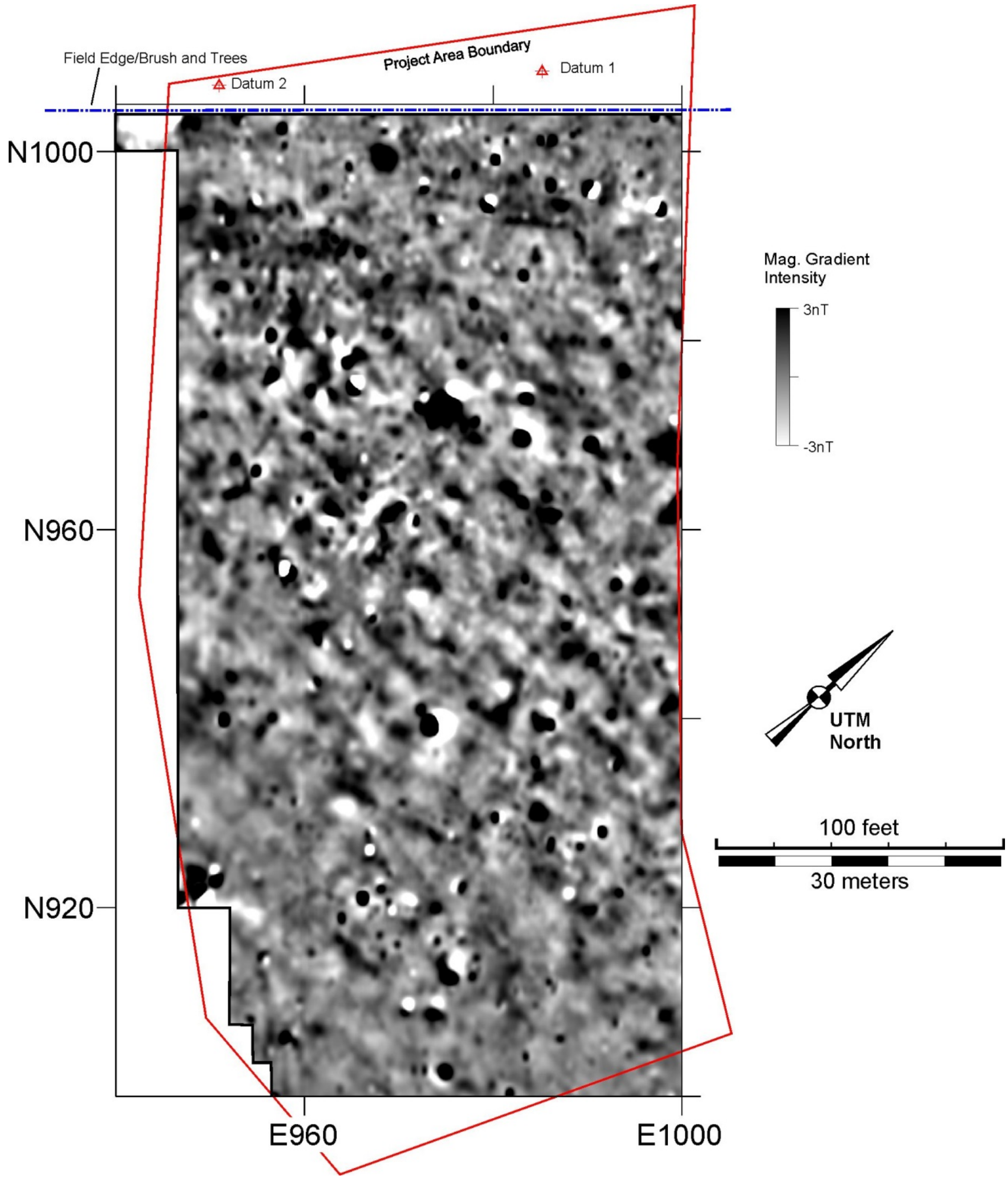

Figure 7. Results of the magnetic gradient survey at 33HY0167.

There are numerous anomalies in the 33HY0167 magnetic gradient data, including dipolar simple anomalies and monopolar positive anomalies. As we learned earlier both anomaly types can be associated with prehistoric pit features, rocks, or iron objects. Many of the most promising anomalies occur on the higher elevations within the project area—20 meters to either side of the N960 line. It is not unusual to find cultural features on higher ground, so this is a good sign that some of these anomalies might be cultural features.

Using the classification and interpretation approach outlined above, seventeen anomalies were singled out of the data as possible prehistoric pit features (Figure 8). Details related to each are provided in Table 2. A mix of dipolar simple and monopolar positive anomalies were chosen, and these range in amplitude from about 5-57 nT. This is the typical amplitude range for prehistoric pit features found in this type of soil (a hapludalf—i.e., a forest soil, in this case formed into loamy alluvium).

An Oakfield corer was used to test each of the seventeen anomalies after setting out the center point of each with the total station. Up to five cores were extracted from each anomaly location, starting with the anomaly center point and moving outward in the cardinal directions 30-50 cm. Coring was terminated at each anomaly as soon as obvious feature fill was encountered. The detailed results of the coring are provided in Appendix B. Most cultural features are fairly distinctive when cored, producing dark soil, large fragments of charcoal, and burned earth. Sometimes lithic debitage, pottery, and/or fire-cracked rock fragments are brought up in the corer, as well. With older features, such as those from the Paleoindian and earlier Archaic periods, the coring results can be less distinctive because the pit feature has been pedogenically overprinted—i.e., soil formation processes are in essence turning the feature fill back into soil. This process lightens the color of the feature fill, leaches out some kinds of minerals (e.g., manganese) and moves them downward, and can increase the feature's clay content. Soil formation does not, however, totally erase the culturally enhanced magnetic properties of old pit features. Therefore, even light colored soil with small charcoal fragments can indicate the presence of a possible cultural feature at a magnetic anomaly location.

Of the seventeen anomalies identified as possible pit features, coring found that ten have characteristics that are common to pit features. Each anomaly has been ranked as to its likelihood to be a cultural feature according to the coring results. A rank of Excellent means that the coring yielded charcoal, dark soil, and burned earth, and otherwise looked distinctively like feature fill. A ranking of Good indicates that some of the aspects of a pit feature were found in the coring, such as large charcoal fragments or burned earth, but not all of the hallmarks of a pit feature were present. The lowest ranking, Fair, is given to those anomalies that produce limited evidence of feature fill, such as mottled soil colors (e.g., a mix of A and B horizon sediments) or small (1 mm) charcoal fragments (it is not uncommon to find small charcoal fragments occurring naturally in the soil).

The map in Figure 8 shows the results of the coring color-coded for each anomaly. As mentioned previously, most of the anomalies showing positive signs for the presence of a cultural feature occur on the topographically higher ground near the middle of the survey area. Anomaly 10, at the edge of the project boundary, produced the best coring results, with large fragments of wood charcoal, darker soil, and distinctly burned (reddened) earth from 70-85 cm below surface. Anomaly 10 is likely an earth oven. Anomalies 8 and 14, ranked Good, produced large charcoal fragments, possible fire-cracked rock, and light colored or mottled soil, suggesting they might also be cultural features. While these may be cultural features, their light color will make them harder to discern during excavation. Finally, seven other anomalies produced at least some indications of the presence of possible feature fill, in the form of mottled soils, persistent

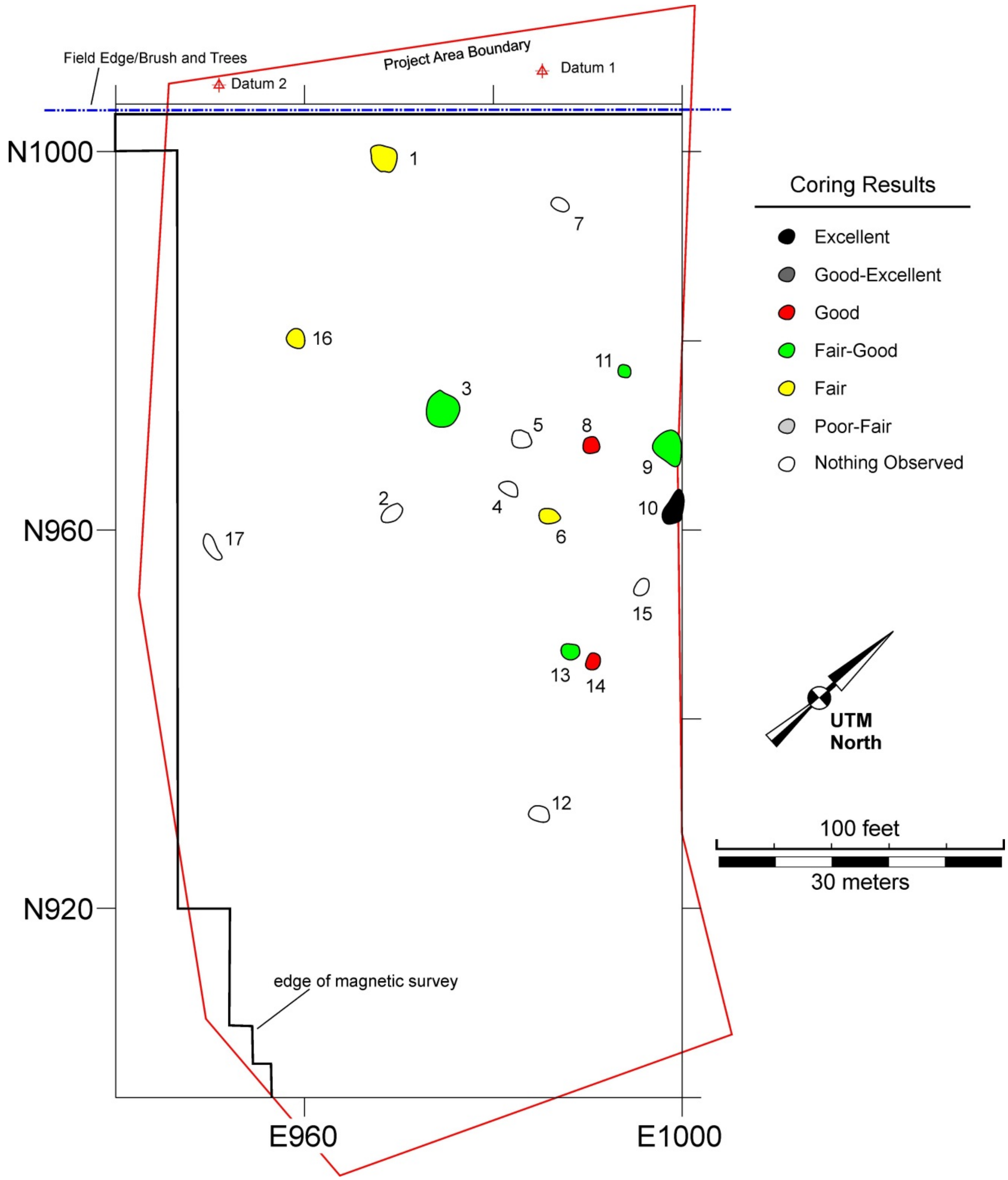

Figure 8. Anomalies of potential archaeological interest with the anomaly coring results.

small charcoal, or soft/wet sediment. In the spring, features are often much wetter than the soil around them. For example, Anomaly 11 was soft and had good charcoal in one of its five cores. Of course, any disturbance of the Bt horizon might exhibit these same attributes—soft, wet soil that perhaps even contains small charcoal fragments. Thus, these lower ranked anomalies might be natural soil disturbances rather than cultural features.

The remainder of the cored anomalies, numbering seven, did not yield any notable evidence of feature fill. At least one, Anomaly 5, is a large rock about 25 cm below the surface. Clearly Anomaly 5 is not associated with a cultural feature. However, any of these others could be subtle cultural features that simply did not produce obvious signs of feature fill in the coring. For example, Anomaly 1 (this anomaly is ranked as Fair) has the distinct appearance and magnetic amplitude of a large prehistoric pit feature containing refuse or burned sediment; however, in the coring it produced little to nothing suggesting that it is a cultural feature. These anomalies that were not distinctly positive in the coring should not be completely dismissed as non-cultural. But at this time, there is little evidence to suggest otherwise.

Table 2. Anomalies of potential archaeological interest at site 33HY167 (bold anomalies are recommended for excavation).

Anom. #	North[a]	East[a]	Peak Amplitude[b]	Anomaly Type[c]	Coring Results[d]	Comments/2x2m unit corner
1	999.26	968.47	18.54	MP	F	Possible pit or large, deep rock
2	961.88	969.34	9.96	DS	-	Not archaeology
3	973.37	975.02	22.22	DS	F-G	Possible pit feature, subtle
4	964.35	981.64	6.42	MP	-	Not archaeology
5	969.73	983.16	54.35	DS	R	Magnetic rock
6	961.51	986.07	12.82	MP	F	Possible pit feature, subtle
7	994.32	987.24	9.34	MP	-	Not archaeology
8	**968.93**	**990.51**	**56.94**	**MP**	**G**	**Possible pit feature with FCR; N968, E989.5**
9	968.64	998.95	8.62	MP	F-G	Large possible pit feature
10	**961.95**	**999.24**	**10.86**	**MP**	**E**	**Probable earth oven with burned earth at bottom; N961, E998**
11	**976.72**	**993.86**	**8.68**	**MP**	**F-G**	**Possible pit feature, subtle; N976, E993**
12	929.95	984.76	9.52	MP	-	Not archaeology
13	947.26	988.18	6.55	MP	F-G	Possible pit feature, subtle
14	**946.17**	**990.58**	**9.5**	**MP**	**G**	**Possible pit feature; N945, E989.5**
15	953.88	995.75	7.7	MP	-	Not archaeology
16	980.21	959.23	12.82	MP	F	Disturbed area, possible pit feature, subtle
17	958.46	950.14	5.38	MP	-	Could be a small disturbance, may not be archaeological

a – coordinates mark the approximate center of the anomaly.

b – peak positive value for each anomaly after performing a single track automatic compensation in Ferex Dataline (v.3.404) software.

c –P=Pit/Post, L=Linear, E=Earthwork, LAA=Large Area Anomaly, H=historic; MP=Monopolar Positive, MP-D=Monopolar Positive-Diffuse, MMP=Multi-Monopolar Positive, DS=Dipolar Simple, DS-B=Dipolar Simple-Bull's-eye, DC=Dipolar Complex.

d – Exc=Excellent, G-E=Good-Excellent, G=Good, F-G=Fair-Good, F=Fair.

Summary and Recommendations

On April 2nd and 3rd of 2015, a magnetic gradient survey covering 1.4 acres was conducted on a portion of site 33HY0167, a multicomponent site with possible Late Paleoindian and Early Archaic occupations. This portion of the site is to be impacted by a proposed new bridge crossing the Maumee River. Seventeen anomalies of potential archaeological interest were singled out of the data as possible pit features. Coring found that ten of these anomalies are associated with various attributes common to pit feature fill, including dark or mottled soil and the presence of charcoal and burned earth. At least one anomaly, Anomaly 10, is likely an earth oven. Anomalies 8 and 14 also are likely pit features. The remaining seven positively-cored anomalies were more subtle and difficult to discern in the coring, but they too could be cultural features.

Based on these results, four anomalies are recommended for archaeological excavation: Anomalies 10, 8, 14, and 11, and in that order. Because these anomalies are large and may differ little in color from the surrounding subsoil at the base of the plowzone, 2x2 meter excavation units should be used to uncover these four anomalies in plan view. Figure 9 is a map showing the suggested placement of the 2x2 meter units; coordinates for the southwest corners of the 2x2 m units are also provided in Table 2. In each case, the anomalies are centered within their 2x2 m units. This was done deliberately so that (1) as much of the anomaly could be uncovered as possible, including subsoil outside the anomaly, and (2) in the event that the anomaly is not visible in plan view, half of the 2x2 unit can be taken down in levels to bisect the anomaly and expose it in profile. While the magnetometer has detected something distinctive at the locations of these anomalies, sometimes subtle features are only discernable to the human eye in profile.

At this time excavations at additional anomalies are not recommended. But should further work be required at site 33HY0167 beyond the Phase II, it will be important to remember that any of the seventeen numbered anomalies that are not rocks (e.g., Anomaly 5) could be cultural features. Thus when planning a mitigation, for example, testing should occur with at least some of the anomalies that produced little or no evidence of feature fill in the coring, for example Anomaly 1. As with other features that are 6000-8000 years old, or older, these anomalies may only be subtly different from the surrounding subsoil. The presence of mottled soil, small charcoal fragments, and/or manganese and other mineral staining at depth (i.e., near the bottoms of the features) may be the only indications of the presence of feature fill. Since these anomalies were likely created by magnetically enhanced sediments, a handheld magnetic susceptibility meter can be used on plan view and profile surfaces to help delineate the boundaries of subtle features invisible to the human eye.

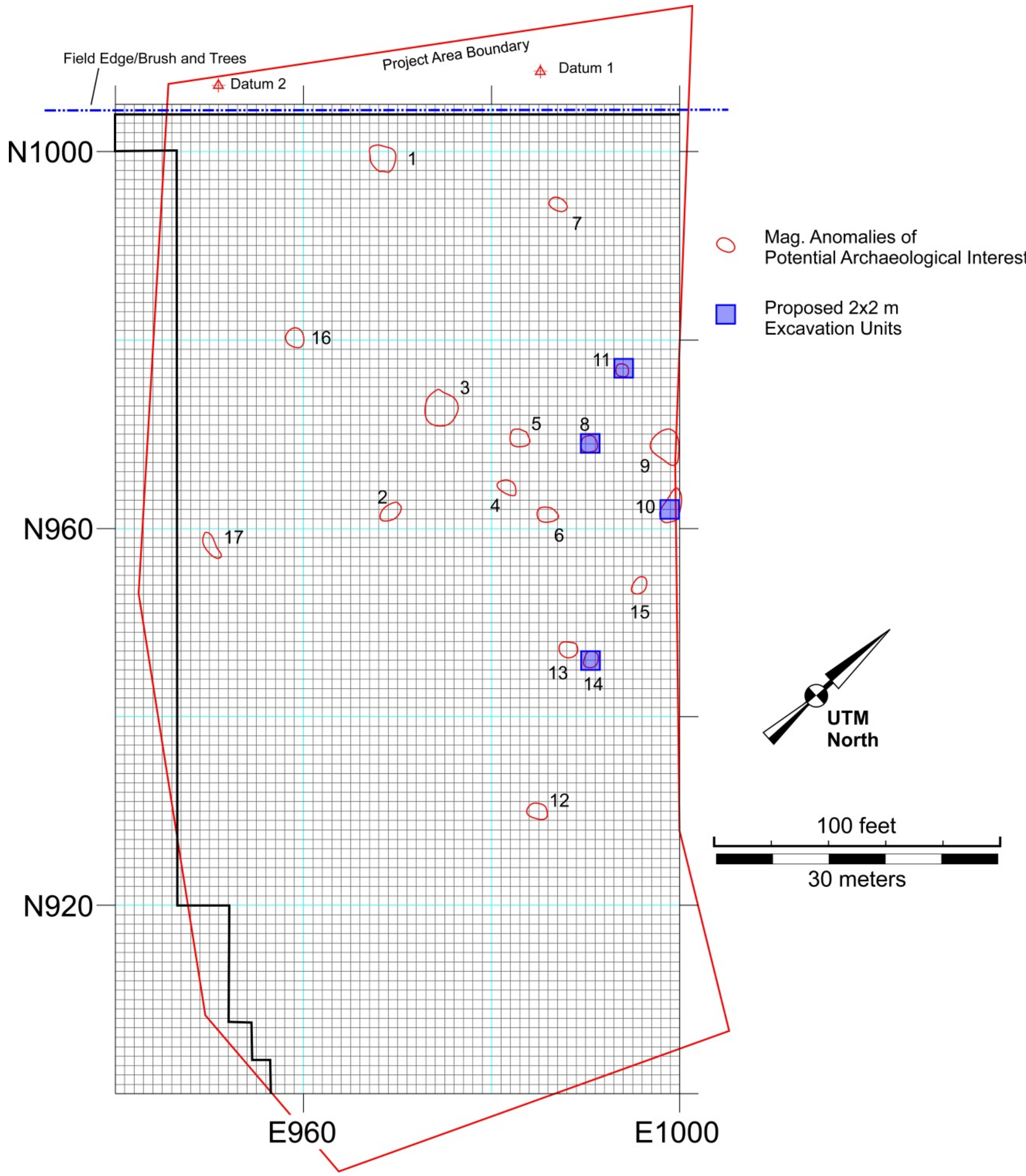

Figure 9. Proposed 2x2 meter excavation unit locations.

End Notes

1. Fluxgate gradiometers might be better referred to as difference meters, for they technically do not measure a gradient. Rather, they are detecting the difference in the strength of the magnetic field along one axis and at two points, the spacing between which is usually fixed. Sensor spacing in gradiometers affects the strength of the final recorded reading. For example, the readings from a gradiometer with a 65 cm sensor spacing (e.g., a Foerster Instruments Ferex fluxgate gradiometer) would be about 1.07 times stronger than readings from a Geoscan Research FM256 instrument, which has a 50 cm sensor spacing (assuming several important things: the feature is not right at the surface, a magnetic field inclination that is about vertical, and the bottom sensor is at about 30 cm above the surface while the archaeology is about 40 cm beneath the surface) (Bruce Bevan, personal communication, 2013).

2. Truly monopolar magnetic anomalies are theoretically possible but have rarely, if ever, been observed in the "wild" (Merrill 2010). All anomalies are actually dipolar, but in many cases appear monopolar because one of the poles is too far away (i.e., underground) to be detected by the magnetometer. Thus, the terms used in the magnetic anomaly classification refer to the *appearance* of the anomalies in the magnetic data maps, not their true structure.

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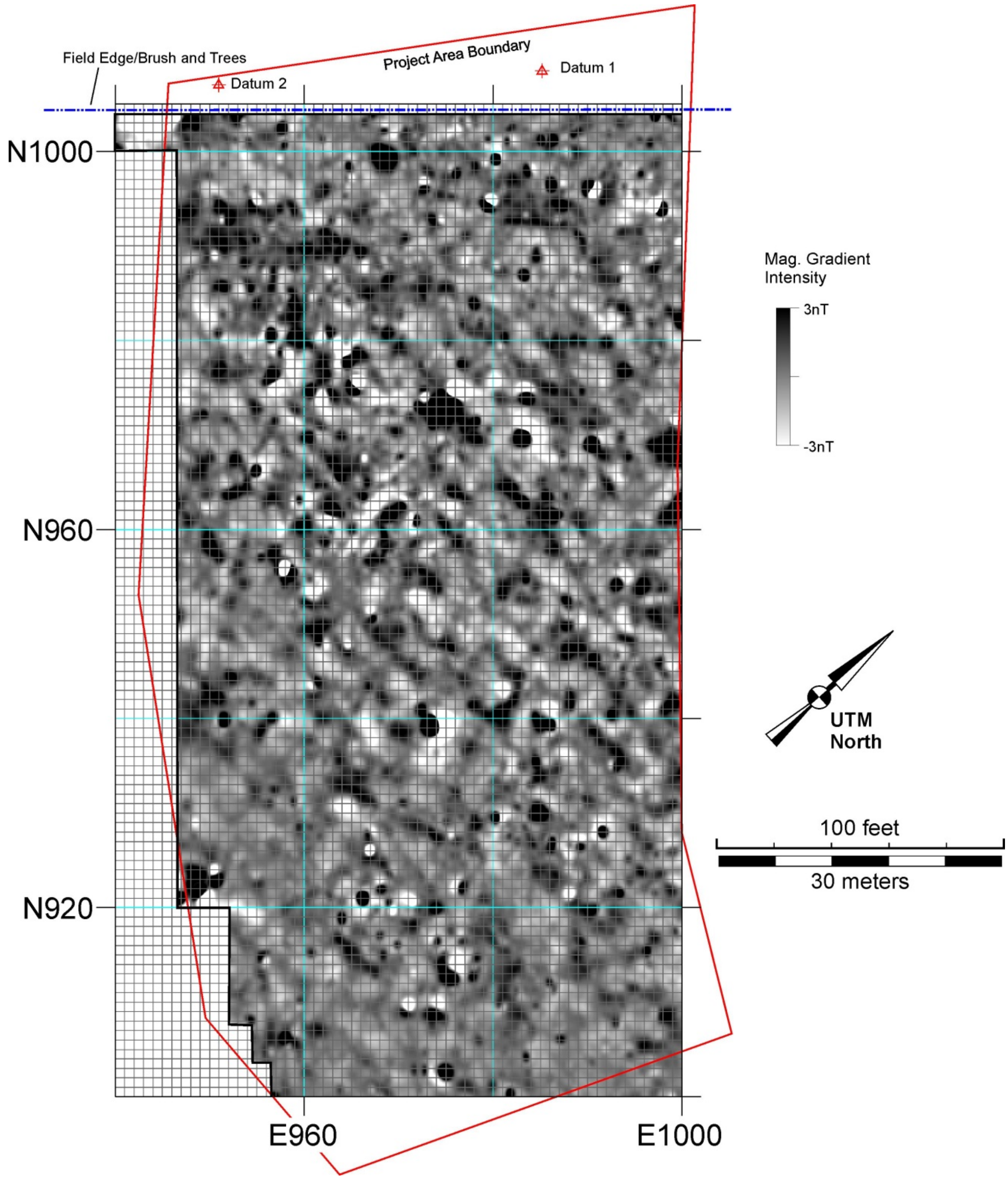
Appendix A. Magnetic gradient survey data with a 1-meter grid overlay.



Appendix B. Results of anomaly coring at 33HY0167.

Anom. #	Coring Location & Results					Radial Interval	Charc.	Burned Earth	PZ Depth[a]	Max Depth[a]	Comments	Evaluat.
	Centroid	N	S	E	W							
1	?, w	sc	-	-	-	50	sc	-	30	70	Wet in center, with mottled fill. Could be a subtle feature	Fair
2	-	-	-	-	-	30	-	-	25	65	Nothing of note observed	-
3	+			+		30	+	-	25	50-60	Light colored, small charcoal, probable manganese staining: possible old, subtle feature	Fair-Good
4	-	-	-	-	m, ?	30	-	-	25	50-60	Nothing of note observed	-
5	-	R		-		30	-	-	25		Large rock at ca. 40 cmbs	-
6	sc	br? m	-	-	-	30	sc	?	25	40-45	Light colored, burned sandstone?, 50 cm to north is mottled as well	Fair
7	-	-	-	-	-	30	-	-	30	60	Nothing of note observed	-
8	sc, br?	-	+c		R	30	+	-	25	c.50	Possible burned sand/rock in center, possible degrading granite perhaps in old feature	Good
9	m, c	?	-	-	?	30	+	-	20	c.45	Mottled with good charcoal from 25-35/45 cmbs	Fair-Good
10	soft, c					30	+	+	20	85+	Soft and good charcoal in center, burned earth from 70-85+	Excellent
11	soft, m	-	-	+	-	30	+	-	25	c.70	Soft soil in center, light colored, no Bt horizon, distinct charcoal in east	Fair-Good
12	-	-	-	-	-	30	-	-	25	60	Small brick frags in pz of west core	-
13	soft, w	-	+	-	-	30	+	-	25	85	Soft, wet sediment, light colored, no Bt horizon, some charcoal	Fair-Good
14	+	-	-	+	+	30	+	-	25	c.65	Light colored and mottled, possible FCR, good charcoal in several cores	Good
15	-	-	-	-	-	30	-	-	25	65	Nothing of note observed	-
16	+	soft	sc		sc	30	sc	-	25	45-50	Light colored, soft sediment, some very small charcoal flecks.	Fair
17	?	-	-	-	soft	30	-	-	25	85	Could be a small soil disturbance, natural	-

a – measurement in centimeters below surface

other abbreviations: be=burned earth, br=burned rock, cpz=charcoal in plowzone, m=mottled color, pbe=possible burned earth, pbr=possible burned rock, ps=possible, R=rock, sbe=small burned earth, sc=small charcoal, w=wet

APPENDIX B
CULTURAL MATERIALS PROVENIENCE TABLE

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
1	1.001	Phase II	16	4587545.63	742296.94	33HY0167	Surface Inspection	N895 E965	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					44.10	75	39	19					Subangular fracturing.
1	1.002	Phase II	16	4587545.63	742296.94	33HY0167	Surface Inspection	N895 E965	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					41.10	37	32	29					Subangular fracturing.
2	2.001	Phase II	16	4587549.36	742300.25	33HY0167	Surface Inspection	N895 E970	Plow Zone (Ap)	N/A	N/A	Delaware Chert	Uniface	Uniface (Unfinished)				19.10	68	26	12				0	Unfinished thinning - both margins sharpened on one face.
2	2.002	Phase II	16	4587549.36	742300.25	33HY0167	Surface Inspection	N895 E970	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					12.70	26	22	23					Evidence of crazing.
4	4.001	Phase II	16	4587548.59	742286.13	33HY0167	Surface Inspection	N905 E960	Plow Zone (Ap)	N/A	N/A	Delaware Chert	Core	Core Fragment				66.40	60	49	20				0	
4	4.002	Phase II	16	4587548.59	742286.13	33HY0167	Surface Inspection	N905 E960	Plow Zone (Ap)	N/A	N/A	Delaware Chert	Biface	Biface (Unfinished)				60.40	66	40	24				0	Unfinished thinning - both margins and both faces worked. Nice blade edge forming on three margins.
5	5.001	Phase II	16	4587559.76	742296.19	33HY0167	Surface Inspection	N905 E975	Plow Zone (Ap)	N/A	N/A	Upper Mercer	Core	Bladelet Core				45.20	42	41	21				1	Bladelet core. Flake removal scars are unidirectional and twice as long as wide (15 x 36mm; 10 x 38mm).
7	7.001	Phase II	16	4587563.09	742292.44	33HY0167	Surface Inspection	N910 E975	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					150.30	61	54	49					Crazing and thermal color change.
8	8.001	Phase II	16	4587566.43	742288.75	33HY0167	Surface Inspection	N915 E975	Plow Zone (Ap)	N/A	N/A	Granite	FCR					62.30	59	40	27					Subangular fracturing.
9	9.001	Phase II	16	4587555.27	742278.69	33HY0167	Surface Inspection	N915 E960	Plow Zone (Ap)	N/A	N/A	Unidentified	Flake	Complex				0.04	13	9	1	0	0	0	0	
9	9.002	Phase II	16	4587555.27	742278.69	33HY0167	Surface Inspection	N915 E960	Plow Zone (Ap)	N/A	N/A	Upper Mercer	Flake	Simple				1.10	21	10	5	0	0	0	0	
9	9.003	Phase II	16	4587555.27	742278.69	33HY0167	Surface Inspection	N915 E960	Plow Zone (Ap)	N/A	N/A	Delaware	Shatter					25.20	47	34	23	0	0	0	1	
10	10.001	Phase II	16	4587558.99	742282.06	33HY0167	Surface Inspection	N915 E965	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Core	Bladelet Core				14.70	38	21	12				0	Bladelet core. Flake removal scars are unidirectional and twice as long as wide (11 x 34mm; 9 x 33mm).
10	10.002	Phase II	16	4587558.99	742282.06	33HY0167	Surface Inspection	N915 E965	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Core	Flake Core				370.40	125	80	33				1	Flake core with few flakes removed. Possibly a quickly abandoned test cobble with at least two flakes removed. Many inclusions make for a poor tool material.
10	10.003	Phase II	16	4587558.99	742282.06	33HY0167	Surface Inspection	N915 E965	Plow Zone (Ap)	N/A	N/A	Granite	FCR					278.40	82	71	59					Subangular fracturing.
10	10.004	Phase II	16	4587558.99	742282.06	33HY0167	Surface Inspection	N915 E965	Plow Zone (Ap)	N/A	N/A	Granite	FCR					209.10	93	45	43					Subangular fracturing.
10	10.005	Phase II	16	4587558.99	742282.06	33HY0167	Surface Inspection	N915 E965	Plow Zone (Ap)	N/A	N/A	Granite	FCR					38.10	47	40	24					Subangular fracturing.
10	10.006	Phase II	16	4587558.99	742282.06	33HY0167	Surface Inspection	N915 E965	Plow Zone (Ap)	N/A	N/A	Granite	FCR					62.50	48	48	19					Subangular fracturing.
10	10.007	Phase II	16	4587558.99	742282.06	33HY0167	Surface Inspection	N915 E965	Plow Zone (Ap)	N/A	N/A	Granite	FCR					2.70	25	16	7					Subangular fracturing.
11	11.001	Phase II	16	4587566.05	742281.69	33HY0167	Surface Inspection	N920 E970	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Core	Flake Core				94.50	95	39	25				1	Remnant portion of a flake core. At least 5 flake scars from multiple directions.
11	11.002	Phase II	16	4587566.05	742281.69	33HY0167	Surface Inspection	N920 E970	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Core	Core Fragment				30.00	46	42	18				1	Appears to be a portion of a core. Flakes removed from at least 3 sides. Has what appears to be the remainder of one or more prepared platforms.
11	11.003	Phase II	16	4587566.05	742281.69	33HY0167	Surface Inspection	N920 E970	Plow Zone (Ap)	N/A	N/A	Granite	FCR					210.70	58	56	49					Subangular fracturing.
13	13.001	Phase II	16	4587558.61	742275.00	33HY0167	Surface Inspection	N920 E960	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Core	Spent Flake Core				21.50	42	31	26				0	Remnant portion of a flake core. At least 6 flake scars evident.
13	13.002	Phase II	16	4587558.61	742275.00	33HY0167	Surface Inspection	N920 E960	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Core	Core Fragment				40.50	54	33	17				0	Appears to be a remnant portion of a prepared core. Only one face has evidence of flake removal, however at least two faces appear to have been prerpared (either or ground flat).
13	13.003	Phase II	16	4587558.61	742275.00	33HY0167	Surface Inspection	N920 E960	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Shatter					18.90	43	27	17	0	0	0	1	
13	13.004	Phase II	16	4587558.61	742275.00	33HY0167	Surface Inspection	N920 E960	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Shatter					3.30	19	15	12	0	0	0	0	
15	15.001	Phase II	16	4587561.95	742271.25	33HY0167	Surface Inspection	N925 E960	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Shatter					10.80	39	23	14	0	0	0	0	
17	17.001	Phase II	16	4587569.01	742270.88	33HY0167	Surface Inspection	N930 E965	Plow Zone (Ap)	N/A	N/A	Delaware	Flake	Decortication				11.60	43	32	11	0	0	0	1	
17	17.002	Phase II	16	4587569.01	742270.88	33HY0167	Surface Inspection	N930 E965	Plow Zone (Ap)	N/A	N/A	Rhyolite	Non-Cultural?					187.80	79	57	33					Possible that a margin has been prepared by a combination of flaking and grinding. If in fact this is a ground stone tool, it is fractured. Not confirmed as a tool at this time.
18	18.001	Phase II	16	4587565.29	742267.56	33HY0167	Surface Inspection	N930 E960	Plow Zone (Ap)	N/A	N/A	Greywacke	Uniface	Unidentified				81.70	73	68	16				0	Unifacial scraper or blade. Has three modified margins but worked on only one face. Appears to have use-wear on one of the three margins. The used margin appears to have evidence of battering (excessive pecking and a missing portion of this margin superimposed over a margin that appears to have been formed by a combination of flaking and grinding).
18	18.002	Phase II	16	4587565.29	742267.56	33HY0167	Surface Inspection	N930 E960	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Flake	Bipolar				2.60	20	18	9	0	0	0	1	Metrics in table represent the struck platform. The opposing location exhibits a 5mm-thick bulb. Evident based on cortex wrap-around that the original object was pebble size.

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
19	19.001	Phase II	16	4587572.73	742274.25	33HY0167	Surface Inspection	N930 E970	Plow Zone (Ap)	N/A	N/A	Unidentified	Flake	Complex				4.30	24	16	11	0	0	0	0	Chunky for a thinning flake, however platform facets and dorsal scars indicate a relatively late term removal from the parent.
20	20.001	Phase II	16	4587576.07	742270.50	33HY0167	Surface Inspection	N935 E970	Plow Zone (Ap)	N/A	N/A	Silicified Siltstone (?)	Non-Cultural					316.10	99	54	46					Patches of iron staining on exterior. One face of the stone is worn smooth and flat and has two parallel linear scars which resemble plow or disc scars.
20	20.002	Phase II	16	4587576.07	742270.50	33HY0167	Surface Inspection	N935 E970	Plow Zone (Ap)	N/A	N/A	Pipe Creek	Shatter					3.70	19	16	10	1	1	0	0	
21	21.001	Phase II	16	4587572.35	742267.19	33HY0167	Surface Inspection	N935 E965	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Flake	Complex				12.80	43	30	15	1	1	0	0	
21	21.002	Phase II	16	4587572.35	742267.19	33HY0167	Surface Inspection	N935 E965	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Shatter					19.50	42	36	16	0	0	0	0	
21	21.003	Phase II	16	4587572.35	742267.19	33HY0167	Surface Inspection	N935 E965	Plow Zone (Ap)	N/A	N/A	Silicified Siltstone(?)	Core	Flake Core Fragment				11.20	62	49	40				1	Gray, fairly granular (just barely cryptocrystaline) like a silicified siltstone.
21	21.003	Phase II	16	4587572.35	742267.19	33HY0167	Surface Inspection	N935 E965	Plow Zone (Ap)	N/A	N/A	Sandstone	FCR					37.50	33	32	30					Crazing and thermal color change.
21	21.004	Phase II	16	4587572.35	742267.19	33HY0167	Surface Inspection	N935 E965	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					78.70	44	44	27					
21	21.004	Phase II	16	4587572.35	742267.19	33HY0167	Surface Inspection	N935 E965	Plow Zone (Ap)	N/A	N/A	Granite	FCR					24.30	22	20	6					Scant evidence of crazing.
21	21.005	Phase II	16	4587572.35	742267.19	33HY0167	Surface Inspection	N935 E965	Plow Zone (Ap)	N/A	N/A	Granite	FCR					4.90	20	16	13					Scant evidence of crazing.
21	21.005	Phase II	16	4587572.35	742267.19	33HY0167	Surface Inspection	N935 E965	Plow Zone (Ap)	N/A	N/A	Granite	FCR					59.10	55	36	28					Crazing.
22	22.001	Phase II	16	4587579.79	742273.88	33HY0167	Surface Inspection	N935 E975	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					14.00	47	28	11					Subangular fracturing.
23	23.001	Phase II	16	4587579.41	742266.81	33HY0167	Surface Inspection	N940 E970	Plow Zone (Ap)	N/A	N/A	Silicified Sandstone	Flake	Complex				0.50	22	10	3	0	0	0	0	
24	24.001	Phase II	16	4587575.69	742263.44	33HY0167	Surface Inspection	N940 E965	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Shatter					6.90	26	18	16	0	0	0	0	Inclusions.
24	24.002	Phase II	16	4587575.69	742263.44	33HY0167	Surface Inspection	N940 E965	Plow Zone (Ap)	N/A	N/A	Delaware	Flake	Complex				1.80	17	14	9	0	0	1	0	
24	24.003	Phase II	16	4587575.69	742263.44	33HY0167	Surface Inspection	N940 E965	Plow Zone (Ap)	N/A	N/A	Quartzite	FCR					7.90	21	19	13					Subangular fracturing.
24	24.004	Phase II	16	4587575.69	742263.44	33HY0167	Surface Inspection	N940 E965	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				0.10	10	9	4	0	0	1	0	
24	24.005	Phase II	16	4587575.69	742263.44	33HY0167	Surface Inspection	N940 E965	Plow Zone (Ap)	N/A	N/A	Granite	Ground Stone	Abrader?				164.80	57	51	38					At least two concentrated surface areas ground flat and smooth.
24	24.006	Phase II	16	4587575.69	742263.44	33HY0167	Surface Inspection	N940 E965	Plow Zone (Ap)	N/A	N/A	Unidentified	Non-Cultural					0.10	9	8	2					Water-worn pebble.
25	25.001	Phase II	16	4587582.75	742263.06	33HY0167	Surface Inspection	N945 E970	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Shatter					1.20	13	12	9	0	0	0	0	
26	26.001	Phase II	16	4587579.03	742259.75	33HY0167	Surface Inspection	N945 E965	Plow Zone (Ap)	N/A	N/A	Wyandotte	Scraper	Scraper				1.60	19	17	5				0	
26	26.002	Phase II	16	4587579.03	742259.75	33HY0167	Surface Inspection	N945 E965	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Core	Spent Flake Core				12.80	40	27	13				1	
26	26.003	Phase II	16	4587579.03	742259.75	33HY0167	Surface Inspection	N945 E965	Plow Zone (Ap)	N/A	N/A	Rhyolite	Ground Stone	Unidentified				59.70	49	29	28				0	One face shows a smoothed, flat surface. Possibly an edge formed. Abrader?
26	26.004	Phase II	16	4587579.03	742259.75	33HY0167	Surface Inspection	N945 E965	Plow Zone (Ap)	N/A	N/A	Rhyolite	Ground Stone	Unidentified				8.00	25	17	17				0	One face shows a smoothed, flat, discolored surface. Burnishment?
26	26.005	Phase II	16	4587579.03	742259.75	33HY0167	Surface Inspection	N945 E965	Plow Zone (Ap)	N/A	N/A	Sandstone	FCR					153.90	88	60	28					Subangular fracturing and thermal alteration color change.
26	26.006	Phase II	16	4587579.03	742259.75	33HY0167	Surface Inspection	N945 E965	Plow Zone (Ap)	N/A	N/A	Sandstone	FCR					12.40	44	24	12					Subangular fracturing and thermal alteration color change.
26	26.007	Phase II	16	4587579.03	742259.75	33HY0167	Surface Inspection	N945 E965	Plow Zone (Ap)	N/A	N/A	Quartzite	FCR					6.60	25	21	10					Crazing and color alteration.
26	26.008	Phase II	16	4587579.03	742259.75	33HY0167	Surface Inspection	N945 E965	Plow Zone (Ap)	N/A	N/A	Quartzite	FCR					23.20	36	28	19					Crazing.
26	26.009	Phase II	16	4587579.03	742259.75	33HY0167	Surface Inspection	N945 E965	Plow Zone (Ap)	N/A	N/A	Silicified Sandstone	FCR					30.90	35	27	22					Deep color change. Concentrated area of abrasion on one area of the stone.
26	26.010	Phase II	16	4587579.03	742259.75	33HY0167	Surface Inspection	N945 E965	Plow Zone (Ap)	N/A	N/A	Siltstone	Non-Cultural					3.90	22	15	9					Water-worn pebble.
29	29.001	Phase II	16	4587582.36	742256.00	33HY0167	Surface Inspection	N950 E965	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Scraper	Scraper				2.70	24	20	7				0	Scraper fashioned from flake with two platform facets.
29	29.002	Phase II	16	4587582.36	742256.00	33HY0167	Surface Inspection	N950 E965	Plow Zone (Ap)	N/A	N/A	Rhyolite	Non-Cultural					38.50	45	31	19					Originally classified as FCR; however, does not exhibit sub-angular fracturing.
29	29.003	Phase II	16	4587582.36	742256.00	33HY0167	Surface Inspection	N950 E965	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Non-Cultural					4.40	21	17	12					Unmodified raw material.
29	29.004	Phase II	16	4587582.36	742256.00	33HY0167	Surface Inspection	N950 E965	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					176.60	59	54	41					Some sub-angular fracturing.
29	29.005	Phase II	16	4587582.36	742256.00	33HY0167	Surface Inspection	N950 E965	Plow Zone (Ap)	N/A	N/A	Sandstone	FCR					63.50	46	34	29					Some color change thermal alteration.

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
29	29.006	Phase II	16	4587582.36	742256.00	33HY0167	Surface Inspection	N950 E965	Plow Zone (Ap)	N/A	N/A	Granite	Non-Cultural					47.30	50	33	25					
30	30.001	Phase II	16	4587589.81	742262.69	33HY0167	Surface Inspection	N950 E975	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Core	Spent Flake Core				7.80	32	24	11				0	At least 5 flakes removed from multiple directions.
32	32.001	Phase II	16	4587589.43	742255.63	33HY0167	Surface Inspection	N955 E970	Plow Zone (Ap)	N/A	N/A	Upper Mercer (Nellie)	Flake	Complex				0.04	13	12	2	0	0	0	0	
32	32.002	Phase II	16	4587589.43	742255.63	33HY0167	Surface Inspection	N955 E970	Plow Zone (Ap)	N/A	N/A	Flint Ridge/Vanport Chert	Shatter					14.40	40	23	16	0	0	0	0	
32	32.003	Phase II	16	4587589.43	742255.63	33HY0167	Surface Inspection	N955 E970	Plow Zone (Ap)	N/A	N/A	Rhyolite	Ground Stone	Hammer				384.70	79	69	43				0	Hand-held size. Appears to have been ground down on two faces, and one margin shows pecking.
33	33.001	Phase II	16	4587593.15	742258.94	33HY0167	Surface Inspection	N955 E975	Plow Zone (Ap)	N/A	N/A	Upper Mercer (Black)	Flake	Decortication				17.80	52	27	16	0	0	0	1	
34	34.001	Phase II	16	4587581.98	742248.94	33HY0167	Surface Inspection	N955 E960	Plow Zone (Ap)	N/A	N/A	Bayport	Flake	Complex				0.40	15	10	2	0	0	0	0	
35	35.001	Phase II	16	4587589.04	742248.56	33HY0167	Surface Inspection	N960 E965	Plow Zone (Ap)	N/A	N/A	Sandstone	FCR					53.30	56	43	37					Subangular fracturing across entire surface.
35	35.002	Phase II	16	4587589.04	742248.56	33HY0167	Surface Inspection	N960 E965	Plow Zone (Ap)	N/A	N/A	Granite	FCR					37.50	44	39	28					Minor crazing.
35	35.003	Phase II	16	4587589.04	742248.56	33HY0167	Surface Inspection	N960 E965	Plow Zone (Ap)	N/A	N/A	Rhyolite	Ground Stone	Hammer				25.10	33	31	19					Concentrated area of pecking evident on the distal end of what appears to be a stone smoothed on two faces to form a single margin that wraps around the distal end.
35	35.004	Phase II	16	4587589.04	742248.56	33HY0167	Surface Inspection	N960 E965	Plow Zone (Ap)	N/A	N/A	Unidentified	Non-Cultural					0.80	15	11	5					Appears to be a naturally deposited pebble.
36	36.001	Phase II	16	4587592.76	742251.88	33HY0167	Surface Inspection	N960 E970	Plow Zone (Ap)	N/A	N/A	Flint Ridge (Chalcedony)	Biface	Biface (Unfinished)				7.00	24	19	12				0	Technically a biface, has been worked on two faces and two margins. A blade-like edge seems to have been formed and used, however the piece as a whole resembles a failed attempt at a biface that was then attempted to be formed into a scraper, then ultimately used as an expedient edge tool.
37	37.001	Phase II	16	4587596.49	742255.25	33HY0167	Surface Inspection	N960 E975	Plow Zone (Ap)	N/A	N/A	Flint Ridge/Vanport Chert	Flake	Complex				0.60	19	13	2	1	1	0	0	
37	37.002	Phase II	16	4587596.49	742255.25	33HY0167	Surface Inspection	N960 E975	Plow Zone (Ap)	N/A	N/A	Flint Ridge/Vanport Chert	Flake	Complex				0.50	15	9	3	0	0	0	0	
37	37.003	Phase II	16	4587596.49	742255.25	33HY0167	Surface Inspection	N960 E975	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Core	Core Fragment				68.00	52	49	25				1	Flake core with 8 removal scars. Possibly this was being reduced to a bifacial implement. Has the beginnings of a prismatic cross-section but if this was the objective form, it remains incomplete.
38	38.001	Phase II	16	4587592.38	742244.81	33HY0167	Surface Inspection	N965 E965	Plow Zone (Ap)	N/A	N/A	Granite	FCR					25.40	37	29	15					Subangular fracturing.
38	38.002	Phase II	16	4587592.38	742244.81	33HY0167	Surface Inspection	N965 E965	Plow Zone (Ap)	N/A	N/A	Rhyolite	Non-Cultural					59.20	51	50	20					
39	39.001	Phase II	16	4587596.10	742248.19	33HY0167	Surface Inspection	N965 E970	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				2.40	29	20	5	0	0	0	0	
39	39.002	Phase II	16	4587596.10	742248.19	33HY0167	Surface Inspection	N965 E970	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					92.90	60	44	23					Subangular fracturing.
40	40.001	Phase II	16	4587599.83	742251.50	33HY0167	Surface Inspection	N965 E975	Plow Zone (Ap)	N/A	N/A	Bayport	Shatter					2.00	26	12	9	0	0	0	0	
40	40.002	Phase II	16	4587599.83	742251.50	33HY0167	Surface Inspection	N965 E975	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					30.80	37	29	22					Subangular fracturing.
41	41.001	Phase II	16	4587588.66	742241.50	33HY0167	Surface Inspection	N965 E960	Plow Zone (Ap)	N/A	N/A	Flint Ridge/Vanport Chert	Flake	Complex				0.04	11	7	1	0	1	0	0	
42	42.002	Phase II	16	4587599.44	742244.44	33HY0167	Surface Inspection	N970 E970	Plow Zone (Ap)	N/A	N/A	Flint Ridge/Vanport Chert	Shatter					16.10	36	28	16	0	0	0	1	
43	43.001	Phase II	16	4587595.72	742241.13	33HY0167	Surface Inspection	N970 E965	Plow Zone (Ap)	N/A	N/A	Upper Mercer (Nellie)	Flake	Complex				0.04	12	11	2	0	0	0	0	
43	43.002	Phase II	16	4587595.72	742241.13	33HY0167	Surface Inspection	N970 E965	Plow Zone (Ap)	N/A	N/A	Upper Mercer (Black)	Flake	Complex				0.80	18	14	4	0	1	0	0	
43	43.003	Phase II	16	4587595.72	742241.13	33HY0167	Surface Inspection	N970 E965	Plow Zone (Ap)	N/A	N/A	Esopus	Flake	Complex				1.10	23	18	4	0	0	0	0	
43	43.004	Phase II	16	4587595.72	742241.13	33HY0167	Surface Inspection	N970 E965	Plow Zone (Ap)	N/A	N/A	Esopus	Flake	Complex				0.70	16	14	4	0	0	0	0	
43	43.005	Phase II	16	4587595.72	742241.13	33HY0167	Surface Inspection	N970 E965	Plow Zone (Ap)	N/A	N/A	Greywacke	Shatter					13.60	47	33	10	0	0	0	0	
43	43.006	Phase II	16	4587595.72	742241.13	33HY0167	Surface Inspection	N970 E965	Plow Zone (Ap)	N/A	N/A	Rhyolite	Non-Cultural					22.40	42	31	15					Originally classified as FCR; however, does not exhibit sub-angular fracturing. If cultural, it is a fragment of ground stone, but there is no apparent evidence of cultural modification.
44	44.001	Phase II	16	4587592.00	742237.75	33HY0167	Surface Inspection	N970 E960	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				0.04	11	9	1	0	1	0	0	
44	44.002	Phase II	16	4587592.00	742237.75	33HY0167	Surface Inspection	N970 E960	Plow Zone (Ap)	N/A	N/A	Flint Ridge/Vanport Chert	Shatter					0.80	14	7	6	0	0	0	0	
44	44.003	Phase II	16	4587592.00	742237.75	33HY0167	Surface Inspection	N970 E960	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				8.30	36	24	11	0	1	0	0	
44	44.004	Phase II	16	4587592.00	742237.75	33HY0167	Surface Inspection	N970 E960	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					55.40	54	41	22					

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
45	45.001	Phase II	16	4587602.78	742240.75	33HY0167	Surface Inspection	N975 E970	Plow Zone (Ap)	N/A	N/A	Granite	FCR					183.80	63	50	41					Subangular fracturing.
45	45.002	Phase II	16	4587602.78	742240.75	33HY0167	Surface Inspection	N975 E970	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					89.90	68	43	27					Subangular fracturing and thermal alteration color change.
46	46.001	Phase II	16	4587599.06	742237.38	33HY0167	Surface Inspection	N975 E965	Plow Zone (Ap)	N/A	N/A	Granite	FCR					153.30	65	55	44					Subangular fracturing and thermal alteration color change.
46	46.002	Phase II	16	4587599.06	742237.38	33HY0167	Surface Inspection	N975 E965	Plow Zone (Ap)	N/A	N/A	Granite	FCR					79.20	40	40	35					Subangular fracturing.
46	46.003	Phase II	16	4587599.06	742237.38	33HY0167	Surface Inspection	N975 E965	Plow Zone (Ap)	N/A	N/A	Granite	FCR					4.00	16	13	9					Subangular fracturing.
46	46.004	Phase II	16	4587599.06	742237.38	33HY0167	Surface Inspection	N975 E965	Plow Zone (Ap)	N/A	N/A	Upper Mercer (Black)	Biface	Biface Fragment				0.30	10	8	3				0	6 flake scars on Face1; 6 flake scars on Face2. Edge appears to have been pressure flaked then dulled by use. Assumption is that after use, this fragment popped off of the objective piece, most likely a bifacial implement.
47	47.001	Phase II	16	4587606.12	742237.00	33HY0167	Surface Inspection	N980 E970	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Core	Spent Flake Core				25.80	55	30	20				0	
48	48.001	Phase II	16	4587609.84	742240.38	33HY0167	Surface Inspection	N980 E975	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Core	Spent Flake Core				12.00	30	25	21				0	At least 7 flakes taken from this core, evidenced by removal scars.
49	49.001	Phase II	16	4587598.68	742230.31	33HY0167	Surface Inspection	N980 E960	Plow Zone (Ap)	N/A	N/A	Attica/Indiana Green	Flake	Complex				0.04	12	9	3	0	0	0	0	
49	49.002	Phase II	16	4587598.68	742230.31	33HY0167	Surface Inspection	N980 E960	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Shatter					3.20	24	14	11	0	0	0	1	
49	49.003	Phase II	16	4587598.68	742230.31	33HY0167	Surface Inspection	N980 E960	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Flake	Complex				2.20	30	21	7	0	0	0	0	
50	50.001	Phase II	16	4587602.40	742233.69	33HY0167	Surface Inspection	N980 E965	Plow Zone (Ap)	N/A	N/A	Delaware	Flake	Complex				3.80	28	27	6	0	0	1	0	
50	50.002	Phase II	16	4587602.40	742233.69	33HY0167	Surface Inspection	N980 E965	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					68.60	54	34	29					Subangular fracturing.
51	51.001	Phase II	16	4587602.02	742226.63	33HY0167	Surface Inspection	N985 E960	Plow Zone (Ap)	N/A	N/A	Bayport	Flake	Complex				0.60	19	13	3	0	0	0	0	
52	52.001	Phase II	16	4587605.74	742229.94	33HY0167	Surface Inspection	N985 E965	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Shatter	Decortication Shatter				5.40	32	24	12	0	0	0	1	
52	52.002	Phase II	16	4587605.74	742229.94	33HY0167	Surface Inspection	N985 E965	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				2.80	30	24	4	0	1	1	0	
53	53.001	Phase II	16	4587609.46	742233.31	33HY0167	Surface Inspection	N985 E970	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Scraper	Scraper				3.20	24	20	8				0	
53	53.002	Phase II	16	4587609.46	742233.31	33HY0167	Surface Inspection	N985 E970	Plow Zone (Ap)	N/A	N/A	Bayport	Biface	Biface (Unfinished)				7.60	31	19	12				1	Has the appearance of an unfinished projectile point or bladelet.
53	53.003	Phase II	16	4587609.46	742233.31	33HY0167	Surface Inspection	N985 E970	Plow Zone (Ap)	N/A	N/A	Bayport	Core	Pebble Core				10.00	26	19	17				1	
54	54.001	Phase II	16	4587613.18	742236.63	33HY0167	Surface Inspection	N985 E975	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				1.20	21	12	5	0	1	0	0	
54	54.002	Phase II	16	4587613.18	742236.63	33HY0167	Surface Inspection	N985 E975	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Shatter	Decortication Shatter				10.40	27	25	11	0	0	0	1	
54	54.003	Phase II	16	4587613.18	742236.63	33HY0167	Surface Inspection	N985 E975	Plow Zone (Ap)	N/A	N/A	Flint Ridge/Vanport	Biface	Biface Fragment	Paleoindian?			62.40	42	63	25				0	Distal tip of a hefty bifacial implement. Appearance of a portion of a bifacial knife or hand axe. Likely Paleoindian as it is high quality material far from its source being used in a high utility application. There is silvery material (not quite looking like an inclusion) in the shape of what looks like a rectangular outline. This is located along the break between the distal and (missing) proximal ends.
55	55.001	Phase II	16	4587605.36	742222.88	33HY0167	Surface Inspection	N990 E960	Plow Zone (Ap)	N/A	N/A	Pipe Creek	Biface	Projectile Point	Bottleneck Stemmed (Table Rock Cluster)	Late Archaic (3800-3000 B.P.)	Justice 1987	7.60	45	25	6				0	Previously recorded as a Thebes point, but now recognized as a Bottle Neck Stemmed point with a concave base. Grinding on base. Slightly expanding stem. Side notched-wide notches.
55	55.002	Phase II	16	4587605.36	742222.88	33HY0167	Surface Inspection	N990 E960	Plow Zone (Ap)	N/A	N/A	Upper Mercer (Nellie)	Flake	Complex				1.60	24	22	4	0	0	0	0	
56	56.001	Phase II	16	4587609.08	742226.25	33HY0167	Surface Inspection	N990 E965	Plow Zone (Ap)	N/A	N/A	Sandstone	FCR					36.50	60	24	21					Light charring and thermal color change.
56	56.002	Phase II	16	4587609.08	742226.25	33HY0167	Surface Inspection	N990 E965	Plow Zone (Ap)	N/A	N/A	Slate	FCR					1.60	30	21	4					Charring.
56	56.003	Phase II	16	4587609.08	742226.25	33HY0167	Surface Inspection	N990 E965	Plow Zone (Ap)	N/A	N/A	Slate	FCR					0.40	17	8	2					Charring.
56	56.004	Phase II	16	4587609.08	742226.25	33HY0167	Surface Inspection	N990 E965	Plow Zone (Ap)	N/A	N/A	Slate	FCR					0.80	21	12	3					Charring.
56	56.005	Phase II	16	4587609.08	742226.25	33HY0167	Surface Inspection	N990 E965	Plow Zone (Ap)	N/A	N/A	Slate	FCR					0.40	21	10	2					Charring.
56	56.006	Phase II	16	4587609.08	742226.25	33HY0167	Surface Inspection	N990 E965	Plow Zone (Ap)	N/A	N/A	Slate	FCR					0.50	16	10	4					Charring.
56	56.007	Phase II	16	4587609.08	742226.25	33HY0167	Surface Inspection	N990 E965	Plow Zone (Ap)	N/A	N/A	Slate	FCR					0.20	15	11	1					Charring.
56	56.008	Phase II	16	4587609.08	742226.25	33HY0167	Surface Inspection	N990 E965	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					0.60	17	8	4					Crazing.

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Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
57	57.001	Phase II	16	4587612.80	742229.56	33HY0167	Surface Inspection	N990 E970	Plow Zone (Ap)	N/A	N/A	Flint Ridge/Vanport Chert	Flake	Complex				2.10	27	15	6	0	1	1	0	
57	57.002	Phase II	16	4587612.80	742229.56	33HY0167	Surface Inspection	N990 E970	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				0.80	21	16	2	0	1	0	0	
57	57.003	Phase II	16	4587612.80	742229.56	33HY0167	Surface Inspection	N990 E970	Plow Zone (Ap)	N/A	N/A	Flint Ridge/Vanport Chert	Flake	Complex				0.04	13	10	2	0	1	0	0	
57	57.004	Phase II	16	4587612.80	742229.56	33HY0167	Surface Inspection	N990 E970	Plow Zone (Ap)	N/A	N/A	Rhyolite	Ground Stone	Hammer				129.60	70	40	25					Concentrated area of pecking evident on the distal end of what appears to be a billet-shaped hammer stone.
58	58.001	Phase II	16	4587616.52	742232.94	33HY0167	Surface Inspection	N990 E975	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Core	Spent Flake Core				17.40	36	27	17				0	Evidence of at least one remnant platform.
58	58.001	Phase II	16	4587616.52	742232.94	33HY0167	Surface Inspection	N990 E975	Plow Zone (Ap)	N/A	N/A	Sandstone	FCR					6.20	24	21	11					Burnt exterior.
58	58.002	Phase II	16	4587616.52	742232.94	33HY0167	Surface Inspection	N990 E975	Plow Zone (Ap)	N/A	N/A	Bayport	Shatter					5.70	23	14	14	0	0	0	0	
58	58.003	Phase II	16	4587616.52	742232.94	33HY0167	Surface Inspection	N990 E975	Plow Zone (Ap)	N/A	N/A	Flint Ridge/Vanport Chert	Shatter					2.80	24	10	9	0	1	0	0	
58	58.004	Phase II	16	4587616.52	742232.94	33HY0167	Surface Inspection	N990 E975	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Core	Flake Core Fragment				4.10	21	20	11				0	
59	59.001	Phase II	16	4587608.70	742219.19	33HY0167	Surface Inspection	N995 E960	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Core	Spent Flake Core				19.30	29	25	19				0	
59	59.002	Phase II	16	4587608.70	742219.19	33HY0167	Surface Inspection	N995 E960	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Shatter					13.90	41	25	12	0	0	0	0	
60	60.001	Phase II	16	4587612.42	742222.50	33HY0167	Surface Inspection	N995 E965	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					24.90	47	30	13					Subangular fracturing and thermal alteration color change.
60	60.002	Phase II	16	4587612.42	742222.50	33HY0167	Surface Inspection	N995 E965	Plow Zone (Ap)	N/A	N/A	Rhyolite	Non-Cultural					623.70	99	96	50					Appears to have a single flake driven from its face. The scar looks quite fresh - probably a modern alteration.
60	60.003	Phase II	16	4587612.42	742222.50	33HY0167	Surface Inspection	N995 E965	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					18.40	31	28	17					Minor crazing.
60	60.004	Phase II	16	4587612.42	742222.50	33HY0167	Surface Inspection	N995 E965	Plow Zone (Ap)	N/A	N/A	Silicified Sandstone	FCR					11.90	32	28	11					Scant evidence of crazing but has the appearance of a heat-treated Silicified Sandstone pebble which has been split. Could not identify definitive platform or flake scars.
61	61.001	Phase II	16	4587616.14	742225.88	33HY0167	Surface Inspection	N995 E970	Plow Zone (Ap)	N/A	N/A	Granite	FCR					34.10	60	30	14					Subangular fracture.
62	62.001	Phase II	16	4587619.86	742229.19	33HY0167	Surface Inspection	N995 E975	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Core	Spent Flake Core				9.60	42	20	12				0	
62	62.002	Phase II	16	4587619.86	742229.19	33HY0167	Surface Inspection	N995 E975	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Shatter					18.50	34	23	21	0	0	0	0	
62	62.003	Phase II	16	4587619.86	742229.19	33HY0167	Surface Inspection	N995 E975	Plow Zone (Ap)	N/A	N/A	Greywacke	Flake	Complex				6.40	42	27	5	0	0	0	0	
62	62.004	Phase II	16	4587619.86	742229.19	33HY0167	Surface Inspection	N995 E975	Plow Zone (Ap)	N/A	N/A	Bayport	Shatter					2.60	20	14	11	0	0	0	0	
63	63.001	Phase II	16	4587615.76	742218.81	33HY0167	Surface Inspection	N1000 E965	Plow Zone (Ap)	N/A	N/A	Greywacke	Flake	Complex				4.10	40	18	6	0	1	0	0	
64	64.001	Phase II	16	4587551.17	742268.31	33HY0167	Surface Inspection	N920 E950	Plow Zone (Ap)	N/A	N/A	Granite	FCR					67.00	53	33	31					Subangular fracture.
64	64.002	Phase II	16	4587551.17	742268.31	33HY0167	Surface Inspection	N920 E950	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					30.90	55	29	19					Subangular fracture and thermal alteration color change.
65	65.001	Phase II	16	4587554.12	742257.50	33HY0167	Surface Inspection	N930 E945	Plow Zone (Ap)	N/A	N/A	Delaware	Shatter					30.10	43	39	18	0	0	0	0	
65	65.002	Phase II	16	4587554.12	742257.50	33HY0167	Surface Inspection	N930 E945	Plow Zone (Ap)	N/A	N/A	Delaware	Shatter					3.50	21	17	9	0	0	0	1	
65	65.003	Phase II	16	4587554.12	742257.50	33HY0167	Surface Inspection	N930 E945	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					78.70	58	33	31					Subangular fracture.
66	66.001	Phase II	16	4587557.46	742253.81	33HY0167	Surface Inspection	N935 E945	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Flake	Complex				10.20	33	25	17	0	0	1	0	
67	67.001	Phase II	16	4587564.52	742253.44	33HY0167	Surface Inspection	N940 E950	Plow Zone (Ap)	N/A	N/A	Flint Ridge (Chalcedony)	Core	Flake Core Fragment				1.40	17	14	6				1	At least 8 flake removal scars. Evidence of a remnant striking platform. Could be classified as shatter in the sense that a fragment of a core is arguably also shatter by definition. Could be a biface, however no margin being formed.
67	67.002	Phase II	16	4587564.52	742253.44	33HY0167	Surface Inspection	N940 E950	Plow Zone (Ap)	N/A	N/A	Rhyolite	Ground Stone	Hammer				420.00	81	62	44					Concentrated area of abrasion and battering apparent on one end of the stone.
68	68.001	Phase II	16	4587560.80	742250.06	33HY0167	Surface Inspection	N940 E945	Plow Zone (Ap)	N/A	N/A	Granite	FCR					32.60	45	35	24					Subangular fracture.
68	68.002	Phase II	16	4587560.80	742250.06	33HY0167	Surface Inspection	N940 E945	Plow Zone (Ap)	N/A	N/A	Granite	FCR					43.30	38	34	24					Minor crazing and alteration to color.
69	69.001	Phase II	16	4587564.14	742246.38	33HY0167	Surface Inspection	N945 E945	Plow Zone (Ap)	N/A	N/A	Granite	FCR					60.20	52	32	24					Subangular fracture.
69	69.002	Phase II	16	4587564.14	742246.38	33HY0167	Surface Inspection	N945 E945	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					13.00	35	20	12					Subangular fracture and thermal alteration color change.
70	70.001	Phase II	16	4587574.92	742249.31	33HY0167	Surface Inspection	N950 E955	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Shatter					41.40	53	28	26	0	0	0	0	

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
71	71.001	Phase II	16	4587574.16	742235.19	33HY0167	Surface Inspection	N960 E945	Plow Zone (Ap)	N/A	N/A	Granite	FCR					498.40	76	70	67					Subangular fracture and thermal alteration color change.
71	71.002	Phase II	16	4587574.16	742235.19	33HY0167	Surface Inspection	N960 E945	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Test Cobble	Test Cobble Fragment				83.10	74	41	30	0	0	0	1	Rock appears to have been split by one blow, revealing an internal structure to the cobble which is not conducive to concoidal fracture. Inclusions.
72	72.001	Phase II	16	4587578.26	742245.63	33HY0167	Surface Inspection	N955 E955	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				0.04	15	8	2	0	0	0	0	
72	72.002	Phase II	16	4587578.26	742245.63	33HY0167	Surface Inspection	N955 E955	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				0.04	11	7	2	0	0	0	0	
73	73.001	Phase II	16	4587581.22	742234.81	33HY0167	Surface Inspection	N965 E950	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Shatter	Decortication Shatter				27.10	49	36	17	0	0	0	1	
73	73.002	Phase II	16	4587581.22	742234.81	33HY0167	Surface Inspection	N965 E950	Plow Zone (Ap)	N/A	N/A	Granite	FCR					116.90	80	50	38					Subangular fracture.
73	73.003	Phase II	16	4587581.22	742234.81	33HY0167	Surface Inspection	N965 E950	Plow Zone (Ap)	N/A	N/A	Unknown	Core	Core Fragment				75.80	56	48	28				1	Remnant of a core or a fragment of a test cobble. Appears to have many inconvenient inclusions which have caused platey fractures, making it an undesirable core.
74	74.001	Phase II	16	4587577.50	742231.50	33HY0167	Surface Inspection	N965 E945	Plow Zone (Ap)	N/A	N/A	Bayport	Shatter					0.40	13	7	7	0	0	1	0	
76	76.001	Phase II	16	4587588.28	742234.44	33HY0167	Surface Inspection	N970 E955	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				1.20	22	13	5	0	0	0	0	
76	76.002	Phase II	16	4587588.28	742234.44	33HY0167	Surface Inspection	N970 E955	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				2.60	39	16	5	1	1	1	0	
76	76.003	Phase II	16	4587588.28	742234.44	33HY0167	Surface Inspection	N970 E955	Plow Zone (Ap)	N/A	N/A	Attica/Indiana Green	Scraper	Scraper				2.30	27	18	4				0	
76	76.004	Phase II	16	4587588.28	742234.44	33HY0167	Surface Inspection	N970 E955	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Biface	Biface (Unfinished)				13.40	51	33	11				1	Large flake that has been worked on two faces and one margin. Margin has evidence of regularly spaced pressure flaking. Small amount of cortex remains on what appears to be the flake's platform. At least 3 removal scars on one face and at least 6 on the opposing.
77	77.001	Phase II	16	4587584.56	742231.13	33HY0167	Surface Inspection	N970 E950	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Simple				0.30	21	10	2	0	0	0	0	
77	77.002	Phase II	16	4587584.56	742231.13	33HY0167	Surface Inspection	N970 E950	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Flake	Complex				5.30	35	21	8	0	1	0	0	
77	77.003	Phase II	16	4587584.56	742231.13	33HY0167	Surface Inspection	N970 E950	Plow Zone (Ap)	N/A	N/A	Bayport	Biface	Biface (Unfinished)				38.70	61	35	21				0	Thinning on two faces and the beginnings of a single blade margin being formed.
77	77.004	Phase II	16	4587584.56	742231.13	33HY0167	Surface Inspection	N970 E950	Plow Zone (Ap)	N/A	N/A	Dundee/Stoney Creek	Shatter					56.60	63	46	21	0	0	0	0	
77	77.005	Phase II	16	4587584.56	742231.13	33HY0167	Surface Inspection	N970 E950	Plow Zone (Ap)	N/A	N/A	Dundee/Stoney Creek	Shatter					48.50	51	31	22	0	0	0	0	
78	78.001	Phase II	16	4587534.85	742294.00	33HY0167	Surface Inspection	N980 E955	Plow Zone (Ap)	N/A	N/A	Flint Ridge	Biface	Projectile Point	Bottleneck Stemmed (Table Rock Cluster)	Late Archaic (3800-3000 B.P.)	Justice 1987	9.20	44	23	12				0	Previously recorded as a Thebes point, but now recognized as a Bottle Neck Stemmed point with a flat base. Grinding on base. Side notched with wide notches.
78	78.002	Phase II	16	4587534.85	742294.00	33HY0167	Surface Inspection	N980 E955	Plow Zone (Ap)	N/A	N/A	Granite	Non-Cultural					282.00	80	60	32					Originally classified as FCR; however, does not exhibit sub-angular fracturing.
79	79.001	Phase II	16	4587587.90	742227.38	33HY0167	Surface Inspection	N975 E950	Plow Zone (Ap)	N/A	N/A	Bayport	Flake	Complex				0.50	17	12	2	0	1	0	0	
79	79.002	Phase II	16	4587587.90	742227.38	33HY0167	Surface Inspection	N975 E950	Plow Zone (Ap)	N/A	N/A	Upper Mercer (Nellie)	Flake	Complex				0.40	16	12	2	0	0	0	0	
79	79.003	Phase II	16	4587587.90	742227.38	33HY0167	Surface Inspection	N975 E950	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Shatter					1.40	21	17	7	0	0	0	1	
79	79.004	Phase II	16	4587587.90	742227.38	33HY0167	Surface Inspection	N975 E950	Plow Zone (Ap)	N/A	N/A	Silicified Sandstone	Shatter					1.70	15	13	7	0	0	0	0	
79	79.005	Phase II	16	4587587.90	742227.38	33HY0167	Surface Inspection	N975 E950	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					19.90	54	33	14					Crazing and burnt appearance.
80	80.001	Phase II	16	4587587.90	742227.38	33HY0167	Surface Inspection	N975 E950	Plow Zone (Ap)	N/A	N/A	Upper Mercer	Biface	Biface Fragment				7.00	30	25	10				0	Small biface. If it was hafted, the stem and shoulders are missing. The distal end is missing as well.
82	82.001	Phase II	16	4587591.24	742223.63	33HY0167	Surface Inspection	N980 E950	Plow Zone (Ap)	N/A	N/A	Granite	FCR					102.70	60	40	32					Subangular fracture.
82	82.002	Phase II	16	4587591.24	742223.63	33HY0167	Surface Inspection	N980 E950	Plow Zone (Ap)	N/A	N/A	Granite	FCR					45.30	40	35	24					Subangular fracture.
82	82.003	Phase II	16	4587591.24	742223.63	33HY0167	Surface Inspection	N980 E950	Plow Zone (Ap)	N/A	N/A	Bayport	Biface	Unidentified				3.00	18	15	12				0	Technically a biface, has been worked on four faces and the formation of a margin can be seen. However, the small size is not indicative of a common bifacial objective piece. Perhaps an elaborate attempt at a scraper or bladelet? Has the appearance of a many sided die.
83	83.001	Phase II	16	4587598.30	742223.25	33HY0167	Surface Inspection	N985 E955	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Shatter					7.80	32	15	12	0	0	0	0	
84	84.001	Phase II	16	4587601.25	742212.50	33HY0167	Surface Inspection	N995 E950	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Core	Spent Flake Core				52.90	65	38	26				1	
85	85.001	Phase II	16	4587597.53	742209.13	33HY0167	Surface Inspection	N995 E945	Plow Zone (Ap)	N/A	N/A	Dundee/Stoney Creek	Flake	Complex				0.04	10	9	2	0	0	0	0	
85	85.002	Phase II	16	4587597.53	742209.13	33HY0167	Surface Inspection	N995 E945	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Biface	Biface Fragment				28.80	52	29	20				0	Worked on two faces, and one margin formed. Appears to be a distal and lateral fragment of a larger bifacial objective piece.

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
85	85.003	Phase II	16	4587597.53	742209.13	33HY0167	Surface Inspection	N995 E945	Plow Zone (Ap)	N/A	N/A	Granite	FCR					48.90	47	34	24					Subangular fracture.
86	86.001	Phase II	16	4587601.64	742219.56	33HY0167	Surface Inspection	N990 E955	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Core	Spent Flake Core				63.70	44	39	20				1	
86	86.002	Phase II	16	4587601.64	742219.56	33HY0167	Surface Inspection	N990 E955	Plow Zone (Ap)	N/A	N/A	Granite	FCR					59.60	42	35	28					Subangular fracture.
86	86.003	Phase II	16	4587601.64	742219.56	33HY0167	Surface Inspection	N990 E955	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Core	Pebble Core				10.40	27	20	13				1	At least one prepared platform evident.
86	86.004	Phase II	16	4587601.64	742219.56	33HY0167	Surface Inspection	N990 E955	Plow Zone (Ap)	N/A	N/A	Greywacke	Shatter					5.30	34	15	8	0	1	0	1	
87	87.001	Phase II	16	4587597.91	742216.19	33HY0167	Surface Inspection	N990 E950	Plow Zone (Ap)	N/A	N/A	Pipe Creek	Scraper	Scraper				1.90	23	17	6				0	
87	87.002	Phase II	16	4587597.91	742216.19	33HY0167	Surface Inspection	N990 E950	Plow Zone (Ap)	N/A	N/A	Pipe Creek	Flake	Complex				0.04	10	6	2	0	1	0	0	
87	87.003	Phase II	16	4587597.91	742216.19	33HY0167	Surface Inspection	N990 E950	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Shatter					1.20	22	12	6	0	0	0	0	
87	87.004	Phase II	16	4587597.91	742216.19	33HY0167	Surface Inspection	N990 E950	Plow Zone (Ap)	N/A	N/A	Slate or Greywacke	Non-Cultural					1.70	21	19	7					Originally recorded as "Rhyolite FCR.," but is not rhyolite. Does not have subangular fracturing or obvious thermal induced color change. Has a margin that could be used as a utility edge, however, no evidence of use, retouch, or any sort of cultural modification.
89	89.001	Phase II	16	4587590.85	742216.63	33HY0167	Surface Inspection	N985 E945	Plow Zone (Ap)	N/A	N/A	Bayport	Flake	Complex				0.90	21	20	2	0	0	0	0	
89	89.002	Phase II	16	4587590.85	742216.63	33HY0167	Surface Inspection	N985 E945	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Flake	Complex				2.40	24	21	4	0	0	1	0	
90	90.001	Phase II	16	4587604.97	742215.81	33HY0167	Surface Inspection	N995 E955	Plow Zone (Ap)	N/A	N/A	Flint Ridge/Vanport Chert	Shatter					7.20	29	23	11	0	0	0	1	
91	91.001	Phase II	16	4587612.04	742215.44	33HY0167	Surface Inspection	N1000 E960	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Shatter					25.10	48	29	22	0	0	0	1	
92	92.001	Phase II	16	4587604.59	742208.75	33HY0167	Surface Inspection	N1000 E950	Plow Zone (Ap)	N/A	N/A	Granite	Ground Stone	Unidentified				24.70	34	36	16				0	Two well defined margins. Prismatic profile.
93	93.001	Phase II	16	4587600.87	742205.44	33HY0167	Surface Inspection	N1000 E945	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Flake	Decortication				7.90	33	22	12	0	0	0	1	
93	93.002	Phase II	16	4587600.87	742205.44	33HY0167	Surface Inspection	N1000 E945	Plow Zone (Ap)	N/A	N/A	Delaware	Flake	Complex				11.00	40	30	10	0	1	0	0	
94	94.001	Phase II	16	4587560.14	742303.25	33HY0167	Surface Inspection	N900 E980	Plow Zone (Ap)	N/A	N/A	Bayport	Core	Flake Core				49.70	57	42	22				0	Large prepared platform on top of core. Measures 47mm x 21mm. Core appears to have been split in half. A margin was worked into a utility edge on the piece as well. Possible that this was originally intended to be a large biface - or it's a flake core that had an edge modified for expedient use.Perhaps both are true.
96	96.001	Phase II	16	4587578.36	742312.88	33HY0167	Surface Inspection	N905 E1000	Plow Zone (Ap)	N/A	N/A	Granite	FCR					57.40	47	35	27					Subangular fracture and thermal alteration color change.
97	97.001	Phase II	16	4587630.64	742232.13	33HY0167	Surface Inspection	N1000 E985	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					69.90	47	36	32					Subangular fracture.
97	97.002	Phase II	16	4587630.64	742232.13	33HY0167	Surface Inspection	N1000 E985	Plow Zone (Ap)	N/A	N/A	Granite	FCR					9.10	35	21	9					Minor subangular fracturing.
97	97.003	Phase II	16	4587630.64	742232.13	33HY0167	Surface Inspection	N1000 E985	Plow Zone (Ap)	N/A	N/A	Greywacke	Core	Flake Core Fragment				15.00	40	30	10				0	Planar piece of greywacke with one flake removed from one face. No other alteration.
98	98.001	Phase II	16	4587634.75	742242.56	33HY0167	Surface Inspection	N995 E995	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Flake	Complex				4.50	32	26	8	0	1	0	1	
99	99.001	Phase II	16	4587616.90	742239.94	33HY0167	Surface Inspection	N985 E980	Plow Zone (Ap)	N/A	N/A	Upper Mercer (Nellie)	Flake	Complex				0.04	10	10	2	0	0	0	0	
99	99.002	Phase II	16	4587616.90	742239.94	33HY0167	Surface Inspection	N985 E980	Plow Zone (Ap)	N/A	N/A	Upper Mercer (Nellie)	Flake	Complex				0.04	7	6	1	0	0	0	0	
99	99.003	Phase II	16	4587616.90	742239.94	33HY0167	Surface Inspection	N985 E980	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Shatter					11.60	32	21	15	0	0	0	0	
99	99.004	Phase II	16	4587616.90	742239.94	33HY0167	Surface Inspection	N985 E980	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Shatter					2.70	27	16	7	0	0	0	0	
99	99.005	Phase II	16	4587616.90	742239.94	33HY0167	Surface Inspection	N985 E980	Plow Zone (Ap)	N/A	N/A	Delaware	Test Cobble	Test Cobble Fragment				340.20	100	71	38	0	0	1	1	
100	100.001	Phase II	16	4587627.30	742235.88	33HY0167	Surface Inspection	N995 E985	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					302.90	79	73	38					Subangular fracture and thermal alteration color change.
100	100.002	Phase II	16	4587627.30	742235.88	33HY0167	Surface Inspection	N995 E985	Plow Zone (Ap)	N/A	N/A	Granite	FCR					970.50	117	70	57					Some scant subangular fracturing.
102	102.001	Phase II	16	4587627.69	742242.94	33HY0167	Surface Inspection	N990 E990	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Scraper	Scraper				5.70	31	28	8				0	Utilized flake at the very least. Appears to have been given steep reductions on two margins from one face.
102	102.002	Phase II	16	4587627.69	742242.94	33HY0167	Surface Inspection	N990 E990	Plow Zone (Ap)	N/A	N/A	Bayport	Core	Pebble Core				5.40	22	17	13				1	
102	102.003	Phase II	16	4587627.69	742242.94	33HY0167	Surface Inspection	N990 E990	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Shatter					0.70	13	8	7	0	0	0	0	
103	103.001	Phase II	16	4587623.96	742239.56	33HY0167	Surface Inspection	N990 E985	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Shatter					6.00	26	25	10	0	0	0	1	

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
103	103.002	Phase II	16	4587623.96	742239.56	33HY0167	Surface Inspection	N990 E985	Plow Zone (Ap)	N/A	N/A	Bayport	Core	Flake Core Fragment				79.30	77	46	19				1	At least 3 prepared platforms.
103	103.003	Phase II	16	4587623.96	742239.56	33HY0167	Surface Inspection	N990 E985	Plow Zone (Ap)	N/A	N/A	Granite	FCR					125.10	54	52	42					Subangular fracture and thermal alteration color change.
103	103.004	Phase II	16	4587623.96	742239.56	33HY0167	Surface Inspection	N990 E985	Plow Zone (Ap)	N/A	N/A	Sandstone	FCR					1.60	16	12	8					Crazing and thermal color change.
103	103.005	Phase II	16	4587623.96	742239.56	33HY0167	Surface Inspection	N990 E985	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Shatter					14.30	45	26	16	0	0	0	1	
104	104.001	Phase II	16	4587620.24	742236.25	33HY0167	Surface Inspection	N990 E980	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Shatter					32.50	40	35	23	0	0	0	0	
105	105.001	Phase II	16	4587620.63	742243.31	33HY0167	Surface Inspection	N985 E985	Plow Zone (Ap)	N/A	N/A	Granite	FCR					245.50	110	43	39					Possibly heat fractured. Possible this is a portion of a ground stone tool.
106	106.001	Phase II	16	4587624.73	742253.69	33HY0167	Surface Inspection	N980 E995	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Biface	Projectile Point Fragment	Bottleneck Stemmed (Table Rock Cluster)	Late Archaic (3800-3000 B.P.)	Justice 1987	8.50	39	26	9				0	Previously recorded as a Thebes point, but does not appear to be one. Possibly a Lamoka point but lacks the unworked portion of base characteristic of Lamoka. Ground base with flat to slightly concave shape. Rounded shoulders. Wide open side notches.
106	106.002	Phase II	16	4587624.73	742253.69	33HY0167	Surface Inspection	N980 E995	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				0.04	13	10	1	0	0	0	0	
106	106.003	Phase II	16	4587624.73	742253.69	33HY0167	Surface Inspection	N980 E995	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Flake	Complex				13.30	40	31	14	0	0	0	0	
106	106.004	Phase II	16	4587624.73	742253.69	33HY0167	Surface Inspection	N980 E995	Plow Zone (Ap)	N/A	N/A	Delaware	Flake	Simple				1.90	28	14	5	0	0	0	0	
106	106.005	Phase II	16	4587624.73	742253.69	33HY0167	Surface Inspection	N980 E995	Plow Zone (Ap)	N/A	N/A	Delaware	Flake	Simple				0.60	15	13	4	0	0	0	0	
107	107.001	Phase II	16	4587628.07	742250.00	33HY0167	Surface Inspection	N985 E995	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				0.30	13	13	3	0	0	0	0	
107	107.002	Phase II	16	4587628.07	742250.00	33HY0167	Surface Inspection	N985 E995	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Core	Spent Flake Core				20.80	46	29	20				0	At least 3 prepared platforms.
107	107.003	Phase II	16	4587628.07	742250.00	33HY0167	Surface Inspection	N985 E995	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Shatter					14.00	47	24	13	0	0	0	0	
107	107.004	Phase II	16	4587628.07	742250.00	33HY0167	Surface Inspection	N985 E995	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Shatter					1.50	12	12	10	0	0	0	0	
108	108.001	Phase II	16	4587613.56	742243.69	33HY0167	Surface Inspection	N980 E980	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Flake	Complex				3.90	31	19	8	0	1	0	0	
108	108.002	Phase II	16	4587613.56	742243.69	33HY0167	Surface Inspection	N980 E980	Plow Zone (Ap)	N/A	N/A	Greywacke	Flake	Complex				0.40	15	9	3	0	1	0	0	
109	109.001	Phase II	16	4587617.67	742254.06	33HY0167	Surface Inspection	N975 E990	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Biface	Projectile Point Fragment	Unidentified			3.20	20	23	7				0	Projectile point with shoulders intact but missing distal end as well as stem and base. Very narrow corner notching.
110	110.001	Phase II	16	4587606.89	742251.13	33HY0167	Surface Inspection	N970 E980	Plow Zone (Ap)	N/A	N/A	Upper Mercer (Black)	Flake	Complex				1.70	30	17	3	1	1	0	0	
111	111.001	Phase II	16	4587613.95	742250.75	33HY0167	Surface Inspection	N975 E985	Plow Zone (Ap)	N/A	N/A	Granite	FCR					27.10	43	30	21					Subangular fracture.
112	112.001	Phase II	16	4587621.39	742257.44	33HY0167	Surface Inspection	N975 E995	Plow Zone (Ap)	N/A	N/A	Dundee/Stoney Creek	Core	Flake Core Fragment				59.40	58	32	32				1	
112	112.002	Phase II	16	4587621.39	742257.44	33HY0167	Surface Inspection	N975 E995	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Core	Spent Flake Core				49.50	46	36	26				0	At least 2 prepared platforms present.
112	112.003	Phase II	16	4587621.39	742257.44	33HY0167	Surface Inspection	N975 E995	Plow Zone (Ap)	N/A	N/A	Bayport	Flake	Complex				0.90	18	15	3	0	1	0	0	
113	113.001	Phase II	16	4587607.27	742258.19	33HY0167	Surface Inspection	N965 E985	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					31.30	47	46	17					Thermal alteration color change.
114	114.001	Phase II	16	4587621.01	742250.38	33HY0167	Surface Inspection	N980 E990	Plow Zone (Ap)	N/A	N/A	Unidentified	Flake	Simple				1.00	20	18	4	0	1	0	0	
114	114.002	Phase II	16	4587621.01	742250.38	33HY0167	Surface Inspection	N980 E990	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Biface	Crescent Knife or Scraper				3.10	27	18	7				0	Either a scraper which has been refined on two faces, or a small crescent shaped bifacial edge tool. Roughly the shape and size of an end scraper, but the margin which wraps around 3/4 of the object is sharpened from both faces. Evidence of use-wear as well.
115	115.001	Phase II	16	4587617.29	742247.00	33HY0167	Surface Inspection	N980 E985	Plow Zone (Ap)	N/A	N/A	Granite	FCR					15.70	40	23	11					Subangular fracturing and thermal alteration color change.
115	115.002	Phase II	16	4587617.29	742247.00	33HY0167	Surface Inspection	N980 E985	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					53.30	50	38	27					Subangular fracturing and thermal alteration color change.
116	116.001	Phase II	16	4587600.59	742265.63	33HY0167	Surface Inspection	N955 E985	Plow Zone (Ap)	N/A	N/A	Bayport	Shatter					3.70	25	17	11	0	0	0	0	
117	117.001	Phase II	16	4587610.61	742254.50	33HY0167	Surface Inspection	N970 E985	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					8.60	38	18	10					
118	118.001	Phase II	16	4587603.55	742254.88	33HY0167	Surface Inspection	N965 E980	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				0.40	15	10	3	0	1	0	0	
118	118.002	Phase II	16	4587603.55	742254.88	33HY0167	Surface Inspection	N965 E980	Plow Zone (Ap)	N/A	N/A	Upper Mercer (Black)	Flake	Complex				0.20	15	11	2	0	1	0	0	
118	118.003	Phase II	16	4587603.55	742254.88	33HY0167	Surface Inspection	N965 E980	Plow Zone (Ap)	N/A	N/A	Granite	FCR					61.90	46	46	30					
118	118.004	Phase II	16	4587603.55	742254.88	33HY0167	Surface Inspection	N965 E980	Plow Zone (Ap)	N/A	N/A	Granite	FCR					44.30	58	34	20					Thermal alteration color change.

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
119	119.001	Phase II	16	4587614.33	742257.81	33HY0167	Surface Inspection	N970 E990	Plow Zone (Ap)	N/A	N/A	Delaware	Flake	Simple				22.10	52	37	15	1	1	0	1	
119	119.002	Phase II	16	4587614.33	742257.81	33HY0167	Surface Inspection	N970 E990	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Shatter	Utilized Shatter				6.00	24	23	15	1	1	1	0	
121	121.001	Phase II	16	4587607.65	742265.25	33HY0167	Surface Inspection	N960 E990	Plow Zone (Ap)	N/A	N/A	Upper Mercer (Black)	Flake	Complex				2.00	30	17	4	0	1	0	0	
122	122.001	Phase II	16	4587600.21	742258.56	33HY0167	Surface Inspection	N960 E980	Plow Zone (Ap)	N/A	N/A	Flint Ridge/Vanport Chert	Flake	Complex				0.04	8	8	1	0	0	0	0	
122	122.002	Phase II	16	4587600.21	742258.56	33HY0167	Surface Inspection	N960 E980	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				0.10	14	11	3	0	0	0	0	
122	122.003	Phase II	16	4587600.21	742258.56	33HY0167	Surface Inspection	N960 E980	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					12.30	53	19	12					
123	123.001	Phase II	16	4587608.03	742272.31	33HY0167	Surface Inspection	N955 E995	Plow Zone (Ap)	N/A	N/A	Delaware	Flake	Simple				0.04	14	8	3	0	0	0	1	
123	123.002	Phase II	16	4587608.03	742272.31	33HY0167	Surface Inspection	N955 E995	Plow Zone (Ap)	N/A	N/A	Delaware	Flake	Complex				0.04	8	8	2	0	0	0	0	
124	124.001	Phase II	16	4587590.57	742276.81	33HY0167	Surface Inspection	N940 E985	Plow Zone (Ap)	N/A	N/A	Granite	Ground Stone	Abrader?				173.70	62	54	37				0	Hand-held size. Appears to have one face ground flat. Rock is otherwise rounded.
124	124.002	Phase II	16	4587590.57	742276.81	33HY0167	Surface Inspection	N940 E985	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Flake	Simple				0.70	20	15	3	0	1	0	0	
126	126.001	Phase II	16	4587590.95	742283.88	33HY0167	Surface Inspection	N935 E990	Plow Zone (Ap)	N/A	N/A	Bayport	Scraper	Scraper				5.00	31	21	10				0	Crude scraper. Possibly unfinished.
127	127.001	Phase II	16	4587604.69	742276.06	33HY0167	Surface Inspection	N950 E995	Plow Zone (Ap)	N/A	N/A	Delaware	Flake	Simple				1.90	26	16	6	0	1	0	1	
128	128.001	Phase II	16	4587576.83	742284.63	33HY0167	Surface Inspection	N925 E980	Plow Zone (Ap)	N/A	N/A	Flint Ridge/Vanport Chert	Flake	Complex				0.30	14	10	3	0	1	0	0	
129	129.001	Phase II	16	4587593.53	742266.00	33HY0167	Surface Inspection	N950 E980	Plow Zone (Ap)	N/A	N/A	Upper Mercer (Nellie)	Scraper	Scraper				4.80	32	24	7				0	Steep margin formation on three margins. One margin appears to have been retouched with pressure flaking and then used further - based on flaking and edge damage. The second margin has use-wear evidenced by damage but lacks the underlying retouch. The third margin appears to have no retouch and use-wear is not evident.
129	129.002	Phase II	16	4587593.53	742266.00	33HY0167	Surface Inspection	N950 E980	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Simple				0.04	9	8	2	0	0	0	0	
131	131.001	Phase II	16	4587593.91	742273.06	33HY0167	Surface Inspection	N945 E985	Plow Zone (Ap)	N/A	N/A	Upper Mercer (Nellie)	Flake	Complex				0.40	15	10	3	0	0	0	1	
132	132.001	Phase II	16	4587598.02	742283.50	33HY0167	Surface Inspection	N940 E995	Plow Zone (Ap)	N/A	N/A	Greywacke	Flake	Simple				0.70	15	10	4	0	1	0	0	
133	133.001	Phase II	16	4587583.51	742277.19	33HY0167	Surface Inspection	N935 E980	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Shatter					0.70	16	4	7	0	0	0	1	
135	135.001	Phase II	16	4587587.23	742280.50	33HY0167	Surface Inspection	N935 E985	Plow Zone (Ap)	N/A	N/A	Pipe Creek	Biface	Biface (Unfinished)				12.90	46	30	10				0	Technically a biface. Flakes removed from two faces and the modification of one margin furthered by pressure flaking to form a utility margin. Appears to have been retouched with pressure flaking on this margin and then experienced further use-wear to the edge.
137	137.001	Phase II	16	4587577.22	742291.69	33HY0167	Surface Inspection	N920 E985	Plow Zone (Ap)	N/A	N/A	Unknown	Biface	Biface Fragment				13.70	32	32	12				0	Flaking on one face and grinding on the opposing face. One margin formed, and has evidence of both use-wear and retouch. Material may be rhyolite or a coarse greywacke.
138	138.001	Phase II	16	4587570.15	742292.06	33HY0167	Surface Inspection	N915 E980	Plow Zone (Ap)	N/A	N/A	Attica/Indiana Green	Biface	Projectile Point Fragment	Unidentified			3.00	18	23	6				0	Base of projectile with shoulders and notches intact. Has the appearance of a Jack's Reef Raccoon Notch in both basal width, shape, and narrow side-notching. Base is ground.
139	139.001	Phase II	16	4587610.99	742261.56	33HY0167	Surface Inspection	N965 E990	Plow Zone (Ap)	N/A	N/A	Upper Mercer (Nellie)	Biface	Projectile Point Fragment	Unidentified			4.00	37	22	6				0	Missing a proximal corner. Proximal extent of blade is recognizable on the opposing margin. Unknown if there was a stem and base. If there were a stem, the remnant proximal margin would be exhibiting a pronounced notch.
140	140.001	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Upper Mercer (Nellie)	Flake	Complex				0.90	20	16	3	0	1	0	0	
140	140.002	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Upper Mercer (Nellie)	Flake	Complex				0.40	18	14	2	0	0	0	0	
140	140.003	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Upper Mercer (Nellie)	Flake	Complex				0.40	22	4	3	0	1	0	0	
140	140.004	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Upper Mercer (Nellie)	Flake	Complex				0.10	7	7	2	0	0	0	0	
140	140.005	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Upper Mercer (Nellie)	Flake	Complex				0.04	10	7	1	0	0	0	0	
140	140.006	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Upper Mercer (Nellie)	Flake	Simple				0.10	11	9	2	0	0	0	0	
140	140.007	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Upper Mercer (Nellie)	Flake	Complex				0.04	7	7	2	0	0	0	0	
140	140.008	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Upper Mercer (Nellie)	Flake	Complex				0.04	7	4	1	0	0	0	0	
140	140.009	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Pipe Creek	Flake	Complex				0.20	9	9	2	0	0	0	0	

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Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
140	140.010	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Cedarville/Guelph	Flake	Complex				0.10	11	8	2	0	0	0	0	
140	140.011	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Cedarville/Guelph	Scraper	Scraper				2.20	23	19	5				0	Steep flaking on three margins to form scraper. Appears to have been additionally retouched and then utilized further based on regular pressure flaking pattern and additional overlaid use-wear chipping on all three margins.
140	140.012	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Cedarville/Guelph	Flake	Simple				0.60	18	13	3	0	1	0	0	
140	140.013	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Cedarville/Guelph	Uniface	Uniface Fragment				1.50	16	16	6				0	Has two margins with retouch and use-wear evident. Appears to be a medial fragment of a narrow object with two sharpened margins.
140	140.014	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Flint Ridge Chalcedony	Flake	Complex				1.50	20	17	3	0	1	0	0	
140	140.015	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Bayport	Flake	Complex				0.20	12	11	2	0	1	0	0	
140	140.016	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Pipe Creek	Shatter					1.20	13	9	8	0	0	1	0	
140	140.017	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Bayport	Flake	Complex				3.10	22	20	9	0	0	0	0	
140	140.018	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Onondaga	Core	Spent Flake Core				11.90	34	25	15				1	At least one platform evident.
140	140.019	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Flint Ridge/Vanport	Core	Spent Flake Core				25.00	34	25	20				0	Multidirectional flake removal and evidence of one bipolar flake removed.
140	140.020	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Ten Mile Creek	Shatter					3.00	25	16	10	0	0	0	0	
140	140.021	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Ten Mile Creek	Flake	Decortication				1.30	24	18	6	0	1	0	1	
140	140.022	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Four Mile Creek	Shatter					6.50	23	18	15	0	0	0	0	
140	140.023	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Ten Mile Creek	Shatter					1.90	20	10	9	0	0	1	0	
140	140.024	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Upper Mercer (Grey)	Shatter					1.50	13	11	10	0	0	0	0	
140	140.025	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Ten Mile Creek	Shatter					8.30	34	22	12	0	0	0	0	
140	140.026	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Bayport	Shatter					4.50	20	18	12	0	0	0	0	
140	140.027	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Unidentified	Shatter					9.30	25	21	18	0	0	0	0	White with dark grey speckles. Waxy texture.
140	140.028	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Flint Ridge/Vanport Chert	Shatter					4.40	29	16	7	0	0	0	0	
140	140.029	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Four Mile Creek	Shatter					6.90	28	19	13	0	0	0	1	
140	140.030	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Bayport	Shatter					1.60	15	12	7	0	0	0	0	
140	140.031	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Four Mile Creek	Shatter					1.50	15	11	8	0	0	1	0	
140	140.032	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Cedarville/Guelph	Shatter					0.90	13	10	6	0	0	0	0	
140	140.033	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Cedarville/Guelph	Shatter					4.10	24	13	12	0	0	1	0	
140	140.034	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Kenneth	Shatter					0.70	10	10	4	0	0	0	0	
140	140.035	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Kenneth	Shatter					0.40	15	6	5	0	0	0	0	
140	140.036	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Kenneth	Shatter					0.40	12	6	4	0	0	0	0	
140	140.037	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Flint Ridge Flint	Shatter					0.90	13	10	6	0	0	0	1	
140	140.038	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Flint Ridge Flint	Biface	Unidentified				22.20	37	24	20				1	Flake removal from two faces to form a single margin. Edge appears to be crudely formed and overlaid with use-wear.
140	140.039	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Pipe Creek	Scraper	Scraper				1.80	20	16	7				0	Additional retouch to one margin; retouch is overlaid with additional use-wear.
140	140.040	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Four Mile Chert	Scraper	Scraper				1.90	18	18	6				0	Missing distal margin. Appears to have snapped off. No obvious macroscopic evidence of use-wear to either of the remaining margins.
140	140.041	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Sandstone	FCR					0.60	16	12	2					Thermal alteration resulting in color change.
140	140.042	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Pipe Creek	Nodule					20.40	36	28	20					Almost all but covered in cortex.
140	140.043	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Silicified Sandstone	Non-Cultural					17.00	33	24	19					Unmodified raw material.
140	140.044	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Siltstone	Non-Cultural					2.10	21	15	5					

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
140	140.045	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Unidentified Green Stone	Non-Cultural					0.80	11	11	6					Water-worn pebble.
140	140.046	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Unidentified	Non-Cultural					0.60	10	9	5					Water-worn pebble.
140	140.047	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Unidentified Red Stone	Non-Cultural					0.50	11	9	5					Water-worn pebble.
140	140.048	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Greywacke	Non-Cultural					0.70	12	12	3					Chip with no evidence of cultural modification.
140	140.049	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Greywacke	Non-Cultural					0.60	16	11	3					Chip with no evidence of cultural modification.
140	140.050	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Greywacke	Non-Cultural					0.10	12	10	2					Chip with no evidence of cultural modification.
140	140.051	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Greywacke	Non-Cultural					0.10	13	11	2					Chip with no evidence of cultural modification.
140	140.052	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Greywacke	Non-Cultural					0.40	13	9	2					Chip with no evidence of cultural modification.
140	140.053	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Siltstone	Non-Cultural					0.50	15	13	3					Chip with no evidence of cultural modification.
140	140.054	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Siltstone	Non-Cultural					0.04	9	8	5					No cultural modification.
140	140.057	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Unknown Red Stone	FCR					2.90	21	11	10					Minor subangular fracturing.
141	141.001	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Cedarville/Guelph	Drill					1.20	26	10	5				0	Appears to have been retouched on both margins.
141	141.002	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Cedarville/Guelph	Flake	Simple				2.30	25	17	6	1	1	0	0	
141	141.003	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Cedarville/Guelph	Flake	Complex				0.20	13	8	2	0	0	0	0	
141	141.004	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Upper Mercer (Nellie)	Flake	Complex				0.40	16	12	3	0	0	0	0	
141	141.005	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Bayport	Flake	Complex				0.90	18	11	4	0	0	0	0	
141	141.006	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Ten Mile Creek	Flake	Complex				0.20	13	11	2	0	1	1	0	
141	141.007	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Cedarville/Guelph	Flake	Simple				0.20	12	9	2	0	0	0	0	
141	141.008	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Silicified Sandstone	Flake	Complex				0.20	9	8	2	0	1	1	0	
141	141.009	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Delaware	Flake	Complex				0.60	17	14	3	0	1	0	0	Possibly a spent scraper.
141	141.010	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Delaware	Flake	Complex				0.80	18	17	4	1	1	0	0	Possibly a spent scraper.
141	141.011	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Cedarville/Guelph	Shatter					6.90	33	22	11	0	0	0	0	
141	141.012	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Cedarville/Guelph	Shatter					4.80	26	22	10	0	0	0	0	
141	141.013	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Cedarville/Guelph	Flake	Simple				2.20	22	19	8	1	1	0	1	
141	141.014	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Cedarville/Guelph	Flake	Complex				1.70	25	20	5	1	1	0	0	
141	141.015	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Cedarville/Guelph	Flake	Complex				0.70	18	14	4	0	1	0	0	
141	141.016	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Cedarville/Guelph	Flake	Complex				0.60	18	16	3	0	1	0	0	
141	141.017	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Unknown	Uniface	Unidentified				60.60	47	39	28				0	Either an unfinished unifacial knife or other edge tool or a chunky, crude scraper. Material is similar to rhyolite or possibly a type of greywacke. Appears to have a thermal alteration color change.
141	141.018	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Granite	FCR					36.70	39	30	27					May have been used as an abrader as one face is extremely flat and smooth - appears ground esp. in comparison with other faces of same object. Appears to have thermal color change. Also exhibits subangular fracturing on at least one face.
141	141.019	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Granite	FCR					4.80	20	15	13					Subangular fracture and thermal alteration color change.
141	141.020	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Granite	FCR					6.90	21	17	16					Subangular fracture and thermal alteration color change.
141	141.021	Phase II	16	4587619.02	742255.61	33HY0167	Excavation Unit	N976 E993	Level 1 (Ap)	Anomaly 11	N/A	Rhyolite	FCR					4.80	24	19	9					Possibly heat fractured. Possible this is a portion of a ground stone tool.
142	142.001	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Cedarville/Guelph	Flake	Complex				0.90	17	17	3	0	0	0	0	
142	142.002	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Cedarville/Guelph	Scraper	Scraper				0.70	16	14	4				0	Exhibits use-wear on all margins.

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
142	142.003	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Cedarville/Guelph	Flake	Complex				0.10	12	11	2	0	0	0	0	
142	142.004	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Cedarville/Guelph	Flake	Complex				0.20	14	10	2	0	1	0	0	
142	142.005	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Cedarville/Guelph	Flake	Complex				0.30	15	10	2	0	0	0	0	
142	142.006	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Cedarville/Guelph	Flake	Complex				0.04	11	6	1	0	1	0	0	
142	142.007	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Delaware	Flake	Complex				0.40	12	10	3	0	1	0	0	
142	142.008	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Delaware	Flake	Complex				0.20	12	9	2	0	0	0	0	
142	142.009	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Delaware	Flake	Complex				0.60	13	10	4	0	0	0	0	
142	142.010	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Flint Ridge (Chalcedony)	Biface	Bladelet				0.50	14	7	3				0	
142	142.011	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Ten Mile Creek	Shatter					2.80	20	17	9	0	0	0	0	
142	142.012	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Ten Mile Creek	Shatter					6.40	29	26	14	0	0	0	0	
142	142.013	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Delaware Chert	Biface	Biface Fragment				8.00	35	24	11				0	Flake removal from two faces to form a single margin. Use-wear is apparent on utility-edge.
142	142.014	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Delaware Chert	Core	Core Fragment				14.70	37	26	17				0	Either the remainder of a flake core or a biface discarded before an edge could be formed or both.
142	142.015	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Delaware Chert	Core	Core Fragment				40.60	44	32	27				0	Evidence of platform preparation.
142	142.016	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Delaware Chert	Core	Core Fragment				31.00	57	29	26				0	Possible platform prep grinding.
142	142.017	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Granite	FCR					123.40	65	39	35					Subangular fracture and thermal alteration color change.
142	142.018	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Rhyolite	FCR					44.70	47	32	23					Subangular fracturing.
142	142.019	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Granite	FCR					139.60	58	50	37					Subangular fracture and thermal alteration color change.
142	142.020	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Granite	FCR					7.70	35	19	15					
142	142.021	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	Level 1 (Ap)	Anomaly 8	N/A	Granite	FCR					2.30	19	12	10					Subangular fracture and thermal alteration color change.
143	143.001	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Upper Mercer (Black)	Flake	Complex				0.30	13	8	2	0	0	0	0	
143	143.002	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Cedarville/Guelph	Flake	Complex				0.80	19	13	3	0	1	0	0	
143	143.003	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Ten Mile Creek	Flake	Simple				0.30	14	7	2	0	0	1	0	
143	143.004	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Ten Mile Creek	Flake	Decortication				0.30	12	7	5	0	0	0	1	
143	143.005	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Ten Mile Creek	Biface	Unidentified				10.00	32	33	10				0	Two margins formed by thinning on both faces. One margin has been treated to pressure flaking followed by use-wear (based on flake scarring overlapped by edge-damage). Possibly the beginnings of a projectile point discarded during manufacture.
143	143.006	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Ten Mile Creek	Biface	Unidentified				8.00	32	25	9				1	Only one thinning flake removed from one face. Two thinning flakes removed from the opposing face. Pressure flaking performed on two margins from both faces to form two opposing utility edges. It appears that a distal portion is missing as there is the remnant of pressure flaking along an apparent break. This would have formed a distal utility margin connecting the two opposing which are more strongly evident. Could have been used as a scraper.
143	143.007	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Ten Mile Creek	Shatter					1.40	18	16	6	0	0	0	1	
143	143.008	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Ten Mile Creek	Shatter					8.20	30	16	13	0	0	0	0	Possibly a fragment of a spent flake core.
143	143.009	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Flint Ridge/Vanport Chert	Shatter					24.30	41	33	20	0	0	0	0	Possibly a fragment of a spent flake core.
143	143.010	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Flint Ridge/Vanport Chert	Shatter	Decortication				52.80	59	31	30	0	0	1	1	Decortication shatter or fragment from a tested cobble. Possible heat damage as multiple surfaces appear crazed.
143	143.011	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Granite	FCR					78.80	49	48	33					Crazing.
143	143.011	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Granite	Non-Cultural					5.90	27	14	10					Angular rectangular shaped fragment of granite. Possible one side is smoothed flat from grinding.
143	143.012	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Granite	FCR					88.50	59	45	29					Crazing.

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
143	143.013	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Rhyolite	FCR					47.30	43	33	26					Minor crazing.
143	143.014	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Granite	FCR					25.40	46	36	22					Crazing.
143	143.015	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Granite	FCR					41.10	31	31	30					Crazing.
143	143.016	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Rhyolite	FCR					15.90	45	25	10					Crazing.
143	143.017	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Granite	FCR					2.80	17	11	9					Crazing.
143	143.018	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Sandstone	FCR					3.80	23	13	11					Thermal alteration resulting in color change.
143	143.019	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Silicified Sandstone	Nodule					20.30	29	27	18					Unmodified raw material.
143	143.020	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Silicified Sandstone	Nodule					35.30	40	32	24					Heat treated raw material.
143	143.021	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Silicified Sandstone	Nodule					3.30	20	16	9					Heat treated raw material.
143	143.022	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Quartzite	Non-Cultural					2.40	15	15	8					Unmodified raw material.
143	143.023	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Silicified Sandstone	Non-Cultural					4.00	20	14	10					Unmodified raw material.
143	143.024	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Ten Mile Creek	Non-Cultural					2.50	26	19	9					Unmodified raw material.
143	143.025	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Silicified Siltstone (?)	Non-Cultural					3.70	23	22	7					
143	143.026	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Silicified Siltstone (?)	Non-Cultural					1.20	15	10	4					
143	143.027	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Sandstone	FCR					0.50	12	10	4					Thermal alteration resulting in color change.
143	143.028	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Greywacke	FCR					1.10	15	13	3					Scant evidence of crazing.
143	143.029	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Flint Ridge Flint	Shatter					4.70	26	16	9	0	0	1	0	
143	143.030	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Cedarville/Guelph	Shatter					8.10	23	17	13	0	0	1	0	
143	143.031	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Cedarville/Guelph	Shatter					4.00	20	12	12	0	0	0	0	
143	143.032	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Four Mile Creek	Flake	Complex				4.90	29	22	9	0	1	0	0	
143	143.033	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Cedarville/Guelph	Shatter					4.70	21	18	11	0	0	1	0	Has the appearance of an unrefined scraper in the making.
143	143.034	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Four Mile Chert	Scraper	Scraper				2.60	16	13	9				0	Crude scraper. Possibly unfinished. One margin has been retouched and then overlaid with additional use-wear.
143	143.035	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Flint Ridge Flint	Biface	Unidentified				11.10	38	22	17				0	Thinning flakes taken from both faces to form one margin which has itself additional pressure flaking. Does not look like a very workable edge however and there is no obvious macroscopic evidence of additional use-wear.
143	143.036	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Cedarville/Guelph	Core	Pebble Core				3.60	21	12	12				0	
143	143.037	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	Level 1 (Ap)	Anomaly 10	N/A	Flint Ridge Flint	Biface	Unidentified				3.50	30	19	8				0	Pressure flaking overlaid with use-wear apparent on the single remnant margin.
144	144.001	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 2	Anomaly 14	N/A	Bayport	Flake	Complex				0.20	11	10	1	0	1	0	0	
144	144.002	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 2	Anomaly 14	N/A	Bayport	Flake	Complex				0.20	12	4	3	0	1	0	0	
144	144.003	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 2	Anomaly 14	N/A	Ten Mile Creek	Biface	Unidentified				10.90	31	27	16				0	Thinning on both faces to form a single utility margin. Additional regular spaced pressure flaking present on utility edge as well.
144	144.004	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	Level 2	Anomaly 14	N/A	Ten Mile Creek	Test Cobble	Test Cobble Fragment				50.50	43	34	27	0	0	0	1	Evidence of a prepared platform that may have two facets. The material appears to have inclusions and a general composition not as condusive to concoidal fracture as other pieces of Ten Mile Creek chert.
145	145.001	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	N/A	Anomaly 14	Fea 14.1, Level 1, West Half	Ten Mile Creek	Biface	Biface (Unfinished)				36.60	53	39	24				0	Appears to be either a flake core nearly spent, or an objective piece thinned on two faces. Only one utility margin formed but largely unrefined. There is evidence of grinding on the large remnant platform, indicating that more thinning was intended before the item was rejected/discarded/abandoned.

Table B1
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Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
145	145.002	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	N/A	Anomaly 14	Fea 14.1, Level 1, West Half	Ten Mile Creek	Core	Core Fragment				12.80	35	26	20				0	At least two prepared platforms are evident. One of these platforms is associated with a bladelet-shaped flake scar (more than 2x long than it is wide). A second platform is evident but does not conform to the directionality of the aforementioned scar and platform, i.e. not sure if bladelet core or flake core. Most likely is that this is associated with object 145.01 which is the same material and also part of a biface manufacture or flake production.
146	146.001	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	N/A	Anomaly 14	Fea 14.1, Level 2, West Half	Cedarville/Guelph	Core	Core Fragment				39.60	49	37	26				1	Appears to be a fragment of a flake core. There are at least two prepared platfoms.
146	146.002	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	N/A	Anomaly 14	Fea 14.1, Level 2, West Half	Granite	FCR					46.30	57	41	17					
146	146.003	Phase II	16	4587595.87	742276.05	33HY0167	Excavation Unit	N945 E989.5	N/A	Anomaly 14	Fea 14.1, Level 2, West Half	Rhyolite	FCR					85.60	43	37	26					Subangular fracturing.
147	147.001	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	N/A	Anomaly 10	Fea 10.1	Ten Mile Creek	Flake	Complex				4.40	30	18	11	0	1	0	1	
147	147.002	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	N/A	Anomaly 10	Fea 10.1	Rhyolite	FCR					24.20	49	35	12					
147	147.003	Phase II	16	4587613.00	742269.83	33HY0167	Excavation Unit	N961 E998	N/A	Anomaly 10	Fea 10.1	Granite	Biface	Unidentified				94.00	78	60	33				0	Granite appears to have been thermally altered but also appears to have a utility margin formed through a combination of flaking and grinding on two faces. Additional pressure flaking and use-wear are visible on this single margin.
148	148.001	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	Ground Stone	Anvil				3248.40	165	111	103					Portion of this football shaped stone is abraded to a flat surface so that the stone can stand alone without rolling. Opposing side of the stone has evidence of pecking, indicating use as an anvil.
148	148.002	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					2823.30	155	113	96					
148	148.003	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					1529.70	119	88	82					
148	148.004	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	Ground Stone	Abrader?				1089.50	116	79	77					One face, and possibly another face of the stone has been ground down to a smooth flat surface.
148	148.005	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					1414.80	112	110	93					
148	148.006	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	Ground Stone	Hammer				484.00	80	65	62					Pecking evident in a concentrated area on the hand-sized stone.
148	148.007	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	Ground Stone	Hammer				544.60	85	75	59					Pecking and abrading evident in a concentrated area on the hand-sized stone.
148	148.008	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	Ground Stone	Anvil				549.30	80	69	63					At least 2, possibly 3 areas have been abraded so that the stone may stand alone without rolling. Opposing these abraded portions are concentrated areas of pecking.
148	148.009	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	Ground Stone	Mortar				278.00	83	61	45					61mm x 49mm horizontal, 15mm deep depression in the hand-size stone. Opposing face of the stone from this depression appears to have been abraded down to a flat surface. The bowl shaped depression in the stone appears to have ground-smooth interior. Appears as though 1/4 of the object has fragmented off. The estimated shape of the bowl would be 61mm x 61mm roughly circular.
148	148.010	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	Ground Stone	Unidentified				579.40	100	77	52					Object is slightly larger than hand-size stone which has been split, appears to be roughly half missing based on remnant shape. At opposing sides of the stone (next to the split) are concentrated areas of pecking and or grinding. It also appears as though the surface exposed by the stone splitting has been abraded to a smoother surface.
148	148.011	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					182.00	68	52	38					
148	148.012	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					283.90	83	56	47					
148	148.013	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					148.90	68	45	28					
148	148.014	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					204.40	62	55	37					
148	148.015	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					178.60	80	78	31					
148	148.016	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					219.20	81	52	40					
148	148.017	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					160.70	63	45	38					
148	148.018	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					82.10	54	43	25					
148	148.019	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					51.60	55	40	19					

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Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
148	148.020	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					54.90	46	35	22					
148	148.021	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	Ground Stone	Abrader?				85.70	61	36	31					One face of the stone has been ground down to a smooth flat surface.
148	148.022	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					99.70	55	46	32					Crazing.
148	148.023	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					94.60	58	36	33					Crazing.
148	148.024	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					50.60	51	37	20					Crazing.
148	148.025	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					72.50	45	31	30					Evidence of abrading - a concentrated area of the stone is smoothed flat. Crazing is evident across the majority of the stone outside of the aforementioned concentrated area.
148	148.026	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					44.70	42	29	24					Crazing.
148	148.027	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					35.90	41	35	23					Crazing.
148	148.028	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					23.40	31	25	21					Crazing.
148	148.029	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					88.50	55	43	26					Crazing.
148	148.030	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					7.90	24	21	13					Crazing.
148	148.031	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					267.70	69	50	47					
148	148.032	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					220.60	60	58	45					
148	148.033	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					142.00	57	47	40					
148	148.034	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					131.40	49	49	38					
148	148.035	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					78.60	48	34	32					
148	148.036	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					68.90	48	37	31					
148	148.037	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					38.70	42	31	25					
148	148.038	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					21.30	31	30	15					
148	148.039	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					22.60	39	30	15					
148	148.040	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					17.20	31	28	16					
148	148.041	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					209.70	60	52	45					A concentrated area of the hand-sized stone has evidence of pecking.
148	148.042	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					362.00	76	62	55					Some crazing. One area of the hand-size stone surface has been abraded as if to allow the stone to stand alone without rolling.
148	148.043	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					311.80	62	62	53					Crazing.
148	148.044	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					339.80	68	62	53					Crazing.
148	148.045	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					255.40	62	56	46					Crazing.
148	148.046	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					209.80	65	47	45					Crazing.
148	148.047	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					94.40	48	36	34					Crazing.
148	148.048	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					56.80	39	37	29					Crazing.
148	148.049	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					36.80	39	35	18					
148	148.050	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					32.10	40	26	26					Crazing.
148	148.051	Phase II	16	4587611.15	742258.92	33HY0167	Excavation Unit	N968 E989.5	N/A	Anomaly 8	Fea 8.1	Granite	FCR					22.10	32	31	16					A concentrated area of the hand-sized stone has evidence of abrasion resulting in a smooth surface.
150	150.001	Phase I	16	4587364.16	742234.90	33HY0167	Surface Inspection	N970 E950 (FS B)	Plow Zone (Ap)	N/A	N/A	Granite	FCR					120.30	69	50	37					Crazing. Listed as Bag #2 in Cultural Materials Provenience Table in Phase I report.
151	151.001	Phase I	16	4587403.52	742235.59	33HY0167	Surface Inspection	N995 E980 (FS C)	Plow Zone (Ap)	N/A	N/A	Rhyolite	FCR					63.80	63	37	23					A portion of the stone fragment is worn smooth. Possible that the stone fractured due to use as FCR as crazing is evident. Listed as Bag #3 in Cultural Materials Provenience Table in Phase I report.
156	156.001	Phase I	16	4587404.52	742262.59	33HY0167	Surface Inspection	N975 E1000 (FS I)	Plow Zone (Ap)	N/A	N/A	Ten Mile Creek	Shatter					8.60	37	23	9	0	0	0	1	Listed as Bag #9 in Cultural Materials Provenience Table in Phase I report.

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
156	156.002	Phase I	16	4587404.52	742262.59	33HY0167	Surface Inspection	N975 E1000 (FS I)	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				0.10	11	7	2	0	1	0	0	Listed as Bag #9 in Cultural Materials Provenience Table in Phase I report.
156	156.003	Phase I	16	4587404.52	742262.59	33HY0167	Surface Inspection	N975 E1000 (FS I)	Plow Zone (Ap)	N/A	N/A	Bayport	Flake	Simple				0.10	9	8	2	0	1	0	0	Listed as Bag #9 in Cultural Materials Provenience Table in Phase I report.
156	156.004	Phase I	16	4587404.52	742262.59	33HY0167	Surface Inspection	N975 E1000 (FS I)	Plow Zone (Ap)	N/A	N/A	Sandstone	FCR					12.10	24	20	16					Some sub-angular fracturing, but no thermal alteration color is apparent. Listed as Bag #9 in Cultural Materials Provenience Table in Phase I report.
158	158.001	Phase I	16	4587380.57	742292.90	33HY0167	Surface Inspection	N935 E1000 (FS L)	Plow Zone (Ap)	N/A	N/A	Bayport	Flake	Complex				4.70	33	29	5	1	1	0	0	Listed as Bag #11 in Cultural Materials Provenience Table in Phase I report.
159	159.001	Phase I	16	4587368.03	742250.05	33HY0167	Surface Inspection	N960 E965 (FS M)	Plow Zone (Ap)	N/A	N/A	Bayport	Scraper	Scraper				0.60	15	12	4				0	Evidence of edge modification overlaid by use-wear. Listed as Bag #12 in Cultural Materials Provenience Table in Phase I report.
160	160.001	Phase I	16	4587336.07	742299.54	33HY0167	Surface Inspection	N900 E970 (FS N)	Plow Zone (Ap)	N/A	N/A	Bayport	Biface	Blade (Unfinished)				154.60	115	50	31				1	Biface with utility margin and twice as long as is wide, therefore a blade. Before completion of thinning, manufacturer pressure-flaked a utility margin which appears to be overlaid with use-wear. Listed as Bag #13 in Cultural Materials Provenience Table in Phase I report.
161	161.001	Phase I	16	4587370.63	742285.79	33HY0167	Shovel Test	STP H5, Radial 7.5m North	Level 1 (Ap)	N/A	N/A	Flint Ridge/Vanport Chert	Flake	Complex				0.80	15	14	2	0	1	0	0	Listed as Bag #14 in Cultural Materials Provenience Table in Phase I report.
162	162.001	Phase I	16	4587353.96	742280.03	33HY0167	Shovel Test	STP H5, Radial 7.5m South+7.5m West	Level 1 (Ap)	N/A	N/A	Bayport	Flake	Complex				5.50	33	22	9	1	1	0	1	One margin retouched, then overlaid by use-wear. Listed as Bag #15 in Cultural Materials Provenience Table in Phase I report.
163	163.001	Phase I	16	4587364.47	742257.46	33HY0167	Shovel Test	STP I3	Level 1 (Ap)	N/A	N/A	Ten Mile Creek	Core	Spent Flake Core				14.30	30	27	16				0	Listed as Bag #16 in Cultural Materials Provenience Table in Phase I report.
164	164.001	Phase I	16	4587369.71	742272.33	33HY0167	Shovel Test	STP I4	Level 1 (Ap)	N/A	N/A	Ten Mile Creek	Flake	Complex				3.80	27	26	8	1	1	0	1	A single utility margin formed by pressure flaking overlaid by evidence of minor use-wear. Listed as Bag #17 in Cultural Materials Provenience Table in Phase I report.
165	165.001	Phase I	16	4587379.76	742299.00	33HY0167	Shovel Test	STP I6	Level 1 (Ap)	N/A	N/A	Ten Mile Creek	Flake	Simple				0.60	21	12	4	1	1	0	0	Listed as Bag #18 in Cultural Materials Provenience Table in Phase I report.
165	165.002	Phase I	16	4587379.76	742299.00	33HY0167	Shovel Test	STP I6	Level 1 (Ap)	N/A	N/A	Ten Mile Creek	Biface	Unidentified				1.70	20	13	7				0	Listed as Bag #18 in Cultural Materials Provenience Table in Phase I report.
166	166.001	Phase I	16	4587382.80	742304.46	33HY0167	Shovel Test	STP I6, Radial 7.5m East	Level 1 (Ap)	N/A	N/A	Ten Mile Creek	Core	Spent Flake Core				26.00	40	39	18				1	At least one prepared platform evident. Listed as Bag #19 in Cultural Materials Provenience Table in Phase I report.
167	167.001	Phase I	16	4587385.54	742294.35	33HY0167	Shovel Test	STP I6, Radial 7.5m North	Level 1 (Ap)	N/A	N/A	Ten Mile Creek	Core	Flake Core Fragment				33.40	43	39	26				1	Evidence of one prepared platform. Evidence of flake removal from two locations on the stone. Listed as Bag #20 in Cultural Materials Provenience Table in Phase I report.
168	168.001	Phase I	16	4587374.35	742238.92	33HY0167	Shovel Test	STP J2	Level 1 (Ap)	N/A	N/A	Bayport	Flake	Complex				2.00	26	16	7	0	0	0	0	Listed as Bag #21 in Cultural Materials Provenience Table in Phase I report.
168	168.002	Phase I	16	4587374.35	742238.92	33HY0167	Shovel Test	STP J2	Level 1 (Ap)	N/A	N/A	Bayport	Shatter					0.70	14	13	5	1	1	0	0	Listed as Bag #21 in Cultural Materials Provenience Table in Phase I report.
168	168.003	Phase I	16	4587374.35	742238.92	33HY0167	Shovel Test	STP J2	Level 1 (Ap)	N/A	N/A	Bayport	Flake	Complex				0.10	10	6	1	0	0	0	0	Listed as Bag #21 in Cultural Materials Provenience Table in Phase I report.
168	168.004	Phase I	16	4587374.35	742238.92	33HY0167	Shovel Test	STP J2	Level 1 (Ap)	N/A	N/A	Sandstone	FCR					39.00	36	33	31					Subangular thermal fracture. Listed as Bag #21 in Cultural Materials Provenience Table in Phase I report.
168	168.005	Phase I	16	4587374.35	742238.92	33HY0167	Shovel Test	STP J2	Level 1 (Ap)	N/A	N/A	Granite	FCR					7.90	34	16	16					Subangular fracture. Listed as Bag #21 in Cultural Materials Provenience Table in Phase I report.
169	169.001	Phase I	16	4587374.35	742238.92	33HY0167	Shovel Test	STP J2	Level 2 (BE horizon)	N/A	N/A	Flint Ridge/Vanport Chert	Flake	Simple				0.04	9	7	1	0	1	0	0	Listed as Bag #22 in Cultural Materials Provenience Table in Phase I report.
170	170.001	Phase I	16	4587369.94	742233.29	33HY0167	Shovel Test	STP J2, Radial 7.5m West	Level 1 (Ap)	N/A	N/A	Dundee/Stoney Creek	Shatter					2.40	21	11	8	0	0	0	0	Listed as Bag #23 in Cultural Materials Provenience Table in Phase I report.
170	170.002	Phase I	16	4587369.94	742233.29	33HY0167	Shovel Test	STP J2, Radial 7.5m West	Level 1 (Ap)	N/A	N/A	Dundee/Stoney Creek	Shatter					2.30	21	17	6	0	0	0	1	Listed as Bag #23 in Cultural Materials Provenience Table in Phase I report.
171	171.001	Phase I	16	4587379.91	742250.16	33HY0167	Shovel Test	STP J3	Level 1 (Ap)	N/A	N/A	Flint Ridge Chalcedony	Flake	Complex				0.04	10	8	1	0	1	0	0	Listed as Bag #24 in Cultural Materials Provenience Table in Phase I report.
172	172.001	Phase I	16	4587391.39	742278.74	33HY0167	Shovel Test	STP J5	Level 1 (Ap)	N/A	N/A	Sandstone	FCR					130.20	66	61	27					Scant evidence of subangular thermal fracture. No color change to material. Listed as Bag #25 in Cultural Materials Provenience Table in Phase I report.
172	172.002	Phase I	16	4587391.39	742278.74	33HY0167	Shovel Test	STP J5	Level 1 (Ap)	N/A	N/A	Flint Ridge Chalcedony	Flake	Complex				0.04	8	6	1	0	0	0	0	Listed as Bag #25 in Cultural Materials Provenience Table in Phase I report.
173	173.001	Phase I	16	4587395.59	742284.15	33HY0167	Shovel Test	STP J5, Radial 7.5m East	Level 1 (Ap)	N/A	N/A	Rhyolite	FCR					11.70	33	16	15					Minor subangular fracturing. Listed as Bag #26 in Cultural Materials Provenience Table in Phase I report.
174	174.001	Phase I	16	4587385.44	742219.37	33HY0167	Shovel Test	STP K1	Level 1 (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				1.00	20	14	4	0	0	0	0	Listed as Bag #27 in Cultural Materials Provenience Table in Phase I report.
174	174.002	Phase I	16	4587385.44	742219.37	33HY0167	Shovel Test	STP K1	Level 1 (Ap)	N/A	N/A	Rhyolite	FCR					35.40	36	35	21					Subangular fracturing. Listed as Bag #27 in Cultural Materials Provenience Table in Phase I report.
175	175.001	Phase I	16	4587389.52	742214.58	33HY0167	Shovel Test	STP K1, Radial 7.5m North	Level 1 (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				1.10	20	16	5	0	1	0	0	Listed as Bag #28 in Cultural Materials Provenience Table in Phase I report.

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
175	175.002	Phase I	16	4587389.52	742214.58	33HY0167	Shovel Test	STP K1, Radial 7.5m North	Level 1 (Ap)	N/A	N/A	Ten Mile Creek	Shatter					0.10	12	8	3	0	0	0	0	Listed as Bag #28 in Cultural Materials Provenience Table in Phase I report.
175	175.003	Phase I	16	4587389.52	742214.58	33HY0167	Shovel Test	STP K1, Radial 7.5m North	Level 1 (Ap)	N/A	N/A	Rhyolite	FCR					9.20	29	25	12					Scant evidence of any thermal alteration. Listed as Bag #28 in Cultural Materials Provenience Table in Phase I report.
176	176.001	Phase I	16	4587379.52	742214.58	33HY0167	Shovel Test	STP K1, Radial 7.5m West	Level 1 (Ap)	N/A	N/A	Rhyolite	FCR					17.20	33	25	14					Crazing is strongly evident. Listed as Bag #29 in Cultural Materials Provenience Table in Phase I report.
176	176.002	Phase I	16	4587379.52	742214.58	33HY0167	Shovel Test	STP K1, Radial 7.5m West	Level 1 (Ap)	N/A	N/A	Rhyolite	FCR					14.70	30	19	18					Crazing is strongly evident. Listed as Bag #29 in Cultural Materials Provenience Table in Phase I report.
177	177.001	Phase I	16	4587391.12	742235.00	33HY0167	Shovel Test	STP K2	Level 1 (Ap)	N/A	N/A	Cedarville/Guelph	Core	Spent Flake Core				36.40	44	33	19				0	Listed as Bag #30 in Cultural Materials Provenience Table in Phase I report.
178	178.001	Phase I	16	4587401.56	742262.49	33HY0167	Shovel Test	STP K4	Level 1 (Ap)	N/A	N/A	Cedarville/Guelph	Biface	Biface Fragment	Unidentified			0.40	15	10	3				0	Distal tip of a blade or projectile point; retouch evident overlaid with additional use-wear. Listed as Bag #31 in Cultural Materials Provenience Table in Phase I report.
178	178.002	Phase I	16	4587401.56	742262.49	33HY0167	Shovel Test	STP K4	Level 1 (Ap)	N/A	N/A	Cedarville/Guelph	Scraper	Scraper				2.80	26	20	6				0	Listed as Bag #31 in Cultural Materials Provenience Table in Phase I report.
178	178.003	Phase I	16	4587401.56	742262.49	33HY0167	Shovel Test	STP K4	Level 1 (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Simple				6.60	37	21	10	0	0	0	1	Listed as Bag #31 in Cultural Materials Provenience Table in Phase I report.
178	178.004	Phase I	16	4587401.56	742262.49	33HY0167	Shovel Test	STP K4	Level 1 (Ap)	N/A	N/A	Rhyolite	FCR					4.40	17	16	14					Crazing is evident. Listed as Bag #31 in Cultural Materials Provenience Table in Phase I report.
179	179.001	Phase I	16	4587405.13	742270.62	33HY0167	Shovel Test	STP K5, Radial 7.5m East	Level 1 (Ap)	N/A	N/A	Cedarville/Guelph	Biface	Stem	Unidentified			2.50	23	14	8				0	Retouch evident on one margin of what appears to be a prismatic stem or unfinished bladelet. Appears to have a snap fracture where it may or may not have expanded or continued straight. Listed as Bag #32 in Cultural Materials Provenience Table in Phase I report.
180	180.001	Phase I	16	4587403.52	742229.59	33HY0167	Shovel Test	STP L2	Level 1 (Ap)	N/A	N/A	Cedarville/Guelph	Core	Flake Core Fragment				28.20	38	26	19				1	Listed as Bag #33 in Cultural Materials Provenience Table in Phase I report.
180	180.002	Phase I	16	4587403.52	742229.59	33HY0167	Shovel Test	STP L2	Level 1 (Ap)	N/A	N/A	Rhyolite	FCR					14.40	29	21	16					Edge appears to be retouched. Possibly a modified utility edge. Listed as Bag #33 in Cultural Materials Provenience Table in Phase I report.
181	181.001	Phase I	16	4587397.52	742221.59	33HY0167	Shovel Test	STP L2, Radial 15m North	Level 1 (Ap)	N/A	N/A	Rhyolite	Ground Stone	Abrader?				44.20	46	33	22					Appears to be thermally altered based on crazing or surface. Listed as Bag #34 in Cultural Materials Provenience Table in Phase I report.
181	181.002	Phase I	16	4587397.52	742221.59	33HY0167	Shovel Test	STP L2, Radial 15m North	Level 1 (Ap)	N/A	N/A	Granite	FCR					4.90	30	16	10					Listed as Bag #34 in Cultural Materials Provenience Table in Phase I report.
182	182.001	Phase I	16	4587408.52	742243.59	33HY0167	Shovel Test	STP L3	Level 1 (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Simple				9.00	37	20	17	0	1	0	0	Appears to have broken along the interface with an unknappable sandstone-like inclusion. Listed as Bag #35 in Cultural Materials Provenience Table in Phase I report.
182	182.002	Phase I	16	4587408.52	742243.59	33HY0167	Shovel Test	STP L3	Level 1 (Ap)	N/A	N/A	Bayport	Core	Spent Flake Core				15.10	36	27	18				0	Possibly also an initialized and unfinished biface. Has a prismatic profile, an unmodified single margin, and flakes removed from both faces. Listed as Bag #35 in Cultural Materials Provenience Table in Phase I report.
182	182.003	Phase I	16	4587408.52	742243.59	33HY0167	Shovel Test	STP L3	Level 1 (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Decortication				3.90	35	19	7	0	0	0	1	Listed as Bag #35 in Cultural Materials Provenience Table in Phase I report.
182	182.004	Phase I	16	4587408.52	742243.59	33HY0167	Shovel Test	STP L3	Level 1 (Ap)	N/A	N/A	Rhyolite	FCR					19.80	30	26	21					Listed as Bag #35 in Cultural Materials Provenience Table in Phase I report.
182	182.005	Phase I	16	4587408.52	742243.59	33HY0167	Shovel Test	STP L3	Level 1 (Ap)	N/A	N/A	Granite	FCR					71.00	46	35	27					Subangular fracturing. Listed as Bag #35 in Cultural Materials Provenience Table in Phase I report.
183	183.001	Phase I	16	4587421.52	742239.59	33HY0167	Shovel Test	STP L3, Radial 7.5m North	Level 1 (Ap)	N/A	N/A	Granite	FCR					12.40	36	26	14					Subangular fracturing. Listed as Bag #36 in Cultural Materials Provenience Table in Phase I report.
184	184.001	Phase I	16	4587413.52	742256.59	33HY0167	Shovel Test	STP L4	Level 1 (Ap)	N/A	N/A	Flint Ridge/Vanport Chert	Flake	Complex				1.40	27	14	4	0	1	0	0	Listed as Bag #37 in Cultural Materials Provenience Table in Phase I report.
184	184.002	Phase I	16	4587413.52	742256.59	33HY0167	Shovel Test	STP L4	Level 1 (Ap)	N/A	N/A	Bayport	Flake	Complex				0.04	10	7	1	0	0	0	0	Listed as Bag #37 in Cultural Materials Provenience Table in Phase I report.
184	184.003	Phase I	16	4587413.52	742256.59	33HY0167	Shovel Test	STP L4	Level 1 (Ap)	N/A	N/A	Granite	FCR					296.40	74	72	45					Crazing and thermal color change. Listed as Bag #37 in Cultural Materials Provenience Table in Phase I report.
184	184.004	Phase I	16	4587413.52	742256.59	33HY0167	Shovel Test	STP L4	Level 1 (Ap)	N/A	N/A	Rhyolite	FCR					30.90	35	31	14					Crazing. Listed as Bag #37 in Cultural Materials Provenience Table in Phase I report.
184	184.005	Phase I	16	4587413.52	742256.59	33HY0167	Shovel Test	STP L4	Level 1 (Ap)	N/A	N/A	Rhyolite	FCR					12.60	34	15	15					Crazing. Listed as Bag #37 in Cultural Materials Provenience Table in Phase I report.
184	184.006	Phase I	16	4587413.52	742256.59	33HY0167	Shovel Test	STP L4	Level 1 (Ap)	N/A	N/A	Sandstone	FCR					10.50	33	20	18					Scant if any evidence of thermal alteration. Listed as Bag #37 in Cultural Materials Provenience Table in Phase I report.
184	184.007	Phase I	16	4587413.52	742256.59	33HY0167	Shovel Test	STP L4	Level 1 (Ap)	N/A	N/A	Sandstone	FCR					3.00	21	16	12					Crazing. Listed as Bag #37 in Cultural Materials Provenience Table in Phase I report.
185	185.001	Phase I	16	4587417.52	742261.59	33HY0167	Shovel Test	STP L4, Radial 7.5m East	Level 1 (Ap)	N/A	N/A	Sandstone	FCR					27.40	42	36	21					Crazing and thermal color change. Listed as Bag #38 in Cultural Materials Provenience Table in Phase I report.
186	186.001	Phase I	16	4587313.55	742352.40	N/A	Shovel Test	Judgmental STP #1	Level 1 (Ap)	N/A	N/A	Rhyolite	FCR					4.40	28	12	10					Crazing. Listed as Bag #39 in Cultural Materials Provenience Table in Phase I report.

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
187	187.001	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Conglomerate	FCR					322.40	72	69	52					Crazing and thermal color change.
187	187.002	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Sandstone	FCR					54.10	42	41	22					Thermal alteration color change.
187	187.003	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Granite	FCR					46.80	43	31	24					Crazing.
187	187.004	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Sandstone	FCR					36.00	44	28	19					Thermal alteration color change.
187	187.005	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Granite	FCR					50.90	53	35	23					Crazing.
187	187.006	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Conglomerate	FCR					22.80	45	32	12					
187	187.007	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Rhyolite	FCR					28.00	33	25	22					Crazing and thermal color change.
187	187.008	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Granite	FCR					20.70	32	26	19					Crazing and thermal color change.
187	187.009	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Rhyolite	FCR					81.30	54	36	26					Crazing and thermal color change.
187	187.010	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Conglomerate	FCR					34.20	37	30	26					Crazing and thermal color change.
187	187.011	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Sandstone	FCR					18.90	35	32	13					Thermal alteration color change.
187	187.012	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Granite	FCR					18.60	41	27	15					Crazing.
187	187.013	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Granite	FCR					35.80	42	31	21					Crazing and thermal color change.
187	187.014	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Unidentified	FCR					8.10	30	22	20					Heavily burnt exterior. Obvious crazing.
187	187.015	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Rhyolite	FCR					25.90	41	26	23					Crazing and thermal color change.
187	187.016	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Granite	FCR					27.70	35	24	23					Burnt exterior, obvious crazing, and thermal color alteration.
187	187.017	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Granite	FCR					35.00	54	33	22					Crazing and thermal color change.
187	187.018	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Rhyolite	FCR					23.90	34	34	22					Crazing.
187	187.019	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Conglomerate	FCR					21.50	38	24	22					Crazing.
187	187.020	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Rhyolite	FCR					35.60	40	29	18					
187	187.021	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Sandstone	FCR					25.30	34	22	21					Crazing and thermal color change.
187	187.022	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Conglomerate	FCR					43.30	39	28	25					Crazing.
187	187.023	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Conglomerate	FCR					12.70	29	20	20					Crazing.
187	187.024	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Sandstone	FCR					4.80	18	16	15					Crazing.
187	187.025	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Rhyolite	FCR					5.30	21	20	14					Crazing.
187	187.026	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Conglomerate	FCR					5.30	26	17	16					Crazing and thermal color change.
187	187.027	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Unidentified	FCR					1.90	13	13	9					Crazing.
187	187.028	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Unidentified	FCR					6.60	23	18	14					Crazing.
187	187.029	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Unidentified	FCR					0.04	12	8	3					Crazing.
187	187.030	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Sandstone	FCR					111.00	61	55	36					Minor crazing. One modified margin may be present but is not definitively cultural.
187	187.031	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Rhyolite	FCR					35.20	39	33	23					Thermal alteration color change.
187	187.032	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Siltstone	Non-Cultural					55.20	50	28	22					Gray in color. Rounded, likely waterwashed.
187	187.033	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Ten Mile Creek	Non-Cultural					68.80	44	43	25					Unmodified raw material.
187	187.034	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Rhyolite	Ground Stone?					973.10	139	67	59					Possible that one face has been ground smooth and flat.
187	187.035	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Silicified Sandstone	Non-Cultural					63.60	50	48	19					Unmodified raw material.

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
187	187.036	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Conglomerate	Biface	Unidentified				28.30	44	30	21				0	Conglomerate stone appears to have a modified margin that wraps around a distal end forming two margins. Appears to have been worked from both faces but due to the nature of the material it is very difficult to determine. The blade-like margin is the only indication that this is a tool.
187	187.037	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Biface	Knife				28.40	42	35	17				1	Fossiliferous cortex. Utility margin shows use-wear.
187	187.038	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Ten Mile Creek	Scraper	Scraper				3.40	22	21	9				0	
187	187.039	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Scraper	Scraper				2.50	22	17	7				0	Utility edge appears to have been broken off.
187	187.040	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Flint Ridge (Chalcedony)	Biface	Biface Fragment				7.90	28	32	11				1	Bifacially thinned object with one utility margin.
187	187.041	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Biface	Biface Fragment				30.80	46	41	16				1	
187	187.042	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Biface	Knife				6.00	35	20	8				0	Bifacially thinned object with one utility margin. Appears to have geode inclusions which prevented thinning of an opposing margin.
187	187.043	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Upper Mercer	Biface	Knife				6.10	31	19	10				0	Heavily damaged crescent-shaped utility margin. Appears to have been heat treated.
187	187.044	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Scraper	Scraper				3.20	28	21	9				0	Edge modification overlaid by additional use-wear.
187	187.045	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Quartzite	FCR					24.10	38	30	20					Crazing.
187	187.046	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Sandstone	FCR					1.70	20	16	10					Burnt exterior and interior; thermal alteration color change.
187	187.047	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Scraper	Scraper				6.40	24	21	14				0	
187	187.048	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Silicified Sandstone	Shatter					5.90	23	18	12	0	0	1	0	
187	187.049	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Quartzite	Flake	Simple				0.90	13	12	5	0	0	0	0	
187	187.050	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Ten Mile Creek	Shatter					19.40	30	26	24	0	0	0	1	
187	187.051	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Shatter					43.50	37	36	27	0	0	0	1	
187	187.052	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Shatter					3.10	18	17	10	0	0	0	0	
187	187.053	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Drill	Preform				3.40	40	21	6				0	
187	187.054	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Rhyolite	FCR					19.10	47	27	14					Minor crazing.
187	187.055	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Flake	Complex				0.40	14	14	3	0	1	1	0	
187	187.056	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Flake	Complex				0.10	10	9	2	0	1	0	0	
187	187.057	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Flake	Complex				1.00	20	12	4	0	1	0	0	
187	187.058	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Flake	Complex				0.04	10	7	1	0	0	0	0	
187	187.059	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Flint Ridge (Moss Agate)	Flake	Complex				0.20	16	9	2	0	1	0	0	
187	187.060	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Upper Mercer (Nellie)	Flake	Complex				0.04	12	6	1	0	1	0	0	
187	187.061	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Upper Mercer (Nellie)	Flake	Simple				0.40	15	11	3	0	0	0	0	
187	187.062	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Upper Mercer (Nellie)	Flake	Complex				0.10	9	9	1	0	0	0	0	
187	187.063	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Upper Mercer (Nellie)	Biface	Biface Fragment				0.40	16	9	5				0	
187	187.064	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Flint Ridge (Moss Agate)	Uniface	Bladelet				0.50	24	8	3				0	
187	187.065	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Ten Mile Creek	Biface	Unidentified				2.30	21	18	6				0	
187	187.066	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Pipe Creek	Biface	Biface Fragment				0.90	22	6	5				0	
187	187.067	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Pipe Creek	Shatter					1.90	14	12	8	0	0	0	0	
187	187.068	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Upper Mercer (Grey)	Flake	Complex				0.40	14	11	3	0	0	0	0	
187	187.069	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Upper Mercer (Grey)	Flake	Complex				0.10	16	10	1	1	1	0	0	

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
187	187.070	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Shatter					0.30	8	6	4	0	0	0	0	
187	187.071	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Flint Ridge Flint	Flake	Decortication				0.70	13	12	4	0	0	0	1	
187	187.072	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Unidentified	Shatter					0.50	18	7	4	0	0	0	1	
187	187.073	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Kenneth	Shatter					0.20	10	7	2	0	0	0	0	
187	187.074	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Flint Ridge Chalcedony	Flake	Complex				0.40	16	12	3	0	1	1	0	
187	187.075	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Flint Ridge Chalcedony	Flake	Simple				0.10	11	10	1	0	0	0	0	
187	187.076	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Flint Ridge Chalcedony	Flake	Complex				0.20	14	8	2	0	0	0	0	
187	187.077	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Upper Mercer	Flake	Complex				0.20	12	9	2	0	0	0	0	
187	187.078	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Flint Ridge Chalcedony	Shatter					0.50	10	8	5	0	0	0	0	
187	187.079	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Flint Ridge Chalcedony	Shatter					0.30	9	6	4	0	0	0	0	
187	187.080	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Ten Mile Creek	Shatter					0.30	13	9	4	0	0	0	1	
187	187.081	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Flake	Complex				1.10	21	18	3	0	1	0	0	
187	187.082	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Shatter					2.50	22	16	9	0	0	0	1	
187	187.083	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Flake	Complex				0.20	13	12	1	0	1	0	0	
187	187.084	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Flint Ridge Chalcedony	Flake	Complex				0.40	16	12	3	0	1	0	0	
187	187.085	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Flake	Complex				0.30	12	11	2	0	0	0	0	
187	187.086	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Flake	Complex				0.20	15	11	2	0	1	0	0	
187	187.087	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Flake	Complex				1.10	21	16	4	0	1	0	0	
187	187.088	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Shatter					0.60	17	9	5	0	0	0	0	
187	187.089	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Flake	Complex				0.50	15	12	3	0	0	0	0	
187	187.090	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Shatter					0.40	9	9	5	0	0	0	0	
187	187.091	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Flake	Simple				0.20	15	9	1	0	1	0	0	
187	187.092	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Shatter					0.20	8	7	3	0	0	0	0	
187	187.093	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Shatter					0.60	15	6	5	0	0	0	0	
187	187.094	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Shatter					0.70	12	10	5	0	0	0	0	
187	187.095	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Shatter					0.80	15	9	5	0	0	0	0	
187	187.096	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Shatter					0.90	17	12	9	0	0	0	0	
187	187.097	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Shatter					1.20	16	11	7	0	0	0	0	
187	187.098	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Shatter					0.70	11	9	6	0	0	0	0	
187	187.099	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Shatter					0.40	12	9	5	0	0	0	0	
187	187.100	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Flake	Complex				0.30	14	10	3	0	0	0	0	
187	187.101	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Flake	Simple				0.20	12	8	2	0	0	1	0	
187	187.102	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Flint Ridge Chalcedony	Shatter					1.10	14	10	5	0	0	0	0	
187	187.103	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Flint Ridge Chalcedony	Flake	Complex				0.10	9	8	2	0	0	0	0	
187	187.104	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Flint Ridge Chalcedony	Flake	Complex				0.20	13	8	2	0	0	0	0	
187	187.105	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Flint Ridge Chalcedony	Flake	Complex				0.30	14	9	3	0	0	0	0	

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
187	187.106	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Biface	Biface Fragment				0.40	15	8	5				0	Heat treated. Retouched utility edge overlaid with additional use-wear.
187	187.107	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Scraper	Scraper				1.20	21	12	6				0	
187	187.108	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Ten Mile Creek	Burin	Burin				1.90	25	15	9				0	
188	188.001	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Cedarville/Guelph	Flake	Complex				0.20	13	8	3	0	0	0	0	
188	188.002	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Upper Mercer	Flake	Complex				0.10	13	8	2	0	0	0	0	
188	188.003	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Upper Mercer	Flake	Complex				0.04	11	5	2	0	0	0	0	
188	188.004	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Flint Ridge Chalcedony	Shatter					0.10	8	7	3	0	0	0	0	
188	188.005	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Flint Ridge Chalcedony	Flake	Complex				0.60	23	12	2	0	1	0	0	
188	188.006	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Ten Mile Creek	Shatter					3.60	34	20	9	0	0	0	1	100% cortex.
188	188.007	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Granite	FCR					10.50	22	19	19					Crazing.
188	188.008	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Granite	FCR					11.60	30	25	17					Crazing.
188	188.009	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Unidentified	FCR					15.30	30	27	11					Crazing.
188	188.010	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Granite	FCR					17.70	30	25	19					Crazing.
188	188.011	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Sandstone	FCR					6.60	23	19	12					Crazing and thermal color change.
188	188.012	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Sandstone	FCR					5.40	21	16	15					Crazing and thermal color change.
188	188.013	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Sandstone	FCR					0.40	12	12	3					Thermal alteration color change.
188	188.014	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Rhyolite	FCR					21.30	48	32	12					Thermal alteration color change.
188	188.015	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	Level 1 (Ap)	Anomaly 16	N/A	Slate	FCR					0.20	13	9	1					Burnt appearance.
189	189.001	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Upper Mercer	Biface	Knife				23.50	59	30	9				0	Appears to have been retouched and then overlaid with additional use-wear.
189	189.002	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Ten Mile Creek	Uniface	Knife				4.40	35	27	10				0	Heat treated. Retouched utility edge.
189	189.003	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Flint Ridge Flint	Core	Spent Flake Core				13.10	37	22	13				0	Evidence of heat treatment - crazing or a strange inclusion.
189	189.004	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Cedarville/Guelph	Core	Pebble Core				1.10	14	8	8				0	Heat treated.
189	189.005	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Pipe Creek	Shatter					0.90	18	10	6	0	0	0	0	
189	189.006	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Upper Mercer	Flake	Complex				0.70	19	11	4	1	1	0	0	
189	189.007	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Flint Ridge Chalcedony	Flake	Complex				0.10	10	8	1	0	0	0	0	
189	189.008	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Pipe Creek	Shatter					1.40	13	10	8	0	0	0	0	
189	189.009	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Flint Ridge Flint	Flake	Complex				2.50	33	17	6	0	0	0	0	
189	189.010	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Ten Mile Creek	Shatter					2.80	22	15	14	0	0	1	0	
189	189.011	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Cedarville/Guelph	Shatter					2.90	17	15	12	0	0	0	1	Appears to be heat treated.
189	189.012	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Flint Ridge Flint	Flake	Complex				6.50	24	21	11	0	0	0	0	
189	189.013	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Cedarville/Guelph	Shatter					0.20	10	8	3	0	0	0	0	
189	189.014	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Upper Mercer	Flake	Complex				0.10	10	6	3	0	0	0	0	
189	189.015	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Cedarville/Guelph	Shatter					0.30	11	5	5	0	0	0	0	
189	189.016	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Cedarville/Guelph	Shatter					5.70	32	15	10	0	0	0	0	
189	189.017	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Cedarville/Guelph	Shatter					4.30	25	16	12	0	0	0	1	
189	189.018	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Cedarville/Guelph	Shatter					1.50	17	9	8	0	0	1	0	

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
189	189.019	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Ten Mile Creek	Flake	Simple				3.60	34	20	10	0	0	0	0	
189	189.020	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Ten Mile Creek	Shatter					1.30	21	16	7	0	0	0	1	
189	189.021	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Ten Mile Creek	Shatter					0.90	13	10	8	0	0	0	0	
189	189.022	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Ten Mile Creek	Shatter					7.20	30	24	14	0	0	0	1	
189	189.023	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Greywacke (Gray)	Flake	Simple				1.30	23	12	6	0	0	0	0	
189	189.024	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Ten Mile Creek	Shatter					2.20	29	18	7	0	0	0	1	
189	189.025	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Ten Mile Creek	Core	Core Fragment				14.10	35	31	20				1	Abraded area of cortical surface appears to have been used as a platform for the removal of at least two flakes.
189	189.026	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Ten Mile Creek	Core	Spent Flake Core				13.70	34	25	17				1	
189	189.027	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Ten Mile Creek	Shatter					1.10	18	10	6	0	0	0	0	
189	189.028	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Rhyolite	FCR					26.80	40	33	20					Crazed and appears to exhibit thermal color alteration.
189	189.029	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Cedarville/Guelph	Nodule					22.90	41	33	19					Heat treated raw material.
189	189.030	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Cedarville/Guelph	Nodule					3.90	22	21	11					Heat treated raw material.
189	189.031	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Cedarville/Guelph	Non-Cultural					3.70	18	15	14					Unmodified raw material.
189	189.032	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Unidentified Green Stone	Non-Cultural					1.80	18	10	6					Unmodified raw material.
189	189.033	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Flint Ridge Flint	Nodule					1.30	14	9	8					Unmodified raw material.
189	189.034	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Cedarville/Guelph	Non-Cultural					21.10	36	24	22					Shows minor crazing. Otherwise unmodified raw material.
189	189.035	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Slate	FCR					15.50	39	34	11					Crazing and thermal color change.
189	189.036	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Cedarville/Guelph	Shatter					2.90	20	11	10	0	0	1	0	
189	189.037	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Slate	FCR					2.60	27	21	4					Burnt.
189	189.038	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Slate	FCR					4.00	31	26	5					Burnt.
189	189.039	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 1 (Ap)	Anomaly 17	N/A	Slate	FCR					0.90	23	18	3					Burnt.
190	190.001	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 1 (Ap)	Anomaly 12	N/A	Quartzite	Scraper	Scraper				16.00	36	24	17				0	Heat treated.
190	190.002	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 1 (Ap)	Anomaly 12	N/A	Cedarville/Guelph	Core	Spent Flake Core				10.60	33	21	15				1	At least one prepared platform evident.
190	190.003	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 1 (Ap)	Anomaly 12	N/A	Ten Mile Creek	Shatter					15.90	49	35	9	0	0	0	1	
190	190.004	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 1 (Ap)	Anomaly 12	N/A	Flint Ridge Flint	Burin	Burin				3.60	23	16	13				1	
190	190.005	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 1 (Ap)	Anomaly 12	N/A	Flint Ridge Flint	Flake	Complex				0.40	13	9	3	0	0	0	1	
190	190.006	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 1 (Ap)	Anomaly 12	N/A	Rhyolite	FCR					167.90	58	57	42					Crazing and thermal color change.
190	190.007	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 1 (Ap)	Anomaly 12	N/A	Rhyolite	FCR					3.70	23	18	11					Crazing and thermal color change.
190	190.008	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 1 (Ap)	Anomaly 12	N/A	Rhyolite	FCR					51.50	66	28	19					Crazing.
190	190.009	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 1 (Ap)	Anomaly 12	N/A	Ten Mile Creek	Shatter					6.40	21	18	14	0	0	1	1	Shatter of pebble core. Only one cultural modification indicator, namely flake scar.
190	190.010	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 1 (Ap)	Anomaly 12	N/A	Rhyolite	Ground Stone	Hammer				116.10	73	38	36				N/A	Concentrated area of pecking just below the (narrrower) distal end.
190	190.011	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 1 (Ap)	Anomaly 12	N/A	Granite	FCR					93.50	49	38	37					Crazing.
190	190.012	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 1 (Ap)	Anomaly 12	N/A	Rhyolite	FCR					4.20	22	16	11					Scant evidence of thermal alteration.
190	190.013	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 1 (Ap)	Anomaly 12	N/A	Cedarville/Guelph	Nodule					4.00	17	15	14					Pebble chert with evidence of heat treatment, namely crazing. Otherwise unmodified raw material.
190	190.014	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 1 (Ap)	Anomaly 12	N/A	Slate	FCR					1.00	21	12	3					Burnt appearance.
190	190.015	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 1 (Ap)	Anomaly 12	N/A	Greywacke (Green)	Flake	Simple				1.30	21	14	5	1	1	0	1	Evidence of pressure flaked margin overlaid by additional use-wear.

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
191	191.001	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.2	Cedarville/Guelph	Biface	Biface Fragment				1.00	16	10	8				0	
193	193.001	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Upper Mercer	Biface	Blade (Unfinished)				6.00	46	15	11				0	Retouch performed on the single utility margin.
193	193.002	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Cedarville/Guelph	Burin	Burin				3.90	33	24	6				1	
193	193.003	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Cedarville/Guelph	Burin	Burin				2.50	20	13	9				0	Heat treated.
193	193.004	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Cedarville/Guelph	Core	Spent Flake Core				10.60	32	22	12				0	
193	193.005	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Flint Ridge Flint	Flake	Complex				0.20	17	5	3	0	0	1	0	
193	193.006	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Cedarville/Guelph	Shatter					0.40	9	8	5	0	0	0	0	
193	193.007	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Cedarville/Guelph	Shatter					0.50	13	8	4	0	0	0	0	
193	193.008	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Cedarville/Guelph	Shatter					0.20	8	7	6	0	0	0	0	
193	193.009	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Upper Mercer	Flake	Complex				0.10	9	7	2	0	1	0	0	
193	193.010	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Upper Mercer	Flake	Complex				0.20	15	10	2	0	1	0	0	
193	193.011	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Sandstone	FCR					109.10	49	42	40					Crazing.
193	193.012	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Rhyolite	FCR					12.00	30	23	16					Crazing.
193	193.013	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Granite	FCR					12.60	30	29	11					Crazing.
193	193.014	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Rhyolite	FCR					14.90	32	25	13					Crazing.
193	193.015	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Sandstone	FCR					6.10	20	20	16					Crazing and thermal color change.
193	193.016	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Granite	FCR					6.90	24	18	15					Crazing.
193	193.017	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Rhyolite	FCR					1.70	20	14	7					Crazing.
193	193.018	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Sandstone	FCR					6.80	25	21	12					Crazing.
193	193.019	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Rhyolite	FCR					2.20	21	13	8					Crazing.
193	193.020	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Granite	FCR					1.20	12	12	9					Crazing.
193	193.021	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Sandstone	FCR					0.90	16	15	5					Thermal alteration color change.
193	193.022	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Rhyolite	FCR					1.30	14	11	6					Crazing and thermal color change.
193	193.023	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Slate	FCR					0.70	22	17	2					Burnt.
193	193.024	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Slate	FCR					0.20	12	9	3					Burnt.
193	193.025	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Slate	FCR					0.04	9	5	1					Burnt.
193	193.026	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Slate	FCR					0.10	12	10	2					Burnt.
193	193.027	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Slate	FCR					0.50	17	12	2					Burnt.
193	193.028	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Granite	FCR					24.00	24	16	11					Scant evidence of thermal alteration; appears to be burnt based on exterior staining.
193	193.029	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Granite	FCR					2.30	15	15	8					Scant evidence of thermal alteration; some minor crazing is evident.
193	193.030	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Ten Mile Creek	Flake	Decortication				1.30	19	12	6	0	0	1	1	
193	193.031	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Greywacke (Gray)	Flake	Simple				0.50	17	9	4	0	0	0	0	
193	193.032	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Unidentified Green Stone	Non-Cultural					0.90	14	7	6					
193	193.033	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Coral	Fossil					4.10	21	21	11					Crescent-shaped coral fossil.
193	193.034	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Coral	Fossil					17.60	40	33	26					Likely popped out of a stone during heat treatment.
193	193.035	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Granite	FCR					5.80	20	17	14					Crazing.

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
193	193.036	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Granite	FCR					1.00	11	11	7					Crazing.
193	193.037	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Granite	FCR					0.50	13	8	4					Crazing.
193	193.038	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Granite	FCR					0.40	11	8	6					Crazing.
193	193.039	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Basalt	FCR					0.90	13	11	3					Thermal color change.
193	193.040	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Cedarville/Guelph	Shatter					0.90	11	9	7	0	0	0	0	
193	193.041	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Upper Mercer	Flake	Complex				0.30	12	10	1	0	0	0	0	
193	193.042	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Upper Mercer	Flake	Complex				0.20	10	8	1	0	1	0	0	
193	193.043	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Cedarville/Guelph	Flake	Complex				0.10	9	8	1	0	0	1	0	
193	193.044	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Flint Ridge Chalcedony	Shatter					0.10	14	9	1	0	0	0	0	
193	193.045	Phase II	16	4587594.53	742229.87	33HY0167	Excavation Unit	N979 E958	N/A	Anomaly 16	Feature 16.1	Granite	FCR					18370.50	310	210	180					Crazing. Located at base of FCR feature with in-situ burning evident (soil oxidation).
194	194.001	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Cedarville/Guelph	Shatter					22.10	53	30	15	0	0	0	1	Very likely a large fragment of a flake core - could not positively identify a remnant prepared platform.
194	194.002	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Cedarville/Guelph	Shatter					6.30	30	17	12	0	0	0	0	Quartzite inclusions.
194	194.003	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Cedarville/Guelph	Shatter					1.30	15	14	8	0	0	0	1	
194	194.004	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Flint Ridge Flint	Flake	Decortication				1.80	22	16	7	1	1	0	1	
194	194.005	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Cedarville/Guelph	Shatter					0.60	10	10	5	0	0	0	0	
194	194.006	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Cedarville/Guelph	Shatter					0.30	11	7	5	0	0	0	0	
194	194.007	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Cedarville/Guelph	Flake	Simple				0.30	12	8	3	0	0	0	0	
194	194.008	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Cedarville/Guelph	Shatter					0.04	5	4	2	0	0	0	0	
194	194.009	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Cedarville/Guelph	Shatter					0.50	10	7	5	0	0	0	0	
194	194.010	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Flint Ridge Flint	Flake	Simple				0.40	11	10	4	0	0	0	0	
194	194.011	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Cedarville/Guelph	Core	Spent Flake Core				2.30	19	15	8				0	
194	194.012	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Ten Mile Creek	Core	Spent Flake Core				16.90	46	25	20				1	Remnant of a flake core fashioned from a small nodule of material. The ends of the longest dimension of the stone are capped with remnant cortex indicating an original package of 46cm in at least one dimension.
194	194.013	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Cedarville/Guelph	Uniface	Unidentified				0.90	22	10	6				0	Retouch on both utility margins. Appears to have additional use-wear overlaying the retouch.
194	194.014	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Flint Ridge Flint	Flake	Complex				1.20	19	11	6	1	1	0	0	
194	194.015	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Sandstone	FCR					0.80	15	11	7					Burnt.
194	194.016	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Cedarville/Guelph	Shatter					0.04	7	5	4	0	0	0	0	
194	194.017	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Cedarville/Guelph	Shatter					5.30	26	19	16	0	0	0	0	
194	194.018	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Flint Ridge Flint	Shatter					1.60	19	14	6	0	0	0	0	
194	194.019	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Pipe Creek	Shatter					2.00	24	12	9	0	0	0	0	
194	194.020	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Flint Ridge Flint	Shatter					0.70	20	5	4	0	0	0	0	
194	194.021	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Flint Ridge Chalcedony	Flake	Complex				2.50	23	13	10	0	0	0	0	Flake ends are irregular at an inclusion. Only a small portion reaches a feather terminus.
194	194.022	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Flint Ridge Flint	Shatter					7.50	34	18	12	0	0	0	1	
194	194.023	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Cedarville/Guelph	Uniface	Uniface Fragment				0.50	12	9	5				0	Retouch on the single utility edge.
194	194.024	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Cedarville/Guelph	Biface	Biface Fragment				0.50	15	7	6				0	Retouch on single utility edge.
194	194.025	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Flint Ridge Flint	Core	Spent Flake Core				6.30	26	18	15				0	

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
194	194.026	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Flint Ridge Flint	Scraper	Scraper				2.10	21	15	8				0	
194	194.027	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.1	Flint Ridge Chalcedony	Biface	Biface Fragment				0.40	12	8	6				0	
195	195.001	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 1 (Ap)	Anomaly 5	N/A	Flint Ridge Flint	Flake	Complex				0.90	18	9	6	0	0	0	0	
195	195.002	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 1 (Ap)	Anomaly 5	N/A	Flint Ridge Flint	Flake	Complex				0.70	24	12	3	0	0	0	0	
195	195.003	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 1 (Ap)	Anomaly 5	N/A	Flint Ridge Flint	Flake	Complex				0.10	12	7	1	0	0	0	0	
195	195.004	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 1 (Ap)	Anomaly 5	N/A	Flint Ridge Chalcedony	Flake	Complex				0.20	15	12	2	0	0	0	0	
195	195.005	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 1 (Ap)	Anomaly 5	N/A	Flint Ridge Chalcedony	Flake	Complex				0.04	10	6	1	0	0	0	0	
195	195.006	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 1 (Ap)	Anomaly 5	N/A	Upper Mercer	Flake	Complex				0.50	23	13	1	0	0	0	0	
196	196.001	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Silicified Sandstone	Flake	Bipolar				1.40	25	10	5	0	0	1	0	
196	196.002	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Flint Ridge (Nethers)	Flake	Complex				0.80	13	13	4	0	0	0	0	
196	196.003	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Pipe Creek	Shatter					2.50	12	14	8	0	0	0	0	
196	196.004	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Pipe Creek	Shatter					1.00	13	10	6	0	0	0	0	
196	196.005	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Pipe Creek	Flake	Complex				0.10	11	6	3	0	0	0	0	
196	196.006	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Bayport	Flake	Complex				0.70	11	10	8	0	0	0	0	
196	196.007	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Flint Ridge Flint	Shatter					1.50	16	12	8	0	0	0	0	
196	196.008	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Flint Ridge Flint	Shatter					1.10	14	9	8	0	0	0	1	
196	196.009	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Flint Ridge Flint	Shatter					3.30	29	14	7	0	0	0	0	
196	196.010	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Flint Ridge Flint	Flake	Decortication				0.90	15	14	4	0	0	0	0	
196	196.011	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Flint Ridge Flint	Shatter					1.40	15	12	8	0	0	0	0	
196	196.012	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Flint Ridge Flint	Shatter					1.50	19	12	9	0	0	0	1	
196	196.013	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Flint Ridge Flint	Shatter					0.60	12	7	6	0	0	0	0	
196	196.014	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Flint Ridge Flint	Shatter					0.50	13	8	6	0	0	0	0	
196	196.015	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Flint Ridge Flint	Shatter					0.20	12	9	3	0	0	0	0	
196	196.016	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Flint Ridge Flint	Flake	Complex				0.50	11	10	5	0	0	0	0	
196	196.017	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Flint Ridge Chalcedony	Shatter					0.60	17	6	6	0	0	0	0	
196	196.018	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Flint Ridge Chalcedony	Shatter					0.70	14	6	6	0	0	0	0	
196	196.019	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Flint Ridge Chalcedony	Flake	Complex				0.70	15	10	6	0	0	0	0	
196	196.020	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Flint Ridge Chalcedony	Shatter					2.20	18	12	9	0	0	0	1	
196	196.021	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Cedarville/Guelph	Shatter					2.50	17	16	12	0	0	0	0	
196	196.022	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Cedarville/Guelph	Flake	Complex				0.70	20	9	5	0	1	0	0	
196	196.023	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Cedarville/Guelph	Shatter					1.00	15	11	8	0	0	1	0	
196	196.024	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Cedarville/Guelph	Shatter					0.40	12	7	5	0	0	0	0	
196	196.025	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Cedarville/Guelph	Flake	Simple				0.04	7	4	2	0	0	0	0	
196	196.026	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Cedarville/Guelph	Flake	Complex				0.20	9	7	3	0	0	0	0	
196	196.027	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Cedarville/Guelph	Core	Pebble Core				3.50	20	15	11				1	
196	196.028	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Ten Mile Creek	Shatter					0.90	13	13	7	0	0	1	1	

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
196	196.029	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Ten Mile Creek	Shatter					4.70	20	18	17	0	0	0	1	
196	196.030	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Ten Mile Creek	Shatter					0.20	13	6	5	0	0	0	1	
196	196.031	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Ten Mile Creek	Shatter					2.80	23	15	9	0	0	0	1	
196	196.032	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Ten Mile Creek	Shatter					1.60	12	11	10	0	0	1	0	
196	196.033	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Ten Mile Creek	Shatter					0.70	19	8	7	0	0	0	1	
196	196.034	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Ten Mile Creek	Shatter					0.70	15	13	4	0	0	0	0	
196	196.035	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Ten Mile Creek	Shatter					0.40	15	10	5	0	0	0	1	
196	196.036	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Ten Mile Creek	Shatter					1.10	21	10	6	0	0	1	1	
196	196.037	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Ten Mile Creek	Flake	Complex				0.70	21	8	4	0	0	1	0	
196	196.038	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Ten Mile Creek	Flake	Simple				0.20	18	8	2	1	1	1	0	
196	196.039	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Ten Mile Creek	Shatter					2.80	23	11	11	0	0	1	0	
196	196.040	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Ten Mile Creek	Flake	Simple				0.10	12	5	4	0	0	1	0	
196	196.041	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Ten Mile Creek	Shatter					1.30	16	13	7	0	0	1	1	
196	196.042	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Cedarville/Guelph	Shatter					0.70	14	9	5	0	0	0	0	
196	196.043	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Slate	FCR					0.50	13	12	3					Burnt exterior.
196	196.044	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Slate	FCR					2.60	36	18	4					Burnt exterior.
196	196.045	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Slate	FCR					0.80	17	11	4					Burnt exterior.
196	196.046	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Slate	FCR					0.90	21	16	2					Burnt exterior.
196	196.047	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Slate	FCR					0.70	19	12	3					Burnt exterior.
196	196.048	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Slate	FCR					0.70	15	9	4					Burnt exterior.
196	196.049	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Slate	FCR					0.70	16	13	3					Burnt exterior.
196	196.050	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Slate	FCR					0.50	17	12	1					Burnt exterior.
196	196.051	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Slate	FCR					0.50	12	10	4					Burnt exterior.
196	196.052	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Slate	FCR					0.20	12	7	2					Burnt exterior.
196	196.053	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Slate	FCR					0.04	8	6	2					Burnt exterior.
196	196.054	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Slate	FCR					0.10	13	6	1					Burnt exterior.
196	196.055	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Ten Mile Creek	Biface	Knife (Unfinished)				28.90	58	31	17				1	Most of the reduction is from one face; however, there are at least two flakes removed from the opposing face. One margin is complete and has retouch and additional use-wear. Appears a second margin was attempted but not completed on two thirds of the distal end on that unfinished margin.
196	196.056	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Pipe Creek	Core	Spent Flake Core				5.10	24	18	12				0	
196	196.057	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Cedarville/Guelph	Core	Pebble Core				2.60	15	13	9				1	Likely a bipolar reduced pebble core which fractured horizontally.
196	196.058	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Cedarville/Guelph	Scraper	Scraper				0.80	18	14	3				1	Retouch on the the two side margins; use-wear on side and end margins.
196	196.059	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Flint Ridge Chalcedony	Burin	Burin				0.70	17	16	5				0	Flakes removed from a single face to form small spike. This spike appears to have been retouched on two of its three (prismatic shaped spike) margins.
196	196.060	Phase II	16	4587569.92	742248.12	33HY0167	Excavation Unit	N957 E949	Level 2	Anomaly 17	N/A	Cedarville/Guelph	Biface	Stem				1.10	15	13	7				0	Prismatic profile. Appears to be a medial portion of a stem broken from a projectile or other hafted implement. Evidence strongly supports biface determination and more scant indication of being a projectile/hafted edge tool stem fragment.

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Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
197	197.001	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge Flint	Core	Unidentified				61.20	81	41	25				0	Multiple large flakes removed from a single direction; however, the fragmented core does not show the length of the flake scars and therefore the core cannot be classified as a blade core specifically - although based on the width of these removed flakes, either the core is also an objective piece biface which is unfinished and/or the removed flakes are objective pieces themselves, e.g., blanks etc. Appears to have been heat treated based on crazed inclusions.
197	197.002	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Bayport	Core	Spent Flake Core				30.30	41	30	26				1	
197	197.003	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Onondaga	Core	Core Fragment				15.60	39	28	21				0	Flake removal scars evident on all faces with the exception of a lateral fracture. Appears to have fractured off a flake core.
197	197.004	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Upper Mercer	Core	Core Fragment				25.90	38	31	21				1	This piece of Upper Mercer has dark grey, light grey, off-white, and light blue patterning.
197	197.005	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge Flint	Core	Core Fragment				21.20	40	35	22				0	Heat treated. Evidence of multiple prepared platforms.
197	197.006	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge Flint	Core	Spent Flake Core				21.70	37	22	21				1	Abrasion prep of cortex surface evident on at least one platform location.
197	197.007	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge Chalcedony	Core	Spent Flake Core				12.90	31	21	18				0	Multiple prepared (abraded) platforms present. Appears that inclusions rendered the core unfavorable for further flake removal.
197	197.008	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Upper Mercer	Core	Spent Flake Core				7.80	33	17	14				0	Multiple platforms evident.
197	197.009	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Upper Mercer	Core	Spent Flake Core				8.40	28	19	13				0	
197	197.010	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge Flint	Core	Core Fragment				9.80	33	22	19				1	
197	197.011	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge Chalcedony	Core	Spent Flake Core				1.00	17	7	7				0	
197	197.012	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge Flint	Biface	Knife				7.90	38	21	12				1	Single margin formed appears to have use-wear evident but no retouch performed.
197	197.013	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Cedarville/Guelph	Biface	Blade Preform				12.60	60	23	9				0	Only one thinning flake removed from one face. Opposing face has multiple removals to form two opposing margins. Margins have not been further worked - additional thinning would be necessary on one of the two faces.
197	197.014	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge Flint	Biface	Knife (Unfinished)				5.40	38	17	7				1	Majority of thinning flakes removed from one face. Opposing face has at least one removal. Together they form a single utility margin which has been further fasioned by steep flaking. Appears to be unfinished and does not exhibit macroscopic evidence of use-wear.
197	197.015	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Cedarville/Guelph	Biface	Stem				4.90	30	22	18				0	Prismatic profile. Appears to be the stem broken off of a hafted biface.
197	197.016	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Cedarville/Guelph	Scraper	Scraper				2.50	24	15	9				0	Single margin appears to have use-wear, but no retouch performed.
197	197.017	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Cedarville/Guelph	Scraper	Scraper (Unfinished)				3.00	23	16	9				0	Appears to have been abandoned before completion as the left lateral of the objective piece has fractured off. The steep thinning of three margins is incomplete - unknown if the missing margin is missing because it was broken during this phase of manufacture. In all other ways appears to be an obvious scraper. Possible the distal end has broken off as well. More likely just unfinished, based on a lack of fracture evidence at the distal end.
197	197.018	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Cedarville/Guelph	Biface	Unidentified				2.30	19	16	9				0	Thinning from two faces to form four margins. Use-wear evident on a contiguous 3/4 of the utility edge, i.e. 3 of 4 margins have use-wear. No retouch evident on piece.
197	197.019	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Cedarville/Guelph	Scraper	Scraper (Unfinished)				5.60	26	20	11				0	Steep thinning to form two margins from one face - appears to be largely unrefined though use-wear is evident on one margin.
197	197.020	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge Chalcedony	Biface	Biface Fragment				1.90	20	14	7				0	
197	197.021	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Ten Mile Creek	Shatter					4.10	28	22	11	0	0	1	0	
197	197.022	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Ten Mile Creek	Biface	Biface Fragment				18.40	38	23	14				0	No evidence of retouch or use-wear.
197	197.023	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Cedarville/Guelph	Biface	Knife (Unfinished)				40.60	64	34	19				1	Thinning from two opposing faces to form two non-parallel margins that appear to be underdeveloped. The longest of these margins shows evidence of use-wear but no retouch.
197	197.024	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Cedarville/Guelph	Flake	Simple				5.10	39	27	6	0	1	0	0	
197	197.025	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Pipe Creek	Flake	Complex				2.70	32	14	7	0	0	0	0	
197	197.026	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Upper Mercer (Black)	Shatter					7.30	22	20	15	0	0	0	0	
197	197.027	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge Chalcedony	Flake	Complex				0.60	16	12	3	0	1	0	1	
197	197.028	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge Flint	Shatter					6.90	26	23	10	0	0	0	1	

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Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
197	197.029	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Ten Mile Creek	Flake	Complex				10.00	42	25	12	0	1	1	0	
197	197.030	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge Chalcedony	Shatter					3.60	26	18	10	0	0	0	0	
197	197.031	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge Chalcedony	Shatter					7.10	26	17	16	0	0	0	0	
197	197.032	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Attica/Indiana Green	Flake	Complex				3.00	26	13	10	0	0	0	0	
197	197.033	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge (Nethers)	Shatter					7.20	27	20	15	0	0	0	1	
197	197.034	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge (Moss Agate)	Biface	Bladelet Fragment				2.10	21	14	8				0	Pressure flaking on both margins from both faces.
197	197.035	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge (Moss Agate)	Shatter					0.40	11	6	6	0	0	0	0	
197	197.036	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge Chalcedony	Shatter					11.10	26	25	21	0	0	1	1	Appears to have only a very small portion remaining of what looks like Flint Ridge Chalcedony. Otherwise resembles Ten Mile Creek chert in color and texture. Appears to have been heat treated based on thermal color alteration and significant crazing.
197	197.037	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Cedarville/Guelph	Shatter					1.80	19	13	9	0	0	0	0	
197	197.038	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Cedarville/Guelph	Shatter					0.90	16	10	7	0	0	1	0	
197	197.039	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Ten Mile Creek	Flake	Simple				1.00	18	13	5	0	0	1	0	
197	197.040	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Ten Mile Creek	Flake	Complex				0.90	18	12	6	0	0	1	0	
197	197.041	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge Chalcedony	Flake	Complex				2.50	22	14	6	0	0	0	0	
197	197.042	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Cedarville/Guelph	Flake	Complex				3.80	30	16	7	0	0	0	0	Lateral break along inclusions.
197	197.043	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Ten Mile Creek	Shatter					9.10	30	27	17	0	0	0	1	
197	197.044	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Cedarville/Guelph	Flake	Complex				1.20	17	14	7	0	0	0	0	
197	197.045	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Pipe Creek	Shatter					2.20	23	12	10	0	0	0	1	
197	197.046	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Ten Mile Creek	Flake	Bipolar				9.70	31	31	11	0	0	1	1	Opposing platforms, one of which appears to have been prepared with abrasion.
197	197.047	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Bayport	Shatter					3.60	21	15	15	0	0	0	0	
197	197.048	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Ten Mile Creek	Shatter					10.50	38	18	14	0	0	1	1	
197	197.049	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Cedarville/Guelph	Shatter					1.20	19	12	6	0	0	1	0	
197	197.050	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Upper Mercer	Shatter					9.40	26	21	20	0	0	1	1	
197	197.051	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge Chalcedony	Shatter					4.20	24	16	9	0	0	1	1	
197	197.052	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Ten Mile Creek	Flake	Complex				9.40	39	24	12	0	0	1	0	
197	197.053	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge Chalcedony	Flake	Complex				1.30	25	11	6	0	0	0	1	
197	197.054	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Pipe Creek	Flake	Complex				0.60	23	10	5	0	0	0	1	Platform has been abraded.
197	197.055	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Ten Mile Creek	Shatter					0.70	14	13	5	0	0	0	1	
197	197.056	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Upper Mercer (Grey)	Flake	Decortication				2.50	26	17	6	0	0	0	1	
197	197.057	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Ten Mile Creek	Shatter					2.70	27	16	12	0	0	1	0	
197	197.058	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Pipe Creek	Shatter					0.70	13	6	5	0	0	0	0	
197	197.059	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Ten Mile Creek	Shatter					1.60	16	12	11	0	0	1	0	
197	197.060	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Ten Mile Creek	Shatter					0.50	18	10	5	0	0	1	0	
197	197.061	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Cedarville/Guelph	Shatter					1.20	13	9	8	0	0	0	0	
197	197.062	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Cedarville/Guelph	Shatter					0.80	14	11	4	0	0	0	0	
197	197.063	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Bayport	Flake	Complex				0.70	20	8	5	0	0	0	0	

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
197	197.064	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Ten Mile Creek	Shatter					0.30	17	6	3	0	0	1	0	
197	197.065	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Granite	Ground Stone	Abrader or Hammer				618.30	104	80	60					Heat treated. Crazing on one corner of the hand-size cobble. One concentrated area of cobble is worn flat and smooth in marked contrast to the rest of the stone, roughly 61mm x 54mm area. On the opposing end of the cobble there is a concentrated area of pecking roughly 29mm x 11mm. This area of pecking is the narrow end of the cobble, opposing the artificially smoothed end.
197	197.066	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Flint Ridge Chalcedony	Core	Flake Core				75.50	56	43	41				1	Heat treated.
197	197.067	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Ten Mile Creek	Nodule					136.50	58	53	47					Heat altered, evidenced by minor crazing and change in color - otherwise no modification.
197	197.068	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Silt Stone	FCR					217.70	109	99	29					Crazed and appears to exhibit thermal color alteration.
197	197.069	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Silt Stone	FCR					47.00	55	41	35					Crazed and appears to exhibit thermal color alteration.
197	197.070	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Silt Stone	FCR					48.50	49	37	33					Crazed and appears to exhibit thermal color alteration.
197	197.071	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Rhyolite	FCR					23.50	51	37	10					Crazing.
197	197.072	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Granite	FCR					70.00	59	44	25					Crazing.
197	197.073	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Silt Stone	FCR					17.10	29	29	23					Crazed and appears to exhibit thermal color alteration.
197	197.074	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Slate	FCR					9.00	36	26	12					Crazed and rust stained.
197	197.075	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Granite	FCR					29.30	52	30	16					Crazing.
197	197.076	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Rhyolite	FCR					35.70	50	37	21					Crazing.
197	197.077	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Granite	FCR					11.40	28	19	14					Crazing.
197	197.078	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Sandstone	FCR					2.40	27	13	10					Thermal color change.
197	197.079	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Rhyolite	FCR					9.30	34	22	12					Crazing and thermal color change.
197	197.080	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Slate	FCR					3.20	28	22	11					Thermal color change and charring.
197	197.081	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Sandstone	FCR					4.20	25	16	12					Thermal color change.
197	197.082	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Rhyolite	FCR					4.90	26	15	10					Crazing.
197	197.083	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Basalt	FCR					13.20	27	22	18					Crazing.
197	197.084	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Sandstone	FCR					10.60	31	25	14					Thermal color change.
197	197.085	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Basalt	FCR					5.50	22	15	15					Crazing.
197	197.086	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Conglomerate	FCR					7.60	28	15	14					Crazing.
197	197.087	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Silt Stone	FCR					2.60	25	18	10					Crazing.
197	197.088	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Silt Stone	FCR					1.40	22	13	9					Crazing.
197	197.089	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Slate	FCR					2.10	22	19	5					Charring.
197	197.090	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Silt Stone	FCR					2.80	30	10	9					Charring.
197	197.091	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Sandstone	FCR					1.80	21	13	10					Thermal color change.
197	197.092	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Slate	FCR					2.00	26	16	5					Charring.
197	197.093	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Rhyolite	FCR					3.70	23	21	7					Crazing and charring.
197	197.094	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Slate	FCR					0.30	10	9	3					Charring.
197	197.095	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Slate	FCR					5.00	29	18	12					Charring.
197	197.096	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Sandstone	FCR					12.50	28	27	21					Crazing has made large open pockets within the stone that are filled with dark organic-like charred material.
197	197.097	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Ten Mile Creek	Nodule					72.10	62	43	39					Minor crazing and charring - appears to have been heat treated - otherwise no modification.

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
197	197.098	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Quartzite	Nodule					38.30	48	25	25					Color change to pink - otherwise no modification.
197	197.099	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Ten Mile Creek	Nodule					21.10	42	32	16					Minor crazing and charring - appears to have been heat treated - otherwise no modification.
197	197.100	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Rhyolite	Ground Stone	Abrader				155.90	59	52	40					Exhibits a concentrated area that is markedly flat and smooth and is approximately 35mm x 24mm. Also appears to be heat altered based on a change to color.
197	197.101	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Greywacke	Non-Cultural					255.10	85	59	40					Unmodified raw material.
197	197.102	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Quartzite	Nodule					81.90	54	50	24					Fractured and appears to have been heat altered based on color change and minor crazing - otherwise unmodified.
197	197.103	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Cedarville/Guelph	Nodule					10.40	37	29	9					Crazing.
197	197.104	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Silicified Sandstone	Nodule					9.70	23	19	14					Thermal alteration color change, otherwise no modification.
197	197.105	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Rhyolite	Non-Cultural					2.80	26	18	4					
197	197.106	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Cedarville/Guelph	Shatter					8.20	28	20	14	0	0	1	0	Significant crazing.
197	197.107	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Quartzite	FCR					73.10	N/A	N/A	N/A					Stone fell apart when removed from artifact bag - reduced to course-grained material.
197	197.108	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Quartzite	FCR					64.80	N/A	N/A	N/A					Stone fell apart when removed from artifact bag - reduced to course-grained material.
197	197.109	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Shell	Fossil					5.80	30	25	11					Quartzite inclusion attached; heat altered.
197	197.110	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Shell	Fossil					3.20	25	16	11					Quartzite inclusion attached; heat altered.
197	197.111	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 3	Anomaly 12	N/A	Coral	Fossil					8.60	37	27	16					Heat altered.
198	198.001	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Flint Ridge Flint	Core	Flake Core				23.90	44	29	25				1	
198	198.002	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Rhyolite	Ground Stone	Plate/Metate				679.90	101	78	52					On opposing faces of this stone are matching areas of smooth, flattened surface markedly different from the remainder of the stone in terms of shape and texture. Stone appears to have fractured in half.
198	198.003	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Granite	Ground Stone	Hammer				114.70	54	52	32					Concentrated area of pecking located on the end of the stone roughly 20mm x 14mm and markedly different in terms of shape and texture from the rest of the stone.
198	198.004	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Rhyolite	Ground Stone	Abrader				158.90	66	50	30					One face of the stone has been ground down to a smooth flat surface markedly different from the remainder of the stone in terms of shape and texture. Also has dark staining to this same surface that does not match the remainder of the stone. This concentrated area of possible abrasion is roughly 49mm x 49mm. Appears to have also suffered heat treatment as there is evidence of crazing along the breakage between this portion and its parent stone.
198	198.005	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Ten Mile Creek	Nodule					11.90	32	23	21					Crazed and charred but otherwise unmodified. Appears to have been split by thermal alteration.
198	198.006	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Ten Mile Creek	Nodule					17.10	40	26	21					Crazed and charred but otherwise unmodified. Appears to have been split by thermal alteration.
198	198.007	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Ten Mile Creek	Nodule					5.50	26	15	15					Crazed and charred but otherwise unmodified. Appears to have been split by thermal alteration.
198	198.008	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Quartzite	Nodule					82.70	58	34	33					Crazed but otherwise unmodified.
198	198.009	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Rhyolite	Non-Cultural					303.20	78	59	39					Appears to be unmodified.
198	198.010	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Ten Mile Creek	Nodule					46.70	38	31	30					Minor crazing and charring - appears to have been heat treated - otherwise no modification.
198	198.011	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Silicified Sandstone	Nodule					6.00	62	46	38					Thermal alteration color change, otherwise no modification.
198	198.012	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Quartzite	Nodule					1350.60	144	114	67					Minor crazing but otherwise unmodified.
198	198.013	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Silicified Sandstone	Nodule					1023.10	140	104	58					Minor crazing and a slight color modification suggest thermal alteration, but no other apparent cultural modification.
198	198.014	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Basalt	Non-Cultural					333.00	102	52	41					Appears to be unmodified.
198	198.015	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Silicified Sandstone	Non-Cultural					20.20	27	27	19					Appears to be unmodified.
198	198.016	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Ten Mile Creek	Nodule					5.70	29	18	7					Charred but otherwise appears unmodified.
198	198.017	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Ten Mile Creek	Nodule					15.70	34	27	17					Charred but otherwise appears unmodified.
198	198.018	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Silicified Sandstone	Non-Cultural					22.40	31	30	18					Appears to be unmodified.

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
198	198.019	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Unidentified Green Stone	Non-Cultural					34.20	41	34	18					Appears to be unmodified.
198	198.020	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Granite	FCR					226.80	82	46	42					Crazing.
198	198.021	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Rhyolite	FCR					393.20	81	78	46					Charring.
198	198.022	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Rhyolite	FCR					46.60	52	26	20					Crazing.
198	198.023	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Granite	FCR					41.20	40	34	22					Crazing.
198	198.024	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Granite	FCR					62.60	52	36	26					Crazing.
198	198.025	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Basalt	FCR					44.30	30	30	29					Crazing.
198	198.026	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Basalt	FCR					85.80	54	38	28					Thermal color change.
198	198.027	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Sandstone	FCR					18.50	31	24	21					Crazing and charring.
198	198.028	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Unidentified	FCR					59.90	43	41	40					Minor crazing.
198	198.029	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Granite	FCR					66.80	49	48	22					Crazing.
198	198.030	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Granite	FCR					63.70	47	33	31					Minor crazing.
198	198.031	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Sandstone	FCR					47.30	42	30	29					Crazing and charring.
198	198.032	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Ten Mile Creek	Nodule					30.40	40	35	28					Crazed and charred.
198	198.033	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Rhyolite	FCR					37.00	40	35	15					Very minor crazing.
198	198.034	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Slate	FCR					5.80	33	27	7					Charring.
198	198.035	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Slate	FCR					7.50	31	30	7					Charring.
198	198.036	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Slate	FCR					7.70	41	33	5					Charring.
198	198.037	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Slate	FCR					3.60	34	26	4					Charring.
198	198.038	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Slate	FCR					3.90	30	21	7					Charring.
198	198.039	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Basalt	FCR					9.90	25	16	14					Minor crazing.
198	198.040	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Rhyolite	FCR					17.30	33	21	19					Crazing.
198	198.041	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Basalt	FCR					15.70	32	23	19					Very minor crazing.
198	198.042	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Basalt	FCR					9.50	23	18	15					Very minor crazing.
198	198.043	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Shale	FCR					11.70	39	22	13					Crazing.
198	198.044	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Basalt	FCR					12.20	26	23	12					Crazing.
198	198.045	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Shale	FCR					13.20	68	23	8					Charring.
198	198.046	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Rhyolite	FCR					7.80	23	21	12					Minor crazing.
198	198.047	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Granite	FCR					2.40	17	14	7					Crazing.
198	198.048	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Sandstone	FCR					3.80	27	13	10					Charring.
198	198.049	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Basalt	FCR					1.40	12	9	7					Crazing.
198	198.050	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Unidentified Green Stone	Non-Cultural					39.00	42	40	19					Appears to be unmodified.
198	198.051	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Unidentified Green Stone	Non-Cultural					21.60	37	21	18					Appears to be unmodified.
198	198.052	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Unidentified Green Stone	Non-Cultural					7.00	21	20	10					Appears to be unmodified.
198	198.053	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 2	Anomaly 5	N/A	Basalt	Non-Cultural					1.70	16	12	7					Water-worn pebble.
199	199.001	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Cedarville/Guelph	Core	Spent Flake Core				17.30	34	27	20				0	At least two platforms are evident.

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
199	199.002	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Ten Mile Creek	Core	Core Fragment				11.70	39	22	19				1	
199	199.003	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Bayport	Biface	Knife				2.70	25	22	6				0	One margin has evidence of retouch overlaid by additional use-wear. May have been a projectile/stem point preform re-purposed into a scraper. Barely qualifies as a biface; just one removal from the second face.
199	199.004	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Bayport	Core	Core Fragment				5.70	23	21	13				0	Broken along inclusions, and appears to have experienced crazing at this break.
199	199.005	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Quartzite	Biface	Unidentified				1.80	20	11	6				0	Likely a fragment margin from a bifacial implement such as a projectile or other hafted implement.
199	199.006	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Cedarville/Guelph	Burin	Burin				3.10	24	18	9				0	
199	199.007	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Cedarville/Guelph	Biface	Stem				3.10	19	19	7				0	
199	199.008	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Cedarville/Guelph	Shatter					13.00	40	28	16	0	0	1	1	
199	199.009	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Flint Ridge Chalcedony	Biface	Knife				10.60	29	27	11				0	
199	199.010	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Flint Ridge Chalcedony	Shatter					3.80	22	22	10	0	0	0	0	
199	199.011	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Greywacke	Shatter					11.40	31	16	15	0	0	0	0	
199	199.012	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Ten Mile Creek	Flake	Decortication				18.40	42	29	18	0	0	0	1	
199	199.013	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Ten Mile Creek	Shatter					24.30	43	34	17	0	0	1	1	
199	199.014	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Ten Mile Creek	Shatter					9.70	36	31	17	0	0	1	1	
199	199.015	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Bayport	Flake	Complex				2.10	17	16	10	0	0	0	0	
199	199.016	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Ten Mile Creek	Flake	Decortication				10.80	38	31	15	0	0	1	1	
199	199.017	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Ten Mile Creek	Shatter					2.00	22	15	10	0	0	0	0	
199	199.018	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Cedarville/Guelph	Shatter					1.80	16	14	6	0	0	0	0	
199	199.019	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Cedarville/Guelph	Shatter					0.90	17	11	5	0	0	0	0	
199	199.020	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Cedarville/Guelph	Shatter					0.30	13	6	5	0	0	0	0	
199	199.021	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Cedarville/Guelph	Flake	Simple				0.50	15	9	4	0	0	0	0	
199	199.022	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Bayport	Shatter					2.00	17	12	10	0	0	1	0	
199	199.023	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Flint Ridge (Nethers)	Flake	Complex				0.60	14	8	5	0	0	0	0	
199	199.024	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Upper Mercer	Flake	Simple				0.50	19	7	4	1	1	0	0	
199	199.025	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Ten Mile Creek	Nodule					6.50	37	25	12					Charred but otherwise appears unmodified.
199	199.026	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Ten Mile Creek	Nodule					3.00	22	18	10					Charred but otherwise appears unmodified.
199	199.027	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Cedarville/Guelph	Nodule					8.60	25	22	15					Charred but otherwise appears unmodified.
199	199.028	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Cedarville/Guelph	Non-Cultural					9.30	27	22	17					Appears to be unmodified.
199	199.029	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Rhyolite	FCR					364.30	75	58	50					Minor crazing.
199	199.030	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Silicified Sandstone	FCR					883.00	137	92	68					Crazing and thermal color change.
199	199.031	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Granite	FCR					63.80	47	38	30					Crazing.
199	199.032	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Granite	FCR					10.20	30	27	11					Crazing.
199	199.033	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Granite	FCR					6.60	28	23	11					Crazing.
199	199.034	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Granite	FCR					101.00	54	48	35					Crazing.
199	199.035	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Granite	FCR					15.20	34	29	17					Crazing.
199	199.036	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Rhyolite	FCR					105.90	83	36	23					Crazing and charring.

Table B1
Cultural Materials Provenience Table
Prehistoric Artifacts

Bag #	Object #	Phase of Investigation	UTM Zone	UTM Northing	UTM Easting	OAI #	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Variety	Artifact Type	Artifact Subtype	Point Type	Period/Date	Reference	Weight (g)	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Retouched 1=Y 0=N	Utilized 1=Y 0=N	Heat Treated 1=Y 0=N	Cortex 1=Y 0=N	Comments
199	199.037	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Sandstone	FCR					24.90	38	29	17					Crazing and thermal color change.
199	199.038	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Sandstone	FCR					15.20	48	30	7					Thermal color change and charring.
199	199.039	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Slate	FCR					3.00	32	21	4					Charring.
199	199.040	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Granite	FCR					2.10	23	18	4					Crazing.
199	199.041	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Slate	FCR					0.70	20	15	2					Charring.
199	199.042	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Sandstone	FCR					3.00	33	17	5					Charring.
199	199.043	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Slate	FCR					5.00	33	31	5					Charring.
199	199.044	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Granite	FCR					1.80	17	15	13					Crazing.
199	199.045	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Granite	FCR					1.60	21	14	5					Crazing.
199	199.046	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Slate	FCR					3.10	36	16	5					Charring.
199	199.047	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Granite	FCR					0.80	10	10	7					Crazing.
199	199.048	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Slate	FCR					1.20	21	10	4					Charring.
199	199.049	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Unidentified	FCR					5.90	23	18	12					Crazing.
199	199.050	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Unidentified	FCR					3.70	18	18	9					Crazing.
199	199.051	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Rhyolite	FCR					0.80	18	10	5					Minor crazing.
199	199.052	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Ten Mile Creek	Nodule					48.80	49	37	32					Crazed and charred but otherwise unmodified. Appears to have been split by thermal alteration.
199	199.053	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Ten Mile Creek	Nodule					37.20	40	39	32					Crazed and charred but otherwise unmodified. Appears to have been split by thermal alteration.
199	199.054	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Greywacke	Non-Cultural					85.50	50	45	32					Unmodified raw material.
199	199.055	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Ten Mile Creek	Nodule					5.60	25	15	13					Charred but otherwise appears unmodified.
199	199.056	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Granite	FCR					335.80	68	67	50					Crazing.
199	199.057	Phase II	16	4587580.37	742284.50	33HY0167	Excavation Unit	N929 E984	Level 4	Anomaly 12	N/A	Ten Mile Creek	Flake	Decortication				6.00	39	30	10	0	0	1	1	
200	200.001	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 3	Anomaly 5	N/A	Granite	FCR					1002.70	147	112	50					Crazing.
200	200.002	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 3	Anomaly 5	N/A	Granite	FCR					23.40	32	31	21					Crazing.
200	200.003	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 3	Anomaly 5	N/A	Granite	FCR					3.60	22	15	8					Crazing.
200	200.004	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 3	Anomaly 5	N/A	Granite	FCR					5.00	22	16	12					Crazing.
200	200.005	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 3	Anomaly 5	N/A	Granite	FCR					3.20	18	17	9					Crazing.
200	200.006	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 3	Anomaly 5	N/A	Granite	FCR					2.20	20	11	6					Crazing.
200	200.007	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 3	Anomaly 5	N/A	Quartzite	Nodule					138.50	58	50	33					Crazed but otherwise unmodified.
200	200.008	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 3	Anomaly 5	N/A	Ten Mile Creek	Non-Cultural					7.50	26	21	14					Appears to be unmodified.
200	200.009	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 3	Anomaly 5	N/A	Cedarville/Guelph	Scraper	Scraper				6.10	26	19	12				0	
200	200.010	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 3	Anomaly 5	N/A	Cedarville/Guelph	Nodule					37.90	40	34	22					Appears to be unmodified.
200	200.011	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 3	Anomaly 5	N/A	Greywacke	Nodule					166.50	62	52	32					Slightly crazed and charred but appears otherwise unmodified.
200	200.012	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 3	Anomaly 5	N/A	Greywacke	Non-Cultural					95.90	70	36	28					Appears to be unmodified.
200	200.013	Phase II	16	4587605.57	742253.35	33HY0167	Excavation Unit	N969 E982	Level 3	Anomaly 5	N/A	Sandstone	FCR					98.30	68	55	32					Charring.
201	201.001	Phase II	16	4587595.34	742234.06	33HY0167	Surface Inspection	N975 E960	Plow Zone (Ap)	N/A	N/A	Cedarville/Guelph	Flake	Complex				2.00	26	22	5	1	1	0	0	
																										Total # = 1,096 Objects

Table B2
Cultural Materials Provenience Table
Historic Artifacts

PROVENIENCE										DESCRIPTION							OTHER		
Bag #	Object #	OAI #	Phase of Investigation	UTM	Survey Method	Horizontal Provenience	Vertical Provenience	Associated Anomaly	Feature Provenience	Material Type	Material Sub-type	Description	Functional Group	Functional Sub-group	Count	Weight (g)	Approximate Date Range	Reference	Notes
140	140.055-056	33HY0167	Phase II	N/A	Excavation Unit	N945 E989.5	Level 1 (Ap)	Anomaly 14	N/A	Ceramic	Stoneware	Utilitarian Crock / Jug sherds	Kitchen	Food Preparation / Food Storage	2				Likely from the same vessel - both have light brown glazed interior; exterior of one sherd has spalled off, while the exterior of the second sherd has a matte brown slip
190	190.016	33HY0167	Phase II	N/A	Excavation Unit	N929 E984	Level 1 (Ap)	Anomaly 12	N/A	Ceramic	Refined Earthenware	Whiteware sherd	Kitchen	Food Service	1		1820-present	Miller et al. 2000	Vessel form unidentified; most of the glaze is spalled off
190	190.017-019	33HY0167	Phase II	N/A	Excavation Unit	N929 E984	Level 1 (Ap)	Anomaly 12	N/A	Metal	Ferrous	Square Nail fragments	Architecture	Architectural Hardware	3		1805-1890	Wells 1998	2.8, 4.0, and 6.5 cm in length
190	190.020-022	33HY0167	Phase II	N/A	Excavation Unit	N929 E984	Level 1 (Ap)	Anomaly 12	N/A	Glass	Flat Glass	Clear Window fragments	Architecture	Fix	3				
192	192.001	33HY0167	Phase II	N/A	Excavation Unit	N957 E949	N/A	Anomaly 17	Feature 17.3	Plastic	Unidentified	White fragment	Indeterminate	Indeterminate	1				Curved - probably a lip fragment, although original object cannot be identified
														Total	*10*				

APPENDIX C
PHOTOGRAPH LOG

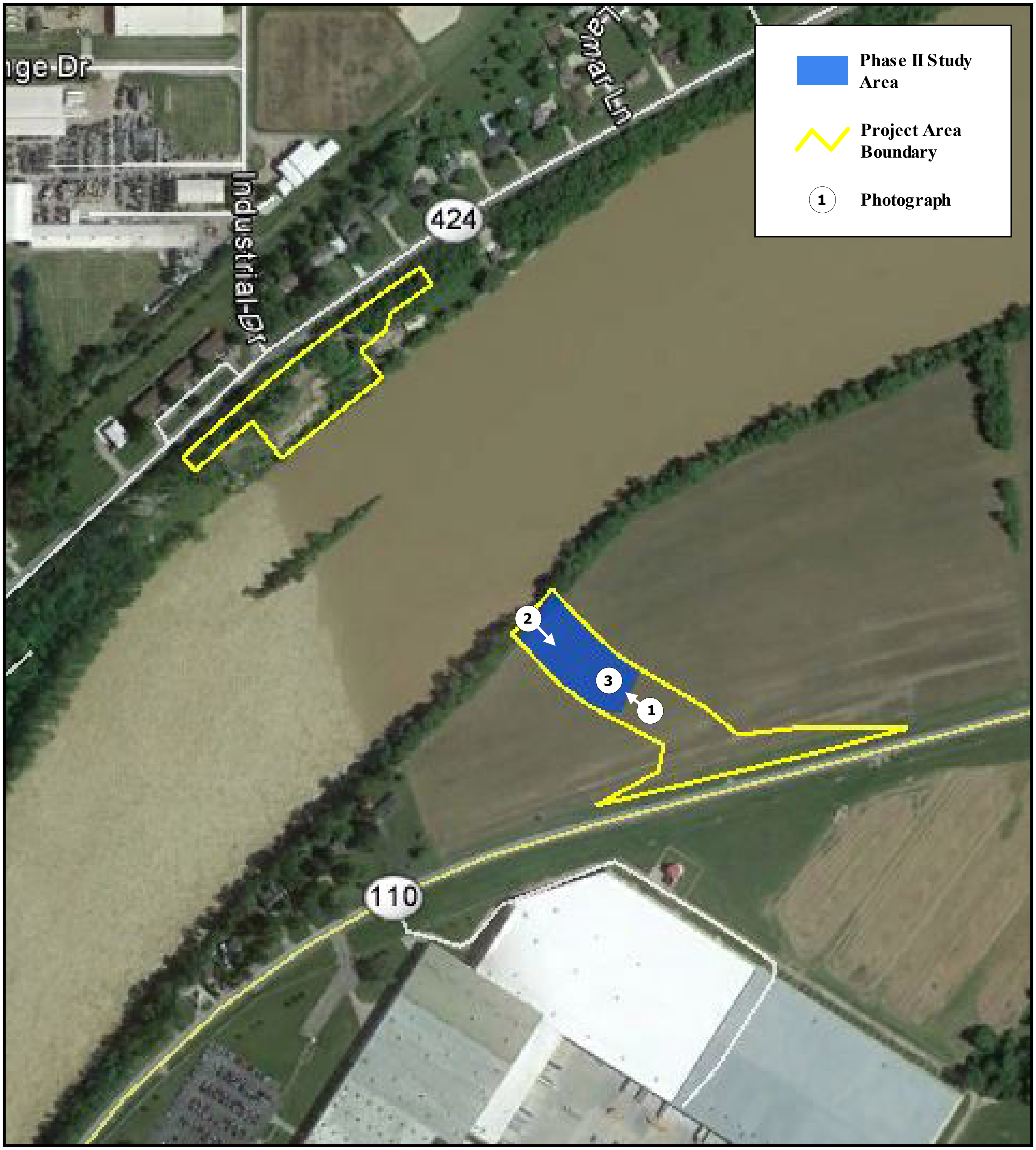

Figure C1
Photokey
Phase II Archaeology
New Maumee River Crossing
Napoleon, Ohio

N

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Photo 1: Overview of Phase II survey area, facing grid north.

Photo 2: Overview of Phase II survey area, facing grid southeast.

Photo 3: Typical surface visibility.

Photo 4: N998 E967 (Anomaly 1), opening, facing grid east.

Photo 5: N998 E967 (Anomaly 1), base of plow zone, facing grid north.

Photo 6: N998 E967 (Anomaly 1), Level 2, facing grid north.

Photo 7: N998 E967 (Anomaly 1), Level 3, facing grid south.

Photo 8: N969 E982 (Anomaly 5), opening, facing grid east.

Photo 9: N969 E982 (Anomaly 5), base of plow zone, facing grid east.

Photo 10: N969 E982 (Anomaly 5), Level 2, facing grid north.

Photo 11: N969 E982 (Anomaly 5), Level 3, facing grid north.

Photo 12: N969 E982 (Anomaly 5), north wall profile, facing grid north.

Photo 13: N968 E989.5 (Anomaly 8), opening, facing grid north.

Photo 14: N968 E989.5 (Anomaly 8), base of plow zone, facing grid south.

Photo 15: N968 E989.5 (Anomaly 8), Feature 8.1, bi-section, facing grid north.

Photo 16: N968 E989.5 (Anomaly 8), Feature 8.1, bi-section profile, facing grid south.

Photo 17: N961 E998 (Anomaly 10), opening, facing grid north.

Photo 18: N961 E998 (Anomaly 10), base of plow zone, facing grid west.

Photo 19: N961 E998 (Anomaly 10), Feature 10.1, facing grid east.

Photo 20: N961 E998 (Anomaly 10), Feature 10.1, profile, facing grid north.

1800 Indian Wood Circle, Maumee, Ohio 43537
Tel: 419.891.2222 Fax: 419.891.1595

Photo 21: N976 E993 (Anomaly 11), opening, facing grid north.

Photo 22: N976 E993 (Anomaly 11), base of plow zone, facing grid east.

Photo 23: N976 E993 (Anomaly 11), Feature 11.1, facing grid north.

Photo 24: N929 E984 (Anomaly 12), opening, facing grid east.

1800 Indian Wood Circle, Maumee, Ohio 43537
Tel: 419.891.2222 Fax: 419.891.1595

Photo 25: N929 E984 (Anomaly 12), base of plow zone, facing grid east.

Photo 26: N929 E984 (Anomaly 12), Level 2, facing grid east.

Photo 27: N929 E984 (Anomaly 12), Level 3, facing grid east.

Photo 28: N929 E984 (Anomaly 12), Level 4, facing grid south.

Photo 29: N929 E984 (Anomaly 12), east wall profile, facing grid east.

Photo 30: N945 E989.5 (Anomaly 14), opening, facing grid north.

Photo 31: N945 E989.5 (Anomaly 14), base of plow zone, facing grid north.

Photo 32: N945 E989.5 (Anomaly 14), base of plow zone (expanded), facing grid north.

Photo 33: N945 E989.5 (Anomaly 14), Level 2, facing grid north.

Photo 34: N945 E989.5 (Anomaly 14), Feature 14.1, Level 1 bi-section, facing grid north.

Photo 35: N945 E989.5 (Anomaly 14), Feature 14.1, Level 2 bi-section, facing grid north.

Photo 36: N945 E989.5 (Anomaly 14), Feature 14.1, bi-section profile, facing grid east.

Photo 37: N945 E989.5 (Anomaly 14), Feature 14.2b, facing grid north.

Photo 38: N945 E989.5 (Anomaly 14), Feature 14.3, facing grid north.

Photo 39: N979 E958 (Anomaly 16), opening, facing grid east.

Photo 40: N979 E958 (Anomaly 16), base of plow zone, facing grid west.

Photo 41: N979 E958 (Anomaly 16), east wall profile, facing grid east.

Photo 42: N979 E958 (Anomaly 16), Feature 16.1, facing grid west.

Photo 43: N979 E958 (Anomaly 16), Feature 16.1, closing, facing grid west.

Photo 44: N979 E958 (Anomaly 16), Feature 16.2, facing grid south.

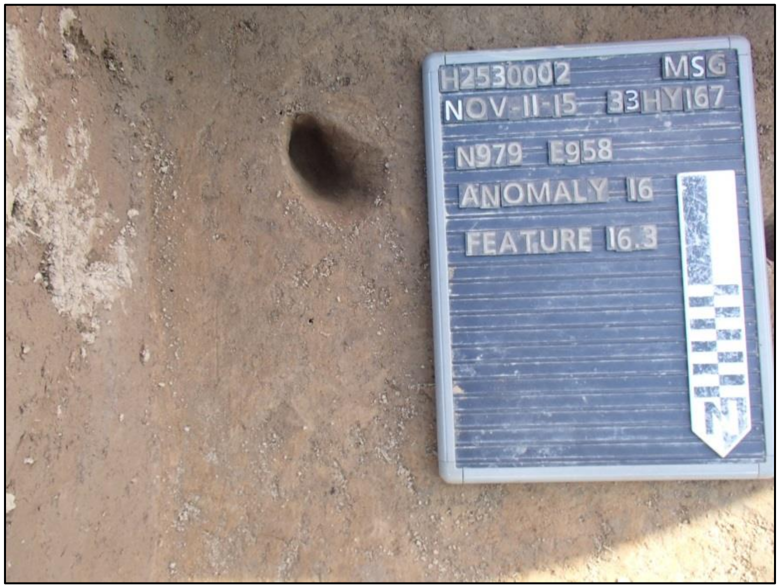

Photo 45: N979 E958 (Anomaly 16), Feature 16.3, facing grid south.

Photo 46: N957 E949 (Anomaly 17), opening, facing grid east.

Photo 47: N957 E949 (Anomaly 17), base of plow zone, facing grid east.

Photo 48: N957 E949 (Anomaly 17), Level 2, facing grid north.

Photo 49: N957 E949 (Anomaly 17), north wall profile, facing grid north.

Photo 50: N957 E949 (Anomaly 17), Feature 17.2, facing grid north.

Photo 51: N957 E949 (Anomaly 17), Feature 17.3, facing grid east.

Photo 52: N957 E949 (Anomaly 17), Feature 17.4, facing grid north.

Photo 53: Surface Collection, N985 E975: Object # 54.003, Large Bifacial Knife Tip, Face 1.

Photo 54: Surface Collection, N985 E975: Object # 54.003, Large Bifacial Knife Tip, Face 2.

Photo 55: Surface Collection, N985 E975: Object # 54.003, Large Bifacial Knife Tip, Profile.

Photo 56: Surface Collection, N990 E960: Object # 55.001, Bottleneck Stemmed Projectile Point, Face 1.

Photo 57: Surface Collection, N990 E960: Object # 55.001, Bottleneck Stemmed Projectile Point, Face 2.

Photo 58: Surface Collection, N980 E955: Object # 78.001, Bottleneck Stemmed Projectile Point, Face 1.

Photo 59: Surface Collection, N980 E955: Object # 78.001, Bottleneck Stemmed Projectile Point, Face 2.

Photo 60: Surface Collection, N980 E995: Object # 106.001, Bottleneck Stemmed Projectile Point, Face 1.

Photo 61: Surface Collection, N980 E995: Object # 106.001, Bottleneck Stemmed Projectile Point, Face 2.

Photo 62: Surface Collection, N975 E990: Object # 109.001, Undiagnosed Projectile Point Base, Face 1.

Photo 63: Surface Collection, N975 E990: Object # 109.001, Undiagnosed Projectile Point Base, Face 2.

Photo 64: Surface Collection, N980 E990: Object # 114.002, Scraper, Face 1.

Photo 65: Surface Collection, N980 E990: Object # 114.002, Scraper, Face 2.

Photo 66: Surface Collection, N915 E980: Object # 138.001, Undiagnosed Projectile Point Base, Face 1.

Photo 67: Surface Collection, N915 E980: Object # 138.001, Undiagnosed Projectile Point Base, Face 2.

Photo 68: Surface Collection, N965 E990: Object # 139.001, Small Bifacial Knife Tip, Face 1.

Photo 69: Surface Collection, N965 E990: Object # 139.001, Small Bifacial Knife Tip, Face 2.

Photo 70: Surface Collection, N965 E990: Object # 139.001, Small Bifacial Knife Tip, Profile.

Photo 71: Anomaly 11 (N976 E993), plow zone: Object # 141.001, Drill, Face 1.

Photo 72: Anomaly 11 (N976 E993), plow zone: Object # 141.001, Drill, Face 2.

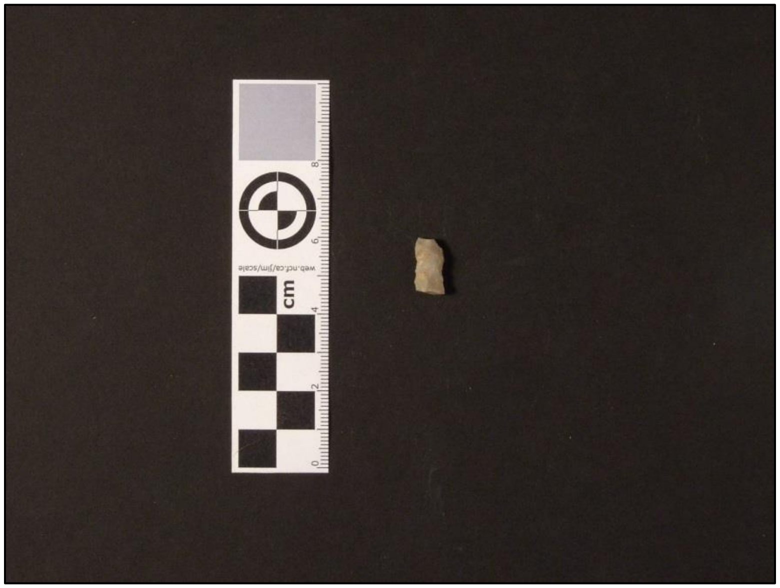

Photo 73: Anomaly 8 (N968 E989.5), plow zone: Object # 142.010, Bifacial Bladelet, Face 1.

Photo 74: Anomaly 8 (N968 E989.5), plow zone: Object # 142.010, Bifacial Bladelet, Face 2.

Photo 75: Anomaly 16 (N979 E958), plow zone: Object # 187.064, Unifacial Bladelet, Face 1.

Photo 76: Anomaly 16 (N979 E958), plow zone: Object # 187.064, Unifacial Bladelet, Face 2.

Photo 77: Anomaly 16 (N979 E958), plow zone: Object # 187.108, Burin, Face 1.

Photo 78: Anomaly 16 (N979 E958), plow zone: Object # 187.108, Burin, Face 2.

Photo 79: Anomaly 17 (N957 E949), plow zone: Object # 189.001, Bifacial Knife, Face 1.

Photo 80: Anomaly 17 (N957 E949), plow zone: Object # 189.001, Bifacial Knife, Face 2.

Photo 81: Anomaly 17 (N957 E949), plow zone: Object # 189.001, Bifacial Knife, Profile.

Photo 82: Anomaly 17 (N957 E949), Level 2: Object # 196.058, Scraper, Face 1.

Photo 83: Anomaly 17 (N957 E949), Level 2: Object # 196.058, Scraper, Face 2.

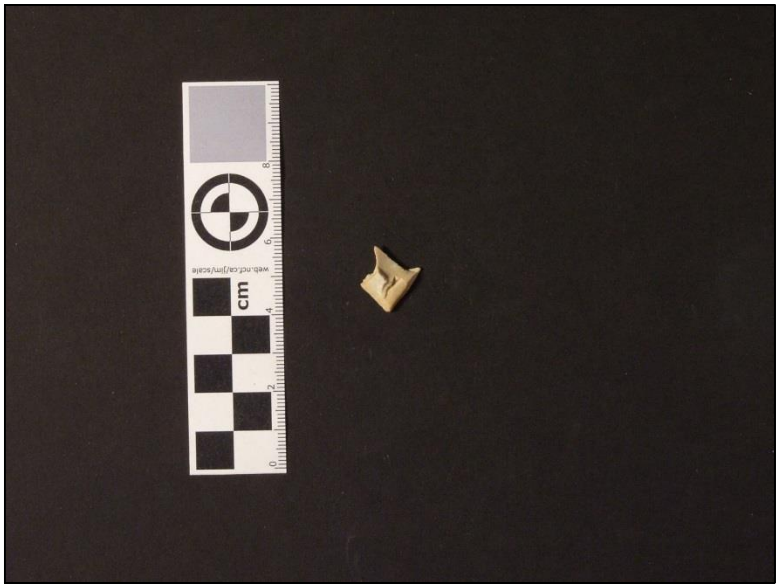

Photo 84: Anomaly 17 (N957 E949), Level 2: Object # 196.059, Burin, Face 1.

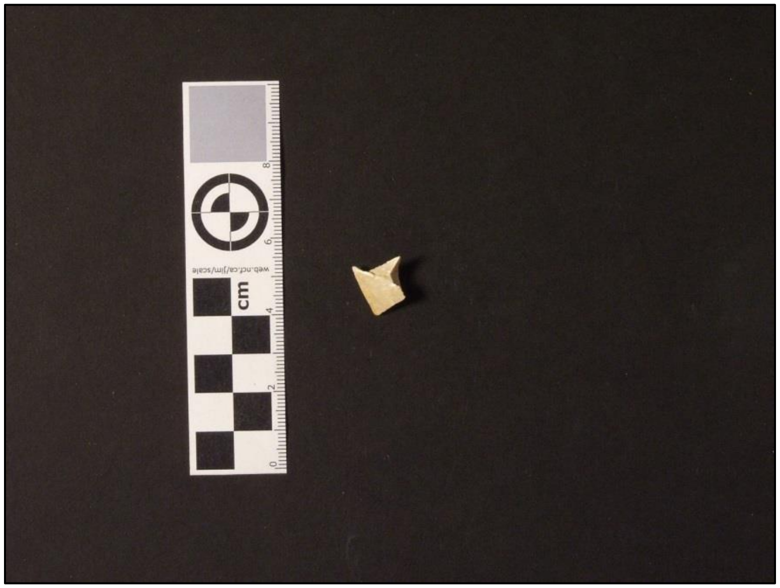

Photo 85: Anomaly 17 (N957 E949), Level 2: Object # 196.059, Burin, Face 2.

Photo 86: Anomaly 12 (N929 E984), Level 4: Object # 199.007, Undiagnosed Projectile Point Base, Face 1.

Photo 87: Anomaly 12 (N929 E984), Level 4: Object # 199.007, Undiagnosed Projectile Point Base, Face 2.

APPENDIX D
BOTANICAL ANALYSIS REPORT

Site 33HY0167 Archaeobotany, May 2015

Kathryn E. Parker, M.A., Independent Consultant

Botanical remains recovered from archaeological excavations at 33HY0167, defined as a possible Paleoindian/ Early Archaic site, were analyzed and identified. Plant materials were scarce, but included charred wood and a single seed from flotation sampling of features and soil anomalies.

Methods of Flotation and Analysis

A total of seven sediment samples from 33HY0167 were water floated by hand using a five gallon plastic bucket filled with warm water, to which had been added 75 ml of sodium bicarbonate (baking soda) as a deflocculant. Sample volume ranged from 650 to 750 ml. Each was poured slowly into the water-filled bucket and agitated gently by hand. Any materials that floated (the light fraction) were skimmed off using a #40 mesh dip net and placed on newspaper labeled with sample provenience. Sediment remaining in the bucket, and any non-floating materials (the heavy fraction) were rinsed onto a fine mesh square of nylon fabric, and placed near the sample light fraction on the same newspaper.

After drying for several days, each sample was separated into two size fractions with the aid of a No.10 geological sieve (2 mm mesh). Using a standard binocular microscope at low magnification (10x), any carbonized materials observed in both the large (>2 mm) and small (<2 mm) fractions were extracted. Because 33HY1067 was potentially very early in the prehistoric sequence (Paleo/Early Archaic), and botanical materials in the samples were scant, an attempt was made to examine and identify all remains, regardless of size.

Botanical identifications (wood and one seed) were based on morphological characteristics, with reference to a collection of modern comparative specimens and standard pictorial guides (e.g. Hoadley 1990; Martin and Barkley 1961). Scientific nomenclature and specific floristic information follows the United States Department of Agriculture website, http://www. plants.usda.gov/java/factsheet. Wood fragments examined but found to be unidentifiable at least to the taxonomic level of family were grouped into broad categories that included: ring porous hardwood, diffuse porous hardwood, and unidentifiable. Ring porous woods may be from any of several common tree types native to the northwest Ohio region, such as oak (*Quercus* spp.), hickory (*Carya* spp.), and ash (*Fraxinus* spp.). Among the more common diffuse porous trees are basswood (*Tilia americana*) and maple (*Acer* spp.). The unidentifiable category incorporates wood in which no diagnostic morphology could be observed.

Results of Analysis

Three of the seven samples yielded charred botanical materials, but only two, from Features 11.1 and 14.3, had identifiable remains. Small flecks of carbonized wood from Feature 10.1 (Sample G) were unidentifiable. At least two different tree taxa were represented among 67 wood fragments (1.38 g) from Feature 11.1 (Sample D). These included hickory (*Carya* sp.) and basswood (*Tilia americana*). Both represent trees common to the northern Ohio area. A third taxon with distinctive morphology (widely scattered thick-walled pores and barely visible growth rings), did not compare with any specimens in a reference collection nor with pictorial guides, and may be from a shrub. In addition to the two identified taxa and the one unknown wood type, the Feature 11.1 sample contained ring porous, diffuse porous, and unidentifiable wood fragments.

One carbonized seed of blackberry/ raspberry (*Rubus* sp.) was identified in the Feature 14.3 sample. Other blackened material in the sample was determined to be ground wasp nest rather than botanical in origin.

The macrobotanical remains offers few clues to early prehistoric occupation at 33HY0167. It is only in highly unusual circumstances that charred remains survive several millennia in mid-latitude North America. In addition to extreme age, two of the samples, especially from Feature 8.1, but also Feature 14.1, contained high concentrations of gravel, which is particularly detrimental to organic preservation. Shale or slate fragments that may relate to pit function were noted in the Feature 14.1 sample taken from Level 2, the base of the feature.

The two tree taxa represented in identified wood, hickory and basswood, occur commonly in the region, and could have been collected easily as fuel. Basswood has little fuel value, in contrast to hickory, which is well-known for its excellent burning properties. However, it is likely that proximity and ease of acquisition were the primary determinants of firewood collection for short term visitors to this locale. The single burned *Rubus* seed appeared questionable in an assemblage that otherwise had so few identifiable remains, especially no thick nutshell, the most preservable of all archaeobotanical remains. Because the seed was associated in the Feature 14.3 sample with ground wasp nest material, there is a possibility that it was introduced into this deposit by insects or some other disturbance.

References

Hoadley, R. Bruce
1990 *Identifying Wood: Accurate Results with Simple Tools*. The Taunton Press, Newtown, Connecticut.

Martin, Alexander C., and William D. Barkley
1961 *Seed Identification Manual*. University of California Press, Berkley.

United States Department of Agriculture, Natural Resources Conservation Service.
2014 *Fact Sheets and Plant Guides*. http://www. plants.usda.gov/java/factSheet

<u>Site 33HY0167 Archaeobotany, December 2015</u>

Kathryn E. Parker, M.A., Independent Consultant

Sediment samples were collected for flotation during archaeological excavations at 33HY0167, defined in earlier investigations as a possible Paleoindian/ Early Archaic site. Plant materials were rarely observed during flotation processing, and subsequent analysis showed recovery was limited to miniscule fragments of charred wood and a single seed.

<u>Methods of Flotation and Analysis</u>

A total of eight sediment samples from 33HY0167 were water floated using a five gallon plastic bucket filled with warm water, to which had been added 75 ml of sodium bicarbonate (baking soda) as a deflocculant. Sample volume ranged from 95 ml to 2.5 l. Each was poured slowly into the water-filled bucket and agitated gently by hand. Any materials that floated (the light fraction) were skimmed off using a #40 mesh dip net and placed on newspaper labeled with sample provenience. This process was repeated until no additional floating remains were observed. The heavy fraction in the bottom of the bucket was poured through a sieve lined with #40 mesh nylon, and deposited near the light fraction of the same sample. After drying for several days, each sample was separated into two size fractions with the aid of a No.10 geological sieve (2 mm mesh). Using a standard binocular microscope at low magnification (10x), any carbonized materials observed in both the large (>2 mm) and small (<2 mm) fractions were extracted. Because 33HY1067 was potentially very early in the prehistoric sequence (Paleo/Early Archaic), and botanical materials in the samples were scant, an attempt was made to examine and identify all remains, regardless of size.

Botanical identifications were attempted for all carbonized remains, with reference to a collection of modern comparative specimens and standard pictorial guides (e.g. Hoadley 1990; Martin and Barkley 1961). None of these remains were identifiable. However, based on general pore structure, several pieces of wood could be categorized as ring porous hardwood, which may be from any of several common tree types native to northwest Ohio, including oak (*Quercus* sp.), hickory (*Carya* sp.), and ash (*Fraxinus* sp.). One additional fragment was a diffuse porous taxon, in this region a group that includes maple (*Acer* sp.), basswood (*Tilia americana*), and sycamore (*Platanus occidentalis*). The unidentifiable category, predominant in this analysis, incorporated wood in which no diagnostic morphology was present.

Results of Analysis

Similar to the results of prior 33HY0167 flotation analysis, only three out of eight samples yielded charred botanical materials. However, the earlier recovery effort yielded identifiable wood (hickory and basswood) as well as a raspberry/ blackberry seed, while the current attempt produced only twelve small charred wood flecks (total of 0.06 g) from Feature 17.1, 17.2, and 17.3 (Samples 23, 25, 26). It was ascertained, based on general pore structure, that two different tree types - a ring porous taxon, and the other diffuse porous, were represented in this set of samples. A single unidentifiable partial carbonized seed was recovered from Feature 17.3.

The scant macrobotanical remains recovered unfortunately do not expand on results of the previous analysis, and thus offer no additional data or interpretations regarding early prehistoric human/ plant relationships at 33HY0167.

References

Hoadley, R. Bruce
1990 *Identifying Wood: Accurate Results with Simple Tools*. The Taunton Press, Newtown, Connecticut.

Martin, Alexander C., and William D. Barkley
1961 *Seed Identification Manual*. University of California Press, Berkley.

APPENDIX E
RADIOMETRIC DATING REPORT

BETA

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Beta@radiocarbon.com
www.radiocarbon.com

Darden Hood
President

Ronald Hatfield
Christopher Patrick
Deputy Directors

May 11, 2015

Ms. Kate Hayfield
Mannik & Smith Group, Inc.
1800 Indian Wood Circle
Maumee, OH 43537
USA

RE: Radiocarbon Dating Results For Samples SAMPLE A, SAMPLE B, SAMPLE C, SAMPLE D

Dear Ms. Hayfield:

Enclosed are the radiocarbon dating results for four samples recently sent to us. As usual, the method of analysis is listed on the report with the results and calibration data is provided where applicable. The Conventional Radiocarbon Ages have all been corrected for total fractionation effects and where applicable, calibration was performed using 2013 calibration databases (cited on the graph pages).

The web directory containing the table of results and PDF download also contains pictures, a cvs spreadsheet download option and a quality assurance report containing expected vs. measured values for 3-5 working standards analyzed simultaneously with your samples.

Reported results are accredited to ISO/IEC 17025:2005 Testing Accreditation PJLA #59423 standards and all chemistry was performed here in our laboratories and counted in our own accelerators here in Miami. Since Beta is not a teaching laboratory, only graduates trained to strict protocols of the ISO/IEC 17025:2005 Testing Accreditation PJLA #59423 program participated in the analyses.

As always Conventional Radiocarbon Ages and sigmas are rounded to the nearest 10 years per the conventions of the 1977 International Radiocarbon Conference. When counting statistics produce sigmas lower than +/- 30 years, a conservative +/- 30 BP is cited for the result.

When interpreting the results, please consider any communications you may have had with us regarding the samples. As always, your inquiries are most welcome. If you have any questions or would like further details of the analyses, please do not hesitate to contact us.

The cost of the analysis was charged to the VISA card provided. Thank you. As always, if you have any questions or would like to discuss the results, don’t hesitate to contact me.

Sincerely,

Darden Hood

Digital signature on file

BETA ANALYTIC INC.
DR. M.A. TAMERS and MR. D.G. HOOD
4985 S.W. 74 COURT
MIAMI, FLORIDA, USA 33155
PH: 305-667-5167 FAX:305-663-0964
beta@radiocarbon.com

REPORT OF RADIOCARBON DATING ANALYSES

Ms. Kate Hayfield — Report Date: 5/11/2015

Mannik & Smith Group, Inc. — Material Received: 5/1/2015

Sample Data	Measured Radiocarbon Age	d13C	Conventional Radiocarbon Age(*)
Beta - 409953	970 +/- 30 BP	-26.1 o/oo	950 +/- 30 BP

SAMPLE : SAMPLE A
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal AD 1020 to 1160 (Cal BP 930 to 790)

Sample Data	Measured Radiocarbon Age	d13C	Conventional Radiocarbon Age(*)
Beta - 409954	980 +/- 30 BP	-27.6 o/oo	940 +/- 30 BP

SAMPLE : SAMPLE B
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal AD 1020 to 1165 (Cal BP 930 to 785)

Sample Data	Measured Radiocarbon Age	d13C	Conventional Radiocarbon Age(*)
Beta - 409955	190 +/- 30 BP	-28.0 o/oo	140 +/- 30 BP

SAMPLE : SAMPLE C
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal AD 1667 to 1782 (Cal BP 283 to 168) and Cal AD 1797 to 1894 (Cal BP 153 to 56) and Cal AD 1904 to Post 1950 (Cal BP 46 to Post 0)

Sample Data	Measured Radiocarbon Age	d13C	Conventional Radiocarbon Age(*)
Beta - 409956	1970 +/- 30 BP	-25.3 o/oo	1970 +/- 30 BP

SAMPLE : SAMPLE D
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal BC 40 to AD 80 (Cal BP 1990 to 1870)

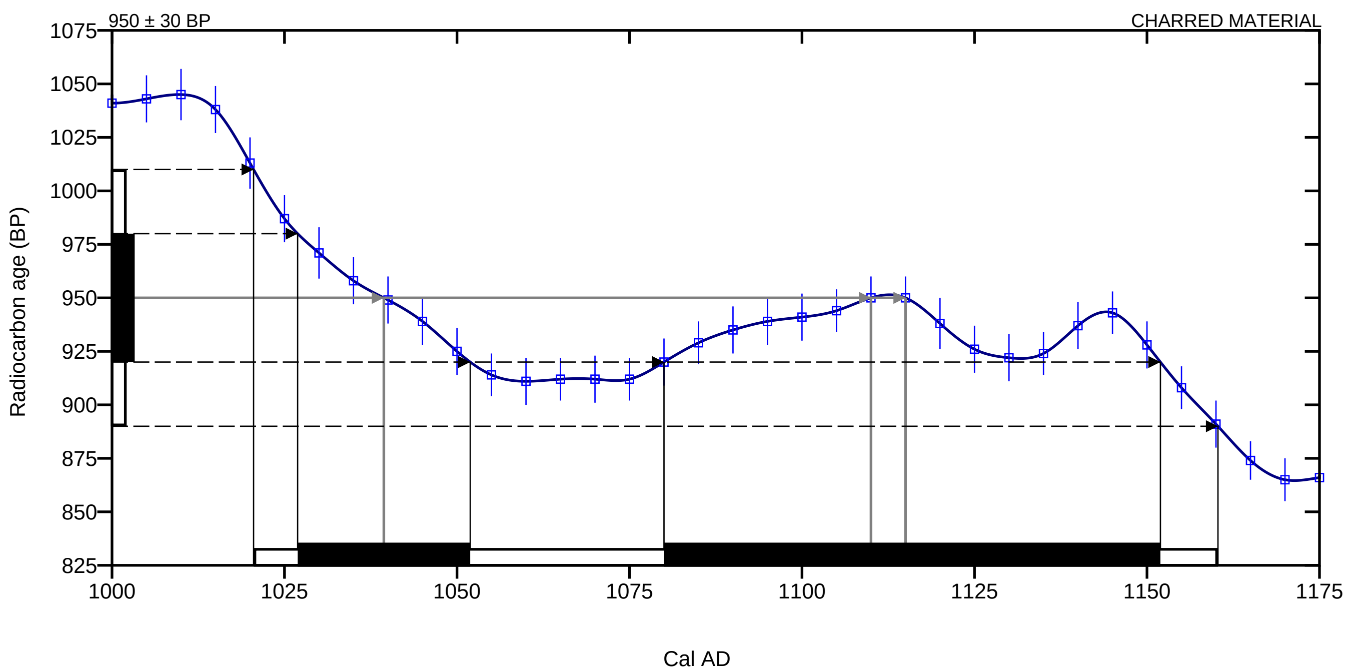
Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "*". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12 = -26.1 o/oo : lab. mult = 1)

Laboratory number	**Beta-409953**
Conventional radiocarbon age	**950 ± 30 BP**
Calibrated Result (95% Probability)	**Cal AD 1020 to 1160 (Cal BP 930 to 790)**
Intercept of radiocarbon age with calibration curve	Cal AD 1040 (Cal BP 910) Cal AD 1110 (Cal BP 840) Cal AD 1115 (Cal BP 835)
Calibrated Result (68% Probability)	Cal AD 1025 to 1050 (Cal BP 925 to 900) Cal AD 1080 to 1150 (Cal BP 870 to 800)



Database used

INTCAL13

References

Mathematics used for calibration scenario

A Simplified Approach to Calibrating C14 Dates, Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322

References to INTCAL13 database

Reimer PJ et al. IntCal13 and Marine13 radiocarbon age calibration curves 0–50,000 years cal BP. Radiocarbon 55(4):1869–1887., 2013.

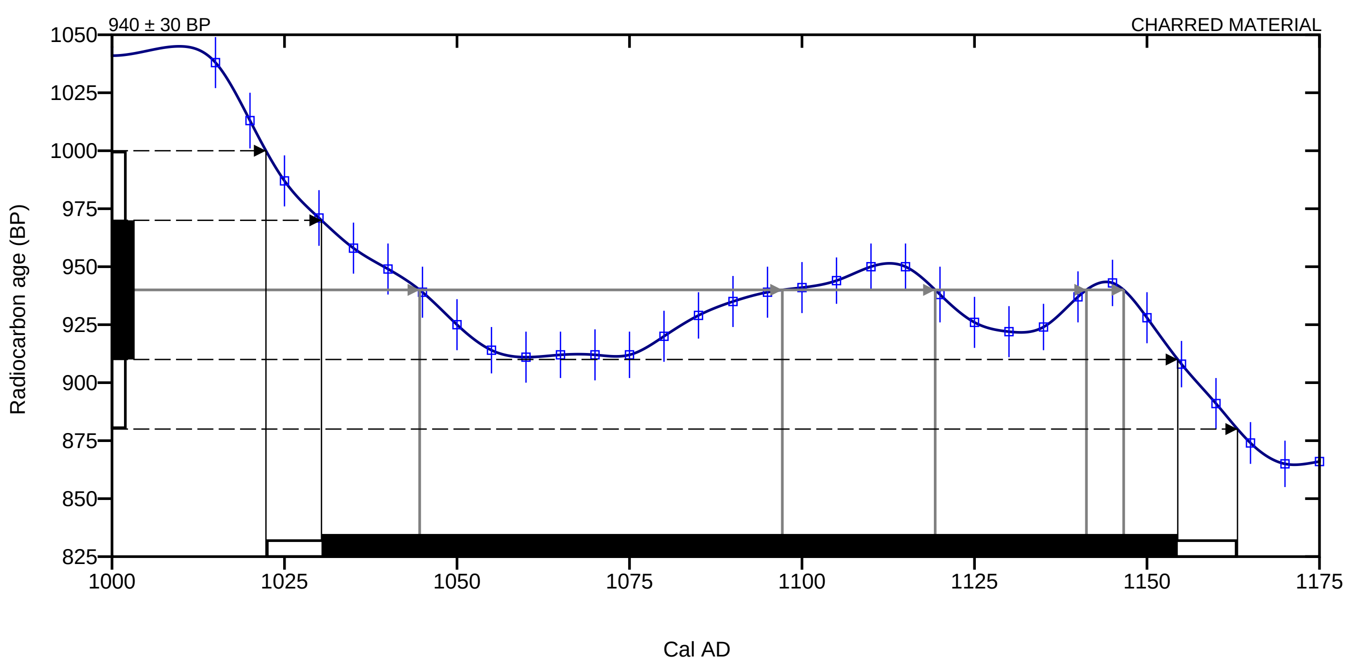
Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • Email: beta@radiocarbon.com

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12 = -27.6 o/oo : lab. mult = 1)

Laboratory number	**Beta-409954**
Conventional radiocarbon age	**940 ± 30 BP**
Calibrated Result (95% Probability)	**Cal AD 1020 to 1165 (Cal BP 930 to 785)**
Intercept of radiocarbon age with calibration curve	Cal AD 1045 (Cal BP 905) Cal AD 1095 (Cal BP 855) Cal AD 1120 (Cal BP 830) Cal AD 1140 (Cal BP 810) Cal AD 1145 (Cal BP 805)
Calibrated Result (68% Probability)	Cal AD 1030 to 1155 (Cal BP 920 to 795)



Database used

INTCAL13

References

Mathematics used for calibration scenario

A Simplified Approach to Calibrating C14 Dates, Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322

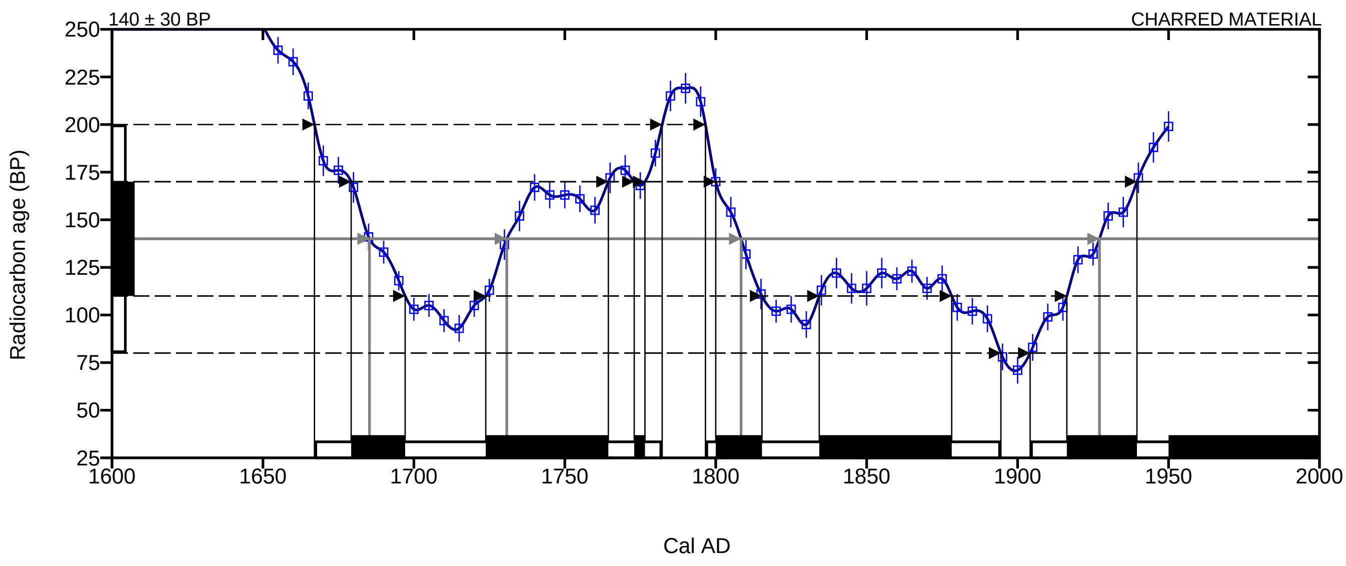
References to INTCAL13 database

Reimer PJ et al. IntCal13 and Marine13 radiocarbon age calibration curves 0–50,000 years cal BP. Radiocarbon 55(4):1869–1887., 2013.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12 = -28 o/oo : lab. mult = 1)

Laboratory number	**Beta-409955**
Conventional radiocarbon age	**140 ± 30 BP**
Calibrated Result (95% Probability)	**Cal AD 1667 to 1782 (Cal BP 283 to 168)** **Cal AD 1797 to 1894 (Cal BP 153 to 56)** **Cal AD 1904 to Post 1950 (Cal BP 46 to Post 0)**
Intercept of radiocarbon age with calibration curve	Cal AD 1685 (Cal BP 265) Cal AD 1731 (Cal BP 219) Cal AD 1808 (Cal BP 142) Cal AD 1927 (Cal BP 23) Post AD 1950 (Post BP 0)
Calibrated Result (68% Probability)	Cal AD 1679 to 1697 (Cal BP 271 to 253) Cal AD 1724 to 1764 (Cal BP 226 to 186) Cal AD 1773 to 1777 (Cal BP 177 to 173) Cal AD 1800 to 1815 (Cal BP 150 to 135) Cal AD 1834 to 1878 (Cal BP 116 to 72) Cal AD 1916 to 1940 (Cal BP 34 to 10) Post AD 1950 (Post BP 0)



Database used
INTCAL13

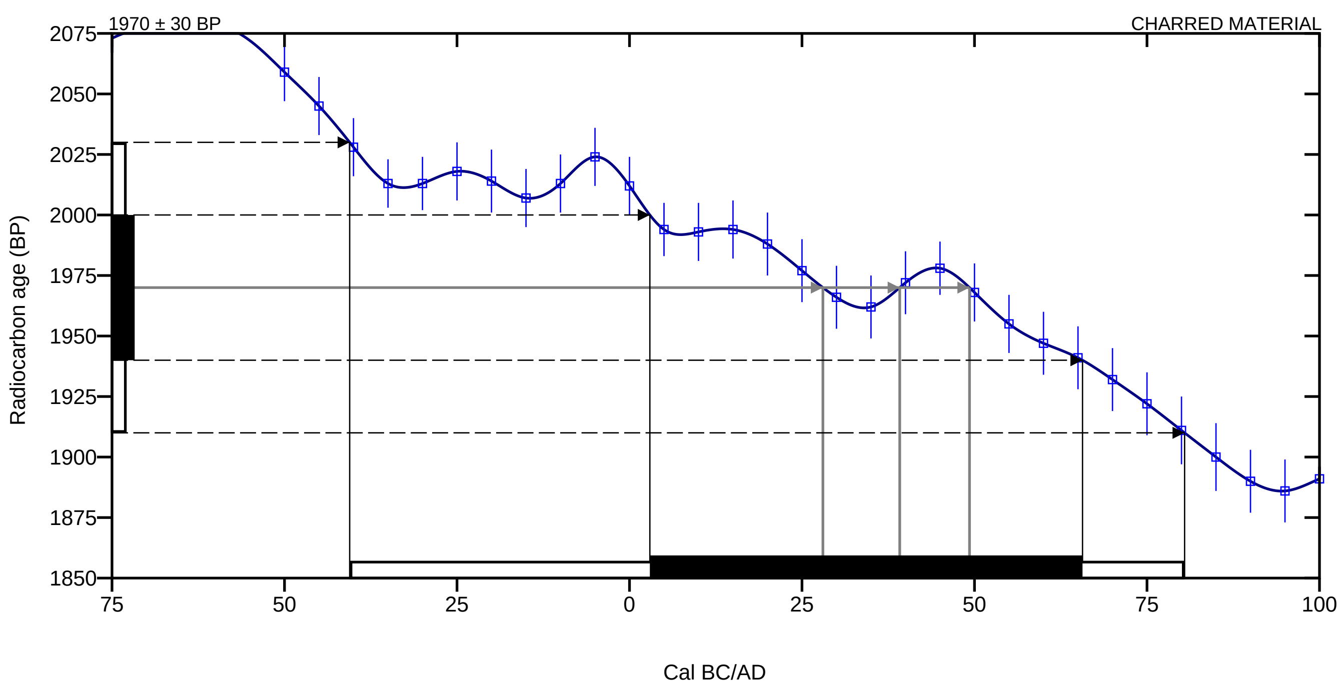
References

Mathematics used for calibration scenario
A Simplified Approach to Calibrating C14 Dates, Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322
References to INTCAL13 database
Reimer PJ et al. IntCal13 and Marine13 radiocarbon age calibration curves 0–50,000 years cal BP. Radiocarbon 55(4):1869–1887., 2013.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12 = -25.3 o/oo : lab. mult = 1)

Laboratory number	**Beta-409956**
Conventional radiocarbon age	**1970 ± 30 BP**
Calibrated Result (95% Probability)	**Cal BC 40 to AD 80 (Cal BP 1990 to 1870)**
Intercept of radiocarbon age with calibration curve	Cal AD 30 (Cal BP 1920) Cal AD 40 (Cal BP 1910) Cal AD 50 (Cal BP 1900)
Calibrated Result (68% Probability)	Cal AD 5 to 65 (Cal BP 1945 to 1885)



Database used

INTCAL13

References

Mathematics used for calibration scenario

A Simplified Approach to Calibrating C14 Dates, Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322

References to INTCAL13 database

Reimer PJ et al. IntCal13 and Marine13 radiocarbon age calibration curves 0–50,000 years cal BP. Radiocarbon 55(4):1869–1887., 2013.

From: Chris Patrick <cpatrick@radiocarbon.com>
To: Kate Hayfield <KHayfield@manniksmithgroup.com>
Date: 5/5/2015 4:05 PM
Subject: RE: Message from Beta Analytic C-14 sample B409957

Kate

Ok we will cancel this sample. I hope that you may be able to find another sample.

Sincerely,

Chris Patrick
Deputy Director / Technical Manager
Beta Analytic, Inc
4985 SW 74th Court
Miami, FL 33155 U.S.A.
Tel: (01) 305-667-5167 / Fax: (01) 305-663-0964
www.radiocarbon.com<http://www.radiocarbon.com/>

From: Kate Hayfield [mailto:KHayfield@manniksmithgroup.com]
Sent: Tuesday, May 05, 2015 3:28 PM
To: Chris Patrick
Subject: Re: Message from Beta Analytic C-14 sample B409957

Mr. Patrick,
Please cancel the dating of Sample E. Thank you for the notice.

Kate

Kate J. Hayfield
Cultural Resources
The Mannik & Smith Group, Inc.
419-891-2222 x195 (Office)
419-429-9163 (Cell)
www.manniksmithgroup.com<http://www.manniksmithgroup.com/>
[cid:image004.png@01D0874D.38A20C40]
>>> Chris Patrick <cpatrick@radiocarbon.com<mailto:cpatrick@radiocarbon.com>> 5/5/2015 2:16 PM >>>

Ms. Hayfield

We have completed the pretreatment of your samples. The sample listed below did not yield any charcoal when it was sieved through a 180 micron sieve. It has been treated with acid to remove any carbonates. The darker areas seem to have been only on the surface.

Beta-409957-SAMPLE_E-PRETREATED_SAMPLE_.jpg 3.6 grams sediment
Please let me know if you wish cancel or date the sediment. Sediment dates should generally assumed to be minimum age dates because it is possible that younger material from above may have washed down. It is possible, however, that older carbon may have been incorporated also. Sediment is not generally given a pretreatment to remove mobile humic acids. You must also consider the source of the carbon in the sediment. In flood plains it may be composed of carbon from several sources which may have been younger or older than the level it was deposited in. It is also possible to have a mobile water table that can bring in carbon of different ages. There may also be other situations in which older carbon

(than the sample level) may be mixed in. This is why the most accurate dates come from short lived single-component materials which have been well preserved and are suitable for rigorous acid/alkali pretreatments.

Sincerely,

Chris Patrick
Deputy Director / Technical Manager
Beta Analytic, Inc
4985 SW 74th Court
Miami, FL 33155 U.S.A.
Tel: (01) 305-667-5167 / Fax: (01) 305-663-0964
www.radiocarbon.com<http://www.radiocarbon.com/>

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Beta@radiocarbon.com
www.radiocarbon.com

Darden Hood
President

Ronald Hatfield
Christopher Patrick
Deputy Directors

December 8, 2015

Mr. Phillip Bauschard
Mannik and Smith Group
1800 Indianwood Circle
Maumee, OH 43537
United States

RE: Radiocarbon Dating Results For Samples Sample F, Sample H, Sample I

Dear Mr. Bauschard:

Enclosed are the radiocarbon dating results for three samples recently sent to us. The report sheet contains the Conventional Radiocarbon Age (BP), the method used, material type, and applied pretreatments, any sample specific comments and, where applicable, the two-sigma calendar calibration range. The Conventional Radiocarbon ages have been corrected for total isotopic fractionation effects (natural and laboratory induced).

All results (excluding some inappropriate material types) which fall within the range of available calibration data are calibrated to calendar years (cal BC/AD) and calibrated radiocarbon years (cal BP). Calibration was calculated using the one of the databases associated with the 2013 INTCAL program (cited in the references on the bottom of the calibration graph page provided for each sample.) Multiple probability ranges may appear in some cases, due to short-term variations in the atmospheric ^{14}C contents at certain time periods. Looking closely at the calibration graph provided and where the BP sigma limits intercept the calibration curve will help you understand this phenomenon.

Conventional Radiocarbon Ages and sigmas are rounded to the nearest 10 years per the conventions of the 1977 International Radiocarbon Conference. When counting statistics produce sigmas lower than +/- 30 years, a conservative +/- 30 BP is cited for the result.

All work on these samples was performed in our laboratories in Miami under strict chain of custody and quality control under ISO/IEC 17025:2005 Testing Accreditation PJLA #59423 accreditation protocols. Sample, modern and blanks were all analyzed in the same chemistry lines by qualified professional technicians using identical reagents and counting parameters within our own particle accelerators. A quality assurance report is posted to your directory for each result.

The cost of the analysis was charged to the VISA card provided. Thank you. As always, if you have any questions or would like to discuss the results, don't hesitate to contact me.

Sincerely,

Darden Hood
Digital signature on file

BETA ANALYTIC INC.
DR. M.A. TAMERS and MR. D.G. HOOD
4985 S.W. 74 COURT
MIAMI, FLORIDA, USA 33155
PH: 305-667-5167 FAX:305-663-0964
beta@radiocarbon.com

REPORT OF RADIOCARBON DATING ANALYSES

Mr. Phillip Bauschard — Report Date: 12/8/2015

Mannik and Smith Group — Material Received: 11/25/2015

Sample Data	Measured Radiocarbon Age	d13C	Conventional Radiocarbon Age(*)
Beta - 424859	150 +/- 30 BP	-26.4 o/oo	130 +/- 30 BP

SAMPLE : Sample F
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal AD 1670 to 1780 (Cal BP 280 to 170) and Cal AD 1800 to Post 1950 (Cal BP 150 to Post 0)

Sample Data	Measured Radiocarbon Age	d13C	Conventional Radiocarbon Age(*)
Beta - 424861	1610 +/- 30 BP	-25.2 o/oo	1610 +/- 30 BP

SAMPLE : Sample H
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal AD 390 to 540 (Cal BP 1560 to 1410)

Sample Data	Measured Radiocarbon Age	d13C	Conventional Radiocarbon Age(*)
Beta - 424862	25200 +/- 110 BP	-29.3 o/oo	25130 +/- 110 BP

SAMPLE : Sample I
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (organic sediment): acid washes
2 SIGMA CALIBRATION : Cal BC 27480 to 26955 (Cal BP 29430 to 28905)

Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "*". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12 = -26.4 o/oo : lab. mult = 1)

Laboratory number **Beta-424859 : SAMPLE F**

Conventional radiocarbon age **130 ± 30 BP**

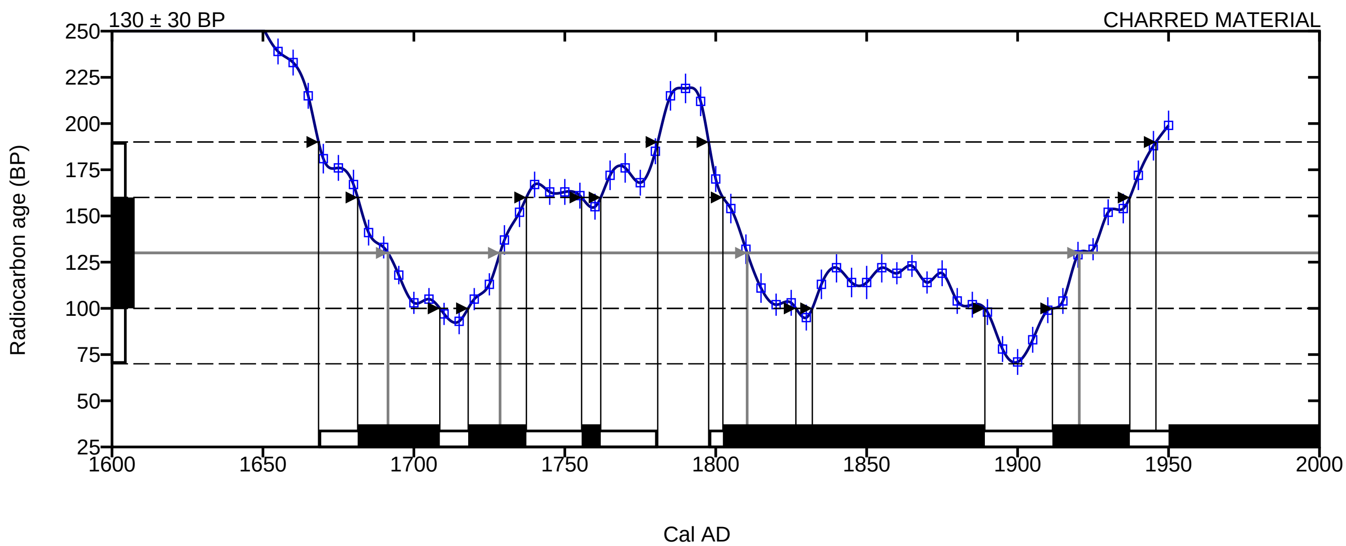
Calibrated Result (95% Probability) **Cal AD 1670 to 1780 (Cal BP 280 to 170)**
Cal AD 1800 to Post 1950 (Cal BP 150 to Post 0)

Intercept of radiocarbon age with calibration curve

Cal AD 1690 (Cal BP 260)
Cal AD 1730 (Cal BP 220)
Cal AD 1810 (Cal BP 140)
Cal AD 1920 (Cal BP 30)
Post AD 1950 (Post BP 0)

Calibrated Result (68% Probability)

Cal AD 1680 to 1710 (Cal BP 270 to 240)
Cal AD 1720 to 1735 (Cal BP 230 to 215)
Cal AD 1755 to 1760 (Cal BP 195 to 190)
Cal AD 1800 to 1890 (Cal BP 150 to 60)
Cal AD 1910 to 1935 (Cal BP 40 to 15)
Post AD 1950 (Post BP 0)



Database used
INTCAL13

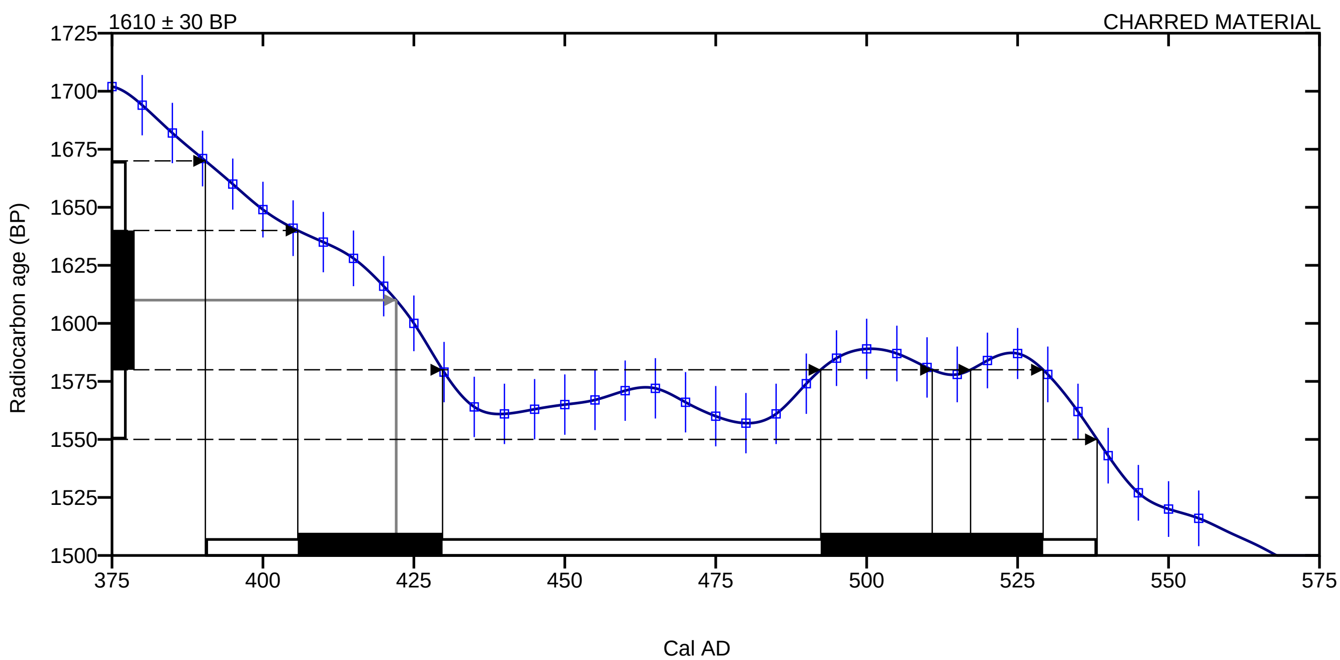
References

Mathematics used for calibration scenario
A Simplified Approach to Calibrating C14 Dates, Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322
References to INTCAL13 database
Reimer PJ et al. IntCal13 and Marine13 radiocarbon age calibration curves 0– 50,000 years cal BP. Radiocarbon 55(4):1869– 1887., 2013.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12 = -25.2 o/oo : lab. mult = 1)

Laboratory number	**Beta-424861 : SAMPLE H**
Conventional radiocarbon age	**1610 ± 30 BP**
Calibrated Result (95% Probability)	**Cal AD 390 to 540 (Cal BP 1560 to 1410)**
Intercept of radiocarbon age with calibration curve	Cal AD 420 (Cal BP 1530)
Calibrated Result (68% Probability)	Cal AD 405 to 430 (Cal BP 1545 to 1520) Cal AD 490 to 530 (Cal BP 1460 to 1420)



Database used

INTCAL13

References

Mathematics used for calibration scenario

A Simplified Approach to Calibrating C14 Dates, Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322

References to INTCAL13 database

Reimer PJ et al. IntCal13 and Marine13 radiocarbon age calibration curves 0– 50,000 years cal BP. Radiocarbon 55(4):1869– 1887., 2013.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12 = -29.3 o/oo : lab. mult = 1)

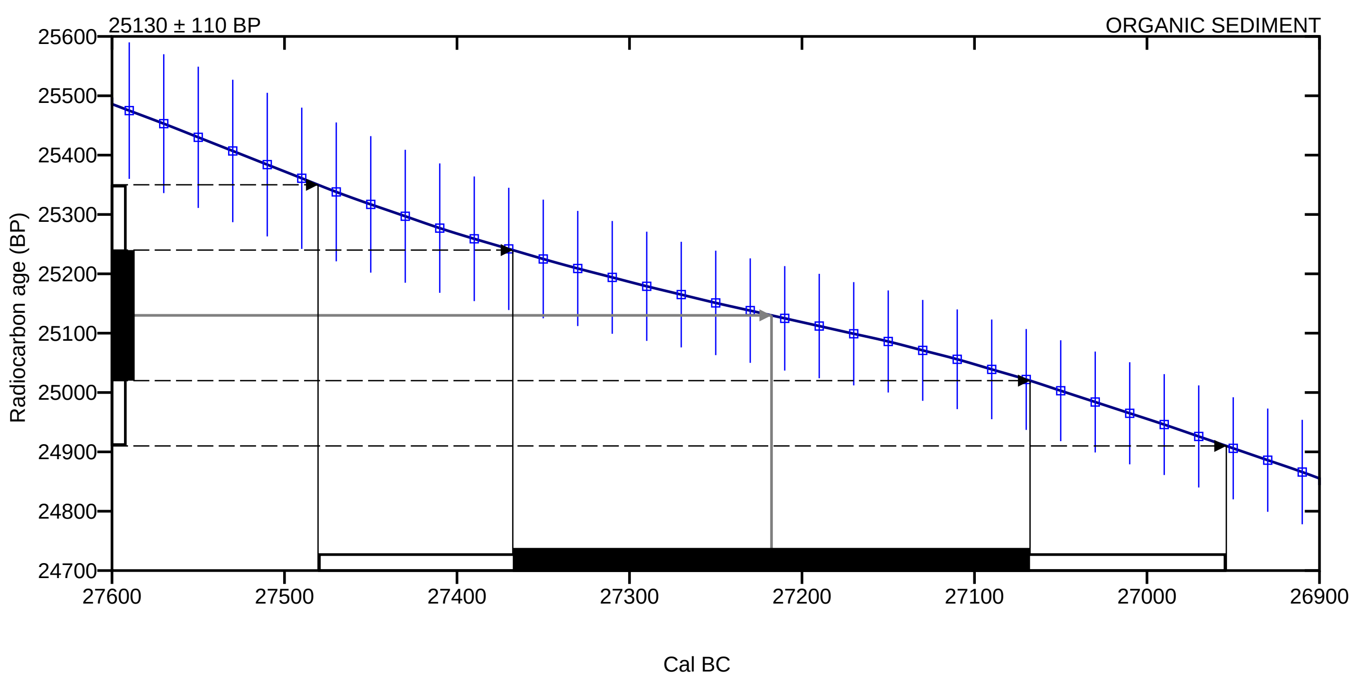
Laboratory number **Beta-424862 : SAMPLE I**

Conventional radiocarbon age **25130 ± 110 BP**

Calibrated Result (95% Probability) **Cal BC 27480 to 26955 (Cal BP 29430 to 28905)**

Intercept of radiocarbon age with calibration curve Cal BC 27220 (Cal BP 29170)

Calibrated Result (68% Probability) Cal BC 27370 to 27070 (Cal BP 29320 to 29020)



Database used

INTCAL13

References

Mathematics used for calibration scenario

A Simplified Approach to Calibrating C14 Dates, Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322

References to INTCAL13 database

Reimer PJ et al. IntCal13 and Marine13 radiocarbon age calibration curves 0–50,000 years cal BP. Radiocarbon 55(4):1869–1887., 2013.

Beta Analytic Radiocarbon Dating Laboratory

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Miami, Florida 33155 USA
Tel: 305 667 5167
Fax: 305 663 0964
Beta@radiocarbon.com
www.radiocarbon.com

Darden Hood
President

Ronald Hatfield
Christopher Patrick
Deputy Directors

December 18, 2015

Mr. Phillip Bauschard
Mannik and Smith Group
1800 Indianwood Circle
Maumee, OH 43537
United States

RE: Radiocarbon Dating Result For Sample Sample G

Dear Mr. Bauschard:

Enclosed is the radiocarbon dating result for one sample recently sent to us. As usual, specifics of the analysis are listed on the report with the result and calibration data is provided where applicable. The Conventional Radiocarbon Age has been corrected for total fractionation effects and where applicable, calibration was performed using 2013 calibration databases (cited on the graph pages).

The web directory containing the table of results and PDF download also contains pictures, a cvs spreadsheet download option and a quality assurance report containing expected vs. measured values for 3-5 working standards analyzed simultaneously with your samples.

The reported result is accredited to ISO/IEC 17025:2005 Testing Accreditation PJLA #59423 standards and all pretreatments and chemistry were performed here in our laboratories and counted in our own accelerators here in Miami. Since Beta is not a teaching laboratory, only graduates trained to strict protocols of the ISO/IEC 17025:2005 Testing Accreditation PJLA #59423 program participated in the analysis.

As always Conventional Radiocarbon Ages and sigmas are rounded to the nearest 10 years per the conventions of the 1977 International Radiocarbon Conference. When counting statistics produce sigmas lower than +/- 30 years, a conservative +/- 30 BP is cited for the result. The reported d13C was measured separately in an IRMS (isotope ratio mass spectrometer). It is NOT the AMS d13C which would include fractionation effects from natural, chemistry and AMS induced sources.

The cost of the analysis was charged to the VISA card provided. Thank you. As always, if you have any questions or would like to discuss the results, don't hesitate to contact me.

Sincerely,

Darden Hood

Digital signature on file

BETA ANALYTIC INC.
DR. M.A. TAMERS and MR. D.G. HOOD
4985 S.W. 74 COURT
MIAMI, FLORIDA, USA 33155
PH: 305-667-5167 FAX:305-663-0964
beta@radiocarbon.com

REPORT OF RADIOCARBON DATING ANALYSES

Mr. Phillip Bauschard | Report Date: 12/18/2015

Mannik and Smith Group | Material Received: 11/25/2015

Sample Data	Measured Radiocarbon Age	d13C	Conventional Radiocarbon Age(*)
Beta - 424860	3600 +/- 30 BP	-23.7 o/oo	3620 +/- 30 BP

SAMPLE : Sample G
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (organic sediment): acid washes
2 SIGMA CALIBRATION : Cal BC 2115 to 2100 (Cal BP 4065 to 4050) and Cal BC 2035 to 1900 (Cal BP 3985 to 3850)

Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "*". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12 = -23.7 o/oo : lab. mult = 1)

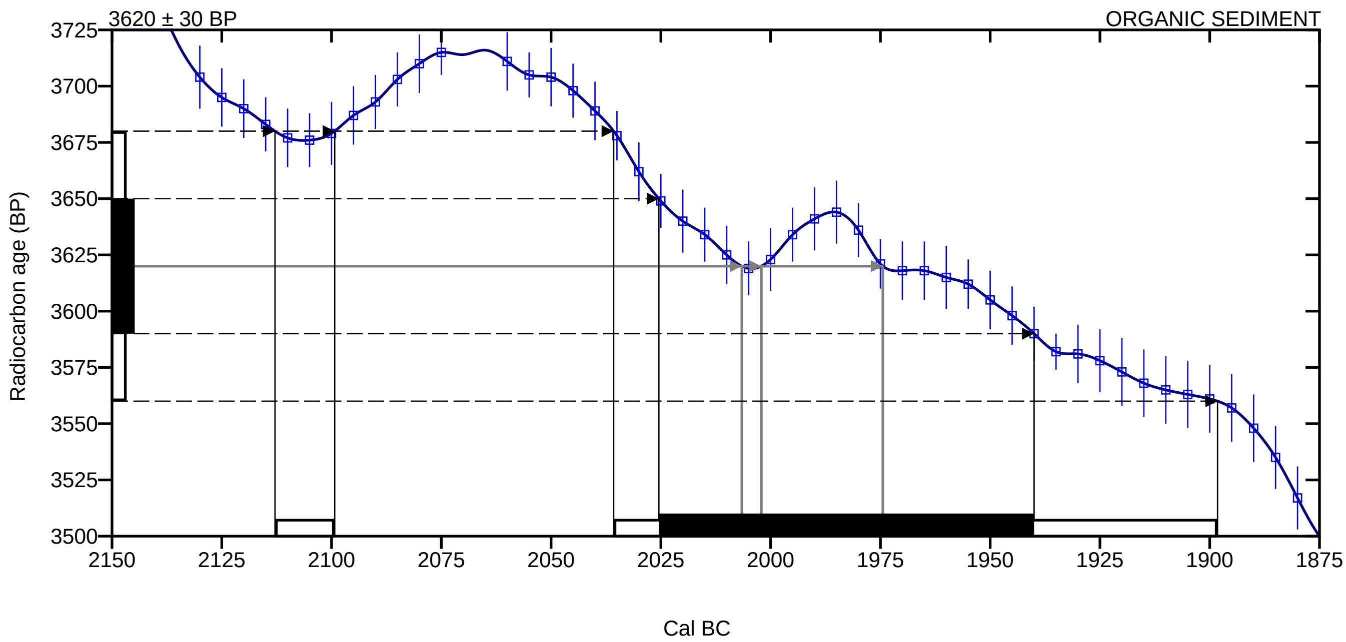
Laboratory number **Beta-424860 : SAMPLE G**

Conventional radiocarbon age **3620 ± 30 BP**

Calibrated Result (95% Probability) **Cal BC 2115 to 2100 (Cal BP 4065 to 4050)**
Cal BC 2035 to 1900 (Cal BP 3985 to 3850)

Intercept of radiocarbon age with calibration curve Cal BC 2005 (Cal BP 3955)
Cal BC 2000 (Cal BP 3950)
Cal BC 1975 (Cal BP 3925)

Calibrated Result (68% Probability) Cal BC 2025 to 1940 (Cal BP 3975 to 3890)



Database used
INTCAL13

References
Mathematics used for calibration scenario
A Simplified Approach to Calibrating C14 Dates, Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322
References to INTCAL13 database
Reimer PJ et al. IntCal13 and Marine13 radiocarbon age calibration curves 0– 50,000 years cal BP. Radiocarbon 55(4):1869– 1887., 2013.

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Ronald Hatfield
Christopher Patrick
Deputy Directors

December 28, 2015

Mr. Phillip Bauschard
Mannik and Smith Group
1800 Indianwood Circle
Maumee, OH 43537
United States

RE: Radiocarbon Dating Result For Sample Sample J

Dear Mr. Bauschard:

Enclosed is the radiocarbon dating result for one sample recently sent to us. As usual, specifics of the analysis are listed on the report with the result and calibration data is provided where applicable. The Conventional Radiocarbon Age has been corrected for total fractionation effects and where applicable, calibration was performed using 2013 calibration databases (cited on the graph pages).

The web directory containing the table of results and PDF download also contains pictures, a cvs spreadsheet download option and a quality assurance report containing expected vs. measured values for 3-5 working standards analyzed simultaneously with your samples.

The reported result is accredited to ISO/IEC 17025:2005 Testing Accreditation PJLA #59423 standards and all pretreatments and chemistry were performed here in our laboratories and counted in our own accelerators here in Miami. Since Beta is not a teaching laboratory, only graduates trained to strict protocols of the ISO/IEC 17025:2005 Testing Accreditation PJLA #59423 program participated in the analysis.

As always Conventional Radiocarbon Ages and sigmas are rounded to the nearest 10 years per the conventions of the 1977 International Radiocarbon Conference. When counting statistics produce sigmas lower than +/- 30 years, a conservative +/- 30 BP is cited for the result. The reported d13C was measured separately in an IRMS (isotope ratio mass spectrometer). It is NOT the AMS d13C which would include fractionation effects from natural, chemistry and AMS induced sources.

When interpreting the result, please consider any communications you may have had with us regarding the sample. As always, your inquiries are most welcome. If you have any questions or would like further details of the analysis, please do not hesitate to contact us.

The cost of the analysis was charged to the VISA card provided. Thank you. As always, if you have any questions or would like to discuss the results, don't hesitate to contact me.

Sincerely,

Darden Hood

Digital signature on file

BETA

BETA ANALYTIC INC.

DR. M.A. TAMERS and MR. D.G. HOOD

4985 S.W. 74 COURT
MIAMI, FLORIDA, USA 33155
PH: 305-667-5167 FAX:305-663-0964
beta@radiocarbon.com

REPORT OF RADIOCARBON DATING ANALYSES

Mr. Phillip Bauschard — Report Date: 12/28/2015

Mannik and Smith Group — Material Received: 12/15/2015

Sample Data	Measured Radiocarbon Age	d13C	Conventional Radiocarbon Age(*)
Beta - 426623	1530 +/- 30 BP	-25.4 o/oo	1520 +/- 30 BP

SAMPLE : Sample J
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal AD 430 to 490 (Cal BP 1520 to 1460) and Cal AD 510 to 515 (Cal BP 1440 to 1435) and Cal AD 530 to 605 (Cal BP 1420 to 1345)

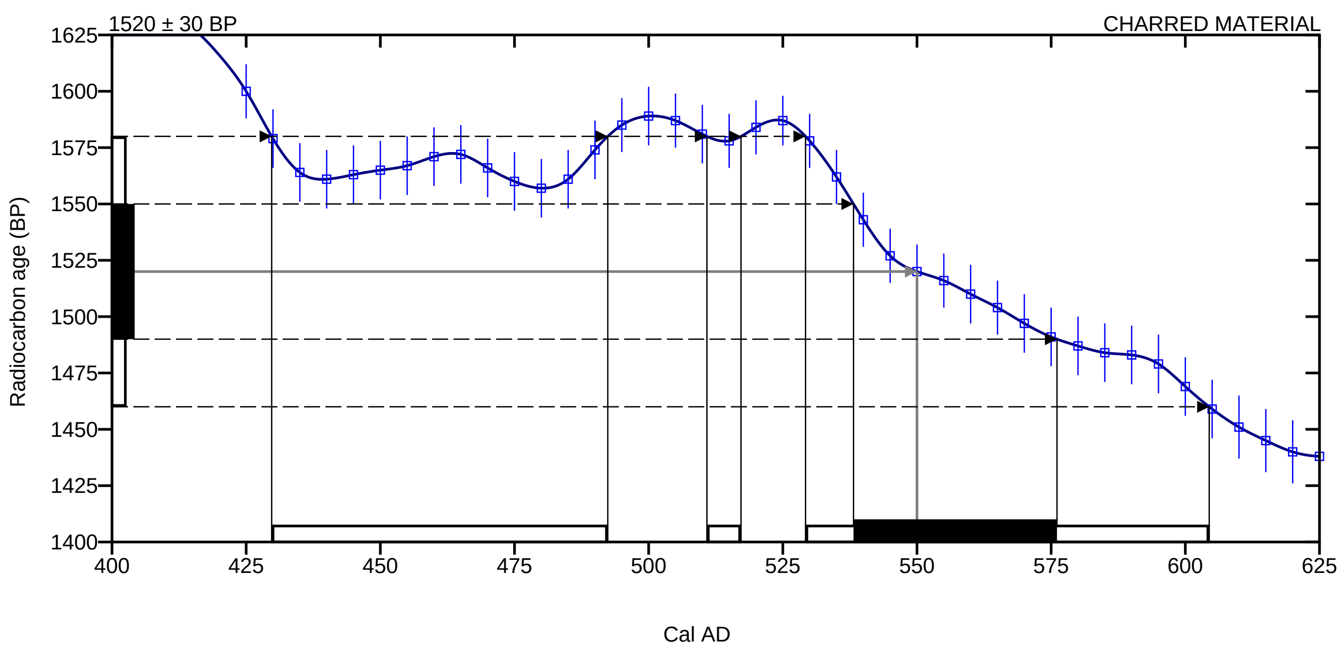
Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "*". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12 = -25.4 o/oo : lab. mult = 1)

Laboratory number	**Beta-426623 : SAMPLE J**
Conventional radiocarbon age	**1520 ± 30 BP**
Calibrated Result (95% Probability)	**Cal AD 430 to 490 (Cal BP 1520 to 1460)** **Cal AD 510 to 515 (Cal BP 1440 to 1435)** **Cal AD 530 to 605 (Cal BP 1420 to 1345)**
Intercept of radiocarbon age with calibration curve	Cal AD 550 (Cal BP 1400)
Calibrated Result (68% Probability)	Cal AD 540 to 575 (Cal BP 1410 to 1375)



Database used
INTCAL13

References

Mathematics used for calibration scenario

A Simplified Approach to Calibrating C14 Dates, Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322

References to INTCAL13 database

Reimer PJ et al. IntCal13 and Marine13 radiocarbon age calibration curves 0– 50,000 years cal BP. Radiocarbon 55(4):1869– 1887., 2013.

APPENDIX F
REVISED OHIO ARCHAEOLOGICAL INVENTORY FORM

Ohio Historic Preservation Office
800 E. 17th Avenue.
Columbus, OH 43211
614/298-2000

3. Site No. 33- **HY0167**

OHIO ARCHAEOLOGICAL INVENTORY (Draft Form)

A. Identification

1. Type of Form: **Revised Form**
2. County: **Henry**
4. Site Name: **Ritter No. 1**
5. Project Number: **H2530002**

B. Location

1. UTM Zone: **16** Easting: **742314** Northing: **4587465**

3. Township: **5N** Range: **7E** Section: **7** 1/4 Section: **SE** Not Applicable

Township Name: **Harrison**

4. Quadrangle Name: **Napoleon East** 5. Quadrangle Date: **1977** 6. Confident of Site Location: **Yes**

C. Ownership

1. Name: **Joann Wyatt**
   Address: **10506 Ramm Rd**
   City, State, Zip: **Whitehouse, OH 43571**
   Phone:

2. Tenant (if any):
   Address:
   City, State, Zip:
   Phone:

3. Ownership Status: **Private (single)**

D. Temporal Affiliations

1. Affiliations Present: **Prehistoric**

Prehistoric

2. Prehistoric Temporal Period(s) represented:

Unassigned Prehistoric **X** Paleoindian

Archaic:	Unassigned	**X** Early	Middle	**X** Late
Woodland:	Unassigned	Early	**X** Middle	**X** Late
	X Late Prehistoric	Protohistoric		Other:

3. Minimum Number of Prehistoric Temporal Periods Represented: **6**

4. Basis for Assignment of Prehistoric Temporal Period(s):

X Diagnostic Artifacts Diagnostic Features **X** Radiometric

Unrecorded Other: **previous investigation**

5 & 6. List Prehistoric Cultural Components Identified and describe how determined (list diagnostic artifacts and/or features and include type names).

- **5 Diagnostic material(s) recorded. See Continuation sheet for details.**

7 & 8. Specific Prehistoric Cultural Materials Observed or Collected (list diagnostic artifacts and/or features and include type names).

- **1039 Prehistoric cultural material(s) recorded. See Continuation sheet for details.**

Site No. 33- HY0167
Plotted:

Historic

9. Affiliation Present:

10. Historic Temporal Period(s) Represented:

	Pre-1795		1796-1829		1830-1849
	1850-1879		1880-1899		1900-1929
	1930-1949		1950-1974		1975-2000
	Historic		18th Century	**X**	19th Century
X	20th Century		Historic Aboriginal		21st Century

11. Minimum Number of Historic Temporal Periods Represented: **2**

12. Basis for Assignment of Historic Temporal Period(s):

X	Diagnostic Artifacts		Diagnostic Architectural Remains	**X**	Diagnostic Features
	Documentary Evidence		Oral Tradition		Other:

13. Describe how Historic Temporal Period(s) were determined (list any diagnostic architectural remains, diagnostic artifacts and/or features and include type names). When listing artifacts and/or features correlate to letters used for Temporal Periods in D.10

Feature 17.3, containing a plastic artifact, revealed a radiocarbon date of 1950 AD.

14 & 15. Functional Categories of Historic Materials Present at Site and Specific Cultural Materials Collected:

- **10 historic material(s) recorded. See Continuation sheet for details.**

General

16. Describe Prehistoric and/or Historic Cultural Materials observed but not collected. State reason(s) for not collecting.

17. Affiliated Ohio Historic Inventory Site Number and Name:

E. Physical Description

1. Archaeological Setting: **Open**

2. Prehistoric Site Type:

Habitation:	Camp	Village	Hamlet	X Unspecified Habitation
Extractive:	Quarry	X Workshop		
Ceremonial:	Unspecified Mound		Earth Mound	Stone Mound
	Effigy Mound		Mound Group	Hilltop Enclosure
	Geometrical Earthwork		Cemetery	Isolated Burial(s)
	Petroglyph/Pictograph		Unknown	Other:

3. Historic Site Type:

	Residential	Commercial	Social	Government
	Religious	Educational	Mortuary	Recreation
X	Subsistence	Industrial	Health Care	Military
	Transportation	Unknown	Other:	

4. State the basIs on which site type assignment(s) were made.
Given the projectile points recorded in 1980 along with the potential projectile point and/or preform fragments recovered in 2014, as well as the large amount of FCR and lithic debitage representing all stages of the reduction process, 33HY0167 may well have served as a lithic workshop. Presence of pit features that may represent storage pits and/or earth ovens; presence of possible post molds suggest habitation of unknown intensity and duration.

5. Site Condition: **Disturbed-Extent Unknown**

6. Dominant Agent(s) of Disturbance:

None Apparent	X Agriculture	Water	Historic Construction
Transportation	Mining	Vandalism	Archaeological Excavation
Unrecorded	Other: **collectors**		

7. Nature of Disturbance/Destruction
Active farming; Features 17.2 and 17.3 were likely at the location of a former agricultural outbuilding.

8. Current Dominant Land Use:
Agriculture

9. Land Use History:
Farmed since 19th century.

10. Site Elevation: **199** Meters A.M.S.L.

11. Physiographic Setting of Site: **Lake Plain**

12. Glacial Geomorphology: **Post Wisconsin Lacustrine Deposit**

13. Regional Geomorphological Setting: **Stream Valley**

14. Local Environmental Setting: **Floodplain**

15. Soils
Soil Association: **Haney loam, Haney silt loam, Medway**
Soil Series-Phase/Complex: **HdA, HdB, Md, Rs**

16. Down Slope Direction: **Flat**

17. Slope Gradient (percent): % Unrecorded:

18. Drainage System:
Major Drainage: **Lake Erie**
Minor Drainage: **MAUMEE RIVER**

19. Closest Water Source Name **Maumee River**
Water Source Type: **Permanent Stream**

20. Horizontal Distance to Closest Water Source: **50** *(m from UTM point)*

21. Elevation Above Closest Water Source: *(m A.M.S.L. from UTM point)*

F. Reporting Information

1. Investigation Type:

X Reported	Examination of Collection	**X** Surface Collection
X Auger/Soil Corer	**X** Shovel Test(s)	**X** Test Pit(s)
Deep Test(s)	PZ or Humus Removal	Test Trench(es)
Aerial Photograph	Mitigation/Block Excavation	Testing/Excav. (strategy unknown)

Chemical Analysis:

Other:

Remote Sensing: **magnetic gradient survey**

2. Surface Collection Strategy:

Not Applicable	Grab Sample	Diagnostics	Unrecorded
Controlled-Unknown	**X** Controlled-Total	**X** Controlled-Sample	Other

3. If surface collection strategy is Controlled-Total, Controlled-Sample, or Other, describe methodology and percentage.
Phase I: Shovel testing was conducted at 15-m intervals. Pedestrian surface survey was conducted at 10-m intervals. A total of 67 primary STPs and 21 radial STPs were excavated. One additional STP was judgmentally placed within the APE during the pedestrian surface survey. Phase II: A magnetic gradient survey was conducted by OVAI. A two-stage field investigation was

4. Surface Visibility: **91-100%**

5. Describe surface conditions. **Phase I: At the time of the survey, the ground surface was covered with chaff from the recent fall harvest. Phase II: The field was recently plowed.**

6. Site Area (square meters): sq. m **31537**

7. Basis for Site Area Estimate: **Other** Other: **GIS**

8. Confident of site boundaries? **NO**

9. Estimated Percentage of Site Excavated: %

10. Name of Form Preparer: **Kate Hayfield**

11. Institution: **Mannik & Smith Group**

12. Date of Form: **03/24/2016**

13. Field Date: **11/16/2015**

14. Time Spent at Site:

15. Weather Conditions:

16. Name(s), Address(es), Phone Number(s) of Local Informants

17. Artifact Repository(ies): **To be determined**

18. Name(s), Address(es), Phone Number(s), of Owners of Collections from Site (attach inventories of private collections).

21. National Register Status:

24. Special Status (select only one, as appropriate): **None**

G. References - List Primary Documentary References

Primary Author	Secondary Author	Year	Title
Chidester, Robert C.	Ryan Schumaker, Kate J. Hayfield, Bryan Agosti	2015	Phase I Archaeological Survey for the New Maumee River Crossing Project (PID #22984) in the City of Napoleon and Harrison Township, Henry County, Ohio
Burks, Jarrod		2015	Magnetic Gradient Survey (Phase II) on a Portion of Site 33HY0167, a Prehistoric Native American Site near Napoleon, Ohio: New Maumee River Crossing Project (PID#22984)
Chidester, Robert C.	Phillip R. Bauschard, Kate J. Hayfield, Bryan P. Agosti	2016	Results of a Phase II Archaeological Evaluation of the Ritter No. 1 Site (33HY0167) for the New Maumee River Crossing Project (PID #22984), Harrison Township, Henry County, Ohio
Parker, Kathryn E.		2015	Site 33HY0167 Archaeobotany, May 2015. Report submitted to The Mannik & Smith Group, Inc., Maumee, OH.

Parker, Kathryn E.		2015	Site 33HY0167 Archaeobotany, December 2015. Report submitted to The Mannik & Smith Group, Inc., Maumee, OH.
Talma, A. S.	J. C. Vogel	1993	A Simplified Approach to Calibrating C14 Dates. Radiocarbon 35(2):317-322.
Reimer, Paula J.	Edouard Bard, Alex Bayliss, J. Warren Beck, Paul G. Blackwel	2013	IntCal13 and Marine13 Radiocarbon Age Calibration Curves 0-50,000 Years cal BP. Radiocarbon 55(4):1869-1887.
Stothers, David M.	James R. Graves and Brian G. Redmond	1981	An Archaeological Survey and Reconnaissance of the Mid-Maumee River Valley: A Phase II Archaeological Survey Report

23. Discuss the potential significance of the site .

I. Description of Site

1. State physical description of the site and its setting, including dimensions, features (with Measurements), nature and location of artifacts and concentrations, extent, and location of disturbances, etc.

Site 33HY0167 is a prehistoric archaeological site located on the south side of the Maumee River in Harrison Township, Henry County, Ohio. The site was originally recorded during a regional survey by University of Toledo (UT) archaeologists in 1981. Phase II investigations were requested by ODOT based on the results of a Phase I archaeological survey conducted by MSG during the fall of 2014. The later investigations did not produce any evidence of a Paleoindian or Early Archaic occupation of the site, in contrast to the original documentation of the site (Stothers et al. 1981). However, this discrepancy may merely be a function of the limited New Maumee River Crossing Project Area; the site clearly extends outside of the current project boundaries, so the absence of a Paleoindian/Early Archaic component within the project area does not necessarily mean the absence of such within the site as a whole.

A magnetic gradient survey by OVAI resulted in the identification of 17 magnetic anomalies of potential archaeological interest; soil coring resulted in the reduction of the number of potentially cultural anomalies to 11. On the basis of the magnetic gradient survey and soil coring, OVAI recommended test excavations of four of the anomalies. MSG then conducted a two-stage field investigation in April 2015: a timed, controlled surface collection of 15-meter blocks throughout the site boundaries within the project area, followed by test excavations of the four magnetic anomalies suggested by OVAI. Test excavations of an additional five magnetic anomaly locations (representing a wider variety of anomaly types, including two that had been characterized by OVAI as non-cultural) were conducted in November 2015.

The surface collection resulted in the recovery of 274 prehistoric artifacts, including a variety of lithic debitage types, lithic tool forms, FCR, and unmodified but possibly heat-treated tool stone nodules. In addition, the surface collection yielded an assemblage containing a large variety of tool stone raw materials from central and southern Indiana; southwestern, central, north-central, and northwestern Ohio; southeastern and northeastern Michigan; and the Niagara region of New York. Among the tools recovered were three Bottleneck Stemmed projectile points dating to the Late Archaic period. MSG integrated the Phase I and Phase II surface collection datasets in order to conduct density, distribution, and co-occurrence analyses for a selected set of artifact attributes, including artifact forms, stone tool types, debitage types, and raw material varieties.

Several interesting patterns emerged from this analysis. On the most basic level, there appears to be a general pattern of overall artifact distribution consisting of a high-density zone in the northern third of the project area, a moderate-density zone in the middle third of the project area, and a low-density zone within the southern third of the project area. Even within the low-density zone, a general area of higher density can be identified in the west-central portion of this zone. The location of the highest-density zone in the northern third of the project area contrasts with the clustering of the majority of identified magnetic anomalies within the middle third of the project area, at the western end of a natural levee. Two possible explanations for this discrepancy are that areas of higher density outside the moderate-density zone are the result of either post-depositional disturbance (e.g., plowing activity or downslope erosion toward the river) or of cultural activity that resulted only in surface or near-surface artifact deposits and an absence of subsurface feature contexts (or the presence of only features that lack a distinctive magnetic signature).

Other patterns that have been identified within the surface collected assemblage include a slightly better correspondence between the occurrence of exotic tool stone varieties within the surface collected assemblage and the densest cluster of magnetic anomalies, than between local tool stone varieties within the surface assemblage and the cluster of magnetic anomalies; a generally wide distribution of both formal tools and debitage across the project area, in contrast to the more restricted distribution of FCR and expedient tools (the latter being more closely aligned to overall patterns of artifact density as well as the densest cluster of magnetic anomalies); the 100% co-occurrence of other artifact forms with expedient (flake) tools, and the co-occurrence of other artifact forms with FCR, formal tools and debitage approximately two-thirds of the time; the clear spatial association of simple and complex flakes with the densest cluster of magnetic anomalies; and the approximately 40% co-occurrence of shatter, simple flakes and complex flakes with one or more of each other across the site.

Following the completion of the Phase II timed, controlled surface survey, a total of nine magnetic anomaly locations were investigated through test excavation units: Anomalies 1, 5, 8, 10, 11, 12, 14, 16 and 17.

Only one test unit (Anomaly 1, which had been identified by OVAI as a possible pit feature or large rock) failed to yield any evidence of cultural activity. The remaining eight test units all revealed at least one cultural feature or cultural deposit. (Several additional soil stains and areas of obtrusive fill that were initially recorded as features were later determined to be likely root casts or rodent burrows.) The following cultural features and deposits were identified within the test units:

- Anomaly 5, Levels 3-4, which yielded AMS date ranges of 2115-2100 cal B.C. (4065-4050 cal B.P.) and 2035-1900 cal B.C. (3985-3850 cal B.P.) (p=0.05) and are interpreted here as a possible Late Archaic living surface;
- Anomaly 8, Feature 8.1, which did not yield any diagnostic artifacts or organic material suitable for radiometric dating and is interpreted here as a possible ground stone raw material cache or a small earth oven or roasting pit filled with heating stones (some of which may have been recycled ground stone tools) from an unknown time in prehistory;
- Anomaly 10, Feature 10.1, which yielded an AMS date range of 40 cal B.C. to 80 cal A.D. (1990-1870 cal B.P.) (p=0.05) and is interpreted here as a possible small, early Middle Woodland earth oven or roasting pit;
- Anomaly 11, Feature 11.1, which yielded an AMS date range of 1020-1165 cal A.D. (930-785 cal B.P.) (p=0.05) and is interpreted here as a Terminal late Woodland/Late Prehistoric transition-period post mold;
- Anomaly 12, Levels 3-4, which did not yield any diagnostic artifacts or organic material suitable for radiometric dating but is interpreted here (due to stratigraphic and visual similarity to Anomaly 5, Levels 3-4) as a possible Late Archaic living surface;
- Anomaly 14, Feature 14.1, a stratified pit feature that yielded an AMS date range of 1020-1160 cal A.D. (930-790 cal B.P.) (p=0.05) and is interpreted here as a pit feature of unknown function dating to the Terminal late Woodland/Late Prehistoric transition period;
- Anomaly 16, Feature 16.1, which yielded (from two samples of organic material) AMS date ranges of 390-540 cal A.D. (1560-1410 cal B.P.) (p=0.05), while Sample J returned ranges of 430-490 ca. A.D. (1520-1460 cal B.P.), 510-515 cal A.D. (1440-1435 cal B.P.), and 530-605 cal A.D. (1420-1345 cal B.P.) (p=0.05) and is interpreted here as a possible hearth for the heat treatment of lithic raw material prior to the manufacture of stone tools dating to the Middle-Late Woodland transition period;
- Anomaly 17, Feature 17.1, which did not yield any diagnostic artifacts or organic material suitable for radiometric dating and is interpreted here as either a living surface or the scattered remains of a hearth from an unknown time in prehistory; and
- Anomaly 17, Features 17.2 and 17.3, the latter of which yielded AMS date ranges of 1670-1780 cal A.D. (280-170 cal B.P.) (p=0.05) and 1800 to post-1950 cal A.D. (150 to 0 cal B.P.) (p=0.05) and which together are interpreted as the archaeological signature of a historic-period farm structure.

Soil samples were collected from selected feature fill and non-feature cultural deposits and subjected to flotation for the purpose of recovering macrobotanical remains. A total of 15 sediment samples from controlled, sub-plow zone proveniences were submitted for flotation. Only six of these sediment samples yielded any botanical remains at all, and only two yielded remains that could be identified by taxon. Of these two samples, one was from a feature (Feature 14.3) that was determined to be natural in origin, representing a ground wasp nest dating no earlier than A.D. 1667. Thus, of the 15 sediment samples submitted for analysis, only one yielded identifiable macrobotanical remains associated with a cultural feature – Feature 11.1, the Terminal Late Woodland/Late Prehistoric transition-period post mold, which yielded fragments of hickory (*Carya* sp.) and basswood (*Tilia americana*) (both common to northern Ohio throughout prehistory).

2. Discuss the relationship between the site and other known sites in the area in terms of location, physical characteristics, size, etc.

Four small Late Woodland sites were identified by Stothers et al. (1981) in the sod field immediately to the east of the corn field in which 33HY0167 is located. These sites were assigned OAI numbers 33HY0181-0184, and were collectively referred to in later publications (e.g., Bechtel and Stothers 1993) as the Campbell Soup site. All four sites were located in eroding areas along the riverbank, and all four yielded grit-tempered ceramics. Based on the presence of ceramics (including decorated neck sherds from two of the sites), the Campbell Soup site was interpreted as a possible Younge Phase occupation. Although the OAI forms for each of the four sites recommend additional testing, it does not appear that any such testing was ever conducted.

One possibility that can be suggested is that 33HY0167 and 33HY0181-0184 all represent locations associated with a a warm-season focal settlement – either portions of the primary settlement itself (perhaps representing slight spatial shifts over time) or special-purpose satellite locations. Although Stothers and his students and colleagues never directly addressed the issue of band-level territorial ranges during the Late Woodland period, they did suggest that during the Late Archaic period such territorial ranges were associated with catchment zones that appeared (based on archaeological site spacing) to be approximately 10-15 km in diameter and spaced out along the Maumee River Valley (Stothers, Abel and Schneider 2001:243). Assuming population increase from the Late Archaic to the Late Woodland, it can reasonably be surmised that territorial ranges would have either stayed the same or decreased in size. Thus, if 33HY0167 and the Campbell Soup site together represent the warm-season focal settlement of one band-level catchment zone/territorial range, we can expect to find other such focal settlements in either direction along the river. In fact, such core settlements and associated satellite site locations have been located and investigated: the Johnson site (33HY0207) approximately 8.9 km downstream from the eastern edge of the Campbell Soup sites, and the Gunn site complex approximately 10.3 km upstream from 33HY0167. Numerous other prehistoric activity loci have been located along the Maumee River between these three locations; these sites may well be additional special-purpose extractive camps associated with these focal settlements.

D. 5 & 6 Diagnostic Artifact List

Diagnostic Artifact	*Cultural Component*	*Description*	*Count*
Bottleneck Stemmed (Table Rock Cluster) Projectile Point, Ce		Late Archaic	1
Bottleneck Stemmed (Table Rock Cluster) Projectile Point, Fl		Late Archaic	1
Bottleneck Stemmed (Table Rock Cluster) Projectile Point, Pi		Late Archaic	1
Hi-Lo Projectile Point (1981)	Hi Lo Complex		1
Kirk Projectile Point (1981)	Kirk Tradition		1

D. 7 & 8 Preshistoric Artifact List

Material	*Category*	*Other*	*Count*
Abrader Ground Stone, Rhyolite	Lithics		2
Abrader or Hammer Ground Stone, Granite	Lithics		1
Abrader(?) Ground Stone, Granite	Lithics		5
Anvil Ground Stone, Granite	Lithics		2
Biface (Unfinished), Bayport	Lithics		2
Biface (Unfinished), Delaware	Lithics		1
Biface (Unfinished), Flint Ridge (Calcedony)	Lithics		1
Biface (Unfinished), Pipe Creek	Lithics		1
Biface (Unfinished), Ten Mile Creek	Lithics		2
Biface Blade (Unfinished), Bayport	Lithics		1
Biface Blade (Unfinished), Upper Mercer	Lithics		1
Biface Blade Preform, Cedarville Guelph	Lithics		1
Biface Bladelet Fragment, Flint Ridge (Moss Agate)	Lithics		1
Biface Bladelet, Flint Ridge (Chalcedony)	Lithics		1
Biface Crescent Knife or Scraper, Ten Mile Creek	Lithics		1
Biface Fragment, Cedarville/Guelph	Lithics		4
Biface Fragment, Delaware	Lithics		1
Biface Fragment, Flint Ridge (Chalcedony)	Lithics		3
Biface Fragment, Pipe Creek Chert	Lithics		1
Biface Fragment, Ten Mile Creek	Lithics		2
Biface Fragment, Unknown chert	Lithics		1
Biface Fragment, Upper Mercer	Lithics		1
Biface Fragment, Upper Mercer (Black)	Lithics		1
Biface Fragment, Upper Mercer (Nellie)	Lithics		1
Biface Knife (Unfinished), Cedarville/Guelph	Lithics		1
Biface Knife (Unfinished), Flint Ridge Flint	Lithics		1
Biface Knife (Unfinished), Ten Mile Creek	Lithics		1
Biface Knife, Bayport	Lithics		1
Biface Knife, Cedarville/Guelph	Lithics		2
Biface Knife, Flint Ridge (Chalcedony)	Lithics		1
Biface Knife, Flint Ridge Flint	Lithics		1
Biface Knife, Upper Mercer	Lithics		2
Biface Stem, Cedarville/Guelph	Lithics		4
Bipolar Flake, Hixton Silicified Sandstone	Lithics		1
Bipolar Flake, Ten Mile Creek	Lithics		2
Bladelet Core, Ten Mile Creek	Lithics		1
Bladelet Core, Upper Mercer	Lithics		1
Bottleneck Stemmed (Table Rock Cluster) Projectile Point, Ce	Lithics		1
Bottleneck Stemmed (Table Rock Cluster) Projectile Point, Fl	Lithics		1
Bottleneck Stemmed (Table Rock Cluster) Projectile Point, Pi	Lithics		1
Burin, Cedarville/Guelph	Lithics		3
Burin, Flint Ridge (Chalcedony)	Lithics		1

Burin, Flint Ridge Flint	Lithics	1
Burin, Ten Mile Creek	Lithics	1
Complex Flake, Attica/Indiana Green	Lithics	2
Complex Flake, Bayport	Lithics	18
Complex Flake, Cedarville/Guelph	Lithics	47
Complex Flake, Delaware	Lithics	9
Complex Flake, Dundee/Stoney Creek	Lithics	1
Complex Flake, Esopus	Lithics	2
Complex Flake, Flint Ridge (Chalcedony)	Lithics	18
Complex Flake, Flint Ridge (Moss Agate)	Lithics	1
Complex Flake, Flint Ridge (Nethers)	Lithics	2
Complex Flake, Flint Ridge Flint	Lithics	9
Complex Flake, Flint Ridge/Vanport	Lithics	9
Complex Flake, Four Mile Creek	Lithics	1
Complex Flake, Greywacke	Lithics	3
Complex Flake, Hixton Silicified Sandstone	Lithics	2
Complex Flake, Pipe Creek	Lithics	5
Complex Flake, Ten Mile Creek	Lithics	15
Complex Flake, Unidenitified chert	Lithics	2
Complex Flake, Upper Mercer	Lithics	10
Complex Flake, Upper Mercer (Black)	Lithics	5
Complex Flake, Upper Mercer (Grey)	Lithics	2
Complex Flake, Upper Mercer (Nellie)	Lithics	17
Core Fragment, Bayport	Lithics	1
Core Fragment, Cedarville/Guelph	Lithics	2
Core Fragment, Delaware	Lithics	4
Core Fragment, Flint Ridge Flint	Lithics	2
Core Fragment, Onondaga	Lithics	1
Core Fragment, Ten Mile Creek	Lithics	5
Core Fragment, Unknown chert	Lithics	1
Core Fragment, Upper Mercer	Lithics	1
Corner Notched Projectile Point (1981)	Lithics	1
Decortication Flake, Cedarville/Guelph	Lithics	1
Decortication Flake, Delaware	Lithics	1
Decortication Flake, Flint Ridge Flint	Lithics	3
Decortication Flake, Ten Mile Creek	Lithics	7
Decortication Flake, Upper Mercer (Black)	Lithics	1
Decortication Flake, Upper Mercer (Grey)	Lithics	1
Decortication Shatter, Cedarville/Guelph	Lithics	1
Decortication Shatter, Flint Ridge/Vanport	Lithics	1
Decortication Shatter, Ten Mile Creek	Lithics	2
Drill, Cedarville/Guelph	Lithics	1
FCR, Basalt	FCR	10
FCR, Conglomerate	FCR	8
FCR, Granite	FCR	144
FCR, Greywacke	FCR	1
FCR, Quartzite	FCR	6
FCR, Rhyolite	FCR	75
FCR, Sandstone	FCR	44
FCR, Shale	FCR	2
FCR, Silicified Sandstone	FCR	3
FCR, Silt Stone	FCR	7
FCR, Slate	FCR	45
FCR, Unidentified	FCR	8
FCR, Unidentified Red Stone	FCR	1
Flake Core Fragment, Bayport	Lithics	1
Flake Core Fragment, Cedarville/Guelph	Lithics	2
Flake Core Fragment, Dundee/Stoney Creek	Lithics	1
Flake Core Fragment, Flint Ridge (Chalcedony)	Lithics	1
Flake Core Fragment, Greywacke	Lithics	1

Flake Core Fragment, Silicified Siltstone (?)	Lithics	1
Flake Core Fragment, Ten Mile Creek	Lithics	1
Flake Core, Bayport	Lithics	1
Flake Core, Flint Ridge (Chalcedony)	Lithics	1
Flake Core, Flint Ridge Flint	Lithics	1
Flake Core, Ten Mile Creek	Lithics	2
Fossil, Coral	Faunal Remains	3
Fossil, Shell	Faunal Remains	2
Ground Stone(?), Rhyolite	Lithics	1
Hammer Ground Stone, Granite	Lithics	3
Hammer Ground Stone, Rhyolite	Lithics	5
Hi-Lo Projectile Point (1981)	Lithics	2
Kirk Projectile Point (1981)	Lithics	1
Mortar Ground Stone, Granite	Lithics	1
Nodule, Cedarville/Guelph	Lithics	5
Nodule, Flint Ridge Flint	Lithics	1
Nodule, Greywacke	Lithics	1
Nodule, Pipe Creek	Lithics	1
Nodule, Quartzite	Lithics	5
Nodule, Silicified Sandstone	Lithics	6
Nodule, Ten Mile Creek	Lithics	15
Notched Archaic Bevelled Projectile Point (1981)	Lithics	1
Paleoindian (?) Biface Point Fragment, Flint Ridge/Vanport	Lithics	1
Pebble Core, Bayport	Lithics	2
Pebble Core, Cedarville/Guelph	Lithics	5
Plate/Metate Ground Stone, Rhyolite	Lithics	1
Preform Drill, Cedarville/Guelph	Lithics	1
Scraper (Unfinished), Cedarville/Guelph	Lithics	2
Scraper, Attica/Indiana Green	Lithics	1
Scraper, Bayport	Lithics	2
Scraper, Cedarville/Guelph	Lithics	12
Scraper, Flint Ridge Flint	Lithics	1
Scraper, Four Mile	Lithics	2
Scraper, Pipe Creek	Lithics	2
Scraper, Quartzite	Lithics	1
Scraper, Ten Mile Creek	Lithics	2
Scraper, Upper Mercer (Nellie)	Lithics	1
Scraper, Wyandotte	Lithics	1
Shatter, Bayport	Lithics	10
Shatter, Cedarville/Guelph	Lithics	64
Shatter, Delaware	Lithics	3
Shatter, Dundee/Stoney Creek	Lithics	4
Shatter, Flint Ridge (Chalcedony)	Lithics	13
Shatter, Flint Ridge (Moss Agate)	Lithics	1
Shatter, Flint Ridge (Nethers)	Lithics	1
Shatter, Flint Ridge Flint	Lithics	14
Shatter, Flint Ridge/Vanport	Lithics	7
Shatter, Four Mile Creek	Lithics	3
Shatter, Greywacke	Lithics	3
Shatter, Hixton Silicified Sandstone	Lithics	2
Shatter, Kenneth	Lithics	4
Shatter, Pipe Creek	Lithics	10
Shatter, Ten Mile Creek	Lithics	56
Shatter, Unidentified chert	Lithics	2
Shatter, Upper Mercer	Lithics	1
Shatter, Upper Mercer (Black)	Lithics	1
Shatter, Upper Mercer (Grey)	Lithics	1
Side Notched Projectile Point (1981)	Lithics	1
Simple Flake, Bayport	Lithics	1
Simple Flake, Cedarville/Guelph	Lithics	14

Simple Flake, Delaware	Lithics	5
Simple Flake, Flint Ridge (Chalcedony)	Lithics	1
Simple Flake, Flint Ridge Flint	Lithics	1
Simple Flake, Flint Ridge/Vanport	Lithics	1
Simple Flake, Greywacke	Lithics	1
Simple Flake, Greywacke (Gray)	Lithics	2
Simple Flake, Greywacke (Green)	Lithics	1
Simple Flake, Quartzite	Lithics	1
Simple Flake, Ten Mile Creek	Lithics	7
Simple Flake, Unidentified chert	Lithics	1
Simple Flake, Upper Mercer	Lithics	2
Simple Flake, Upper Mercer (Nellie)	Lithics	2
Spent Flake Core, Bayport	Lithics	2
Spent Flake Core, Cedarville/Guelph	Lithics	9
Spent Flake Core, Flint Ridge (Chalcedony)	Lithics	2
Spent Flake Core, Flint Ridge Flint	Lithics	3
Spent Flake Core, Flint Ridge/Vanport	Lithics	1
Spent Flake Core, Onondaga	Lithics	1
Spent Flake Core, Pipe Creek	Lithics	1
Spent Flake Core, Ten Mile Creek	Lithics	12
Spent Flake Core, Upper Mercer	Lithics	2
Test Cobble Fragment, Delaware	Lithics	1
Test Cobble Fragment, Ten Mile Creek	Lithics	2
Unidentified Biface Point Fragment, Cedarville/Guelph	Lithics	1
Unidentified Biface, Bayport	Lithics	1
Unidentified Biface, Cedarville/Guelph	Lithics	1
Unidentified Biface, Conglomerate	Lithics	1
Unidentified Biface, Flint Ridge Flint	Lithics	3
Unidentified Biface, Granite	Lithics	1
Unidentified Biface, Quartzite	Lithics	1
Unidentified Biface, Ten Mile Creek	Lithics	5
Unidentified Core, Flint Ridge Flint	Lithics	1
Unidentified Ground Stone, Granite	Lithics	2
Unidentified Ground Stone, Rhyolite	Lithics	2
Unidentified Projectile Point Fragment, Attica/Indiana Green	Lithics	1
Unidentified Projectile Point Fragment, Cedarville/Guelph	Lithics	1
Unidentified Projectile Point Fragment, Upper Mercer (Nellie	Lithics	1
Unidentified Uniface, Cedarville/Guelph	Lithics	1
Unidentified Uniface, Greywacke	Lithics	1
Unidentified Uniface, Unknown chert	Lithics	1
Uniface (Unfinished), Delaware	Lithics	1
Uniface Bladelet, Flint Ridge (Moss Agate)	Lithics	1
Uniface Fragment, Cedarville/Guelph	Lithics	2
Uniface Knife, Ten Mile Creek	Lithics	1
Utilized Shatter, Ten Mile Creek	Lithics	1

D. 14 & 15 Historic Artifact List

Material	*Category*	*Other*	*Count*
Clear Window fragments	Architectural		3
Square Nail fragments, 1805-1890	Architectural		3
Stoneware Utilitarian Crock / Jug sherds	Kitchen		2
White Plastic fragment	Unknown		1
Whiteware sherd, 1820-present	Kitchen		1

H. Radiometric Date List

Material Dated	*Date (uncorrected C14 years)*	Laboratory	*Sample #*
charred material	130	Beta Analytic Inc.	424859

charred material	140	Beta Analytic Inc.	409955
charred material	1520	Beta Analytic Inc.	426623
charred material	1610	Beta Analytic Inc.	424861
charred material	1970	Beta Analytic Inc.	409956
organic sediment	25130	Beta Analytic Inc.	424862
organic sediment	3620	Beta Analytic Inc.	424860
charred material	940	Beta Analytic Inc.	409954
charred material	950	Beta Analytic Inc.	409953

K. Sketch Map or Copy of Project Map of Site.

Include north arrow and scale of the appropriate U.S.G.S. quadrangle. Outline total area surveyed and include locations of all identified sites.