PL202100179

Site Evaluation of 11216 Bloomington Ferry Road, Bloomington, Hennepin County, Minnesota

Hamline University Center for Anthropological Services

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Contents

1.0 Introduction

In June 2021, personnel from the Hamline University Center for Anthropological Services (HUCAS) conducted a records review and initial site visit of the 11216 Bloomington Ferry Road parcel, in the city of Bloomington, Minnesota. The records review and site visit are the basis of the following site evaluation.

The records review and site visit suggest that the parcel has high potential for containing human burials, mortuary features such as mound remnants or associated artifacts. Although no direct evidence for human burials was observed, the parcel contains a landform that could represent a mound reduced by erosion or agriculture. The topography of the parcel also suggests landscape processes that could obscure or conceal evidence of burials or mortuary features.

This evaluation discusses the physical setting, archaeological context, and landscape history of the parcel, and summarizes the work conducted during the initial site visit. The evaluation concludes with recommendations for further investigations to identify the presence of human burials or burial features. The references cited section (Section 4.0) provides a list of documentary resources consulted for the records review.

This evaluation is intended be the basis for consultation with interested Tribal representatives, the property owner, and state agencies such as the Minnesota Indian Affairs Council and the Office of the State Archaeologist.

1.1 Project Location

The project location is 11216 Bloomington Ferry Road, at the three-way intersection of Bloomington Ferry Road, Auto Club Road and Crest Avenue, in the city of Bloomington, Hennepin County Minnesota.

The parcel covers approximately 2.0 acres on the edge the bluff overlooking the Minnesota River valley. The parcel is in the northeast quarter of the southwest quarter of the northeast quarter of Section 6, T115N R21W, 4th Principal Meridian (Figure 1-1, 1-2). The Universal Transverse Mercator coordinates for the approximate center of the parcel are Zone 15, North American Datum 1983, 469534.6 m E, 4960819.0 m N.

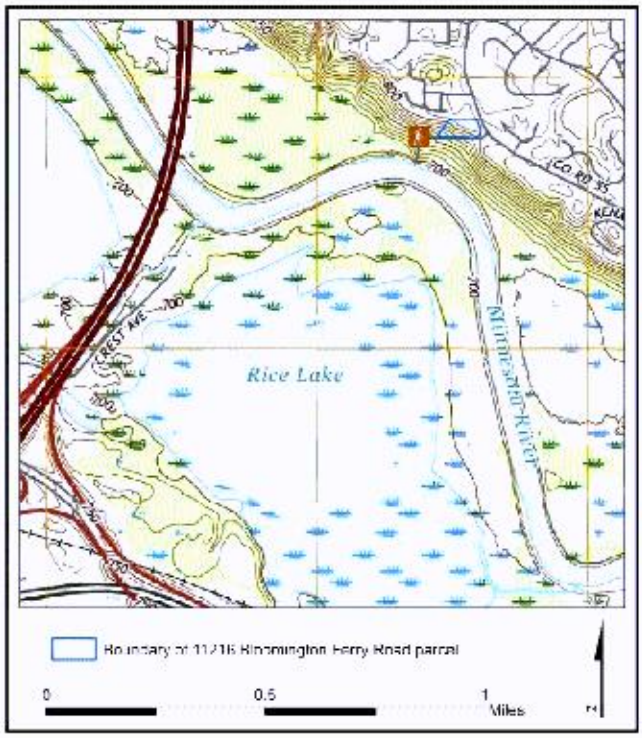

Figure 1-1. 11216 Bloomington Ferry Road location (United States Geological Survey 2019; Minnesota Geospatial Information Office 2021a).

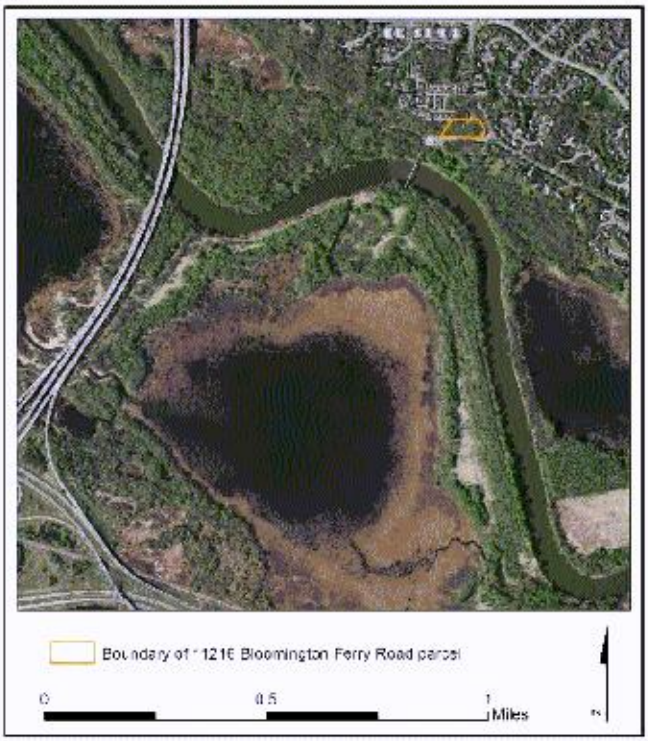

Figure 1-2. Aerial image from 2016 showing 11216 Bloomington Ferry Road location (Minnesota Geospatial Information Office 2021a, 2021b).

1.2 Licensing and Project Personnel

The site evaluation was initiated by the parcel owner. Because the project did not involve ground disturbance, no licensing was required by the Office of the State Archaeologist. Project personnel were employees of the Hamline University Center for Anthropological Services (HUCAS). The Principal Investigator for the records review and initial site visit was David Tennessen. The records review was conducted by Forest Seaberg-Wood (Archaeology Lab Supervisor). The initial site visit was conducted by Everett Blackthunder (Indigenous Archaeology Specialist) and David Tennessen.

2.0 Records Review

The goal of the records review was to compile information about the environmental setting, landscape history and archaeological context of the location.

2.1 Environmental Setting and Landscape History

The records review examined sources providing information about surficial geology (Lusardi 2009; Meyer 2007), soils, (Natural Resources Conservation Service [NRCS]), historic vegetation (Minnesota Department of Natural Resources [MnDNR], Minnesota Geospatial Information Office [MnGEO]) and archaeological site location and description (Minnesota Department of Administration, Office of the State Archaeologist [OSA]).

The records review also included a desktop review of cartographic sources including Government Land Office survey maps from 1855 (Minnesota Geospatial Information Office [MnGEO]), historic topographic maps (United States Geological Survey [USGS]), aerial photographs and satellite images from 1937 to 2020 (University of Minnesota [UMN]; MnGEO), and elevation data derived from LiDAR technology (MnGEO).

The Bloomington Ferry Road parcel is located on a Pleistocene-age terrace of the Minnesota River valley, the surface of which was cut by braided streams fed by melting glacial ice. In the vicinity of the parcel the terrace is about three-quarters of a mile wide and is approximately 100 feet above the modern alluvial sediment of the Minnesota River floodplain (Lusardi 2009; Meyer 2007). Although the topography of the upper terrace surface is irregular, local elevations are relatively low, ranging between 800 and 820 feet above sea level (MnDNR 2021a).

In the vicinity of the parcel, public land surveys were conducted between 1853 and 1854 (MnGEO 2021c). At the time of these surveys, the vegetation of the upper terrace surface in the surrounding the parcel was primarily prairie and oak savanna. Much of the southwest-facing escarpment below the terrace was covered in oak and maple-basswood forest. Wetland communities occupied the floodplain (MnDNR 2005; MnGEO 2021d).

The soils formed in the terrace sediments of the Bloomington Ferry Road parcel are classified as Mollisols (NCRS 2021a), which typically form under grasslands. This is consistent with the vegetation descriptions recorded during the public land surveys. Two soil series, the Rasset and Hawick series, have been mapped on the parcel (NCRS 2021b, 2021c).

Evidence for post-contact ground-disturbing activities on the Bloomington Ferry Road parcel appear to be mostly limited to its development as a residential property. The earliest map depicting the parcel was produced by the Government Land Office and dates to 1855 (Figure 2-1). This map depicts a four-way intersection between two trails or roads close to the location of the present-day three-way intersection. Notations on the map appear to indicate a structure to the south, and possibly the southwest of the parcel.

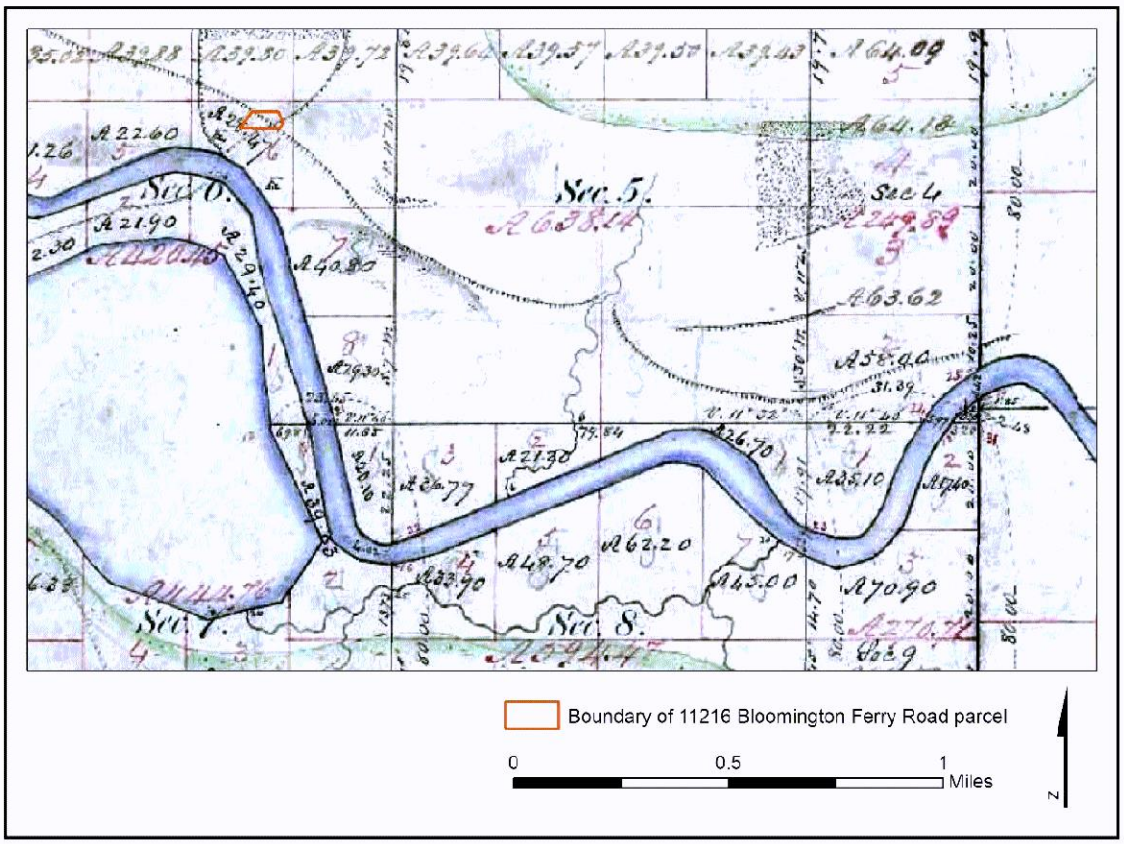

Figure 2-1. 11216 Bloomington Ferry Road parcel location plotted on 1855 Public Land Survey map (MnGEO 2021c)

Thirty-nine years later, in 1894, surveyors for the United States Geological Survey, recorded an A-shaped intersection in approximately the same location and form as the present-day intersection (Figure 2-2). The resulting map was published in 1901. Two structures are shown between the arms of what are today Bloomington Ferry Road and Crest Avenue.

For this project, the 1901 map was georeferenced using the corners of Section 6 and overlain on the 11216 Bloomington Ferry Road parcel location (Figure 2-2). This process places the parcel location in correct reference to the Public Land Survey boundaries. However, the spatial relationship between the parcel and the features of the intersection appears to be incorrect (Figure 2-3).

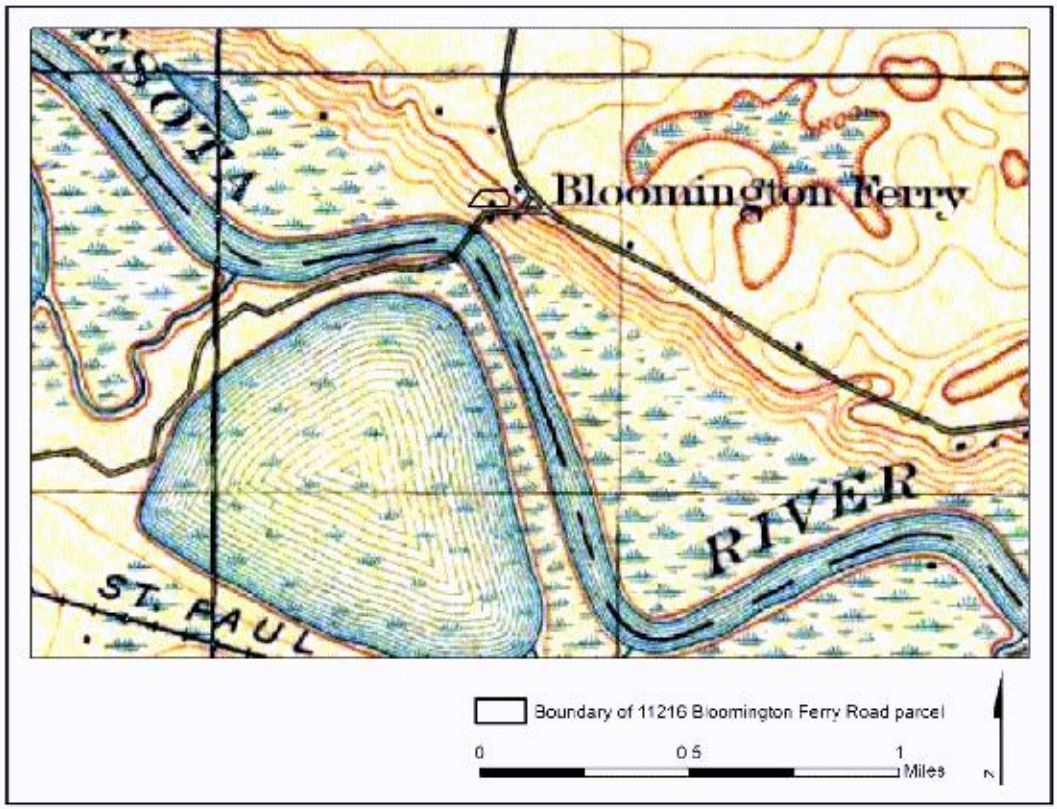

Figure 2.2. Location of 11216 Bloomington Ferry Road parcel plotted on 1901 U.S.G.S. topographic map (USGS 1901).

Figure 2.3. Comparison of the relationship between the intersection and parcel boundaries in 1901 and 2019 U.S.G.S. topographic maps (USGS 1901, 2019, MnGeo 2021a).

Comparison of the 1901 and 2019 U.S.G.S. topographic maps (Figure 2-3) suggests that in 1894, government surveyors recorded the position of the intersection and the associated structures too far to the east. If this is the case, the structure shown within the boundaries of the parcel in 1901 may in fact have been located to the west of the parcel, or in the parcel's extreme southwest corner. It is also worth noting that the symbology used in the 1901 map does not provide any information about vegetation cover at the site.

No information about the parcel's landscape history was found for the years between 1901 and 1937. A low-altitude aerial photograph from 1937 (Figure 2-4) shows trees covering a large triangular area to the west of the intersection that included the parcel (University of Minnesota [UMN] 2021a). The western boundary of this tree-covered area closely follows the current western boundary of the Bloomington Ferry Road parcel. Cultivated fields lie immediately to the northwest and northeast of the tree-covered area. No structures are visible within the parcel boundary.

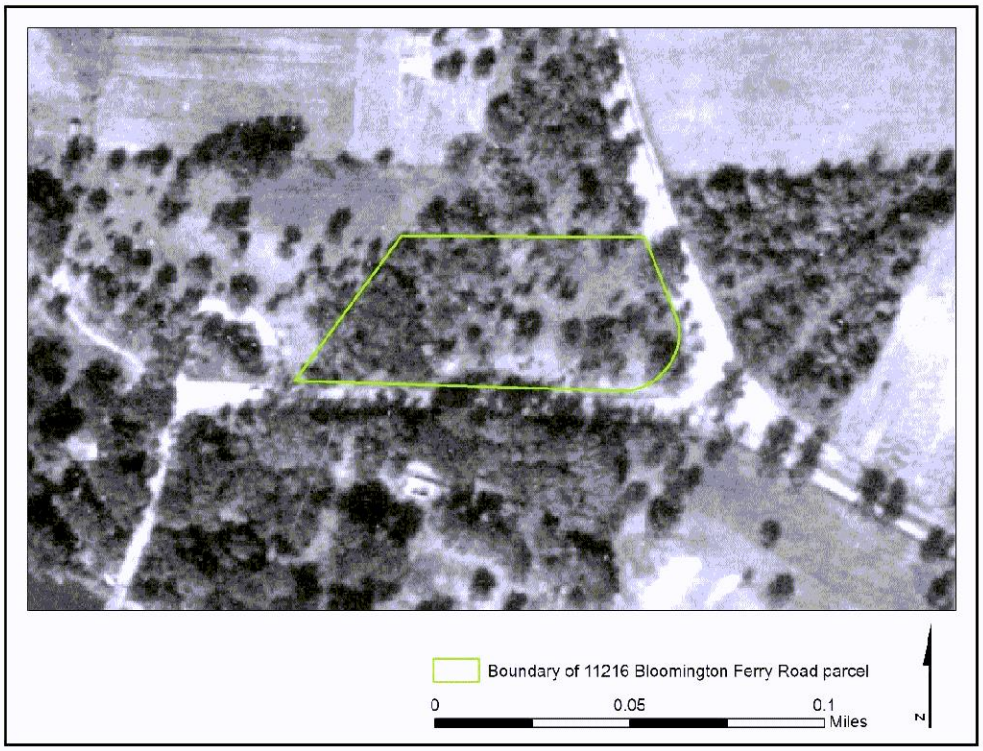

Figure 2-4. Low altitude aerial photo showing location of 11216 Bloomington Ferry Road parcel in 1937 (UMN 2021a).

In 1954, the U.S.G.S. 7.5-minute Eden Prairie topographic map (Figure 2-5) depicts a single structure close to the bluff edge within the boundaries of the Bloomington Ferry Road parcel (USGS 1954). A low altitude aerial photograph (Figure 2-6) of the parcel taken two years later (UMN 2021b), appears to show three aligned structures in a row that is oriented slightly to the east of north. The northern-most of these three structures was located immediately north of the current northern boundary of the parcel. The southern-most of the three appears to be the house that is currently on the parcel.

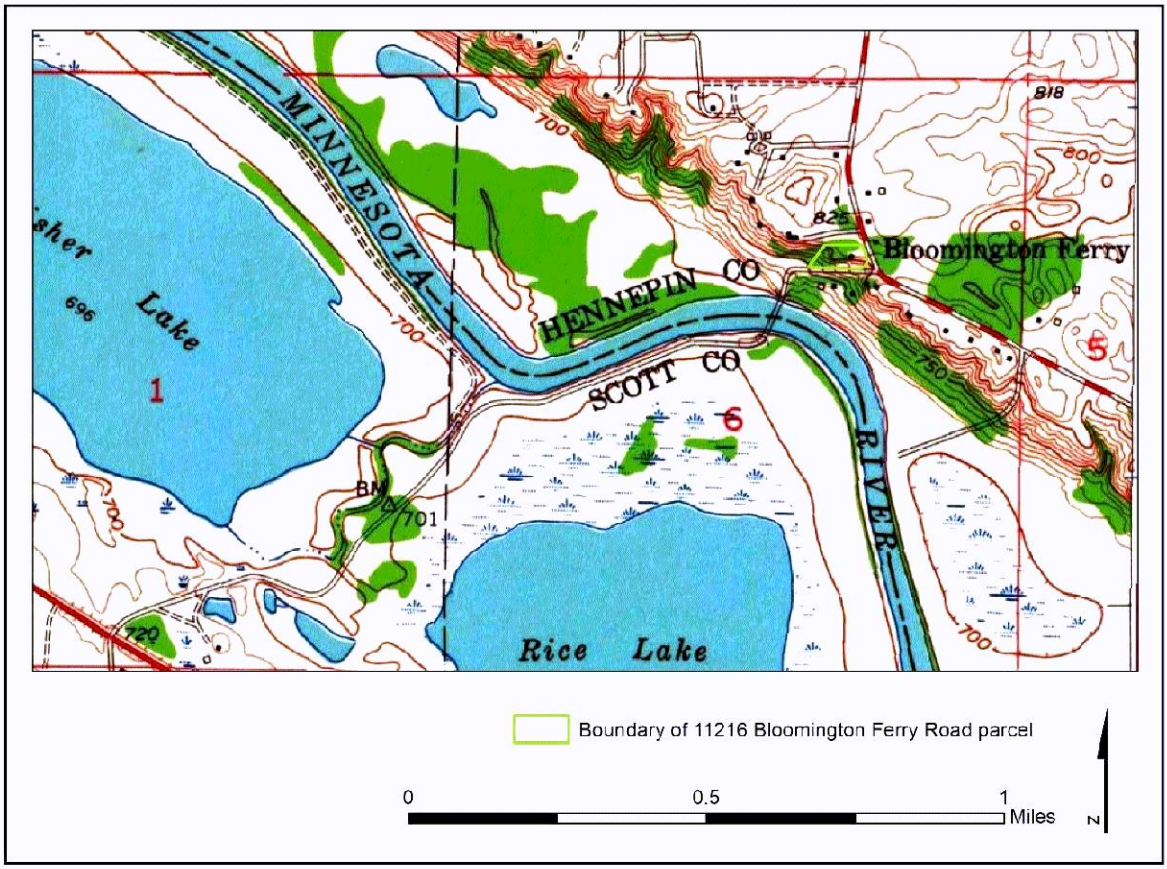

Figure 2-5. Location of 11216 Bloomington Ferry Road parcel plotted on 1954 U.S.G.S. topographic map (USGS 1954).

A 1960 aerial photograph indicates the removal of the apparent northern-most structure and its replacement with a larger structure that is oriented directly north and south (UMN 2021c). This is probably the house that is currently on the parcel immediately to the north. A second new structure appears immediately to the northeast of, and in alignment with, the original house. This appears to be the two-car garage currently on the parcel. This arrangement is documented again in an aerial photograph from 1967 (UMN 2021d).

A 1971 aerial photograph (UMN 2021e) indicates that by that time, the structure immediately north of the original house had been removed (Figure 2-7), leaving the two structures that remain on the parcel today (Figure 2-8) (MnGEO 2021b).

None of the historic maps or aerial photographs indicate cultivation of the parcel, although the area that is presently in turf grass today, appears to have been largely cleared of trees by 1956. In the same photograph from 1956, a circular driveway is located in front of the current house on the parcel, and two areas of what appear to be turf grass are visible.

Figure 2-6. Low altitude aerial photo showing location of 11216 Bloomington Ferry Road parcel in 1956 (UMN 2021b).

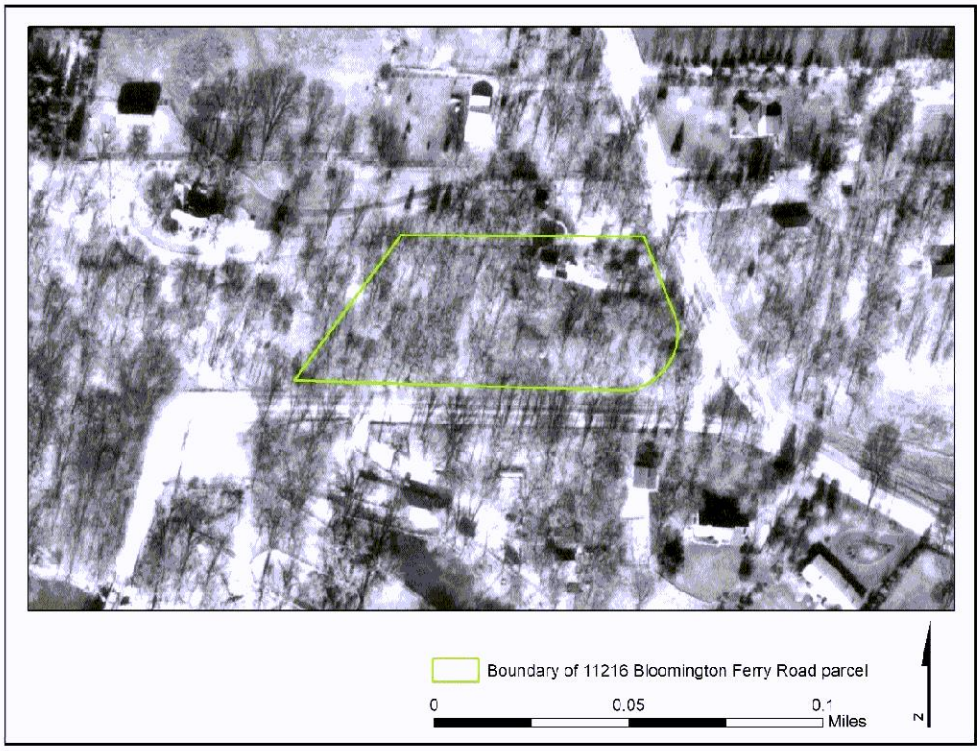

Figure 2-7. Low altitude aerial photo showing location of 11216 Bloomington Ferry Road parcel in 1971 (UMN 2021e).

Figure 2-8. Satellite imagery showing location of 11216 Bloomington Ferry Road parcel in 2021 (MnGEO 2021b).

2.2 Archaeological Context

A search of the State archaeological site data base (OSA 2021) identified seven archaeological sites within one mile of the Bloomington Ferry Road parcel (Table 2-1 Figure 2-9 and Appendix A). Four of these are mound sites. Two of these sites, 21HE0017 and 21HE0004 are within approximately 100 and 200 meters, respectively, of the center of the Bloomington Ferry Road parcel. As recorded by the OSA, these four sites contain at least 130 mounds.

Site Number	Site Name	Description
21 HE 0004	No name	Seven circular mounds
21 HE 0005	No name	Fourteen circular mounds, three with connected embankments
21 HE 0006	Cunningham Mounds	Eleven mounds
21 HE 0017	Bloomington Mounds	Ninety-eight mounds
21 HE i	Indian village	Native village reported near Bloomington Ferry
21 HE av	NMVT Fowler Segment	Portage/Trail/Road – no information available
21 SC av	Wawatosa Island North	Structural ruins from WWII internment camp

Table 2-1. Archaeological sites within one mile of the Bloomington Ferry Road parcel (Arzigian and Stevenson 2003; OSA 2021)

All four mound sites are located on the edge of the steep escarpment overlooking the Minnesota River valley at elevations ranging between 740 and 840 feet above sea level. The

relatively level northeastern portion of the Bloomington Ferry Road parcel is located on similar landforms between approximately 810 and 820 feet above sea level.

All four of the mound sites were surveyed by Lewis (n.d.) and described by Winchell (1911). According to Arzigian and Stevenson (2003), no excavation information has been found for 21HE0004, 21HE0005 and 21HE006. Seven mounds at 21HE0017 were excavated ahead of development at the site in the 1980s and early 1990s (Arzigian and Stevenson 2003:393). Arzigian and Stevenson note that prior to the above-mentioned archaeological investigations, many of the mounds at 21HE0017 had been damaged by agriculture and development.

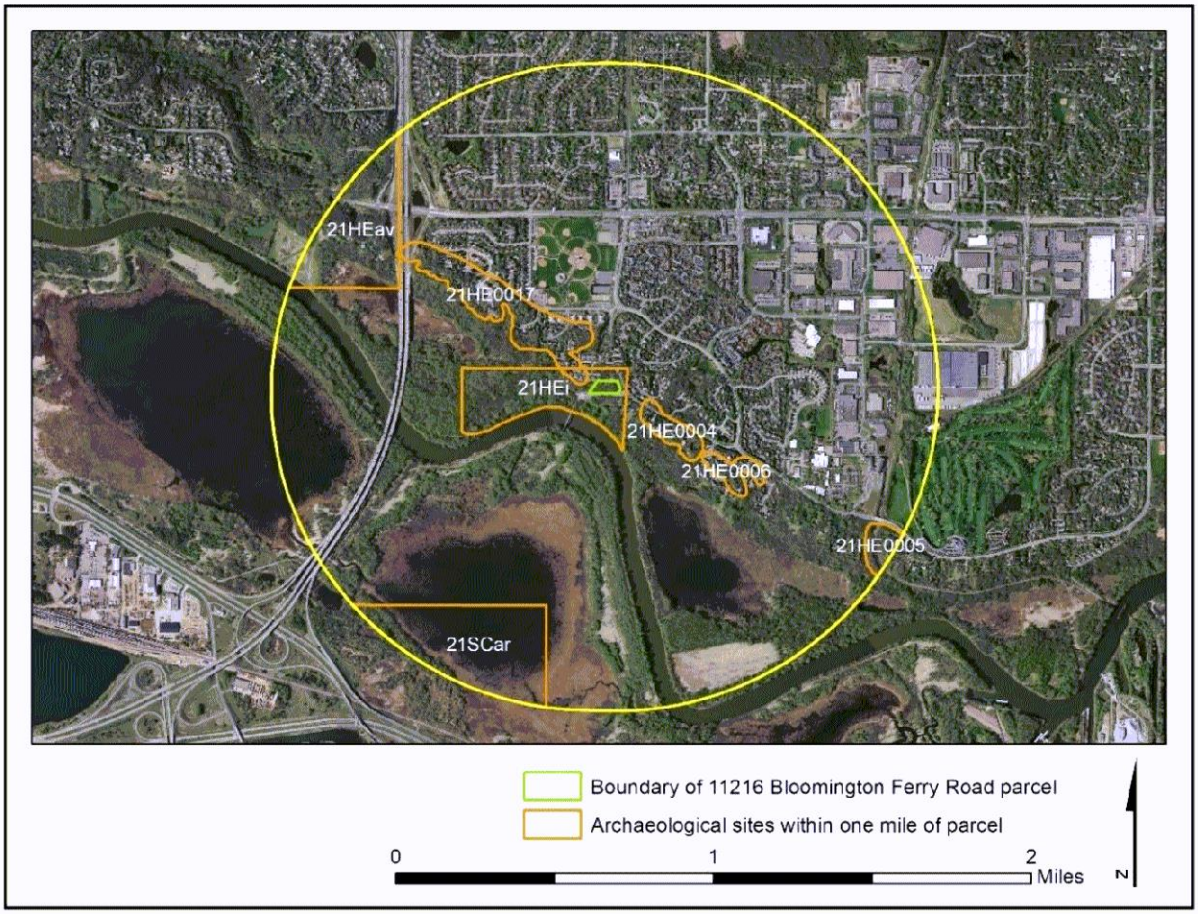

Figure 2-9. Sites within one mile of 11216 Bloomington Ferry Road parcel. Site boundaries have been clipped to the 1 mile buffer surrounding the parcel (OSA 2021; MnGeo 2021b).

The remaining three sites have alpha site designations, indicating that their location and description has not been confirmed by field investigations (OSA 2011).

21HEi is a post-contact Native village described by Lewis (n.d.) as being in Government lots 4, 5 and 6 of Section 6. This location encompasses the Bloomington Ferry Road parcel. However, the site is not mentioned in other historic accounts, and archaeological survey in 1981 did not provide any evidence of the site.

21HEav is a portage, trail or road segment. No further information about this site was available in the OSA database.

21SCar consists of structural ruins of a camp at which Japanese Americans were interned during the Second World War.

2.3. Initial Site Visit

On 10 June 2021 HUCAS personnel Everett Blackthunder (Indigenous Archaeology Supervisor) and David Tennessen (Principal Investigator) conducted an initial site visit. The goal of the initial site visit was to collect information about the parcel, including landscape position, topographic features, vegetation cover, number and location of structures, etc.

Fieldwork during this initial visit was entirely non-invasive and consisted of walkover survey of the portions of the parcel deemed to have the highest potential for containing burials or mortuary features.

Selected areas were photographed, and the locations of relevant landscape features were recorded using a Trimble Geo7x GPS receiver. These features included structures, vegetation boundaries and the extent of an apparent low, convex landform on the eastern edge of the parcel.

GIS software was used to create a terrain visualization based on a one-meter Digital Elevation Model (MnGEO 2021e). The DEM was used to create a hillshade model illuminated at 315° azimuth and 45° elevation, and draped with a semi-transparent four-category classification showing the percent slope (Figure 2-10 and Appendix B).

The upper surface of the parcel, in the northeastern corner of the property (covering approximately 0.7 acres) is relatively level, and slopes gently to the south and southwest, with slopes primarily between zero and approximately 6 percent.

All the visible post-contact development on the parcel has occurred in this upper area (Figure 2-11, 2-12, 2-14). This development includes a house with a basement surrounded by a substantial structural berm, two-car garage, and gravel driveway. The relatively level surface in this upper area may be the result of intentional grading.

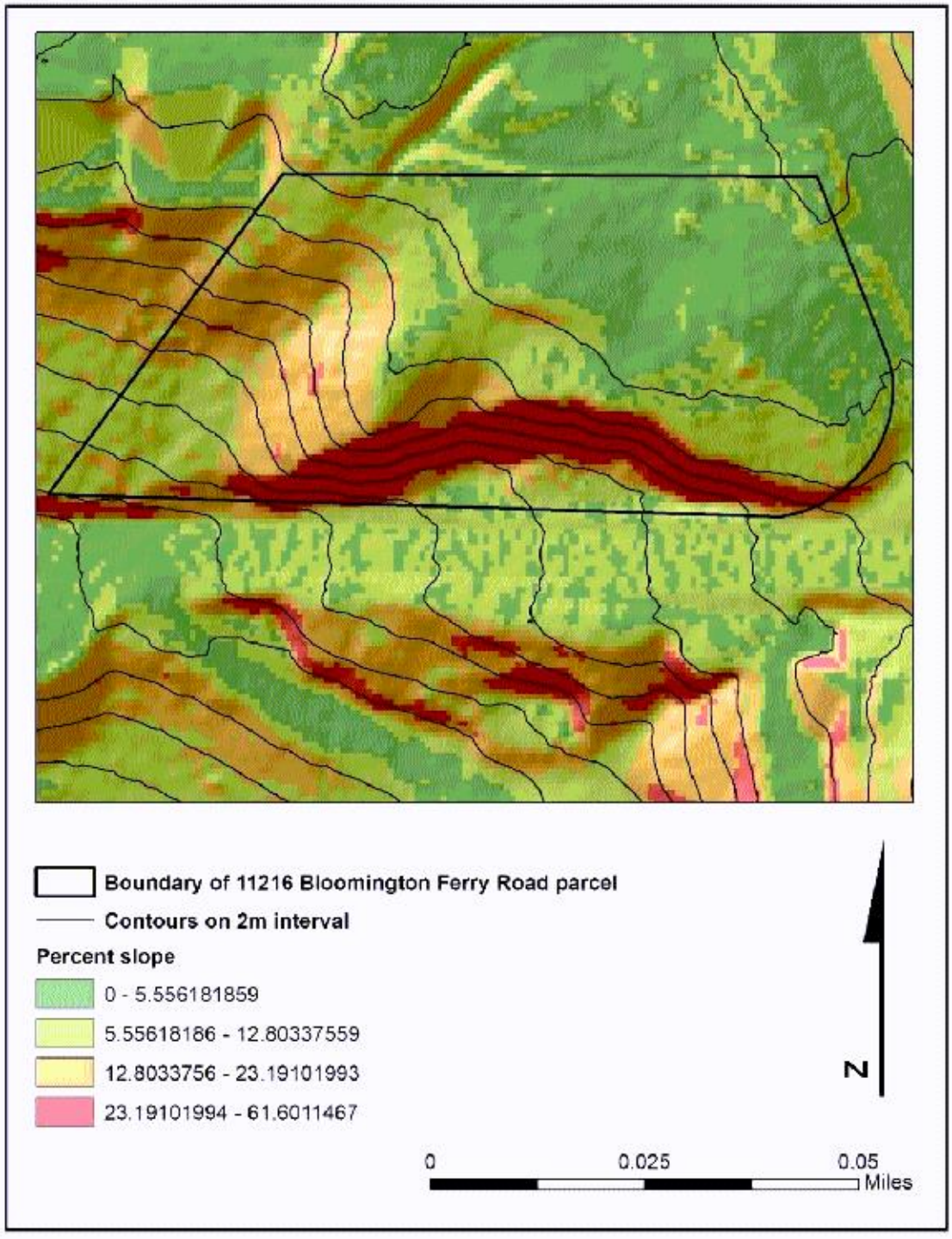

Figure 2-10. Terrain visualization of 11216 Bloomington Ferry Road parcel (MnGEO 2021e).


Figures 2-11a, 2-11b. Existing house and garage viewed from southeast (a) and northwest (b).


Figures 2-12a and 2-12b. Southwestern end of existing house viewed from south (a) and southwest (b) showing the berm surrounding the house.

Other landscaping activities may have occurred in the upper area of the parcel as well. A gravel driveway currently extends from the existing garage to Bloomington Ferry Road. The 1956 aerial photograph (Figure 2-6, UMN 2021b) shows a circular driveway in front (east) of the existing house. Most of the upper surface of the parcel appears to have been graded and is vegetated in turf grass, with a few scattered trees. These include species that are either non-native or non-local, including crabapple, lilac, and spruce. The 1956 aerial photograph also appears to show two areas of turf grass.

During the initial survey, an apparent low, convex surface was defined on the eastern side of the upper, northeastern portion of the parcel (Figure 2-13, 2-14). A large spruce is growing near the highest point of this landform, which is oriented northwest to southeast. As measured in the field, this convex surface is approximately 38 meters long and 24 meters wide.

Figure 2-13. Partial view of the low, convex landform on upper surface of parcel

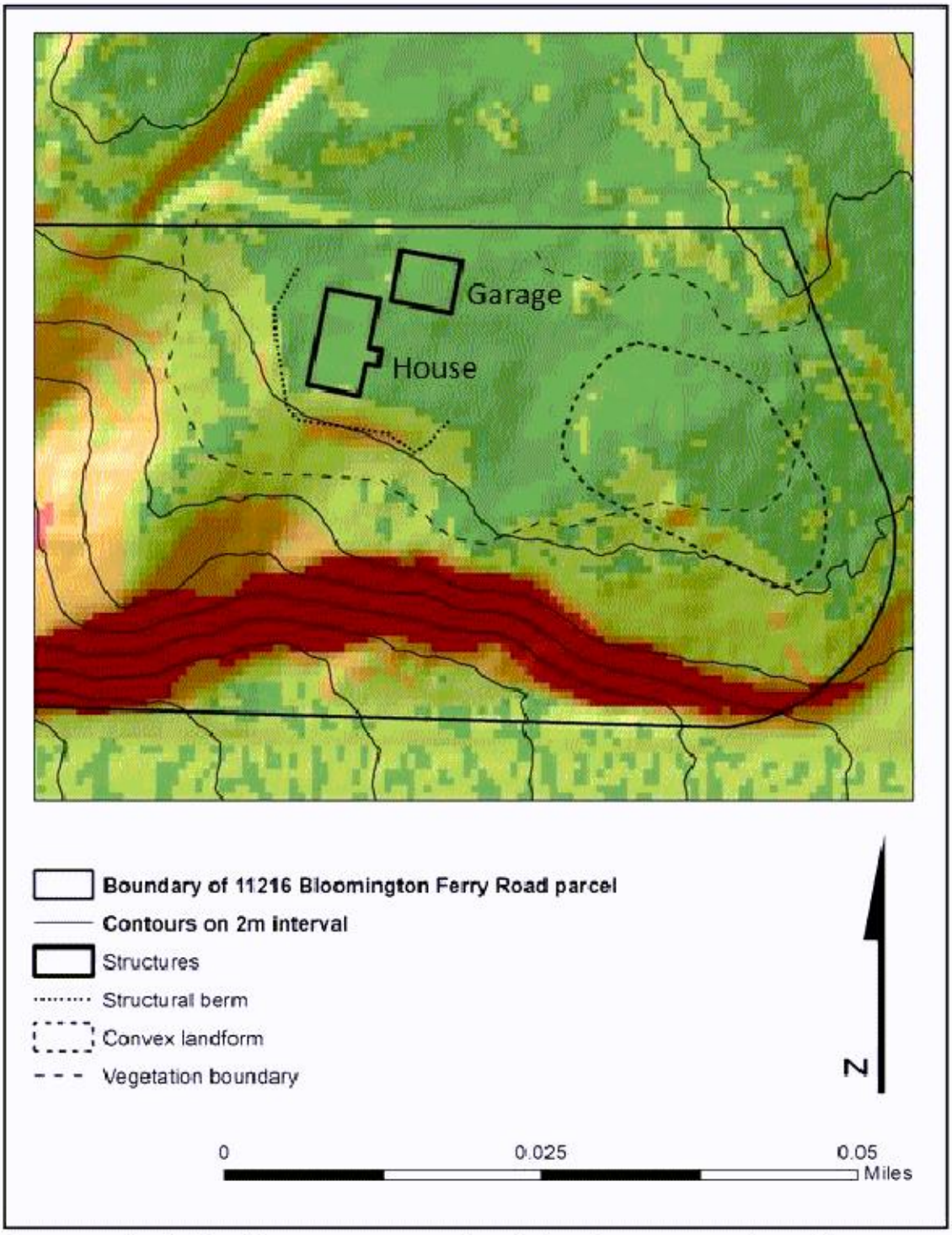

Figure 2-14. Distribution of features on upper surface of Bloomington Ferry Road parcel (MnGEO 2021e).

To investigate the potential age of the surface in the upper, northeastern portion of the parcel, the ages of two large oaks were estimated. This estimation was carried out by multiplying the diameter of the tree at breast height (dbh) by an appropriate growth factor. The Minnesota Department of Natural Resources recommends a growth factor of 4 or 5 to estimate the age of forest-grown oaks (MnDNR 2016).

One oak was located to the north of the driveway entrance. The other was located to the southwest of the house on the edge of the bluff. The estimated ages of these trees ranged between 165 and 206, and 100 and 125 years respectively.

Although the presence of old trees is consistent with uncultivated surfaces, both trees are on the margins of the mostly level ground in the northeastern corner of the parcel and could have been left undisturbed if the area was cultivated before 1937.

The remainder of the parcel slopes more steeply to the south and southwest. The very steep slopes on the south side of the parcel may be related to the construction of Crest Avenue, which runs parallel to the southern boundary of the parcel.

The slopes on the west side of the parcel appear to be associated with an erosion or drainage gully that originates on the neighboring property to the north. The southwestern slope ends in a relatively level area at the base of the slope. A second, apparent erosion feature is a broad gully that originates in the center of the parcel and ends above the steep slope on the south side of the parcel (Figure 2.15).

At the present time, the sloping surfaces of the parcel support deciduous forest, consisting in part of oak (*Quercus* sp.), ash (*Fraxinus* sp.) box elder (*Acer negundo*) and hackberry (*Celtis occidentalis*).

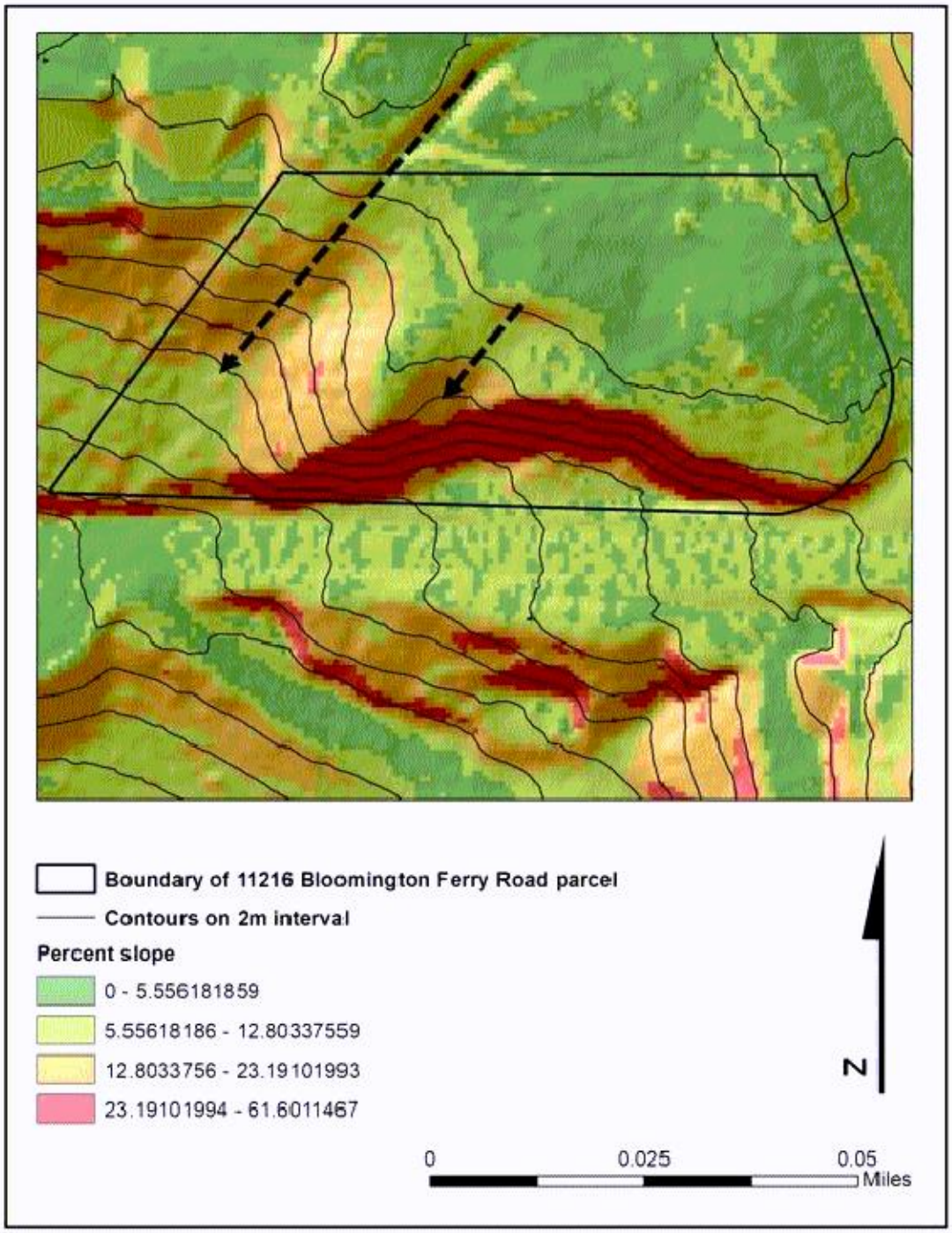

Figure 2.15. Locations and apparent directions of erosion features on Bloomington Ferry Road parcel indicated with dashed arrows (MnGEO 2021e).

3.0 Site Evaluation

The records review and initial site visit indicate that the Bloomington Ferry Road parcel has a high potential for containing human burials, mortuary features or associated artifacts.

The nearby presence of four mound sites, containing at least 130 mounds indicates extensive use of the area by Native people for mortuary purposes. The landscape position of the Bloomington Ferry Road parcel is similar to that of the nearby mound sites in terms of elevation and landform. These similarities suggest that the area encompassed by the parcel may also have been used for the same purpose.

The low convex feature on the east side of the upper surface of the parcel could represent a mound whose surfaces have been reduced by erosion, plowing or grading. Although mounds are the most prominent type of mortuary feature in the vicinity of the parcel, remains of other mortuary practices, such as scaffold burials, could also be present.

Residential development of the property after 1937 appears to be responsible for most alterations to the ground surface of the parcel. There is no evidence that the parcel was cultivated after 1937, although it is possible that it was cultivated earlier. Alterations to the ground surface associated with residential development include the formation of the structural berm around the existing house and possibly the leveling much of the upper surface of the parcel. These surface alterations, as well as erosion associated with cultivation or development of the parcel, suggest the potential for buried mortuary features or ground surfaces.

Because of the high potential for human burials, HUCAS recommends additional work, including subsurface investigation, to determine if there is evidence that the parcel was used as a burial ground. Such evidence would include the presence of human remains, intact or remnant mounds or other earthworks or non-mound mortuary features.

To minimize the potential for damage to buried remains, subsurface investigation should begin with minimally invasive techniques, such as wide-interval coring with a one-inch soil probe, increasing the frequency and size of the excavations as needed.

3.1 Approaches for Further Investigation

Based on the records review and site visit, three approaches for further investigation are recommended.

1. Investigating the nature of the low, convex landform on the east side of the upper surface of the parcel.
2. Identifying, mapping, and describing sediments that overlie buried surfaces.
3. Identifying recently disturbed and deposited sediments, and systematically sampling for the presence of human remains.

1. Investigating the nature of the low convex landform.

Because of the nearby presence of mounds, the highest priority should be given to determining if the low convex landform on the upper surface of the parcel is a mound whose contours have been muted by erosion, plowing or grading of the surface (Figure 3.1).

During the initial site visit on June 10, understory vegetation on the surface of the landform was sparse. Because of this, investigation should begin with visual inspection of the surface for materials exposed by natural disturbance processes.

The possibility of buried surfaces beneath the landform should be investigated by systematically sampling with a 1-inch soil probe or 2 ¾ inch bucket auger. A buried surface beneath the landform would suggest intentional construction. Sampling should begin around the perimeter of the feature and be extended toward the midline as necessary.

Finally, the sediment making up the landform should be sampled for the presence of human remains or associated artifacts. Sampling could be carried out by removing soil with a 2 ¾-inch bucket auger or a 40 to 45-centimeter diameter shovel test and screening through ¼-inch mesh.

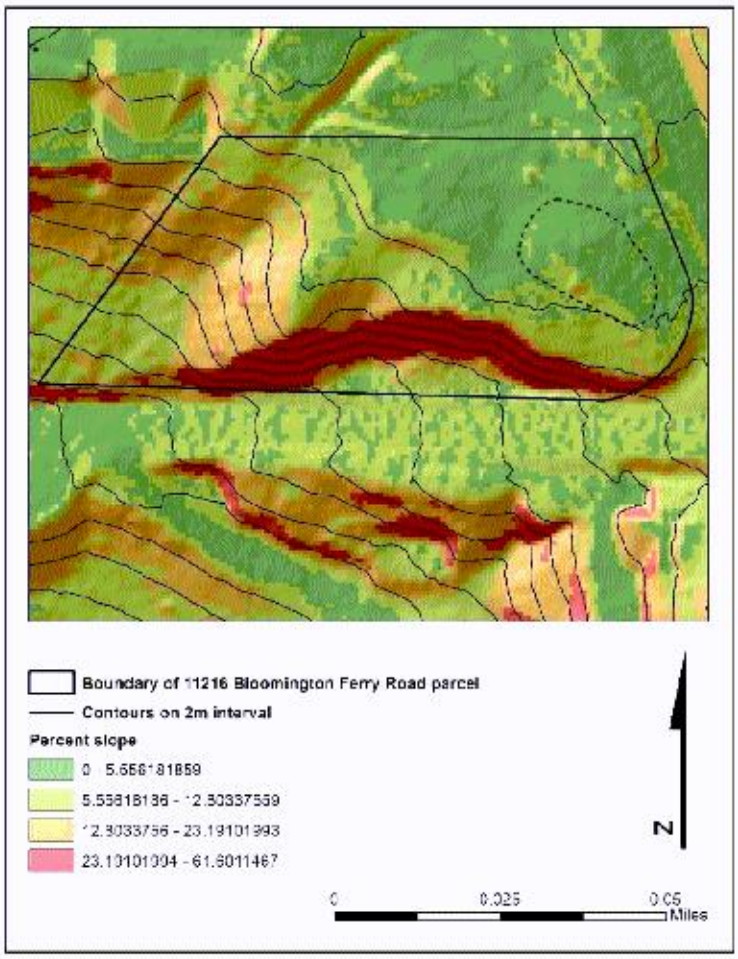

Figure 3.1. Terrain visualization showing convex landform on upper surface of parcel (MnGEO 2021e).

2. Identifying, mapping, and describing sediments that overlie buried surfaces.

Alteration to the ground surface during residential development, as well as erosion associated with cultivation or development of the parcel may have buried surfaces. Such surfaces could contain human burials or mortuary features.

Three features seem especially likely to represent recently deposited sediment potentially concealing buried cultural features or ground surfaces. These are the structural berm on the upper surface of the parcel (indicated with an arrow in Figure 3.2) and gently sloping surfaces at the foot of the slopes on the west and south sides of the parcel (indicated with dashed lines in Figure 3.2).

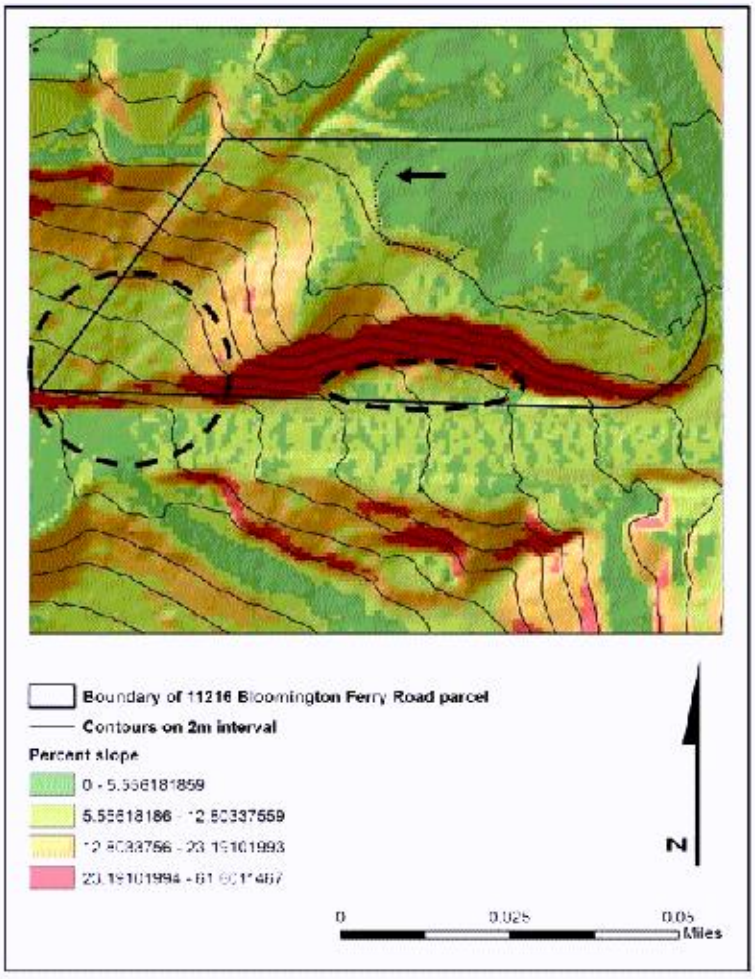

Figure 3.2. Terrain visualization showing structural berm (arrow) and gently sloping areas at foot of western and southern slopes (dashed lines).

The existing house on the parcel is bounded on the west and south sides by a substantial, steep-sided berm (Figure 2-12a, 2-12b, 3-2). The origins of this berm are unknown, but it seems likely that it was created by piling sediment on the natural ground surface for the purpose of extending the relatively level upper surface of the parcel further to the west. If this was the case, the original ground surface, and perhaps cultural features, may be present at the base of the recently deposited sediments.

To test this hypothesis, the berm should be systematically cored using a 1-inch soil probe or 2 ¾-inch bucket auger to determine if a buried surface is present. Coring should begin outside the boundaries of the berm and work toward the house. If the hypothesis is confirmed, the depth, distribution, and description of overlying sediment should be recorded.

The other two features that may represent recently deposited sediments are the gently sloping surfaces at the foot of steep slopes on the west and south sides of the parcel (Figure 3-2). If this is the case, these sediments may have buried older surfaces in these areas.

To investigate this possibility, an effort should be made to excavate through the sediment in these locations to reach any buried surfaces or features beneath. These efforts should begin along the southern margins of the parcel, where the sediments are likely to be the thinnest.

Because the presence and depth of deposits in this location is unknown, investigation should begin with systematic hand-coring using a 1-inch soil probe, increasing the size, depth and frequency of excavations as needed. If the presence of buried surfaces is confirmed, the depth, distribution and description of overlying sediment should be recorded.

Given the potential significance of buried surfaces, additional discussions among the interested parties would be needed to develop an effective and appropriate approach for further investigation if buried surfaces are found.

3. Identifying recently disturbed or redeposited sediments, and systematically sampling those sediments for the presence of human remains.

The records review and initial site visit suggest that the residential development of the parcel has caused significant ground disturbance. The possibility of ground disturbance resulting from cultivation prior to 1937 also cannot be ruled out. If these activities impacted burials or mortuary features, displaced human remains could be present in the resulting disturbed or redeposited sediments.

The two investigative approaches discussed above could identify disturbed or redeposited sediment in the vicinity of the low convex landform, the structural berm and at the foot of the steep slopes on the west and south sides of the parcel. During these investigations, a sample of these sediments should be screened and examined for human remains.

In addition, the relatively level, upper surfaces of the parcel outside of the low convex feature and the structural berm should be systematically cored. If evidence of disturbed or redeposited sediments are found, these areas should be shovel-tested to check for the presence of displaced human remains.

Finally, exposed surfaces on the steep slopes on the west and south sides of the parcel should be checked for human remains displaced by erosion.

3.2 Conclusion

The HUCAS records review and site visit suggest that the Bloomington Ferry Road parcel has high potential for containing human burials, mortuary features and associated artifacts. The parcel encompasses a landscape feature that may be a mound, as well as features that have the potential to conceal burials or mortuary features. Finally, ground disturbances associated with residential development and cultivation may have distributed displaced human remains in areas of disturbed or redeposited sediment.

For these reasons, HUCAS recommends three approaches for further investigation if development of the parcel is planned.

1. Investigating the nature of the low, convex landform on the east side of the upper surface of the parcel.
2. Identifying, mapping, and describing sediments that overlie buried surfaces.
3. Identifying recently disturbed and deposited sediments, and systematically sampling for the presence of human remains.

If buried surfaces are identified during these investigations, additional discussions among the interested parties would be needed to develop effective and appropriate methods to investigate the possibility of human remains or mortuary features within those surfaces.

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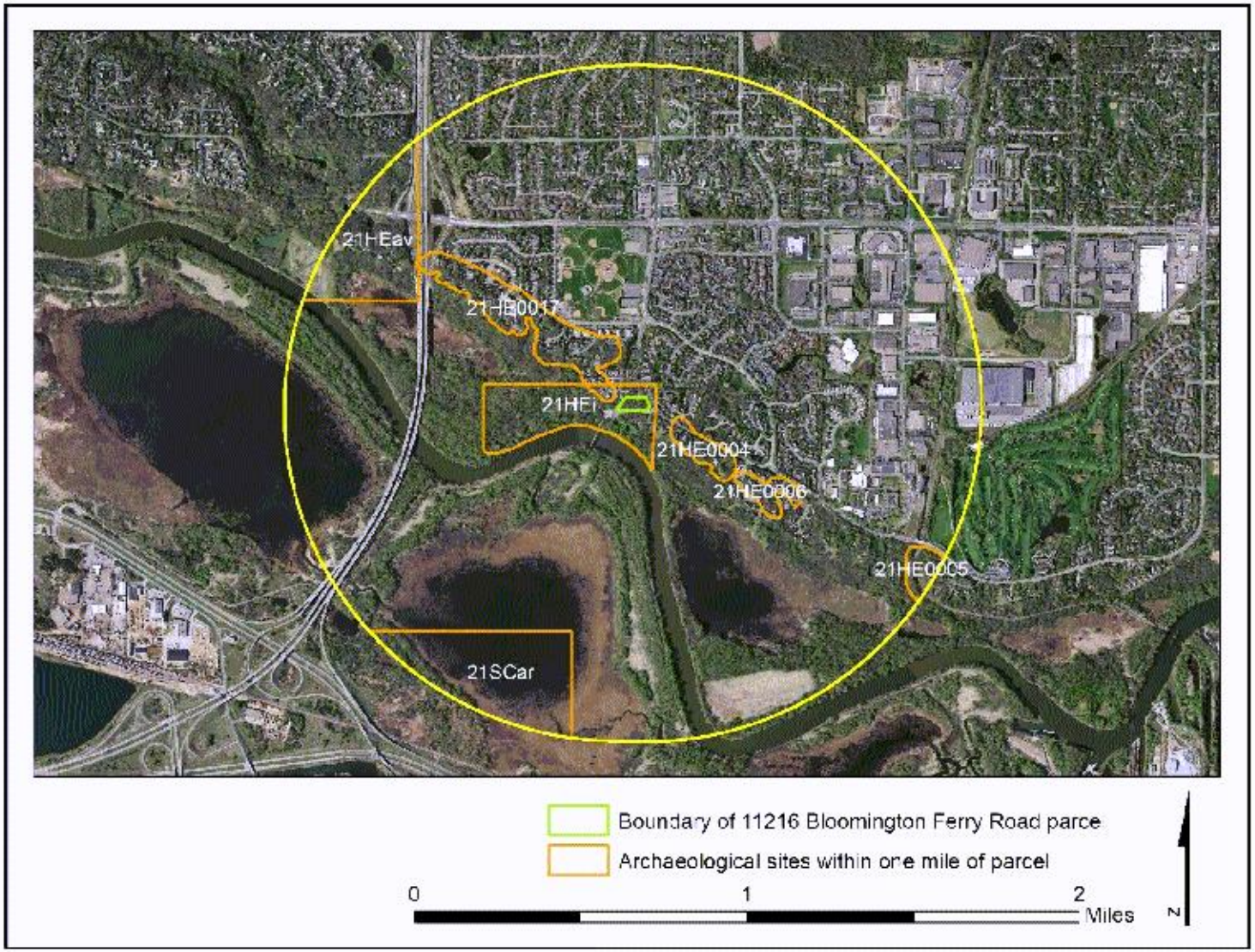
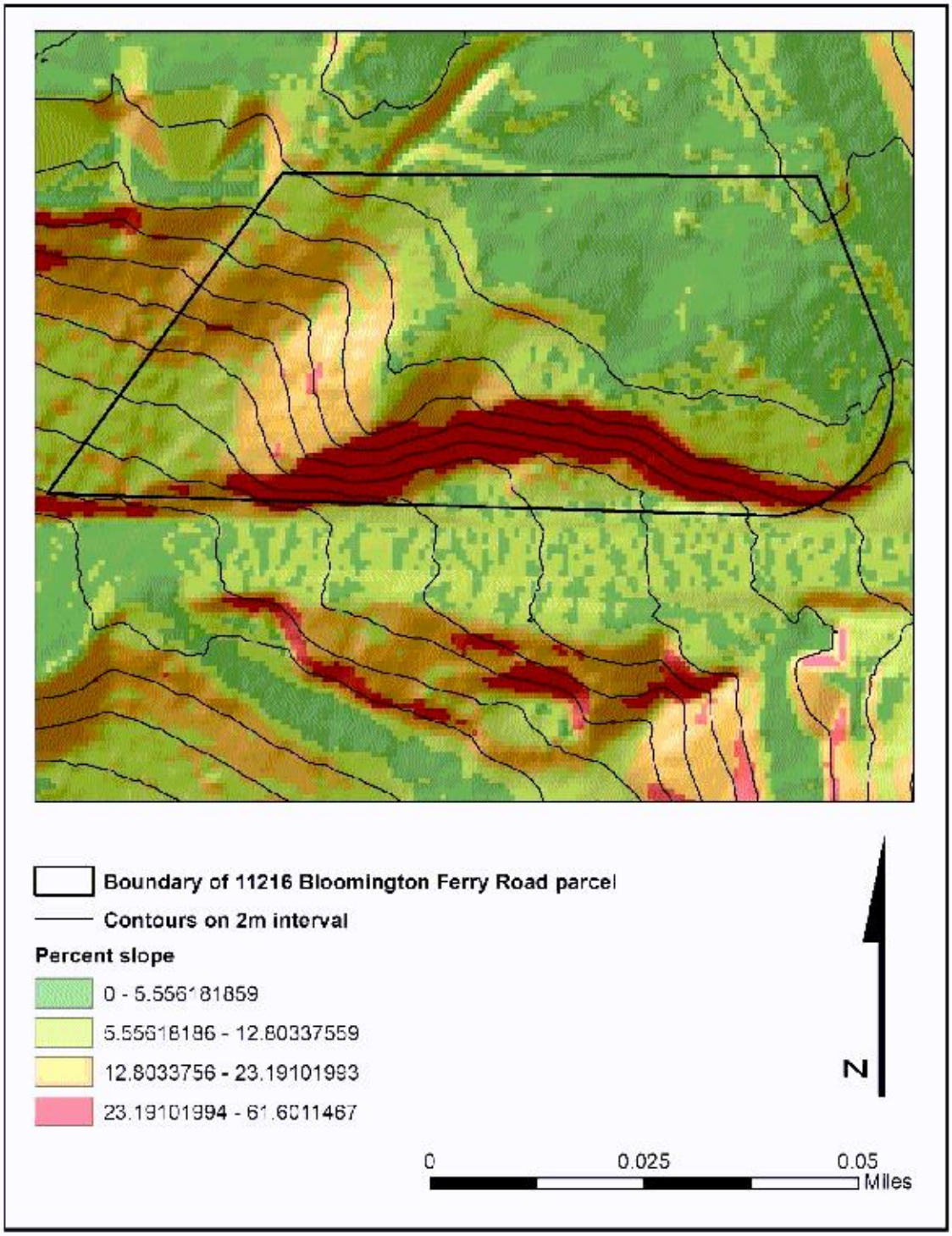
Appendix A


21HEav
21HE0017
21HEi
21HE0004
21HE0006
21HE0005
21SCar
Boundary of 11216 Bloomington Ferry Road parce
Archaeological sites within one mile of parcel
0
1
2
Miles
N

Appendix B


Boundary of 11216 Bloomington Ferry Road parcel
Contours on 2m interval
Percent slope
0 - 5.556181859
5.55618186 - 12.80337559
12.8033756 - 23.19101993
23.19101994 - 61.6011467
N
0
0.025
0.05
Miles