PHASE I ARCHAEOLOGICAL AND GEOMORPHIC INVESTIGATIONS FOR BRIDGE 9100 REPLACEMENT OR REHABILITATION ON T.H. 1, MARSHALL COUNTY, MINNESOTA AND BRIDGE 54-3, T.H. 54, WALSH COUNTY, NORTH DAKOTA

S. P. 4509-05
Mn/DOT Contract No. 96505
Minnesota OSA License No. 10-017
North Dakota SHPO Annual License

Authorized and Sponsored by:
Minnesota Department of Transportation
and the Federal Highway Administration

FINAL TECHNICAL REPORT

Prepared by:
Susan C. Mulholland and M. Patrice Farrell, Principal Investigators
Stephen L. Mulholland and Brian Klawiter, co-PIs

Duluth Archaeology Center
5910 Fremont Street, Suite 1, Duluth, MN 55807
Duluth Archaeology Center Report No.: 10-32

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ABSTRACT

Phase I archaeological and geomorphic survey was conducted for S.P. 4509-05, replacement or rehabilitation of Bridge 9100 over the Red River of the North in Marshall County, Minnesota and Walsh County, North Dakota. The project area is west of Oslo, Minnesota and includes a slight realignment of T.H. 1 in Minnesota and T.H. 54 in North Dakota to the south of the present road corridor. No previously reported sites were recorded in or adjacent to the project area in Minnesota but the area is considered to have high potential in all depth ranges under Mn/Model. The Ferry to Oslo site (32WAX0010) was recorded from documentary sources in the SW of T155N R51W section 36 but had not been field located or verified.

Geomorphic investigations following the Deep Testing Protocol developed by the Minnesota Department of Transportation identified no significant buried land surfaces in either location tested (one each on the Minnesota and North Dakota sides of the Red River). Trench 1 indicates significant flooding with an A horizon at 60 cm on the Minnesota side. Trench 2 indicates a simpler sedimentary sequence on the North Dakota side. Both have alluvial deposits of Lake Agassiz sediments derived from river flooding. No indications of archaeological materials were observed.

Archaeological investigations indicated considerable disturbance in many areas of the project. No archaeological sites were identified in the Minnesota portions of the project. A former roadbed (32WA0268) was identified south of but adjacent to the APE on the North Dakota side of the river; it appears associated with a ramp-like feature that accesses the modern floodplain of the Red River. This surface feature may be associated with the Ferry to Oslo site, 32WAX0010. No additional archaeological investigations are recommended for the project but review of the surface features for historical associations is warranted.

PERSONNEL

Susan C. Mulholland - Principal Investigator
M. Patrice Farrell - geomorphic Principal Investigator
Stephen L. Mulholland - Project Director and archaeological co-PI
Brian Klawiter - geomorphic co-PI
Jennifer Hamilton - GIS, graphics

ACKNOWLEDGMENTS

Many people assisted with this project. Dennis Gimmestad (Mn/DOT cultural resources project manager) provided direct assistance and direction in the implementation of the project, including maps, MnModel data, and definition of the areas to examined. Jan Heuer of Mn/DOT District 2 provided invaluable coordination on the project and delineation of the project area. Craig Johnson, Mn/DOT cultural resources unit, provided comments on the draft technical report. Backhoe services were provided by Mn/DOT Warren Truck Station and operated expertly by Robert Mager. Scott Anfinson, Minnesota State Archaeologist, provided the Minnesota state annual archaeology license; Paul Picha, North Dakota SHPO Chief Archaeologist, provided the North Dakota annual archaeology license. In addition, Tom Cinadr of the Minnesota SHPO conducted a search of the Minnesota SHPO site file database and reports; Emily Sakariassen provided the same services on North Dakota files. Amy Bleier of the ND SHPO provided the state site number for the old road remnant.

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BACKGROUND INFORMATION

INTRODUCTION

Bridge 9100 on Trunk Highway (T.H.) 1 in Marshall County, Minnesota, and T.H.54 (Bridge 54-3) in Walsh County, North Dakota, may be replaced and realigned approximately 50 feet south of the present location (S.P. 4509-05). A Phase I archaeological and geomorphic survey was required by the Minnesota Department of Transportation (Mn/DOT) and conducted by the Duluth Archaeology Center (DAC) under Mn/DOT Contract No. 96505. The Area of Potential Effect (APE) consists of a corridor approximately 100 feet to the north and south of the existing center line of T.H. 1/T.H. 54 and extending 0.5 mile to the east and west of Bridge 9100 in Minnesota and North Dakota. The legal description for the survey area is T154N, R50W, Section 6 NE of NE in Marshall County, Minnesota and T155N, R51W, Section 36 SW of SW in Walsh County, North Dakota (Figure 1).

The presence of pre-Contact sites associated with the Red River of the North and its tributaries (Michlovic et al. 1999) suggested the possibility that deeply buried unrecorded archaeological sites may exist along the proposed construction corridor, even though no known sites were present in the project area. The Mn/Model landscape suitability ratings for this region are high potential at all depth ranges (surface, 0-1 meter, 1-2 meter, 2-5 meter). Therefore, not only standard Phase I archaeological survey was required but also Phase I testing for deeply buried sites following the Deep Testing Protocol developed by Mn/DOT using backhoe trenches (Monaghan et al. 2005). The archaeological survey was conducted in June 2010. Activities were conducted under Minnesota annual State Archaeology License 10-017 and a Cultural Resource Investigation annual license (no number) for North Dakota (Appendix I).

Since federal government funding is involved, Mn/DOT responsibilities for cultural resource investigations are for compliance with the National Historic Preservation Act of 1966 (PL 89-665) as amended (Section 106 compliance). Pertinent State of Minnesota regulations include the Field Archaeology Act (MnST 138), the Private Cemeteries Act (MnST 307.07), and the State Historic Preservation Office (SHPO) Guidelines for Archaeological Projects in Minnesota as well as the MnDOT Cultural Resource Unit guidelines. North Dakota regulations include the Century Code Sections 55-03-01 and the North Dakota SHPO Guidelines Manual for Cultural Resource Inventory Projects (2006 revised edition).

LOCATION AND SETTING

The general project area consists of a corridor approximately 200 feet wide extending to 0.5 mile east and west of the current Bridge 9100 on T.H. 1 in Minnesota and T.H. 54 in North Dakota (Figure 2). This corridor includes various types of land use, including agricultural fields, landscaped recreation areas, developed residential and commercial properties, and flood control features. The vegetation varies from cultivated crops in plowed fields to grass lawns or tree and brush/herbaceous cover. The legal description of the corridor and the UTMs for the eastern and western ends are listed in Table 1.

Table 1. Project Location Data

T154 N, R 50 W, Section 6 N (Marshall County, Minnesota)
T155N R51W, Section 36 SW of SW & Section 35 SE of SE (Walsh County, North Dakota)
UTM for Eastern end: 638802 Easting, 5339542 Northing

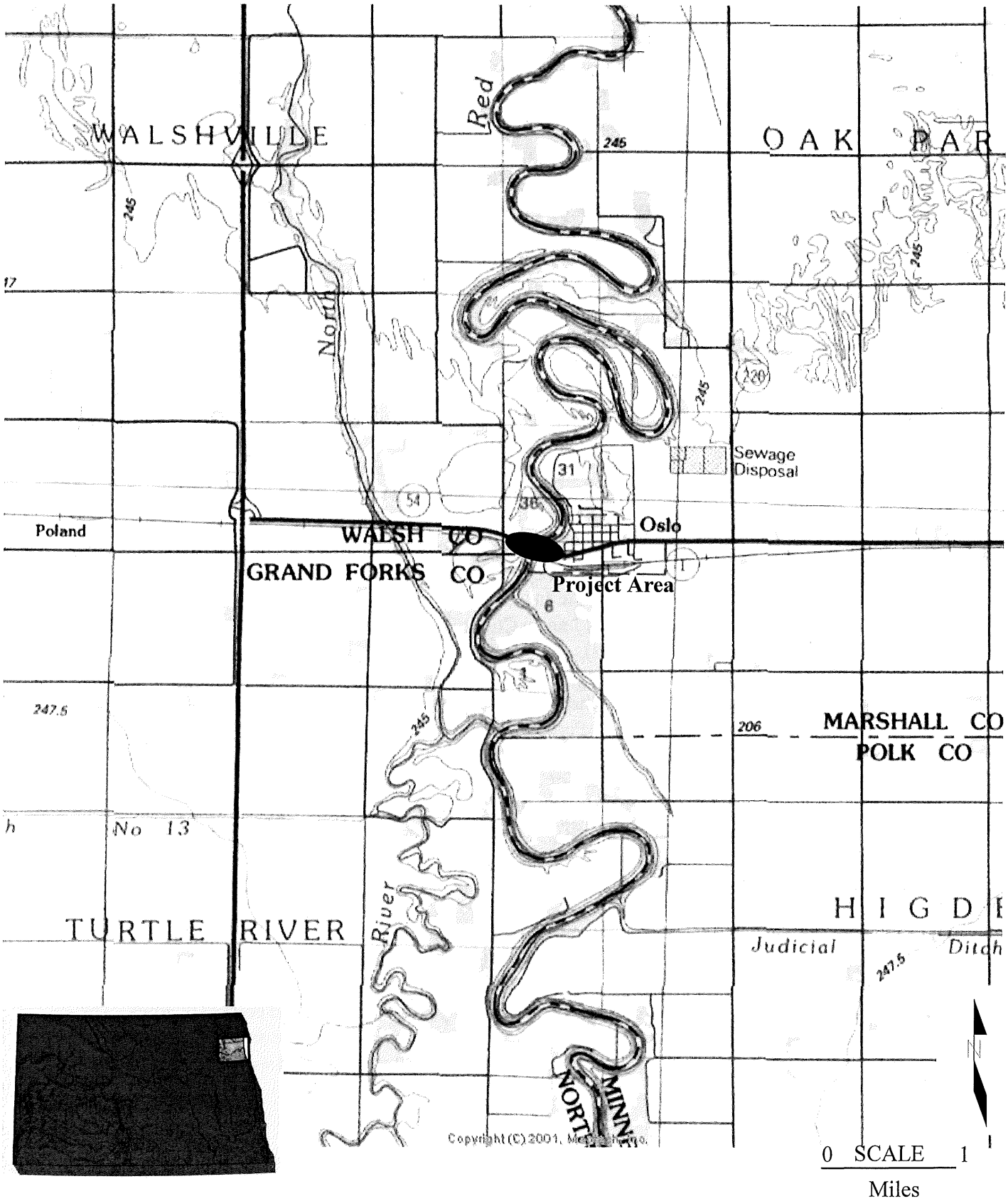

Figure 1. Location of the project area, Grafton 1985 (1990) 1:100,000 USGS topographic map.

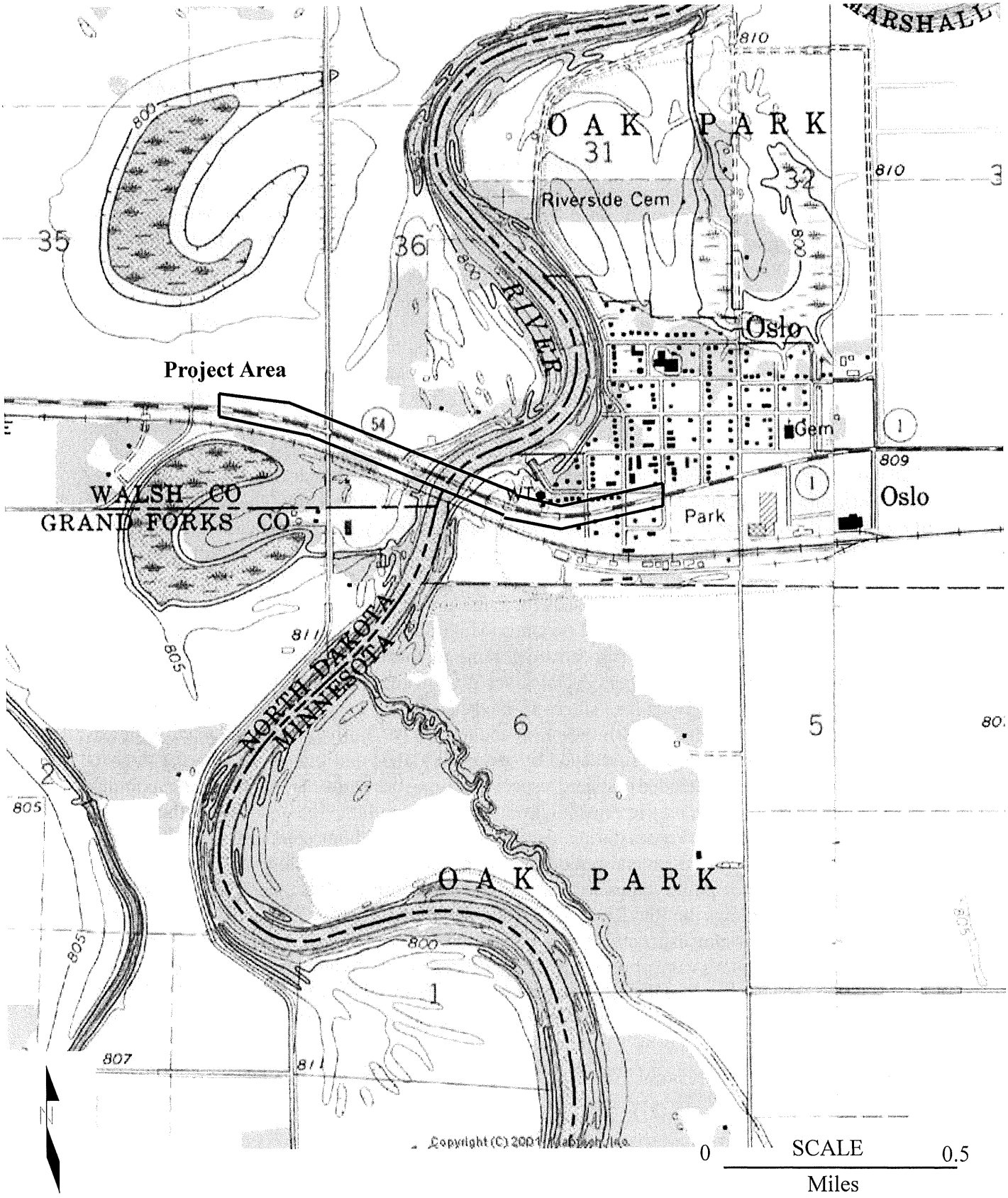

Figure 2. Location of the project area, Oslo1966 (1979) quadrangle (1:24,000) USGS topographic map.

UTM for Western end: 637493 Easting, 5339769 Northing
*Universal Transverse Mercator coordinates, zone 14, 1983 North American Datum (NAD)

The Area of Potential Effect (APE) for the project consists of a 200 foot wide corridor that incorporates the realignment of T.H. 1 in Minnesota and T.H. 54 in North Dakota. Placement of the new bridge to the south of the existing bridge would require new bridge footings as well as realignment of the road access. Project information was provided by Dennis Gimmestad, the Mn/DOT project manager. Since the Red River is known to contain deeply buried archaeological sites within the valley trench, the survey used standard archaeological reconnaissance methods as well as the Mn/DOT Deep Test Protocol (Monaghan et al. 2005, www.mnmodel.dot.state.mn.us/pages/DeepTestProtocol.html) to test the subsurface sediments below 1 meter in depth. All subsurface testing was to be confined to the APE. However, the Mn/DOT project manager did leave open to the project PI the option to do surface survey outside the APE to determine boundaries of any sites located within the APE.

The project area is located in the Agassiz Lacustrine Plain (Red River Valley) geomorphic region (University of Minnesota 1980:5). This province consists of a low and level plain formed by Glacial Lake Agassiz, bounded on the east and west by a series of beach ridges. The Red River flows north along the center of the region but has a very low gradient. This is the central part of the of the southern extension of the glacial lake, which extended north into Canada as well as east into central Minnesota (Wright 1972:576). Clays and silts were deposited in this area with some sands in the beach ridges.

Glacial Lake Agassiz formed subsequent to the last glacial ice advance, the Red River Lobe that advanced south from the Winnipeg Lowlands (Mulholland et al. 1997; Ojakangas and Matsch 1982:109). It ponded behind the Big Stone Moraine to form the largest glacial lake in North America; drainage was south through Glacial River Warren until lower outlets were uncovered by ice retreat to the north. Various lake stages formed succeeding levels of beach ridges, with the Campbell Beach being the latest in Minnesota at about 9300 BP. Early post-glacial vegetation was probably tundra or spruce forest succeeded by aspen parklands and prairie. During the Archaic period, prairie vegetation extended eastward, especially during the warm, dry, Altithermal maximum. During Woodland times, the prairie vegetation was probably similar to that recorded in the General Land Office (GLO) Survey records during historic settlement and homesteading.

The vegetation of the general region during the early historic period and Euro-American settlement was a mix of prairie types with some woodland forest (Marschner 1974). The river-bottom forest type follows the Red River Valley and the major tributaries. It consists of generally deciduous trees such as elm, ash, cottonwood, oak, basswood, soft maple, willow and aspen. Areas away from the river valleys were prairie with wet prairie or marsh/slough vegetation in some areas.

The project is in the Red River drainage in Minnesota and North Dakota (Waters 1977:106). This watershed represents the central area of Glacial Lake Agassiz, a large nearly flat lake bottom plain that dips slightly to the north. Tributaries cut through the lake sediments enter the Red River from the east and west, draining the areas between the lake beach ridges. The Red River drains north into the Hudson Bay drainage.

ARCHAEOLOGICAL BACKGROUND

The project area is located within the Red River Valley archaeological region as defined by Anfinson (1990). Designated region 6 in the SHPO system, this corresponds to the geomorphic

region on the northwestern border of Minnesota with North Dakota. The Red River watershed and the lower reach of its tributaries are included; many of the tributaries extend east outside this archaeological region. No modern lake basins are included, although shallow transient marshes were present prior to draining activities for agriculture. The Minnesota pre-Contact (prehistoric) contexts are based on a somewhat different system of districts (Dobbs 1988). This system uses geomorphic data with some vegetational information. In this system the project is in the Lake Agassiz Basin, Red River Valley (District 1a) bounded to the east by the Beltrami Peatlands (1b) and the Western Morainic-Prairie (2), and to the south by the Minnesota River Valley North (7).

The Archaeology Component of the North Dakota Comprehensive Plan for Historic Preservation divides the state into Study Units; the Northern Red River Study Unit (NRRSU) includes Walsh County (Picha and Gregg 1991). The NRRSU is a large geographic area, extending north to the Canadian border and west to Rolette County. It includes not only the Red River Valley north of central Cass County but also the beach ridges and glacial terrain to the west; the northern edge extends to the Turtle Mountains. This incorporates parts of the Glaciated Plains physiographic region as well as the Red River Valley.

Pre-Contact Contexts

The Early Paleoindian contexts of Clovis and Folsom are generally absent from the project area (Higginbottom 1996, Picha and Gregg 1991). A fluted projectile point is reported at the Lake Harvey site (21CA17) in Cass County, Minnesota; another is in a collection from 32PB25 overlooking the Pembina River. This general absence of very early materials is expected as the basin of Glacial Lake Agassiz occupied the Red River Valley until after about 9000 years ago (Johnson et al. 1995:16-20). However, possible Holcombe and Hi-Lo points are reported from the Donarski site in central Marshall County (Kluth and Hudak 2004:39) and may indicate earlier occupation in the region than previously considered.

The Late Paleoindian Plano context is represented in the region by unfluted projectile points in Marshall (eight), Kittson (two), and Roseau (29; Johnson collection) Counties (Florin 1996:191). Three sites have yielded Plano points in North Dakota (Picha and Gregg 1991). Note that the Browns Valley site (type site of the Browns Valley point) was located in the Minnesota River Valley (Traverse County) immediately south of the outlet of Glacial Lake Agassiz (Arzigian and Stevenson 2003:74). Late Paleoindian sites are also reported from north and east of the project area (Magner 1994). Although several are associated with beach ridges, others occur in the areas between ridges.

The Archaic Period is represented in Minnesota by regional contexts based on environment (Dobbs 1988: 80). The Prairie Archaic is usually indicated to occur throughout western Minnesota coincident with prairie vegetation found during the GLO survey. It is strongly represented in the project area, which has been prairie vegetation since immediately post-glacial times (Picha and Gregg 1991). Points from all contexts are known (Johnson et al. 1995:22-26) but the greatest number is from Late Archaic (Pelican Lake). The Itasca Bison Kill site east of the project area (Shay 1971) conforms to the Lake-Forest context but is also listed under the Prairie Archaic (Dobbs 1988: 89-90, 94-96). Artifacts attributable to the Old Copper Complex (Gibbon 1998) are also present in eastern North Dakota (Picha and Gregg 1991).

Woodland contexts are also well represented in the region (Johnson et al. 1995:27-37). Several historic contexts of the Ceramic/Mound Stage include the Brainerd context, the Transitional Woodland context, the Laurel ceramics, as well as the Arvilla burial mound complex (Dobbs 1988, Arzigian 2008). Brainerd and Laurel ceramics are present as well, although occurring more

commonly in the Mississippi Headwaters region to the east. Laurel is not common in North Dakota; Malmo and Arvilla are better represented (Picha and Gregg 1991). The Transitional Woodland context extends across Minnesota from the Red River to south-central Minnesota (Gibbon and Caine 1980). Blackduck is present but relatively few have been reported in the Red River Valley (Michlovic 2004). The Late Prehistoric Period also includes the Sandy Lake context (Bilkre and Benn 2003, Arzigian 2008). Later Plains Village components are more common to the south and west in North Dakota (Picha and Gregg 1991, Johnson et al. 1995:37-39).

The Red River was a major travel route during Contact and post-Contact times. There are records from travelers noting the remnants of indigenous villages, probably Dakota, along both banks of the Red River and on tributaries. Cultural material from the fur trade era could be present based on records of the various trading companies, explorers, and other historic travelers (Rittenbush 1991 in Picha and Gregg 1991:9.19). Included with the Dakota occupations are records of attendant fur trade posts. In addition, the Red River Trails were established between St. Paul and various destinations in the Red River Valley (Gilman et al. 1979).

AREA ARCHAEOLOGY

The Red River Valley region has a rich and varied cultural history spanning approximately 10,000 years. Prehistoric sites are mostly associated with water resources such as the Red River and its numerous tributaries, although beach ridges had first been thought to be the primary focus of occupation (Michlovic 1983). Association of sites with streams and rivers in this geomorphic region is a stronger correlation than with beach ridges alone (Minnesota Historical Society 1981:32). Syntheses of known site locations suggest that permanent water sources in streams and rivers are of primary importance (Michlovic et al. 1999). Sites have been reported on the Red River as well as tributaries. Occupation of the lake bottom, after the lake drained, was most probably along tributaries to the Red River.

Previous Investigations

The Red River Valley has been recognized as an archaeological area since early archaeological investigations in Minnesota (Anfinson 1990:137-138). Early work focused on burial complexes (Wilford 1970), including the Arvilla Complex (Johnson 1973). Only a few mounds are listed for Marshall County (Winchell 1911:363); a few more are recorded on the Snake River (Wilford 1941). More recent work has investigated habitation and bison processing sites, which provide different types of information (Michlovic et al. 1999:20-22). Both Plains and Eastern Woodland groups appear to be represented in the area, which is not as peripheral to major cultural centers as had been previously thought (Michlovic 1983). Given the richness of ecotones between major vegetational zones, the utilization of the prairie/forest ecotone as well as both zones is not surprising.

Surveys have been mostly for specific projects, although a portion of Clay County (south of Marshall County) was included in the statewide survey (Minnesota Historical Society 1981:29-32). That survey included 85,000 acres in the Agassiz Lacustrine Plain geomorphic region and may be considered typical of other areas in that region. The major result was that sites were very strongly correlated with permanent water; even sites on beach ridges were located where streams cut through the ridge. A similar survey in Norman County covered 3200 acres in a strip on the Red River floodplain (Picha and Gregg 1991:9.17). A total of 41 new sites were reported, mostly on natural river levees that are slightly higher than most of the terrain.

Few projects have occurred in Marshall County; most of the larger surveys have focused on portions of the Snake River (Lane 1975; Dobbs 1987; Dobbs 1999). Sites appear to be most concentrated at the confluence of the Snake and Red Rivers, although some sites were also found upstream. As with the surveys described above, water features appear to be the major predictive factor. A summary of known sites in Marshall County supports this distribution (Kluth and Hudak 2004:Figure 77). Although beach ridges do contain sites, favored areas are where water features are present. Additional work for the Thief Lake Wildlife Management Area (Magner 2003, 2005, 2006) and Agassiz National Wildlife Refuge (Watson and Oothoudt 1977) is in a different geomorphic region, the Northern Bog to the east. Upland areas are considered to be high potential in this region.

Site locations are a reflection of several physical and cultural factors; the low topographic relief in the region, with relatively few geomorphic features suitable for camping, limits the occurrence of sites. Another important factor in locating sites is the depth to which flooding has deposited sediment. It is not unusual to have significant amounts of sediment deposited in a single flood event and annual flooding is the norm in many locations. The presence of deeply buried sites is a result of the geomorphology and topography in the Red River Valley. Excavations at a few sites illustrate the problems of site identification and evaluation in the Red River Valley.

The Mooney site (21NR29) is a stratified site on the Red River near Halstad (Michlovic 1987). It contains at least two Woodland components at 30 cm and 70 cm below surface; Sandy Lake ware is dated to 940 B.P. and Red River ware is defined. A lower Plains Archaic component dated to 3400 B.P. was identified on a buried A horizon at about 1.6 meters depth. Although initially considered not eligible for the National Register (Michlovic 1985:60), the site was later thought to have potential to be eligible (Johnson et al. 1995:11). Some areas within the site were later determined to be non contributing components, specifically the plow zone layers (Johnson et al. 1995:113).

The Canning site (21NR9) is also a stratified site on the Red River with Archaic and Woodland components near Hendrum (Michlovic 1986). The Woodland component is a very large but disturbed Sandy Lake occupation on the surface and extending to 50 cm below surface. The deeper Archaic level is well preserved and represents an Archaic bison processing site dated to 4000 to 3000 B.P. It was nominated to the National Register of Historic Places.

The potential for deeply buried sites was the underlying reason for employing the Deep Site Testing Protocol (Monaghan et al. 2005). The Mn/Model (www.mnmodel.dot.state.mn.us) landscape suitability ratings indicate high potential for archaeological sites at all depth ranges within the meander belt. Close integration of geomorphic and archaeological investigations is necessary for a complete survey.

Specific Project Area

No archaeological sites are reported within or adjacent (within 1 mile) to the Minnesota portion of the project (Cinadr, personal communication 2010). No verified archaeological sites are reported in the North Dakota portion of the project (Sakariassen, personal communication 2010). However, site 32WAX0010 (Ferry to Oslo) is recorded as somewhere within the SW quadrant of section 36 of T155N R51W. The "X" designator indicates that the site was never field verified; it was initially recorded from documentary sources during a Regional Environmental Assessment Project in 1978 (Picha, personal communication 2010).

One cultural resources project includes the Red River crossing at Oslo (Woolworth and Woolworth 1978). The report considered effects of a pipeline on historic and prehistoric resources,

although it concentrated on known prehistoric sites on the Missouri River. However, the field survey did not include any subsurface testing in the present APE.

ARCHAEOLOGICAL SURVEY

METHODOLOGY

The archaeological survey was conducted using a standard Phase I survey methodology. Both shovel testing and pedestrian walkover are employed as appropriate given the surface conditions, topography, and other factors determined in the field. Priority for survey is usually based on proximity to geomorphic features associated with current or former water features; this project is in the Red River floodplain so the entire area has high potential. The project APE includes currently plowed agricultural fields, landscaped recreational areas, flood control features, and developed residential and commercial structures. Walkover was conducted on the plowed fields with excellent ground visibility; shovel testing was conducted in selected other areas including where backhoe trenches would be placed. Areas with obvious ground disturbance were not tested. Locates for buried utilities (Minnesota #100211808, North Dakota #10034614) identified additional areas of previous disturbance and were avoided for safety concerns.

Prior to the start of the archaeological field survey, pertinent data from maps, past surveys and geologic and soils information were reviewed to better acquaint the field supervisor with the area under investigation. From this information pre-field survey strategies and methodologies were formed. These pre-field determinations were then confirmed or modified as warranted by actual site conditions during the initial field visit.

Field Survey

The archaeological survey followed a standard Phase I survey methodology modified for the specific project conditions. The APE was defined by Dennis Gimmestad, Mn/DOT cultural resources project manager in consultation with Mn/DOT District 2. A standard Phase I archaeological survey examines the APE with either shovel testing or pedestrian walkover, depending on surface visibility, topography, and the degree of previous disturbance to the ground. Pedestrian walkover is appropriate when the ground surface is visible and has been disturbed so a sample of the subsurface sediment is exposed to view. Shovel testing is appropriate when the ground surface is not visible or if the subsurface sediments have not been exposed on the surface. Determination of appropriate methods for specific portions of the APE is made in the field.

In this project, the entire APE received pedestrian walkover to determine the degree of previous disturbance by inspection of the ground surface. The APE can be considered in four quadrants, based on the Red River and the existing highway (Figure 2). The northeast quadrant (north of the highway, east of the river) includes a boat launch/recreational area, a levee for flood control, and an electrical substation as well as residential structures. The southeast quadrant (south of the highway, east of the river) has a vegetated area, the corresponding portion of the flood control levee, and City land as well as residential structures. The northwest quadrant (north of the highway, west of the river) has a vegetated area near the river with plowed fields with crops farther west. The southwest quadrant (south of the highway, west of the river) has a strip of tree cover that extends from the edge of the floodplain west to County Road 18.

Relatively little of the APE was considered to be minimally disturbed. The ditch adjacent to the existing highway was obviously previously disturbed by road construction. The relatively small area of the APE outside this ditch includes a significant amount of landscaped terrain (adjacent to residential and commercial structures as well as in developed recreation areas), plowed fields, and flood control features (distinct levees on the Minnesota side). Only in the southeast quadrant on the

Minnesota side and the southwest quadrant on the North Dakota side was subsurface testing conducted. The immediate floodplain of the Red River was not tested on either side as this topographic area was water saturated from on-going flooding.

In areas where shovel testing was employed, the tests were usually from 40 to 50 cm (16 to 20 inches) in diameter. Depths are dependent on many factors that include the sediment type, depositional environment, drainage conditions, and the region in which the investigation is taking place. In this project, where cultural deposits may be deeply buried by alluvial (river) sediments, tests were routinely extended 80 cm or more below surface. No shovel test extended below the flood sediments into the Lake Agassiz clays, although the trenches did (see below). The sediments removed from the shovel test holes were dry screened through quarter-inch hardware mesh. Observations about sediment stratigraphy are recorded from all tests.

One core was placed using a split-spoon corer (2 inch diameter). The elevated area above the floodplain on the east edge of the southwest quadrant appeared to be somewhat anomalous (see below) and a disturbed context was suspected. The area was cored to try to determine if the sediments were mixed or intact prior to trenching.

If cultural materials are located, an assessment of the status needs to be made. Localities with pre-Contact or Contact materials are usually assigned site status. However, post-Contact materials may represent either historic materials from an earlier occupation or modern items that represent isolated random pieces of scattered trash. Such modern materials are traditionally not assigned site status unless they are deposited from an occupation or special activity use area. Therefore, the context and association in which such artifact(s) are recovered becomes vital. This was clearly of importance for this project, as the survey area has been in agricultural usage for over 100 years. In addition, the Red River floods almost annually and is capable of transporting materials for long distances, potentially adding materials in secondary depositional contexts.

One important cultural property type, cemeteries and burial mounds, could be represented in all historic contexts. However, cemeteries and burial mounds are considered a different category than an archaeological site, requiring special procedures when located. The procedures outlined by the State Archaeologists office and the Minnesota Private Cemeteries Act (MnST 307.08) will be observed in Minnesota. The procedures outlined by the ND/SHPO will be observed in North Dakota.

A plan map drawing includes all pertinent features associated with any site. Items mapped include any structural remnants, physical features, debris determined to be associated with the functioning of the site (excluding recent roadside trash), and natural features, all plotted by compass readings with either paced or taped measurements. To better facilitate the mapping of sites a handheld GPS unit is used to take UTM coordinates of the primary features within the site. This allows for better precision in placing the site and its features on United States Geologic Survey (USGS) maps. The mapping of pre-Contact sites is similar but concentrates on site boundaries, artifact concentrations and associated shovel tests (both positive and negative), and their relationship with the existing terrain. Sites located in agricultural fields with no discernable landmarks are tied to datum points via compass and paced measurements. Pre-Contact site boundaries in these fields are also recorded using the traverse methodology for later placement on plan maps. All coordinates were recorded using a Global Positioning System (GPS) with North American Datum (NAD) 1983.

Laboratory Analysis

No laboratory analysis or accessioning for curation was required for this project.

SURVEY RESULTS

The Minnesota portion of the project yielded no non-modern cultural materials from shovel tests or the geomorphic trenching. No new sites are recorded in Minnesota from this survey. No cultural material was recovered from the North Dakota portion of the project in either pedestrian walkover or trenching. However, two linear surface features were identified in the tree strip south of the highway. These features may be associated with the Ferry to Oslo site (32WAX0010) and are recorded as a historic archaeological site, 32WA0268 (Appendix II). The surface features appear to be immediately south of but adjacent to the project APE.

Minnesota Portion

Surface survey indicated that the northeast quadrant was extensively disturbed so no shovel testing was conducted. The area adjacent to the river bank is a boat launch and associated picnic/recreational area that has been landscaped. This facility was built by the Minnesota Department of Natural Resources in 1987 (Oslo Centennial Committee 2005:6). A distinct flood controll levee approximately 10-15 feet tall bounds the eastern side of this recreational area. An electrical substation with overhead and buried cables is immediately east of the levee. Residential and commercial structures comprise the rest of the APE in the northeast quadrant.

Shovel testing was conducted in two portions of the southeast quadrant (Figure 3). The area adjacent to the river bank was low and water saturated from on-going flooding. Slightly higher terrain with grass and tree vegetation occurs immediately to the east. One of the backhoe trenches was to be placed on the edge of this elevated area. Two shovel tests were placed prior to the trenching to test whether buried cultural materials were present in this area. [During the trenching, the backhoe operator mentioned that about 25 years previously the area closer to the river had been significantly altered to reduce a steep bank for erosion control. Approximately 8-10 feet of sediment had been removed to produce the tapered slope present today (Mager, personal communication 2010).]

This area was bounded on the east by another portion of the flood control system, which included a levee and a ditch. Immediately east of these features is City land that appeared to be landscaped. Eight shovel tests were placed in a single transect on the northern edge of the park area (immediately south of the highway ditch). These tests were to determine if the landscaping was extensive or if any in situ sediments were still present. The remainder of the APE to the east is a residential area with multiple houses.

All 10 tests in the two areas were negative for pre-Contact materials. Post-Contact materials were recovered in tests 8 and 9 in the park area, including a round nail, a piece of crockery (red glaze interior, white glaze exterior), amber glass (probably bottle), and pieces of clinker. These materials are interpreted as associated with modern activities along the highway.

North Dakota Portion

The northwest quadrant includes a vegetated area from the river bank west to a driveway and agricultural fields west of the driveway. The vegetated area was marked for both telephone and power buried utilities on the only area within the APE that both was above the immediate floodplain and was not obviously disturbed by bridge construction. No tests were placed in this area. The southern edge of the agricultural fields to the west were surveyed by pedestrian walkover. No cultural materials were observed in the fields, which had excellent visibility.

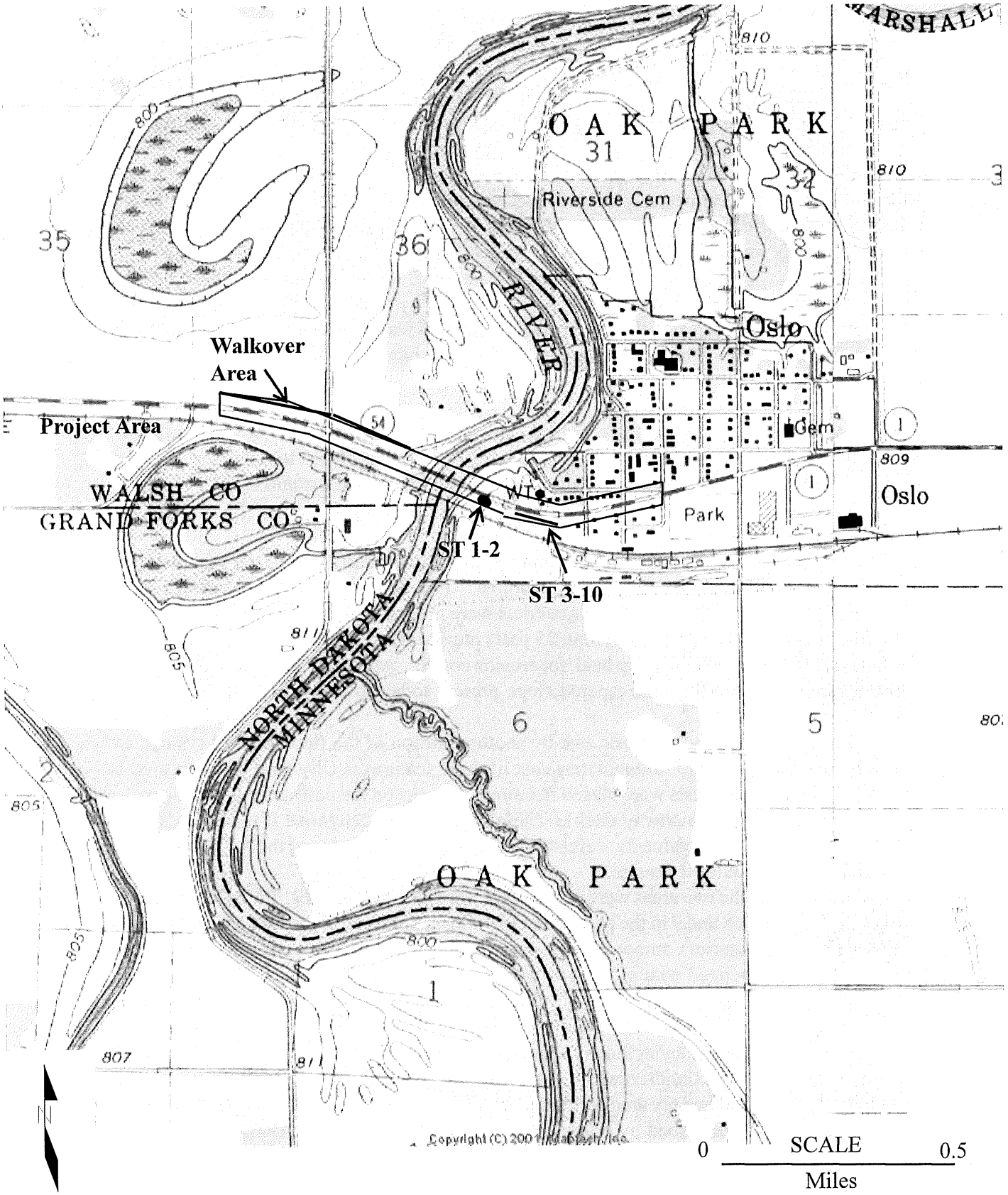

Figure 3. Location of shovel tests and pedestrian survey, Oslo1966 (1979) quadrangle (1:24,000) USGS topographic map.

The southwest quadrant exhibits a complex of surface features in the trees to the south of the highway ditch. A linear elevation and an adjacent ditch occupy much of the tree-covered area west of the river floodplain. The elevated feature is thought to continue west to at least the North Marais River but is less well defined beyond County Road 18. A more complex terrain is present at the eastern end of these features immediately above the river floodplain (see below for more complete description). No shovel testing was conducted in the southwest quadrant since the surface features indicated extensive previous disturbance. However, a core was placed in the eastern area of elevated terrain above the floodplain, where the backhoe trench was planned. No cultural materials were recovered from the core; the sediment stratigraphy suggested a disturbed context.

Old Roadbed (32WA0268)

A former potential roadbed was identified south of but immediately adjacent to the APE and north of the railroad corridor (Figure 4). This feature was identified as a linear raised area within the tree cover south of and parallel to T.H. 54. The raised feature varies in dimensions but is generally 10-12 feet wide and 3-4 feet high. The roadbed decreases in elevation to the west and is highest in the east near the river. In addition, a ditch is present immediately south of and adjacent to the raised feature. The ditch is about 12-15 feet wide and 5 feet deep and contains stagnant water in some locations. As with the roadbed, the elevation of the base of this ditch increases to the east.

These two linear surface features extend west at least as far as the intersection of 15th Street NE/County Road 18 with T.H. 54, a distance of approximately 1/4 mile. West of this intersection, the tree cover is absent and the area between the railroad and the ditch associated with the current T.H. 54 is generally flat and grassy. This flatter area has a slightly elevated area that corresponds to an extension of the old roadbed but the ditch appears to be absent. Farther west outside the APE, pilings in the North Marais River south of T.H. 54 indicate a bridge was formerly present in line with the old roadbed corridor (Figure 5).

To the east, the surface topography between the railroad corridor and the T.H. 54 ditch is more complex (Figure 6). The roadbed narrows until it is barely more than the northern bank of the ditch (although it could have been wider in the past as it is truncated on the north by the T.H. 54 ditch). The ditch also narrows and becomes shallower as the bottom raises slightly in elevation. Both features are interrupted by a north-south cut with a flat base which is truncated to the north by the ditch associated with the current T.H. 54. Immediately to the east of this cut is located a flat elevated area (in line with the old roadbed) and a gentle downward slope (in line with the ditch). The elevated area ends in a relatively steep bank above the modern river floodplain; this is the location of the core and trench described above. The downward slope extends to the modern river floodplain and widens to form a ramp-like feature approximately 10 feet below the higher terrace (Figure 7).

This complex of surface features is recorded as a new historic archaeology site, 32WA0268. It is possibly associated with site 32WAX0010, the Ferry to Oslo site. The site was originally recorded from documentary sources during a Regional Environmental Assessment Project in 1978 (Picha, personal communication 8-16-10). The "X" in the site number indicates that no field verification had been conducted. The site is located in the ND SHPO records in the entire SW quarter of Section 36 of T155N R51W on the North Dakota side of the Red River. No corresponding site is recorded in the MnSHPO files for the Minnesota side of the river.

A ferry appears to have operated between the North Dakota and Minnesota sides at Oslo, although steamboat traffic is recorded in more detail (Oslo Centennial Committee 2005:2-3; Oslo Golden Jubilee Committee 1955:67). A photograph captioned "Ferry on Red River at Oslo" (Oslo

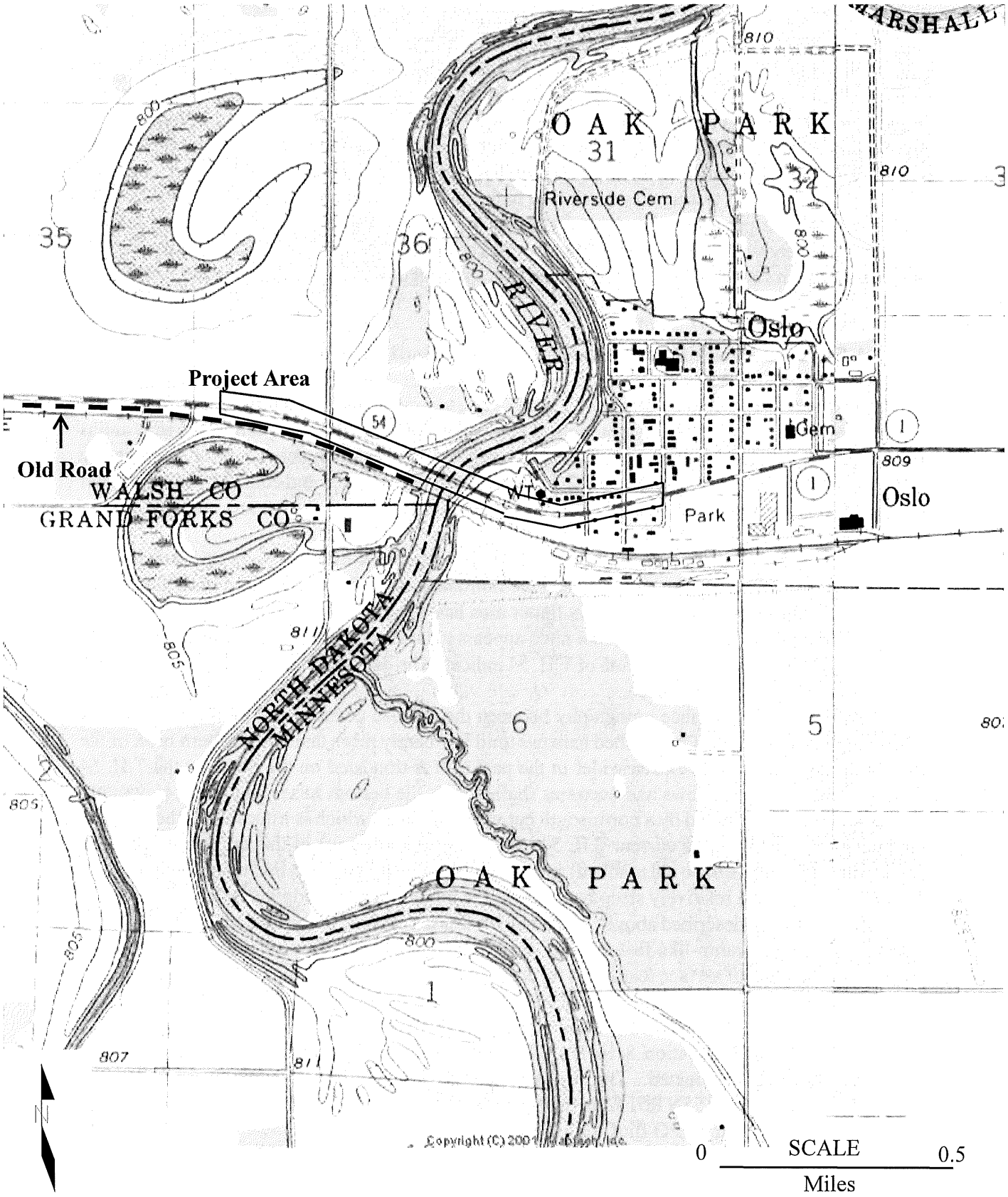

Figure 4. Location of old road, Oslo1966 (1979) quadrangle (1:24,000) USGS topographic map.

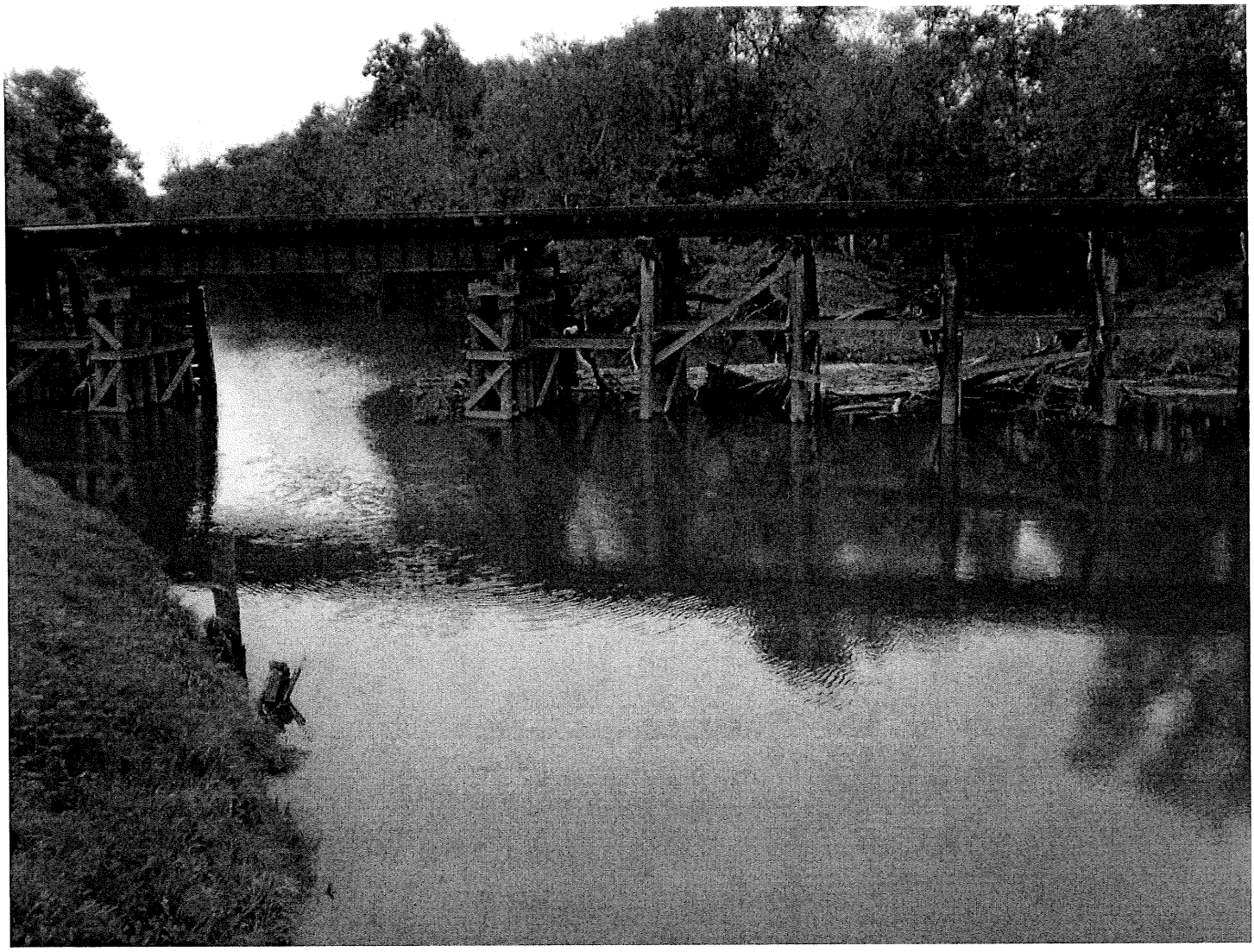

Figure 5. Pilings in North Marais River between railroad bridge and T.H. 54.

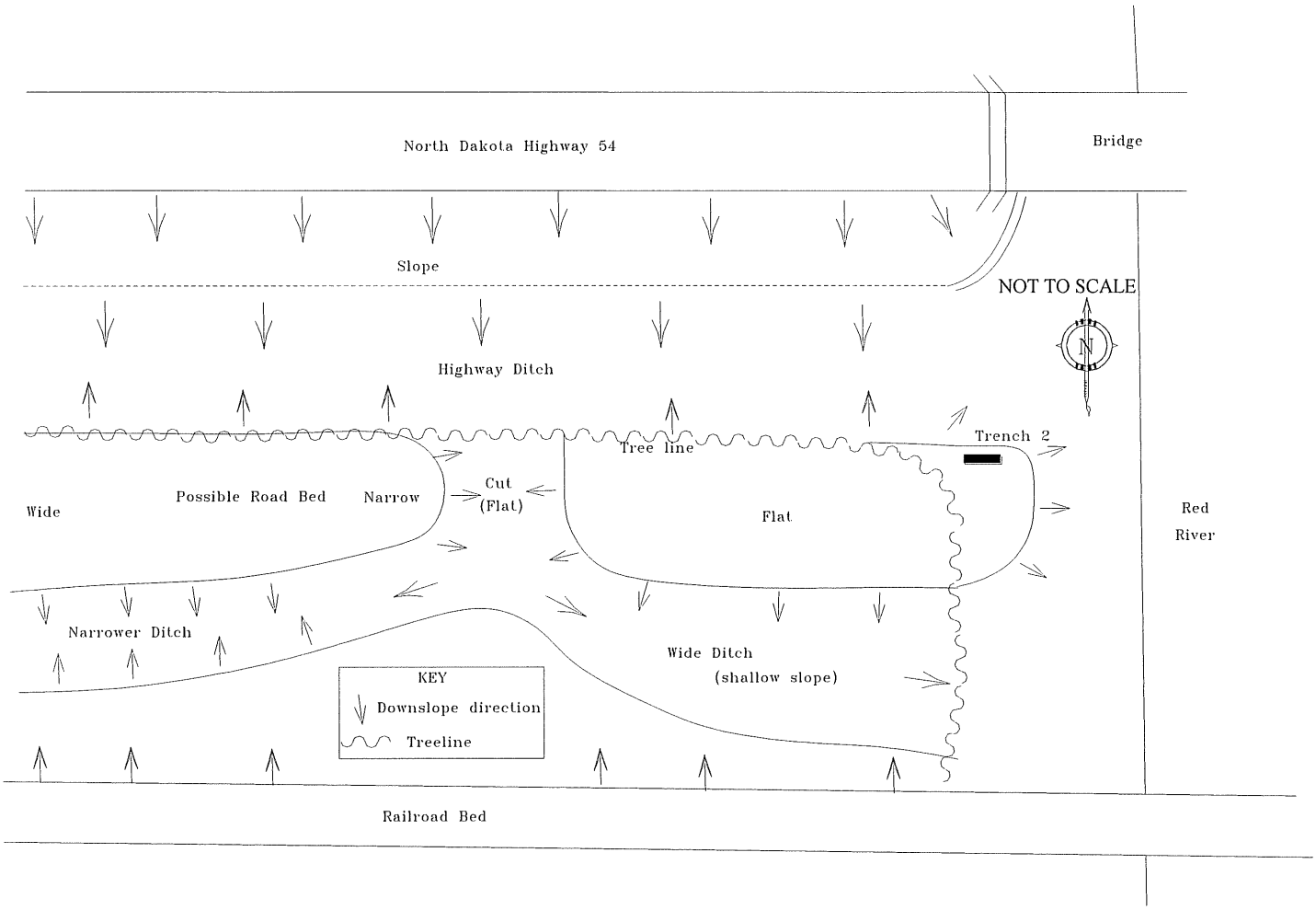

Figure 6. Complex topography at east end of surface features.

Figure 7. Ramp-like feature from Minnesota side (photo facing west).

Centennial Committee 2005:2) is also duplicated as "Bigwoods Ferry" (Oslo Centennial Committee 2005:21) and so may not represent the Oslo location. However, three photographs in the earlier commemorative volume appear to be more likely of the Oslo location. "Steamboat and Ferry at Oslo - 1911" (Oslo Golden Jubilee Committee 1955:67) shows a steamboat near a railroad with a ferry in the foreground. "Soo Railroad Bridge and Ferry - 1906" (Oslo Golden Jubilee Committee 1955:69) shows a ferry on the river with the railroad bridge in the background. "Ferry on the Red River at Oslo" (Oslo Golden Jubilee Committee 1955:74) shows a ferry on the river with a ramp-like feature in the background.

The specific location of a ferry crossing at Oslo may have changed through time. However, from the photographs it appears possible that the ramp-like slope and associated raised roadbed south of T.H. 54 may be associated with the North Dakota side of a ferry crossing or a steamboat landing (although the two are not mutually exclusive). The ramp would provide access to the modern river floodplain while a raised roadbed would be advantageous for vehicles hauling grain or other cargo. The ditch could be the result of borrow for the raised roadbed or associated with either the roadbed or the railroad. Later construction for T.H. 54, including the roadside ditch, probably caused impacts to northern portions of the elevated roadbed, as indicated by the narrower section just west of the cut. Other impacts may have resulted from construction for the current bridge on the north side of the area or from the railroad on the south side of the area.

GEOMORPHIC INVESTIGATIONS

TOPOGRAPHIC SETTING

The project area is within the active floodplain meander belt of the Red River of the North, near the town of Oslo, Minnesota. The floodplain of the Red River of the North is characterized by active migration, meander scars, natural levees, point bar deposits, steep cut banks and oxbows. The river channel is relatively deep with a strong meander pattern. The northward flow direction and the cold continental climate create severe flood hazard in the spring due to ice damming and lack of topographical relief. The Holocene Red River meander belt is incised into glaciolacustrine deposits of Wisconsinan Glacial Lake Agassiz. Soils in the project area formed in fine-grained alluvium and fine-grained glaciolacustrine deposits.

The project area traverses an extremely low amplitude, westward trending meander of the Red River. Prominent oxbows north and south of T.H. 54 on the North Dakota side of the river indicate active migration and meander cutoff processes in this portion of the channel in the past. The small amplitude of the meander at the proposed project site creates little contrast in erosional or depositional topographic features from one side of the river to the other.

The eastern side of the project area lies in Marshall County, Minnesota and the western portion in Walsh County, North Dakota. The majority of the project area appears to be disturbed from past construction activities possibly associated with building of the existing road and railroad.

TRENCH LOCATIONS FOR DEEP SITE TESTING PROTOCOL

In accordance with the Deep Site Testing Protocol, backhoe trenches were used to examine the geomorphic setting and look for possible indicators of buried land surfaces (Figure 8, Table 2). Trench locations were chosen for the purpose of gaining an understanding of the subsurface expression of depositional features and representing all landform sediment assemblages within the project area.

Table 2. Locations of Trenches (UTM, NAD 1983, zone 14)

Trench 1	638269E	5339508N
Trench 2	638057E	5339592N

On the east side of the Red River, the area north of the T.H. 1 within the APE appeared to be highly disturbed, therefore a trench (Trench 1) was placed only on the south side of the road. On the west side of the river, the area north of the road within the APE also appeared to be disturbed and lacked an adequate surface for trenching, therefore one trench (Trench 2) was placed on the south side of the road. Both trenches were placed outside of but immediately adjacent to the immediate floodplain of the Red River.

RESULTS OF TRENCHING

Trench 1 was placed on the Minnesota, southeast side of the existing T.H. 1 between the road and the railroad tracks. This area has possibly been disturbed by road and railroad construction in the past. The trench surface dimensions were 4.5 m x 1 m. The trench depth was 2 meters, at which point the water table was encountered.

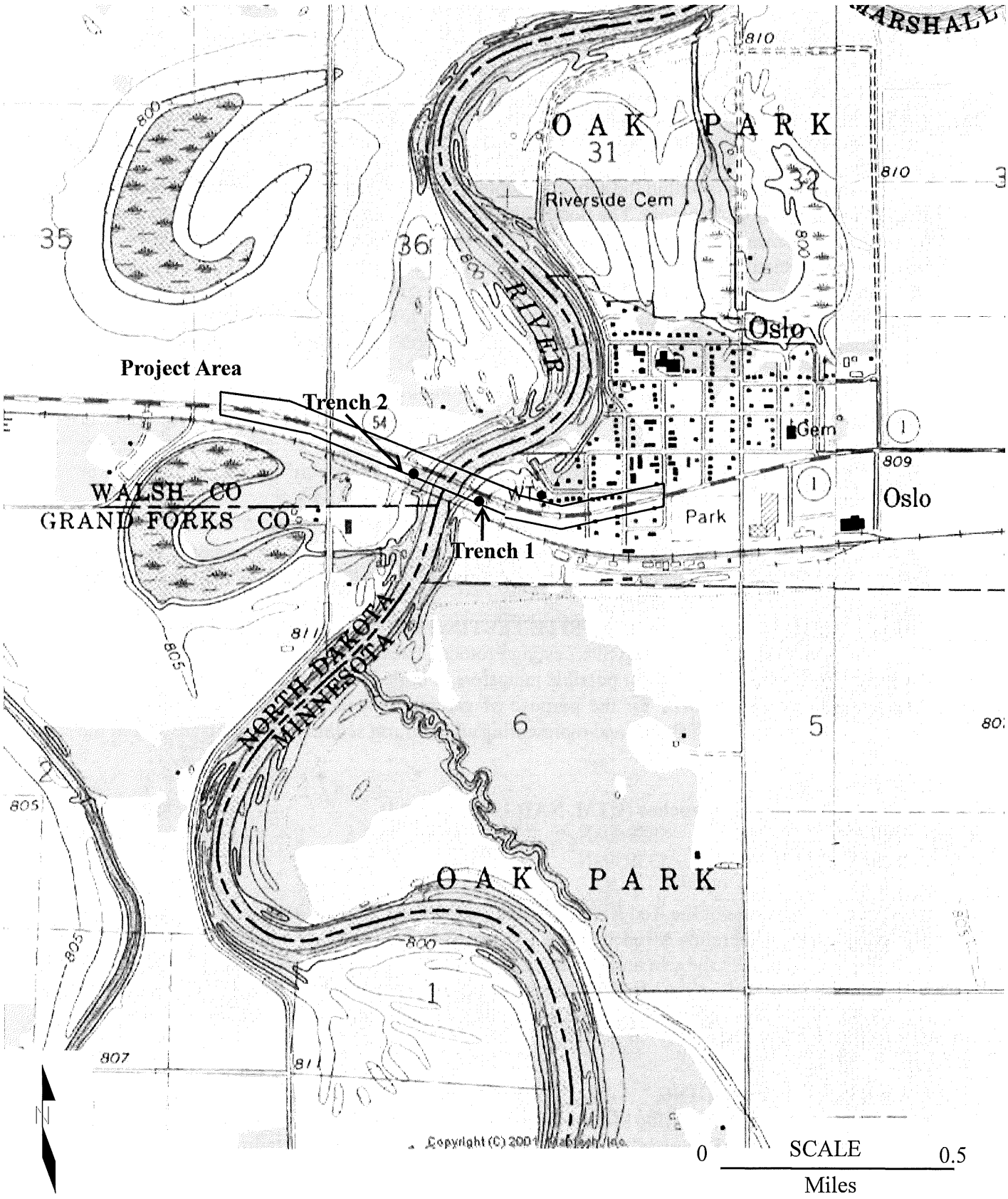

Figure 8. Location of trenches, Oslo1966 (1979) quadrangle (1:24,000) USGS topographic map.

The soils in this trench are composed of clayey alluvium, deposited by frequent flooding of the Red River. The alluvium is composed of glaciolacustrine deposits from Lake Agassiz sediments. The soil in the trench had a black, mollic A horizon of friable, silty clay. Texture throughout the profile was silty clay with the exception of the deep subhorizon at the bottom of the trench which was stiff clay. Typical of alluvial soils, horizon development was weak due to frequent additions of sediment from seasonal flooding. Between the A and first C horizon was a transitional AC horizon, lighter in color than the surface layer and with blockier structure development. The laminated C horizons of alluvial deposits were interrupted by a buried A horizon at 60 cm. This horizon was identified in the field by its upper clear, smooth boundary, friable, crumb structure, slight textural change, and darker color. Buried A horizons are typical in the alluvial soils of the Red River due to frequent burial of surfaces in major flood events.

The soil described (Table 3) is consistent with the USDA NRCS description of the Wahpeton Soil Series (Beck and Wright-Koll 2000), which commonly has one or more buried A horizons, separated by C horizons, at depths below 60 cm. At 60-67 cm below surface, a buried A horizon (Ab) was encountered. It had a different color, structure, and texture from the overlying C horizon (1C). A 5 gallon sample of sediment from the Ab layer was sampled in the field to check for the possible occurrence of cultural artifacts but was negative for cultural materials.

Below the buried A horizon was a series of C horizons of finely laminated, silty clay containing shell fragments and charcoal pieces and lenses; this sediment is typical of alluvium in a tall grass prairie landscape, that is subject to frequent grass fires. The sequence was interrupted at 115 cm by a 3 cm thick charcoal lens, continuous across the trench, probably representing a major fire event. The abundant charcoal rendered a structural change to the underlying layer, giving it a crumb structure. However, no indication of a buried A horizon occurs at this depth; only C horizon sediments are present so no sediment screening was conducted.

Below this charcoal lens were two additional C horizons of silty clay, with prominent carbonate precipitates on the ped surfaces. The layer at the base of the trench was stiff clay with slickensides, typical of the vertic clays in the Red River deposits. This layer possibly represents the beginning of the mixing of alluvial sediments and deeper glaciolacustrine sediments which lie beneath the alluvial sequence in the floodplain. The water table began to seep into the trench at this depth and trenching stopped.

Table 3. Sediment Description for Trench 1.

Depth (cm)	*Horizon*	*Color (moist)*	*Structure*	*Texture*	*Effervescence*	*Boundary*	*Notes*
0-35	A	10YR2/1 black	Crumb; friable	Silty clay	none	Diffuse wavy	Mollic; many fine roots
35-40	AC	10YR3/1 very dark gray	Med. subangular blocky	Silty clay	weak	Gradual irregular	Many fine roots; weak redox conc.
40-60	1C	10YR6/2 light brownish gray to 10YR5/2 grayish	Weak platy	Silty clay	strong	Clear smooth	Finely laminated; small wood pieces ; charcoal lenses (1 cm thick

		brown					continuous lens @ 45 cm)
60-67	Ab	10YR4/2 dark grayish brown	Crumb, friable	Silty clay (noticeably less sand)	slight	Diffuse irregular	Abundant fine charcoal lenses; shell fragments
67-100	2C1	10TY4/1 dark gray	platy	Silty clay	strong	Diffuse irregular	Finely laminated; shells; abundant roots
100-115	2C2	10YR4/1 dark gray	Subangular blocky	Silty clay	strong		Less laminated
115-118	Distinct, continuous charcoal lens						
115-145	3C1	10YR4/1 dark gray	Crumb, friable	Silty clay	slight		Abundant charcoal lenses; distinct lens @ 125 cm; shell fragments throughout
145-165	3C2	10YR4/2 dark grayish brown	1°crumb; 2° weak subangular blocky	Silty clay	strong		carbonate ppt on peds
165-200	3C3ss	10YR4/2 dark grayish brown	1° platy; 2° angular blocky (ped size increases with depth)	Clay (stiff)	Weak (carbonate ppt is strongly eff.)		Slickensides; few faint redox conc.; water seepage

Trench 2 was placed on the North Dakota, southwest side of the existing T.H. 54 between the road and the trees. This area has possibly been disturbed by road and rail construction. The trench site is at the base of a slight rise in the landscape, possibly representing earthen material pushed by construction equipment. The surface at Trench 2 is approximately 10 ft higher than at Trench 1. Trench depth was 2.05 meters, the depth to the water table.

The soil sequence in this trench (Table 4) was noticeably less differentiated than in Trench 1. It consisted of a simple AC sequence, separated by a mixed A/C horizon. The A horizon was significantly mixed with the C by tree roots (and possible construction disturbance) from 24 to 65 cm. The C horizons were massive, silty clay with abundant carbonate precipitation and no visible lamination. It is likely that these are disturbed and mixed alluvial sediments of the Wahpeton series (Hetzler et al. 1972). There was no evidence of a buried A horizon in this trench and the water table was encountered at 205 cm.

Table 4. Sediment Description for Trench 2.

Depth (cm)	*Horizon*	*Color (moist)*	*Structure*	*Texture*	*Effervescence*	*Boundary*	*Notes*
0-24	A	10YR2/1 black	crumb	Silty clay	none	Diffuse irregular	
24-65	A/C	10YR4/1	massive	Silty clay	Weak (strongly		Turbated by

		dark gray			eff. white streaks)		tree roots; discontinuous charcoal lenses
65-115	C1	10YR4/2 dark grayish brown		Silty clay (more silt than above)	Strong; white streaks are violently eff.		Few shell fragments; few decayed wood pieces
115-205	C2	10YR4/2 dark grayish brown	1° massive; 2° v. weak subangular blocky	Silty clay	Strong; white streaks are violently eff.		Abundant white streaks; few redox conc.; few gastropod shells; water seepage @ 205 cm.

GEOMORPHIC SUMMARY

The stratigraphy in these trenches represents a Holocene alluvial unit overlying lacustrine deposits. This unit is made up of cumulic soil from progressive accretion of Red River alluvium and overbank deposition. The alluvial soils are dark, silty clay with subangular blocky to massive structure with carbonate precipitation evident in some subhorizons. The occurrence of buried A horizons, such as that found in Trench 1, is typical in these alluvial sequences. To ensure the buried A horizon encountered in Trench 1 was not a stable surface of archaeological significance, the horizon was screened for cultural artifacts and found to contain none.

CONCLUSIONS AND RECOMMENDATIONS

MINNESOTA

No indications of archaeological sites were recovered from the Minnesota portion of the project. The geomorphic investigations indicate that although buried land surfaces occur in the Wahpeton series of sediments, they are not necessarily exposed long enough for human occupation. One buried land surface was observed in the trench but did not contain evidence of archaeological materials. A lower charcoal layer was within the alluvial C horizons only and was not associated with a buried A horizon (which could have indicated a buried land surface). This charcoal layer may represent a major fire event but the sediments at this location are river deposits, not a stable land surface. No further archaeological work is recommended.

NORTH DAKOTA

No indications of buried archaeological sites were recovered from the North Dakota portion of the project. The geomorphic investigations indicated a much simpler sedimentary sequence than the Minnesota side, although construction from the existing road and bridge may have caused impacts. The surface features south of T.H. 54 are recorded as 32WA0268 but may be associated with 32WAX0010, the Ferry to Oslo site. No further archaeological work is recommended. However, additional research on the potential ferry landing site is warranted.

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APPENDIX I. State Archaeology Licenses

APPLICATION FOR MINNESOTA ANNUAL ARCHAEOLOGICAL SURVEY LICENSE

This license only applies to reconnaissance (Phase I) and evaluation (Phase II) surveys conducted under Minnesota Statutes 138.31-.42 during calendar year _2010____. Separate licenses must be obtained for major investigation/ Phase III work, for burial site work under Minnesota statutes 307.08, and for survey work that will continue into another calendar year. Only the below listed individual is licensed as a principal investigator, not the institution/ agency/company or others who work for that entity. The licensed individual is required to comply with all the conditions attached to this license form. Permission to enter land for the purposes of archaeological investigation must be obtained from the landowner or land manager.

Name: ___Susan Mulholland_____

Institution/Agency/Company Affiliation: __Duluth Archaeology Center_____

Title/Position: __President/Principal Investigator_____

Address: __5910 Fremont Street, Suite 1, Duluth MN 55807_____

Work Phone: __218-624-5489_____ E-Mail:_archcenter@aol.com_____

Name of Advanced Degree Institution:__University of Minnesota_____ Year:_1987___

Name of Department: _Interdisciplinary Archaeology Studies_ Degree: __MA __MS _X_PhD

Purpose: (check all that may apply)
CRM _X__ Academic Research _X__ Institutional Field School _X__

Type of Land: (check all that may apply)
State Owned _X__ County Owned _X__ Township/City Owned _X__
Other ___ List: _____

MHS Repository Agreement # __473_____ Other Approved Curation Facility:_____

Most recent previous license year: _2009__ Type: X_Annual __Major __Project (pre-2006)

Signed (applicant): Susan Mulholland Date: 1/29/10

Required Attachments: *Curriculum Vita* ___ and Documentation of Appropriate Experience ___ for previously unlicensed individuals.

Submit one copy of this form and attachments to:
Office of the State Archaeologist, Ft. Snelling History Center, St. Paul, MN 55111
612-725-2411 612-725-2729 FAX 612-725-2427 email: mnosa@state.mn.us

Minnesota Historical Society Approval: _____ Date: 2-19-10
State Archaeologist Approval: _____ Date: 2/3/10

License Number: 10-17

Form Date: 4/20/06

ANNUAL PERMIT - CULTURAL RESOURCE INVESTIGATION
STATE HISTORICAL SOCIETY OF NORTH DAKOTA

DULUTH ARCHAEOLOGY CENTER, LLC, having filed application and fee in proper and complete form as prescribed by law and regulation, is hereby granted a permit pursuant to North Dakota Century Code 55-03. The permit holder, or employees thereof, may investigate, evaluate, or mitigate adverse effects on, cultural resources, historic buildings, structures, or objects in North Dakota to satisfy laws and regulations listed in North Dakota Century Code 55-03-01. This permit is subject to regulations found at North Dakota Administrative Code 40-02-02, "Permit for Cultural Resource Investigation," and is issued for calendar year: 2010.

STATE OF NORTH DAKOTA
STATE HISTORICAL SOCIETY
OF NORTH DAKOTA

By: _____
Merlan E. Paaverud, Jr., Director

STATE OF NORTH DAKOTA)
) ss.
COUNTY OF BURLEIGH)

On this 3rd day of May, in the year of 2010 before me personally appeared Merlan E. Paaverud, Jr., know to me to be the person who is described in and who executed the written instrument and acknowledged to me that the State Historical Society of North Dakota executed the same.

(SEAL)

RONALD PHIL WARNER
Notary Public
State of North Dakota
My Commission Expires March 1, 2016

_____
Notary Public

My Commission Expires:_____

APPENDIX II: North Dakota state site form, 32WA0268

NDCRS *HISTORICAL ARCHEOLOGICAL* SITE FORM
PAGE 1

Field Code ND-1 **SITS# 32** WA

SITE IDENTIFICATION

Map Quad Oslo Site Name old road
Map Quad ____ Site Name ____

LTL __	TWP 155	R 51	SEC 36	QQQ ____	QQ 7	Q 7
LTL __	TWP 155	R 51	SEC 35	QQQ ____	QQ 6	Q 6
LTL __	TWP ____	R ____	SEC ____	QQQ ____	QQ ____	Q ____
LTL __	TWP ____	R ____	SEC ____	QQQ ____	QQ ____	Q ____

Subsection:
1 = N½
2 = E½
3 = S½
4 = W½
5 = NE¼
6 = SE¼
7 = SW¼
8 = NW¼

UTM 5339559 N ZONE 14N
UTM 638061 E NAD 1927 __ NAD 1983 ✓

SITE DATA

FEATURE TYPE
____ CM Scatter
____ Chimney
____ Depression
____ Dump
____ Earthworks
____ Fortification
____ Foundation
____ Grave
____ Hearth
____ Machinery
____ Quarry/Mine
____ Rock Art
____ Trail
____ Wreck
1 Other

CULTURAL MATERIAL
____ Bone
____ Ceramics
____ Charcoal
____ Cloth
____ Faunal Remains
____ Fire-Cracked Rock
____ Floral Remains
____ Glass
____ Hide, Hair, Fur
____ Human Remains
____ Masonry
____ Metal
____ Plastic
____ Rubber
____ Shell
____ Wood
____ Other

48 Site Type
29 Context
150 Site Area (m²)
____ Cultural Depth
____ Depth Indicator
____ Basis for Dating

Occupation Date(s)
____ Begin
____ End

____ CM Density
____ Isolated Find

ENVIRONMENT

Landform 1 1 Landform 2 8 Slope/Exposure 3 Ecosystem 1
Landform 1 1 Landform 2 7 Slope/Exposure 10 Ecosystem 2
Elevation ____ m Drainage System Red River
View Degree 1 View Distance 3
Distance to Permanent Water 50 m Permanent Water Type 3
Distance to Seasonal Water ____ m Seasonal Water Type ____

CRM

Ownership 1 Fieldwork Date 6/1/2010 Test/Probe ____ Excavation ____
Site Condition 6 Collection ____ Management Recommendation 4

Additional Information: roadbed and ditch with ramp-like feature to access floodplain

SHSND USE

Area of Significance ____ Ecozone ____ Verified Site ____ CR Type ____
Area of Significance ____ Ecozone ____ Non-Site ____
Area of Significance ____ Ecozone ____

Recorded By Susan Mulholland (First Name & Last Name) **Date Recorded** 9/20/2010 (mm/dd/year)

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NDCRS *HISTORICAL ARCHEOLOGICAL* SITE FORM
PAGE 2—*Descriptive Section*

Field Code _____ **SITS# 32** _____ _____

1. Access:

   South of T.H. 54 immediately west of bridge over Red River at Oslo MN. Site is located in the strip of trees south of the highway ditch and north of the Soo Railroad corridor. Site appears to extend west at least as far as the North Marais River. Site ends to the east at the Red River floodplain.

2. *Site* Description (include features):

   Surface features in a corridor between T.H. 54 and the railroad to the south.

   Linear elevated area that appears to be a former roadbed and a ditch to the south of the elevated area. The east end of the elevated area is narrow and appears truncated by the T.H. 54 ditch on the north. The east end of the ditch becomes shallower compared to areas to the west. Both the ditch and the elevated area are truncated by a north-south cut (lower than the elevated roadbed, higher than the ditch) that ends at the T.H. 54 ditch.

   East of the cut, a ramp-like feature is present opposite the ditch. This ramp slopes downward to the current Red River floodplain and is bordered on the north and south by relatively steep banks. This feature is visible from the Minnesota side of the river.

3. Description of *Cultural Material* (quantify & identify artifacts, not features):

   none

0 # of Artifacts 0 # of Artifacts Collected

4. Artifact Repository:

   not applicable

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NDCRS *HISTORICAL ARCHEOLOGICAL* SITE FORM
PAGE 3—*Descriptive Section*

Field Code _____ **SITS# 32** _____ _____

5. Description of Subsurface Testing:

None in the site. A core (by split-spoon corer of 2 inch diameter) and backhoe trench #2 (4 m long, 1.5 m wide, 2 m deep) were placed adjacent and north of the site features; no cultural materials were observed.

6. Field Conditions:
Wet ___ Dry ✓ Windy ___ Rainy ___
Snowy ___ Overcast ___ Sunny ✓ Twilight ___

7. Technique(s) Used to Estimate Site Area:
Transit ___ Tape Measure ___ Paced ___ Visual Estimate ✓
GPS ___ Other (Explain) _____

8. Rationale for Site Boundary Determination:
Surface Cultural Materials ___ Features ✓ Topography ___
Continuous Stratigraphic Exposure ___ Systematic Subsurface Probing ___
Subsurface Testing ___ Other (Explain) _____

9. Current Use of Site: none

10. Landowner Contact Information: Walsh County Highway Department

11. Vegetation: deciduous trees

12. Vegetation Cover (% of visible ground): 100

13. Snow Cover (% of ground obscured by snow/ice): 0

14. Person-Hours Spent at Site: 6

15. Project Title & Principal Investigator:
MN S.P. 4509-05, replacement of Bridge at Oslo P.I.: Susan Mulholland

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NDCRS *HISTORICAL ARCHEOLOGICAL* SITE FORM
PAGE 4—*Descriptive Section*

Field Code _____ **SITS# 32** _____ _____

16. Report Title & Author(s):

Phase I Archaeological and Geomorphic Investigations for Bridge 9100 Replacement on T.H. 1, Marshall County, Minnesota and Bridge 54-3 on T.H. 54, Walsh County, North Dakota
Author: Susan Mulholland, M. Patrice Farrell, Stephen Mulholland, and BrianKlawiter

17. Description of Collection(s) Observed & Contact Information:

none

18. Statement of Integrity:

The east end of the elevated area is truncated to the north by the ditch associated with current location of T.H. 54. Construction for the bridge over the Red River may also have caused impacts to surface features on the northeast end of the site.

The west end of the site was not defined as it extends outside the project APE. However, the elevated roadbed is in line with a few pilings in the North Marais River.

19. Statement of Significance:

significance unknown at this time

20. References Cited/Comments:

Site may be associated with 32WAX0010, Ferry to Oslo, which has not been field verified but was recorded from Regional Environmental Assessment Project in 1978.

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