PHASE I ARCHAEOLOGICAL SURVEY FOR THE TH 63 RED WING BRIDGE PROJECT – TRENTON ISLAND TOUCHDOWN, PIERCE COUNTY, WISCONSIN

MnDOT Contract No. 1025857
State Project Number 2515-21
Two Pines Resource Group No. 16-04
Wisconsin Archaeological Permit No. 16-107

Prepared for:
Minnesota Department of Transportation
Office of Environmental Stewardship
Cultural Resources Unit
395 John Ireland Blvd., Mail Stop 620
St. Paul, MN 55155-1899

Principal Investigator:
Michelle M. Terrell, Ph.D., RPA

Report Authors:
Michelle M. Terrell, Ph.D., RPA
Eva. B. Terrell, M.A.

Two Pines Resource Group, LLC
17711 260th Street
Shafer, MN 55074

FINAL
November 2016

MANAGEMENT SUMMARY

In October of 2016, Two Pines Resource Group, LLC (Two Pines) completed a Phase I archaeological survey for the planned Trenton Island touchdown of the Trunk Highway (TH) 63 bridge over the Mississippi River at Red Wing, Minnesota (TH 63 Bridge Project). The Trenton Island touchdown test area is located in Pierce County, Wisconsin. This work was performed under contract with the Minnesota Department of Transportation's (MnDOT) Cultural Resource Unit (CRU). Because the TH 63 Bridge Project will receive funding from the Federal Highway Administration (FHWA), it must comply with Section 106 of the National Historic Preservation Act of 1966, as amended. Due to a lack of access, this area was not surveyed during the initial Phase I archaeological survey for the project (Terrell 2015).

The purpose of the Phase I archaeological survey was to determine if the project's area of potential effects (APE) contains any intact archaeological resources that may be eligible for listing on the National Register of Historic Places. The APE for the archaeological survey of the Trenton Island touchdown was the footprint of the proposed bridge on sheet 287 of the 90% complete plan set. The APE is located within Section 14 of Township 24N, Range 18W. The project is located within an area identified as having moderate to high potential for archaeological resources during a pre-evaluation study for archaeological potential completed in 2012 under a previous contract (MnDOT 98207) (Terrell and Vermeer 2012). The project area is located within the Southeast Riverine East sub-region. Dr. Michelle Terrell served as the Principal Investigator.

During the Phase I archaeological survey for the Trenton Island touchdown segment of the TH 63 Bridge Project, no archaeological sites were identified. Based on these findings, Two Pines does not recommend any additional archaeological investigations within the project ROW on Trenton Island.

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INTRODUCTION

In October of 2016, Two Pines Resource Group, LLC (Two Pines) completed a Phase I archaeological survey for the planned Trenton Island touchdown of the Trunk Highway (TH) 63 bridge over the Mississippi River at Red Wing, Minnesota (TH 63 Bridge Project). The Trenton Island touchdown test area is located in Pierce County, Wisconsin. This work was performed under contract with the Minnesota Department of Transportation's (MnDOT) Cultural Resource Unit (CRU).

PROJECT DESCRIPTION

In cooperation with the Wisconsin Department of Transportation (WisDOT), the Federal Highway Administration (FHWA) and the City of Red Wing, MnDOT is undertaking the TH 63 Bridge Project, which encompasses not only the high bridge over the Mississippi River, but also the TH 63 bridge over TH 61, as well as highway connections to TH 61 and Minnesota Highway 58, and approach roadways in Wisconsin. In 2014, MnDOT completed the evaluation of rehabilitation and replacement options for the river crossing and the TH 63 bridge over TH 61. The recommended project alternative is bridge replacement and the realignment of approach roadways in Minnesota and Wisconsin.

This archaeological Phase I study examined an area which will undergo impacts from the bridge touchdown on Trenton Island. The project is located within an area identified as having moderate to high potential for archaeological resources during a pre-evaluation study for archaeological potential completed in 2012 under a previous contract (MnDOT 98207), but which was not available for survey during the initial Phase I survey due to a lack of access (Terrell and Vermeer 2012; Terrell 2015).

AREA OF POTENTIAL EFFECTS (APE)

The APE for the archaeological survey was the footprint of the proposed bridge on sheet 287 of the 90% complete plan set. Work took place entirely within the existing highway right of way (ROW) and was therefore subject to a public lands archaeological permit (Appendix A). The APE is located within Section 14 of Township 24N, Range 18W. The central UTM (NAD 83, Zone 15) coordinate for the project area is 4935413E 536916N. These coordinates were determined electronically using Acme Mapper.

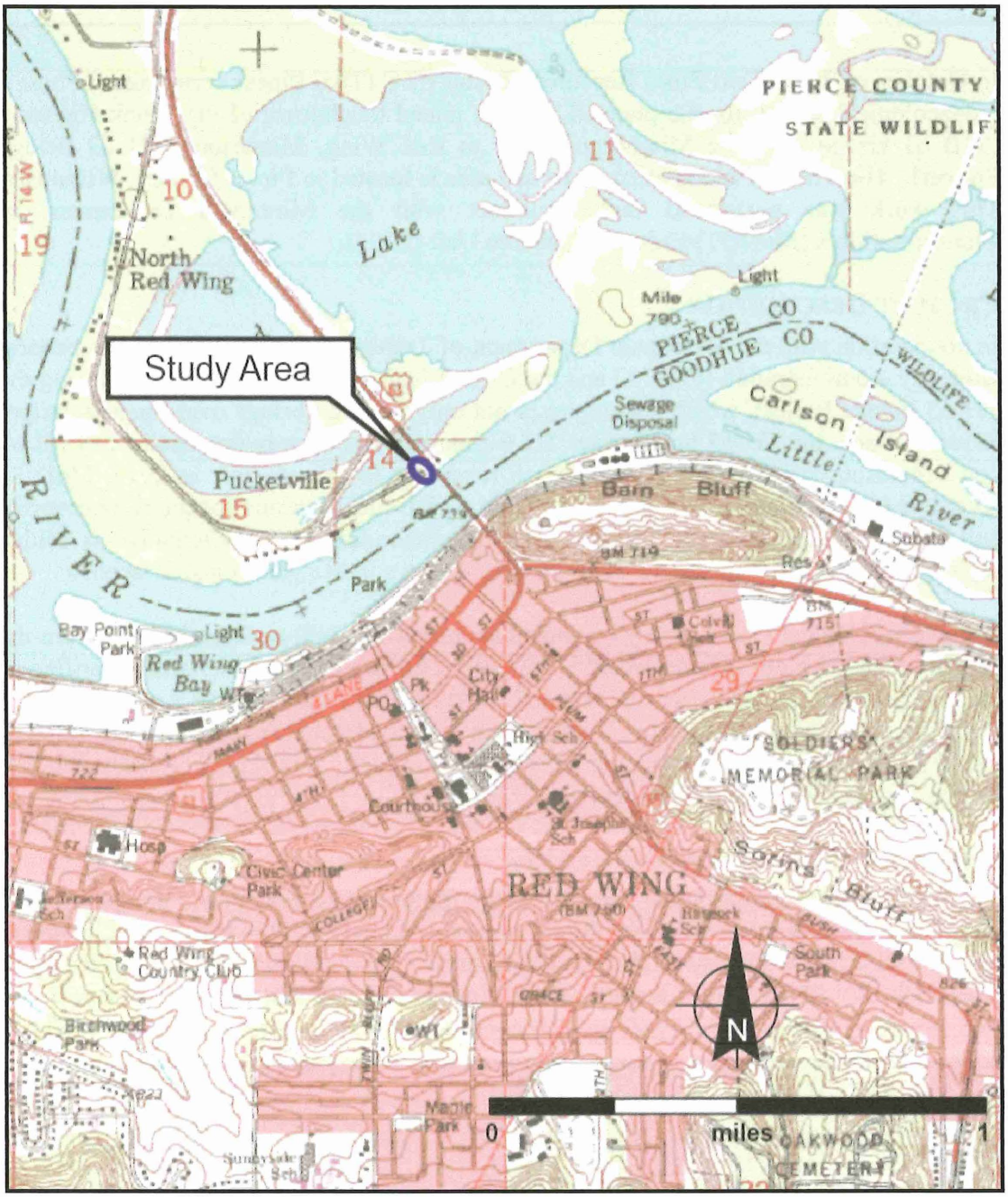

FIGURE 1. TRENTON ISLAND TOUCHDOWN STUDY AREA

(Red Wing, 1994, Quadrangle, USGS 7.5 Minute Series)

RESEARCH DESIGN

All work was conducted in accordance with the *MnDOT's Cultural Resources Unit Project and Report Requirements* (MnDOT 2015), the *SHPO Manual for Archaeological Projects in Minnesota* (Anfinson 2005), the *State Archaeologist's Manual for Archaeological Projects in Minnesota* (Anfinson 2011), and the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (National Park Service 2002).

OBJECTIVES

The purpose of the Phase I archaeological survey was to determine whether the project's APE contains any intact archaeological resources that may be potentially eligible for listing on the National Register of Historic Places (NRHP). The NRHP criteria, summarized below, were used to assess the significance of documented archaeological sites. While all four criteria are considered, archaeological sites are typically eligible for listing in the NRHP under Criterion A or D.

- Criterion A – association with events that have made a significant contribution in our past;
- Criterion B – association with the lives of persons significant in our past;
- Criterion C – embodiment of the distinctive characteristics of a type, period, or artistic values; or representation of the work of a master; possession of high artistic values; or representation of a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D – potential to yield information important to prehistory or history (National Park Service 2002).

LITERATURE SEARCH

An intensive literature search was completed during the pre-evaluation study for the TH 63 Bridge Project. Additional background research conducted in support of the Phase I archaeological survey included files of previously identified archaeological sites within a one-mile (1.6 km) radius of the project area, reports documenting previous surveys, and historical maps of the study area. Additional historical maps, as well as historical aerial photographs and current topographic maps were reviewed online. This research was conducted in order to identify those portions of the project area that have a higher potential for containing intact archaeological resources.

PHASE I ARCHAEOLOGICAL SURVEY

The Phase I archaeological survey commenced with visual inspection of the Trenton Island touchdown APE. The purpose of this inspection was to identify any surface features, such as extant foundations within the project area, as well as to assess those

portions of the project area that have a moderate to high potential for containing intact archaeological sites.

The proposed APE of the Trenton Island touchdown is situated on a bar within the Mississippi River. This natural bar has been augmented with fill in an effort to decrease its potential to flood. Because of the introduced fill, shovel testing was not a feasible archaeological survey method. Fieldwork consisted of the Principal Investigator observing the close-interval geomorphological coring and subsequent backhoe trenching conducted by Strata Morph Geoexploration, Inc. (Strata Morph) (Appendix B).

GEOGRAPHIC INFORMATION SYSTEM DATA

A geographic information system (GIS) data layer was created during the course of the archaeological investigations. The locations of all individual shovel tests, excavations trenches, and surface finds were recorded using a Trimble GeoXT ® GPS Unit. The data were differentially corrected using a National Geodetic Survey (NGS) continuously operating reference station (CORS).

LABORATORY ANALYSIS AND CURATION

No artifacts were collected during this survey.

LITERATURE SEARCH RESULTS

Prior to fieldwork, staff from Two Pines conducted background research during which resources examined included files of previously identified archaeological sites and survey reports within a one-mile (1.6 km) radius of the project area, and aerial photographs and historical maps of the study area. This research was conducted in order to identify those portions of the project area that have a higher potential for containing intact archaeological sites.

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

No reports of previous systematic archaeological investigations of the Trenton Island APE were found during the background research.

PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES

Background research revealed that there are no archaeological sites that have been previously recorded within the project APE of the Trenton Island touchdown. Ten archaeological sites and five site leads were previously recorded within a mile (1.6 km) of the project APE (Table 2). All of these sites are located on the Red Wing side of the Mississippi River opposite Trenton Island. The nearest sites to the project APE are mound group 21GD0015, which is located atop Barn Bluff, and historical-period site leads (21GDbj and 21GDbk) located within downtown Red Wing.

TABLE 1. PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES WITHIN ONE-MILE OF THE APE

Site No.	T	R	S	¼ Section	Description
21GD0012	113	14	30	NE-SW-SE, C-W-NW-SE-SE	Earthworks
21GD0015	113	14	29	C-NW-NW, NW-SW-NE-NW, SW-NW-NE-NW	Earthworks
21GD0171	113	14	30	C-NE-SE-SW	Earthwork
21GD0212	113	14	30	NE-SE	Original Hamline University Building (foundations and artifact scatter)
21GD0291	113	14	29	NE-SW-NW	141 E 3rd Street (artifact scatter)
21GD0292	113	14	29	NE-SW-NW	157 E 3rd Street (artifact scatter)
21GD0293	113	14	29	NE-SW-NW	124 E 4th Street (artifact scatter)
21GD0294	113	14	29	NE-SW-NW	304 Sanderson St (artifact scatter)
21GD0295	113	14	29	NE-SW-NW	318 Sanderson St (artifact scatter)
21GD0297	113	14	29	NW-NE	G. A. Carlson Red Wing Pioneer Lime Works
21GDa	113	14	30	C-SW, S-N-SE	Earthworks
21GDq	113	14	29	N-N-NW, NW-NE	Find spot (1702-1714 gun barrel)
21GDbi	113	14	30	NE-NE-SE	Heising/Remmler Brewery
21GDbj	113	14	29	NE-SE-NE	Red Wing Manufacturing (foundations and artifact scatter)
	113	14	30	NW-SW-NW	
21GDbk	113	14	29	SW-SW-NW	Block 26, Lot 4 (feature)

DEVELOPMENT OF TRENTON ISLAND

Trenton Island is a sparsely inhabited sand bar located on the Wisconsin side of the Mississippi River. The principal use of Trenton Island is recreational with a campground, a bar and grill, an RV park, a marina, and several seasonally occupied homes present on the island. The project area for this study is currently occupied by Island Campground and Marina, a private campground located below and straddling both sides the alignment of the TH 63 bridge.

Prior to the construction of the wagon bridge in 1895, ferries provided passage across the river from Red Wing to Trenton Island from whence a wagon road and another ferry provided connections to Hager City and points beyond. In the late nineteenth and early twentieth centuries Trenton Island had a notorious reputation due to the presence of a brothel and a few saloons (located west of the current project's APE). Newspaper accounts report that the first incarnations of these establishments burned in the early 1880s, but they were rebuilt shortly thereafter. In September of 1908, the brothel and two saloons then operated by Charles and May Cook on their four-acre property were raided by the Pierce County sheriff with the assistance of 14 other men. Shortly thereafter, the buildings associated with the operations were dismantled, and the acreage deeded to the City of Red Wing for the creation of a park (*Red Wing Republican Eagle* 1908, 1909, 1976). While these titillating aspects of the island's history are oft repeated, the history of Trenton Island was somewhat more multi-faceted. For example, a house for cholera patients was set up on the island in 1868 (Hancock 1893:237). Further, during the same period in which the brothels and saloons operated, neighboring households enumerated in the census were occupied by families whose members had occupations such as farmer, ferryman, domestic servant, dressmaker, laborer, ship carpenter, railroad worker, harness maker, barber, boat builder, mason, and carpenter present (U.S. Census 1880, 1900). In 1928, a "tourist camp was established on the island park" (Irvine 1941).

The island's topography has been modified several times during the 20th century. A levee was partially created in the late 1960s using dredged material. Aerial photographs also show that a substantial amount of filling to extend the riverbank to the south also occurred between 1938 and 1949. Repeated flooding, particularly a disastrous flood in 1993, also led to a government buyout from willing sellers and subsequent demolition of the majority of the residences on the island.

The Trenton Island touchdown APE is bordered to the west by the footprint of the former elevated 1895 wagon bridge; and to the east by the TH 63 Eisenhower Bridge, which was opened in 1960. The brothel, saloon, and residences that were once present on the island were located to the west of, and well outside the project APE. No structures were historically present within the APE of the touchdown.

ENVIRONMENTAL HISTORY

The TH 63 Bridge Project is located within the Southeast Riverine East archaeological sub-region. The following environmental history of this sub-region is based largely on

information contained in Borchert and Gustafson's (1980) *Atlas of Minnesota Resources and Settlement* and an overview entitled "Minnesota's Environment and Native American Culture History" by Gibbon et al. (2002).

The Southeast Riverine region covers most of southeastern Minnesota and continues into the adjacent corners of Wisconsin and Iowa. This region was not glaciated during the Late Wisconsin Ice Age and is characterized by a stream-dissected terrain. The Southeast Riverine East sub-region parallels the Mississippi River south from its junction with the St. Croix River and includes portions of Dakota, Goodhue, Wabasha, Winona, Houston, and Pierce counties.

The soils in the eastern part of the region are fine-textured forest and prairie soils formed on loess deposits over Paleozoic bedrock. The climate within this region has an average annual precipitation range of 28 and 30 inches. January highs average 23 degrees Fahrenheit (F), while July highs average 85 degrees F. The frost-free season averages 160 days.

During the Late Holocene, forests of elm, ash, and cottonwood lined the river lowlands, while "Big Woods" forests of maple, elm, and basswood occupied the uplands near the Mississippi River. Within the current project area, mixed grassland and hardwood forest was present at the time of initial EuroAmerican contact.

Late Holocene subsistence resources in this region consisted of deer, elk, and occasional bison in the uplands. Mussels, fish, waterfowl, and edible aquatic plants were available in the bottomlands, particularly along the Mississippi River, while prairie turnips and acorns were present on the uplands and savannas of the region.

PHASE I ARCHAEOLOGICAL SURVEY RESULTS

The Phase I archaeological fieldwork for the planned Trenton Island touchdown segment of the TH 63 Bridge Project was completed on October 13, 2016. Archaeological testing took place within the proposed highway right of way, which extends approximately 75 feet (23 m) west of the existing bridge alignment. The presence of multiple buried public and private water and power lines passing through the project area limited where testing could be conducted within the APE.

Due to the depth of alluvium and introduced fill on the island, fieldwork began with the extraction of two 5-cm (2-in.) diameter geoprobe cores. The first of these cores was taken on the highest point within the APE (Figure 2). The second core was taken to the south and downslope of the first. Within Core 1 a soil buried by fill was evident at a depth of 1.43 m below the surface. No buried soils were documented within Core 2.

A trench was excavated to the immediate south of Core 1 in order to assess whether the buried soil documented at that location contained significant cultural deposits. This trench, which was excavated parallel to the right of way, was 5.5 m (18 ft.) long by 1.2 m (4 ft.) wide. Introduced fill and an underlying layer of cinders were removed to reveal the buried soil which was present between 1.1 to 1.4 m (3.6 to 4.6 ft.) below the surface. The fill

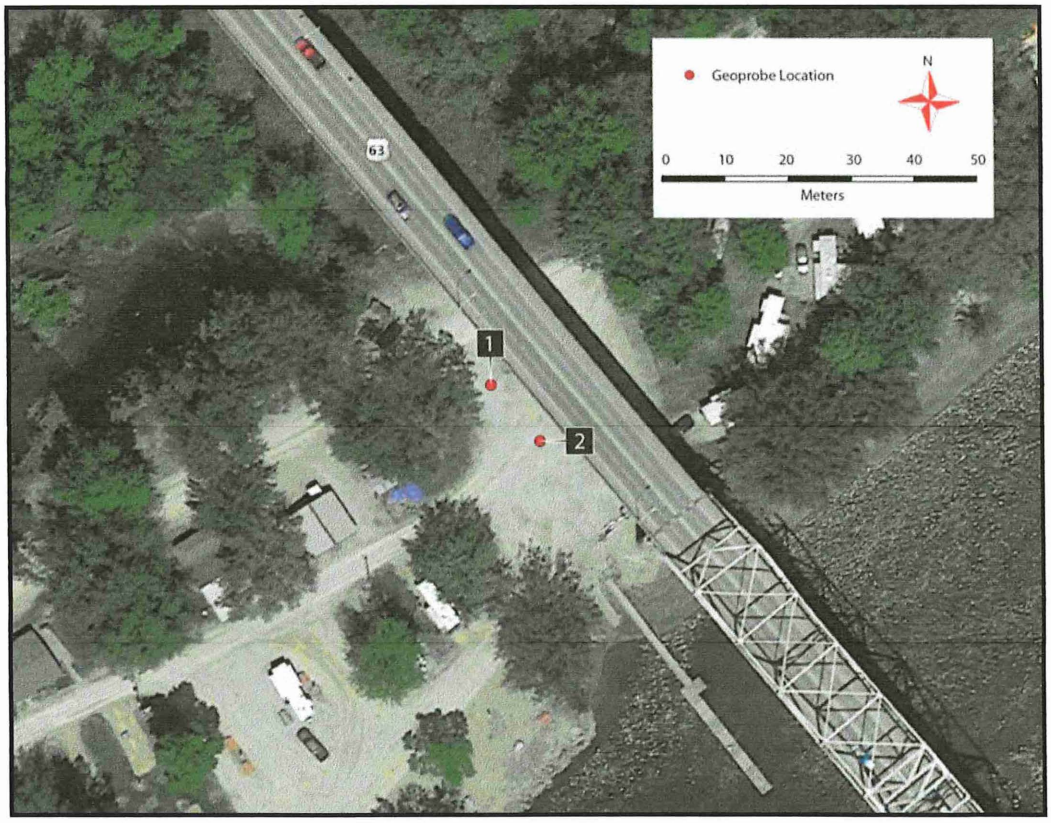

FIGURE 2. LOCATIONS OF GEOPROBE CORES

consisted of silt loam containing pebbles, cobbles, and boulders together with minor amounts of brick and concrete including a large piece of street curbing. Due to an influx of groundwater at a depth of 1.25 m, the trench could not be safely entered. Therefore, a backhoe scoop of one cubic yard of the buried soil was troweled through on the surface. Only two highly-corroded wire fragments (possible wire nails) and two mussel shell fragments were observed.

Examination revealed that the buried soil documented within Core 1 and sampled through the excavation of a trench was a weakly developed hydric soil. While this surface was at times exposed during the historic period, no significant intact archaeological deposits were associated with it. A complete report on the geomorphological investigations is provided in Appendix B (Kolb 2016).

SUMMARY AND RECOMMENDATIONS

In October of 2016, Two Pines Resource Group, LLC completed a Phase I archaeological survey for the planned Trenton Island touchdown of the TH 63 bridge over the Mississippi River at Red Wing, Minnesota. The Trenton Island touchdown test area is located in Pierce County, Wisconsin. This work was performed under contract with the Minnesota Department of Transportation's (MnDOT) Cultural Resource Unit (CRU). Because the TH 63 Bridge Project will receive funding from the Federal Highway Administration (FHWA), it must comply with Section 106 of the National Historic Preservation Act of 1966, as amended. Due to a lack of access, this area was not surveyed during the initial Phase I archaeological survey for the project (Terrell 2015).

The purpose of the Phase I archaeological survey was to determine if the project's area of potential effects (APE) contains any intact archaeological resources that may be eligible for listing on the National Register of Historic Places. During the Phase I archaeological survey for the Trenton Island touchdown segment of the TH 63 Bridge Project, no archaeological sites were identified. Based on these findings, Two Pines does not recommend any additional archaeological investigations within the project ROW on Trenton Island.

REFERENCES CITED

Anfinson, Scott
2005 *SHPO Manual for Archaeological Projects in Minnesota.* July 2005. State Historic Preservation Office, St. Paul.

2011 *State Archaeologist's Manual for Archaeological Projects in Minnesota.* Office of the State Archaeologist, St. Paul.

Borchert, John A. and Neil C. Gustafson
1980 *Atlas of Minnesota Resources and Settlement.* Third Edition. University of Minnesota Center for Urban and Regional Affairs and the Minnesota State Planning Agency, Minneapolis.

Gibbon, Guy E., Craig M. Johnson, and Elizabeth Hobbs
2002 Minnesota's Environment and Native American Culture History. In *A Predictive Model of Precontact Archaeological Site Location of the State of Minnesota*, edited by G. J. Hudak, E. Hobbs, A. Brooks, C. A. Sersland, and C. Phillips. Minnesota Department of Transportation, St. Paul.

Hancock, Joseph W.
1893 *Goodhue County, Minnesota, Past and Present by an Old Settler.* Red Wing Printing Company, Red Wing.

Irvine, Samuel Thomas
1941 A History of Red Wing, Minnesota. Unpublished manuscript. In the holdings of the Minnesota Historical Society, St. Paul.

Kolb, Mike
2016 Geomorphological Investigations for the Trenton Island/Island Campground Portion of the Proposed Construction of the TH 63 Bridge in Pierce County, Wisconsin. Prepared for Two Pines Resource Group, Shafer, Minnesota.

Minnesota Department of Transportation (MnDOT)
2015 *MnDOT Cultural Resources Unit (CRU) Project and Report Requirements*. Cultural Resources Unit, Office of Environmental Services, Minnesota Department of Transportation, St. Paul.

National Park Service
2002 *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation*. Current version available online at http://www.cr.nps.gov/ local-law/arch_stnds_0.htm. National Park Service, Department of the Interior, Washington, D.C.

Red Wing Republican Eagle
1908 Island Resort Raided by Pierce County Sheriff and Deputies. September 27.

1909 Buildings on Island Being Torn Down By Owners of Property. March 20.

1976 Island raid part of Pierce County's history. March 26.

Terrell, Michelle M.
2015 TH 63 Red Wing Bridge Project, Goodhue County, Minnesota and Pierce County, Wisconsin – Phase I Archaeological Survey. Prepared for the Minnesota Department of Transportation and the Federal Highway Administration. Two Pines Resource Group, Shafer.

Terrell, Michelle M. and Andrea C. Vermeer
2012 Pre-Evaluation Study for Archaeological Potential for the Trunk Highway 63 Red Wing Bridge Project, Goodhue County, Minnesota and Pierce County, Wisconsin. Prepared for the Minnesota Department of Transportation and the Federal Highway Administration. Two Pines Resource Group, Shafer.

United States Department of Commerce, Bureau of the Census (U.S. Census)
1880 *Tenth Census of the United States, 1880.* National Archives and Records Administration, Washington, D.C.

1900 *Twelfth Census of the United States, 1900.* National Archives and Records Administration, Washington, D.C.

APPENDIX A

WISCONSIN PUBLIC LANDS FIELD ARCHAEOLOGICAL PERMIT

WISCONSIN PUBLIC LANDS FIELD ARCHAEOLOGICAL PERMIT, 2016

REQUIRED TO CONDUCT ARCHAEOLOGY ON ALL NON-FEDERAL PUBLIC LAND UNDER WIS. STAT. § 44.47

Wisconsin Historical Society

Name/Organization/Contact Michelle M. Terrell Telephone# 651-257-4766

Address 17711 260th Street City Shafer State MN Zip Code 55074

E-mail Address mterrell@twopinesresource.com FAX#

Institutional Affiliation Two Pines Resource Group, LLC

Location: County Pierce Civil Town Trenton Township

Town 24N Range 18W Section 14 Quarter Sections

Hwy/Rd ☑ Hwy/Rd: TH 63 Other Type of Project ☐

Project Description: TH 63 Red Wing Bridge

Type of fieldwork: Phase I/Survey ☑ Phase II/Testing ☑ Phase III/Excavation ☐ Monitoring ☐

Purpose of the fieldwork: Federal Compliance ☑ State Compliance ☐ Education ☐ Other ☐

Site # Burial Site# Burial Permit Secured? Y ☐ N ☐

Dates of field work: Begin date: 10-3-2016 End date: 12-31-2016

What institution will curate recovered artifacts, notes, and records? MVAC

(*Curation agreement must be on file with WHS; all materials must be curated in an appropriate, staffed facility.*)

Print name Michelle M. Terrell, Ph.D., RPA ☐ see attachments

Signature of Archaeologist Michelle M. Terrell Date 9-13-2016

Maps and/or Letters of explanation can accompany this application

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Landowner or custodian name (**print**) James J. Becker III Phone 608-261-0137

Affiliation: WisDOT

Signature of Landowner James J Becker III Date 9/14/16

DO NOT WRITE BELOW THIS LINE

Permit Approved [signature] Date Sept 15 2016

PLP # 16- 107

John H. Broihahn
State Archaeologist
Wisconsin Historical Society
816 State Street Madison, WI 53706
FAX: 608-264-6504 / PH 608-264-6496
Email: john.broihahn@wisconsinhistory.org

WISCONSIN HISTORICAL SOCIETY

Two copies of the final report must be submitted to the Division of Historic Preservation – Public History.

Additional authorization or permitting is necessary to conduct work within the boundaries of uncataloged and cataloged human burial sites under Wis. Stat. § 157.70. For additional information please see: http://wihist.org/10WqFCf

APPENDIX B

GEOMORPHOLOGICAL INVESTIGATIONS REPORT

Geomorphological Investigations for the Trenton Island/Island Campground Portion of the Proposed Construction of the TH 63 Bridge in Pierce County, Wisconsin

Prepared by
Michael F. Kolb, Ph.D., Geomorphologist
Strata Morph Geoexploration, Inc.
1648 Calico Court Sun Prairie, WI 53590

Strata Morph Geoexploration Report of Investigation No. 275

Prepared for
Two Pines Resource Group
Shafer, Minnesota

October 2016

Introduction

The project area is located in the Island Campground adjacent to the southwest side of the existing TH 63 Bridge. Access to this area was not available when the original TH 63 bridge investigations took place. Project background and detailed previous research can be found in these earlier reports (Kolb 2014, Terrel and Pizza 2015). The purpose of the geomorphological investigation is to determine if soil-stratigraphic contexts are present where archaeological sites may be buried.

The geology of the project area is the result of the downstream growth of a delta in the Mississippi River valley into Lake Pepin and the subsequent modification of the delta by the Mississippi River. The local stratigraphy formed by the deltas advance and alluvial modification is delineated in the following "Previous Research" section.

Previous Research

Stratigraphy documented in a soil boring located just north of the project area indicates the Mississippi River delta reached Red Wing just before 668 CE (1330±30 ^{14}C years BP) (Hudak 2011). The date is from 11 m below the modern soil surface in alluvial deposits just above the contact with the underlying lacustrine deposits. As the delta continued to prograde the elevation of its surface rose until it was seasonally above the water level. A date of 1435 CE (460 BP±30 ^{14}C years BP) from laminated alluvial/deltaic deposits 3 m below the base of the historic fill indicates that at this time the area was still subaqueous (Kolb 2014). An additional 1.23 m of laminated sandy alluvial/deltaic deposits accumulated before the start of vertical accretion alluvial sedimentation in the backwater slough depositional environment. The vertical accretion alluvium most likely began accumulating after the formation of a low sand ridge (possibly a subaqueous levee) that separated the slough from the river channel. Stratigraphy on the ridge top consists of fill (0.78 -1.3 m thick) over sandy and loamy stratified alluvium. No soil is developed in the alluvium beneath the fill. Stratigraphy on the channel side of the ridge in the channel marginal depositional environment consists of sandy alluvium with a silt cap overlain by stratified silty and sandy alluvium overlain by fill. The alluvium above a depth 4.07 m is historic based on the presence historic artifacts at that depth.

Methods

Methods followed a protocol developed specifically for deep testing (Monaghan et al. 2006) in Minnesota. Cores measuring 5 cm (2 inches) in diameter were extracted with a Geoprobe® mounted on a pick-up truck. Cores were described in the field using standard systems from soils (Schoeneberger et al. 1998, Soil Survey Staff 1975) and geology (Collinson and Thompson 1982, Folk 1974), photographed and returned to the borehole. Standard core log descriptions are in Appendix A.

Based on the results of the investigation during the coring phase some of the localities were recommended for deep archaeological sampling. Sampling was accomplished by excavating trenches. Trenches are excavated to an OSHA safe depth of 1.25 m by skimming off soil in ± 5 cm levels with a smooth edged backhoe bucket. At this depth, if the base of the trench is above the groundwater level, portions of the profiles are cleaned, examined for artifacts and/or anthropogenic features, and described using the same standard systems used for the cores.

Results

Two cores were extracted in the project area prior to determine if trenching was necessary. If the water table had been very high or the stratigraphy had indicated the presence of a subaqueous depositional setting with very limited subaerial exposure prior to historic development then trenching would not have been necessary.

Core 1 is on the highest part of the project area farthest from the riverbank (Figure 1). Stratigraphy consists of fill to 1.43 m over a buried soil formed in silt loam alluvium over stratified silt loam and very fine sandy loam alluvium (Appendix A). The fill consists of mostly bedrock source gravel in a silt loam matrix over a layer of cinder over sandy loam. The buried soil's Ab horizon is neutral black silt loam containing wood and leaf fragment as well as fine roots. It overlies Cg horizons formed in bedded and laminated alluvium that consists of a silt and very fine sand splay.

Core 2 is located downslope from Core 1 closer to the channel bank (Figure 1). Stratigraphy consists of crushed stone to 0.16 m over laminated very fine sand and very fine sandy loam alluvium that is somewhat disturbed and compacted. This overlies laminated silt loam, very fine sandy loam, and silt loam alluvium. Recovery in the core was low and the entire hole collapsed after the sampler was removed the second time. No trench was excavated at this

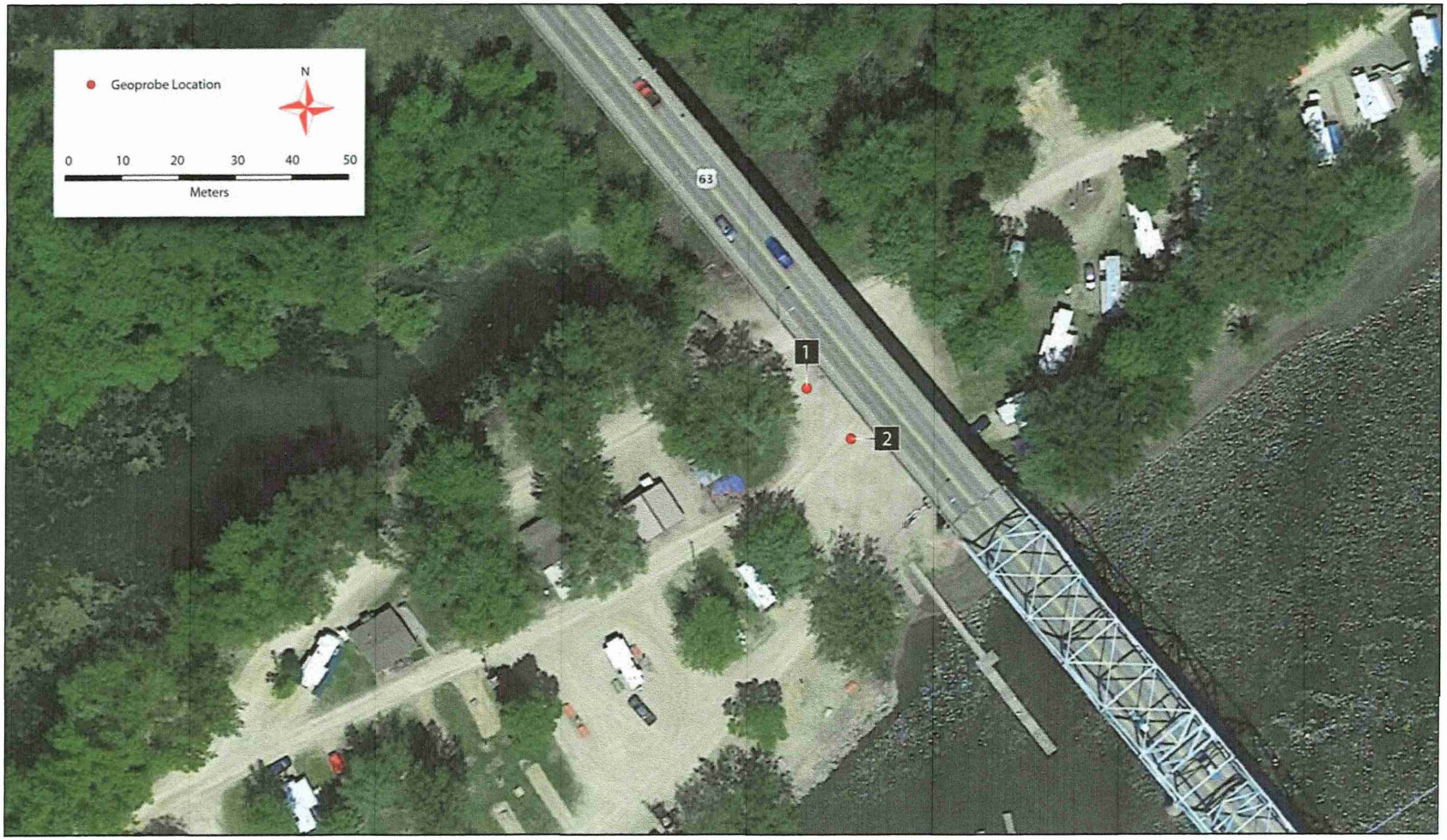

Figure 1. Location of Geoprobe cores.

location because there is no soil formed in the alluvium beneath the fill and the deposits are unstable like due to inflowing ground water.

Trench 1 was excavated just south of Core 1 (see archaeology report). The trench was only excavated to 1.63 m due to the influx of groundwater beginning at a depth of 1.25 m. Fill exposed in the trench consisted of silt loam with bedrock source pebbles, cobbles, and boulders with minor amounts of brick and concrete including a large piece of cement curbing. The ground water was entering the trench from the layer of cinder that underlies the fill and overlies the buried soil. A backhoe scoop of the upper buried soil was removed from the trench, troweled through and screened. Historic artifacts were located in the upper buried A horizon.

Discussion and Recommendations

A buried weakly developed hydric soil in Core 1 marks the landscape surface prior to the emplacement of the historic fill. The fill was likely emplaced during the construction of the existing bridge and/or during the development of the campground in the later half of the 20th century. The fill actually helped preserve the soil from historic activities, including bridge construction and maintenance, bridge run-off, and campground traffic, as well as more recent flooding. Below the buried soil surface (Ab horizon) are Cg horizons formed in laminated and bedded very fine sandy and silty alluvium that except for fine roots is pedogenically unmodified. These deposits accumulated in a subaqueous environment sometime after 1435 CE and before the emplacement of the historic fill. The lack of buried soils or other geomorphic surfaces in the sequence below the Ab horizon indicated it was never exposed subaerially therefore the potential for buried archaeological deposits is low. The presence of the buried soil at the top of the sequence indicates that surface was subaerially exposed and therefore has high potential for buried archaeological deposits. Because the buried soil may have been occupied by native peoples and/or Euro-Americans a trench was excavated to sample the buried soil for archaeological deposits.

Core 2 is located closer to the river and the active boat ramp. Historic fill was relatively thin (measured as 0.16 m thick but due to lake of recovery may be thicker) and consisted crushed rock gravel emplaced as road surface fill. The top of the alluvium beneath the fill is not marked by a pedogenic soil but consists of disturbed and compacted laminated very fine sand and very fine sandy loam. The compaction and disturbance may be the result of vehicle traffic prior to filling. The alluvial deposits in Core 2 are identical to those in Core 1 but no A horizon form in

the alluvium. It may be the case that the surface of the alluvial sequence was only exposed for limited periods of time, and/or the A horizon was removed by historic land-use activities and/or flooding. In either case the potential for buried archaeological deposits is low so no trench was excavated in the area of Core 2.

References Cited

Collinson, J. D. and D. B. Thompson
1982 *Sedimentary Structures*. George Allen & Unwin, London.

Folk, Robert F
1974 *Petrology of Sedimentary Rocks*. Hemphill Publishing Company, Austin.

Hudak, Curtis M.
2011 Geomorphic Investigation of the State Trunk Highway 63 Bridge over the Mississippi River, Red Wing, Minnesota. *MnDOT Contracts No. 98210 and State Project No. 2515-21*.

Kolb, M. F.
2014 Geomorphological Investigations in Conjunction with Phase I Archaeological Survey for the Reconstruction of the Minnesota Trunk Highway 63 Bridge Over the Mississippi River at Red Wing, Minnesota. *Strata Morph Geoexploration Report of Investigation No. 247.*

Schoeneberger, P. J., D. A. Wysocki, E. C. Benham and W. D. Broderson
1998 Field Book for Describing and Sampling Soils Version 1.1. *National Soil Survey Center, Natural Resource Conservation Service, USDA, Lincoln, Nebraska.*

Soil Survey Staff
1975 Soil Taxonomy. *United States Department of Agriculture Handbook* 436.

Terrel, M. M. and A. C. Pizza
2015 TH63 Red Wing Brodge Project Goodhue County, Minnesota and Pierce County, Wisconsin Phase I Archaeological Survey. *Two Pines Resource Group No. 12-06.*

Appendix A
Core Logs

Core 1

Depth (cm)	Horizon	Description
0-6	F1	Crushed stone.
6-29	F2	Gravel mixed with sticky SAND FILL; bedrock source; very abrupt boundary.
29-62	F3	5Y hue SILT LOAM with rounded and angular gravel; very abrupt boundary.
62-120	F4	Cinder.
120-143	F5	Dark brown (10YR 3/3) SANDY LOAM FILL; very abrupt boundary.
143-150	Ab	Black (N2.5Y/) SILT LOAM; wood fragments, leaves, and roots, abrupt boundary.
150-200	Cg1	Indistinctly stratified dark greenish gray (5GY 3/1) SILT LOAM and very fine SANDY LOAM; roots.
200-302	Cg2	Dark greenish gray (5GY 3/1 – 4/1) SILT LOAM; few white masses; roots; stickier with depth; spotty effervescence.

Core 2

Depth (cm)	Horizon	Description
0-16	F1	Road Gravel.
16-36	C1	Beds of laminated brown – pale brown (10YR 5/3 – 6/3) very fine SAND and very dark brown (10YR 2/2) very fine SANDY LOAM; common distinct redox features; somewhat disturbed and compacted.
36-50	C2	Very dark grayish brown (10YR 3/2) SILT LOAM and very thin laminated; disturbed.
50-213	Cg1	Laminated dark greenish gray (5GY 4/1) very fine SAND, very fine SANDY LOAM, and SILT LOAM.

APPENDIX C

WISCONSIN ARCHAEOLOGICAL REPORTS INVENTORY FORM

ARCHAEOLOGICAL REPORTS INVENTORY FORM

WHS PROJECT # ____ COUNTY Pierce

AUTHORS: Michelle M. Terrell and Eva B. Terrell

REPORT TITLE: Phase I Archaeological Survey for the TH 63 Red Wing Bridge Project - ~~Tron~~ton Island Touchdown, Pierce County, Wisconsin

DATE OF REPORT (MONTH AND YEAR): November 2016

SERIES/NUMBER: NA

PLACE OF PUBLICATION: Shafer, Minnesota

LOCATIONAL INFORMATION [LEGAL DESCRIPTION OF SURVEY AREA (T-R-S)]
Township 24N, Range 18W, Section 14

U.S.G.S. QUAD MAP(S): Red Wing, Minnesota-Wisconsin

SITE(S) INVESTIGATED: NA

ACRES INVESTIGATED: <1 AGENCY # MnDOT- State Project No 2515-21

INVESTIGATION TECHNIQUES COMPLETED (Check all that apply.)

☐ Historical Research	☐ Surface Survey	■ Geomorphology
☐ Interview/Informant	■ Soil Core	☐ Underwater
■ Records/Background	■ Walk Over/Visual Inspection	☐ Avocational Survey
■ Literature Background Research	☐ Mechanical Stripping	☐ Chance Encounter
☐ Traditional Knowledge	☐ Test Excavation/Phase II	☐ Osteological Analysis
☐ Monitoring	☐ Major Excavation/Phase III	☐ Faunal Analysis
☐ Shovel Testing/Probing	☐ Remote Sensing	☐ Floral Analysis

ABSTRACT: ☐ Included in report ■ Written in space below

In October of 2106, Two Pines Resource Group completed a Phase I archaeological survey for the planned Trenton Island touchdown of the Trunk Highway 63 bridge over the Mississippi River. This work took place within a less than one acre segment of right of way located within Section 14 of Township 24N, Range 18W in Pierce County, Wisconsin. The Phase I survey, which was conducted in tandem with geomorphologist Dr. Michael Kolb of Strata Morph Geoexploration, consisted of the extraction of two soil cores and the excavation of a single test trench to expose a buried soil with archeological potential. No archaeological sites were identified during the survey.

Office of the State Archaeologist ARI # _____