



Phase I Archaeological Resources Survey

West Twin Lake Public Access Project

Crow Wing County, Minnesota
Township 136 North, Range 29 West, Sections 34 and 35

State Project Number (SP): 1810-92
Federal Project Number: SPR CR16(001)
OSA License Number: 16-032
MnDOT Contract No. 1003291

AUTHORIZED AND SPONSORED BY:

Minnesota Department of Transportation
and the Federal Highway Administration

PREPARED BY:

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August 2016

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Consultant's Report

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Management Summary

The Minnesota Department of Transportation (MnDOT) is proposing State Project (SP) 1810-92, the transfer of land along the shore of West Twin Lake in Crow Wing County, Minnesota to the Minnesota Department of Natural Resources (DNR) as part of the West Twin Lake Public Access Project (Project). The parcel of land proposed for the transfer is located within the State's right-of-way (ROW) between West Twin Lake and Trunk Highway (TH) 371 in Sections 34 and 35, Township 136N, Range 29W (Figure 1-1). The State proposes to transfer the land for the Minnesota DNR's use as a boat access to West Twin Lake.

In June 2016, MnDOT contracted with HDR Engineering, Inc. (HDR) to conduct an archaeological resources survey for the Project. Because the Project will receive federal funds from the Federal Highway Administration as administered by the Minnesota Department of Natural Resources, it is subject to review under the National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA) of 1966, as amended (Public Law 89-665), and the NHPA implementing regulations (36 CFR 800). As a state-sponsored project, it also falls under the auspices of the Minnesota Field Archaeology Act and the Minnesota Historic Sites Act. The Project is located in the Central Lakes Deciduous West (4w) Archaeological Sub-Region of Minnesota. The Area of Potential Effects (APE) has been identified by the MnDOT Cultural Resources Unit (CRU) as encompassing a 1.35 acre parcel which will encompass any tree removal, grading, or other surface disturbance areas, including a proposed entrance road from TH 371.

Phase I investigations were carried out in July 2016 under the direction of Michael Justin, Principal Investigator for the Project, under an Annual Archaeological Reconnaissance Survey License (No. 16-032) issued by the Office of the State Archaeologist. The Phase I investigations conducted by HDR included background research and archaeological field survey of the APE.

The Phase I survey identified no cultural resources within the APE. HDR recommends that the archaeological survey conducted within the Project's APE is adequate and complete and recommends that a no historic properties finding be made for the purposes of Section 106 compliance for the Project.

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1 Introduction

The Minnesota Department of Transportation (MnDOT) is proposing the transfer of land along the shore of West Twin Lake in Crow Wing County, Minnesota to the Minnesota Department of Natural Resources (DNR) as part of the West Twin Lake Public Access Project (Project). The parcel of land proposed for the transfer is located within the State's ROW between West Twin Lake and Trunk Highway (TH) 371 in Sections 34 and 35, Township 136N, Range 29W (Figure 1-1). The State proposes to transfer the land for the Minnesota DNR's use as a boat access to West Twin Lake.

Because the Project will receive federal funds (Catalog of Federal Domestic Assistance [CDFA] #20.205 Highway Planning and Construction), as administered by the Minnesota Department of Transportation, it is subject to review under the National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA) of 1966, as amended (Public Law 89-665), and the NHPA implementing regulations (36 CFR 800). Under Section 106, the NHPA requires that proposed projects be evaluated for effects they may have on cultural resources listed in or eligible for listing in the National Register of Historic Places (NRHP). The Area of Potential Effects (APE) has been identified by the MnDOT Cultural Resources Unit (CRU) as encompassing a 1.35 acre parcel which will encompass any tree removal, grading, or other surface disturbance areas, including a proposed entrance road from TH 371 (Figure 4-1).

In order to comply with applicable regulations pertaining to cultural resources, MnDOT contracted HDR to complete a Phase I archaeological resources survey of the proposed APE. After obtaining background information on previously surveyed areas and previously recorded archaeological sites within a one-mile radius of APE, HDR conducted Phase I archaeological field work July 6-7, 2016, using a combination of pedestrian reconnaissance and subsurface shovel testing. Michael Justin acted as Principal Investigator for the project under OSA License 16-032 (Appendix A). The UTM (NAD 83, Zone 15) coordinates for the center point of the APE are 099711E, 5155929N.

The background research, objectives, methods, fieldwork results, and management recommendations for the Phase I Archaeological Resources Survey completed for this Project are presented in the following sections.

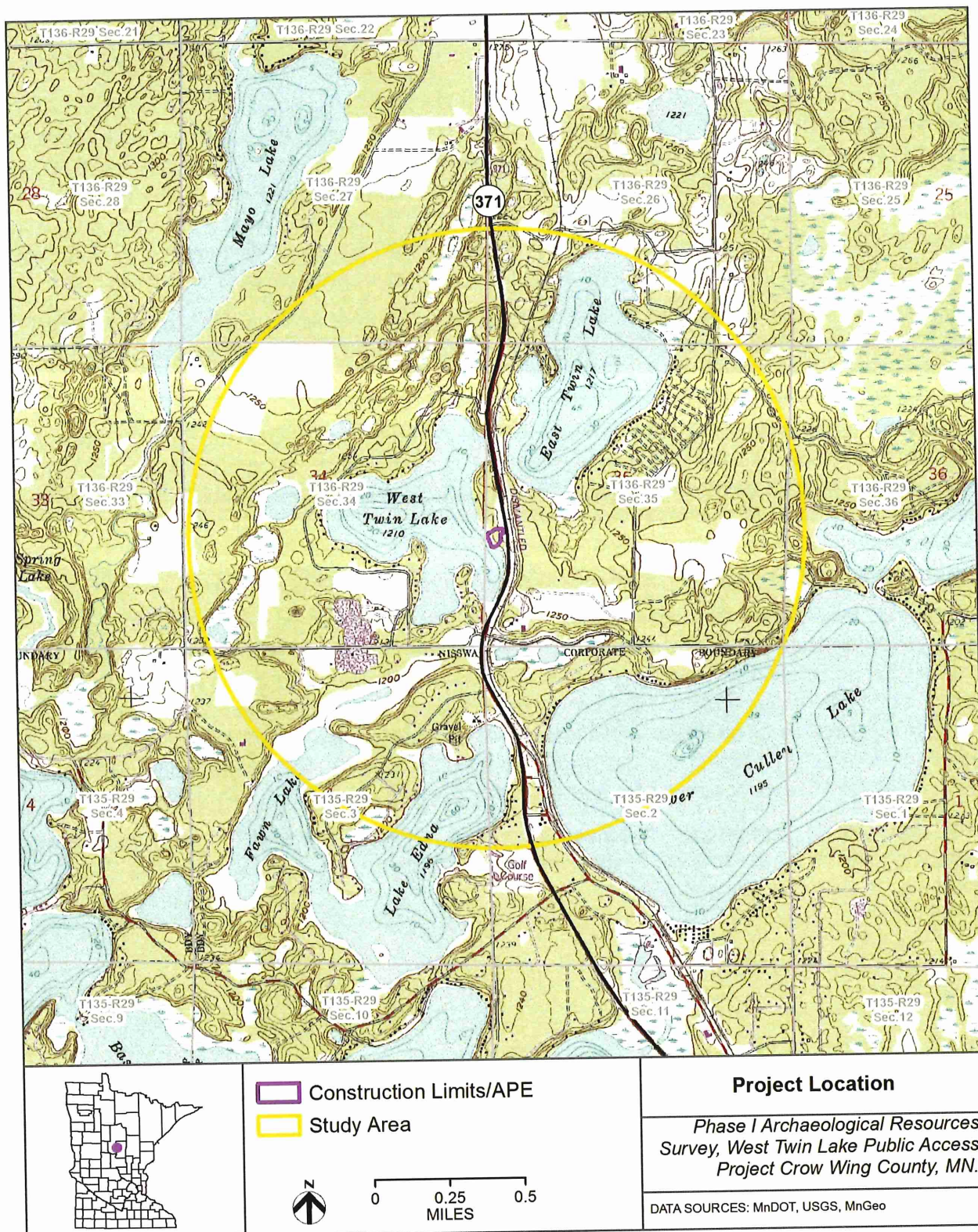


Figure 1-1: Project location

2 Methods and Research Design

2.1 Objectives

The Phase I Archaeological Survey was performed to identify any new or previously recorded archaeological resources that may be present within the APE. HDR's work complies with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 Federal Register [FR] 44716 44740) (National Park Service 1983) and the SHPO Manual for Archaeological Projects in Minnesota (Anfinson 2005).

2.2 Methods

The Phase I Archaeological Resources Survey was conducted within the Project's proposed APE, a 1.35-acre parcel where disturbances will occur. The following sections provide a detailed overview of the methods used for the Phase I Cultural Resources Investigation for the Project.

2.2.1 File Review

Background research was conducted for the Project prior to field survey to understand the types of historic properties that may be present in the APE. HDR sent a request to Minnesota's State Historic Preservation Office (SHPO) in July 2016 for information on identified archaeological sites and previously conducted archaeological surveys within one mile of the APE. In July 2016, HDR archaeologist Michelle Porwoll conducted background research at the SHPO. This research focused on previously identified archaeological sites and archaeological surveys within one mile of the APE. HDR also reviewed Official General Land Office (GLO) records, historic aerial photographs, and historic plat maps relevant to the APE to identify areas with potential for containing historic era cultural resources. The results of the background research for the Project are presented in Section 3.1 of this report.

2.2.2 Field Review

The archaeological survey began with a visual inspection of the APE via a walkover survey. Areas of the APE that exhibited obvious disturbance by earth-moving or development (for example, highway ROWs, utility corridors, landscaped residential yards, modern residential or industrial developments) were documented with photographs. A systematic pedestrian survey was conducted along transects spaced at 15-meter (m) intervals. Shovel tests were excavated in areas where prior disturbance was not immediately obvious and that exhibited less than 25 percent ground surface visibility (GSV). Shovel tests were spaced at 15-m intervals or judgmentally based on the Principal Investigator's assessment of the area's archaeological potential. Shovel tests were 30 to 40 centimeters (cm) in diameter and excavated to a depth of 1 m or until culturally sterile or disturbed soils were sufficiently documented. All excavated soils were screened through a 0.25-inch hardware cloth mesh. Shovel test data was recorded on standard forms and in the field notebook, which included the survey area locations, shovel test locations, shovel test depth, soil profile, soil texture and inclusions, and Munsell color. A Trimble® Global Positioning System (GPS) unit was used to record each shovel test location. A digital camera was used to photo-document the APE.

2.2.3 Artifact Processing

Laboratory analysis and artifact curation were not required as no cultural materials were encountered during the Phase I survey.

3 Literature Search Results

This section presents a discussion of the regional physiography along with the current conditions of the area. A brief overview of past cultural patterns in the region is also presented.

3.1 Background Research

In July 2016, HDR staff conducted background research at the SHPO. Background research for the Project focused on previously identified archaeological sites and archaeological surveys within a one-mile radius of the APE. HDR staff also reviewed historical plat maps and aerial photographs using online sources including the University of Minnesota John R. Borchert Map Library, Historic Map Works, the State of Minnesota GLO Historic Plat Map Retrieval System, and the State of Minnesota Aerial Photography database.

3.1.1 Previous Archaeological Surveys within One Mile of the APE

Background research for the Project revealed that one previous archaeological survey (MULT-04-02) has been documented within the APE. No other archaeological surveys are documented within a one-mile radius of the APE (Table 3-1; Figure 3-1). Survey MULT-04-02 was a Phase I archaeological reconnaissance survey of TH 371 conducted by Leech Lake Heritage Sites Program (LLHSP) in 2003 for MnDOT. The surveyed area for MULT-04-02 intersects with the eastern edge of the Project APE located within the TH 371 ROW. No archaeological sites were identified within or near the Project APE during the MULT-04-02 survey.

Table 3-1. Previous Archaeological Surveys within One Mile of the APE

SHPO Number	Title	Author(s)	Year
MULT-04-02	Phase I Archaeological Reconnaissance Survey of TH 371, Pine River to Nisswa, Cass and Crow Wing Counties, Minnesota	Carlson, D.L., H. Jones, and H.D. Shaw	2004

3.1.2 Previously Recorded Archaeological Sites within One Mile of the APE

Background research revealed no previously identified archaeological sites within the APE or within a one-mile radius.

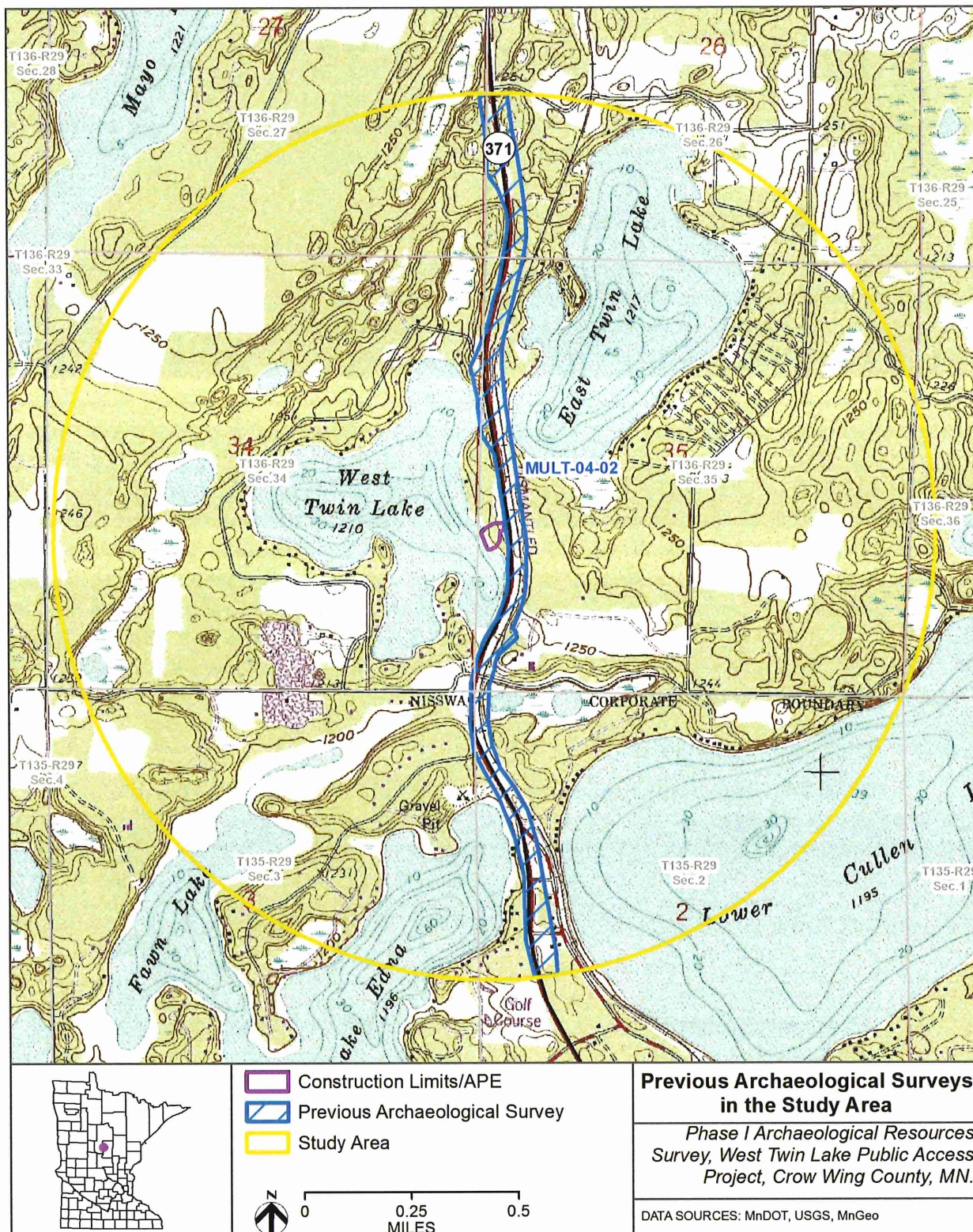


Figure 3-1: Previously Identified Cultural Resources within One Mile of the APE

3.1.3 Historic Maps and Aerial Photograph Review

Official General Land Office (GLO) maps, historic plat maps and historic aerial photographs were examined to identify areas with potential for containing historic era cultural resources located within the APE. Archaeological sites may be present in locations where historic resources have been documented on historic maps.

A review of a GLO map dating to 1871 revealed no features related to Euro-American settlement within the APE; however, a road/trail is shown running north to south (along the present day Hwy 371 alignment) just east of the APE (United States Surveyor General 1871). The 1874 Andreas Atlas shows that the north to south road is still present just east of the APE, but no other features related to Euro-American settlement are present within or near the APE (Andreas 1874). A plat map from 1913 showed that the north to south road present just east of the APE was joined by the Minnesota and International Railroad, which also runs north to south and parallels the road in the vicinity of the APE. No other features related to Euro-American settlement are present within or near the APE on the 1913 map (Geo. A. Ogle and Co. 1913).

Historic aerial photographs reveal small changes to the APE from the 1930s through the 1960s, mostly related to the development of Hwy 371 (Figure 3-2). An aerial photograph from 1939 reveals a mostly wooded APE bounded to the east by Hwy 371 and the parallel Minnesota and International Railway corridor. A cleared ROW associated with Hwy 371 is present within the eastern portion of the APE. An aerial photograph from 1955 shows the APE and vicinity as relatively unchanged except for evidence of extensive earth moving/grading within the eastern portion of the APE. An aerial photograph from 1969 shows a transmission line corridor present within the disturbed eastern portion of the APE, along with evidence of new tree growth in this disturbed area.

The current land use in the APE is mostly wooded lakeshore. A cleared transmission line corridor is located in the eastern portion of the APE, and is bounded to the east by a thin stand of pine trees along the edge of the Hwy 371 ROW. The portion of the APE located within the Hwy 371 ROW was cleared of all vegetation due to road construction.

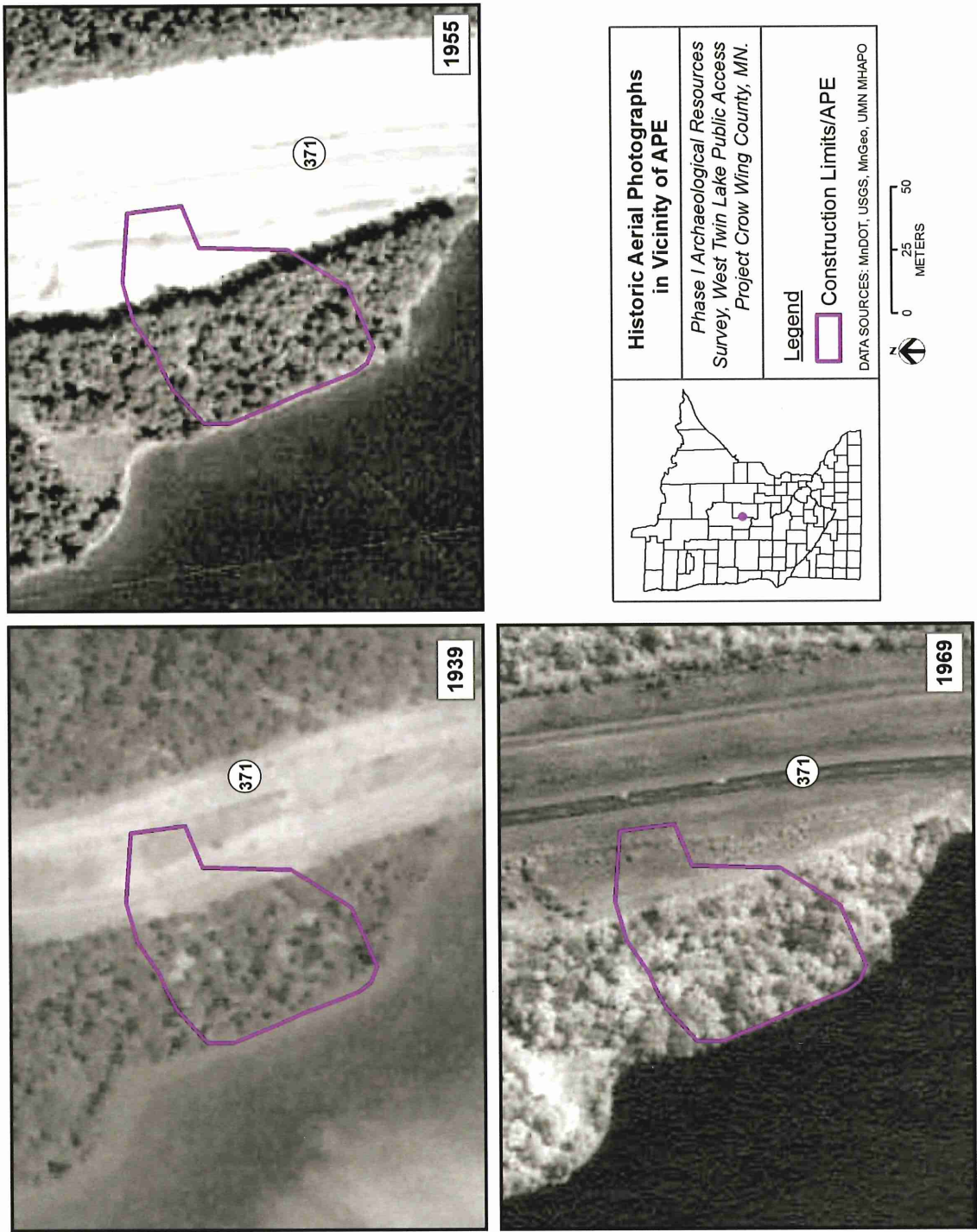


Figure 3-2. Historic Aerial Photographs Showing APE

4 Field Results

From July 6-7, 2016 HDR performed a Phase I Archaeological Resources survey. HDR archaeologist Michael Justin served as the Principle Investigator and conducted the survey with HDR archaeologist Dylan Eigenberger. Both Justin and Eigenberger meet the Secretary of the Interior's Professional Qualification Standards for Archaeology as published in 36 CFR 61.

The Project's APE is located in the NE $\frac{1}{4}$ of the SE $\frac{1}{4}$ of Section 34 and the NW $\frac{1}{4}$ of the SW $\frac{1}{4}$ of Section 35, Township 136N, Range 29W between the ROW of TH 371 and the eastern shore of West Twin Lake (Figure 3-1). The APE corresponds with the proposed construction limits, a 1.35-acre parcel which will encompass any tree removal, grading, or other surface disturbance areas, including the proposed entrance road from TH 371 (Figure 4-1).

The APE encompasses a mostly wooded parcel that gradually slopes down to West Twin Lake. Vegetation within the wooded portion of the APE included ash, white pine, aspen, oak, and birch with an understory of grass, scrub brush, and small trees (Figure 4-2). A transmission line corridor running north to south through the eastern portion of the APE was cleared of trees and consisted of a two-track dirt road fringed with a mix of tall grass with some low, scrubby trees (Figure 4-3). A thin stand of pine trees bordered the transmission line to the east. East of the transmission line corridor, the APE consisted of the TH 371 ROW that had recently been cleared of all vegetation due to ongoing road construction (Figure 4-4).

Pedestrian survey verified that the portion of the APE occupied by the TH 371 ROW and transmission line corridor had been severely disturbed due to grading and placement of both above ground and underground utilities.

Pedestrian survey of the wooded western portion of the APE revealed mostly sloped terrain with the exception of the flat margin of the lakeshore, and an upper terrace located 20 to 30 m to the east. Because GSV was less than 25 percent within this wooded area, subsurface testing was determined to be necessary. A total of 11 shovel tests were excavated in the APE (Figure 4-1). One transect of five shovel tests was placed along the flat margin of the lakeshore, approximately 5 m east of the shoreline and extended from the south edge of the APE to the north edge (Figure 4-5). A second transect of five shovel tests was placed along the upper terrace, approximately 20 m east of the lower transect (Figure 4-6). This second transect also extended from the south edge of the APE to the north edge. Shovel tests along both transects were spaced at approximately 15 m intervals. An additional shovel test was placed approximately 15 m to the east of the upper transect along the Project's proposed access road.

All shovel tests excavated in the APE revealed a similar soil profile consisting of an average of 17 cm of dark grayish brown (10YR 4/2) silty sand over yellowish brown (10YR 5/4) silty sand with gravel and cobbles of varying sizes that continued to an average depth of 40 cm below surface (cmbs). Four tests were halted within this stratum due to obstruction by large cobbles. A third stratum consisting of light yellowish brown (10YR 6/4) coarse sand with gravel and cobbles was encountered in seven of the tests and continued to an average depth of 60 cmbs before large cobbles obstructed further excavation. No cultural materials were encountered during shovel testing.

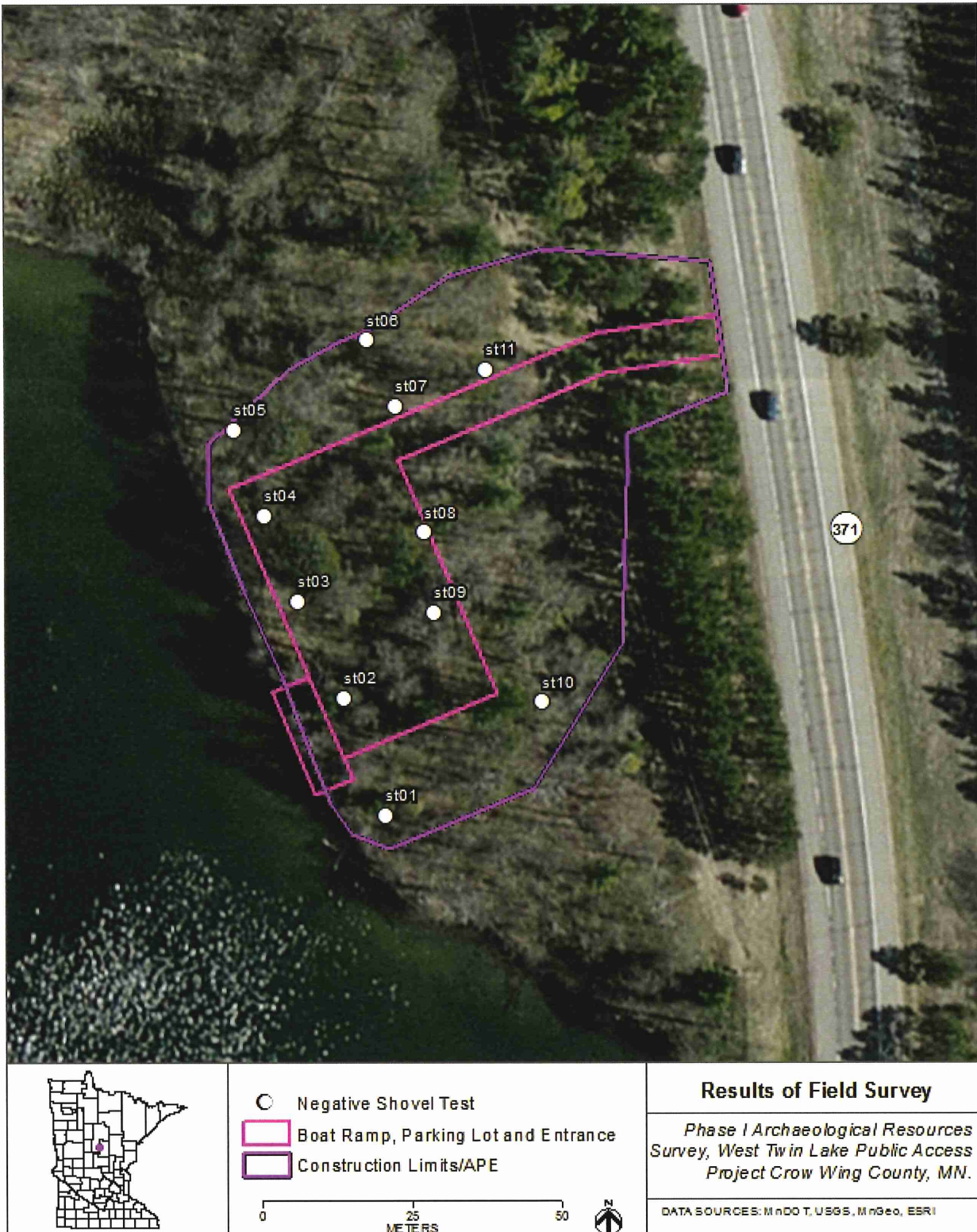


Figure 4-1. APE Overview



Figure 4-2. Overview of Wooded Portion of APE, View to West



Figure 4-3. Transmission Line Corridor in Eastern Portion of APE, View to South



Figure 4-4. TH 371 ROW in Eastern Portion of APE, View to South



Figure 4-5. Lakeshore Shovel Test Transect, View to Southeast



Figure 4-6. Upper Terrace Shovel Test Transect, View to Southeast

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5 Summary and Recommendations

In July 2016, HDR completed a Phase I Archaeological Resources Survey for the West Twin Lake Public Access Project. The Project entails the transfer of land along the shore of West Twin Lake in Crow Wing County, Minnesota from MnDOT to the Minnesota DNR. The parcel of land proposed for the transfer has been used as an informal boat access and is located within the State's ROW between West Twin Lake and TH 371 in Sections 34 and 35, Township 136N, Range 29W. The State proposes to transfer the land for the Minnesota DNR's use as a boat access with a five-vehicle parking lot to West Twin Lake. Archaeological survey took place to fulfill the requirements of state and federal legislation that requires public agencies to take into consideration the effects of publicly funded or sponsored projects on historic properties.

The Phase I Archaeological Survey consisted of pedestrian reconnaissance and 11 subsurface shovel tests. Although most of the proposed project area appears to be in a natural and unmodified state, the survey recorded the eastern edges of the APE as previously disturbed from road construction. HDR identified no cultural resources within the APE during the archaeological survey, and recommends that a *no historic properties* finding be made for the purposes of Section 106 compliance for the Project.

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6 References

Andreas, A.T.

- 1874 *Illustrated Historical Atlas of the State of Minnesota*. A.T. Andreas, Chicago, Illinois.

Anfinson S.

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

National Park Service

- 1983 *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation*. Current version available online at http://www.nps.gov/history/local-law/arch_stnds_0.htm. National Park Service, Department of the Interior, Washington D.C.

Geo. A. Ogle and Co.

- 1913 *Standard Atlas of Crow Wing County, Minnesota*. Geo. A. Ogle and Co., Publishers and Engravers, Chicago, Illinois.

United States Surveyor General

- 1871 General Land Office Survey Map of Township 136N, Range 29W. Electronic document, <ftp://ftp.gisdata.mn.gov/pub/data/basemaps/glo/Cass/LowResolution/t136r29w5fi01.pdf>. Accessed July 11, 2016.

Appendix A. 2016 OSA Annual Archaeological Reconnaissance Survey License

APPLICATION FOR MINNESOTA ANNUAL ARCHAEOLOGICAL RECONNAISSANCE SURVEY LICENSE

This license only applies to reconnaissance (Phase I) surveys conducted under Minnesota Statutes 138.31-.42 during calendar year 2015. Separate licenses must be obtained for site evaluation (Phase II) surveys, for major site investigations (Phase III), for burial site authentications 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: MICHAEL JUSTIN

Institution/Agency/Company Affiliation: HDR EDC, INC

Title/Position: ARCHAEOLOGY PROJECT MANAGER

Address: 701 XENIA AVE SOUTH, SUITE 600, MINNEAPOLIS, MN 55416-3636

Work Phone: 763-591-5423 E-Mail: MICHAEL.JUSTIN@HDRINC.COM

Name of Advanced Degree Institution: UNIVERSITY OF WISCONSIN-MILWAUKEE Year: 1983

Name of Department: ANTHROPOLOGY Degree: MA ☒ MS ☐ PhD

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

Type of Land: (check all that may apply)
State Owned ☒ County Owned ☒ Township/City Owned ☒
Other non-federal public ☐ List: _____

MHS Repository Agreement # 664 Other Approved Curation Facility: _____

Previous License: Year 2014 Type PHASE I Number 14-006

Signed (applicant): [Signature] Date: JAN 05, 2015

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: mn.osa@state.mn.us

Minnesota Historical Society Approval: [Signature] Date: 1-6-15
State Archaeologist Approval: [Signature] Date: 1/5/15

License Number: 15-006

Form Date: 11/6/12