

Phase I Cultural Resources Investigation in the Lake Rebecca Park Reserve

Lake Rebecca Park Reserve Non-Paved Trail Project

Hennepin County, Minnesota

Township 118 North, Range 24 West, Sections 5 and 6 &

Township 119 North, Range 24 West, Sections 31 and 32

Federal Recreational Trail Grant Project Number: 0048-14-3B

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Consultant's Report

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Management Summary

The Lake Rebecca Park Reserve, Three Rivers Park District, plans to redevelop two non-paved trail systems within the Lake Rebecca Park Reserve located in Hennepin County, Sections 31 and 32 of Township 119N, Range 24W, and Sections 5 and 6 of Township 118N, Range 24W. The redesign will address serious erosion problems on the existing trails and create additional recreational opportunities for mountain and hand-powered bicycles. The upgraded trail systems will include roughly 9.7 miles of sustainable horseback trails and 13.2 miles of sustainable single-track mountain bike trails. About one mile of the proposed mountain bike trail will be built to accommodate hand-powered bicycles.

The Three Rivers Park District is applying for a Federal Recreational Trail Grant (Project Number: Project# 0048-14-3B), administered by the Minnesota Department of Natural Resources. In April 2015, the Minnesota Department of Transportation (MnDOT) contracted with HDR Engineering, Inc. (HDR) to conduct archaeological investigations within the proposed trail corridors. Phase I investigations were carried out during June and July of 2015, under the direction of Michael Justin, Principal Investigator for the project, under an Annual Archaeological Reconnaissance Survey License (No. 15-006) issued by the Office of the State Archaeologist. Phase I investigations conducted by HDR included background research and archaeological field survey.

The Lake Rebecca Park Reserve is located in the South Sub-region of the Central Lakes Deciduous Archaeological Region (4s) of Minnesota. The Area of Potential Effect is between 3 to 10 feet wide, depending on the type of trail proposed. The surveyed horse trail encompassed 11.7 acres (at 10 feet) and surveyed bicycle trail encompassed 4.8 acres (at 36 inches), for a total of 16.5 acres surveyed.

The archaeological Phase I survey consisted of pedestrian reconnaissance and subsurface testing. The survey identified seven new archaeological sites. Four sites are associated with precontact aboriginal native people, and three sites are associated with post-contact modern agricultural development. The sites are characterized as sparse historic artifact or lithic sites, or isolated find spots. Most of the area encompassed by the survey consisted of previously disturbed agricultural lands. The proposed improved horse trail will pass through the estimated boundaries of ten previously recorded archaeological sites, however only one (21HE0121) is considered eligible for the National Register of Historic Places for a precontact component that is below the plow zone and below anticipated project impacts. None of the newly identified sites are recommended as eligible for listing on the National Register of Historic Places. HDR recommends that a no historic properties finding be made for the purposes of Section 106 compliance for the proposed trail construction project.

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1 Introduction

The Lake Rebecca Non-Paved Trail Project (Project) is located in the Lake Rebecca Park Reserve within the Three Rivers Park District (Park) in Hennepin County, Sections 31 and 32 of Township 119N, Range 24W, and Sections 5 and 6 of Township 118N, Range 24W (Figure 1-1). The Project consists of the redesign and redevelopment of horse trails and the construction of additional mountain bike trails within Lake Rebecca Park Reserve to remedy significant erosion issues on the existing trails due to poor design. Additionally, these trail improvements will expand total trail mileage and improve visitor experience. The initial information provided by the Park indicated their intention to build approximately 11.5 miles of sustainable horseback trails and 13 miles of sustainable mountain bike trail. The single-track trail will include “approximately one mile of adaptive trail designed to accommodate hand-powered cycles. The horse trail is planned to be variable width, from 3 to 10 feet. The single-track trail width will be 30 inches except for the adaptive trail which will be a minimum of 36 inches in width to accommodate the wider dimension of hand powered cycles. Both trails will be stacked loop design, incorporating several difficulty levels, providing a variety of trail length and challenge options” (from State Aid for Local Transportation Historical/Archaeological Review Request form). Shapefiles provided to HDR Engineering, Inc. (HDR) by the Park indicate that there are closer to 9.7 miles of sustainable horse trail and 13.3 miles of bike trail.

Because the Project will receive federal funds from the Federal Highway Administration (Catalog of Federal Domestic Assistance [CDFA] #20.205 Highway Planning and Construction), 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). 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).

Assessment of maps provided by the Three Rivers Park District show that much of the proposed horse trail will overlap existing paved and natural surface trails, and portions may follow a previously surveyed pipeline route. The Area of Potential Effects (APE) for the Project has been identified by MnDOT Cultural Resources Unit (CRU) to include the width of the proposed trails (30 to 36 inches for bike trails and 3 to 10 feet for horse trails) and a vertical limit of six inches below any proposed grading or other surface disturbance. Information from Park administrators indicates that there are no structures of sufficient age within view of the proposed trails to warrant a separate Architectural History study.

In order to comply with applicable regulations pertaining to cultural resources, Three Rivers Park District, through the MnDOT, contracted HDR to complete Phase I inventory studies in the proposed Project area.

After obtaining background information on previously surveyed parcels and previously recorded archaeological sites within the Park, HDR conducted Phase I archaeological field work between June 10 and July 23, 2015, using a combination of pedestrian reconnaissance and subsurface shovel testing. UTM coordinates for the APE are not given because of the extremely meandering nature of the 23 miles of trails.

Michael Justin acted as Principal Investigator for the project under OSA License 15-006 (Appendix B).

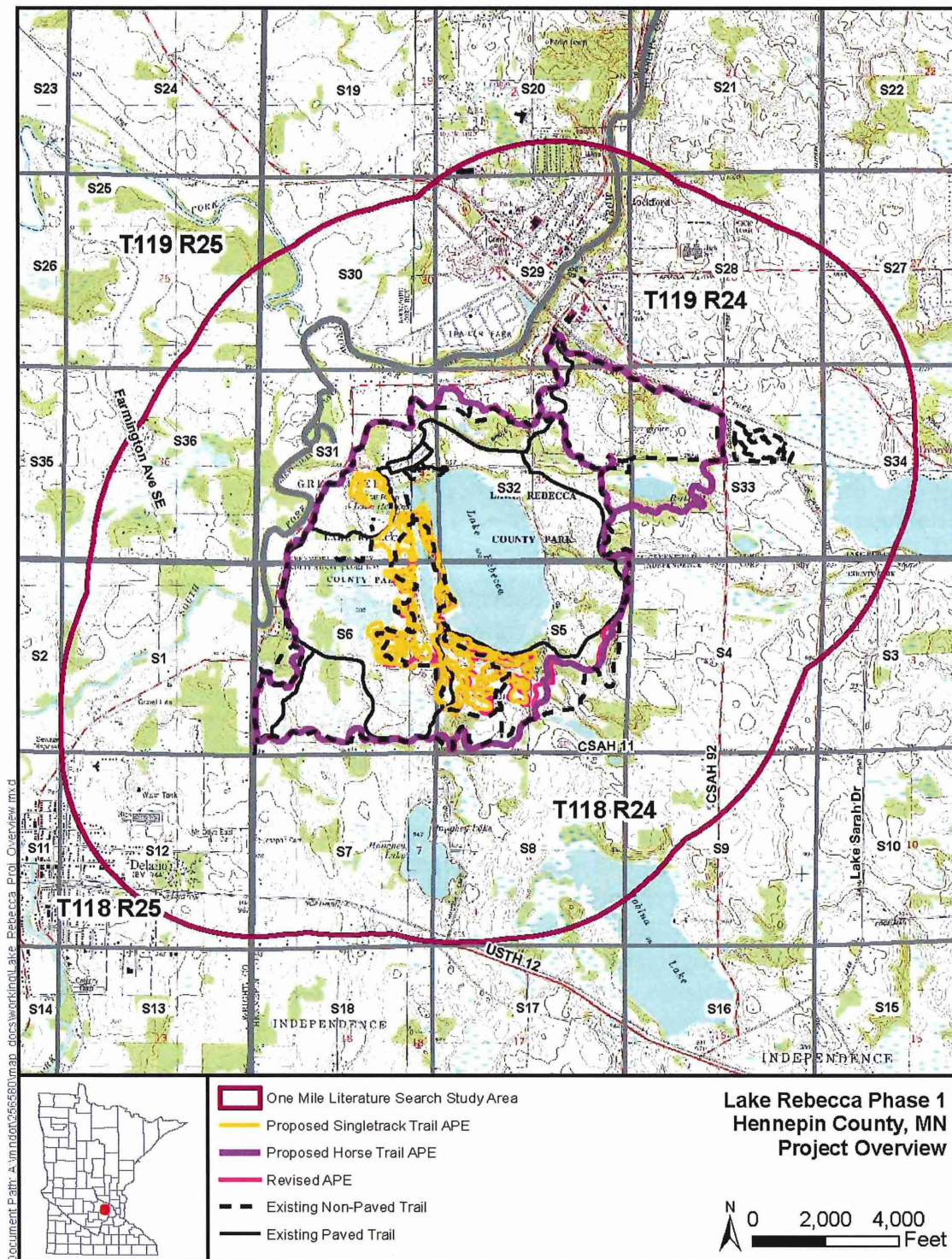


Figure 1-1: Project location

2 Methods and Research Design

2.1 Objectives

The objective of the Phase I Cultural Resources Investigation for the Project was to identify historic properties in the Project APE that may be affected by the proposed undertaking and to provide alternatives for avoiding or minimizing the effects to those properties.

2.2 Methods

The Phase I Cultural Resources Investigation conducted for the Project concentrated on areas where new trail construction is proposed. The APE for the Project was identified by the State's CRU as the width of the proposed trails (horizontal APE) and six inches below any proposed grading or other surface disturbance (vertical APE). Phase I survey did not occur in areas where previous cultural resources investigations had adequately assessed archaeological sites or determined the potential for historic properties. The work performed by HDR for the Project complies with the SHPO Manual for Archaeological Projects in Minnesota (Anfinson 2005) and *The Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* (National Park Service 1983). 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 May 2015, for information on identified archaeological sites, architectural properties, and previously conducted archaeological surveys within one mile of the Project APE. In June 2015, HDR archaeologist Michelle Porwoll conducted background research at the SHPO and the Office of the State Archaeologist (OSA). This research focused on previously identified archaeological sites, architectural properties, and archaeological surveys within one mile of the Project 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. Local archaeologist LeRoy Gonsior was also consulted regarding the potential for previously unrecorded archaeological sites in the Project area. The results of the background research for the Project are presented in Section 3.3 of this report.

2.2.2 Field Review

Field review for the Project consisted of a visual reconnaissance survey of all the proposed and existing trails in the APE, followed by subsurface testing of areas along the proposed trails determined by the Principle Investigator to have a high to moderate potential for containing buried cultural deposits.

A visual reconnaissance survey was conducted prior to subsurface testing to assess the ground surface visibility in the APE. One transect was walked on the centerline of the APE using a Trimble® Geo7X GPS unit with sub-meter accuracy. Centerline data for the proposed trails were provided to HDR by the Three Rivers Park District. Areas along existing trails with greater than 25 percent

ground surface visibility were visually inspected for cultural materials. Identified surface materials were photo-documented and recorded in field notebooks. Locations were recorded using a Trimble® Geo7X GPS unit. Historic era surface materials were not collected.

Subsurface testing was conducted in the APE in areas of proposed new trail construction with less than 25 percent ground surface visibility that also were assessed to have higher probabilities for intact soils and cultural deposits. Areas with greater than 20 percent slope or subject to inundation were not tested because of their low potential for containing cultural deposits. Areas that had been adequately assessed during previous cultural resources investigations were also not tested.

Areas of new trail construction in the APE were divided into 11 shovel test areas based on landform, proposed trail type, and environmental setting. The portions of these areas determined by the Principle Investigator to have high to moderate potential for containing buried cultural deposits during surface reconnaissance were shovel tested at 15 meter intervals in a single line along the APE. Shovel test intervals were extended to 30 meters or greater in areas where previous land use involved agricultural tillage. Since cultural deposits in former agricultural fields are likely to be out of context to the depth of a typical plow zone (30 centimeters [cm] below surface), shovel tests in these areas were spaced widely to determine the presences of buried cultural material and to document the horizontal extent of agricultural disturbance. Shovel tests were dug to 6 inches below the anticipated maximum trail construction depth (approximately 40 cm below surface). Excavated soils were screened through ¼-inch hardware cloth. Soil color, texture, and depth were recorded for each shovel test on shovel test forms with location recorded using a Trimble® Geo7X GPS unit. All cultural material identified during subsurface testing was collected. Shovel tests were backfilled immediately after completion. Where subsurface tests were positive for cultural material, close interval (≤ 5 meters) shovel tests were dug along the APE until two consecutive negative tests were recorded. In cases where subsurface tests were positive and soil horizons appeared intact, additional close interval shovel tests were dug perpendicular to the APE until two consecutive negative tests were recorded.

2.2.3 Artifact Processing

Cultural materials recovered during the Phase I investigation were processed in accordance with Repository Agreement Number 664, between HDR and the Minnesota Historical Society. Lithic artifacts were cleaned using a soft bristle brush and warm tap water in preparation of curation. Artifacts were labeled with acid-free printer paper and acrylic thermoplastic resin (B-72) adhesive. All the artifacts recovered during the Phase I Cultural Resources Investigation for the Project are to be curated at the Minnesota Historical Society Conservation Laboratory, located in Saint Paul, Minnesota.

3 Literature Search

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 Environmental Context

The Lake Rebecca Park Reserve is located in the South Sub-region of the Central Lakes Deciduous Archaeological Region (4s) of Minnesota (Anfinson 1990, Hudak, et. al. 2002). This region is characterized by a gently rolling Big Woods landscape with numerous wetland areas.

Topographically, the region is a patchwork of moraines, till plains, and outwash plans, with occasional bedrock outcrops of granite in the region's center and eastern edge. Soils in the region are medium to coarse textured. Prairie soils are predominant in the south and west parts of the region, while forest soils are predominant in the north and east (Anfinson 1990, Hudak, et. al. 2002, Gibbon 2012).

Numerous lakes resulting from glacial topography are found throughout the region. The Mississippi River flows through the eastern and central parts of the region, with the St. Croix River forming its eastern boundary. The western part of the region is drained by streams flowing west into the Red River (Hudak, et. al. 2002, Gibbon 2012).

After the retreat of the Des Moines Lobe of the Late Wisconsinan Glaciation about 13,000 years ago, the environment changed progressively from tundra to spruce and larch parkland, to pine forest, and to deciduous hardwood forest. Around 6,000 to 7,000 years ago, a warmer and drier period, known as the Holocene Climatic Optimum, brought about a shift to an expanding prairie environment. Around 7,000 years ago, the prairie slowly receded back as cooler, moister conditions prevailed, resulting in the temperate hardwood forest climate known regionally as the Big Woods which has predominated until recent times (Hudak, et. al. 2002, Gibbon 2012).

At the time of Euro-American settlement, the region was of a mixture of hardwood forest, prairie fringe and prairie wetlands. Animals that inhabited the region consisted of white tailed deer, cottontail rabbit, woodchuck, raccoon and bear within the forested areas, and large mammals such as bison and elk in the prairies. The numerous rivers, lakes, sloughs, and marshes contained smaller mammals such as muskrat and beaver, and a variety of waterfowl, fish and turtle. Wild rice beds were present throughout most of the region (Anfinson 1990, Hudak, et. al. 2002, Gibbon 2012).

The current climate of the region varies, with greater precipitation occurring in the east and higher temperatures occurring in the south. The average annual precipitation ranges from 22 to 28 inches. The average January highs range from 12 to 24 degrees Fahrenheit, while the average July highs range from 78 to 82 degrees Fahrenheit. The average growing season lasts up to 160 days in the south and up to 140 days in the north (Hudak, et. al. 2002).

3.2 Cultural Context

The following cultural overview is relevant to the region of the Lake Rebecca Park Reserve. It is based upon previously compiled archaeological syntheses pertaining to Minnesota, the Upper Midwest (Anfinson 1990, Hudak 2002, Gibbon, et. al. 2002, Gibbon 2012) statewide historic contexts

developed by the Minnesota SHPO (Dobbs 1990a, Dobbs 1990b, SHPO 1993), and the Woodland Tradition Multiple Property documentation form (Arzigian 2008).

3.2.1 Precontact Period

The earliest human inhabitants of Minnesota entered the region about 11,000 years ago as the Wisconsin glacial front receded from Minnesota. These peoples, comprising the Paleoindian Tradition, were migratory groups of mobile hunter-gatherers that followed herds of large game animals such as bison, woodland caribou, and mastodon into the tundra, open pine, and oak forests that characterized Minnesota at the end of the Pleistocene. There is little archaeological evidence of the Paleoindian inhabitants of Minnesota. Cultural materials left by these people are thought to be deeply buried under more recent sediment. Archaeological finds from this tradition consist mainly of isolated discoveries of large and distinct projectile points on the ground surface, characteristic of the tradition. These points are divided into the Fluted Point Pattern and the non-fluted Lanceolate Point Pattern. Four fluted points have been reported in the vicinity of the Long Lake site (21HE100) in Hennepin County. The area of these finds is approximately 10 miles southeast of Lake Rebecca. (Buhta, et al. 2011). Other tool types associated with the Paleoindian tradition include bi-facially flaked knives, simple choppers, and large scrapers for processing kills. Property types identified associated with this tradition include habitation sites, burial sites, resource processing sites, and animal kill sites.

A lifestyle of seminomadic hunting and gathering of resources persisted into the Archaic Tradition (ca. 8,000 to 3,000 B.P.). This tradition is distinguished from the Paleoindian Tradition by an increase in tool type diversity and an increased reliance on a large variety of animal and plant resources. This diversity is attributed to the adaptation of Archaic peoples to local resources. Notched and stemmed projectile points, along with groundstone tools and chipped-stone scrapers, knives, punches, and drills, are found in the Archaic toolkit. Copper implements appear in archaeological assemblages of the Archaic Tradition from 7,000 years ago until about 3,500 years ago.

Four distinct Archaic contexts have been identified in Minnesota, including the Shield Archaic, Lake-Forest Archaic, Prairie Archaic, and Eastern Archaic. Site locations during the Archaic are generally located near water. These sites appear to have been occupied for longer periods of time than Paleoindian sites and produce large amounts of artifacts. Property types associated with the Archaic Tradition include seasonal habitation sites, resource processing sites, and animal kill sites.

The Woodland Tradition (ca. 3,000 to 250 BP) is distinguished from the Archaic Tradition by an increasingly sedentary lifestyle, domestication of plants, introduction of ceramic technology, long-term recurring occupation of seasonal village sites, and mound construction, often for burial purposes. These innovations were not adopted in all areas of the state at the same time or necessarily together.

Woodland sites are encountered more often than Paleoindian or Archaic sites, because they are not as deeply buried. Woodland sites can also be more definitively attributed to the tradition based on presents of ceramics and distinct tool types. Known ceramic traditions have resulted in the division of the Woodland Tradition into an Early, Middle, and Late chronological framework. In Minnesota, the Woodland tradition is also divided into an earlier Initial Woodland period (including the Early and Middle periods, ca. 500 BC to AD 500) and a later Terminal Woodland period (including the Late period, ca. AD 500 to 1650).

Regional differences in the Woodland period resulted in the identification of distinct regional complexes such as the Fox Lake phase and Lake Benton phase in the Prairie Lakes region. Central Minnesota is associated with pottery types such as Havanoid, St. Croix, Onamia, Kathio, and Sandy Lake. In southern Minnesota, contact with Europeans centered on the Minnesota River, as this represented the major transportation corridor of the area during contact (Gibbon, Johnson, and Hobbs, 2002). Arzigian (2008) lists five property types associated with the Woodland Tradition that include: habitation sites, resource procurement and processing sites, special use sites, mortuary mound sites and nonmound mortuary sites. The most common of these are habitation sites.

Several woodland mound groups are located near the north end of the APE in Sections 1 and 6, Township 118N, Range 24W, and Sections 29 – 32 in Township 119N, Range 24W, in Hennepin and Wright Counties (21HE0074, 21HE0081, 21HE0083, 21HE0084, 21HE0350, 21WR0005, 21WR00013, 21WR0014, 21WR0015). The majority of the mounds at these sites are no longer visible on the surface, but may have subsurface artifacts. Most of the area was cultivated in the twentieth century.

About 1,000 years ago, a new tradition developed in southern Minnesota. In the western part of the state this tradition is known as the Plains Village Tradition. In the eastern part of the state it is known as the Mississippian Tradition. This tradition is distinguished from the Woodland Tradition by an intensification of agriculture, including cultivation of corn, and larger, more complex societies. These influences spread into southwestern Minnesota from the Missouri River and into southeastern Minnesota from the Mississippi River and have possible ties to cultures of the southern United States and possibly Mexico. Mississippian/Plains Village sites are distinguished by distinct ceramic styles, large village complexes, greater density of artifacts, and community vegetable storage pits. Effigy mounds in the shape of animals such as birds and snakes, as well as flat-topped mounds and villages encircled by protective palisades, were constructed in this period.

3.2.2 Contact and Historic Period

By the 1620s, the first European goods may have reached the Upper Midwest through trade with the Ottawa and Huron. The first fur trade contact in this area occurred between 1659 and 1660, when two French explorers named Sieur des Groseilliers and Sieur de Radisson entered present-day Minnesota in search of natural resources, including furs. Increasing numbers of explorers and fur traders would reach the area in the years following first contact. This period is recognized by the establishment, operation, and adaptation of gathering fur-bearing mammals in exchange for other goods and materials. By the late 1670s, a trade agreement had been established between the Dakota and merchants in Quebec and Montreal. This relationship initiated the French period of exploration and occupation in Minnesota, lasting into the early 1760s. During this period of French influence, much of the state and the surrounding region were occupied with an extensive network of forts and fur trading posts.

The 1760s (after the Treaty of Paris) brought approximately 50 years of British activity in Minnesota. This brought further development of the fur trade with more trading posts and consequently major changes in the distribution of Native Americans in the region. By 1800, the Ojibwa took control of the lakes and forests of northern Minnesota, and the Dakota moved south along the Minnesota River Valley.

After a peace treaty with the British in 1763, the United States gained legal possession of the state, exerting control of Minnesota after Zebulon Pike's 1805–1807 expedition as well as later with the establishment of Fort Snelling at the junction of the Minnesota and Mississippi Rivers in 1819. The

changes in Native American life brought about by the French and British presence in Minnesota included migrations of Native American populations from the east, depopulation of native peoples in certain areas because of disease and warfare, and gradual movement of the Ojibwa into northern Minnesota and the Dakota into southern Minnesota. The Native American populations in Minnesota also began to switch from hunting for subsistence to hunting for trade, and Native American manufacturing materials began to be replaced by European materials.

In 1837, the Dakota, Winnebago, and Ojibwa signed treaties that opened up east-central Minnesota to logging and settlement, and by 1849, Minnesota had become organized as a Territory. Shortly after the formation of the Minnesota Territory, representatives appealed to the U.S. Congress to appropriate funds to build and maintain a series of five military roads within the state. Territory representatives argued that these roads would aid in territorial settlement and commercial development. In July 1850, the territorial representatives secured funding for the development of these roads. Euro-American settlement increased following the construction of these roads, bringing a wave of new towns, cities, and non-fur trade-related enterprises.

Around 1862, growing tension between the Dakota and the U.S. government escalated into violence. The U.S. government's failure to keep its promise of annuities, along with poor dealings with fur traders and crop failure, led the Dakota to violence in southern Minnesota. Over a six-week period many lives were lost on both sides and the violent action prompted a large-scale evacuation of settlement areas within southern Minnesota. Eventually hostilities ceased, but on December 26, 1862, the U.S. government rescinded all treaties signed with the Dakota of Minnesota and forcibly removed them from the state.

Some of the earliest agricultural farming practices in the state occurred in southern Minnesota. Treaties with the Ojibwa and Dakota in the early and mid-nineteenth century allowed for European settlement in certain areas west of the Mississippi. Acts passed in the state in the mid-nineteenth century fostered an influx of settlers from the eastern states and Europe. These initial settlers came by steamboat and followed the major rivers and tributaries into the interior of the state. Town sites focused on rivers as a source of transportation and power, and often developed according to resource need, company/industry need, or via social/ethnic boundaries. Many towns developed into agricultural processing and distribution centers. Industries such as milling and brewing became widespread throughout southern Minnesota. The initial farming practice of the time was subsistence.

After 1870, railroads were the single most important factor in the rapid growth of the agriculture industry in southern Minnesota as their expansion onto the Great Plains expanded the market for cash crops. New railroads in Minnesota opened tillable land to farmers, reduced dependence on risky water transportation, and allowed for the transportation of goods and services away from major river transportation corridors. Railroads had become the primary mover of crops by the later nineteenth century. After 1870, an agricultural land boom began in Minnesota as railroads, chambers of commerce, land colonization companies, real estate companies, the State Bureau of Immigration, and other private and public agencies encouraged settlement of the large expanses of land in southern Minnesota. Good soil, a favorable climate, and the low cost of cultivating land made farming here profitable. These factors solidified the agricultural industry as the dominant industry in southern Minnesota. Property types associated with the historic period in the area of the Lake Rebecca Park Reserve include farmsteads, town sites, overland transportation routes, and commercial enterprises.

3.3 Background Research

In June 2015, HDR staff conducted background research at the SHPO and the OSA. Background research for the Project focused on previously identified archaeological sites, architectural properties and archaeological surveys within a 1-mile radius of the Project 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.

Background research for the 1-mile study area surrounding the Project APE (Figure 1-1) resulted in the identification of 18 previous archaeological investigations, 32 previously identified archaeological sites, and 46 previously identified architectural properties. Local archaeologist LeRoy Gonsior (personal communication 2015) indicated that unreported archaeological sites may be present within the Lake Rebecca Park Reserve, as evidenced by cultural materials observed on the existing unpaved trails. The high number of previously identified archaeological sites within the Project study area is a strong indicator that unidentified archaeological sites may be present within the Project APE.

3.3.1 Previous Archaeological Surveys within 1 Mile of the Area of Potential Effects

Background research for the Project revealed that 18 previous archaeological surveys have been conducted within a 1-mile radius of the Project APE (Table 3-1, Figures 3-1 to 3-12). These surveys include Phase I reconnaissance surveys and Phase II site evaluations for highway projects, pipelines, land transfers, parking lot developments, and environmental conservation improvement projects. Seven of the 18 previous archaeological surveys intersect the Project's horizontal APE.

Table 3-1. Previous archaeological surveys within 1 mile of the Project's area of potential effects

SHPO Number	Title	Author(s)	Year
HE-72-01*	Hennepin County Mound Site Resurvey Conducted by Minnesota Archaeological Society Interim Report No. 1 – Activities in 1971	Chamberlain, Peter G.	1972
HE-87-01	Report on Cultural Resource Reconnaissance Survey at Location of Proposed Fish Barrier Across Sarah Creek, in Lake Rebecca County Park, Hennepin County, Minnesota (Performed on June 8, 1987)	Harrison, Christina	1987
HE-95-09*	Preliminary Discussion of Results of Phase I and Phase II Investigations on the Northern Natural Gas Company Rockford Loop, Hennepin County, Minnesota	Murray, Matthew L.	1995
HE-95-17*	A Phase I Archaeological Survey of the Rockford Looping Project, Hennepin County, Minnesota	Murray, Matthew L. and Kim C. Breakey	1995
HE-95-18*	A Phase II Evaluation of the Archaeological Sites on the Rockford Looping Project, Hennepin County, Minnesota	Murray, Matthew L., Kim C. Breakey, and John P. McCarthy	1995
On File at OSA*	An Evaluation of 21HE74 and 21HE82, Western Hennepin County, Minnesota	Breakey, Kim C.	1995
HE-96-06	Phase I Archaeological Investigation of the Waldhauer/Weinkauf Land Transfer, Adjacent to Site 21-HE-0084, Hennepin County, Minnesota	Mather, David and Randy J Peterson	1996

Table 3-1. Previous archaeological surveys within 1 mile of the Project's area of potential effects

SHPO Number	Title	Author(s)	Year
HE-08-01	Report of Archaeological Reconnaissance Survey: Proposed Parking Lot Development in the Robina WMA, Hennepin County, Minnesota	Allan, Stacy and Michael A. Magner	2008
HE-10-02	Cultural Resource Reconnaissance Survey for Proposed Observation Well Drilling Within the Robina WMA, Hennepin County, Minnesota	Allan, Stacy and Michael A. Magner	2010
MCH-89-01	1988 Annual Report Minnesota Municipal and County Highway Archaeological Reconnaissance Study	Anfinson, Scott F. and Randy J. Peterson	1989
MULT-06-05	Phase I Survey at Site 21HE356 and Phase II Archaeological Evaluations of Four Sites Along T.H. 55, Hennepin and Wright Counties, Minnesota	Trocki, Patricia A. and Eric W. Bangs	2006
MULT-08-07*	Phase I Cultural Resources Survey for the Northern Natural Gas Company's Proposed Northern Lights 2009–2010 Zone E–F Expansion Project, Anoka, Carver, Dakota, Freeborn, Hennepin, Rice, Washington, and Wright Counties, Minnesota	Vermeer, Andrea C., Laurie S. H. Ollila, Andrew J. Schmidt, and Kent Bakken	2008
MULT-09-15*	Phase I Cultural Resources Survey for the Northern Natural Gas Company's Proposed Northern Lights 2009–2010 Zone E–F Expansion Project, Anoka, Carver, Dakota, Freeborn, Hennepin, Rice, Washington, and Wright Counties, Minnesota. Addendum Report: EF Corcoran Branch Line and EF Rockford Branch Line Replacement	Vermeer, Andrea C., Laurie S. H. Ollila, and Andrea R. Kampinen	2009
MULT-90-17	An Archeological Survey of Northern Natural Gas Company's Rockford, Minnesota Branch Pipeline Loop Project in Wright and Hennepin Counties, Minnesota	Winham, R. Peter and William Ranney	1990
THY-72-01	The Minnesota Trunk Highway Reconnaissance Survey: Annual Report – 1971	Nystuen, David W.	1972
THY-82-01	The Minnesota Trunk Highway Archaeological Reconnaissance Survey Annual Report – 1981	Peterson, Leslie D.	1982
THY-85-01	The Minnesota Trunk Highway Archaeological Reconnaissance Survey Annual Report – 1984	Peterson, Leslie D.	1982
WR-04-01	Phase I Archaeological Survey-Southwest Rockford, Wright County, Minnesota	Wilson, James F. and Melissa Balthus	2004

*Intersects the Project APE

3.3.2 Previously Recorded Archaeological Sites within 1 Mile of the Area of Potential Effects

Background research revealed 32 previously identified archaeological sites within a 1-mile radius of the Project APE (Table 3-2, Figures 3-1 to 3-12). These sites include nine earthworks, 11 precontact lithic scatters, six precontact artifact scatters, two precontact single artifacts, one historic artifact scatter and structural ruins, one historic standing structure, and two possible cemetery or burial sites. Of these sites 32 sites, 10 intersect the Project's horizontal APE. The SHPO database lists only one site (21HE0121, a precontact artifact scatter) as considered eligible for listing on the NRHP. Many of the remaining sites in the SHPO database listed as unevaluated may have been recommended not eligible by other researchers.

Table 3-2. Previously identified archaeological sites within 1 mile of the Project's area of potential effects

Site Number	County	Township	Range	Section(s)	Site Type	SHPO NRHP Recommendation
21HE0074	Hennepin	118 N	24 W	6	Earthwork	Unevaluated
21HE0081*	Hennepin	119 N	24 W	31	Earthwork	Unevaluated
21HE0082*	Hennepin	119 N	24 W	31	Possible Cemetery/Burial	Unevaluated
21HE0083*	Hennepin	119 N	24 W	32	Earthwork	Unevaluated
21HE0084*	Hennepin	119 N	24 W	29, 32	Earthwork	Unevaluated
21HE0121*	Hennepin	119 N	24 W	31	Precontact Artifact Scatter	Eligible
21HE0122*	Hennepin	119 N	24 W	31	Precontact Lithic Scatter	Unevaluated
21HE0123*	Hennepin	119 N	24 W	31	Historic Artifact Scatter and Structural Ruin	Unevaluated
21HE0124*	Hennepin	119 N	24 W	31	Precontact Artifact Scatter	Unevaluated
21HE0125*	Hennepin	118 N	24 W	6	Precontact Artifact Scatter	Unevaluated
21HE0126	Hennepin	119 N	24 W	31	Precontact Lithic Scatter	Unevaluated
21HE0191	Hennepin	119 N	24 W	31	Precontact Artifact Scatter	Unevaluated
21HE0192	Hennepin	119 N	24 W	31	Precontact Lithic Scatter	Unevaluated
21HE0193	Hennepin	119 N	24 W	32	Precontact Lithic Scatter	Recommended Not Eligible
21HE0194	Hennepin	119 N	24 W	31	Precontact Lithic Scatter	Unevaluated
21HE0263	Hennepin	119 N	24 W	29	Precontact Lithic Scatter	Unevaluated
21HE0267	Hennepin	119 N	24 W	29	Precontact Lithic Scatter	Unevaluated
21HE0344	Hennepin	118 N	24 W	6	Precontact Lithic Scatter	Unevaluated
21HE0350	Hennepin	119 N	24 W	31, 32	Earthwork	Unevaluated
21HE0356	Hennepin	119 N	24 W	33	Precontact Artifact Scatter	Unevaluated
21HE0375	Hennepin	119 N	24 W	32	Precontact Artifact Scatter	Unevaluated
21HE0376	Hennepin	119 N	24 W	32	Precontact Single Artifact	Unevaluated
21HE0377	Hennepin	119 N	24 W	32	Precontact Lithic Scatter	Unevaluated
21HE0378	Hennepin	119 N	24 W	34	Precontact Lithic Scatter	Unevaluated
21HE0382*	Hennepin	119 N	24 W	29	Precontact Single Artifact	Unevaluated
21HE0383	Hennepin	118 N	24 W	7	Historic Standing Structure	Unevaluated
21HE0390	Hennepin	118 N	24 W	6	Precontact Lithic Scatter	Unevaluated
21HEr	Hennepin	119 N	24 W	29, 32	Possible Cemetery/Burial	Unevaluated
21WR0005	Wright	118 N	25 W	1	Earthwork	Unevaluated
21WR0013	Wright	119 N	24 W	29	Earthwork	Unevaluated
21WR0014	Wright	119 N	24 W	29	Earthwork	Unevaluated
21WR0015	Wright	119 N	24 W	29	Earthwork	Unevaluated
21WR0142	Wright	119 N	24 W	30	Precontact Lithic Scatter	Unevaluated

*Intersects the Project APE

3.3.3 Previously Recorded Sites within the Area of Potential Effects

The following is a list of previously recorded sites that have recorded boundaries intersecting the Project APE. Brief descriptions of each site are given below. More detailed descriptions of these sites can be found in the Section 5.1 Summary and Recommendations of this report.

- **21HE0081** – This precontact mound site was originally recorded by T.H. Lewis in the late 1800s and reported in Winchell (1911:221) (Figure 3-2). Researchers attempting to identify the site in 1971 could not locate it, and it was deemed destroyed (Chamberlain 1972). It remains on the historical record as being unevaluated for the NRHP.
- **21HE0082** – This mound group was recorded by Lewis (Winchell 1911) (Figure 3-6). In the latter half of the twentieth century, the group was reported as destroyed (Chamberlain 1972). Pipeline work in the vicinity of the site in the twenty-first century recorded scattered artifacts as a separate habitation site within the boundaries of the mound group, and recommended both sites (21HE0082 and 21HE0124) not eligible for the NRHP (Vermeer et al. 2008).
- **21HE0083** – This site was recorded by Lewis and reported in Winchell (1911:221) as two elongated mounds bisected by a road (most likely County Road 50) (Figure 3-2). The site form indicates the mounds are no longer visible.
- **21HE0084** – This is a mound group recorded by Lewis and reported in Winchell (1911) (Figure 3-2). The site form indicates the mounds are no longer visible.
- **21HE0121** – This site contains a probable Archaic component below the plow zone and was determined eligible by SHPO (Figure 3-6).
- **21HE0122** – This site is represented by a lithic scatter (Figure 3-6). Multiple previous investigations at the site found artifacts within the disturbed plow zone. The site has been recommended not eligible.
- **21HE0193** – This site was found during testing ahead of pipeline construction by the Institute for Minnesota Archaeology (IMA) (Figure 3-2). The site was recorded as a thin deposit entirely within the plow zone. Because of loss of integrity, the site was considered not significant and therefore not eligible for NRHP by the IMA. The IMA tested within the vicinity of the current horse trail and recorded negative findings in the immediate vicinity.
- **21HE0123** – This site is described as a precontact and historic artifact scatter found within a disturbed ditch cut in 1988, and was revisited in 1995 during survey for a pipeline (Murray and Breakey 1995) (Figure 3-6). Neither the precontact nor historic component was considered eligible for the NRHP.
- **21HE0124** – This site overlaps the boundaries of 21HE0082 (Figure 3-6). It is a Precontact lithic scatter that has been recommended not eligible by others (Vermeer et al. 2008).
- **21HE0125** – Two previous investigations identified this site as a sparse lithic or artifact scatter with recommendations that neither a historic dump nor precontact artifact scatter is significant (Vermeer et al. 2008) (Figure 3-6).
- **21HE0382** – This site is represented by an isolated find which appears to be a flaked, expedient tool. Isolated finds are generally not considered eligible for the NRHP (Figure 3-3).

3.3.4 Previously Recorded Architectural Properties within 1 Mile of the Area of Potential Effects

Background research revealed 46 previously inventoried architectural properties within a 1-mile radius of the Project APE (Table 3-3, Figures 3-1 to 3-12). These properties include 23 single dwellings, two residences, seven farmsteads, five bridges, four commercial buildings, two meeting halls, two motels/hotels, and one church. None of these properties intersect the Project's horizontal APE.

Table 3-3. Previously identified architectural properties within 1 mile of the Project's area of potential effects

Site Number	County	Township	Range	Section(s)	Site Type	SHPO NRHP Recommendation
HE-GFC-007	Hennepin	119 N	24 W	28	Residence	Unevaluated
HE-GFC-008	Hennepin	119 N	24 W	31	Farmstead	Unevaluated
HE-GFC-011	Hennepin	119 N	24 W	33	Farmstead	Unevaluated
HE-GFC-012	Hennepin	119 N	24 W	33	Single Dwelling	Unevaluated
HE-GFC-013	Hennepin	119 N	24 W	33	Single Dwelling	Unevaluated
HE-GFC-014	Hennepin	119 N	24 W	33	Single Dwelling	Unevaluated
HE-GFC-015	Hennepin	119 N	24 W	28	Single Dwelling	Unevaluated
HE-GFC-016	Hennepin	119 N	24 W	28	Single Dwelling	Unevaluated
HE-GFC-017	Hennepin	119 N	24 W	34	Farmstead	Farmstead
HE-GFC-018	Hennepin	119 N	24 W	34	Single Dwelling	Unevaluated
HE-GFC-019	Hennepin	119 N	24 W	34	Single Dwelling	Unevaluated
HE-GFC-026	Hennepin	119 N	24 W	34	Single Dwelling	Unevaluated
HE-INC-035	Hennepin	118 N	24 W	7	Farmstead	Unevaluated
HE-INC-036	Hennepin	118 N	24 W	7	Farmstead	Unevaluated
HE-INC-037	Hennepin	118 N	24 W	7	Farmstead	Unevaluated
HE-RKC-001	Hennepin	119 N	24 W	29	Residence	Listed
HE-RKC-002	Hennepin	119 N	24 W	29	Bridge	Unevaluated
HE-RKC-004	Hennepin	119 N	24 W	29	Single Dwelling	Unevaluated
HE-RKC-006	Hennepin	119 N	24 W	29	Single Dwelling	Unevaluated
HE-RKC-007	Hennepin	119 N	24 W	29	Commercial Building	Unevaluated
HE-RKC-008	Hennepin	119 N	24 W	29	Commercial Building	Unevaluated
WR-FNL-001	Wright	118 N	25 W	1	Bridge	Unevaluated
WR-RKC-001	Wright	119 N	24 W	29	Bridge	Unevaluated
WR-RKC-002	Wright	119 N	24 W	29	Bridge	Unevaluated
WR-RKC-003	Wright	119 N	24 W	29	Meeting Hall	Unevaluated
WR-RKC-004	Wright	119 N	24 W	29	Meeting Hall	Unevaluated
WR-RKC-005	Wright	119 N	24 W	29	Church	Unevaluated

Table 3-3. Previously identified architectural properties within 1 mile of the Project's area of potential effects

Site Number	County	Township	Range	Section(s)	Site Type	SHPO NRHP Recommendation
WR-RKC-006	Wright	119 N	24 W	29	Hotel	Unevaluated
WR-RKC-007	Wright	119 N	24 W	29	Bridge	Unevaluated
WR-RKC-008	Wright	119 N	24 W	29	Commercial Building	Unevaluated
WR-RKC-010	Wright	119 N	24 W	29	Single Dwelling	Unevaluated
WR-RKC-011	Wright	119 N	24 W	29	Single Dwelling	Unevaluated
WR-RKC-012	Wright	119 N	24 W	29	Single Dwelling	Unevaluated
WR-RKC-013	Wright	119 N	24 W	29	Single Dwelling	Unevaluated
WR-RKC-015	Wright	119 N	24 W	29	Motel	Unevaluated
WR-RKC-016	Wright	119 N	24 W	29	Single Dwelling	Unevaluated
WR-RKC-017	Wright	119 N	24 W	29	Commercial Building	Unevaluated
WR-RKC-018	Wright	119 N	24 W	29	Single Dwelling	Unevaluated
WR-RKC-019	Wright	119 N	24 W	29	Single Dwelling	Unevaluated
WR-RKC-020	Wright	119 N	24 W	29	Single Dwelling	Unevaluated
WR-RKC-021	Wright	119 N	24 W	29	Single Dwelling	Unevaluated
WR-RKC-022	Wright	119 N	24 W	29	Single Dwelling	Unevaluated
WR-RKC-023	Wright	119 N	24 W	29	Single Dwelling	Unevaluated
WR-RKC-024	Wright	119 N	24 W	29	Single Dwelling	Unevaluated
WR-RKC-025	Wright	119 N	24 W	29	Single Dwelling	Unevaluated
WR-RKT-012	Wright	119 N	24 W	30	Farmstead	Unevaluated

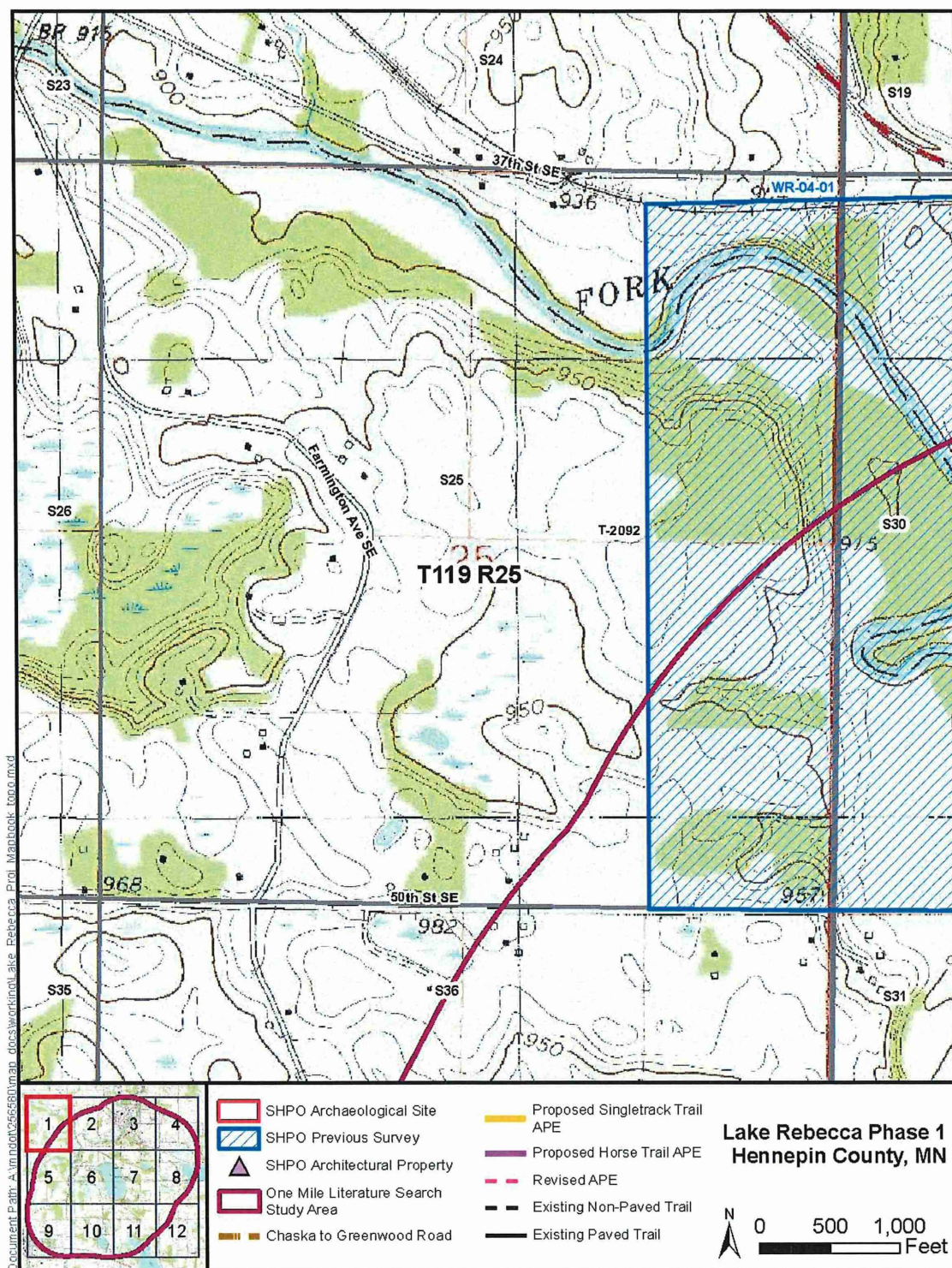
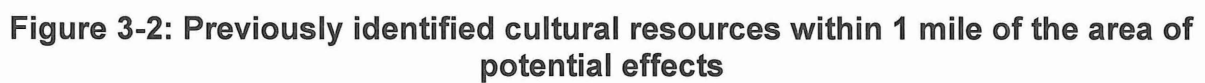
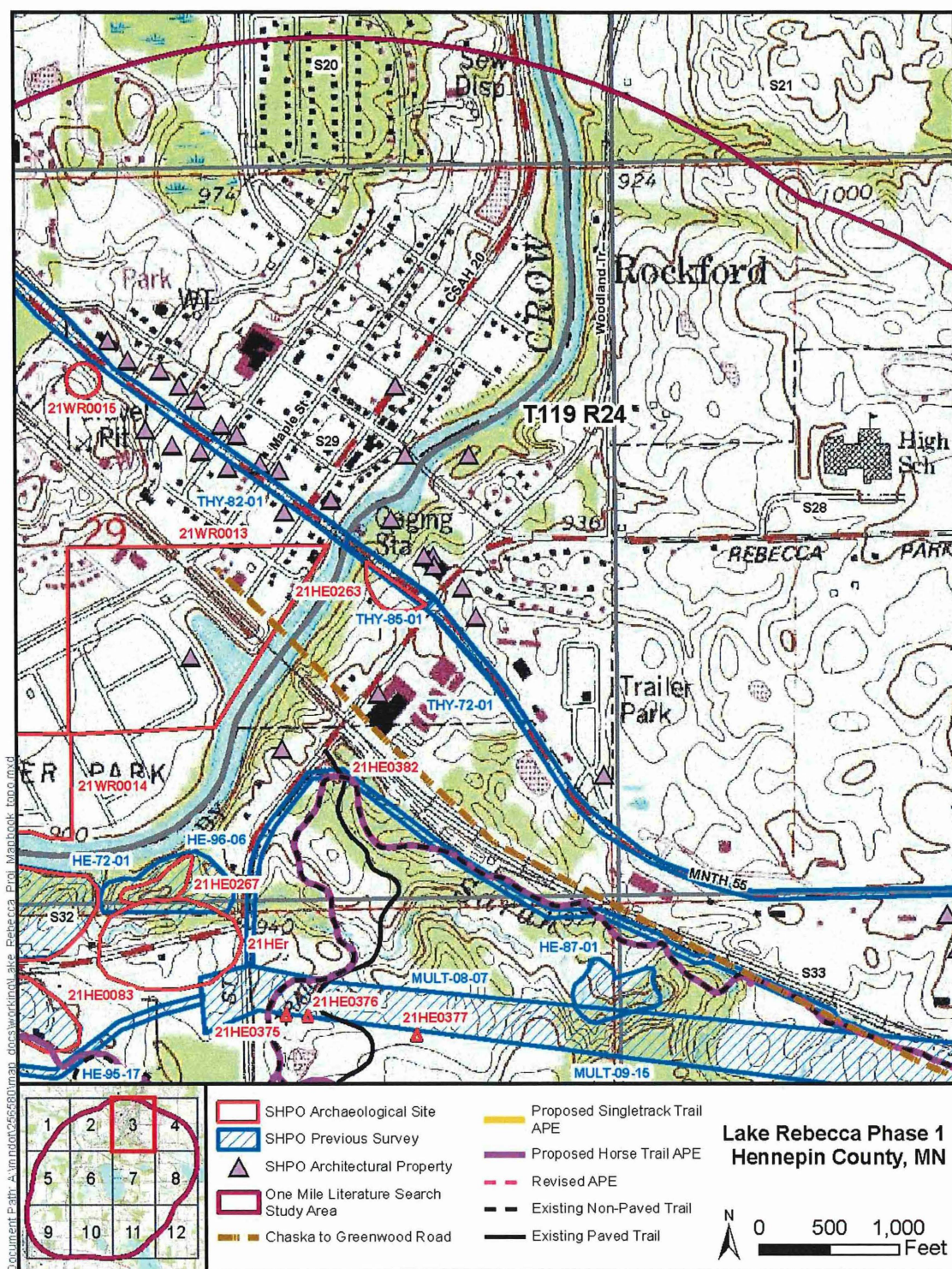


Figure 3-1: Previously identified cultural resources within 1 mile of the area of potential effects





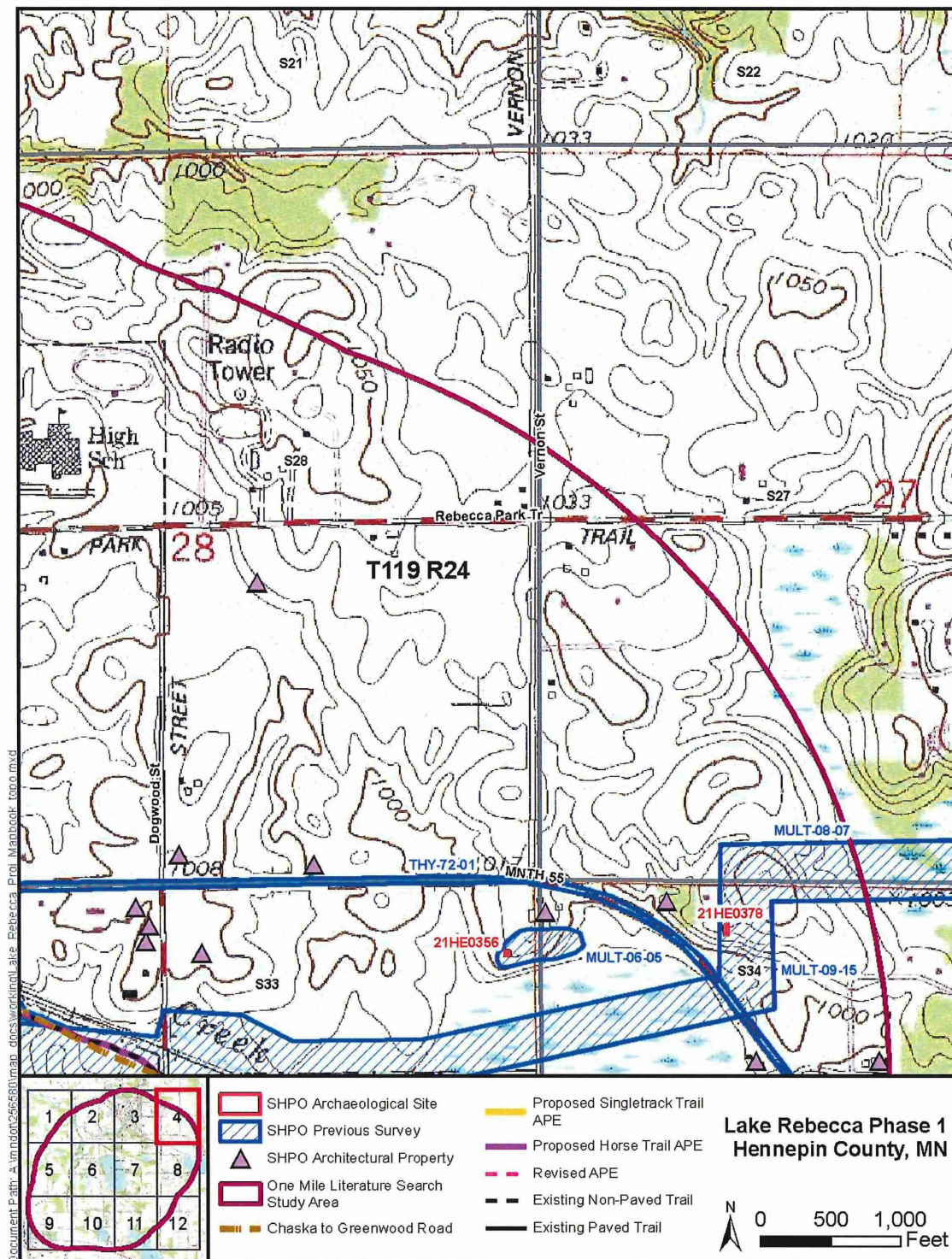


Figure 3-4: Previously identified cultural resources within 1 mile of the area of potential effects

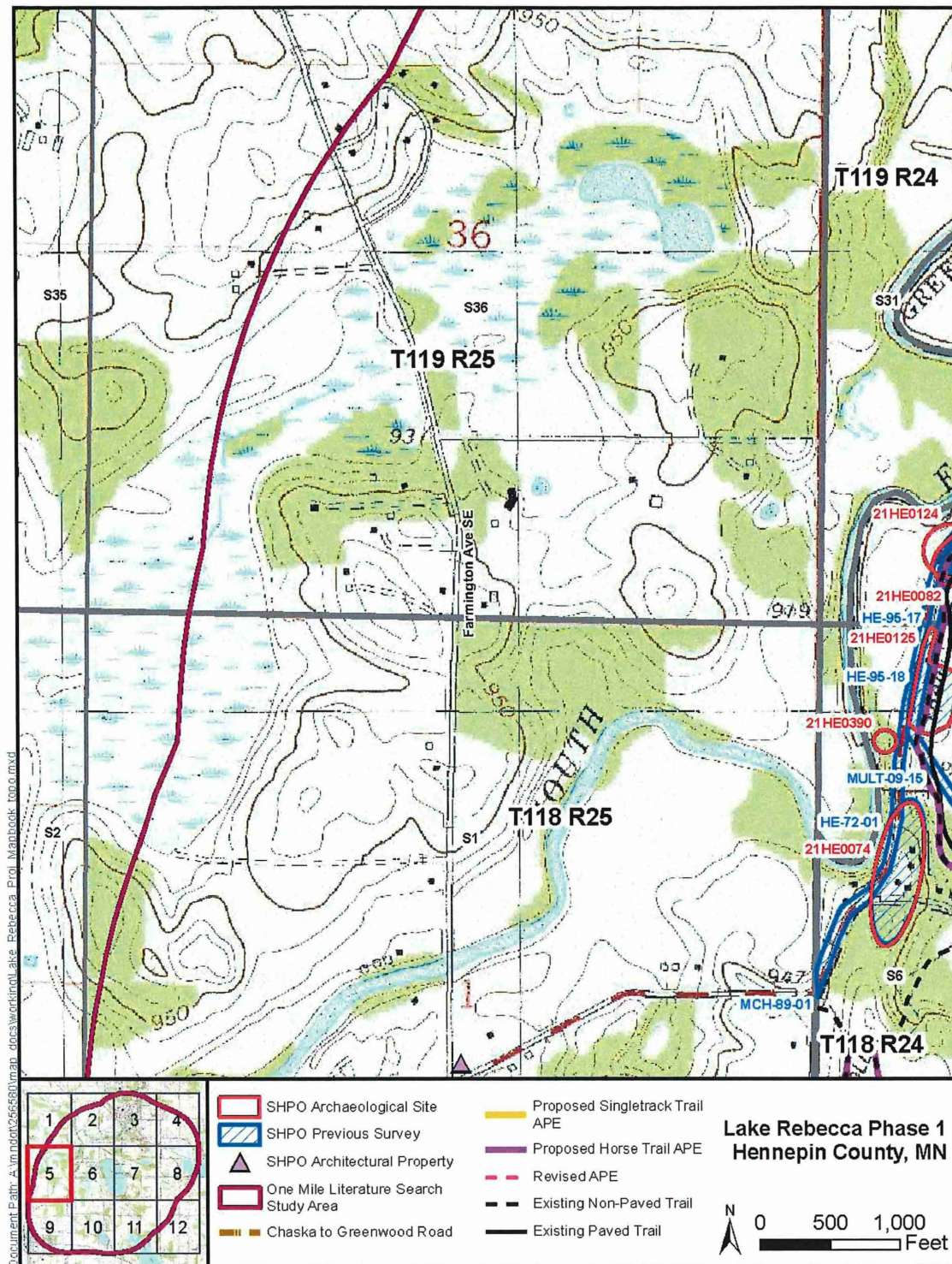


Figure 3-5: Previously identified cultural resources within 1 mile of the area of potential effects

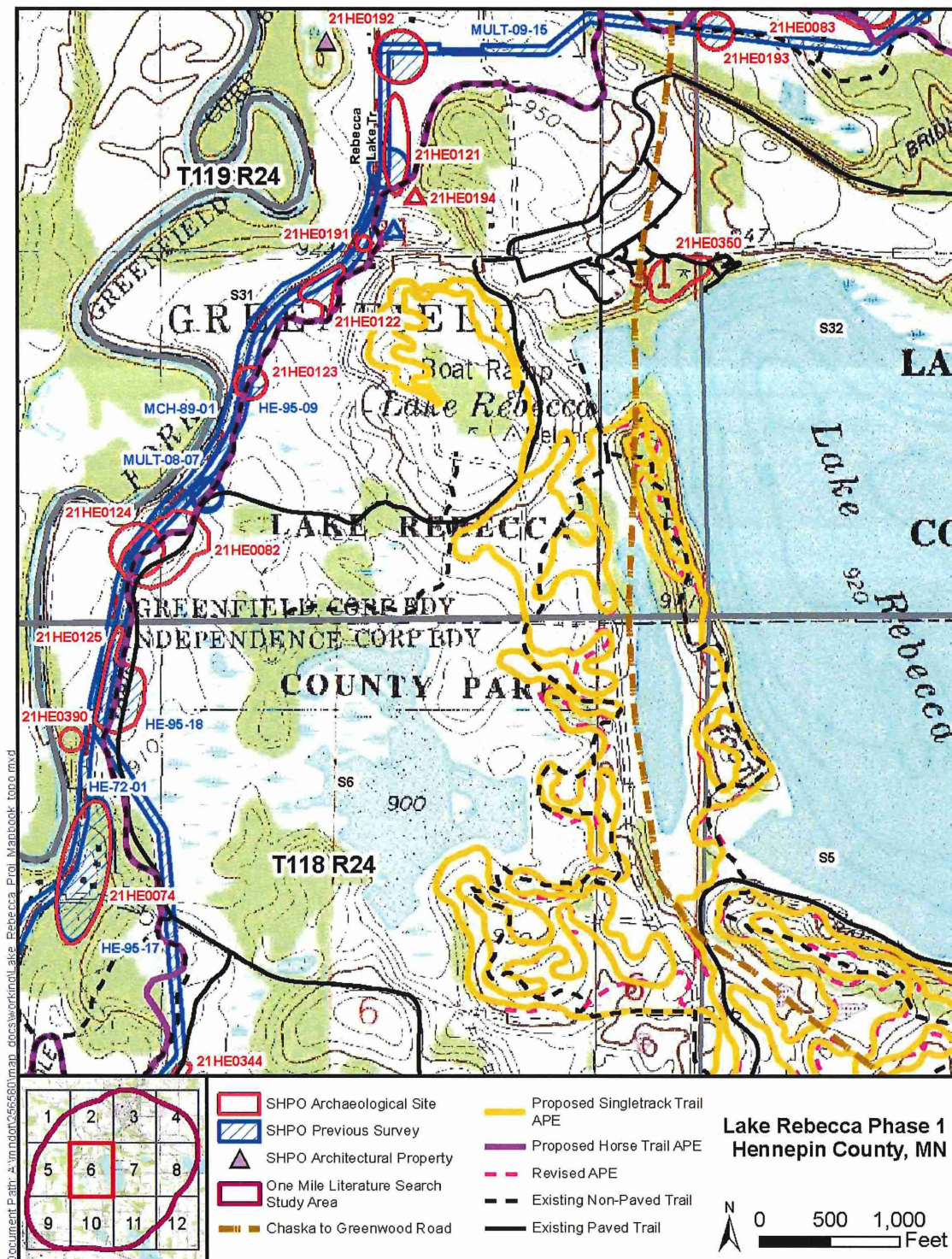


Figure 3-6: Previously identified cultural resources within 1 mile of the area of potential effects

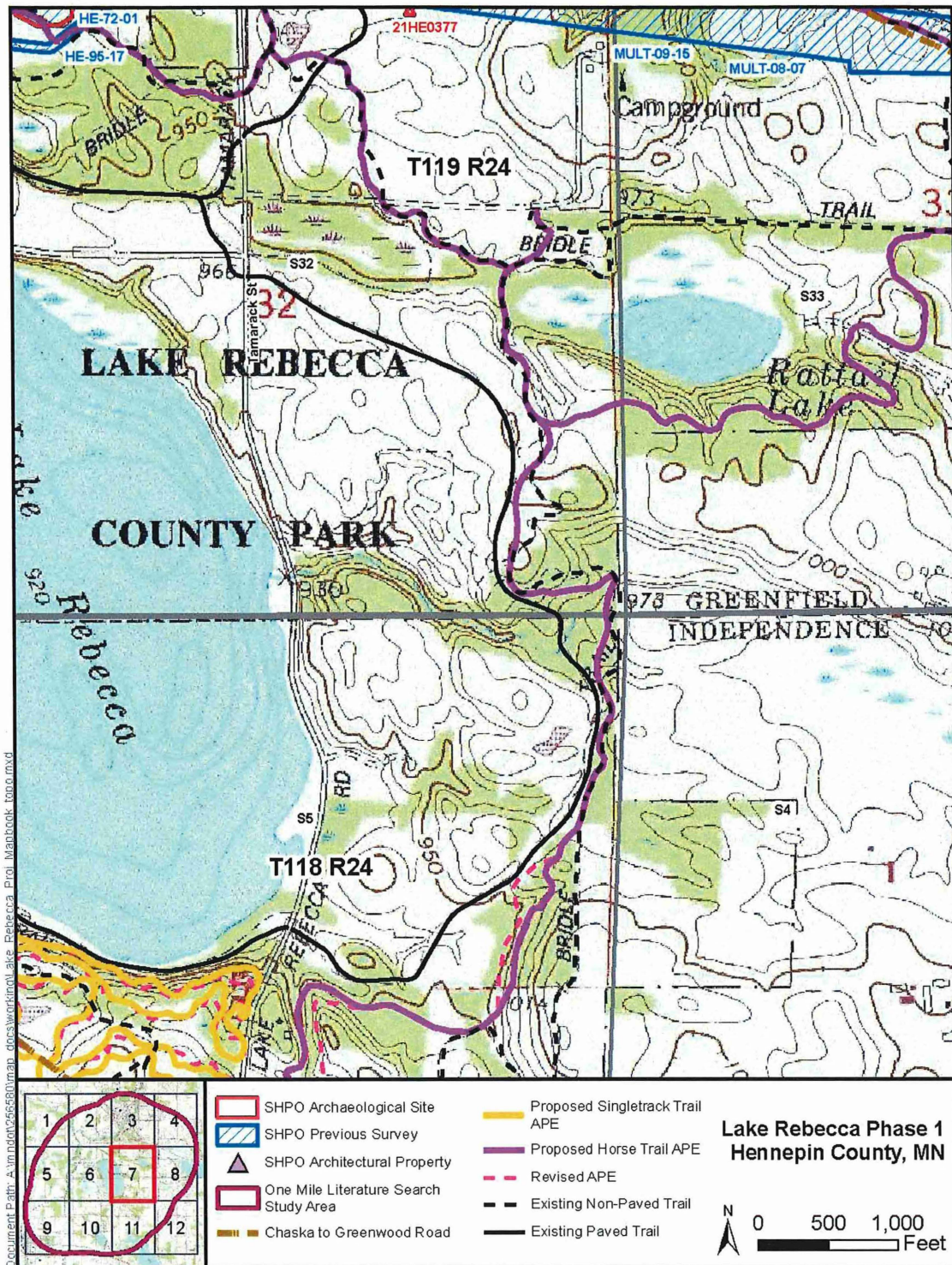


Figure 3-7: Previously identified cultural resources within 1 mile of the area of potential effects

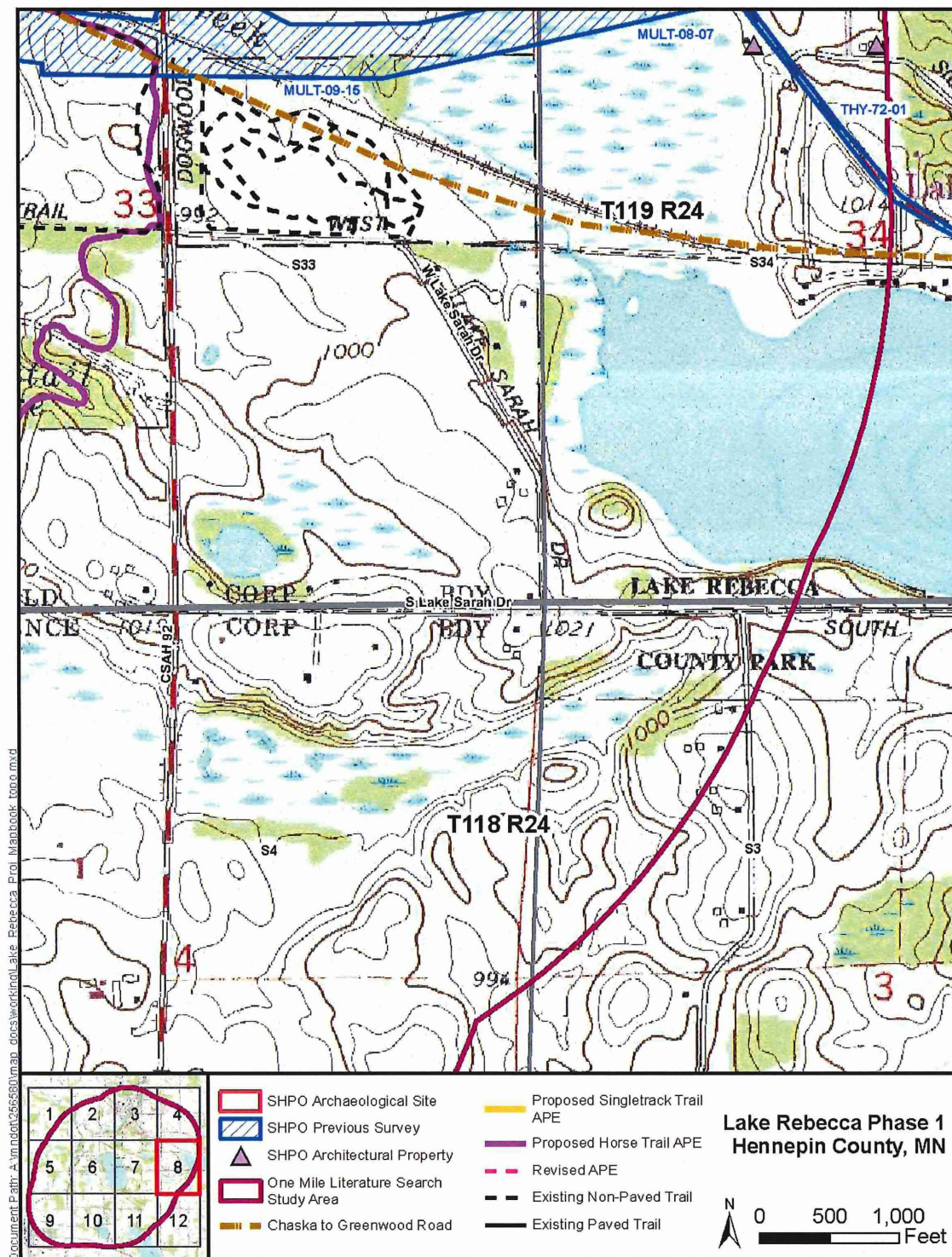


Figure 3-8: Previously identified cultural resources within 1 mile of the area of potential effects

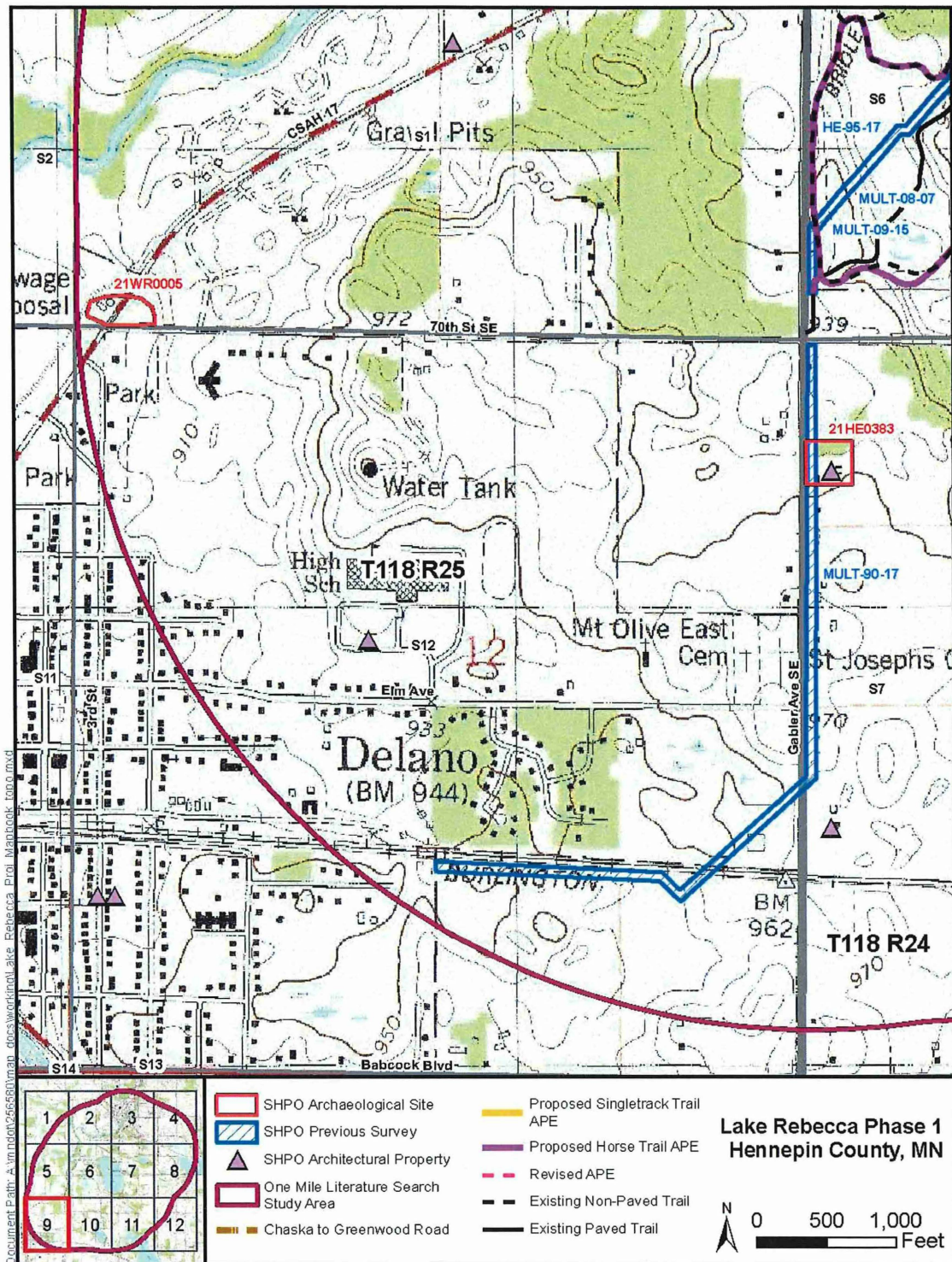


Figure 3-9: Previously identified cultural resources within 1 mile of the area of potential effects

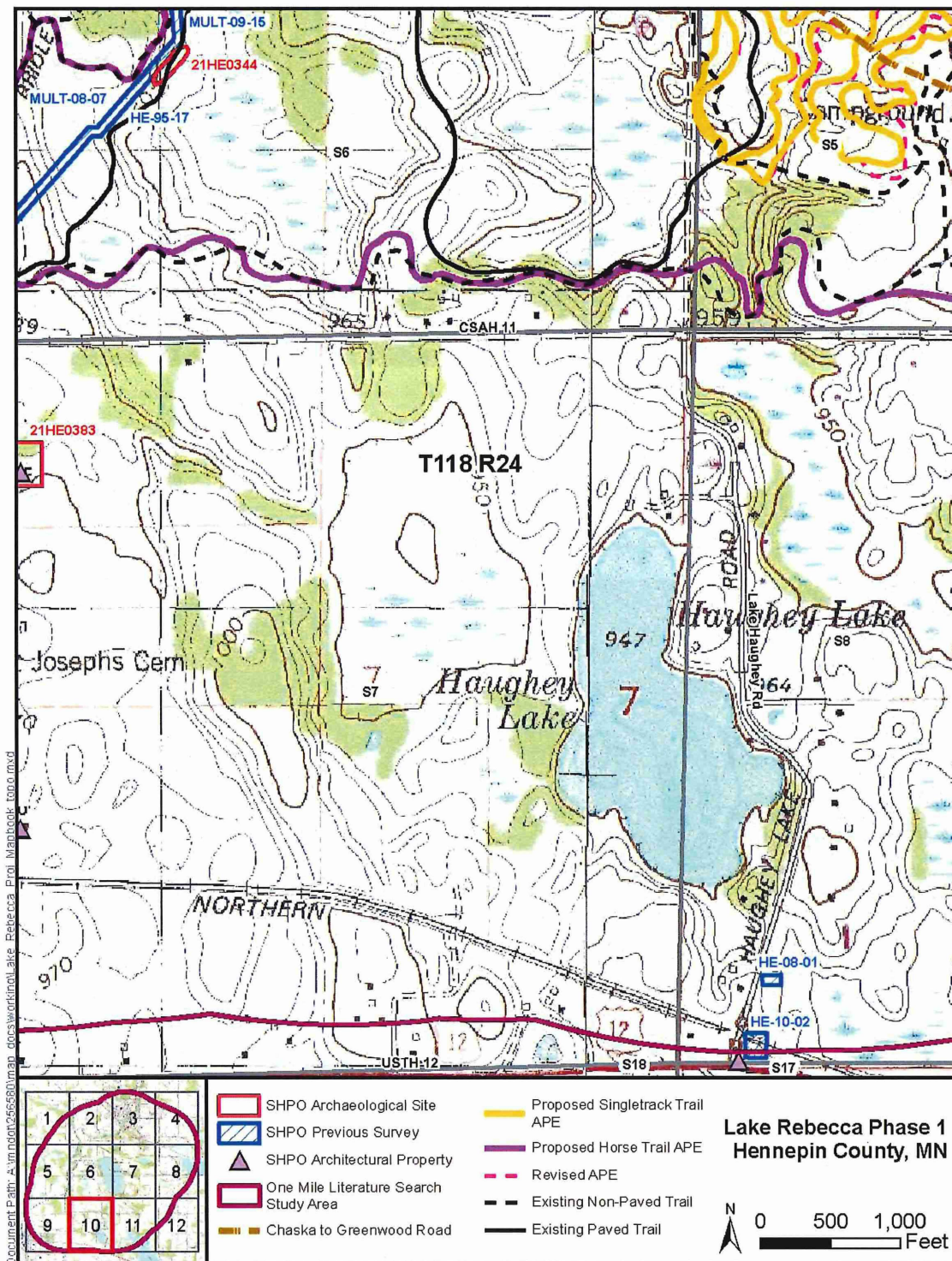
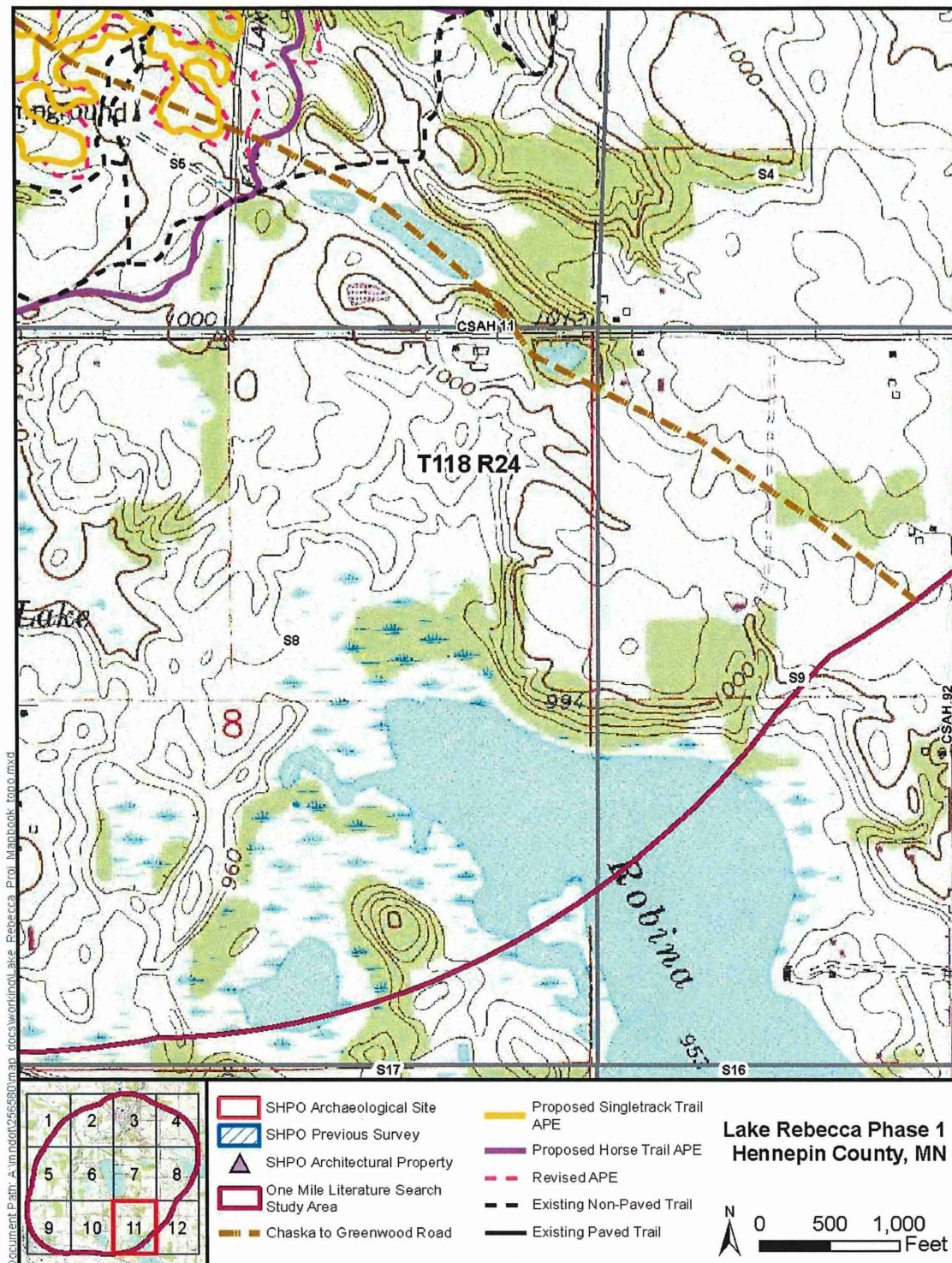


Figure 3-10: Previously identified cultural resources within 1 mile of the area of potential effects



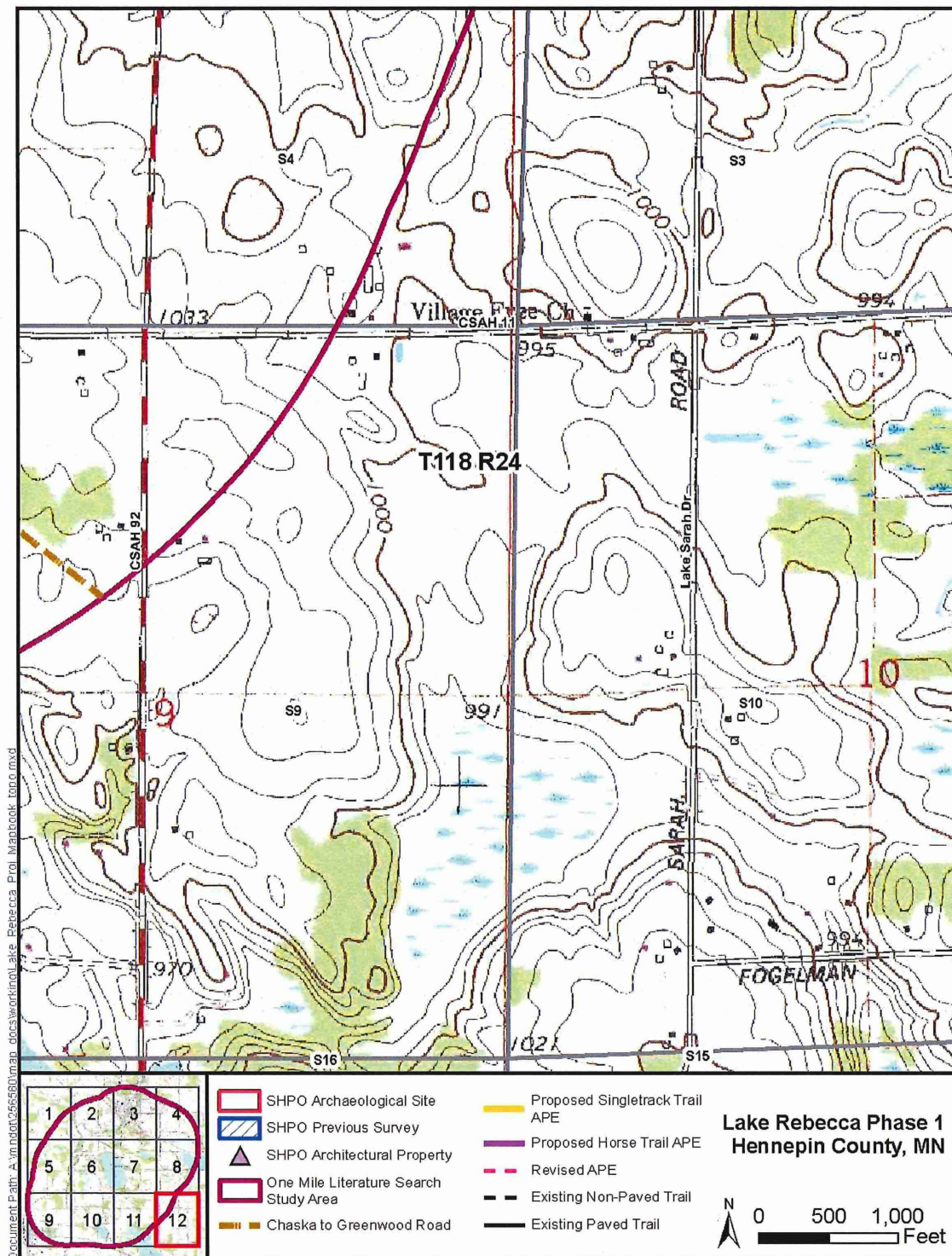


Figure 3-12: Previously identified cultural resources within 1 mile of the area of potential effects

3.3.5 Historic Maps and Aerial Photographs

Official General Land Office (GLO) maps, J. William Trygg maps, and Hennepin Atlas and Publishing Company plat maps were examined to identify areas with potential for containing historic era cultural resources. Archaeological sites may be present in locations where historic resources have been documented on historic maps. A review of GLO maps relevant to the APE revealed an unnamed trail extending north to south through the Project APE (Table 3-4) (Figures 3-3, 3-8, and to 3-11). This trail is identified on a J. William Trygg map as the Chaska to Greenwood Road.

Hennepin Atlas and Publishing Company plat maps (1913) revealed the platted town of Greenwood in the northeast quarter of Section 31, Township 119N, Range 24W, in Hennepin County (Figure 3-13). This area appears as a mix of agricultural fields and undeveloped woodlands in 1953 and 1957 aerial photographs, suggesting that the town of Greenwood was never developed (Figures 3-14 to 3-19). The Milwaukee, St. Paul, and Sault Ste. Marie Railway (Soo Line) extends northwest by southeast in Sections 29 and 32, 33, and 34, Township 114N, Range 24W, Hennepin County, just northeast of the Project APE. The Great Northern Railway extends east by west along the southern edge of the 1-mile study area of the Project in Sections 7 and 8, Township 118N, Range 24W, and Section 12, Township 118N, Range 25W, Hennepin County. Both the Great Northern and the Soo Line are extant railways.

Other features observed on historic plat maps and aerial photographs include section and half-section line roads and farmsteads sparsely scattered throughout the study area (Figures 3-14 to 3-19).

Table 3-4. Historic map resources identified within Project's area of potential effects

County	Township	Range	Section(s)	Map Type	Date	Resource Type
Hennepin*	118 N 119 N	24 W 24 W	5, 6, and 8 31	GLO	1856 and 1884	Unnamed Trail
Hennepin*	118 N 119 N	24 W 24 W	5, 6, and 8 31	Trygg	Unknown	Chaska to Greenwood Road

*Intersects the Project APE



Figure 3-13: 1913 Hennepin Atlas and Publishing Company Plat Map of Greenwood

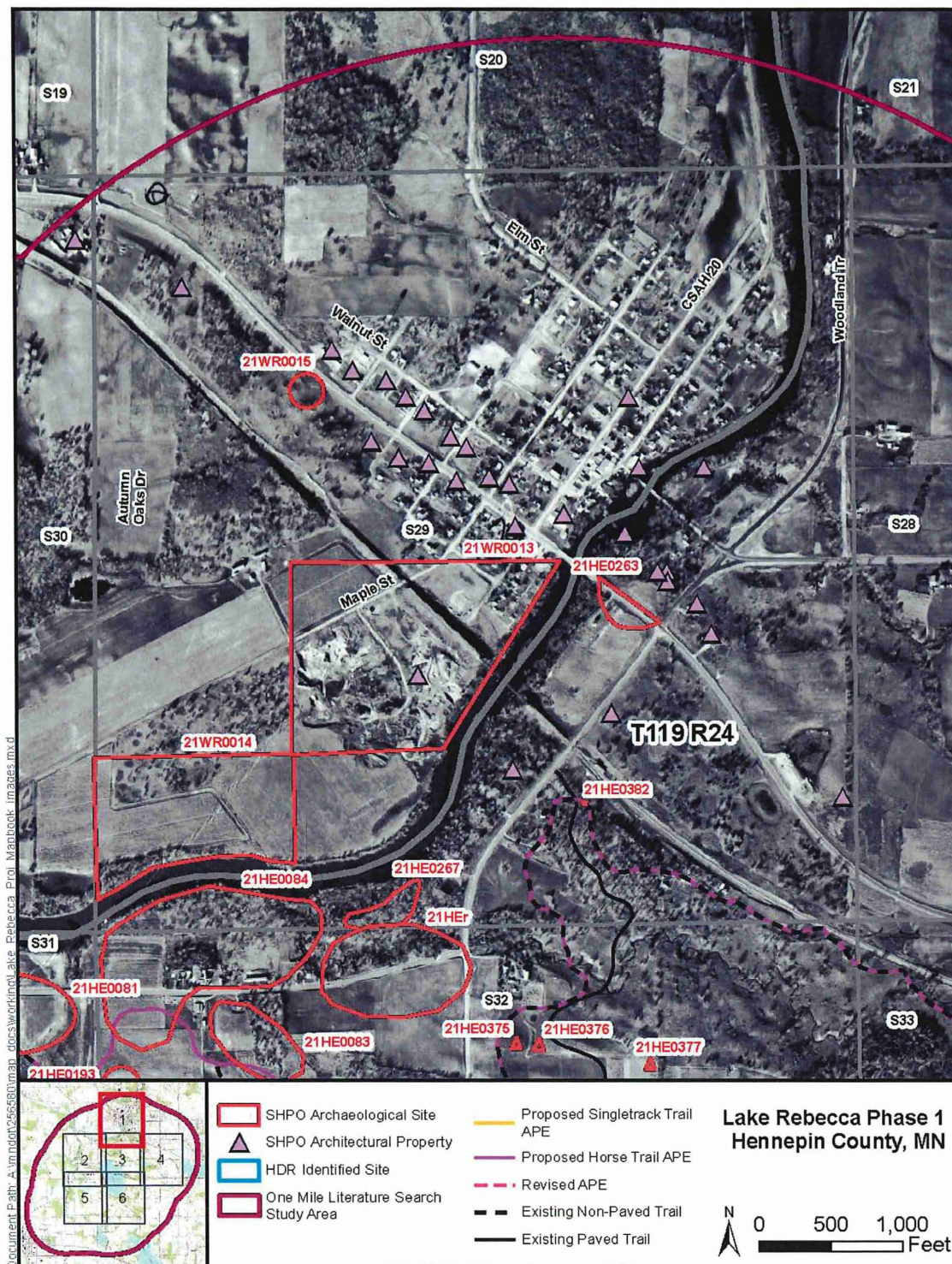


Figure 3-14: 1950s historic aerial photographs of Project area

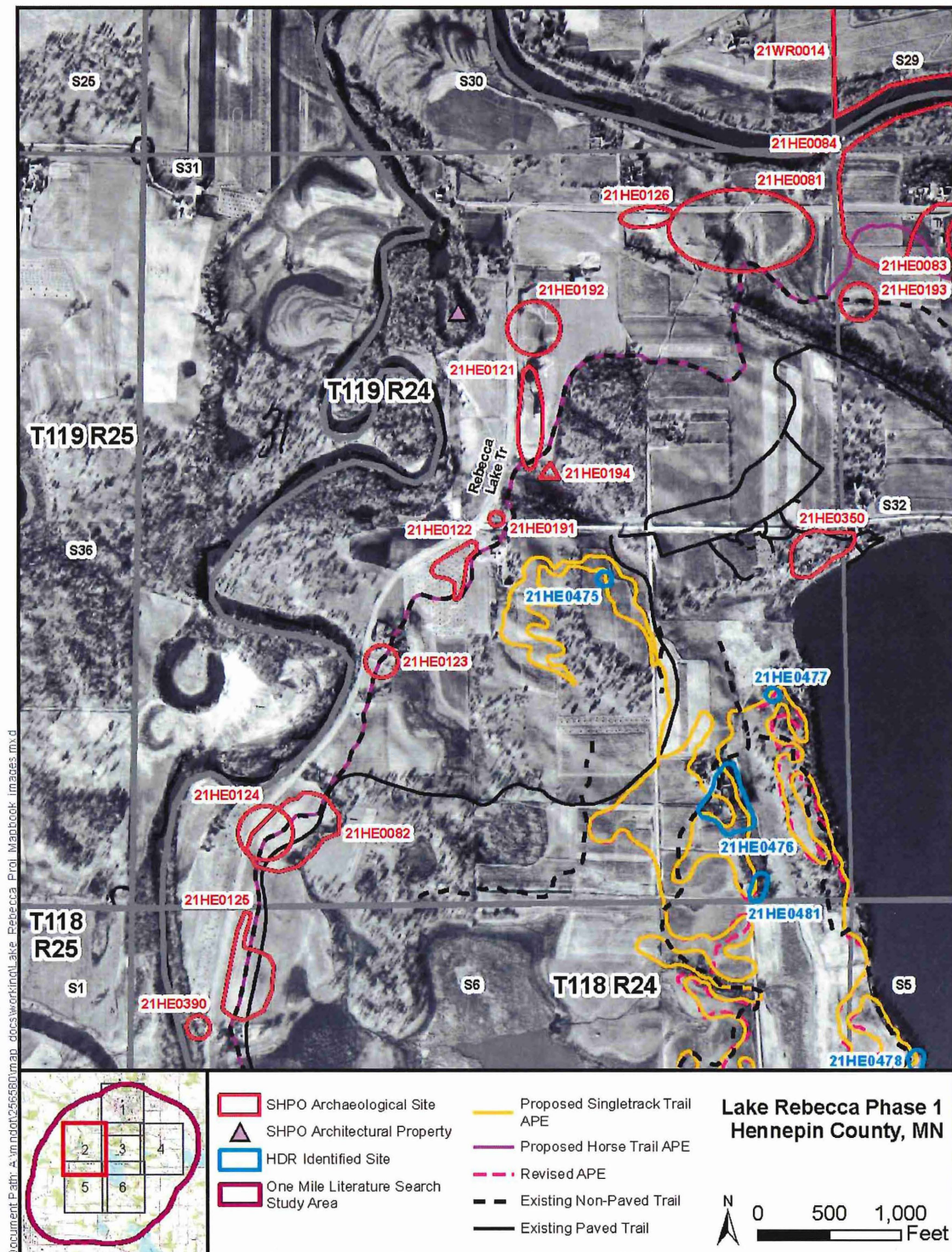


Figure 3-15: 1950s historic aerial photographs of Project area

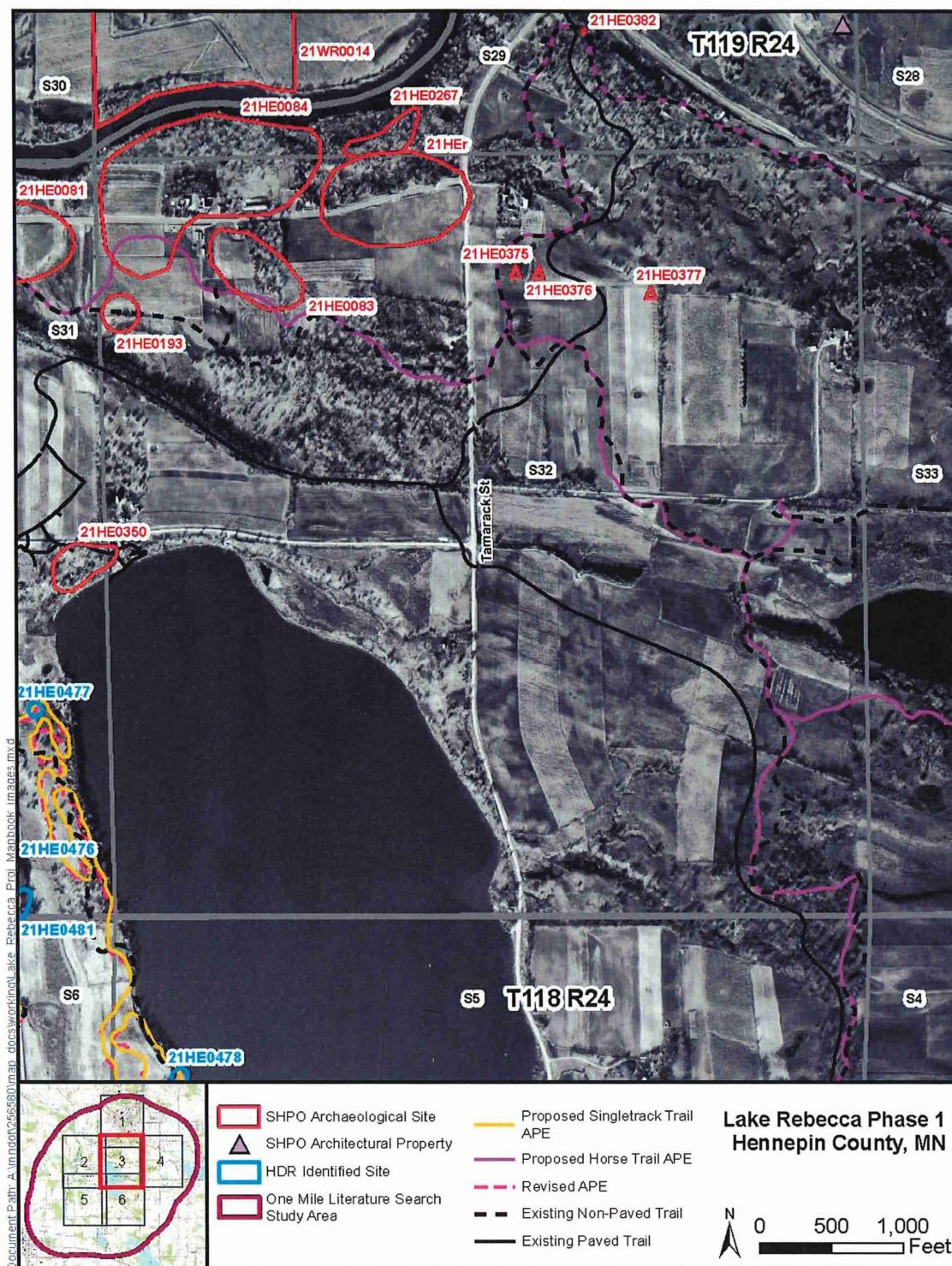


Figure 3-16: 1950s historic aerial photographs of Project area

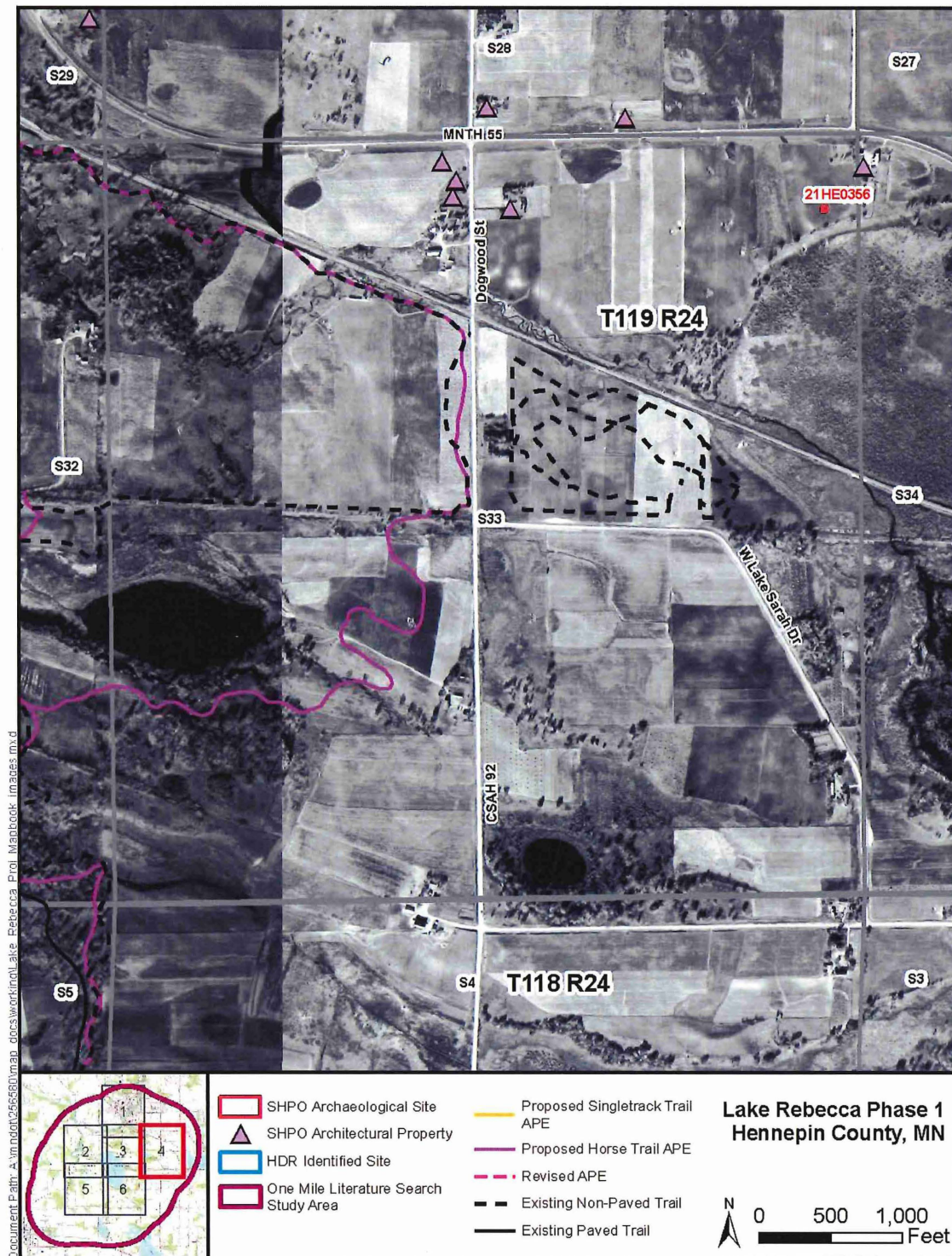


Figure 3-17: 1950s historic aerial photographs of Project area

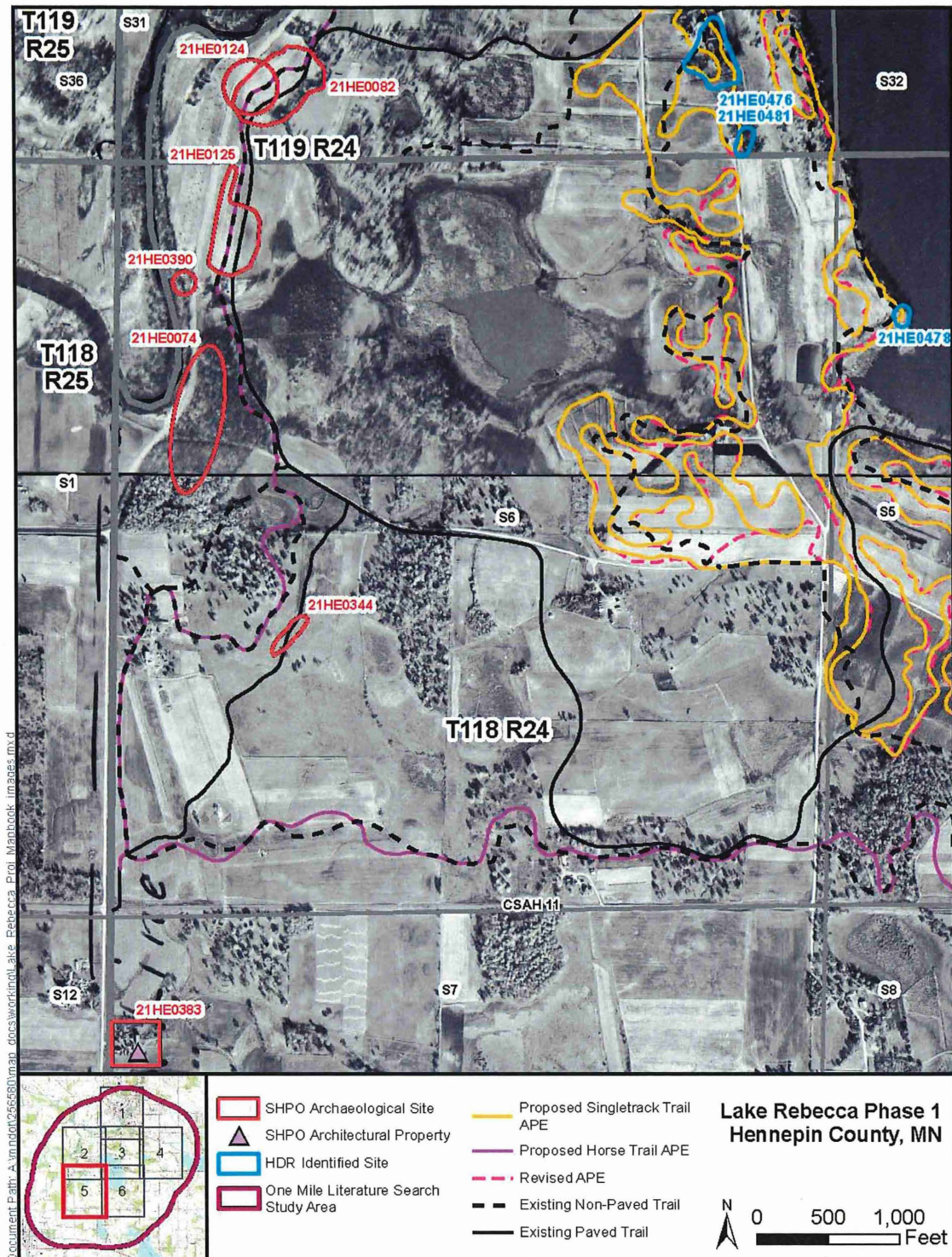


Figure 3-18: 1950s historic aerial photographs of Project area

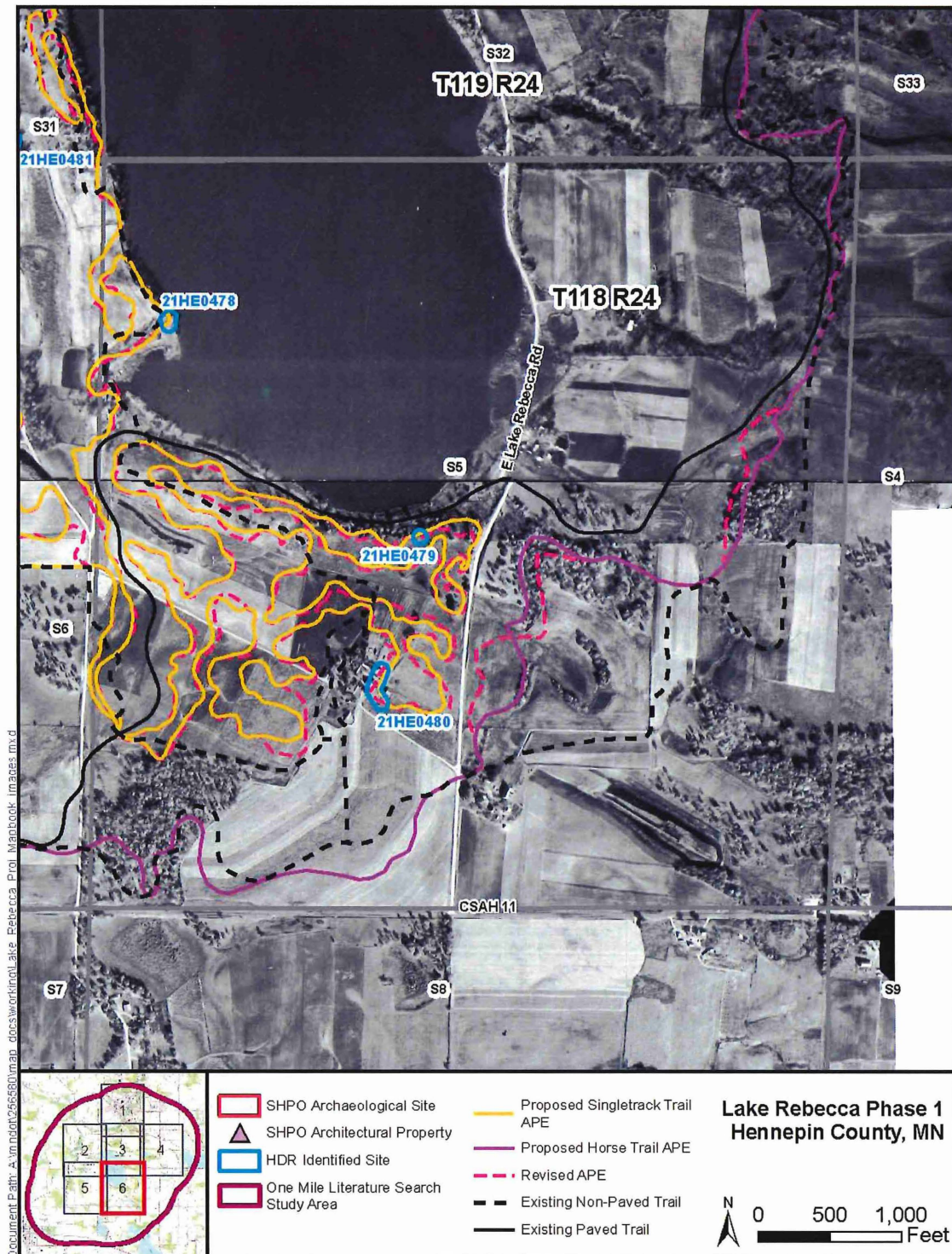


Figure 3-19: 1950s historic aerial photographs of Project area

4 Results

On June 10 to July 23, 2015, HDR conducted a Phase I Cultural Resources Investigation for the Project. HDR Archaeologists Michael Justin, Michelle Porwoll, and Andrew H. Kurth conducted the investigation, with the assistance of Steven Goranson and Grant Kvendru. Michael Justin served as the Principle Investigator for the Project and meets the Secretary of the Interior's Professional Qualification Standards for Archaeology as published in 36 CFR 61.

The Phase I investigation for the Project included a pedestrian survey of the APE on approximately 9.7 miles of horse trail and 13.3 miles of mountain bike trail, followed by subsurface testing of areas identified by the Principle Investigator as having high to moderate potential for containing buried cultural material. The APE for the Project was identified by the State as the width of the proposed trails (horizontal APE) and six inches below any proposed grading or other surface disturbance (vertical APE). Centerline data for the Project were provided to HDR by the Three Rivers Park District. Park staff stated that they had also field-marked the centerline of the Project with flagging early in the spring prior to HDR's Phase I investigation. In an email exchange with the Principle Investigator, Jay Thompson, the Park's construction supervisor for the Project, indicated that some discrepancies may exist between the centerline data provided to HDR and the field-marked trails. These discrepancies were due to the limited accuracy of the GPS unit used to record the proposed trails and design changes to the Project as the flagging was occurring. As a result, HDR was advised by the Parks to conduct the Phase I investigation along the field-marked trails when flagging was present. Following the flagging became challenging as flags became difficult to see with the abundant summer vegetation.

4.1 Visual Reconnaissance Survey of Existing Trails

On June 10 to June 12, 2015, HDR Archaeologists Michael Justin and Michelle Porwoll conducted a visual reconnaissance survey along the existing trails in the APE. One transect was walked over the centerline of the APE along the existing trails. Portions of the APE not subject to inundation with less than 20 percent slope and greater than 25 percent ground surface visibility were inspected for cultural materials. Areas adequately assessed during previous cultural resources investigations were not resurveyed. Likewise, eight previously identified cultural resource properties that are transected by the APE on existing trails were not formally revisited. These eight sites are 21HE0081, 21HE0082, 21HE0121, 21HE0122, 21HE0123, 21HE0124, 21HE0125, and 21HE0382. Since additional construction impacts are not anticipated in these areas (Jay Thompson, personal communication 2015) additional subsurface testing was not considered warranted.

Ground surface visibility along the existing trails ranged from 0 to 25 percent in open grass fields to 50 to 75 percent in woodland areas. The typical conditions encountered in the APE along the existing trails are shown in Figures 4-1 to 4-3.

The Chaska to Greenwood Road identified on GLO and J. William Trygg maps could not be located within the APE during the pedestrian reconnaissance survey. The road appears to be no longer visible due to agricultural disturbance and the dense re-vegetation of the area.



Figure 4-1: Field conditions along existing horse trail



Figure 4-2: Field conditions along existing horse trail

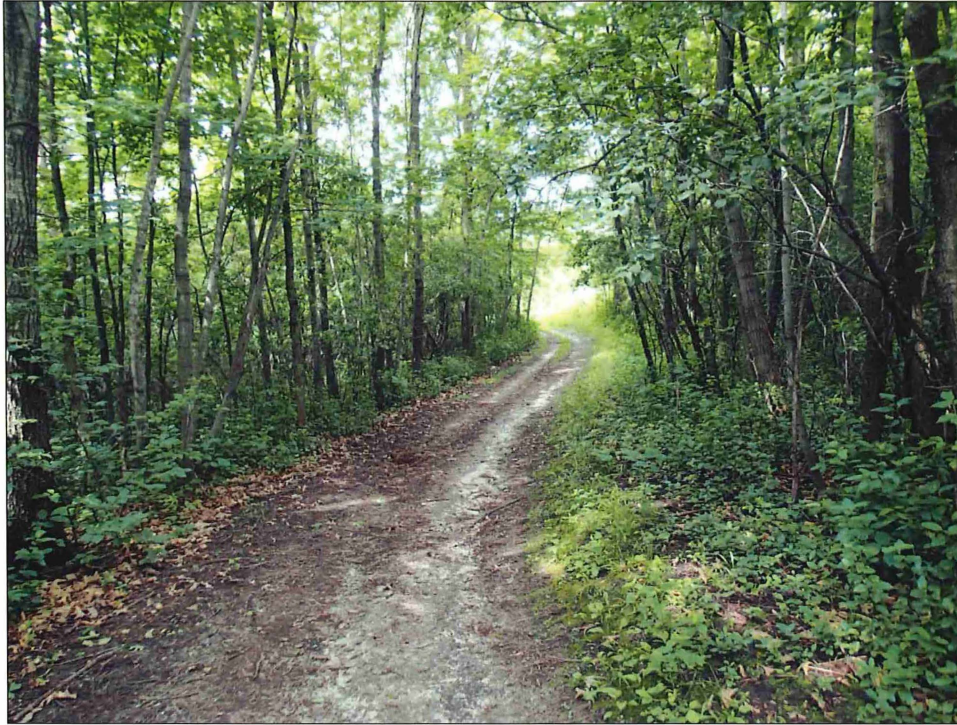


Figure 4-3: Field conditions along existing horse trail

One historic artifact scatter was identified during the pedestrian reconnaissance survey of the existing trails. This historic artifact scatter is located along the northern site boundary of Site 21HE0123 in the southwest quarter of Section 31, Township 119N, Range 24W and is considered to be associated with the site. The results of the surface inventory of Site 21HE0123 are presented below.

4.1.1 Site 21HE0123

According to the site form, site 21HE0123 is a multiple component prehistoric and historic artifact scatter with associated unspecified historic structural ruins (Figure 4-6). The site is located in the southwest quarter of Section 31 just east of the right-of-way of County Highway 50. Vegetation at the site is open grassland along the APE (Figure 4-4).

The site was originally identified in 1988 during a county highway cultural resources survey. HDR identified a small historic artifact scatter within the area of the site during visual reconnaissance survey along the existing trails (Appendix A). No structural ruins were identified at the site along the APE. No subsurface testing was conducted at the site.



Figure 4-4: 21HE0123 site overview, view to the north

4.2 Visual Reconnaissance Survey and Subsurface Testing of Proposed Trails

Visual reconnaissance survey and subsurface testing for the Project's proposed trails occurred on June 15 to July 23, 2015. Areas of new trail construction were divided into 11 "Shovel Test Areas" based on landform, proposed trail type, and environmental setting (Figures 4-5 to 4-10). Subsurface testing was conducted in these areas of the APE when the ground surface visibility was less than 25 percent. Areas with greater than 20 percent slope or subject to inundation were not tested. All areas of new trail construction were visually examined.

A total of 430 shovel tests were excavated. All excavated soil matrix was screened using ¼-inch mesh hardware cloth. The typical soil profile encountered in each shovel test area can be found in Table 4-1. Additional subsurface testing was done at two previously identified archaeological sites (sites 21HE0083 and 21HE0084) intersected by the APE in areas of proposed construction. Additional testing was conducted at these sites to determine the potential impacts of the Project. Seven new archaeological sites were identified during the Phase I investigation at Lake Rebecca. Results of Phase I visual reconnaissance survey and subsurface testing for the Project are presented below.

Table 4-1. Typical soil profiles in Project shovel test areas

Shovel Test Area	Soil Description
01	Stratum 1: 0–29 cm, 10YR 3/2 silt loam Stratum 2: 29–40 cm, 10YR 4/3 clay
02	Stratum 1: 0–28 cm, 10YR 2/2 silt loam Stratum 2: 28–40, 10YR 4/3 clay
03	Stratum 1: 0–28 cm, 10YR 3/2 silt loam Stratum 2: 28–40 cm, 10YR 4/3 clay loam
04	Stratum 1: 0–26 cm, 10YR 3/2 clay loam Stratum 2: 26–38 cm, 10YR 4/3 clay loam
05 (North)	Stratum 1: 0–25 cm, 10YR 2/1 silt clay Stratum 2: 25–40 cm, 10YR 4/3 clay
05 (South)	Stratum 1: 0–24 cm, 10YR 2/1 silt loam Stratum 2: 24–40 cm, 10YR 3/2 silt loam
06	Stratum 1: 0–31 cm, 10YR 2/2 silt loam Stratum 2: 31–40 cm, 10YR 3/2 sandy loam
07 (North)	Stratum 1: 0–23 cm, 10YR 2/2 silt loam Stratum 2: 23–40 cm, 10YR 3/2 loam
07 (South)	Stratum 1: 0–30 cm, 10YR 3/2 silt loam Stratum 2: 30–40 cm, 10YR 4/3 clay loam
08	Stratum 1: 0–29 cm, 10YR 2/2 silt loam Stratum 2: 29–40 cm, 10YR 4/3 clay loam
09	Stratum 1: 0–31 cm, 10YR 3/2 sandy silt loam Stratum 2: 31–40 cm, 10YR 4/32 sandy silt
10	Stratum 1: 0–28 cm, 10YR 2/2 silt loam Stratum 2: 28–40 cm, 10YR 4/2 clay loam
11 (East)	Stratum 1: 0–30 cm, 10YR 3/2 silt loam Stratum 2: 30–40 cm, 10YR 4/3 clay loam
11 (West)	Stratum 1: 0–16 cm, 10YR 2/2 silt loam Stratum 2: 16–30 cm, 10YR 4/2 silt loam Stratum 3: 30–40 cm, 10YR 4/3 sandy clay loam

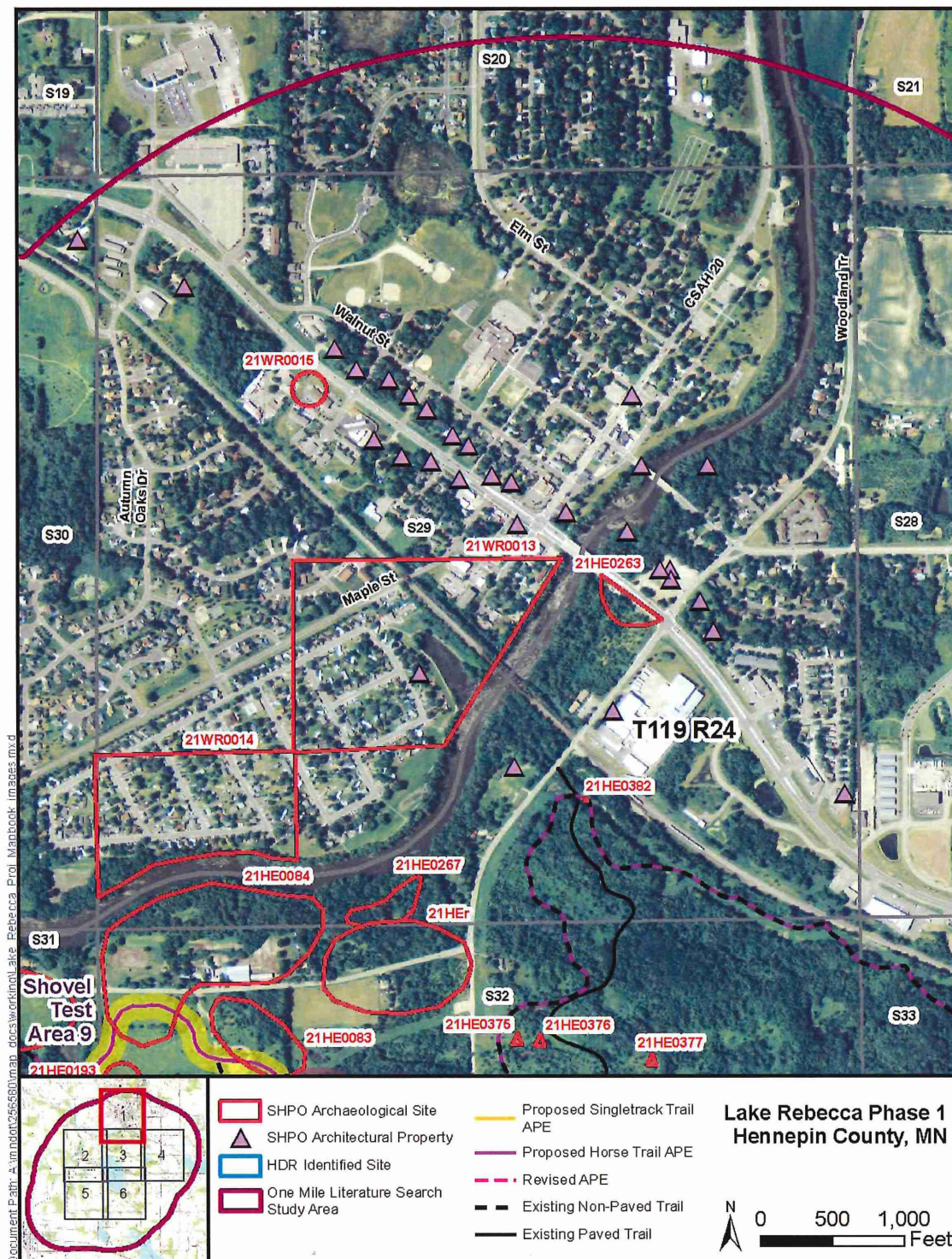


Figure 4-5: Project area overview

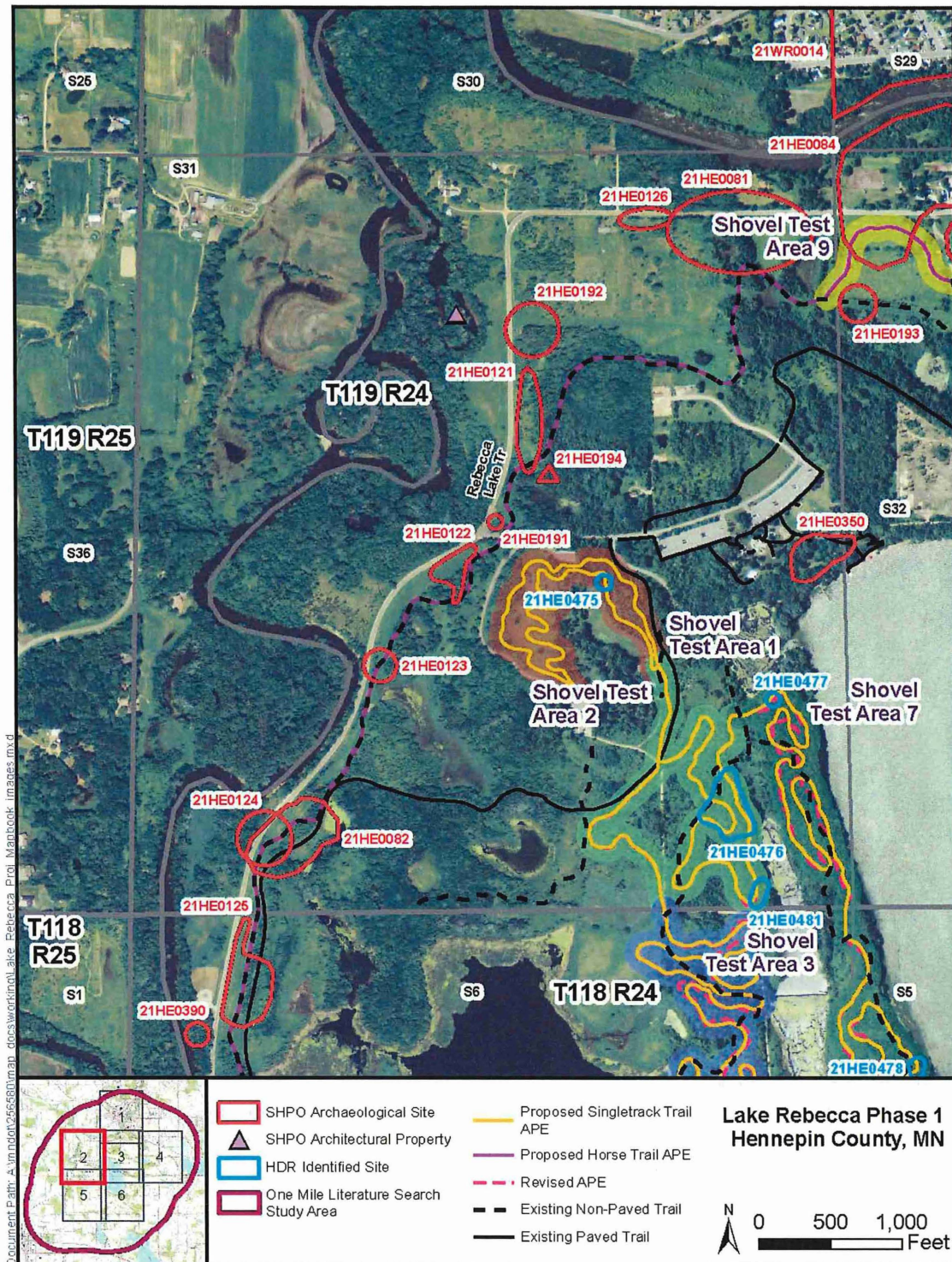


Figure 4-6: Project area overview

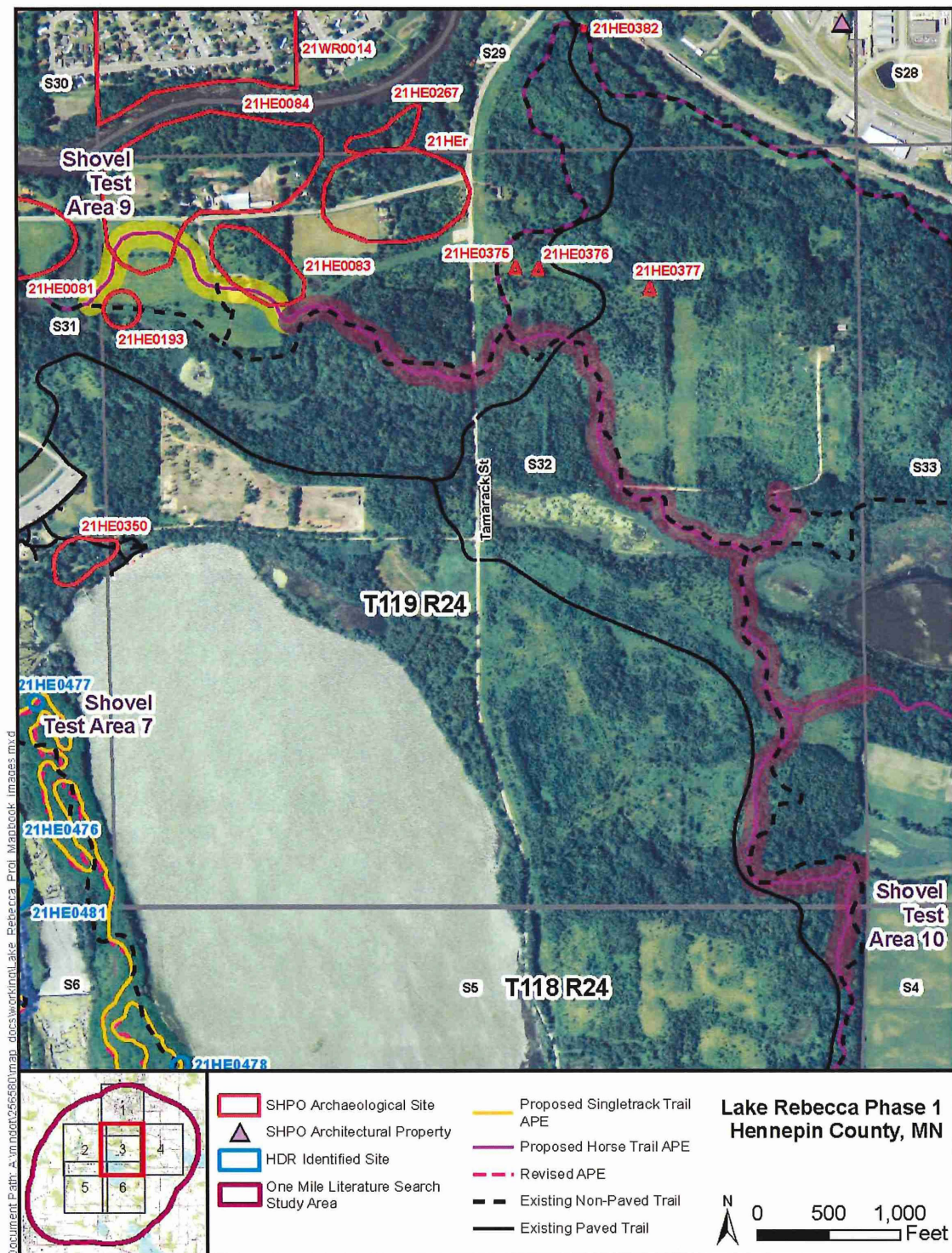


Figure 4-7: Project area overview

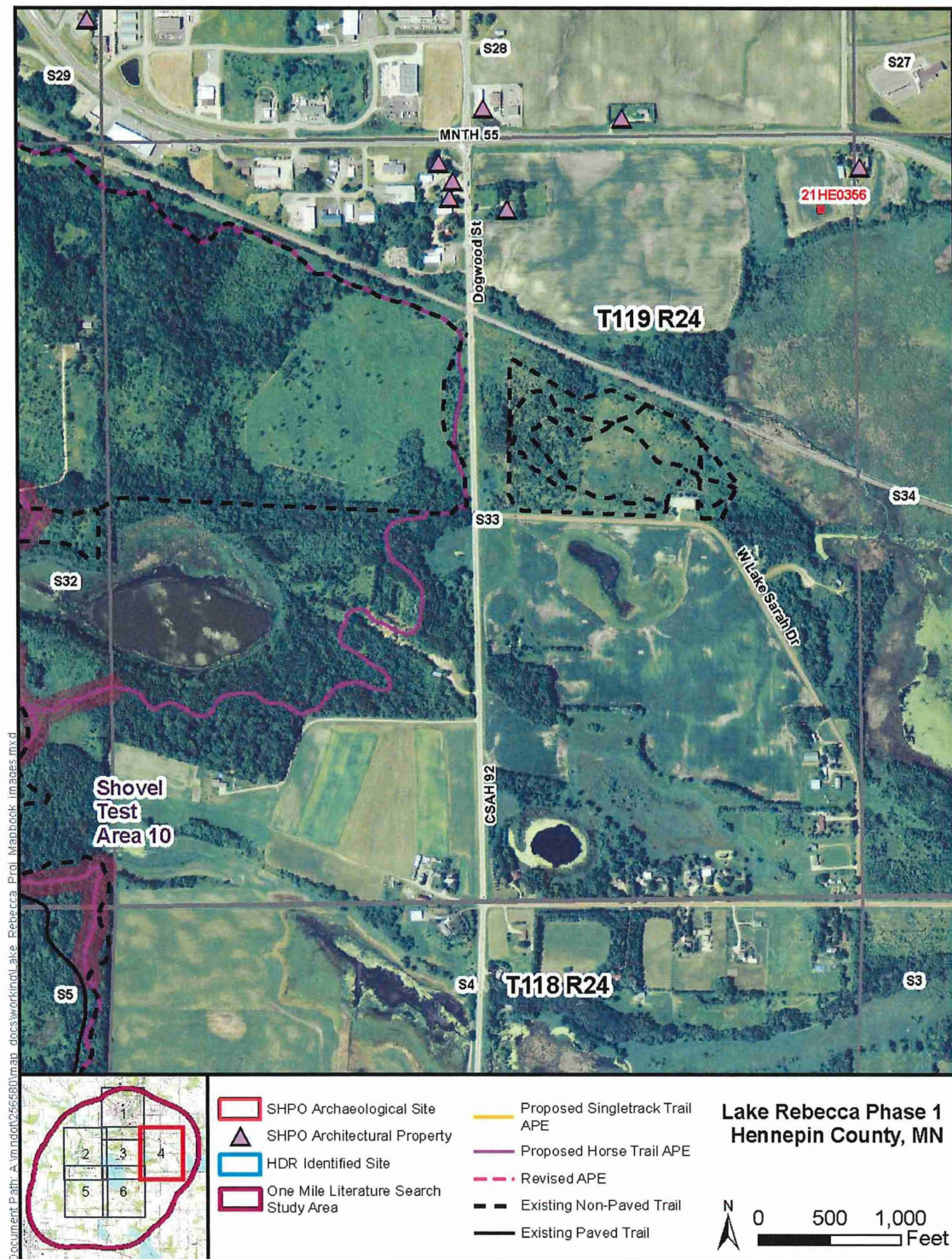


Figure 4-8: Project area overview

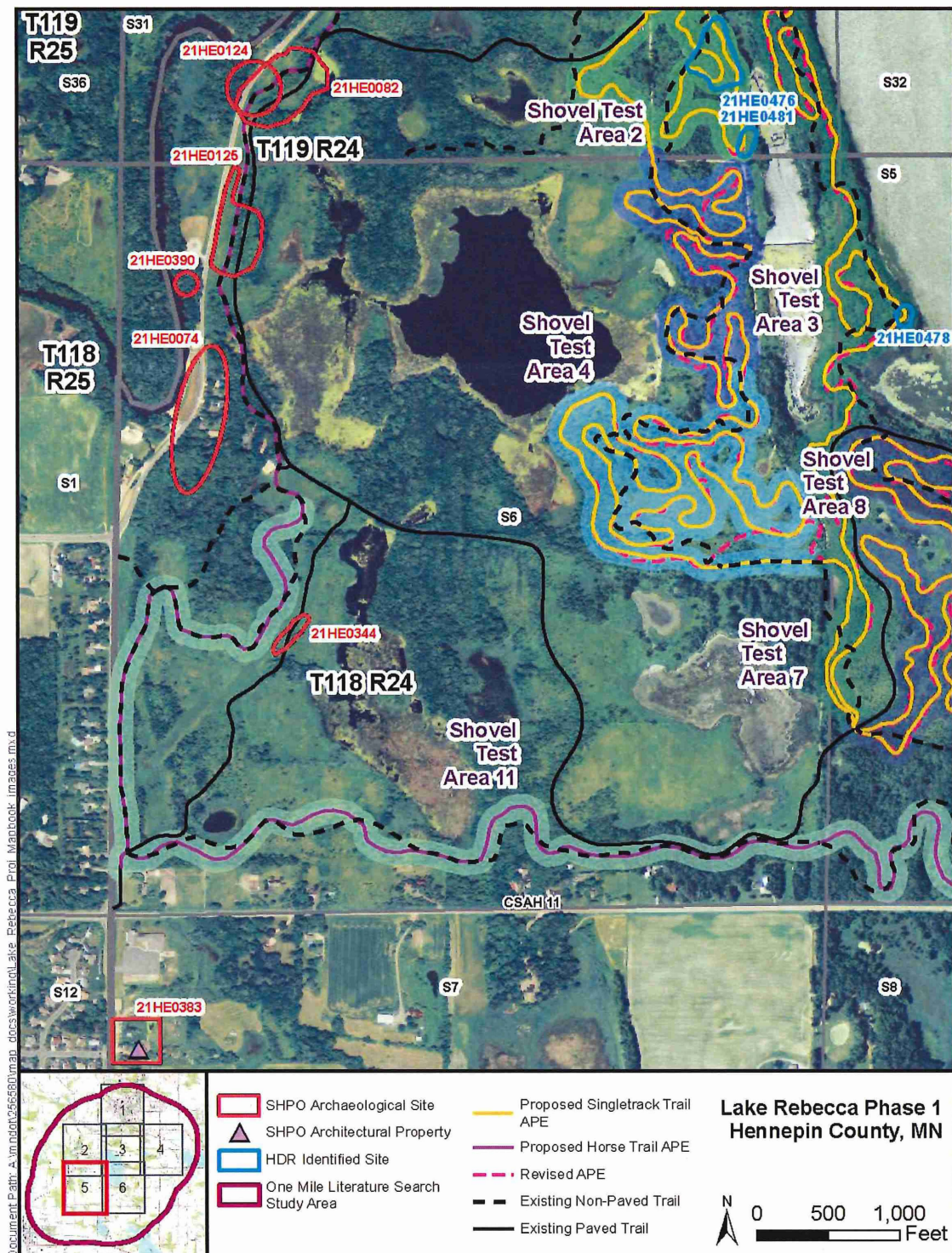


Figure 4-9: Project area overview

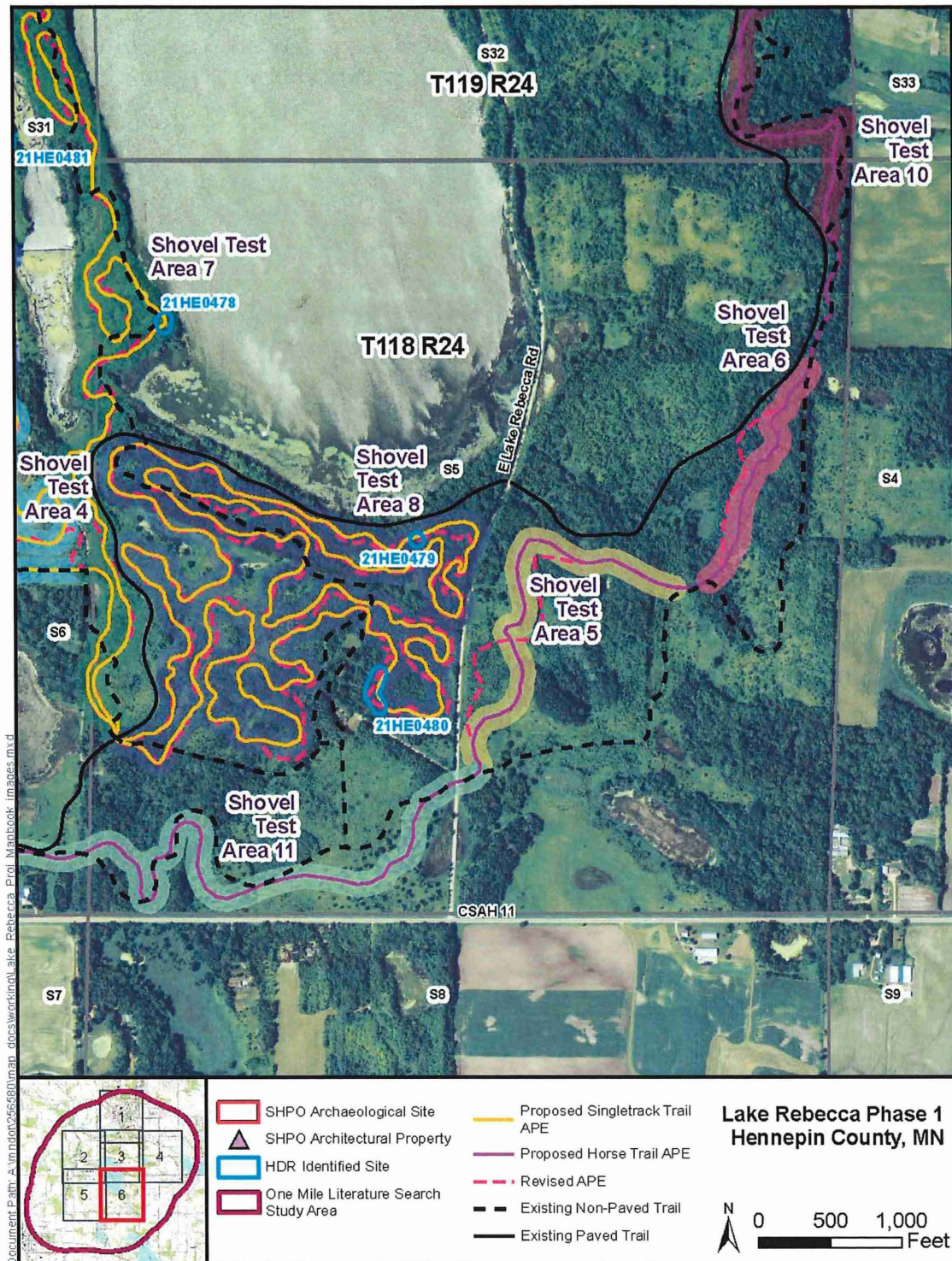


Figure 4-10: Project area overview

4.2.1 Shovel Test Area 1(T119N, R24W, Section 31)

Shovel Test Area 1 is located on a secondary terrace ridge west of the northwest inlet bay of Lake Rebecca (Figures 4-6 and 4-11). The APE in this area runs along the wooded edge of the terrace ridge in the east and through an open tall grass prairie, characterized by a rolling topography, in the west. The typical field conditions encountered in Shovel Test Area 1 are shown in Figures 4-12 to 4-14.

The Park proposes the construction of approximately 1.1 miles of mountain bike trail in this area. These trails mostly run along sloped areas of greater than 20 percent. A total of 67 shovel tests were excavated in Shovel Test Area 1. Subsurface testing in the area revealed disturbed plow zone soils to approximately 30 cm below surface, above brown to dark yellowish brown clay soil (Table 4-1). Historic aerial photographs from the 1950s show this area as cultivated agricultural field (Figure 3-15). Two shovel tests produced precontact lithic artifacts. These positive shovel tests were recorded as archaeological site 21HE0475. The location and estimated boundaries for site 21HE0475 are presented below.



Figure 4-11: Shovel Test Area 1



Figure 4-12: Field conditions in Shovel Test Area 1



Figure 4-13: Field conditions in Shovel Test Area 1



Figure 4-14: Field conditions in Shovel Test Area 1

Site 21HE0475

Site 21HE0475 is a precontact lithic scatter located in the southeast quarter of Section 31, Township 119N, Range 24W (Figure 4-11). The site was identified by two positive shovel tests (ST 46 and ST 46c). Each of the two tests contained one tertiary flake of Prairie du Chien chert recovered from 10 to 20 cm below surface (Appendix A). Vegetation at the site is a mix of cedar and ash trees with a prickly ash shrub layer and short grass/duff ground cover (Figure 4-15). The topography at the site is generally level with a slight northeast slope towards Lake Rebecca. The soil profile at the site is indicative of agricultural tillage (Table 4.1). Aerial photographs from the 1950s show the site area as cultivated agricultural field (Figure 3-15).



Figure 4-15: 21HE0475 site overview, view to the north

4.2.2 Shovel Test Area 2 (T119N, R24W, Section 31)

Shovel Test Area 2 is located in the southeast quarter of Section 31, on a secondary terrace ridge, just south of Shovel Test Area 1 (Figures 4-6, 4-9, and 4-16). The topography of the area is a series of uplands surrounded by large lowland drainages. Historic aerial photographs show one farmstead and one dwelling in the area surrounded by cultivated agricultural field (Figures 3-15).

Vegetation along the APE in Shovel Test Area 2 is a mix of thick buckthorn, cherry, and aspen brush with areas of staghorn sumac and tall grass intermixed. The typical field conditions encountered in Shovel Test Area 2 are shown in Figures 4-17 and 4-18.

Approximately 1.3 miles of new mountain bike trail are proposed in Shovel Test Area 2. Subsurface testing in this area revealed disturbed plow zone soils to approximately 30 cm below surface throughout most of the APE (Table 4.1). A total of 15 shovel tests were excavated. Two historic period cultural material surface scatters were identified during pedestrian survey of Shovel Test Area 2. One cultural material scatter was recorded as site 21HE0476. One shovel test (ST 68) in Shovel Test Area 2 was positive for historic cultural material at a depth of 10 to 25 cm below surface (Appendix A). The second cultural material scatter and this positive shovel test were recorded as site 21HE0481. These two sites correspond to the homesteads observed on historic aerial photographs. The location and estimated boundaries for sites 21HE0476 and 21HE0481 are presented below.

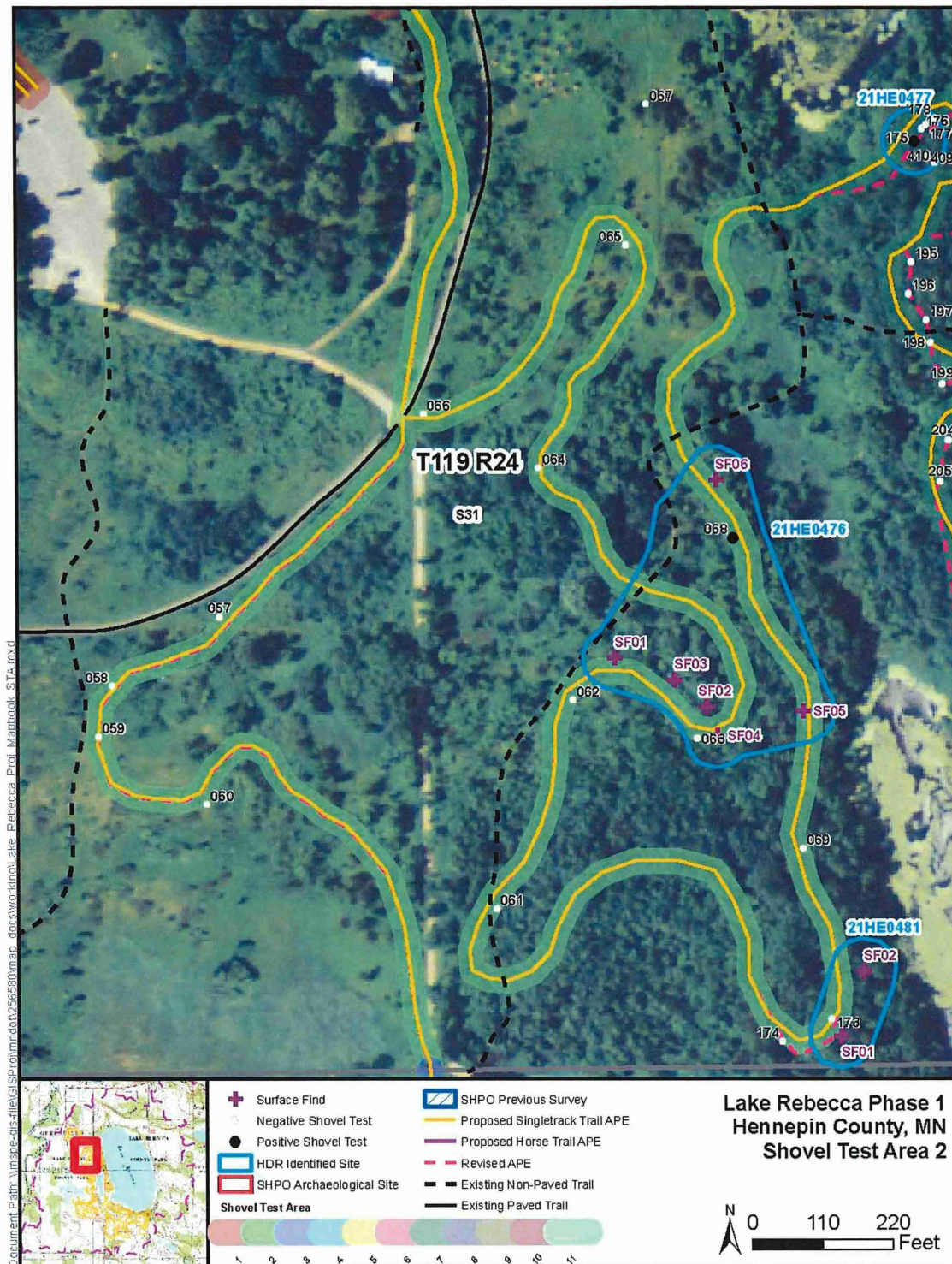


Figure 4-16: Shovel Test Area 2



Figure 4-17: Field conditions in Shovel Test Area 2



Figure 4-18: Field conditions in Shovel Test Area 2

Site 21HE0476

Site 21HE0476 is historic artifact scatter located in the southeast quarter of Section 31, Township 119N, Range 24W (Figure 4-16). The site was identified by several surface artifact concentrations and an artifact filled depression (Figures 4-19 and 4-20, Appendix A). Two shovel tests were placed within the boundary of the site to determine the presence of subsurface cultural deposits and to assess the integrity of the soil at the site. One shovel test (ST 68) was positive for cultural material. One small piece of brick mortar was recovered from ST 68 from a depth of 10 to 25 cm below surface (Appendix A). The soil profile at the site revealed a disturbed context to approximately 30 cm below surface. Aerial photographs dating to the 1950s show the area as a farm complex (Figure 3-15). None of the surface artifacts or the brick mortar found in ST 68 were collected.

Vegetation at the site is mix of large willow and American elm trees with a buckthorn, aspen, cherry brush layer, and buckthorn seedling/duff ground cover. Surface visibility was approximately 25 to 50 percent at the time of the survey (Figure 4-21). The site area is mostly level with the east end sloping sharply east towards Lake Rebecca.

The only remaining surface feature at the site is a 10 by 20 foot artifact filled depression (Figure 4-20). Diagnostic artifacts identified at the site include an Owen-Illinois Glass Company clear glass bottle base, a Goldmedal Beverage Company green glass bottle, and two broken transfer print ceramic bowls (Figures 4-22 to 4-24). These artifacts date to the mid-twentieth century. A list of the additional artifacts identified at the site can be found in Appendix A.



Figure 4-19: 21HE0476, Surface Feature 03, artifact concentration, view to the east



Figure 4-20: 21HE0476, Surface Feature 02, depression, view to the west



Figure 4-21: 21HE0476 site overview, view to the west



Figure 4-22: 21HE0476, Surface Feature 02, Owen-Illinois Glass Company bottle



Figure 4-23: 21HE0476, Surface Feature 02, Goldmedal Beverage Company bottle



Figure 4-24: 21HE0476, Surface Feature 06, transfer print whiteware bowls

Site 21HE0481

Site 21HE0481 is a historic artifact scatter, located on a high ridge overlooking the long narrow lake just west of Lake Rebecca located in the northeast quarter of Section 6, Township 118N, Range 24W and the southeast quarter of Section 31, Township 119N, Range 24W (Figure 4-16). The site was identified by a sparse artifact scatter and the ruins of a concrete well (Figures 4-25 and 4-26; Appendix A). One shovel test (ST 173) was excavated inside the boundary of the site to assess the integrity of the soil. The soil profile of ST 173 revealed a disturbed context to approximately 30 cm below surface (Table 4-1). Shovel Test 173 was also negative for cultural material.

Vegetation at the site is mature silver maples and American elm trees with a buckthorn, aspen, cherry brush layer. Surface visibility at the time of the survey was less than 25 percent (Figure 4-26). The site area is mostly level, but slopes sloping east towards the long narrow lake to the east along its eastern edge. Aerial photographs dating to the 1950s show a small dwelling in the area of the site (Figure 3-15). No structural remains were identified; however, a large clearing can still be seen in the vicinity of the former dwelling. Modern water pump and electrical metering equipment located just to the south of the old well suggests that this area is still actively used.



Figure 4-25: 21HE0481, Surface Feature 01, ruins of concrete well



Figure 4-26: 21HE0481 site overview, view to the east

4.2.3 Shovel Test Area 3 (T118N, R24W, Section 6)

Shovel Test Area 3 is located in the north half of the northeast quarter of Section 6, just south of Shovel Test Area 2 (Figures 4-6, 4-9, and 4-27). The area is located on a broad isthmus between a large wetland to the west and a long narrow lake to the east. Historic aerial photographs show this area as having been cultivated (Figures 3-15 and 3-18). The topography of the area is similar to Shovel Test Area 2, with upland ridges surrounded by lowland drainages. Vegetation in the areas identified for shovel testing is a mix of cedar and American elm canopy with a honey suckle, buckthorn, prickly ash, and cherry brush layer. Ground cover in these areas is a mix of buckthorn seedlings and woodland duff. The typical field conditions encountered in Shovel Test Area 3 are shown in Figures 4-28 and 4-29.

Approximately 1.5 miles of new mountain bike trail are proposed in Shovel Test Area 3. No cultural material was identified along the existing trail in the APE during pedestrian survey. A total of 35 shovel tests were excavated. Subsurface testing of the area revealed disturbed plow zone soils to approximately 30 cm below surface, indicative of agricultural tillage (Table 4-1). No cultural material was identified Shovel Test Area 3.

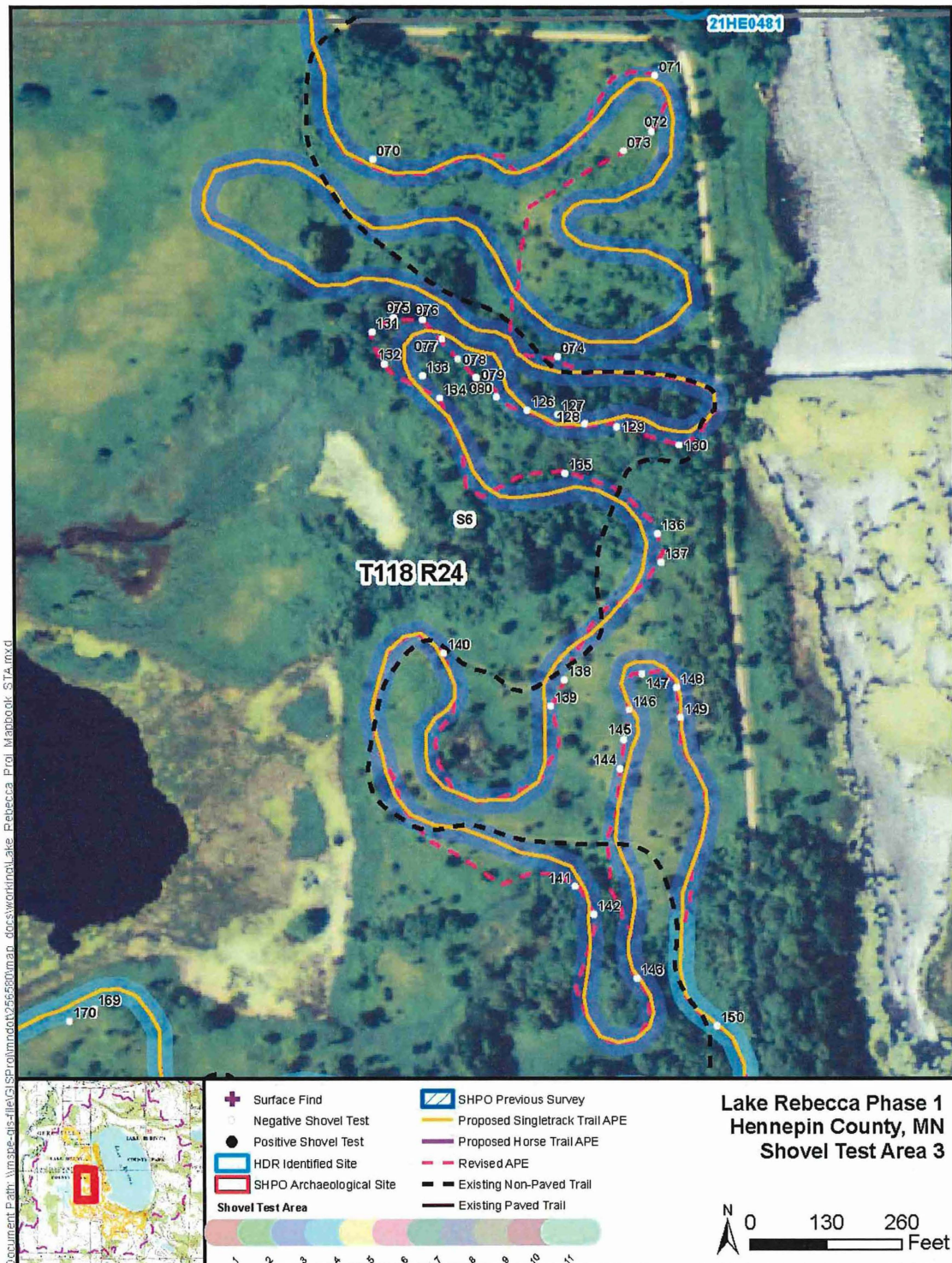


Figure 4-27: Shovel Test Area 3



Figure 4-28: Field conditions in Shovel Test Area 3



Figure 4-29: Field conditions in Shovel Test Area 3

4.2.4 Shovel Test Area 4 (T118N, R24W, Section 6)

Shovel Test Area 4 is located in the south half of the northeast quarter of Section 6, southwest of Lake Rebecca (Figures 4-9, 4-10, and 4-30). The area is characterized by a rolling topography with tall grass vegetation. Woodland areas of thick buckthorn, cherry, and prickly ash vegetation are found in the northern and western parts of the area. Shovel Test Area 4 is surrounded by large wetlands. Areas subject to frequent inundation are located throughout the area. Historic aerial photographs show most of the area as cultivated agricultural field (Figure 3-18). The typical field conditions encountered in Shovel Test Area 4 are shown in Figures 4-31 and 4-32.

The Three Rivers Park District proposes the construction of approximately 2.4 miles of mountain bike trail in this area. No cultural material was identified along the existing trail in the APE during pedestrian survey. A total of 21 shovel tests were excavated in Shovel Test Area 4. Subsurface testing in the area revealed disturbed plow zone soils to approximately 30 cm below surface in most areas of the APE (Table 4-1). No cultural material was identified in Shovel Test Area 4.

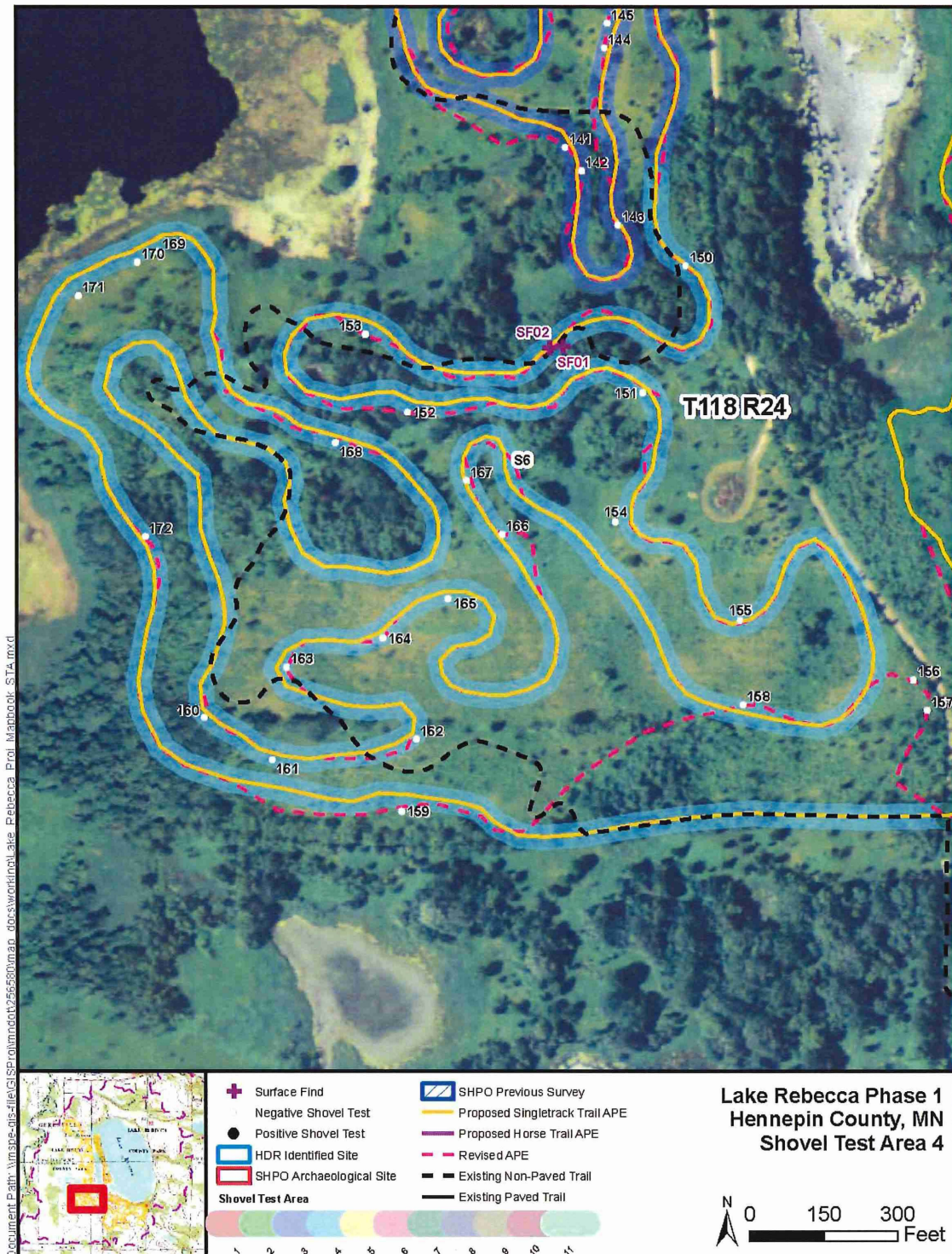


Figure 4-30: Shovel Test Area 4



Figure 4-31: Field conditions in Shovel Test Area 4



Figure 4-32: Field conditions in Shovel Test Area 4

4.2.5 Shovel Test Area 5 (T118N, R24W, Section 5)

Shovel Test Area 5 is located south of Lake Rebecca just east of East Lake Rebecca Road (Figures 4-10 and 4-33). The topography of the APE in this area is level to steeply sloping. Vegetation throughout the area is a mix of sugar maple, silver maple, and American elm canopy with a maple seedling, grass, and woodland duff ground cover. Historic aerial photographs show the southwest half of Shovel Test Area 5 as cultivated for agricultural field, and the northeast half as woodlands (Figure 3-19). The typical field conditions encountered in Shovel Test Area 5 are shown in Figure 4-34. As HDR was advised by the Parks to conduct the Phase I investigation along the field-marked trails when flagging was present, several areas subjected to shovel testing varied from the GPS files received from the Parks.

An approximately 0.6 mile horse trail deviation is proposed in Shovel Test Area 5. No cultural material was identified along the existing trail in the APE during pedestrian survey. A total of 34 shovel tests were excavated. Subsurface testing revealed disturbed plow zone soils to approximately 30 cm below surface in the southwest half of the area and intact soil stratigraphy in the northeast half of the APE (Table 4-1). No cultural material was identified in Shovel Test Area 5.

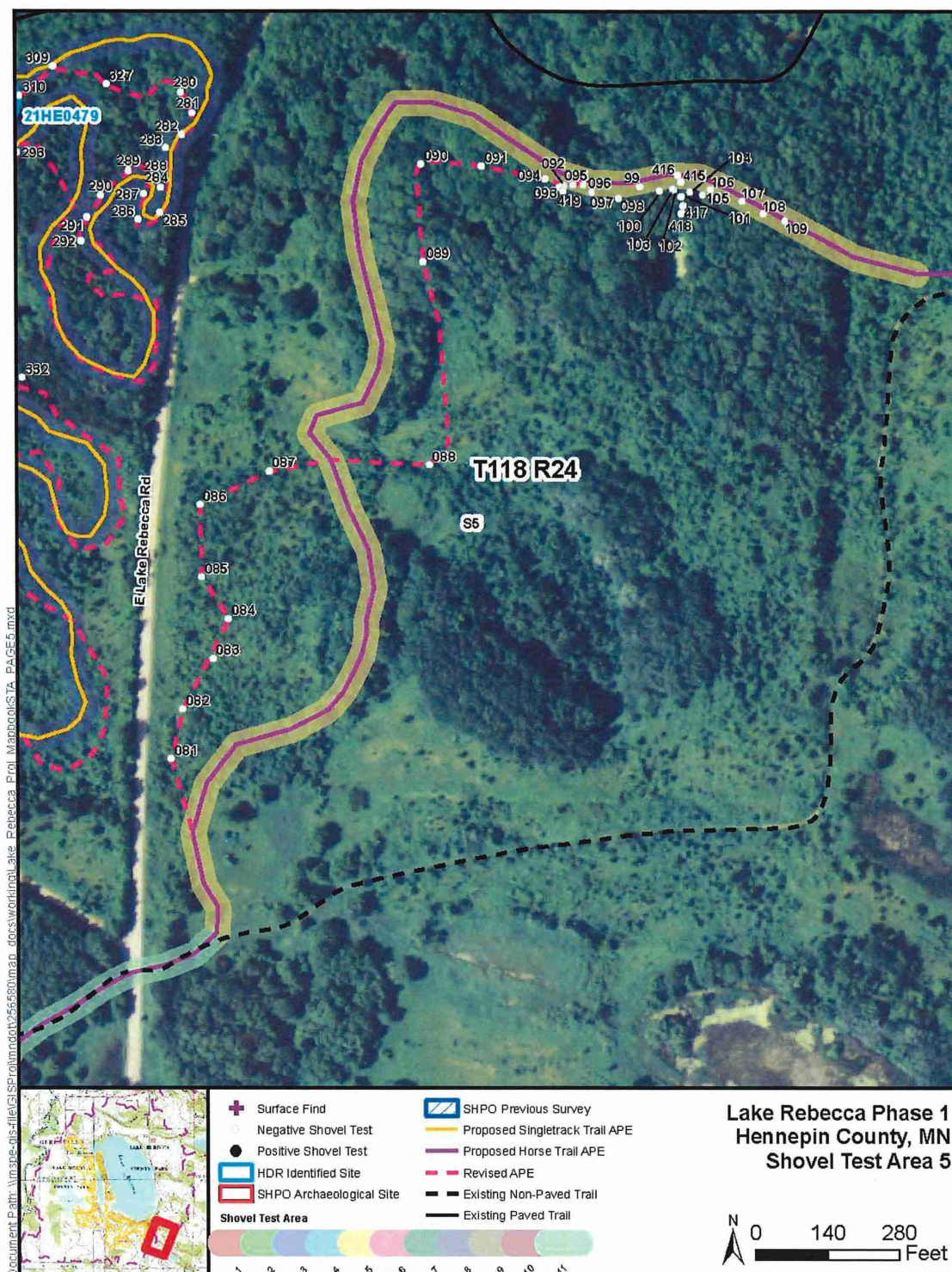


Figure 4-33: Shovel Test Area 5



Figure 4-34: Field conditions in Shovel Test Area 5

4.2.6 Shovel Test Area 6 (T118N, R24W, Section 5)

Shovel Test Area 6 is located southeast of Lake Rebecca on a west sloping ridge line (Figures 4-10 and 4-35). The topography of the APE in this area ranges from level to steeply sloping. Woodland vegetation of sugar maple, silver maple, and American elm with a maple seedling, grass, and woodland duff ground cover is present throughout the area. Historic aerial photographs show most of the area as woodland (Figure 3-19). The typical field conditions encountered in Shovel Test Area 6 are shown in Figure 4-3. As HDR was advised by the Parks to conduct the Phase I investigation along the field-marked trails when flagging was present, several areas subjected to shovel testing varied from the GPS files received from the Parks.

The Three Rivers Park District proposes the construction of an approximately 0.3-mile long horse trail deviation in this area. No cultural material was identified along the existing trail in the APE during pedestrian survey. A total of 14 shovel tests were excavated. Subsurface testing revealed an intact soil profile throughout most of the area (Table 4-1). No cultural material was identified in Shovel Test Area 6.

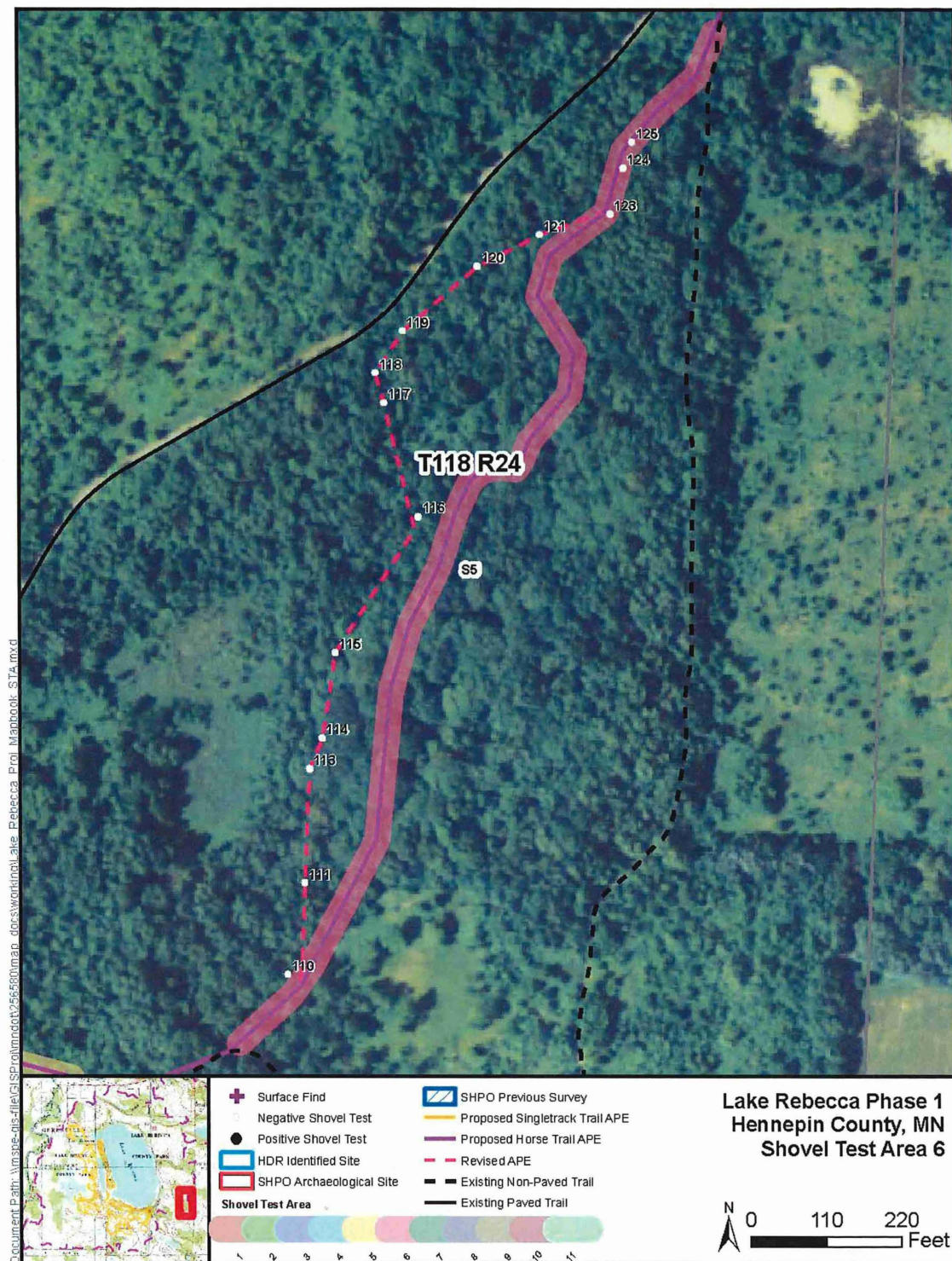


Figure 4-35: Shovel Test Area 6



Figure 4-36: Field conditions in Shovel Test Area 6

4.2.7 Shovel Test Area 7 (T118N, R24W, Section 5 & 6; T119N, R24W, Section 31)

Shovel Test Area 7 is located on the west side of Lake Rebecca along a high terrace ridge (Figures 4-6, 4-7, 4-9, 4-10, 4-37, 4-38, and 4-39). This area forms a narrow isthmus between the west shore of Lake Rebecca and a long narrow lake to the west. The topography of the area is generally level with steeply sloping edges. Woodland vegetation is predominant along the ridge in Shovel Test Area 7 with maples being the dominant tree species. The southern portion of Shovel Test Area 7 is low, open grassland with small woodland areas intermixed. Historic aerial photographs show the northern half of the ridge as grazing land, while the southern half appears as cultivated agricultural field (Figures 3-15, 3-16, 3-18, and 3-19). The typical field conditions encountered in Shovel Test Area 7 are shown in Figures 4-40 to 4-42.

Approximately 2.4 miles of new mountain bike trail are proposed in Shovel Test Area 7. A total of 114 shovel tests were excavated. Subsurface testing revealed an intact soil profile along the high terrace ridge, while soils south of the ridge appear disturbed (Table 4-1). Four shovel tests were positive for precontact cultural material. These positive tests were recorded as sites 21HE0477 and 21HE0478. The location and estimated boundaries for sites 21HE0477 and 21HE0478 are presented below.

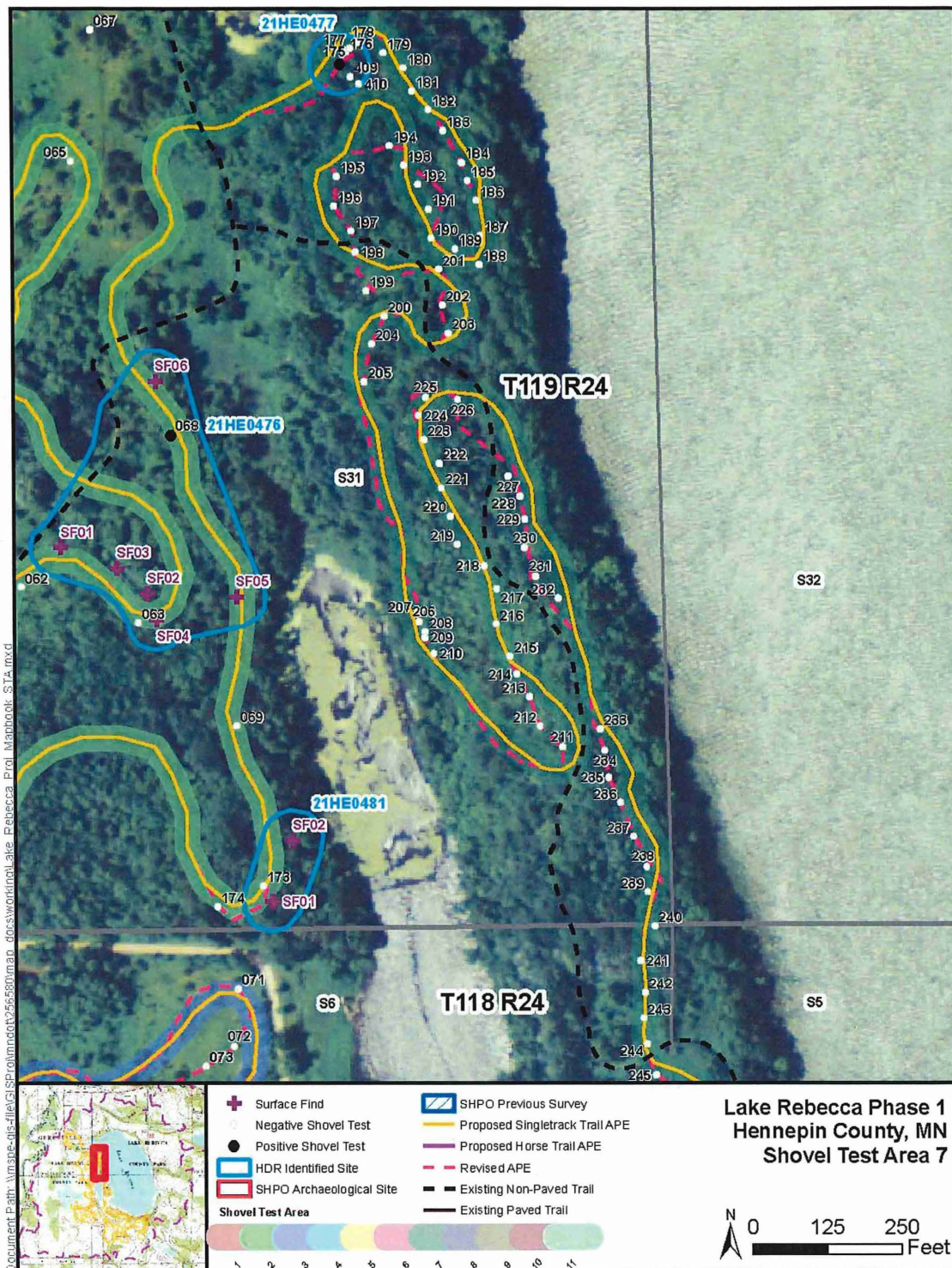


Figure 4-37: Shovel Test Area 7



Figure 4-38: Shovel Test Area 7

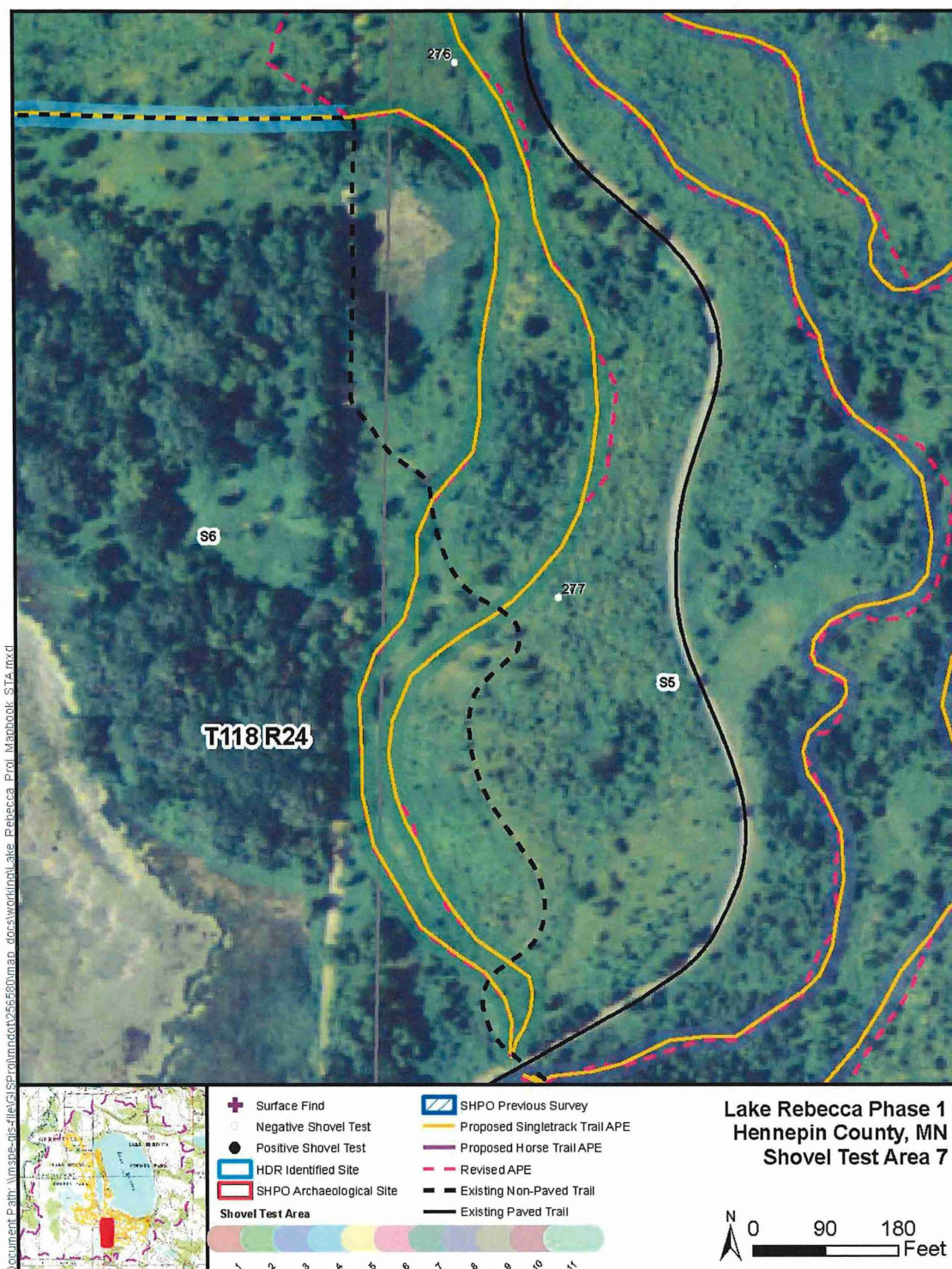


Figure 4-39: Shovel Test Area 7



Figure 4-40: Field conditions in Shovel Test Area 7



Figure 4-41: Field conditions in Shovel Test Area 7



Figure 4-42: Field conditions in Shovel Test Area 7

Site 21HE0477

Site 21HE0477 is a precontact isolated lithic find, located at the north end of the high terrace ridge on the west side of Lake Rebecca, in the southeast quarter of Section 31, Township 119N, Range 24W (Figure 4-37). This ridge forms the south end of an inlet bay in the northwest corner of the lake. The site is located approximately 40 meters upslope from the southeast shore of the bay.

Site 21HE0477 was identified by the recovery of one till chert flake from ST 175 at a depth of 19 to 33 cm below surface (Appendix A). Close interval shovel tests were placed to the northeast and southeast of ST 175. Shovel tests were not dug to the northwest or southwest because of slope. No additional cultural material was identified at the site. The soil profile at the site revealed disturbed soils to a depth of approximately 30 cm below surface. Historic aerial photographs show the area of the site as partially wooded grassland, likely used for grazing (Figure 3-15).

Vegetation at the site is a woodland mix of oak, maple and ash canopy with a maple sapling and prickly ash brush layer. Ground cover at the site is a mix of woody plants and woodland duff. Ground surface visibility was less than 25 percent at the time of the Phase I investigation (Figure 4-43).



Figure 4-43: 21HE0477 site overview, view to the west

Site 21HE0478

Site 21HE0478 is a precontact lithic scatter, located at the south end of the high terrace ridge on the west shore of Lake Rebecca in the northwest quarter of Section 5, Township 118N Range 24W (Figure 4-38). This ridge forms the north end of a bay in the southwest corner of the lake. The site is located directly upslope from the western shoreline of Lake Rebecca.

Site 21HE0478 was identified by three positive shovel tests (ST 262, ST 266, and ST 411). A total of three tertiary lithic flakes were recovered from the site at a depth of approximately 20 to 40 cm below surface (Appendix A). The lithic material types identified at the site include Swan River Chert, Red River Chert, and an unidentified till chert. Subsurface testing revealed an intact soil profile in the east half of the site and a disturbed soil profile in the west half of the site. Historic aerial photographs show the area as partially wooded along the steeply sloped lakeshore and cultivated agricultural field in the west (Figure 3-18).

Vegetation at the site is a woodland mix of oak, maple and ash canopy with a predominantly prickly ash brush layer. Ground cover is a mix of woody plants and woodland duff. Ground surface visibility was less than 25 percent at the time of the survey (Figure 4-44). Topographically the site is level with a steeply sloping eastern edge.

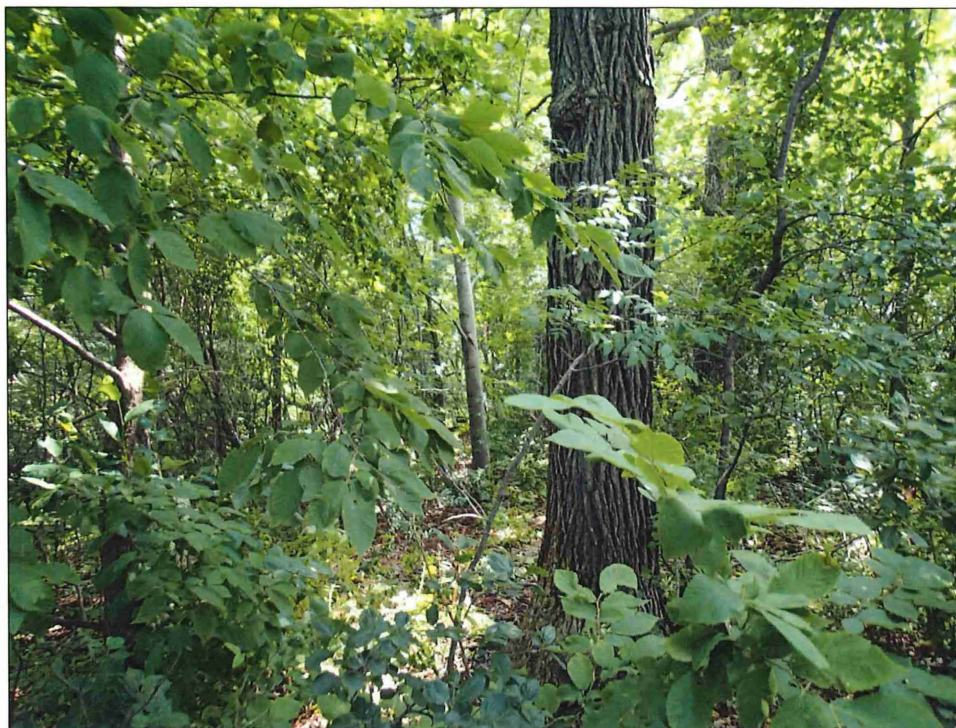


Figure 4-44: 21HE0478 site overview, view to the southwest

4.2.8 Shovel Test Area 8 (T118N, R24W, Section 5)

Shovel Test Area 8 is located at the south end of Lake Rebecca (Figures 4-9, 4-10, 4-45, and 4-46). The area is characterized by a general upland topography with intermixed lowlands and a steeply sloping ridge line along the south shore of Lake Rebecca. Vegetation in the area varies from maple dominated woodlands to open grasslands with thick patches of cherry and buckthorn brush scattered throughout. Historic aerial photographs show the area as cultivated (Figures 3-18 and 3-19). The typical field conditions encountered in Shovel Test Area 8 are shown in Figures 4-47 to 4-49.

Approximately 4.5 miles of new mountain bike trail are proposed in Shovel Test Area 8. A historic period cultural material surface scatter was identified during pedestrian survey of Shovel Test Area 8. A total of 58 shovel tests were excavated. Subsurface testing revealed disturbed plow zone soils to approximately 30 cm below surface throughout the APE (Table 4-1). Seven shovel tests were positive for cultural materials. One shovel test was positive for precontact cultural material and was recorded as site 21HE0479. Seven shovel tests were positive for historic period cultural material. These positive tests and the historic surface scatter were recorded as site 21HE0480. The locations and estimated boundaries for sites 21HE0479 and 21HE0480 are presented below.

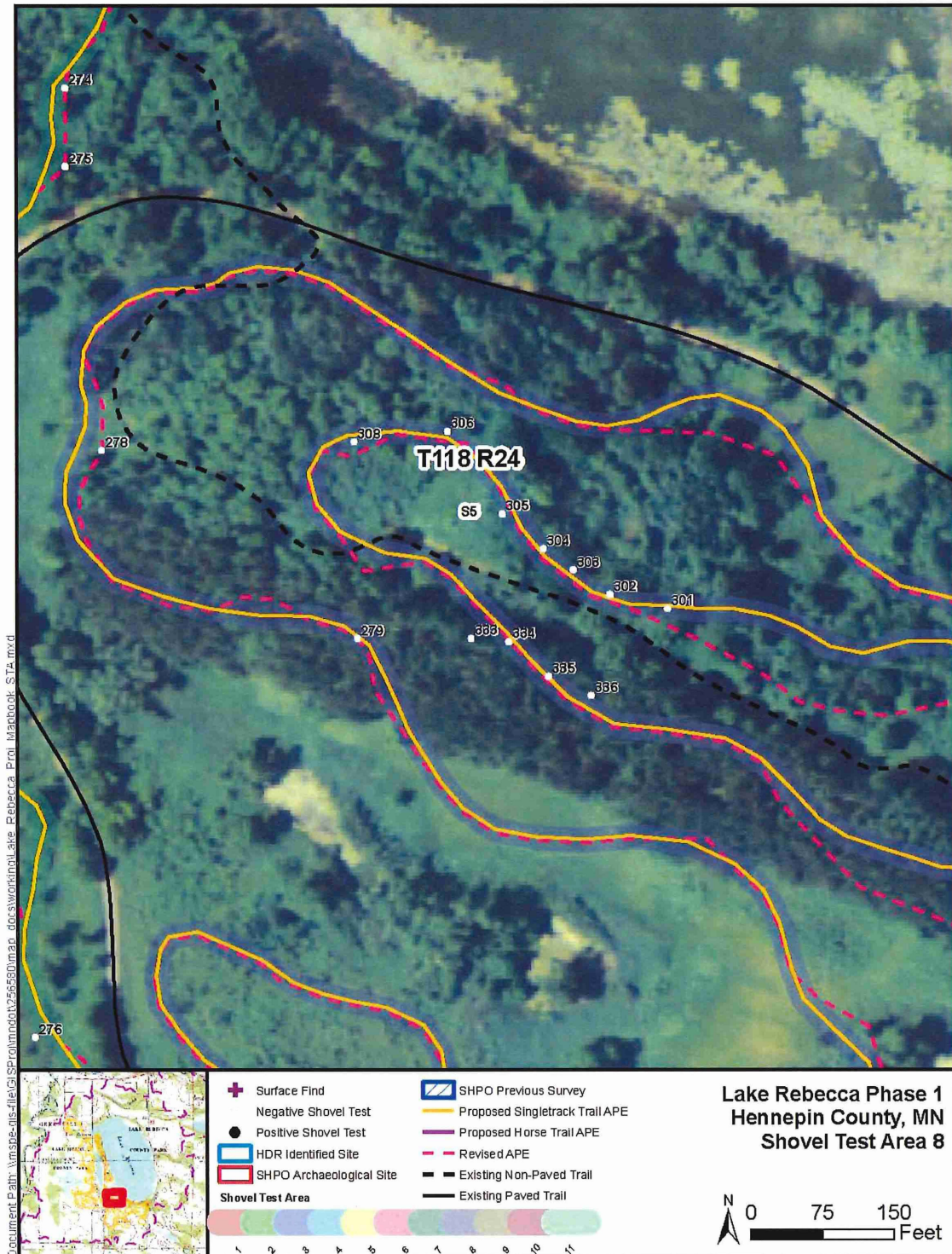


Figure 4-45: Shovel Test Area 8

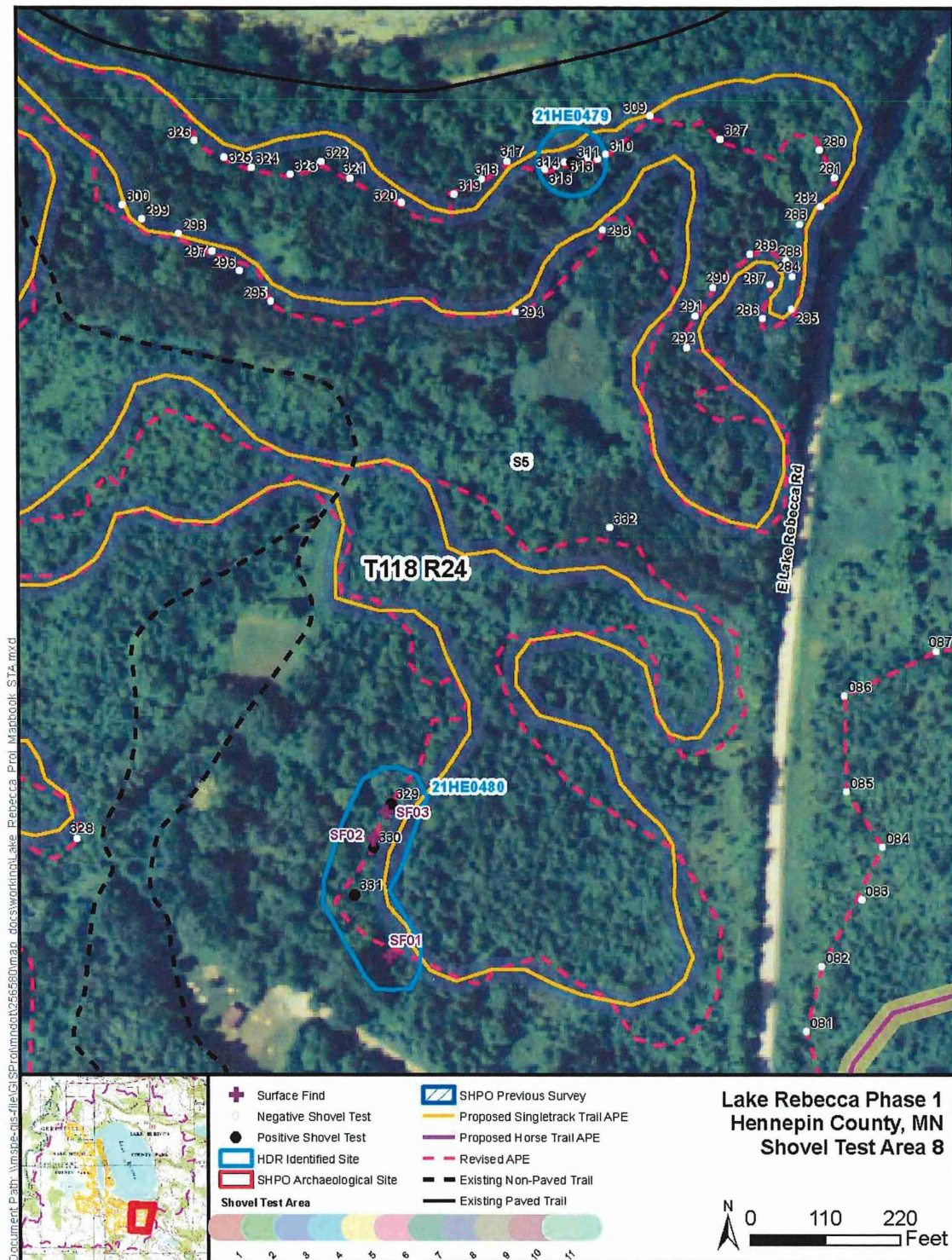


Figure 4-46: Shovel Test Area 8



Figure 4-47: Field conditions in Shovel Test Area 8



Figure 4-48: Field conditions in Shovel Test Area 8



Figure 4-49: Field conditions in Shovel Test Area 8

Site 21HE0479

Site 21HE0479 is a precontact isolated lithic find, located on an elevated secondary terrace above the south shoreline of Lake Rebecca in the southwest quarter of Section 5, Township 118N, Range 24W (Figure 4-46).

The site was identified by a single tertiary flake of till chert, recovered from ST 311 at a depth of 0 to 25 cm below surface (Appendix A). Additional shovel tests excavated in the area were negative for cultural material. The soil profile at the site revealed disturbed, shallow soils. Historic aerial photographs show the area of the site as partially wooded grassland, likely used for grazing (Figure 3-19).

The area of the site is level, but slopes steeply towards Lake Rebecca just to the north. Vegetation at the site is a mix of ironwood and cherry with a woodland duff ground layer. Ground surface visibility was less than 25 percent at the time of survey (Figure 4-50).



Figure 4-50: 21HE0479 site overview, view to the south

Site 21HE0480

Site 21HE0480 is a historic artifact scatter, located in the northeast quarter of the southwest quarter of Section 5, Township 118N, Range 24W (Figure 4-46). The site is located on the north end of a topographic rise approximately 1,000 feet south of the south shore of Lake Rebecca.

The site as identified by two artifact concentrations and a concrete ring (Figure 4-51, Appendix A). Three shovel tests (STs 329-331) were placed within the area of the site to assess the soil integrity and to identify any subsurface cultural material. All three shovel tests were positive for historic era cultural material (Appendix A). No cultural material was collected from the site. Subsurface testing at the site revealed a disturbed soil profile with cultural horizon soil decreasing in depth moving north to south across the site. Historic aerial photographs show a large farm complex in the area (Figure 3-19).

Vegetation at the site is red pine canopy with a buckthorn and honeysuckle brush layer. Ground surface visibility was 25 to 50 percent at the time of survey (Figure 4-52).



Figure 4-51: 21HE0480, Surface Feature 01, concrete ring



Figure 4-52: 21HE0480 site overview, view to the east

4.2.9 Shovel Test Area 9 (T119N, R24W, Section 31 & 32)

Shovel Test Area 9 is located in the northwest quarter of Section 31 and the northeast quarter of Section 32, north of Lake Rebecca (Figures 4-5, 4-6, 4-7, and 4-53). Portions of previously recorded sites 21HE0083 and 21HE0084 are transected by the APE in this area. The topography of Shovel Test Area 9 is general rolling upland with lowland areas intermixed. Historic aerial photographs show the area as cultivated agricultural field (Figures 3-14 to 3-16). Current vegetation in the area is open grassland; the typical field conditions encountered in Shovel Test Area 9 are shown in Figure 4-54.

An approximately 0.4-mile long horse trail deviation is proposed in Shovel Test Area 9. A total of 20 shovel tests were excavated in the area. Subsurface testing revealed disturbed plow zone soils to approximately 30 cm below surface in the APE (Table 4-1). Subsurface testing was conducted within the site boundaries of previously recorded sites 21HE0083 and 21HE0084 to determine the potential impacts of the Project. No cultural material was identified in Shovel Test Area 9. The detailed results of the subsurface testing at sites 21HE0083 and 21HE0084 are presented below.

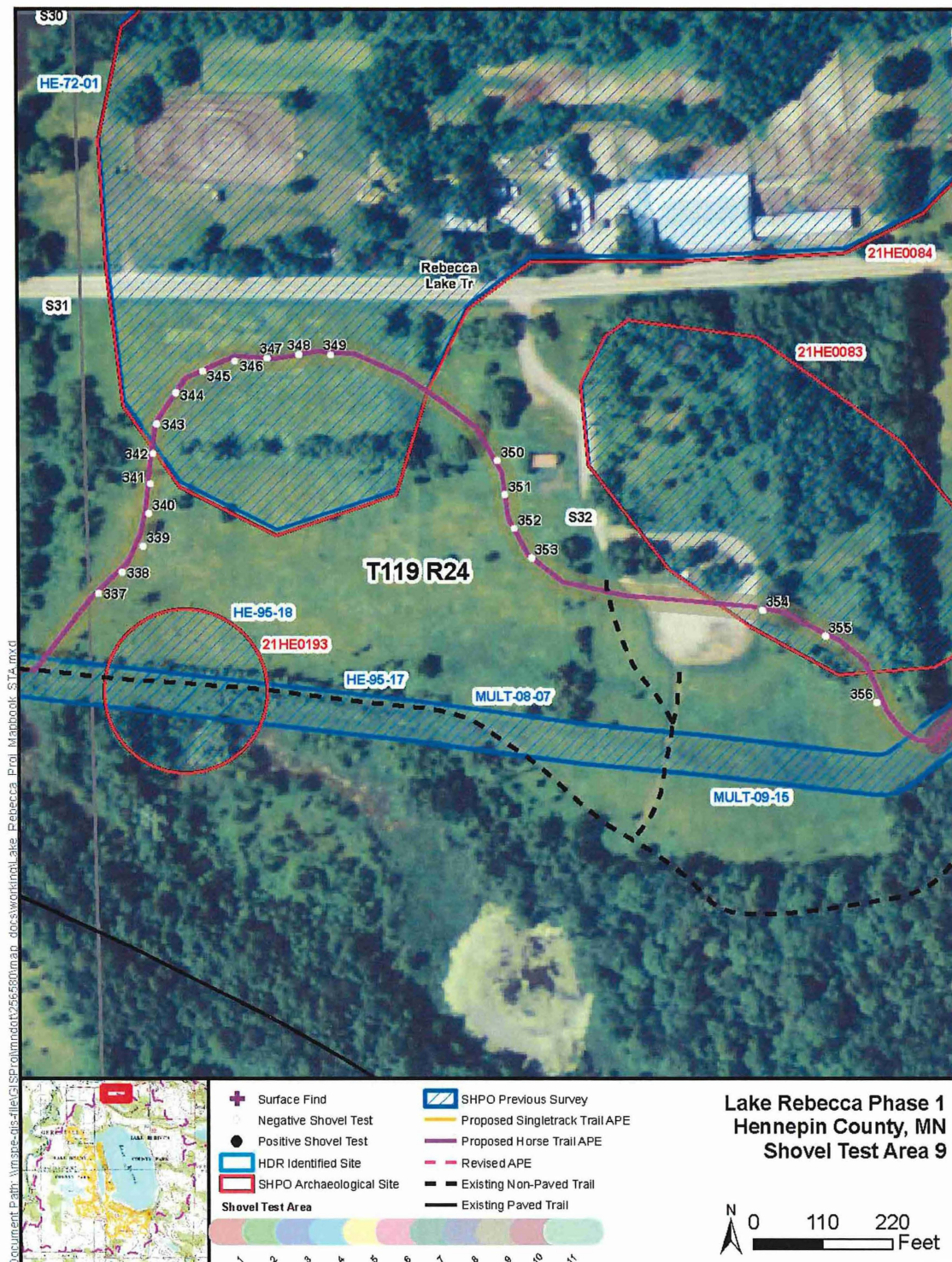


Figure 4-53: Shovel Test Area 9



Figure 4-54: Field conditions in Shovel Test Area 9

Site 21HE0083

Site 21HE0083 is recorded as a mound site in the northwest quarter of Section 32, Township 119N, Range 24W (Figure 4-53). Vegetation at the site is a grassland and woodland mix. Ground surface visibility was less than 25 percent at the time of survey (Figure 4-55).

The site was originally recorded by Lewis in 1881 and reported on by Winchell (1911) as two elongated mounds. The mounds could not be located during a 1972 cultural resources investigation of the area (Chamberlain 1972). Historic aerial photographs show the portion of the site transected by the APE as woodland (Figures 3-14 to 3-16). No surface features were identified at the site within the vicinity of the APE during the Phase I investigation.

Three shovel tests (STs 354-356) were excavated at and adjacent to the site to identify cultural material within the APE and to assess the soil integrity in that portion of the site. No cultural material was identified during subsurface testing. Shovel testing at the site revealed a disturbed soil profile to approximately 30 cm below surface, indicating that the area was agriculturally tilled at some point.



Figure 4-55: 21HE0083 site overview, view to the south

Site 21HE0084

Site 21HE0084 is recorded as a mound site located along the south bank of the Crow River in the northwest quarter of Section 31, Township 119N, Range 24W (Figure 4-53). Vegetation at the site is rolling grassland. Ground surface visibility was less than 25 percent at the time of survey (Figure 4-56). The majority of the site is located north of County Highway 50, outside of the APE.

The site was originally recorded by Lewis in the 1880s as a group of 23 mounds. Only one of the 23 mounds was identified during a 1972 cultural resources investigation of the area (Chamberlain 1972). This mound is located north of Highway 50 outside of the APE. Historic aerial photographs show the portion of the site transected by the APE as agricultural field (Figures 3-14 and 3-16). No surface features were identified at the site within the vicinity of the APE during the Phase I investigation.

Eight shovel tests (STs 342-349) were excavated at the site to identify cultural material within the APE and to assess the soil integrity in that portion of the site. No cultural material was identified during subsurface testing. Shovel testing at the site revealed a disturbed soil profile to approximately 30 cm below surface indicative of a plow zone.



Figure 4-56: 21HE0084 site overview, view to the west

4.2.10 Shovel Test Area 10 (T118N, R24W, Section 5; T119N, R24W, Section 32)

Shovel Test Area 10 is located on the north and east side of Lake Rebecca (Figures 4-7, 4-8, 4-10, 4-57, 4-58, and 4-59). Shovel Test Area 10 includes several small horse trail deviations off of existing trails. Topography in the area varies between general wooded uplands to sloping lowlands. Historic aerial photographs show the area as cultivated agricultural field with woodland areas in the south (Figures 3-14, 3-16, and 3-17). The typical field conditions encountered in Shovel Test Area 10 are shown in Figures 4-60 and 4-61.

Approximately 1.8 miles of horse trail improvements are proposed in Shovel Test Area 10; however, only a small portion of this includes new trail contraction. No cultural material was identified along the existing trail in the APE during pedestrian survey. A total of 35 shovel tests were excavated in Shovel Test Area 10. Subsurface testing revealed disturbed plow zone soils to approximately 30 cm below surface throughout most of the area (Table 4-1). Intact soils were identified in the southeast quarter of the southeast quarter of Section 32 and the northeast quarter of Section 5 (Table 4-1). No cultural material was identified in Shovel Test Area 10.

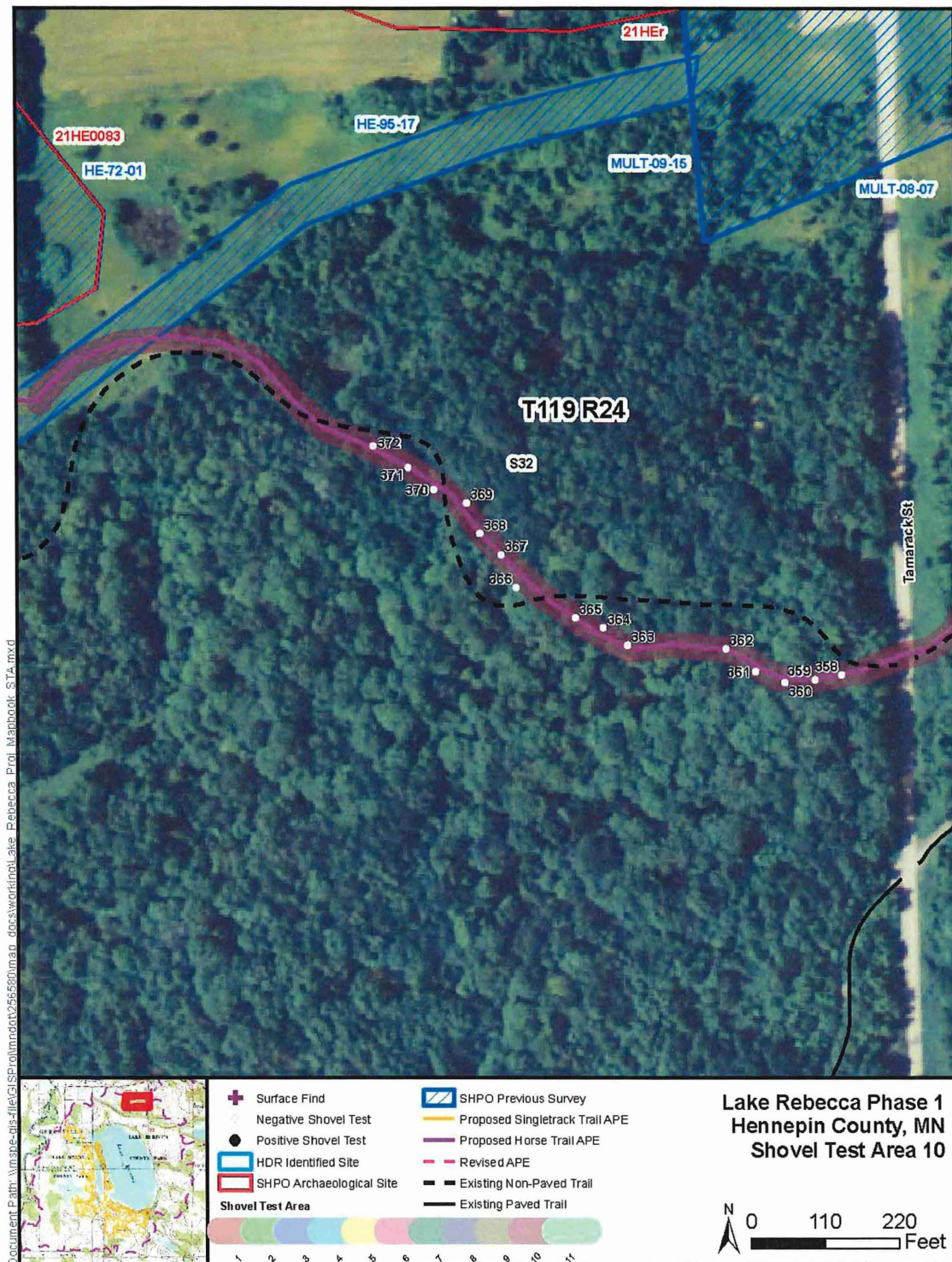


Figure 4-57: Shovel Test Area 10

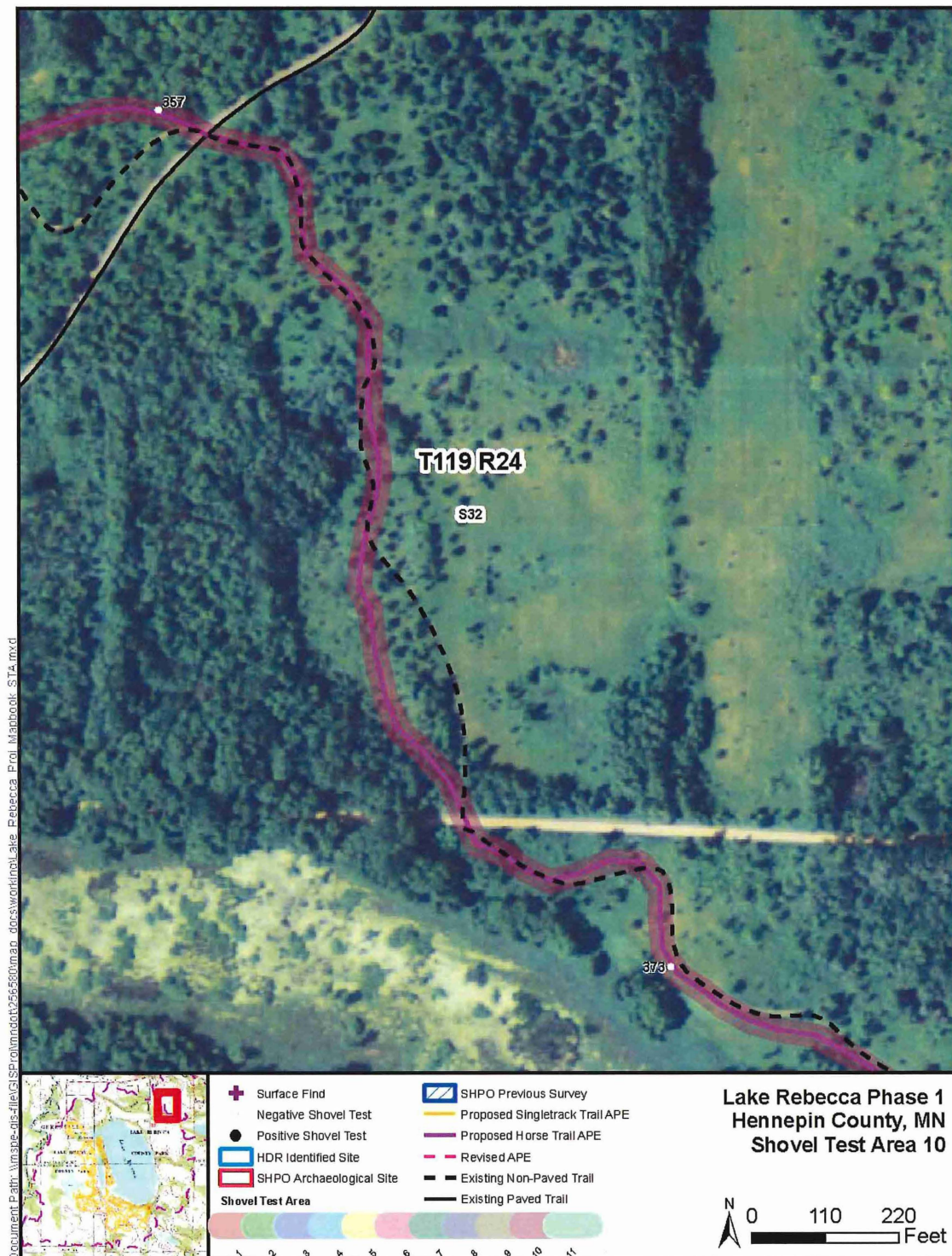


Figure 4-58: Shovel Test Area 10

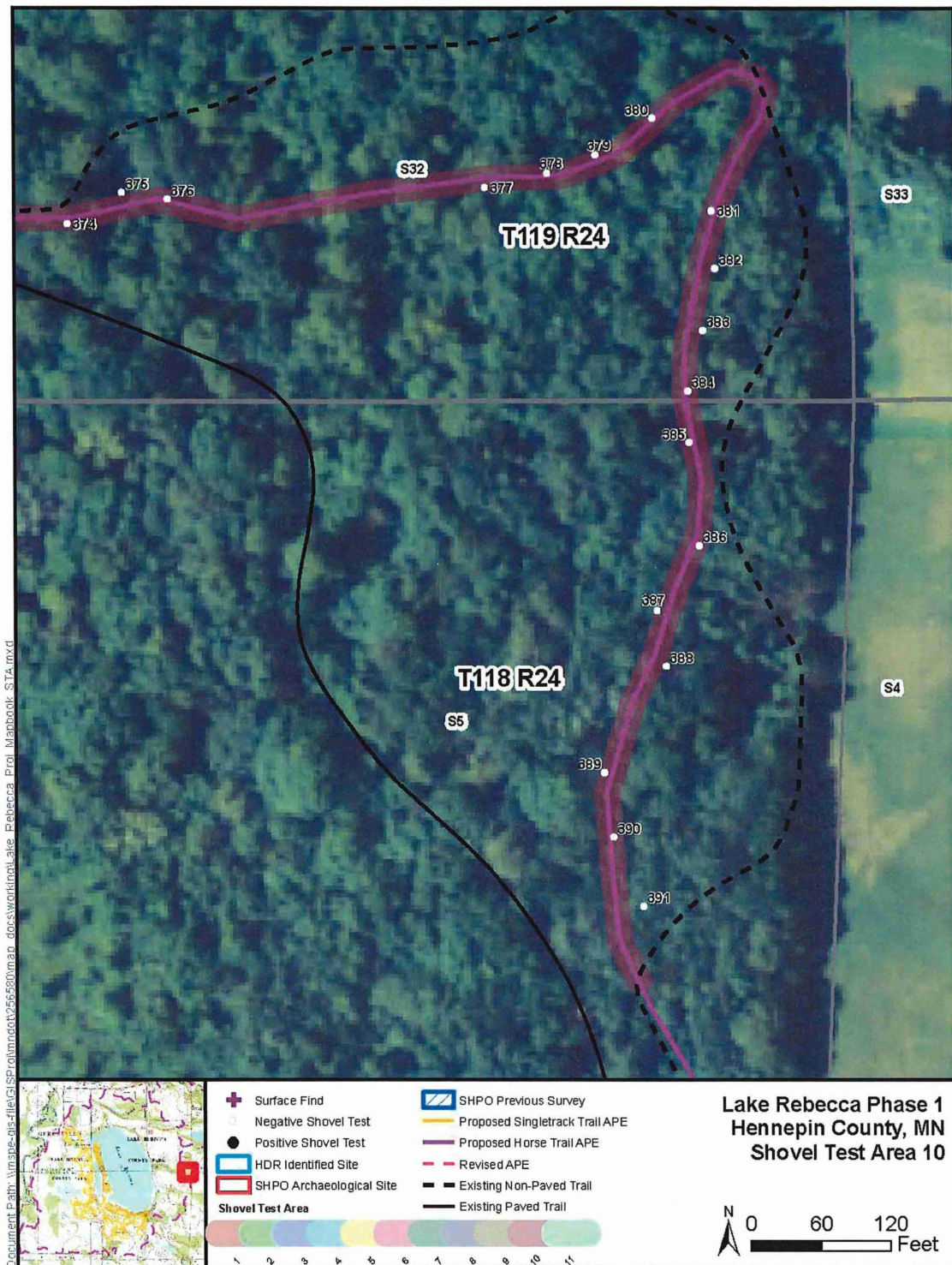


Figure 4-59: Shovel Test Area 10



Figure 4-60: Field conditions in Shovel Test Area 10



Figure 4-61: Field conditions in Shovel Test Area 10

4.2.11 Shovel Test Area 11 (T118N, R24W, Section 5 & 6)

Shovel Test Area 11 is located southwest of Lake Rebecca, in the southwest quarter of Section 5 and the south half of Section 6 (Figures 4-9, 4-10, 4-62, 4-63, and 4-64). Shovel Test Area 11 includes several horse trail deviations off of existing trails. Vegetation in the area is mostly open grassland with some areas of woodland near County Highway 11. Topographically, the area varies between upland ridges and broad lowlands. Historic aerial photographs show the area as mostly cultivated agricultural field with some woodland areas intermix (Figures 3-18 and 3-19). The typical field conditions encountered in Shovel Test Area 11 are shown in Figures 4-65 and 4-66.

Approximately 2.5 miles of horse trail improvements are proposed in Shovel Test Area 11; however, only a small portion of this includes new trail construction. A total of 17 shovel tests were excavated in Shovel Test Area 11. Subsurface testing revealed disturbed plow zone soils to approximately 30 cm below surface throughout the east half of the area (Table 4-1). Intact soils were identified in the woodland areas near County Highway 11 in the west half of the shovel test area. A modern trash dump was identified in the southeast quarter of the southeast quarter Section 6, just north of several residences along County Highway 11. Debris from this dump appears to be modern in age. No other cultural material was identified in Shovel Test Area 11.



Figure 4-62: Shovel Test Area 11

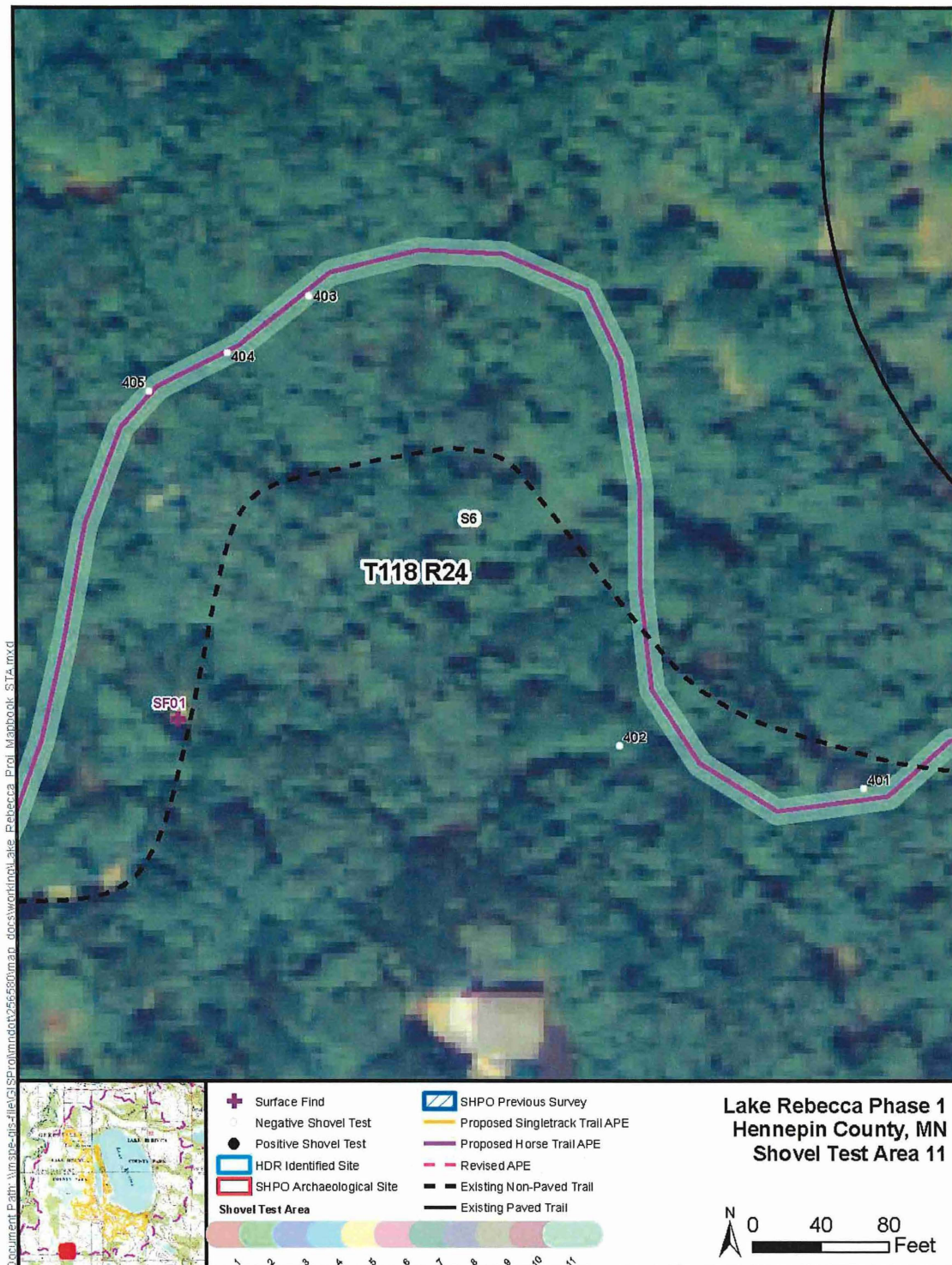


Figure 4-63: Shovel Test Area 11

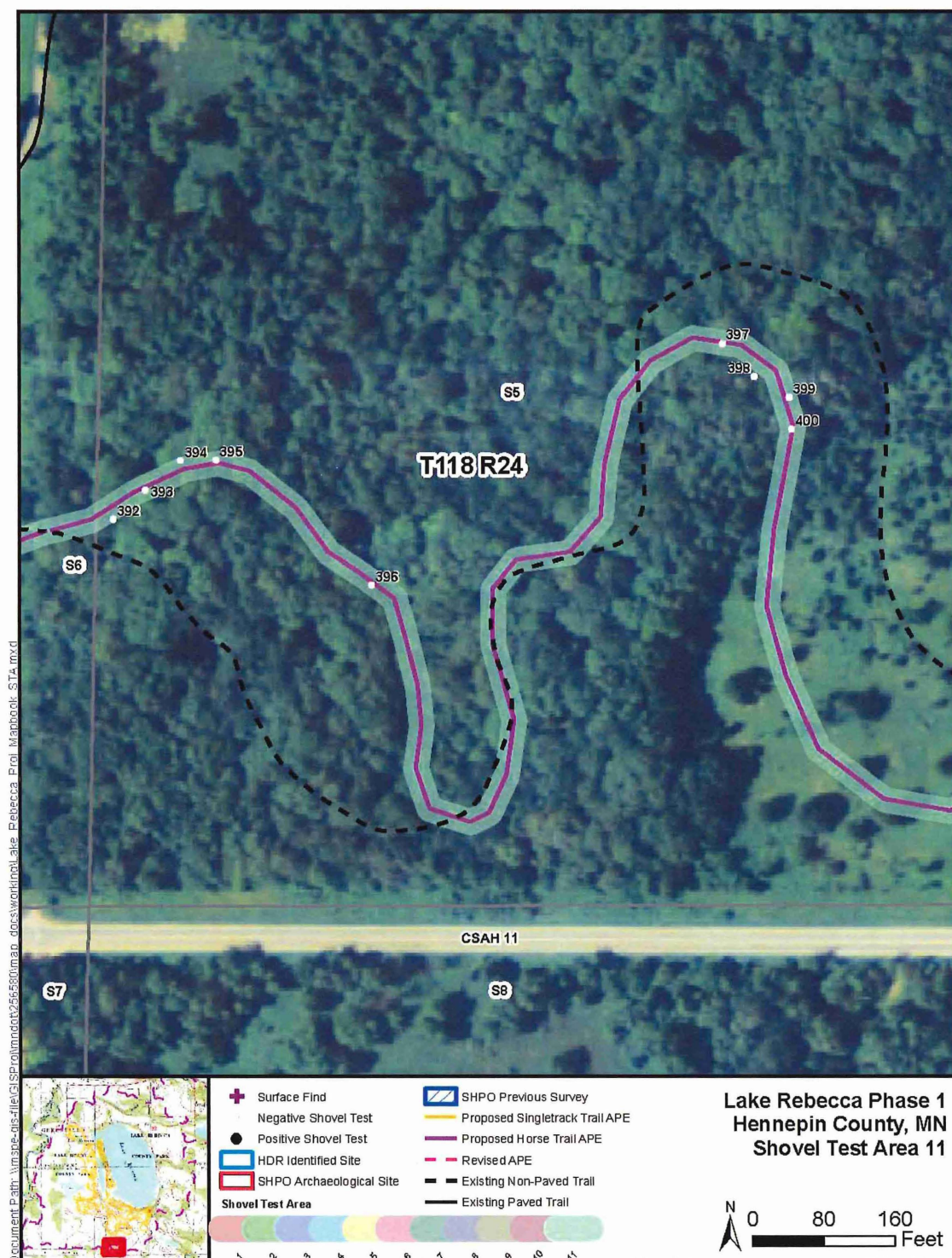


Figure 4-64: Shovel Test Area 11



Figure 4-65: Field conditions in Shovel Test Area 11



Figure 4-66: Field conditions in Shovel Test Area 11

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5 Summary and Recommendations

During the summer of 2015, HDR completed a Phase I Cultural Resources Investigation to support the proposed development of approximately 23 miles of new and rehabilitated unpaved sustainable horse and mountain bike trails in Lake Rebecca Park Reserve. New trails are being added and portions of existing trails may be modified to address erosion problems. The project is being administered by MnDOT as the Federal Highway Administration's agent, as federal funding will be sought by Three Rivers Park District.

HDR completed pedestrian and subsurface testing within the assumed, flagged trail corridor. Shovel tests were conducted in a linear fashion as the APE for the project consists of a 3- to 10-foot-wide corridor. As vast areas of the park had previously been under agricultural use, shovel testing in areas that historic aerial photos showed as under tillage were selectively tested to verify disturbance on those landforms thought to hold the most potential for buried resources. A total of seven new archaeological sites were identified (Table 5-1). All four of the precontact sites (21HE0475, 21HE0477, 21HE0478, and 21HE0479) are represented by sparse lithic scatters or single lithic artifact finds. Close interval shovel testing at the sites did not produce evidence of features or dense artifact concentrations. Because of the sparse and limited nature of the sites, they are recommended as not eligible for the NRHP.

The historic sites (21HE0476, 21HE0480, and 21HE0481) identified by surface survey and subsurface testing can be tied to farmsteads that appear on early aerial photographs that date to the mid-twentieth century. Although two sites contain evidence of pit features (well, circular concrete ring), none of the three sites appear to qualify as significant properties. Given that the historic sites can be tied to historic aerial photographs, are not of great antiquity, and are generally small areas of much larger sites covering many acres, they are not recommended as being eligible for the NRHP. In addition, the proposed trails have narrow corridors that will not cause large-scale disturbance, so any disturbances to the larger site areas caused by the trail construction and use would be minimal.

Table 5-1. Archaeological sites recorded by HDR

HDR Field #	State Site Number	Shovel Test Area	Township	Range	Section	Context	Description	Eligibility Recommendations
002	21HE0475	1	119N	24W	31	Precontact	Lithic scatter	Not eligible
003	21HE0476	2	119N	24W	31	Historic	Artifact scatter	Not eligible
006	21HE0477	7	119N	24W	31	Precontact	Isolated find	Not eligible
008	21HE0478	7	118N	24W	5	Precontact	Lithic scatter	Not eligible
009	21HE0479	8	118N	24W	5	Precontact	Isolated find	Not eligible
010	21HE0480	8	118N	24W	5	Historic	Artifact scatter	Not eligible
012	21HE0481	2	118N	24W	6	Historic	Artifact scatter	Not eligible
			119N	24W	31			

5.1 Previously Recorded Sites within the Area of Potential Effects

As stated in Section 3.3.3 of this report, there are ten previously recorded cultural properties that are intersected by the Project APE. Many of these sites fall along the existing horse trail and were discovered by previous investigators during road and pipeline project reviews. Only those sites that were intersected by a new trail alignment were subjected to subsurface testing. Those that fall along the existing horse trail did not receive additional investigation, as information from Jay Thompson, Three Rivers Park District Project Technician, indicated that in these areas there would be no subsurface disturbance from trail rehabilitation (personal communication 2015). The sites are described below and in Table 5-2.

- **21HE0081** – This precontact mound site was originally recorded by Lewis and reported in Winchell (1911:221). Researchers attempting to identify the site in 1971 could not locate it, and it was deemed destroyed (Chamberlain 1972). It remains on the historical record as being unevaluated. No visible signs of mounds were seen during the present survey.
- **21HE0082** – This site was recorded as a mound group by Lewis in the latter half of the nineteenth century (Winchell 1911). Nearly 100 years later, efforts to find the mounds were unsuccessful and the group was reported as destroyed (Chamberlain 1972). Pipeline work in the vicinity of the site in the twenty-first century recorded scattered artifacts as a separate habitation site (21HE0124) within the boundaries of the mound group, and recommended both sites not eligible for the NRHP (Vermeer et al. 2008).
- **21HE0083** – This site was recorded by Lewis and reported in Winchell (1911:221) as two elongated mounds bisected by a road (most likely County Road 50). The mounds are no longer visible and shovel testing at the site produced negative results. Three shovel tests excavated within and adjacent the recorded site boundary showed a variable soil profile indicating disturbance, and a plow zone at an average depth of 34.6 cm below surface.
- **21HE0084** – This site is a mound group recorded by Lewis and reported in Winchell (1911). No observable evidence of mounds was found within the APE. Shovel testing in the proposed trail corridor produced negative results. Seven shovel tests within the recorded boundary of the site showed disturbed soil profiles with a plow zone at an average depth of 34 cm below surface.
- **21HE0121** – This site was determined eligible by SHPO based on the likelihood that it has intact deposits below the plow zone. The current plans for the trail will not entail disturbance below the ground surface, and no effects are anticipated to the eligible portion of the site at depths below the plow zone.
- **21HE0122** – Multiple investigations at the site found artifacts in disturbed plow zone (Murray and Breakey 1995, Vermeer et al. 2008). The site has been recommended not eligible for the NRHP by previous investigators. HDR considered additional testing at the site unnecessary.
- **21HE0123** – This site was originally defined as a prehistoric artifact scatter in a road cut (Gonsior 1988). Upon revisiting the site researchers for a pipeline project found no evidence of the prehistoric site but recorded a historic farmstead component. The historic site is recorded at the same location as the prehistoric site. Neither component was considered significant (Murray and Breakey 1995).

- **21HE0125** – Two previous investigations (Gonsior 1995 and Vermeer et al. 2008) identified the site a sparse scatter of artifacts within a disturbed context. No diagnostic or datable materials were recovered. Because the site had been documented and recommended as not eligible for the NRHP by two previous investigators, and because trail construction in this vicinity will use existing unimproved trail, HDR conducted no additional testing.
- **21HE0193** – This site was found during testing ahead of pipeline by the Institute for Minnesota Archaeology (IMA). The site was recorded as a thin deposit entirely within the plow zone (Murray and Breakey 1995). Because of loss of integrity, the site was considered not significant, and therefore not eligible for NRHP, by the IMA. The IMA tested within the vicinity of the current horse trail and recorded negative findings in the immediate vicinity. Since the trail is not deviating from the existing path, HDR determined there was no need for additional consideration of the site.

Table 5-2. Previously recorded cultural resources intersected by the Project

Site #	Context	Description	Eligibility/Effects Recommendations
21HE0081	Precontact	Mounds	Unevaluated, no longer extant. Recommend not eligible by others
21HE0082	Precontact	Mounds	Recommended not eligible by others
21HE0083	Precontact	Mounds	Unevaluated, no longer extant. Recommend not eligible
21HE0084	Precontact	Mounds	No artifacts found. Site south of CR 50 not extant. Recommend Not Eligible
21HE0121	Precontact	Lithic Scatter	Eligible portion below APE
21HE0122	Precontact	Lithic scatter	Recommended not eligible by others
21HE0123	Multicomponent precontact and historic	Artifact scatter	Recommended not eligible by others
21HE0124	Precontact	Lithic scatter	Recommended not eligible by others
21HE0125	Precontact	Sparse artifact scatter	Recommended not eligible by others
21HE0382	Precontact	Lithic	Recommended not significant (eligible) by others

HDR recommends that a no historic properties finding be made for the purposes of Section 106 compliance for the proposed trail construction project.

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Appendix A. Observed Cultural Material

Surface Feature/ Shovel Test Number	Depth (cmbs)	Identified Materials
21HE0475		
ST 46	10–15	1 tertiary flake of Prairie Du Chien Chert
ST 46c	15–20	1 tertiary flake of Prairie Du Chien Chert
21HE0476		
SF 01	Surface	1 white enamelware bowl with red lip (not collected)
SF 02	Surface	10 by 20 foot artifact filled depression: <ul style="list-style-type: none"> • Clear, brown, and green glass bottle fragments, galvanized metal buckets, cinder block, leather shoe soles, 1 aluminum lemonade can, 1 Owen-Illinois Glass Company clear glass bottle base, 1 Goldmetal Beverage Company green glass bottle (not collected)
SF 03	Surface	10 by 15 foot artifact scatter <ul style="list-style-type: none"> • 1 50 gal. metal drum barrel, 2 concrete slab blocks, 1 clear glass bottle base, 8 cinder block fragments (not collected)
SF 04	Surface	1 galvanized buried metal pipe (not collected)
SF 05	Surface	15 by 20 foot artifact scatter <ul style="list-style-type: none"> • 1 plain tooth-straight back crosscut saw, 1 cinder block cobble, 1 galvanized steel fence post (not collected)
SF 06	Surface	15 by 5 foot artifact scatter <ul style="list-style-type: none"> • Metal cans, clear glass bottle fragments, whiteware plates, stoneware bowls, unidentified ferrous metal objects, 2 transfer print whiteware bowls, 1 plastic high-heel shoe sole (not collected)
ST 68	10–25	1 brick mortar fragment (not collected)
21HE0477		
ST 175	19–33	1 tertiary flake of unidentified till chert
21HE0478		
ST 262	0–20	1 tertiary flake of unidentified till chert
ST 266	32–40	1 tertiary flake of Red River Chert
ST 411	20–40	1 tertiary flake of Swan River Chert
21HE0479		
ST 311	0–25	1 tertiary flake of unidentified till chert
21HE0480		
SF 01	Surface	3 foot, 9 inch interior diameter concrete ring
SF 02	Surface	Artifact scatter: <ul style="list-style-type: none"> • Cream and red brick fragments, brick mortar fragments, whiteware sherds, clear windowpane glass, black rubber piping (not collected)
SF 03	Surface	Artifact Scatter: <ul style="list-style-type: none"> • Clear glass fragments, concrete block fragments (not collected)
ST 329	0–40	5 wire nails, 1 metal screw, 1 mortar fragment, 1 plastic fragment, 3 concrete fragments (not collected)
ST 330	0–34	2 wire nails, 2 mortar fragments (not collected)
ST 331	0–12	1 glass fragment (not collected)

Surface Feature/ Shovel Test Number	Depth (cmbs)	Identified Materials
21HE0481		
SF 01	Surface	Ruins of former concrete well
SF 02	Surface	5 by 5 foot artifact scatter <ul style="list-style-type: none"> • 1 polished granite block, 1 cinder block, 1 white ceramic insulator, 1 clear glass bottle fragment (not collected)
21HE0123		
SF 01	Surface	2 by 2 foot artifact scatter <ul style="list-style-type: none"> • 1 whiteware sherd, 1 piece of unidentified ferrous metal (not collected)

Appendix B. 2015 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

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Appendix C. Artifact Catalog

Site Number	Catalog Number	Count	Box#	Materials	Object Name	Descriptor Type	Measurement	Measure Unit	Dimension	Collection Method	Horizontal Unit#	Vertical Method	Vertical Start Depth (cm)	Vertical End Depth (cm)	Vertical Ref. Pt	Screen Size	Diagnostic/ Non-diagnostic	Historic Context	Recovery Date	Landowner	Vertical Measurement Unit	Color1	Color 2
21HE0475	2015.116.1.1	1	1-AY	Prairie du Chien chert	tertiary flake	Local	0.2	grams	weight	Shovel test	46	none	10	15	ground surface	1/4 inch	Non-diagnostic	Pre-Contact period	6/16/2015	Three Rivers Park District	centimeters	colorless	white (color)
21HE0475	2015.116.2.1	1	1-AY	Prairie du Chien chert	tertiary flake	Local	0.2	grams	weight	Shovel test	46c	none	15	20	ground surface	1/4 inch	Non-diagnostic	Pre-Contact period	6/17/2015	Three Rivers Parks District	centimeters	white (color)	pink (color)
21HE0477	2015.117.1.1	1	1-AY	chert	tertiary flake	Local	1.8	grams	weight	Shovel test	175	none	19	33	ground surface	1/4 inch	Non-diagnostic	Pre-Contact Period	7/30/2015	Three Rivers Park District	centimeters	brown	white (color)
21HE0478	2015.118.1.1	1	1-AY	chert	tertiary flake	Local	0.2	grams	weight	Shovel test	262	none	0	20	ground surface	1/4 inch	Non-diagnostic	Pre-Contact period	7/7/2015	Three Rivers Park District	centimeters	buff (indeterminate color)	
21HE0478	2015.118.2.1	1	1-AY	Red River chert	tertiary flake	Local	0.8	grams	weight	Shovel test	266	none	32	40	ground surface	1/4 inch	Non-diagnostic	Pre-Contact period	7/7/2015	Three Rivers Park District	centimeters	white (color)	
21HE0478	2015.118.3.1	1	1-AY	Swan River chert	tertiary flake	Local	1.1	grams	weight	Shovel test	411	none	20	40	ground surface	1/4 inch	Non-diagnostic	Pre-Contact period	7/23/2015	Three Rivers Park District	centimeters		
21HE0479	2015.119.1.1	1	1-AY	chert	tertiary flake	Local	0.2	grams	weight	Shovel test	311	none	0	25	ground surface	1/4 inch	Non-diagnostic	Pre-Contact period	7/13/2015	Three Rivers Parks District	centimeters	buff (indeterminate color)	

