NONPUBLIC DOCUMENT - NOT FOR PUBLIC DISCLOSURE SCHEDULE 3

Please mail the completed form and required material to:

ENReviewSHPO@state.mn.us

DEPARTMENT OF ADMINISTRATION

Request for Project Review by the State Historic Preservation Office (SHPO)

○ This is a new submittal

◉ This is additional information relating to SHPO Project #: 2024-0836 **DATE:** 8/1/2024

I. GENERAL PROJECT INFORMATION

Project Title: Iron Pine Solar Project

Project Address (or Location): south of Willow River

City / Township (circle one): Kettle River Zip: 55757 County: Pine

Legal Description: Township 44N Range 20W E/W (circle one) Section 14, 15, 22, 23, - Quarter-section _____

II. PROJECT CONTACT INFORMATION

Project Contact Name: Joey Shannon Title: _____

Company/Agency: Iron Pine Solar Power, LLC

Street Address: 89 Main Street Phone Number: (832) 985-3288

City: Yarmouth State: ME Zip: 04096 Email: _____

III. FEDERAL AND/OR STATE INVOLVEMENT

Federal Agency (if applicable): _____
(Agency providing funds, licenses, or permits)
Permit or Project Reference #: _____

State Agency (if applicable): Minnesota Public Utilities Commision
(Agency providing funds, licenses, or permits)
Permit or Project Reference #: IP-7114/CN-23-416, IP-7114/TL-23-415, IP-7114/GS-23- 414

Local Agency (if applicable): _____

(Continued on Reverse Side)

Please refer to *Instructions for Completing the Request for Project Review* form on our website. Submit one *Request for Project Review* form for each project. For questions regarding the SHPO review process, please visit our website or contact Kelly Gragg-Johnson (651-201-3285) or Leslie Coburn (651-201-3286) or by email at ENReviewSHPO@state.mn.us.

IV. PROJECT DESCRIPTION AND BOUNDARIES

A) REQUIRED FOR ALL PROJECTS

☑ Write a detailed description of the proposed project. (See attached.)

☑ Attach a map of project location, with project area(s) clearly marked. Road names must be included and legible.

B) Architecture

Are there any buildings or structures within the project area? ○ Yes ◉ No

If **No**, continue to the Archaeology section below. If **Yes**, submit all of the following information:

☐ List all buildings and structures within the project area and the year they were built. (See attached.)

☐ Photographs of ***each*** building and structure located within the project area, along with a photo key. Include streetscape images, if applicable. All photographs must be clear, crisp, focused, and taken at ground level. Aerial photos are insufficient.

☐ List known historic buildings or structures located within the project area (i.e., individual properties or districts which are listed in the National Register or which meet the criteria for listing in the National Register). (See attached.)

C) Archaeology

Does the proposed undertaking involve ground-disturbing activity? ◉ Yes ○ No

If **No**, this form is complete. If **Yes**, submit all of the following information:

☑ Attach the relevant portion of a 1:24000-scale USGS topographic map (photocopied or computer generated) ***with the project boundary marked***.

☑ Description of current and previous land use and disturbances: (See attached.)

☑ Any available information concerning known or suspected archaeological resources within the project area. (See attached.)

SWIFT CURRENT

September 10, 2024

Kelly Gragg-Johnson
Environmental Review Program Specialist
State Historic Preservation Office
Administration Building #203
50 Sherburne Avenue
St. Paul, MN 55155

Reference: Iron Pine Solar Power, LLC - Iron Pine Solar Project, Pine County, Minnesota
MPUC Docket Nos. IP-7114/CN-23-416, IP-7114/TL-23-415, IP-7114/GS-23- 414
Request for Project Review

Dear Kelly Gragg-Johnson,

Iron Pine Solar Power, LLC (Iron Pine Solar), is proposing to construct and operate an up to 325 megawatt ("MW") photovoltaic ("PV") solar energy generating system and a 230 kilovolt ("kV") high voltage transmission line and associated facilities in Pine County, Minnesota (the "Project"). The Project will consist of an approximately 2,288-acre solar facility and a 230 kV high voltage transmission line approximately 5,275 feet in length located in Kettle River Township in Pine County. As proposed, the transmission line will start at the solar energy generating system's collector substation and extend to Minnesota Power's Arrowhead-Bear Creek 230 kV transmission line.

The Project is located in Sections 14, 15, 22, 23, 24, 25, 26, and 27 of Township 44 North, Range 20 West, in Kettle River Township, Pine County, Minnesota. The current land cover consists of cultivated croplands, wood lots, emergent herbaceous wetlands, and rural residential development.

This energy generation facility meets the Minnesota Public Utilities Commission (MPUC) definition of a large electric power generating plant and a high voltage transmission line (HVTL). Iron Pine Solar must obtain approvals from the MPUC to construct the proposed Project: (1) a Certificate of Need for the transmission line; (2) a Site Permit for the solar facility; and (3) a Route Permit for the transmission line.

Stantec Consulting Services Inc. (Stantec) conducted a Phase I archaeological survey for Iron Pine Solar in preparation for MPUC Site and Route Permit applications. The Survey Area consisted of areas with a moderate to high potential for archaeological resources, encompassing 245 acres. The archaeological survey followed federal and state guidelines for conducting cultural resources investigations, including the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation [48 Federal Register 44716-44740] (National Park Service [NPS] 1983), Minnesota State Historic Preservation Office (MnSHPO) Manual for Archaeological Projects in Minnesota (Anfinson 2005), and Guidelines for History/Architecture Projects in Minnesota (MnSHPO 2005).

[NON PUBLIC DATA BEGINS HERE...]

As a result of this Phase I archaeological survey, Stantec identified one new archaeological site (21PN0113). Site 21PN0113 consists of one isolated projectile point base. Due to prolonged impacts from seasonal agricultural operations, the original vertical and horizontal provenance of the point base is unknown therefore the research potential of Site 21PN0113has been exhausted. Stantec recommends Site 21PN0113 as Not Eligible for listing in the National Register of Historic Places (NRHP) and no further work is recommended. The archaeological field investigations did not identify any cultural resources potentially eligible for inclusion in the NRHP within the Survey Area. As a result, Stantec recommends a finding of No Historic Properties Affected for the proposed Project. Iron Pine Solar is requesting your review of the Phase I archaeological survey in the attached report *Phase I Archaeological Survey for the*

[...NON PUBLIC DATA ENDS HERE]

Iron Pine Solar Project, Pine County, Minnesota, along with the associated Unanticipated Discovery Plan in Appendix E. Your attention to this request is appreciated. If you have questions, feel free to contact me at (832) 985-3288 or by email at jshannon@swiftcurrentenergy.com. or contact Angela Julin, Stantec's environmental consultant for this Project, at (612) 756-4977, or email at angela.julin@stantec.com.

Sincerely,

Joey Shannon
Iron Pine Solar Power, LLC

Enc. *Phase I Archaeological Survey for the Iron Pine Solar Project, Pine County, Minnesota*

Stantec

AN ARCHAEOLOGICAL RECONNAISSANCE SURVEY OF THE IRON PINE SOLAR PROJECT PINE COUNTY, MINNESOTA

August 1, 2024

Prepared for:
Iron Pine Solar Power, LLC
89 Main Street
Yarmouth, ME 04096

Prepared by:
Joshua Jensen, M.Sc, RPA
Rikka Bakken

Principal Investigator:
Angela Julin, MA, RPA

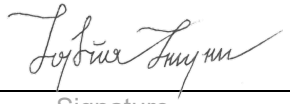
Stantec Consulting Services, Inc.
One Carlson Parkway North Suite 100
Plymouth, MN 55447-4440

Project Number:
193708962

The conclusions in the Report titled An Archaeological Reconnaissance Survey of the Iron Pine Solar Project, Pine County, Minnesota are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from Iron Pine Solar Power, LLC (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

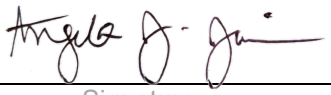
This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided by the Client to applicable authorities having jurisdiction and to other third parties in connection with the project, Stantec disclaims any legal duty based upon warranty, reliance or any other theory to any third party, and will not be liable to such third party for any damages or losses of any kind that may result.

Prepared by: 

Signature

Joshua Jensen, M.Sc, RPA Archaeologist

Printed Name

Reviewed by: 

Signature

Angela Julin, MA, RPA Senior Archaeologist

Printed Name

Approved by: 

Signature

Jennifer Kamm, Associate Project Manager

Printed Name

Executive Summary

On behalf of Iron Pine Solar Power, LLC (Iron Pine), Stantec Consulting Services Inc. (Stantec) completed a Phase I archaeological survey for approximately 245 acres associated with the Iron Pine Solar Project (Project) in Pine County, Minnesota. The Project involves the construction and operation of a photovoltaic electricity-generating facility and associated infrastructure on approximately 2,288 acres of land for a total of 325 megawatts alternating current. The associated facilities include a Project substation, a short generator tie in line to connect the solar facility to the Project substation, access roads, underground electrical collection system, and potentially an operations and maintenance building. This energy generation facility meets the Minnesota Public Utilities Commission (MPUC) definition of a large electric power generating plant and a high voltage transmission line, thereby necessitating MPUC permitting. The current land cover consists of cultivated croplands, wood lots, emergent herbaceous wetlands, and rural residential development. The Project is located south of Willow River in Kettle River Township, Pine County, Minnesota.

At this time, the Project is subject to a state-level review due to requirements of the MPUC as part of the Site and Route Permit Application process as required under the Power Plant Siting Act (Minnesota Statutes Chapter 216E). The Phase I archaeological survey followed federal and state guidelines for conducting cultural resources investigations, including the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation [48 Federal Register 44716-44740] (National Park Service [NPS] 1983), Minnesota State Historic Preservation Office (SHPO) Manual for Archaeological Projects in Minnesota (Anfinson 2005), and Guidelines for History/Architecture Projects in Minnesota (SHPO 2005).

[NON PUBLIC DATA BEGINS HERE...]

Stantec archaeologists conducted the Phase I archaeological survey on October 16 to 20 and November 6 to 10, 2023, and May 1 to 3, 2024. Due to the large size of the Project, and through consultation with the SHPO (2024-0836), only areas with medium to high potential for cultural resources within the Project Area were surveyed (see Appendix C). One new archaeological site, 21PN0113 (Field Site IP-8), was identified as a result of the field survey. Due to prolonged impacts from seasonal agricultural operations, the original vertical and horizontal provenance of the isolate is unknown therefore the research potential of 21PN0113 has been exhausted. Stantec recommends 21PN0113 as Not Eligible for listing in the NRHP and no further work is recommended.

[...NON PUBLIC DATA ENDS HERE]

Archaeological field investigations did not identify any cultural resources potentially eligible for inclusion in the National Register of Historic Places (NRHP) within the Survey Area. Based on the results of the investigations, Stantec concludes that there are no properties listed in the National or State Registers of Historic Places and no known or suspected archaeological properties in the area that will be affected by the proposed Project. An Unanticipated Discovery Plan will be implemented during construction of the project to address the unlikely event that resources are encountered.

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Acronyms / Abbreviations

BLM	Bureau of Land Management
EPA	Environmental Protection Agency
GIS	Geographic Information System
GSV	Ground surface visibility
Iron Pine	Iron Pine Solar Power, LLC
MnSHIP	Minnesota Statewide Historic Inventory Portal
MPUC	Minnesota Public Utilities Commission
NETR	Nationwide Environmental Title Research, LLC
NHPA	National Historic Preservation Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NPS	National Park Service
OSA	Minnesota Office of the State Archaeologist
Project	Iron Pine Solar Project
PN	Provenience Numbers
SHPO	State Historic Preservation Office
Stantec	Stantec Consulting Services, Inc.
Study Area	Project Area plus a 1-mile buffer
USGS	United States Geological Survey

1 Introduction

On behalf of Iron Pine Solar Power, LLC (Iron Pine), Stantec Consulting Services Inc. (Stantec) conducted a Phase I archaeological survey in support of the proposed Iron Pine Solar Project (Project) in Pine County, Minnesota. The proposed Project involves the construction and operation of a photovoltaic electricity-generating facility and associated infrastructure on approximately 2,288 acres of land for a total of 325 megawatts alternating current. The associated facilities include a Project collector substation, switchyard, a short generator tie in line to connect the solar facility to the switchyard, access roads, underground electrical collection system, and an operations and maintenance building. This energy generation facility meets the definition of the Minnesota Public Utilities Commission (MPUC) large electric power generating plant and a high voltage transmission line, thereby necessitating MPUC permitting. The Project Area is located in Sections 14, 15, 22, 23, 25, 26, and 27 of Township 44 North Range 20 West in Kettle River Township, Minnesota (see Figure 1 in Appendix A).

The Project Area is roughly delimited by County Highway 61 to the west, U.S. Interstate Highway 35 to the east, Swanson Road to the south, and Gravel Road/Countryside Loop to the north. A small part of the Project Area also extends from the east side of U.S. Interstate Highway 35 to County Road 152, north of Swanson Road and south of an unnamed creek in Section 25 of Township 44 North, Range 20 West. The Project boundary generally follows private property lines, section lines, and roads.

Angela Julin served as the Principal Investigator for the Project. Angela Julin meets the Secretary of the Interior's Professional Qualification Standards for Archaeology, as defined in 36 Code of Federal Regulations (CFR) Section 61. Stantec applied industry best practices and adhered to the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation [48 Federal Register 44716-44740] (National Park Service [NPS] 1983), Minnesota State Historic Preservation Office (SHPO) Manual for Archaeological Projects in Minnesota (Anfinson 2005), and Guidelines for History/Architecture Projects in Minnesota (SHPO 2005).

2 Physical and Environmental Context

The Project Area comprises approximately 2,288 acres in Pine County, Minnesota and is situated on a flat to gently rolling plateau. The Project Area is located within the Environmental Protection Agency (EPA) Minnesota/Wisconsin Upland Till Plain Level 4 Ecoregion of the of the Northern Lakes and Forests Level 3 Ecoregion (EPA 2023). Landcover within the Project Area is primarily rural with industrial row-crop agricultural fields, and wooded areas in the northeast, southeast, and southwest.

2.1 Topography and Hydrology

The Northern Lakes and Forest Level 3 Ecoregion consists of a mix of drumlins and peatlands which extend across part of east central Minnesota and northeast and south of Lake Mille Lacs. Till plains, sand plains, and moraines are prominent throughout the rest of the region (EPA 2023). A sharp change in elevation

(approximately 60m) occurs along a relatively straight line running from the northeast to the southwest of the region and may be associated with the Midcontinent Rift. The Project Area is characteristic of the undulating or gently rolling plains found in Pine County (Simmons et al. 1941). The Project Area contains multiple small areas of wetland and is drained by tributaries of the Kettle River, located just west of the Project Area. The Kettle River drains into the St Croix River which subsequently drains into the Mississippi River.

2.2 Geology

The Project Area is composed of Hinckley Sandstone, Fond du Lac and Solar Church Formation bedrock geology units of the Keweenawan Supergroup, and Midcontinent Rift Intrusive Supersuite. These groups are made up of Mesoproterozoic age sandstone, siltstone, and local conglomerate (Jirsa et al. 2011). The depth to bedrock throughout the site ranges between 100 to 200 feet below ground surface (Olsen and Mossler 1982).

2.3 Soils and Geomorphology

The soils in the Project Area range from very poorly drained to excessively drained. Table 1 presents the soil types found within the Project Area (Natural Resources Conservation Service [NRCS] 2023). The vast majority (99 percent) of the soils in the Project Area do not have data listed on the online Web Soil Survey (NRCS 2023). Soils along the outside edge of the Project Area consist of a mix of well drained sands in the higher areas and peat soils in the lower areas.

Table 1. Soils within the Project Area.

Map Unit Name	Landform	Percent of Project Area
Denied Access	N/A	94.2
No Digital Data Available	N/A	4.8
Grayling Sand, 0-3% slopes	Flats on outwash plains, rises on outwash plains	1.0

2.4 Natural Resources

Prior to Euro-American settlement, vegetation within the Project Area consisted of a mixture of conifer bogs and swamps, aspen and birch, and mixed white and red pine (EPA 2023). Well established drainage networks are present within the Project Area and would have supported a variety of fauna including bison, elk, and deer, as well as smaller mammals, fish, and migratory waterfowl, among others (Minnesota Office of the State Archaeologist [OSA] 2024a). Natural vegetation is a mosaic of conifer bogs and swamps, aspen and birch, mixed white and red pine, hardwoods, and jack pine barrens. In 2013, the Northern Lakes and Forest Level 3 Ecoregion was recorded as being 40 percent deciduous forest, 40 percent wetland and 8 percent open water (EPA 2023).

3 Cultural Context

This section presents a general outline of precontact Native American and Historic period cultural development in Minnesota and the Midwest as well as Pine County. Limited archaeological work has been conducted in Pine County, and few written records exist documenting the area's prehistory. Archaeological research in East Central Minnesota (Central Lakes Coniferous Archaeological Region [5s]) has largely been focused along major rivers and their tributaries. This section provides an interpretive framework for evaluating both Native American and Historic period archaeological resources that could be present within the Project Area. Cultural contexts, as defined by the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (NPS 1983), provide the historic, social, and environmental background required to evaluate archaeological resources within the Project Area.

3.1 Precontact Period

Minnesota's prehistory is divided into four main periods: Paleoindian, Archaic, Woodland, and Late Prehistoric. These periods are based on changes in material culture, subsistence systems, and settlement systems.

3.1.1 PRE-CLOVIS (PRE-12,000 BC)

The discovery of a fluted point in the ribs of an extinct species of bison in 1927 at Folsom, New Mexico, proved that ancient North Americans had immigrated to the New World during the Pleistocene epoch. It did not, however, establish the precise timing of the arrival of humans in the Americas, nor did it adequately resolve questions about the lifestyle of those societies (Meltzer 1988). Both the stratigraphic record and the radiocarbon assays from several sites, including the more recently excavated Cactus Hill site in Sussex County, Virginia, have yielded radiocarbon dates of 15,000 years ago from strata below levels containing fluted points (McAvoy and McAvoy 1997). The dating of footprints found in White Sands National Park (New Mexico) suggest possible dates as early as 23,000 to 21,000 years ago (Bennet et al. 2021) Most evidence for Pre-Clovis sites in the Americas is from coastal regions or offshore finds. There is little indisputable evidence for this occupation in Minnesota or the Midwest in general.

3.1.2 PALEOINDIAN PERIOD (12,00 – 7,500 BC)

The Paleoindian period reflects a pattern of cultural adaptation based on environmental conditions that marked the shift from the Late Pleistocene to the Early Holocene epoch. The climate was considerably wetter and colder than the present and hosted many large species of megafauna such as mammoths, caribou, and extinct species of bison (Schermer et al. 1995). In the Midwest, the period is characterized by glacial retreat and draining of glacial lakes. Native American groups entered what is now Minnesota at least 12,000 years ago. These early inhabitants, along with those that settled elsewhere in North America, were nomadic hunters. As nomadic hunters, they followed migrating animal herds into the region as the glaciers of the last Ice Age retreated.

A shared set of lithic tools found at sites throughout North America characterizes this period. The earliest identified culture, the Clovis complex, includes distinctive fluted projectile points of the same name. Clovis points have been found throughout North America and as far north as Nova Scotia. These large spear

points have been found in direct association with the butchered bones of mammoths and extinct bison. Following the Clovis complex was the Folsom complex, which appears to have developed from the earlier Clovis complex. Other lithic tool types associated with the Paleoindian period are bifaces, blades, prepared blade cores, end scrapers, side scrapers, and gravers/perforators (J. Morrow 1996).

Traditional characterizations suggest that Paleoindian settlements consisted of small hunting camps associated with sources of high-quality lithic raw materials. Paleoindian groups consisted of hunters and collectors with a subsistence system based on hunting of wild animals and gathering of plants; no evidence for plant cultivation and/or animal husbandry exists in the archaeological record for this period. Paleoindian groups ranged across large hunting territories, following the seasons and availability of plants and animals. Radiocarbon analysis of organic materials from Clovis sites indicates that they generally date from between 9500 BC and 8500 BC (Hofman and Graham 1998).

The warming climate at the end of the Pleistocene and beginning of the Holocene drove most large mammals to extinction. The Dalton projectile point, the characteristic projectile point of the Dalton phase, began to replace the Clovis point throughout the Midwestern United States. Early dates for the Dalton phase are typically reported between 8000 BC and 8500 BC (Justice 2009) with end dates at 7900 BC (O'Brien and Wood 1998). Excavations from Dalton sites show that the subsistence system included more animal species than did that of Clovis groups. These species included forest, forest-edge, and streamside fauna such as deer, elk, turkey, coyote, eastern cottontail, raccoon, squirrel, plains pocket gopher, beaver, woodchuck, eastern wood rat, muskrat, trumpeter swan, crow, turtles, snakes, and fish (O'Brien and Wood 1998).

3.1.3 ARCHAIC PERIOD (7,500 – 500 BC)

The Archaic period in Minnesota corresponds to the warming post-glacial environment of the region. Megafauna such as mammoths, horses, and camels become extinct, and the flora and fauna of this period begin to resemble the environment of today (Benchley et al. 1997). The large spearpoints of the Paleoindian period were eventually replaced by smaller dart points with stems and notches that were used with atlatls to hunt game. Other new types of artifacts, such as ground and pecked stone tools, grooved axes, and atlatl weights, also begin to appear in the artifact assemblages from this period. Atlatl weights were attached to throwing sticks to allow for better balance and increased throwing distance (T. Morrow 1996).

Early and Middle Archaic sites are rare in the upper Midwest, and it appears that population levels stayed much the same as during the preceding Paleoindian period (Mason 2002). What little information is available is known through lithic types. Most information comes from surface and private collections with only a handful of excavations completed primarily in the northern portion of the state. The changing position of biomes and emerging continental drainage systems (Missouri, Mississippi, Hudson's Bay) make research of this period difficult (Benchley et al. 1997).

The environment of the Late Archaic period included a warmer and drier climate, a continued rise in sea level, the expansion of oak-hickory forests onto valley floors and hillsides, and the reappearance of grasslands (Alex 2000). Population expanded in the Midwest with more sites known for this portion of the Archaic period than the preceding middle and early portions. Settlement also appears to have been more sedentary. Subsistence data indicate that during this period a broader and more adaptable subsistence base was utilized, and this varied between ecological niches across the Midwest (Mason 2002). These groups "mapped unto" the landscape meaning that specific resources were predictable and were able to

be exploited systematically (Simon 2009). The earliest evidence of plant domestication appeared during this period with the cultivation of goosefoot, squash, and little barley (Dunne and Green 1998; Schermer et al. 1995; Whittaker et al. 2000). Population expansion led to increased contact between different groups. Cultural changes associated with this contact include increased territoriality, differential expression of artifact styles, and development of trading networks. The increased population sizes and appearance of communal cemeteries suggest that groups were becoming more sedentary (Schermer et al. 1995).

The Project Area lies within the Lake Forest Archaic area of Central Minnesota. The Lake Forest Archaic is not well researched and few excavated sites have well defined Archaic horizons. This region of the state would have had more surviving lakes and woodland than further west, though still mostly prairie. This would have led to more animal diversity and a broader exploitation of foodways in the Lake Forest Archaic than the focal bison hunting of the Prairie Archaic in western Minnesota (OSA 2024a).

3.1.4 WOODLAND PERIOD (500 BC – AD 1000)

While various aspects of Archaic culture continued (e.g., subsistence strategies and lithic technology), the Woodland period is noted for several major changes including introduction of the bow and arrow, pottery manufacture, corn and squash agriculture, and burial mound construction (Perry 1996). The Woodland period in northern Minnesota is divided into the initial and terminal phases, reflecting less drastic changes compared to the Woodland period further south which is divided into the early, middle, and late phases (Gibbon 2012). The transition from Archaic to Initial Woodland exhibits considerable overlap in projectile point styles and settlement patterns with different groups adapting new technologies at different times and forming regional identities (Benchley et al. 1997).

The Initial Woodland period generally coincides with the Sub-Boreal climatic episode, which approximated modern conditions although attenuated cycles of climatic change have been identified. The landscape in northern and central Minnesota began to stabilize with a mix of prairie and small swaths of forest similar to that described by early Euro-American settlers (Perry 1996). Distinguishing between Late Archaic and Initial Woodland sites can be difficult since the transition between the two was not abrupt. Over time, though, larger sites with earthen burial mounds appeared as did a more sedentary settlement system. Associated with these changes is the presence of ceramic vessels, constructed burial mounds, and intentional cultivation of several native plants such as gourds, goosefoot, and sunflower (Perry 1996; Mason 2002). Initial Woodland pottery was typically plain, thick, grit-tempered pottery with conchoidal bases, represented in central Minnesota by the Malmo type concentrated around Lake Mille Lacs (Gibbon 1986).

The Initial Woodland is poorly researched in the region (Heartfield, Price and Greene 1980). Evidence from other areas of the Midwest Region, including Illinois, indicates that the more sedentary lifestyle of the Early Woodland may have been caused by a variety of factors: increased population pressure; diminishing reserves of previously utilized food sources; climatic changes; and a new reliance on domesticated crops (Heartfield, Price and Greene 1980). This period marked the beginning of the shift from hunting and gathering to food production. In central and northern Minnesota little evidence is present for the cultivation of plants, instead and emphasis on gathering aquatic resources, such as wild rice and fish, increased during this period (OSA 2024a, Gibbon 2012). Increased evidence of sedentary settlements along lakes and rivers coincides with this reliance on aquatic resources. Both wild rice and maize phytoliths are present in Initial Woodland ceramics, however stable isotope studies from the same sites do not suggest maize consumption was prevalent (Gibbon 2012).

The Terminal Woodland in central and northern Minnesota is characterized by a growing population, increased sedentism, and heavier reliance on wild rice. Like Woodland traditions further south, construction of burial mounds increased and dispersed, projectile point became smaller, and pottery became thinner and more globular. Settlements remained dispersed throughout the landscape (Gibbon 2012). The transitional St. Croix complex saw the manufacture of grit-tempered, cord-marked, subconchoidal pottery of the St. Croix and Onamia types. There was a heavy reliance on quartz for the manufacture of stone tools including projectile points of the triangular Madison and Prairie Side Notched types (Gibbon 2012). The middle Terminal Woodland saw a continuation of the same trends in population growth and sedentism. Ceramics saw a shift to globular, cord-marked pottery of the Blackduck-Kaitho-Clam River complex. This included the addition of various decorative techniques around the rims of pottery (Gibbon 2012).

3.1.5 THE LATE PRECONTACT (AD 1000 – CONTACT)

Beginning around AD 1000, Middle Mississippian influences from the American Bottom began to appear in Minnesota groups. A direct link has never been established between these groups and the precise nature is not currently known (Benchley et al. 1997). Similar to the transition from Archaic to Early Woodland, the transition from Late Woodland to Mississippian periods exhibits considerable overlap in projectile point styles and settlement patterns with different groups adapting new technologies at different times. Some of the most recognizable changes included the shift to shell-tempered pottery and the appearance of fortified villages. Archaeologically, in northeastern and central Minnesota the late prehistoric is represented by the Psinomani complex rather than the Oneota complex observed further south.

The Psinomani complex in east central Minesota around Lake Mille Lacs occurred between AD 1300 and 1400. The Psinomani complex is thought to be ancestors of the Dakota (OSA 2024a). Population continued to grow but unlike the earlier Terminal Woodland phases, settlements of the Psinomani complex were tightly clustered. Subsistence relied more heavily on stored foods (Gibbon 2012). Differing the Oneota and other Mississippian complexes further south, wild rice harvesting and fishing were the predominate foodways with maize, squash, and tobacco cultivation present in lessor amounts (Gibbon 2012). Subsistence changes including a heavier reliance on maize and wild rice facilitated an energy surplus that produced major changes to social organization, gender roles, and settlement patterns (Benchley et al. 1997, Gibbon 2012). Psinomani ceramics were typically shell and grit-tempered, globular jars of the Sandy Lake type, though Oneota ceramics of the Ogechie type. Oneota ceramics typically consist of shell-tempered, globular jars with rounded bases, constricted necks and vertical or flaring rims. Often there are two or four loop or strap handles joining the upper and lower rim on opposing sides of the vessels. Lugs are present on some vessels that lack handles. Common pottery decorations include punctations, finger impressions, diagonal or vertical lines, triangles, chevrons, and scrolls and concentric circles (Benchley et al. 1997).

The Bradbury Phase, which is the archaeological representation of the Dakota villages around Lake Mille Lacs prior to contact with French explorers, occurs from AD 1680-1750. Both Sandy Lake and Ogechie type ceramics are still present though with a shift to exclusively more Oneota like, shell-tempered, ceramics. The most notable change of the Bradbury phase is the presence of French trade goods (Gibbon 2012).

3.2 Contact and Post-Contact Period

While some Native American groups faced direct encounters with early European explorers by the early sixteenth century, most groups' first interactions involved "down the line" trade of European goods from other Native Americans and exposure to European diseases that decimated populations well before first contact. The Historic period, which varies in date across North America, is generally defined as beginning with initial European exploration and settlement of an area (Lass 1998; Neill and Williams 1881).

The French were the first European explorers in what is now Minnesota. Beginning in the mid-17th century, French traders traveled the Mississippi and Missouri Rivers from Canadian posts to trade with the Ioway, Oto, Eastern Dakota, Teton, Yanktonai, and Assiniboine groups (Benchley et al. 1997). In 1762, France transferred control of the area west of the Mississippi River to Spain prior to France's defeat by the British in the French and Indian War. Spain viewed this area as a buffer protecting its western silver mines from Britain. With little direct administration from Spain, French trading and settlement continued. In 1800, Spain and France negotiated a trade where Spain would receive Tuscany in Italy in exchange for French control over the Louisiana Territory, which included Minnesota (Tanner and Pinther 1987). In 1803, the United States purchased the Louisiana Territory from France for 15 million dollars. President Thomas Jefferson then tasked Meriwether Lewis and William Clark with leading an expedition up the Missouri River to its headwaters and then to the Pacific Ocean. Though the European ownership of the territory exchanged hands numerous times, the native peoples of the territory remained its primary inhabitants.

At the time of European contact in the mid-1600's, the Santee or Eastern Dakota comprised of four bands (Mdewakanton, Sisseton, Wahpeton, Whpakute) lived in what would become East Central Minnesota centered around Lake Mille Lacs.

In the mid-1700's Ojibwe peoples began to move west as changes in the fur trade causing conflict and warfare with the Dakota in East Central Minnesota. As a result, the Lakota/Dakota peoples were pushed west and south, giving up their homelands around Lake Mille Lacs (OSA 2024b).

The first Euro-American settlers in Minnesota entered in 1812. In 1819, on what is now Picnic Island on the south bank of the Minnesota River, Colonel Henry Leavenworth built a stockade fort called St. Peter's Cantonment or New Hope, where materials were assembled for the construction of Fort Snelling to be built on the bluff on the north bank. Long term settlement on the island was impossible due to annual flooding. Alexis Bailey constructed log buildings nearby to trade in furs in 1826. Considerable fur trade occurred at Mendota due to the accessibility of the confluence. Henry Hastings Sibley, a partner in the American Fur Company, built the first stone house in Minnesota in 1836, overlooking Fort Snelling (Neill and Williams 1881). The Minnesota Territory was established in 1849 under Governor Alexander Ramsey (Benchley et al. 1997).

Continuing United States expansion into the then "Northwest Territory" led to government purchase of land from the Dakota people (the Mdewakanton, Wahpekute, Wahpeton, and Sisseton bands) via the Treaty of St. Peters, the Treaty of Traverse des Sioux, and the Treaty of Mendota in 1851 (Carley 1976; Meyer 1993). After the Minnesota Territory was established in 1849, the area that would become Pine County was first part of Chisago and Ramsey Counties, before being established as a county in 1856 (Minnesota Historical Society 2014).

3.2.1 PINE COUNTY

Non-indigenous settlement in Pine County began in the 1850's. The county was named for the abundance of white and red pine, much of which was cut for lumber (Minnesota Historical Society 2014, Simmons et al. 1941). The primary railroads were the Great Northern Railroad, Soo Line Railroad, St. Paul & Duluth Railroad, and the Northern Pacific Railroad (MNGenWeb 2023). The County seat, Pine City, was named after both the county and the nearby Ojibwe village Chenqwatana. Early industry in the northern portion of the county was predominantly lumber. By the 1890s the northern portion of Pine County alongside 15 other northern counties had been extensively logged, being termed the cutover region (Granger and Kelly 2005, Terrell 2006). The cutover was rapidly settled for agriculture between 1890 and 1930, peaking in 1925 as the lumber and rail companies looked to offload their clear-cut land holdings (Granger and Kelly 2005, Terrell 2006). Due to the poor, sandy soils, and extensive wetlands in the cutover region many of the farms were abandoned by the 1903's (Granger and Kelly 2005, Terrell 2006). The primary crops grown in the county consisted of rutabaga, potatoes, corn, oats, and barley (Simmons et al. 1941). More than half of tilled land was used to grow feed for dairy cattle in 1930 (Granger and Kelly 2005). In this period, Farmsteads were primarily of frame or log construction with root cellars being the most common outbuilding (Granger and Kelly 2005).

Though the Post-Contact period tends to focus on Euro-Americans, Native Americans are still active members of Pine County. Culturally significant places like the nearby Mille Lacs Band of Ojibwe Language and Culture Grounds continue to hold significance to Tribal Nations found throughout Minnesota and surrounding states.

4 Literature Review

Stantec reviewed the Minnesota State Historic Preservation Office's (SHPO's) previous survey report data, the Minnesota Statewide Historic Inventory Portal (MnSHIP) as well as the Minnesota Office of the State Archaeologist (OSA) Portal in December 2023. The literature search focused on previously identified cultural resources (archaeological sites and architectural properties) within the literature search Study Area, defined as the Project Area plus a 1-mile buffer. In addition, Stantec reviewed archival resources including General Land Office (GLO) maps, county atlases, the University of Minnesota (UMN) Borchert Map Library, Trygg maps, and historical aerial imagery to identify potential cultural features in the Project Area.

4.1 Previously Conducted Archaeological Surveys

[NON PUBLIC DATA BEGINS HERE...]

No previously conducted archaeological surveys have been recorded within the Project Area. Two previously conducted surveys have been recorded within the Study Area (see Table 2; Figure 2 in Appendix A). Survey MCH-81-01 was conducted as part of the Municipal-County Highway Archaeology Study which included many areas along roadways/proposed roadways with Minnesota. Within the Study Area, one archaeological site (Site 21PN78) is recorded as part of the 1980 survey.

In 2005 the Duluth Archaeological Center investigated areas along the west side Long Lake in Township 44N Range 22W Section 21 SE. Sites 21PN87, 21PN88, and 21PN89 were recorded. No archaeological report was located at the time of the desktop review, and information on the 2005 survey was collected

[...NON PUBLIC DATA ENDS HERE]

from site forms. In summary, the Project Area and most of the Study Area has not been subjected to previous archaeological survey.

Table 2. Previously Conducted Archaeological Surveys within the Study Area

Year	Author	Report Name	Report Number
1980	Anfinson, Scott	1980 Annual Report Minnesota Municipal and County Highway Archaeological Reconnaissance Study	MCH-81-01
2005	Mulholland, S. L and R. Donahue	Phase I Archaeological Survey for the Long Lake Development, Pine County, Minnesota, Unpublished Report	N/A

4.2 Previously Recorded Archaeological Sites

[NON PUBLIC DATA BEGINS HERE...]

No previously recorded archaeological sites are located within the Project Area. Ten previously recorded sites are located within the Study Area (see Table 3; Figure 2 in Appendix A). This low density of archaeological sites is likely due to the general lack of survey in this area.

Table 3. Previously Recorded Archaeological Sites within the Study Area

Site Number	Site Type	Cultural Affiliation	NRHP Eligibility Status
21PNz	Village/Settlement	Post-Contact, American Indian	Unevaluated
21PNaa	Burial	Post-Contact, American Indian	Unevaluated
21PNy	Saw Mill	Post-Contact, Euro-American	Unevaluated
21PN87	Lithic Scatter	Unidentified Precontact	Unevaluated
21PN88	Isolated Find	Unidentified Precontact	Unevaluated
21PN89	Isolated Find	Unidentified Precontact	Unevaluated
21PN78	Isolated Find	Unidentified Precontact	Unevaluated
21PNav	Village/Settlement	Post-Contact, Unidentified	Unevaluated
21PNaf	Manufacturing/Lumber	Post-Contact, Euro-American	Unevaluated
21PNaw	Road	Post-Contact, Euro-American	Unevaluated

The six alpha sites represent suspected Post-Contact settlement, burial, and lumber related sites of Native American and Euro-American affiliations. They are centered around the towns of Willow River and Rutledge. An alpha site is a site for which the location has not been field verified by a qualified archaeologist.

The remaining sites consist of Precontact lithic scatters and an isolated projectile point. The sites are located on terraces overlooking Long Lake and the Kettel River.

4.3 Previously Recorded Architectural Structures

No previously recorded historic structures are recorded within the Project Area. Seven historic structures are recorded within the Study Area (see Table 4; Figure 2 in Appendix A). PN-KRV-001 was previously listed on the NRHP but the 1916 bridge was demolished in 2004 and removed from the NRHP in 2005. The

remaining six historic structures are unevaluated for NRHP eligibility. They represent a farmstead, a village hall, and transportation related structures.

Table 4. Previously Recorded Historic Structures within the Study Area

Structure Number	Present Name/Other Name	Function	NRHP Eligibility Status
XX-ROD-012	U.S. Trunk Highway 61	Transportation/Highway	Unevaluated
XX-ROD-019	U.S. Trunk Highway 61	Transportation/Highway	Unevaluated
XX-ROD-036	U.S. Trunk Highway 61	Transportation/Highway	Unevaluated
PN-KRV-002	Bridge No. L2730	Transportation/Bridge	Unevaluated
PN-KRV-003	John Walta Farmstead	Agriculture/Farmstead	Unevaluated
PN-RTC001	Rutledge Village Hall	Government/City Hall	Unevaluated
PN-KRV-001	Bridge No. 1811	Transportation/Bridge	Previously Listed/Demolished

4.4 Previously Recorded Cemeteries

There are no previously identified cemetery/burial sites located within the Project Area. Two cemetery/burial sites are located along the north edge of the Study Area (see Table 5; Figure 2 in Appendix A). Both cemeteries/burial sites are located in Willow River.

Table 5. Previously Recorded Cemeteries/Burials within the Study Area

Site Number	Name	Cultural Affiliation
21PNaa	Willow River Indian Burial Ground	Historic, American Indian
N/A	St. Mary's Catholic Cemetery	Historic, Euro-American

[...NON PUBLIC DATA ENDS HERE]

4.5 Historic Map Review

Historic maps and aerial imagery were reviewed as part of the background research conducted for this assessment. Online map repositories, including the Library of Congress, the United States Geological Survey (USGS) Historical Topographic Map Explorer (ESRI 2023), UMN Libraries, and others were examined to identify historic maps depicting the Project Area and the Study Area. The earliest map found dates to 1863. One structure is depicted within the Project Area on the 1916 plat.

The 1863 General Land Office Map indicates possible wetlands in the Project Area (Bureau of Land Management [BLM] 1863) (see Figure 3 in Appendix A). Additionally, the Trygg map shows the vast majority of the Project Area as swamp or marshland and a road from St Paul to Superior that intersects the eastern most part of the Project Area (Trygg 1966). A tributary draining into the Kettle River can be seen in the southern part of the Project Area (BLM 1863; Trygg 1966). The State of Minnesota Plat Books (State of Minnesota 1916; W. W. Hixson 1925) show the location of one structure in the Project Area, near the location of a group of structures in a 1939 aerial photograph (UMN 2015). The structures were located in the SE¼ of the SE¼ of Section 26 in Township 44 North, Range 20 West. The structures are no longer

standing. The 1916 and 1925 owner of the parcel is depicted as Ino Losch (State of Minnesota 1916; W. W. Hixson 1925). The plat book also depicts parcel ownership, roads railways and rivers/creeks in the area.

Mid-to late-twentieth-century topographic maps dated 1953, 1961, and 1981 (United States Geological Survey [USGS] 1953, 1961, 1981) depict the Project Area and the Study Area as predominantly rural, with farmsteads and outbuildings, schools, churches, with the communities of Willow River and Rutledge illustrated to the north and the west-southwest respectively. The Project Area is depicted as predominately wetland with a creek draining the area southwest into the Kettle River.

5 Research Design

A probability model identified 245 acres of the Project Area as having a high probability to contain unrecorded archaeological sites (Jensen and Bakken 2023). Archaeological survey focused on these areas (see Figure 5 in Appendix A). These areas were selected based on MnModel results available in the Office of the State Archeologist (OSA) portal, visual reconnaissance work completed by Stantec in 2022, and professional expertise (Jensen and Bakken 2023; OSA 2024c). The MnSHPO concurred with the research design proposed in the 2023 Phase Ia report on March 1, 2024 (2024-0836; see Appendix C).

6 Objectives and Methodology

The general objective of a Phase I investigation is to identify archaeological resources within the Project Area that are at least 45 years of age. Archaeological resource types considered for this investigation included precontact and historic period archaeological sites and earthworks that could provide information about human occupation. Such sites could be evident in artifacts or features on or below the existing ground surfaces. This field investigation focused on understanding if any unknown resources could be positively identified in the Project Area.

In areas with greater than 25 percent ground surface visibility (GSV), Stantec utilized pedestrian survey methods. Pedestrian survey was conducted in transects spaced at a maximum of 15m (50ft) intervals. Artifacts were marked with pin flags to capture the distribution of artifacts on the ground surface. Each location was assigned individual Provenience Numbers (PN). Archaeologists recorded the artifact distribution, along with relevant landscape features with a tablet and EOS Arrow 100 series GNSS receiver unit capable of sub-meter accuracy. Artifacts were collected for analysis and returned to landowners following analysis. Shovel tests were conducted to determine if an intact A-horizon was present in agricultural fields and to document soil stratigraphy.

Shovel testing was used in areas with less than 25 percent GSV. Shovel tests measured between 30 and 40 cm in diameter and extended at least 10 centimeters into sterile sub-soil to adequately examine the Holocene soil column. All soil removed from the shovel tests was screened through ¼-in hardware mesh and immediately backfilled. No artifacts were identified during the survey. The survey was geographically oriented using Geographic Information System (GIS) data in conjunction with an EOS Arrow 100 series GNSS receiver. GIS locational information was documented for shovel tests, artifacts and cultural features identified in the field. Field observations, including vegetation, GSV, slope, general topography, and areas of soil disturbance or inundation, were described in field forms. Soil stratigraphy was recorded using the

Munsell system and recorded through forms and photos. Artifacts were collected and assigned PN associated with specific shovel tests.

7 Fieldwork Results

Stantec archaeologists conducted the Phase I archaeological survey of areas with medium to high potential for cultural resources within the Project Area on October 16 to 20 and November 6 to 10, 2023, and May 1 to 3, 2024. A total of 245 acres were surveyed for the Project. Approximately 197 acres were pedestrian surveyed at 5-to-15-m intervals depending on ground surface conditions, and approximately 48 acres were shovel tested at 15-m intervals. An additional 2,043 acres were visually inspected and confirmed to be wetlands as depicted in the 1863 Government Land Office map and Trygg map (BLM 1863; Trygg 1966). A network of deep drainage ditches were located throughout the fields and the lower fields were well saturated with moisture, suggesting the area was drained and therefore has low-potential for archaeological resources.

The Project Area consisted predominantly of row crop agricultural fields (soybeans), drainage ditches, cut pine plantation, and mixed deciduous and coniferous forests. The cultivated fields that comprised the majority of the Project Area were low, visibly saturated with water, and dissected by multiple drainage ditches, corresponding to the wetlands and marshes recorded in early survey maps (BLM 1863; Trygg 1966). Low and flat areas throughout the Project Area were poorly drained and showed evidence of lasting surface ponding including hydric soils and scattered patches of wetland vegetation surrounding shallow depressions. The drained fields were deemed to be of low potential; instead, the survey focused on the uplands surrounding the drained fields. Due to the size of the Project, the Project Area will be discussed as separate survey Areas A-J below (see Figure 4 in Appendix A).

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As a result of the fieldwork, seven areas containing artifacts and two areas containing above ground features were identified. Of these, one meets the requirements to receive an archaeological site number and is recommended as Not Eligible for inclusion in the NRHP (Site 21PN0113/Field Site IP-8). In depth discussion of each is below in Sections 7.2, 7.5, 7.6, and 7.9.

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7.1 Area A

Area A comprised a 7.80-acre area in the northwestern corner of the Project Area, near a collection of grain storage structures located 260 feet east of County Highway 61. The area consisted of tilled agricultural fields and a field road (see Photos 1 and 2). Area A afforded between 40 and 100 percent GSV, therefore pedestrian survey at 15-m intervals was utilized in lieu of shovel testing. No cultural materials were identified in Area A.

Photo 1. Area A Overview, Facing Southeast.

Photo 2. Area A Overview, Facing West-Southwest.

7.2 Area B

Area B comprised a 40-acre plateau in the northeastern corner of the Project Area. The area consisted entirely of agricultural fields surrounded by a steep ledge descending into a drainage ditch. The fields consisted of unharvested soybeans with GSV ranging between 40 and 90 percent (see Photos 3 and 4). Due to good to excellent GSV, pedestrian survey at 10-m and 15-m intervals was utilized in lieu of shovel testing.

Photo 3. Area B Overview, Facing South.

Photo 4. Area B Overview, Facing West.

A sparse concentration of historic ceramics was identified in the northwest quarter of Area B. The concentration consisted of seven undecorated whiteware sherds, one undecorated porcelain sherd, and one milk glass cold cream container fragment (see Photo 5). The artifacts are not temporally diagnostic and appear to represent domestic refuse that may be indirectly associated with the nineteenth to twentieth century occupation north of the Project Area. No subsurface testing was conducted near the historic concentration due to good to excellent GSV, no identifiable features, and lack of construction related materials.

[NON PUBLIC DATA BEGINS HERE...]

Photo 5. Mixed Historic Ceramics Identified in Area B.

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According to the Special Considerations for Historical Archaeology in the SHPO Manual for Archaeological Projects in Minnesota (Anfinson 2005), sites older than 50 years old that are located within a project area should still be examined through literature searches and field surveys; however, inventory forms for post-contact historical archaeological sites will only be filed out if the site needs additional and justifiable archaeological work, was subjected to intensive survey, is clearly eligible for the NRHP, or burial sites not located in well documented cemeteries (Anfinson 2005). While one structure is depicted in the 1916 and 1925 county plat maps north of the historic concentration, no features or structures are depicted within the general vicinity of the field-identified historic concentration on any literature search materials (Nationwide Environmental Title Research, LLC [NETR] 2024; State of Minnesota 1916; USGS 2023; W.W. Hixson & Co. 1925). As a review of available literature did not identify an associated structure and the concentration is comprised of nondiagnostic and fragmented materials, the concentration does not meet the requirements for a post-contact site as described in the above mentioned SHPO Manual; Therefore, the concentration was not assigned a site number.

7.3 Area C

Area C comprised 60 acres in the northeastern corner of the Project Area immediately south of Area B. The area consisted of a group of knolls slightly elevated above the lower, poorly drained fields. Two drainage ditches divided Area C into three sections. The fields were harvested but untilled, with soybean debris and various small plants spread across the fields yielding an average GSV of 50 percent (see Photos 6 through 9). Due to good GSV, pedestrian survey at 15-m intervals was utilized in lieu of shovel testing. No cultural materials were identified in Area C.

Photo 6. Area C Overview, Facing West.

Photo 7. Area C Overview, Facing West.

Photo 8. Area C Overview, Facing South.

Photo 9. Area C Overview, Facing North.

7.4 Area D

Area D comprised a 50-acre area in the central western part of the Project Area. Area D consisted of a slightly sloped, undulating set of fields situated on a large ridge running roughly north-south between County Highway 61 and the low, poorly drained fields in the center of the Project Area. At the time of survey, the fields were harvested and tilled yielding between 80 and 100 percent GSV (see Photos 10 and 11). Due to excellent GSV, pedestrian survey at 15-m intervals was utilized in lieu of shovel testing. No cultural materials were identified in Area D.

Photo 10. Area D Overview, Facing Southwest.

Photo 11. Area D Overview, East-Northeast.

7.5 Area E

Area E comprised 25 acres in the southwest corner of the Project Area. Area E consisted of a recently cut pine plantation located on a relatively flat upland ridge oriented roughly north-south between County Highway 61 and the low, poorly drained fields in the center of the Project Area (see Photos 12 to 14). Logged pine debris obscured the ground surface, affording no GSV, therefore, systematic shovel testing was conducted. The southwest edge of Area E sloped more than 20 degrees; therefore, it was not shovel tested. A total of 176 shovel tests were excavated at 15 m intervals. Of the 176 shovel tests, 10 were positive for cultural materials (five regular and five radials) (see Figure 4 in Appendix A). The typical soil profile throughout Area E was a 25 to 40 cm thick 10YR 4/4 loamy sand Ap-horizon over a 7.5YR 4/4 sand B-horizon (see Photo 15; Appendix D). Three concentrations of historic artifacts and one ruined structure were noted, discussed below.

Photo 12. Area E, Facing South, Showing Logged Pine Debris.

Photo 13. Area E, Facing East, Showing Logged Pine Debris.

Photo 14. Area E, Facing South, Showing Logged Pine Debris.

Photo 15. Showing Typical Shovel Test Profile within Area E, ST JJ 52.

Three separate, sparse historic material concentrations were observed throughout Area E. Two of the historic concentrations included a feature, discussed below. The remaining concentration consisted of a mix of building material and domestic artifacts. The building material included one red brick fragment. The domestic artifacts include ten whiteware sherds, ten colorless glass fragments, three wire nails, and a pig (*Sus scrofa domesticus*) rib with cutmarks. Two of the glass fragments had a violet discoloration indicative of solarized manganese glass. Manganese glass was primarily manufactured between 1890 and 1920 with some examples as late as the 1930s (Lindsey 2024).

A review of background literature material did not identify an associated structure near the historic concentration identified without an associated feature (NETR 2024; State of Minnesota 1916; USGS 2023; W.W. Hixson & Co. 1925). While some of the artifacts were identified during radial testing, the concentration is located within a disturbed context and no evidence of associated features were identified. As a review of available literature did not identify an associated structure and the concentration is comprised of nondiagnostic and fragmented materials, the concentration does not meet the requirements for a post-contact site as described in the above mentioned SHPO Manual and was not assigned a site number (Anfinson 2005).

7.5.1 FIELD SITE IP-4

Field Site IP-4 consists of a light, diffuse historic artifact concentration and a circular depression within a recently logged pine plantation in Area E. The scatter measured 15 m by 30 m and the depression measured 10 m by 12 m. The depression was filled with pine branches from recent logging, preventing measurement of the depth of the depression and the excavation of shovel tests. The historic artifact concentration consisted of one piece of charcoal, two colorless container glass shards (one solarized), and one cobalt blue bottle finish. The bottle has a tooled neck and a ring finish. Two artifacts were identified on the surface while two were identified in a shovel test.

A review of literature search materials identified a shadow on a 1939 aerial image and a depression on a 1977 aerial image (NETR 2024; UMN 2015). No patent information was available through the BLM however, plat maps from 1916 and 1925 list the parcel owner as ‘H.E. Fryberger et al.’ (BLM n.d.; State of Minnesota 1916; W.W. Hixson & Co. 1925). The depression combined with solarized glass suggest an

occupation date somewhere between 1890 and the 1930s (Lindsey 2024). Though the parcel may have belonged to Harrison Earl Fryberger (1867 to 1952), Field Site IP-4 is unlikely to be significantly associated with the life Harrison E. Fryberger as his life was spent primarily in Minneapolis and New York City. Fryberger was a lawyer and member of the Minnesota House of Representative from 1903 to 1905; both his law practice and representative district were in Minneapolis (Hennepin County Bar Association 1953). Field Site IP-4 no longer retains demonstrated integrity to convey potential associations or significance for the understanding of history. Therefore, Stantec recommends that Field Site IP-4 is Not Eligible for inclusion in the NRHP and no further work is recommended. Additionally, as Field Site IP-4 is not Eligible for inclusion in the NRHP and the recovered artifacts justify additional archaeological investigation, Field Site IP-4 does not meet the requirements for a post-contact site as described in the above mentioned SHPO Manual and was not assigned a site number (Anfinson 2005).

7.5.2 FIELD STRUCTURE IP-7

Field Structure IP-7 represents the ruins of a dugout structure dug into the southeast slope of the upland of Area E (see Photos 16 through 19). The structure was oriented west-northwest – east-southeast with the entrance opening to the east-northeast. The structure measured roughly 35 feet by 25 feet. The opening was 6.5 feet wide and centered on the east wall. Walls extended 9.5 feet outwards from both edges of the entrance, perpendicular to the wall. The walls were constructed of stacked stones with faint traces of mortar remaining in tighter joints. Sediment deposits slope upwards from the center of the floor towards the walls; the heaviest deposit is sloped towards the west wall. Wood boards fastened with bolts and nuts formed a panel leaning against the center of the south wall. A ferrous metal band stretched half the length of the south wall ending at a large square ferrous metal covering. Two sheets of corrugated metal were located immediately southeast of the structure. Five shovel tests were excavated at Field Structure IP-7 in total, one located outside each wall and one located inside the structure; no cultural materials were identified within the shovel tests (see Table 6).

Photo 16. Facing West-Northwest, Showing Exterior of Root Cellar.

Photo 17. Facing Northeast, Showing Interior Corner of Root Cellar.

Photo 18. Facing North-Northeast, Showing Interior Wall of Root Cellar.

Photo 19. Facing South, Showing Interior Corner of Root Cellar.

Table 6. IP-7 Shovel Test Profiles

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
AS 54	Area E	0-56 56-78	Ap B	10YR5/6 10YR6/6	Loamy Sand Coarse Sand	In historic foundation
JJ 32	Area E	0-21 21-32	Ap B	10YR 3/2 7.5YR 4/4	Loamy Sand Silty Sand	
MF 31	Area E	0-18 18-33	Ap B	7.5YR 3/4 5YR 4/6	Sandy Loam Silty Sand	
MG 42	Area E	0-12 12-32	Ap B	10YR2/2 7.5YR3/4	Sandy Loam Sandy Loam	
JM 26	Area E	0-45 45-55 55-60 60-75	Ap B Ab B	10YR 3/2 7.5YR 4/4 10YR 2/2 7.5YR 4/4	Sandy Loam Sand Sand Sand	Located on berm along outside of northwest wall

A review of literature search materials identified no structures depicted on historic plats from 1916 and 1925 at the location; however aerial imagery from 1939, 1952, 1955, and 1977 show a depression in the same location along the edge of a cultivated field suggesting that the structure had already fallen out of use by 1939 (State of Minnesota 1916; W. W. Hixson & Co. 1925; UMN 2015; NETR 2024). Small structures are present closer to Swanson Road in 1952 and 1957 aerial imagery (NETR 2024). Field Site IP-7 was likely a root cellar, which were a common structure on farmsteads in the cutover regions in Minnesota (Granger and Kelly 2005, Terrell 2006). Field Site IP-7 may be indirectly associated with the four sparce historic material concentrations located on the same landform. When comparing the identified concentrations to 1939 aerial imagery, the concentrations align with the eastern edge of a cultivated field. IP-7 is best classed as a historic architectural structure. The structure is unlikely to be significantly associated with the life of Harrison E. Fryberger, who spent his life in Minneapolis and New York City (Hennepin County Bar

Association 1953). The structure also lacks integrity in regard to IP-7 embodying distinctive characteristics of a type, period, or method of construction due to the ruined state. Additionally, the structure is not associated with significant events in history. Therefore, Stantec recommends Field Structure IP-7 as Not Eligible for listing in the NRHP, and no further work is recommended.

7.6 Area F

Area F comprised a 26-acre area in the southeast quarter of the Project Area. Area F consisted of a harvested, untilled field on a hill north of the unnamed creek running through the Project Area. The hill is situated along a ridge, oriented north-northeast-south-southwest along the east edge of the main part of the Project Area. The southeast corner was covered in a combination of grasses and other plants resulting in below 25 percent GSV (see Photo 20). Two shovel tests were excavated at 15 m intervals where grasses obscured GSV in the southeast corner of the field. The rest of the field had between 25 and 50 percent GSV and was therefore pedestrian surveyed at 5-m to 10-m intervals rather than shovel tested (see Photos 21 and 22). The typical soil profile was a roughly 13 cm thick 10YR 2/2 sandy loam with 10 percent gravel inclusions Ap-horizon over a 7.5YR 3/4 sandy loam B-horizon (see Photo 23; Appendix D).

Photo 20. Area F Overview, Facing Northwest.

Photo 21. Area F Overview, Facing Northeast.

Photo 22. Area F Typical GSV.

Photo 23. Showing Typical Shovel Test Profile Within Area F, ST KA 1.

[NON PUBLIC DATA BEGINS HERE...]

7.6.1 SITE 21PN0113

One archaeological site was identified in Area F. Site 21PN0113 (Field Site IP-8) consists of one isolated projectile point basal fragment located in the harvested soybean on the upland north of an unnamed creek in Area F (see Photo 24 and 25). The point is quartz with bifacial removals and fractured horizontally between the stem and blade, with a side notched, convex base (see Photos 26 and 27). The base is characteristic of typical Late Archaic, small, side-notched projectile point bases. The site was delineated using a shovel test and four radials at 5-m intervals, which were all negative for cultural material (see Table 7 and Figure 4 in Appendix D). The soil profiles surrounding 21PN0113 were sandier and differed in color from soil profiles elsewhere along the same landform, possibly a result of the fields' previous use for farming turf. Due to prolonged impacts from seasonal agricultural operations, the original vertical and horizontal provenance of the point base is unknown therefore the research potential of 21PN0113 has been exhausted. Stantec recommends 21PN0113 as Not Eligible for listing in the NRHP and no further work is recommended.

Table 7. Site 21PN0113 (IP-8) Shovel Test Profiles

Shovel Test No.	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
KA 1	0-20 20-35 35-61	Ap Ap/B B	7.5YR 2.5/1 7.5YR 2.5/1 mottled with 40% 7.5YR 4/6 7.5YR 5/3	Fine Silty Sand Fine Silty Sand Fine Sand 10% gravel/small pebbles throughout	Diffuse transition from Ap to A/B, clear transition from A/B to B
KA 2	0-13 13-31	Ap B	10YR 2/2 7.5YR 3/4	Sandy Loam with 10% gravel, Sandy Loam	Clear transition from Ap to B
KA 3	0-31 31-52	Ap B	7.5YR 2.5/1 7.5YR 5/3	Fine Silty Sand Fine Sand 10% gravel/small pebbles throughout	
KA 4	0-10 10-17 17-40	Ap A B	10YR 2/2 10YR 2/1 7.5YR 3/4	Sandy Loam with 10-15% gravel Sandy Loam Sandy Loam	
KA 5	0-40 40-73 73-75	Ap AB B	7.5YR 2.5/1 7.5YR 2.5/1 mottled with 40% 7.5YR 4/6 7.5YR 5/3	Fine Silty Sand Fine Silty Sand Fine Sand 10% gavel/small pebbles throughout	

Photo 24. 21PN0113 (IP-8) Overview, Facing West.

Photo 25. 21PN0113 (IP-8) Overview, Facing Northeast.

Photo 26. Quartz Projectile Point Base.

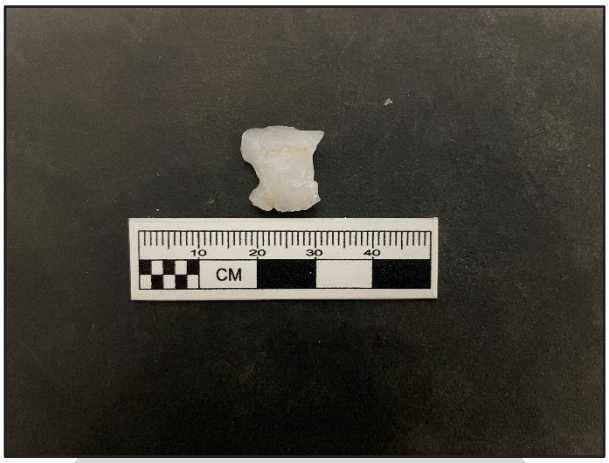

Photo 27. Quartz Projectile Point Base.

[...NON PUBLIC DATA ENDS HERE]

7.7 Area G

Area G comprised a 150-foot-wide corridor in the southeast edge of the Project Area stretching along the I-35 right-of-way, totaling approximately 6 acres. The area consisted of mixed deciduous woodlot with dense undergrowth located on the upland, south of the unnamed creek (see Photos 28 and 29). Evidence of ponding was frequent throughout the area and the southernmost quarter is predominantly wetland. A total of 66 shovel tests were excavated in Area G (see Figure 4 in Appendix A and Table 1 Appendix D). No cultural materials were identified in Area G. The typical soil profile in Area G was a 10YR 3/2 sandy loam between 30 and 40 cm thick Ap-horizon over a 10YR 4/4 silty sand B-horizon (see Photo 30).

Photo 28. Area G Overview, Facing East.

Photo 29. Area G Overview, Facing North.

Photo 30. Typical Shovel Test Profile Overview in Area G.

7.8 Area H

Area H comprised a 150-foot-wide corridor running east from Crane Creek Road 0.64 miles to a 4-acre polygon. An additional 20-foot-wide corridor runs west from the southeast corner of the polygon for 0.3 miles to Weeping Willow Road. The area consisted of an undulating landscape alternating between knolls and wetland, with of a mixture of fallow fields, new-growth coniferous forest and mixed deciduous and coniferous forest in the uplands, and wetlands predominantly in the lowlands (see Photos 31 to 36). Area H yielded no GSV; therefore, systematic shovel tests were excavated at 15-m intervals (see Figure 4 in Appendix A and Table 1 Appendix D). A rock pile and two stacked stone walls were identified within Area H. The rock pile was located at the corner of a property line. One wall was located along a property line and the other was located at the division between the new-growth forest and the mixed deciduous and coniferous forest. The stone features likely demarcate old property or field boundaries. No artifacts were identified in association with the cairn and stacked stone wall.

Photo 31. Area H, Facing West, Showing Deciduous Forest.

Photo 32. Area H, Facing West, Showing Open Grass Pasture.

Photo 33. Area H, Facing East, Showing Undergrowth in New-growth Pine Forest.

Photo 34. Area H, Facing East, Showing Wetland in Forested Area.

Photo 35. Area H, Facing West, Showing Wetland in Forested Area.

Photo 36. Area H, East, Showing Mixed Deciduous Forest.

Due to low GSV, a total of 179 shovel tests were excavated in Area H (see Appendix D). The typical soil profile in the west third of Area H was a 10YR 3/2 sandy loam Ap-horizon over a 7.5YR 4/4 sand B-horizon (see Photo 37). The typical soil profile in the middle third was a roughly 30 cm thick 10YR 3/3 sandy loam Ap-horizon over a 10YR 4/4 sandy loam B-horizon (see Photo 38). In the east third of Area H the typical soil profile was a roughly 20 cm thick 10YR 2/2 sandy loam Ap-horizon with 20 percent gravel inclusions over a 10YR 4/4 loamy sand with 20 percent cobble inclusions B-horizon (see Photo 39). Approximately 10 percent of the shovel tests filled with water during the excavation and recording process (see Photo 40).

Photo 37. Area HTypical Shovel Test Profile in the Grass Pasture.

Photo 38. Area H, Typical Shovel Test Profile in Western Wooded Area.

Photo 39. Area H, Typical Shovel Test Profile in Eastern Wooded Area.

Photo 40. Area H, Shovel Test Filling with Ground Water.

7.9 Area I

Area I comprised approximately 5.76 acres located within an agricultural field directly north of Swanson Road and directly west of I-35 (see Photos 41 and 42). Pedestrian survey was conducted at 15-m intervals within the agricultural field where GSV was above 90 percent. Twenty-one STs were excavated within the woodlot where there was no GSV. Six shovel tests were positive for historic materials (Field Site IP-9; see Table 1 in Appendix D). The typical soil profile was an approximately 17 cm thick 10YR 2/2 sandy loam Ap-horizon over a 7.5YR 4/4 sandy loam B-horizon (see Photo 43).

Photo 41. Area I Overview, Facing West.

Photo 42. Area I Overview, Facing Southwest.

Photo 43. Typical Shovel Test Profile in Area I

7.9.1 FIELD SITE IP-9

Field Site IP-9 consists of two foundations, a depression, and a concentration of buried and surface post-contact. Two foundations, constructed of poured concrete and stone, were located within the wooded area (see Photos 44 through 47). The foundations are in the same location as structures visible in 1939 aerial Imagery and a cleared area in 1952 aerial imagery (UMN 2015; NETR 2024); an Ino Losch is depicted as the owner of the parcel in the 1916 and 1925 Minnesota state plat books (State of Minnesota 1916; W. W. Hixon 1925). A concentration of historic artifacts was identified in shovel tests near the foundations, in both depressions, and in the field surrounding the wood lot. The artifacts in the depression consisted primarily of colorless glass bottles and jars, metal tins and cans, sheet metal, and roles of wire fence. The glass vessels had seams running to the highest point of the finish indicative of machine-made bottles, which post-date 1905 (Lindsey 2024). The shovel tests and surface finds included vessel and flat glass fragments, red brick, ceramic tile, cut and wire nails, and whiteware and stoneware sherds. One glass fragment had a violet discoloration indicative of solarized manganese glass which was primarily manufactured between 1890 and 1920 with some examples as late as the 1930s (Lindsey 2024). Some of the whiteware sherds were decaled with a floral pattern. The technique of decaling ceramic vessels was first used in the 1890s and is still currently in use. Ceramics decorated with polychrome decals were most popular between the 1890s and 1930s (Stelle 2001). The artifacts suggest an early to mid-20th century occupation, consistent with the structures in 1939 aerial imagery (UMN 2015).

A review of available literature did not identify significant events or persons associated with Field Site IP-9. The structures lack enough integrity to embody distinctive characteristics of a type, period, or method of construction. Additionally, the artifacts are typical of farmsteads of the period and are unlikely to yield information important to our understanding of history. Therefore, Stantec recommends that Field Site IP-9 is Not Eligible for listing on the NRHP. Additionally, as Field Site IP-9 is not NRHP eligible, was not subject to intensive archaeological investigation, and is not likely to yield information best investigated through archaeological methods, the concentration does not meet the requirements for a post-contact site as described in the above mentioned SHPO Manual and was not assigned a site number (Anfinson 2005).

Photo 44. Area I, Facing South, Showing a Concrete Foundation.

Photo 45. Area I, Facing East, Showing Depression With Rock Foundation.

Photo 46. Area I, Facing Southwest, Showing Historic Material In Depression.

Photo 47. Area I, Facing North, Showing A Concrete Foundation.

7.10 Area J

Area J comprise 7.4 acres located within an agricultural field on a slight upland directly north of Swanson Road (see Photos 48 and 49). The field was previously planted with soybeans resulting in GSV above 90 percent and was pedestrian surveyed at 15-m intervals. Due to excellent GSV, no shovel testing was conducted. No cultural materials were identified in Area J.

Photo 48. Area J, Facing North, Showing Tilled, Rocky Field.

Photo 49. Area J, Facing West, Showing Tilled Rocky.

7.11 Low Potential Area

Approximately 2,043 acres of the Project Area were modeled to have low potential for cultural resources. These areas primarily extend north from Swanson Road through the center of the Project Area to the northern boundary. These areas consisted of low, well-saturated, cultivated field situated between the two upland ridges between County Highway 61 and Interstate 35 (see Photos 50 to 53). The area is recorded

as having been historically wetland (BLM 1863; Trygg 1966) and numerous drainage ditches have been excavated throughout the fields. As the field observations were consistent with the fields being drained wetland, this area was confirmed to have low potential for cultural resources and was not systematically investigated.

Photo 50. Low Potential Area Overview, Facing West.

Photo 51. Drainage Ditch in Low Potential Area, Facing East.

Photo 52. Low Potential Area Overview, Facing South.

Photo 53. Low Potential Area Overview, Facing North.

8 Conclusions and Recommendations

[NON PUBLIC DATA BEGINS HERE...]

Stantec archaeologists conducted the Phase I archaeological survey of areas with medium to high potential for cultural resources within the Project Area on October 16 to 20 and November 6 to 10, 2023, and May 1 to 3, 2024. A literature review identified no previously recorded archaeological sites located within the Project Area. The literature review found two previous surveys, ten archaeological sites, seven architectural resources and two mortuary sites within the Study Area. One new archaeological site (21PN0113) was identified during the investigation. Site 21PN0113 is recommended Not Eligible for listing on the NRHP. Based on the results of the investigations, Stantec concludes that there are no properties listed in the

[...NON PUBLIC DATA ENDS HERE]

National or State Registers of Historic Places and no known or suspected archaeological properties in the area that will be affected by the proposed Project.

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APPENDICES

Appendix A Figures

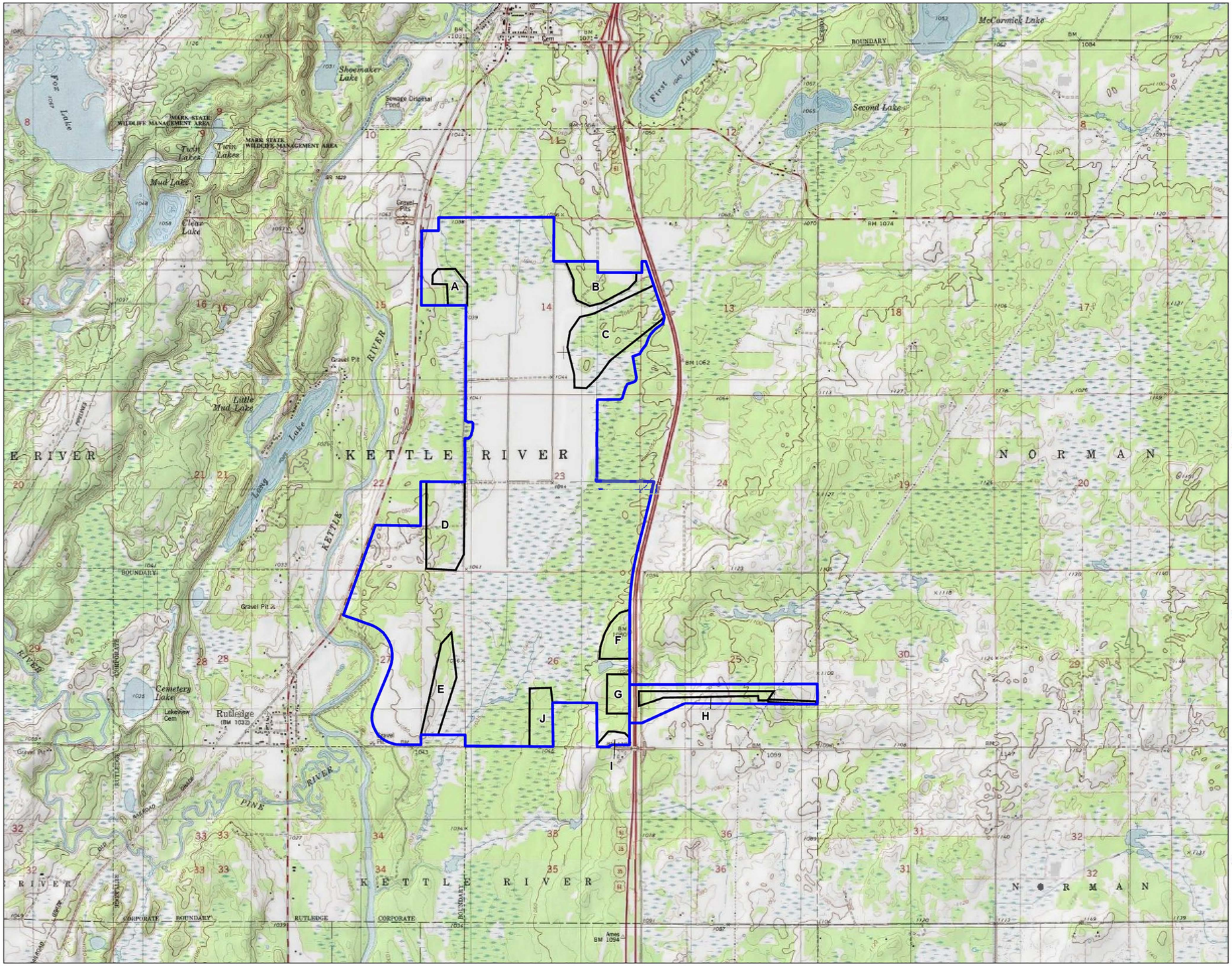

Figure No.
1

Title
Project Location

Client/Project
193708962
Iron Pine Solar Power, LLC
Iron Pine Solar
Phase 1A Archaeological Literature Review

Project Location
Kettle River Township,
Pine County, Minnesota

Prepared by JM on 2023-06-02
TR by MZ on 2023-06-02
IR by JK on 2023-05-

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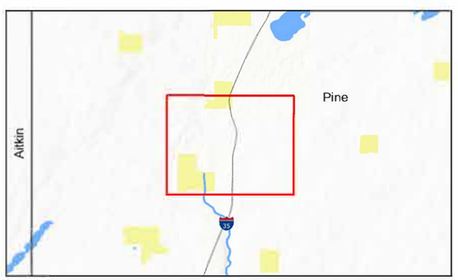
- Survey Areas



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2. Data Sources: Stantec, USGS, NADS, Pine County
3. Background: USGS 7.5' Topographic Quadrangles

Stantec

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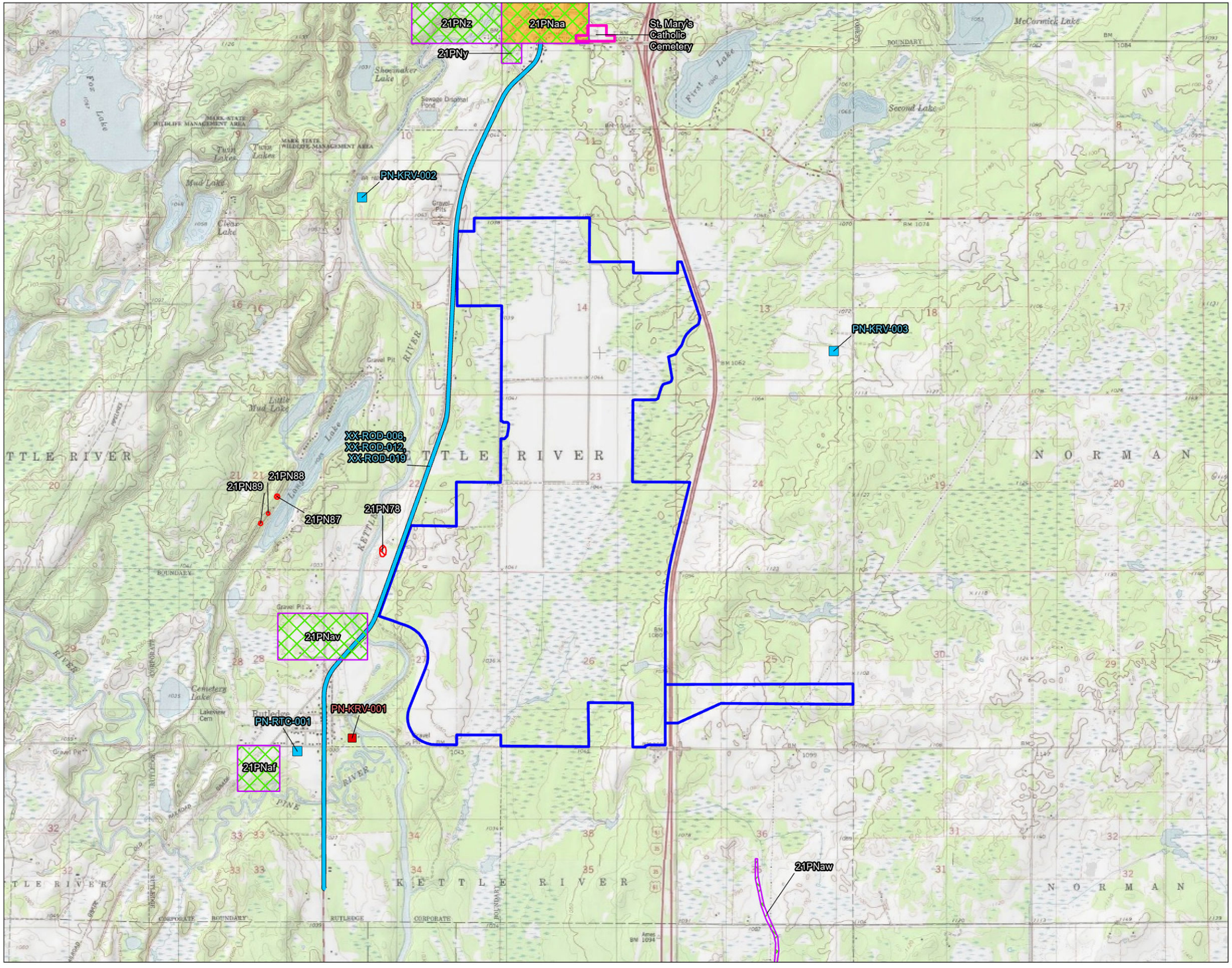

Figure No.

2

NOT FOR PUBLIC DISCLOSURE

Title

Previously Identified Cultural Resources in the 1.6km (1mi) Study Area

Client/Project

193708962

Swift Current Energy
Iron Pine Solar
Phase I Archaeological Survey

Project Location

Kettle River Township,
Pine County, Minnesota

Prepared by JM on 2023-06-02
TR by JJ on 2023-09-18
IR by JK on 2023-09-18

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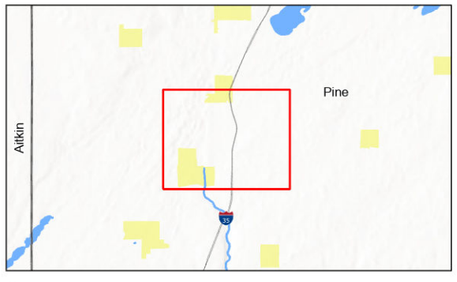
- Property Boundary
- 1-Mile Buffer
- Archaeological Site
- Apha Site With Mortuary Component
- Alpha Site
- Cemetery
- Previously Listed/Demolished Structure
- Unevaluated Historic Structure
- Historic Transporation/Highway



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3. Background: USGS 7.5' Topographic Quadrangles

Stantec

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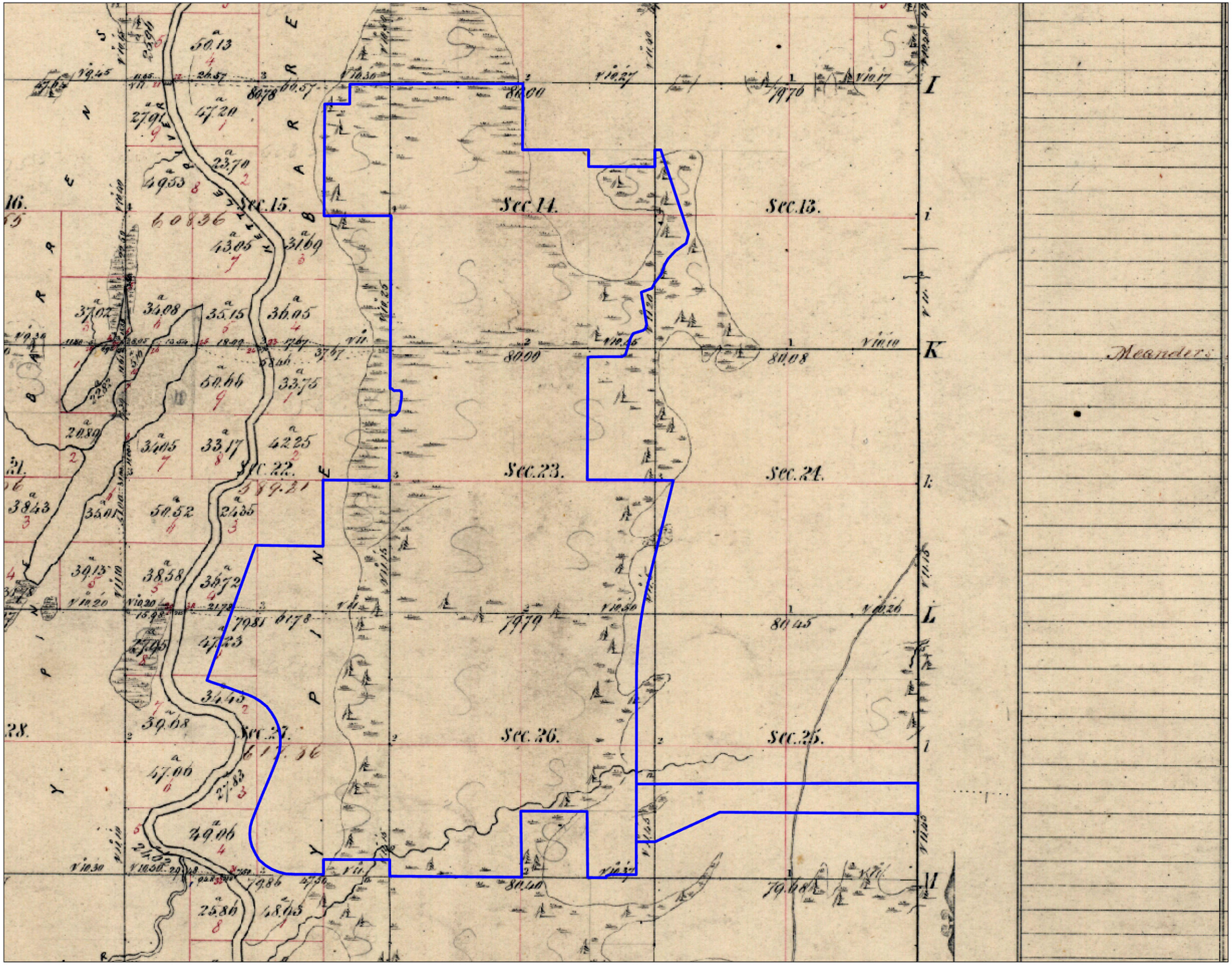

Figure No.

3

Title

Project Area on 1863 BLM Plat

Client/Project 193708962

Swift Current Energy
Iron Pine Solar
Phase I Archaeological Survey

Project Location
Kettle River Township,
Pine County, Minnesota

Prepared by JM on 2023-06-02
TR by JJ on 2023-09-18
IR by JK on 2023-09-18

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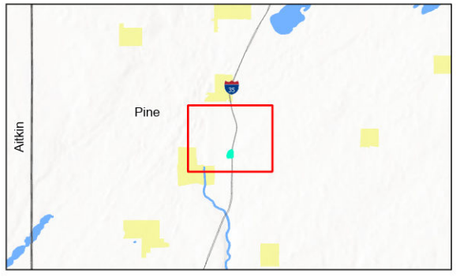
Property Boundary



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2. Data Sources: Stantec, USGS, NADS, Pine County
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Stantec

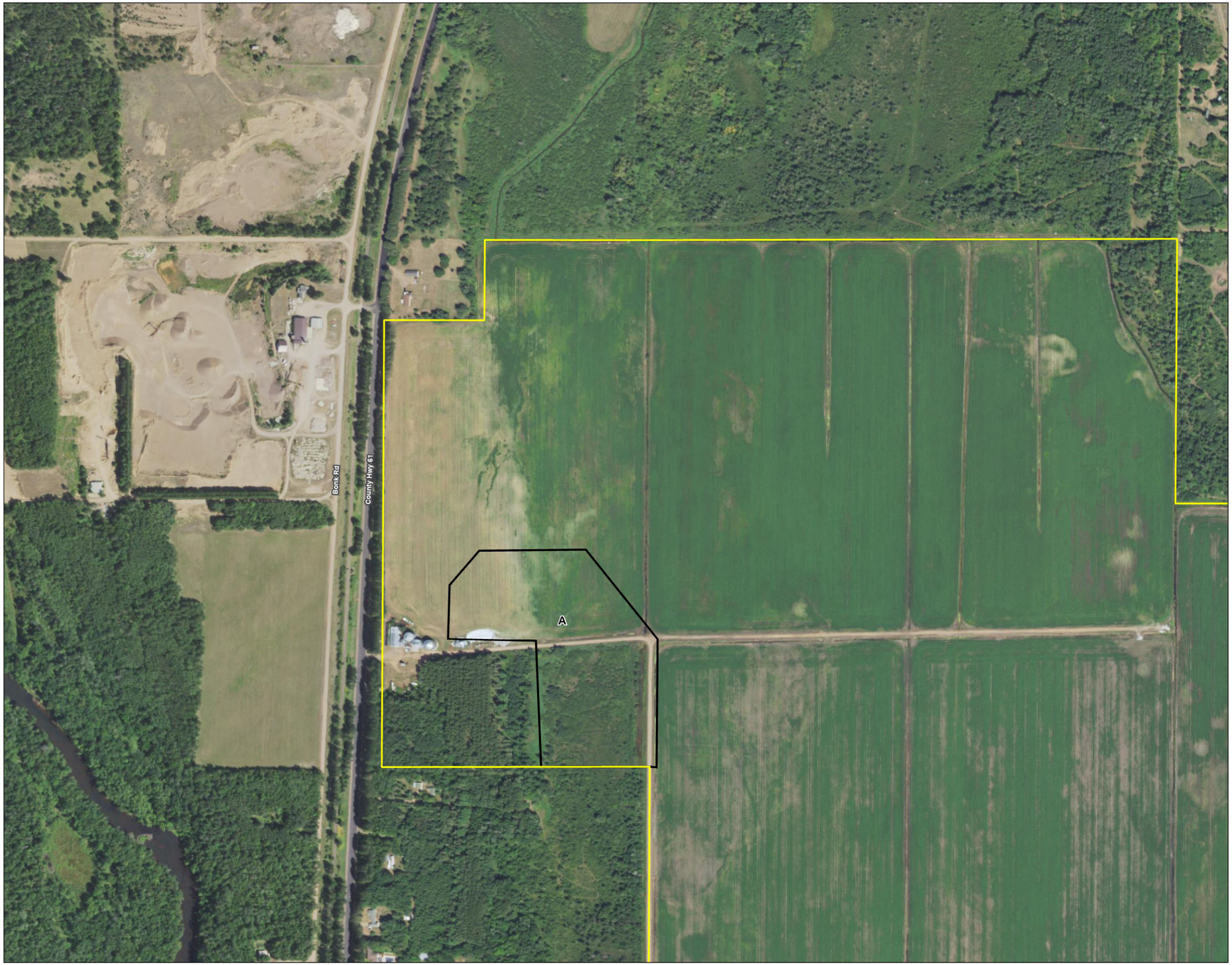

Figure No.
4

Title
Survey Results

Client/Project 193708962
Iron Pine Solar Power, LLC
Iron Pine Solar
Phase 1A Archaeological Literature Review

Project Location
Kettle River Township,
Pine County, Minnesota

Prepared by MEK on 2024-05-13
TR by MP on 2024-05-14
IR by XXX on 2024-XX-XX

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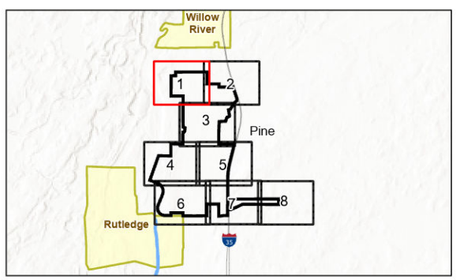
Legend
- Project Boundary
- Survey Areas
- Field Site IP-8
- Artifact Concentration

Shovel Test Points
- Positive
- Negative



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2. Data Sources: Stantec, Iron Pine Solar, USGS, NADS
3. Background: NAIP 2021

Stantec

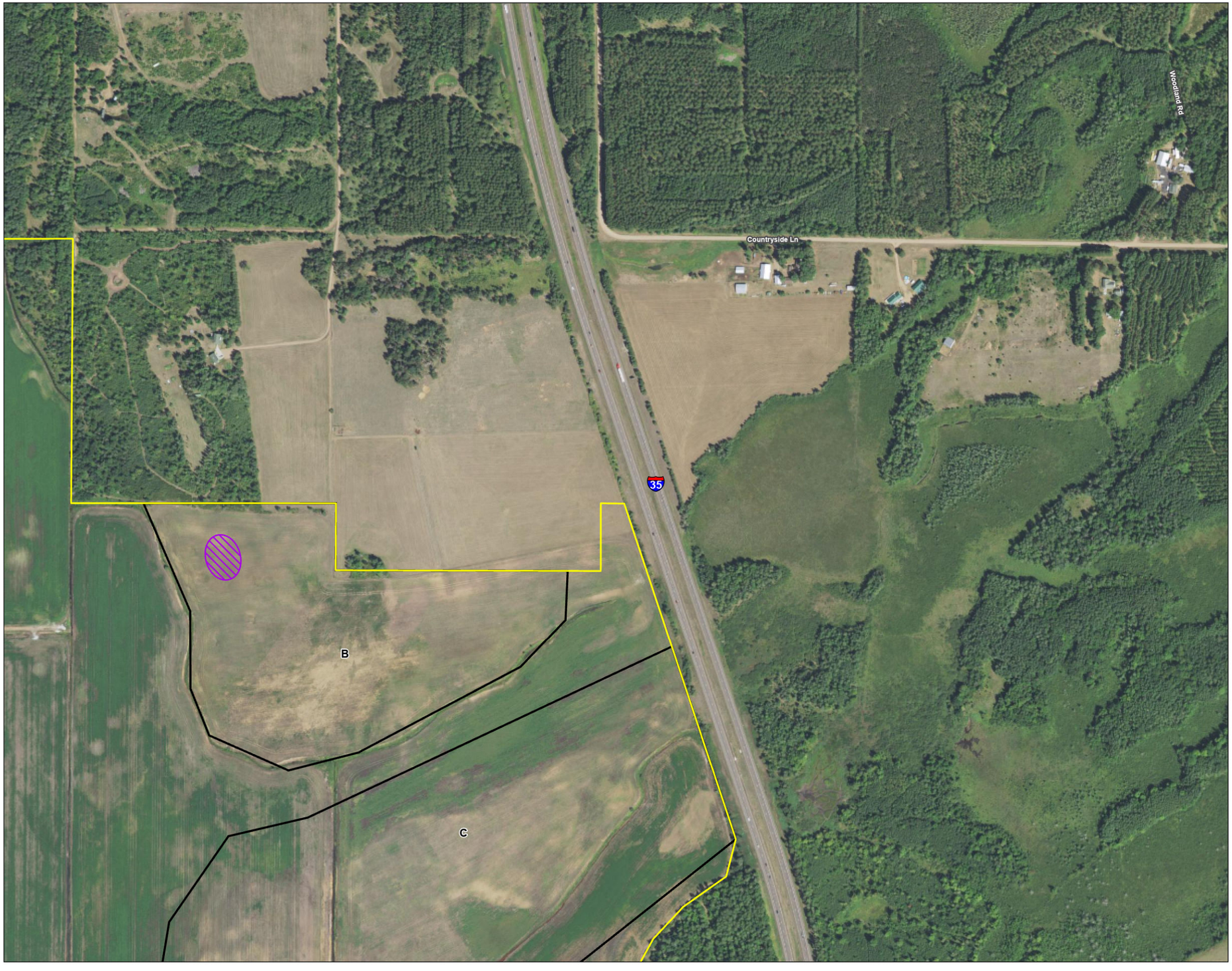


Figure No.
4

Title
Survey Results

Client/Project 193708962
Iron Pine Solar Power, LLC
Iron Pine Solar
Phase 1A Archaeological Literature Review

Project Location
Kettle River Township,
Pine County, Minnesota

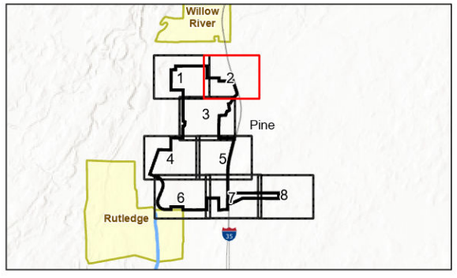
Prepared by MEK on 2024-05-13
TR by MP on 2024-05-14
IR by XXX on 2024-XX-XX

N

0 250 500 Feet
(At original document size of 11x17)
1:6,000

Legend
- Project Boundary
- Survey Areas
- Field Site IP-8
- Artifact Concentration

Shovel Test Points
- Positive
- Negative



Notes
1. Coordinate System: NAD 1983 UTM Zone 15N
2. Data Sources: Stantec, Iron Pine Solar, USGS, NADS
3. Background: NAIP 2021

Stantec

Figure No.
4

Title
Survey Results

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Iron Pine Solar
Phase 1A Archaeological Literature Review

Project Location
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Legend
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- Survey Areas
- Field Site IP-8
- Artifact Concentration

Shovel Test Points
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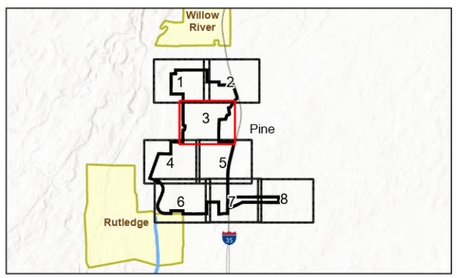
- Negative



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3. Background: NAIP 2021

Stantec

Figure No.
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Title
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Legend
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- Survey Areas
- Field Site IP-8
- Artifact Concentration

Shovel Test Points
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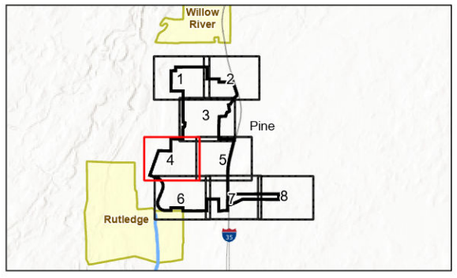
- Negative



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Stantec

Figure No.
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- Survey Areas
- Field Site IP-8
- Artifact Concentration

Shovel Test Points
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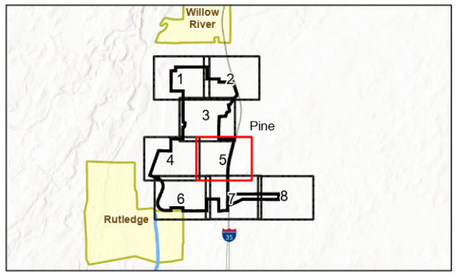

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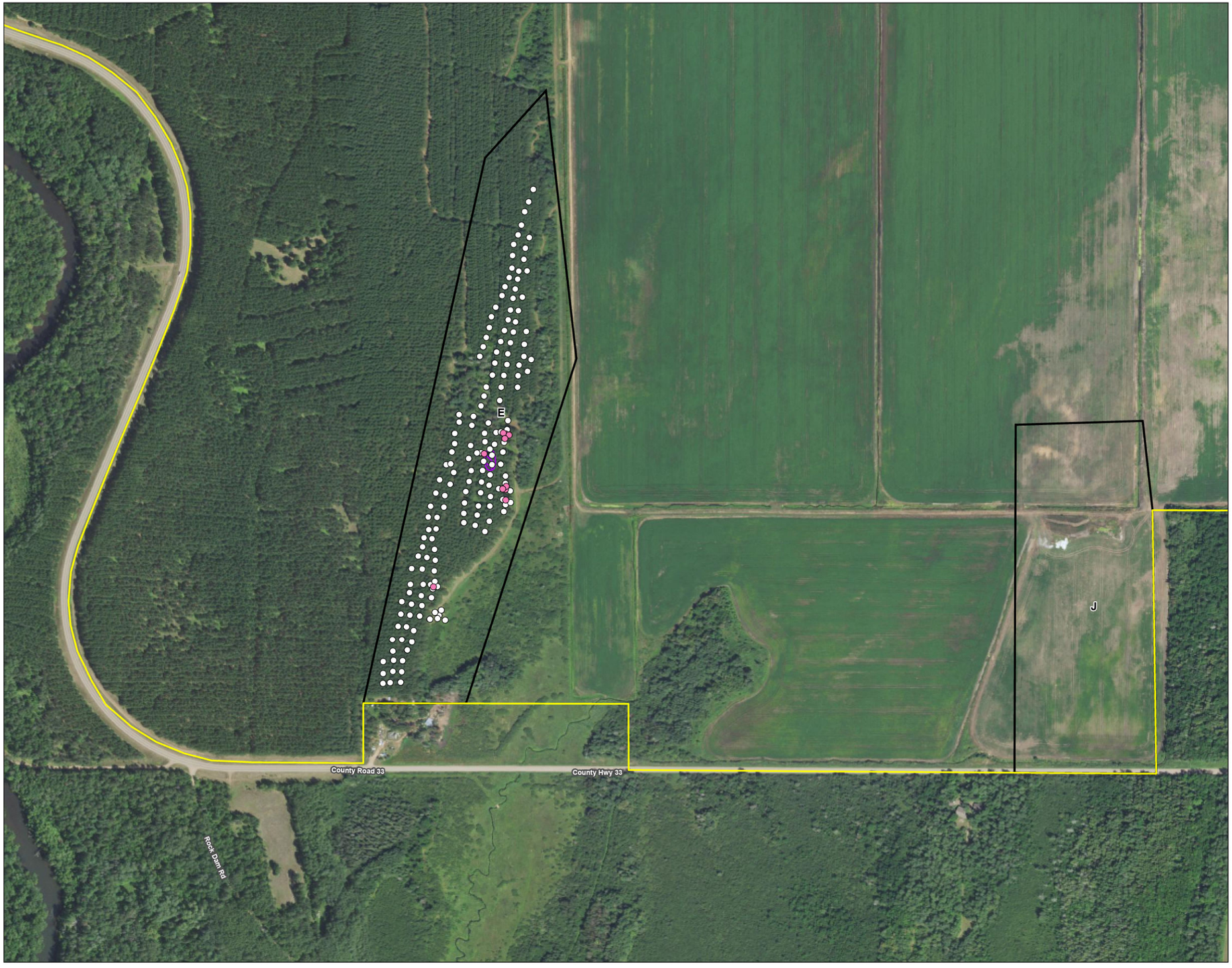
2. Data Sources: Stantec, Iron Pine Solar, USGS, NADS
3. Background: NAIP 2021

Stantec



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- Survey Areas
- Field Site IP-8
- Artifact Concentration

Shovel Test Points
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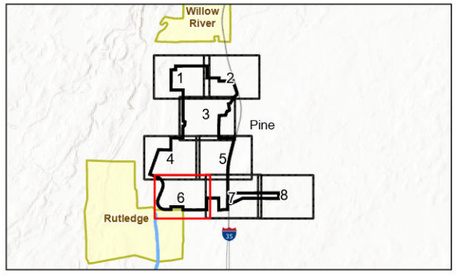
- Negative



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2. Data Sources: Stantec, Iron Pine Solar, USGS, NADS
3. Background: NAIP 2021

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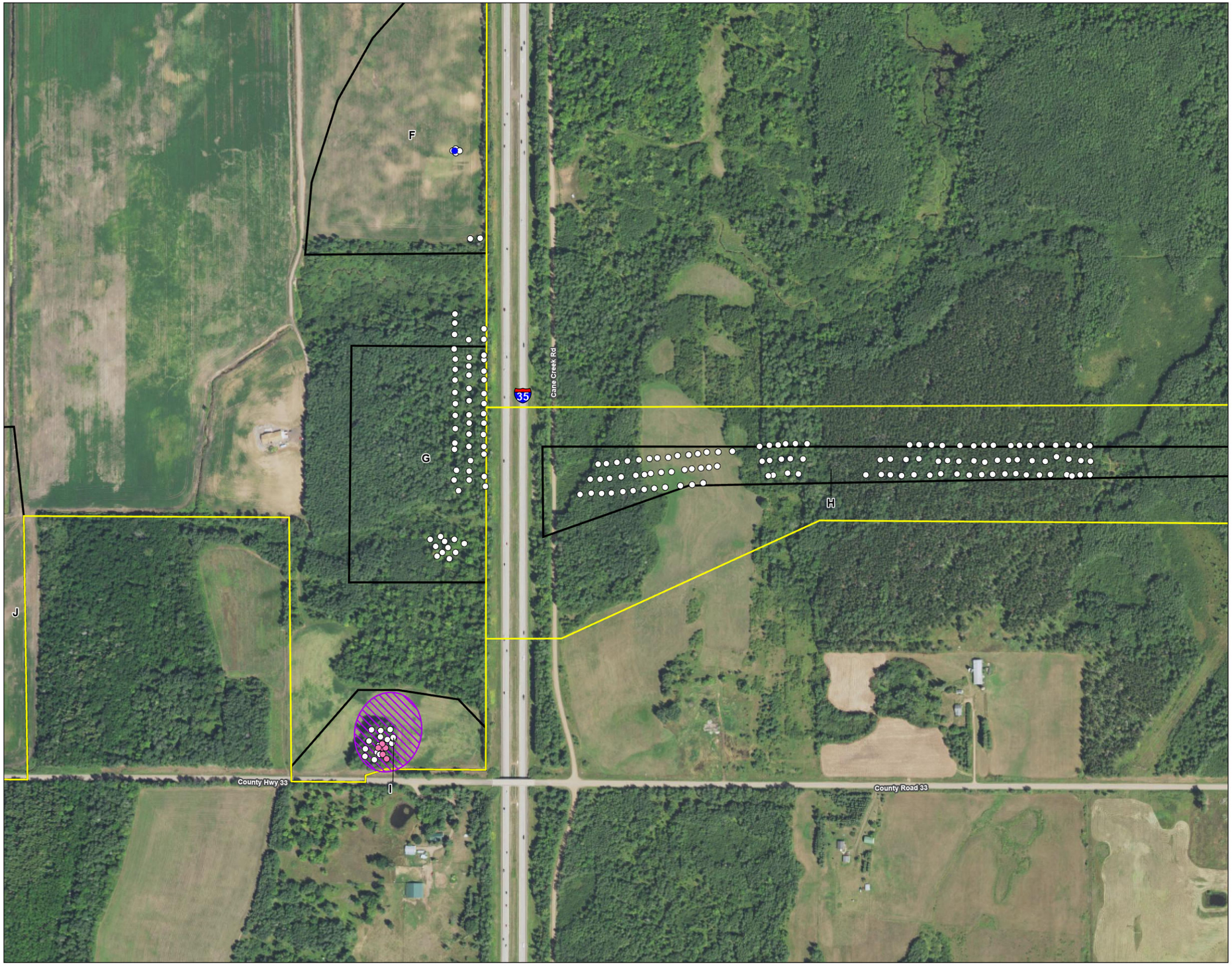

Figure No.
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Iron Pine Solar
Phase 1A Archaeological Literature Review

Project Location
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- Artifact Concentration

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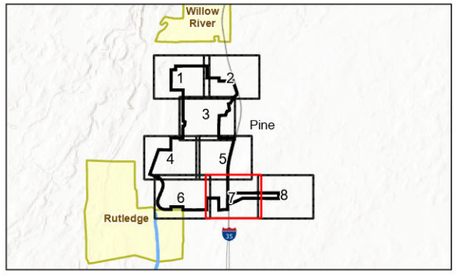

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2. Data Sources: Stantec, Iron Pine Solar, USGS, NADS
3. Background: NAIP 2021

Stantec

V:\1937\Active\193708962\03_data\gis_cad\gis\mxds\193708962_IronPine_CulturalResources.aprx Revised: 2024-05-14 By: mkarczewski

Figure No.
4

Title
Survey Results

Client/Project 193708962
Iron Pine Solar Power, LLC
Iron Pine Solar
Phase 1A Archaeological Literature Review

Project Location
Kettle River Township,
Pine County, Minnesota

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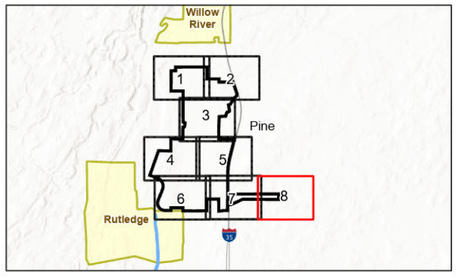

Notes
1. Coordinate System: NAD 1983 UTM Zone 15N
2. Data Sources: Stantec, Iron Pine Solar, USGS, NADS
3. Background: NAIP 2021

Stantec

[...NON PUBLIC DATA ENDS HERE]

Appendix B Site Form

[NON PUBLIC DATA BEGINS HERE...]

NONPUBLIC DOCUMENT - NOT FOR PUBLIC DISCLOSURE **SCHEDULE 3**

Rev.: 7/1/09

MINNESOTA ARCHAEOLOGICAL SITE FORM

OFFICE OF THE STATE ARCHAEOLOGIST
Fort Snelling History Center, St. Paul, MN 55111 (612) 725-2729

SITE #: 21- *(OSA assigns if New Site)* Site Name: Rehbein Point Agency/Field #: IP-8

_X_ New Site __ Site Update OSA License #: SHPO RC #:

Type of Fieldwork: _X_ Reconnaissance/Phase I
___ Evaluation/Phase II
___ Excavation/Phase III

Date(s) of This Fieldwork: 11/13/2023, 5/1/2024

NRHP Status: __ Listed __ Determined Eligible __ CEF(106) __ CNEF(106) _x_ Undetermined

LOCATIONAL INFORMATION

County: Pine City/Twp. Name: Kettle River Township SHPO Sub-Region: 5S *(see map in instructions)*

USGS 7.5' Quadrangle Map *(name and year):* Willow River 1981/1982

Township: 44N	Range: 20W	Section: 26	¼ Sections (at least 2): SE, NE
Township:	Range:	Section:	¼ Sections (at least 2):
Township:	Range:	Section:	¼ Sections (at least 2):

UTM Coordinates: (*less than 10 acres use center; over 10 acres define polygon around site; draw points on USGS*)
Zone: _15N Datum: ___ 1927 __x_ 1983 Method: ___ USGS Map _x_ GPS ___ Other

Point 1: Easting	513383	Northing 5123813
Point 2: Easting		Northing
Point 3: Easting		Northing
Point 4: Easting		Northing
Point 5: Easting		Northing

SITE CHARACTERISTICS

Acreage: Site Dimensions: N-S ____1m___ E-W __1m_ Maximum Cultural Depth (if known) _____

Site Description *(√all that apply, but only one check per line):*
_X_ single artifact __ lithic scatter __ artifact scatter
__ burial mound (number of mounds _____) __ non-mound lone grave __ non-mound cemetery
__ petroglyph __ pictograph __ petroform
__ surface features (list below)
__ other: _____

Surface Features (*√all that apply*): __ earthwork __ pit/depression __ foundation/ruin __ other: _____

Inferred Site Function (*√all that apply*): __ habitation __ mortuary __ farm __ industrial __ transportation
__ Other (*list*): _____ x unknown

Current Land Use (*list approximate % for all that apply):*
_X_ cultivated ___ fallow ___ commercial ___ recreational ___ industrial ___ residential
___ woodland ___ grassland ____ water-covered ___ other: _____

Surface Visibility (*list approximate % for all that apply):*
_90%_ excellent ___ good ___ fair ___ poor/none

Degree of Disturbance (*list approximate % for all that apply or √ unassessed):*
___ minimal ___ moderate _x_ heavy ___ completely destroyed ___ unassessed

Current Threats to Site: (*√all that apply or √ none known)*
__ erosion __ development _X_ agricultural __ other: _____ __ none known

SITE #: 21- Site Name: Rehbein Point Agency/Field #: IP-8

CULTURAL/TEMPORAL AFFILIATION

(list all that apply by level of certainty: 1 = confirmed; 2 = probable or √"not determined"):

Period:

__ not determined
X Precontact (9500 BC - 1650 AD)
__ Contact (1650-1837)
__ Post-Contact (1837-1945)

Precontact Context: *(list all that apply by level of certainty; if unable to discern specific context, √here __X__)*

Paleoindian Tradition __ not determined __ Folsom __ Lanceolate Point/Plano
__ Clovis __ Eastern Fluted __ other: _____

Archaic Tradition __ not determined __ Prairie __ Riverine
__ Shield __ Lake-Forest __ other: _____

Woodland Tradition __ not determined __ Fox Lake __ Laurel
__ SE Mn Early __ C Mn Transitional __ Lake Benton
__ Brainerd __ Blackduck-Kathio __ Psinomani/Sandy Lake
__ Havana-Related __ SE Mn Late __ Rainy River Late
__ other: _____

Plains Village Tradition __ not determined __ Cambria __ Great Oasis __ Big Stone
__ other: _____

Mississippian Tradition __ not determined __ Silvernale __ other: _____

Oneota Tradition __ not determined __ Blue Earth __ Orr __ other: _____

Contact Context: *(list all that apply by level of certainty; if unable to discern specific context, √here __)*

American Indian __ not determined __ Dakota __ Ojibwe __ other: _____

Euro-American __ not determined __ British __ other: _____
__ French __ Initial US

Post-Contact Context: *(list all that apply by level of certainty; if unable to discern specific context, √here __)*

__ Indian Communities & Reservations (1837-1934)
__ Early Agriculture & River Settlement (1840-1870)
__ Northern MN Lumbering (1870-1930s)
__ Tourism & Recreation (1870-1945)
__ St. Croix Triangle Lumbering (1830s-1900s)
__ Railroads & Agricultural Development (1870-1940)
__ Iron Ore Industry (1880s-1945)
__ Urban Centers (1870-1940)

Approximate Post-Contact Occupation/Site Formation Date(s): _____

Context Assignment/Dating Methods *(√all that apply):*

X artifact type/style __ feature type __ radiometric __ relative stratigraphy __ geomorphology
__ historic accounts (list) _____
__ historic maps (list) _____
__ other(s) (*specify*): _____

(For radiometric dates, attach photocopies of laboratory sheets if available.)

MATERIALS PRESENT *(√all that apply):*

Basic Artifact Categories

Ceramics
__ Aboriginal
__ Euro-American

Lithics
x projectile points
__ other chipped stone tools
__ debitage
__ ground/pecked stone
__ FCR

Biological Remains
__ animal
__ human
__ unidentified bone
__ seeds/nuts
__ charcoal

Historic Materials
__ glass
__ metal
__ brick
__ other: _____

__ aboriginal copper __ wood

Rev.: 7/1/09

MINNESOTA ARCHAEOLOGICAL SITE FORM

SITE #: 21- Site Name: Rehbein Point Agency/Field #: IP-8

Major Exotic Materials *(√all that apply):*

__ catlinite __ native copper __ Hixton orthoquartzite
__ Knife River Flint __ obsidian __ other: _____

Diagnostic Artifacts:

Ceramics: Prehistoric Types/Wares/Temper _____
Historic _____
Prehistoric Lithics: _____
Glass: _____
Metal: _____
Other: _____

ENVIRONMENTAL DATA **Current Topographic Setting** *(√all that apply):*

Away from Water	*Riverine*	*Lacustrine*
X general upland	__ fan	__ inlet/outlet
__ terrace edge	__ terrace/bluff top	__ peninsula
__ hilltop	__ stream-stream junction	__ island
__ glacial beach ridge	__ bluff-base	__ isthmus
__ rock outcrop	__ cave/rockshelter	__ general shoreline
__ other: _____	__ floodplain	__ bog/slough/lake bottom
	__ other: _____	__ other: _____

Topographic Feature Name from USGS Map: _____

OWNERSHIP INFORMATION

Source and Date of Ownership Information *(e.g., plat map, county recorder's office, personal communication, etc.):*

Ownership Type (*list approximate % for all that apply; if unknown √here __):*

___ Federal ___ State ___ Local (public) __ Tribal X Private

Land Owner *(name and address if known):* Willard C. Rehbein

CURRENT INVESTIGATION INFORMATION

Methods/Techniques Employed *(√all that apply):*

__ informant report __ small diameter soil coring (≈ 1" diameter) X surface survey
X shovel testing __ formal test units __ mechanical testing max. test depth 75 cmbs
__ geomorphological survey *(specify)*: _____
__ geophysical survey *(specify)*: _____
__ other: _____

Informant Name and Address (if known):

Known Collectors/Collections:

Artifact Repository *(name and accession numbers or repository agreement number):*

Most Recent Survey Report – Title, Author, Date: Phase I Archaeological Survey for the Iron Pine Solar Project, Pine County, Minnesota by Joshua Jensen and Rikka Bakken 2024.

Major Previous Bibliographic Reference(s) to Site:

Principal Investigator *(name and affiliation):* Angela Julin, Stantec

Form Completed By *(name and date):* Keyah Adams 5/3/2024

MAPS: *Attach/include original scale copy of 7.5' USGS map with site location clearly outlined or designated.*

Attach a sketch map if surface features present, if sub-surface testing done, or if complicated boundaries/setting. Sketch map must have re-locatable datum, scale, north arrow, and legend if symbols are used.

Rev.: 7/1/09

MINNESOTA ARCHAEOLOGICAL SITE FORM - CONTINUATION SHEET

SITE #: 21- Site Name: Rehbein Point Agency/Field #: IP-8

ADDITIONAL INFORMATION *(Reason for Update or Survey, Location, Site Characteristics, Materials Present, Setting, Archaeological Methods, etc.; attach extra sheets as needed.)*

The site consists of one isolated projectile point basal fragment located on the surface of a harvested soybean field on an upland north of an unnamed creek found during pedestrian survey on November 13, 2023 (see Photos 1 and 2). The point is quartz with bifacial removals and fractured horizontally between the stem and blade, with a side notched, convex base. The stem appears to have characteristics typical of Late Archaic small side-notched point bases. The topsoil around the site is mostly stripped to the subsoil. Shovel testing was conducted on May 1, 2024, at the location of the find and in 5 m radial shovel tests in cardinal directions to determine the presence of additional cultural material (see Table below). No additional cultural material was recovered. Due to prolonged impacts from seasonal agricultural operations and the unknown provenance of the point base, the research potential of the site has been exhausted and it is recommended that the site is Not Eligible for listing on the NRHP.

Photo 1. Site Overview, Facing Northeast.

Photo 2. Quartz Projectile Point Base

Shovel Test Profiles for Site Delineation

Shovel Test No.	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
KA 1	0-20 20-35 35-61	Ap Ap/B B	7.5YR 2.5/1 7.5YR 2.5/1 mottled with 40% 7.5YR 4/6 7.5YR 5/3	Fine Silty Sand Fine Silty Sand Fine Sand 10% gavel/small pebbles throughout	Diffuse transition from Ap to A/B, clear transition from A/B to Sand
KA 2	0-13 13-31	Ap B	10YR 2/2 7.5YR 3/4	Sandy Loam with 10% gravel, Sandy Loam	Clear transition from Ap to B
KA 3	0-31 31-52	Ap B	7.5YR 2.5/1 7.5YR 5/3	Fine Silty Sand Fine Sand 10% gavel/small pebbles throughout	

Shovel Test No.	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
KA 4	0-10	Ap	10YR 2/2	Sandy Loam with 10-15% gravel Sandy Loam	
	10-17	A	10YR 2/1	Sandy Loam	
	17-40	B	7.5YR 3/4		
KA 5	0-40	Ap	7.5YR 2.5/1	Fine Silty Sand	
	40-73	AB	7.5YR 2.5/1 mottled with 40% 7.5YR 4/6 7.5YR 5/3	Fine Silty Sand	
	73-75	B		Fine Sand 10% gavel/small pebbles throughout	

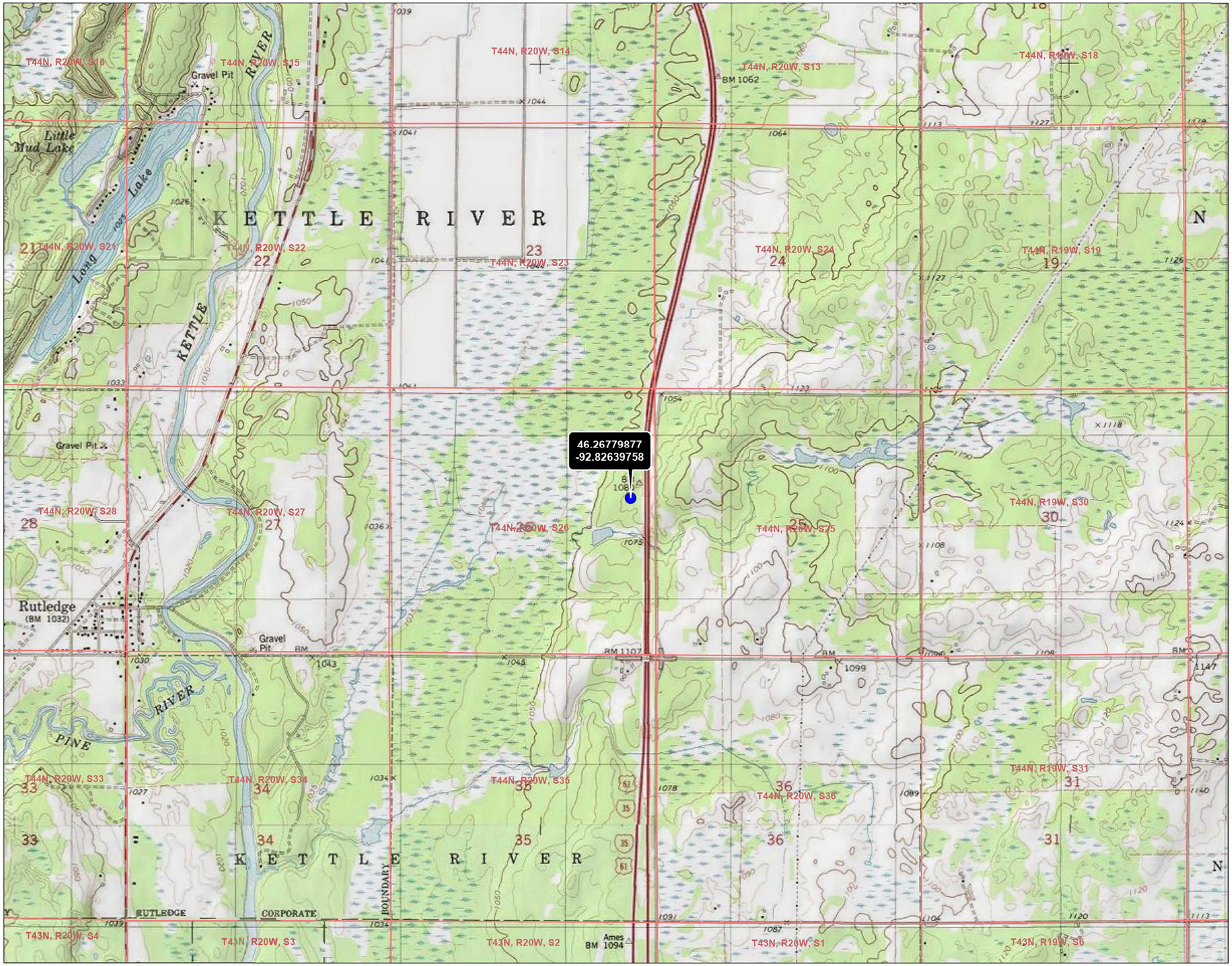

Figure No.
1

Title
Field Site IP-8 Location

Project 193708962
Iron Pine Solar Project
Phase I Archaeological Survey

Project Location
Kettle River Township,
Pine County, Minnesota

Prepared by MEK on 2024-05-09
TR by ML on 2024-05-09
IR by XXX on 2024-XX-XX

N

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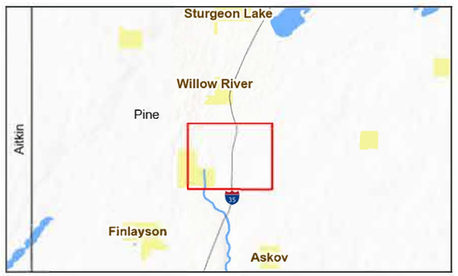
(At original document size of 11x17)
1:24,000

Legend
- Field Site IP-8



Notes
1. Coordinate System: NAD 1983 UTM Zone 15N
2. Data Sources: Stantec, Swift Current Energy, USGS, NADS
3. Background: USGS 7.5' Topographic Quadrangles

Stantec

Figure No.
2

Title
Field Site IP-8 Results

Project 193708962
Iron Pine Solar Project
Phase I Archaeological Survey

Project Location
Kette River Township,
Pine County, Minnesota

Prepared by MEK on 2024-05-09
TR by ML on 2024-05-09
IR by XXX on 2024-XX-XX

N

0 40 80 Feet

(At original document size of 11x17)
1:540

Legend
- Field Site IP-8

Shovel Test Points
- Positive*
- Negative

*No features within data frame

Notes
1. Coordinate System: NAD 1983 UTM Zone 15N
2. Data Sources: Stantec, Swift Current Energy, USGS, NADS
3. Background: NAIP 2021

Stantec

[...NON PUBLIC DATA ENDS HERE]

Appendix C SHPO Correspondence

March 1, 2024

Joey Shannon
Iron Pine Solar Power, LLC
470 Atlantic Avenue, Suite 601
Boston, MA 02210

RE: Iron Pine Solar Project
Kettle River Township, Pine County
SHPO Number: 2024-0836

Dear Joey Shannon:

Thank you for the opportunity to review and comment on the above referenced project. Information received on January 17, 2024, has been reviewed pursuant to the responsibilities given the State Historic Preservation Office by the Minnesota Historic Sites Act (Minn. Stat. 138.665-666).

According to your correspondence, Iron Pine Solar, Power, LLC is proposing to construct and operate an up to 325 MW solar energy generating system and a 230 kV high voltage transmission line and associated facilities (Project) in Pine County, Minnesota. The associated facilities include a project substation, a short generator tie-in line to connect the solar facility to the substation, access roads, underground electrical collection system, and potentially an operations and maintenance (O&M) building. As proposed, the transmission line will start at the solar energy generating system's substation and extend to Minnesota Power's Arrowhead-Bear Creek 230 kV transmission line.

We have reviewed the document, *Cultural Resources Desktop Assessment of Iron Pine Solar Project, Pine County, Minnesota* (January 17, 2024) as prepared by Stantec Consulting Services. We generally agree that the Cultural Resources Probability Model is appropriate and look forward to reviewing the final survey report when it becomes available. We understand that the high landform in the southwest corner of the project area is not included in the proposed survey area because it will not be impacted by the proposed Project. If this is not the case, we recommend including this landform in the archaeological survey area. Based on the documentation provided, we agree that there are no properties listed in the National or State Registers of Historic Places, or in the Historic Site Network, located within the proposed Project area.

Please note that this comment letter does not address the requirements of Section 106 of the National Historic Preservation Act of 1966 and 36 CFR § 800. If this project is considered for federal financial assistance, or requires a federal permit or license, then review and consultation with our office will need to be initiated by the lead federal agency. Be advised that comments and recommendations provided by our office for this state-level review may differ from findings and determinations made by the federal agency as part of review and consultation under Section 106.

If you have any questions regarding our review of this project, please contact me at (651) 201-3285 or kelly.graggjohnson@state.mn.us.

Sincerely,

Kelly Gragg-Johnson

Kelly Gragg-Johnson
Environmental Review Program Specialist

Appendix D Shovel Test Profiles

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
RB 1	Area H/Gen-tie line	0-20	Ap	10YR 3/3	Silt Loam	Inundated
RB 2	Area H/Gen-tie line	0-29 29-40	Ap B	10YR 3/3 2.5YR 4/4	Silt Loam Silty Clay	Inundated B-Hor
RB 3	Area H/Gen-tie line	0-24 24-30	Ap B	10YR 3/3 10YR 3/6	Silt Loam Sandy Loam	Inundated B-Hor
RB 4	Area H/Gen-tie line	0-30 30-40	Ap B	10YR 3/3 10YR 3/6	Silt Loam Sandy Loam	
RB 5	Area H/Gen-tie line	0-33 33-46	Ap B	10YR 3/3 2.5YR 4/4	Silt Loam Silty Clay	
RB 6	Area H/Gen-tie line	0-23 23-37	Ap B	10YR 3/3 10YR 3/6	Silt Loam Sandy Loam	
RB 7	Area H/Gen-tie line	0-38 38-44	Ap B	10YR 3/3 2.5YR 4/4	Silt Loam Silty Clay	
RB 8	Area H/Gen-tie line	0-26 26-38	Ap B	10YR 3/3 10YR 3/6	Silt Loam Sandy Loam	
RB 9	Area H/Gen-tie line	0-22 22-33	Ap B	10YR 3/3 10YR 3/6	Silt Loam Sandy Loam	
RB 10	Area H/Gen-tie line	0-23 23-36	Ap B	10YR 3/3 2.5YR 4/4	Silt Loam Silty Clay	
RB 11	Area G/Gen-tie line	0-25 25-40	Ap B	10YR 3/2 10YR 4/4	Sandy Loam Silty Sand	
RB 12	Area G/Gen-tie line	0-28 28-38	Ap B	10YR 3/2 10YR 4/4	Sandy Loam Silty Sand	
RB 13	Area G/Gen-tie line	0-25 25-45	Ap B	10YR 3/2 10YR 4/4	Sandy Loam Silty Sand	
RB 14	Area G/Gen-tie line	0-20 20-30	Ap B	10YR 3/2 10YR 4/4	Sandy Loam Silty Sand	
RB 15	Area G/Gen-tie line	0-18 18-30	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 16	Area H/Switchyard	0-14 14-27	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 17	Area H/Switchyard	0-14 14-25	Ap B	10YR 3/2 10YR 4/4	Clay Loam Sandy Clay	
RB 18	Area H/Switchyard	0-19 19-30	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 19	Area H/Switchyard	0-30 30-42	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	Terminated at root impasse
RB 20	Area H/Switchyard	0-16 16-25	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 21	Area H/Switchyard	0-22 22-33	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 22	Area H/Switchyard	0-15 15-30	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 23	Area E	0-13 13-28	Ap B	10YR 2/1 10YR 3/4	Sandy Loam Loamy Sand	
RB 24	Area E	0-22 22-30	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 25	Area E	0-18 18-30	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 26	Area E	0-2 2-12	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	Stripped
RB 27	Area E	0-10	Ap	7.5YR 4/4		Stripped
RB 28	Area E	0-19 19-30	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
RB 29	Area E	0-10 10-24	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 30	Area E	0-18 18-29	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 31	Area E	0-10 10-14	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	Terminated at root impasse
RB 32	Area E	0-12 12-24	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 33	Area E	0-30 30-42	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 34	Area E	0-6 6-33	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 35	Area E	0-10 10-22	Ap B	10YR 2/2 7.5YR 3/3	Sandy Loam Loamy Sand	
RB 36	Area E	0-20 20-33	Ap B	10YR 2/2 7.5YR 3/3	Sandy Loam Loamy Sand	
RB 37	Area E	0-17 17-33	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 38	Area E	0-20 20-33	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 39	Area E	0-17 17-36	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 40	Area E	0-10 10-30	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 41	Area E	0-28 28-38	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 42	Area E	0-19 19-29	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 43	Area E	0-20 20-38	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 44	Area E	0-23 23-39	Ap B	10YR 3/2 7.5YR 4/4	Clay Loam Sandy Clay	
RB 45	Area H/Access Road	0-15 15-30	Ap B	10YR 3/2 10YR 4/3	Clay Loam Sandy Silt	Terminated at water table
RB 46	Area H/Access Road	0-10	B	10YR 4/3	Sandy Silt	Stripped
RB 47	Area H/Access Road	0-25 25-36	Ap B	10YR 3/4 5YR 3/4	Silty Clay Loam Sandy Silt	Terminated at water table
RB 48	Area H/Access Road	0-30 30-38	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy Loam	
RB 49	Area H/Access Road	0-27 27-35	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy Loam	
RB 50	Area H/Access Road	0-30 30-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy Loam	Terminated at water table
RB 51	Area H/Access Road	0-20 20-34	Ap B	10YR 3/3 10YR 4/3	Sandy Loam Sandy Loam	Mucky
RB 52	Area H/Access Road	0-37 37-47	Ap B	10YR 3/4 5YR 3/4	Silty Clay Loam Sandy Silt	

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
RB 53	Area H/Access Road	0-30	Ap	10YR 3/3	Sandy Loam	Root Impasse
RB 54	Area F/Gen-tie line	0-90 90-100	Ap B	10YR 2/1 7.5YR 3/4 and 7.5YR 4/4	Sandy Silt Loam Sandy Loam	
RB 55	Area G	0-27 27-42	Ap B	10YR 2/2 10YR 3/4	Sandy Silty Loam Silty Sand	Well saturated
RB 56	Area G	0-17 17-20	Ap B	10YR 2/2 10YR 3/4	Sandy Silty Loam Silty Sand	Well saturated, Root/Rock Impasse
RB 57	Area G	0-16 16-30	Ap B	10YR 2/2 10YR 3/4	Sandy Silty Loam Silty Sand	Well saturated
RB 58	Area I	0-30 30-45	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Silty Sand	20% gravel throughout, clear transition
RB 59	Area I	0-31 31-42	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Silty Sand	20% gravel throughout, clear transition
RB 60	Area I	0-22 22-37	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Silty Sand	20% gravel throughout, clear transition
RB 61	Area I	0-25 25-40	Ap B	10YR 2/2 10YR 4/4	Sandy Loam Silty Sand	20% gravel throughout, clear transition, 1 large wire nail (13cm)
RB 62	Area I	0-20 20-30	Ap B	10YR 2/2 10YR 4/4	Sandy Loam Silty Sand	20% gravel throughout, clear transition
RB 63	Area I	0-20 20-30	Ap B	10YR 2/2 10YR 4/4	Sandy Loam Silty Sand	20% gravel throughout, clear transition, more saturated
RB 64	Area I	0-19 19-40	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Silty Sand	20% gravel throughout, clear transition
RB 65	Area I	0-24 24-38	Ap B	10YR 2/2 10YR 4/4	Sandy Loam Silty Sand	20% gravel throughout, clear transition
RB 66	Area I		Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Silty Sand	20% gravel throughout, clear transition, 2 wire nails, 2 misc. metal, 1 flat clear glass
JJ 1	Area H/Gen-tie line	0-15 15-33	Ap B	10YR 3/3 10YR4/4	Sandy Loam Sandy Loam	Inundated
JJ 2	Area H/Gen-tie line	0-19	Ap	10YR 3/3	Sandy Loam	Inundated
JJ 3	Area H/Gen-tie line	0-34 34-50	Ap B	10YR 3/3 10YR4/4	Sandy Loam Loamy Sand with 30% gravel	Inundated B-Hor
JJ 4	Area H/Gen-tie line	0-24 24-40	Ap B	10YR 3/3 10YR4/4	Sandy Loam Loamy Sand with 30% gravel	
JJ 5	Area H/Gen-tie line	0-36 36-49	Ap B	10YR 3/3 10YR4/4	Sandy Loam	

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
					Loamy Sand with 35% gravel	
JJ 6	Area H/Gen-tie line	0-23 23-33	Ap B	10YR 3/3 10YR4/4	Sandy Loam Loamy Sand with 35% gravel	Inundated B-Hor
JJ 7	Area H/Gen-tie line	0-20 20-34	Ap B	10YR 2/1 10YR 4/3	Silt Loam Sandy Loam	
JJ 8	Area H/Gen-tie line	0-29 29-47	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JJ 9	Area H/Gen-tie line	0-26 26-37	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy Loam	Gravel in first 3 cm
JJ 10	Area H/Gen-tie line	0-31 31-42	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy Loam	Gravel in first 3 cm
JJ 11	Area H/Gen-tie line	0-28 28-38	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy Loam	Gravel in first 3 cm, blue-grey lime inclusions
JJ 12	Area H/Gen-tie line	0-28 28-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy Loam	Gravel in first 3 cm
JJ 13	Area H/Gen-tie line	0-27 27-30	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy Loam	Terminated at rock impasse
JJ 14	Area H/Gen-tie line	0-21 21-36	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JJ 15	Area H/Gen-tie line	0-20 20-31	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JJ 16	Area H/Gen-tie line	0-22 22-35	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam with 20% gravel	
JJ 70	Area H/Access Road	0-35 35-46	Ap B	10YR 3/3 7.5YR 4/4	Sandy Loam with 30-40% gravel Sandy Loam with 30-40% gravel	
JJ 17	Area G/Gen-tie line	0-22 22-32	Ap B	10YR 3/3 7.5YR 4/4	Sandy Loam with 30-40% gravel Sandy Loam with 30-40% gravel	
JJ 18	Area G/Gen-tie line	0-30 30-41	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JJ 19	Area G/Gen-tie line	N/A	N/A	N/A	N/A	Not Dug - Inundated
JJ 20	Area G/Gen-tie line	0-19 19-30	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JJ 21	Area G/Gen-tie line	0-19 19-25	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam	Terminated at root impasse
JJ 22	Area G/Gen-tie line	0-21 21-32	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JJ 23	Area G/Gen-tie line	0-20 20-35	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JJ 24	Area G/Gen-tie line	0-20 20-31	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JJ 25	Area G/Gen-tie line	0-20 20-32	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JJ 26	Area H/Switchyard	0-22 22-34	Ap B	7.5YR 4/4 7.5YR 3/2	Sandy Loam Sandy Loam	
JJ 27	Area H/Switchyard	0-16 16-27	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam	Inundated
JJ 28	Area H/Switchyard	0-16 16-28	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam	Inundated

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
JJ 29	Area H/Switchyard	0-3	N/A	N/A	N/A	Inundated
JJ 30	Area H/Switchyard	0-16 16-30	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JJ 31	Area H/Switchyard	0-23 23-35	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JJ 32	Area E	0-21 21-32	Ap B	10YR 3/2 7.5YR 4/4	Loamy Sand Sand	
JJ 33	Area E	0-26 26-38	Ap B	10YR 4/4 7.5YR 4/4	Loamy Sand Loamy Sand	
JJ 34	Area E	0-31 31-41	Ap B	10YR 3/4 7.5YR 4/4	Loamy Sand Loamy Sand	
JJ 35	Area E	0-25 25-37	Ap B	10YR 3/4 7.5YR 4/4	Loamy Sand Loamy Sand	
JJ 36	Area E	0-30 30-41	Ap B	10YR 3/4 7.5YR 4/4	Loamy Sand Loamy Sand	
JJ 37	Area E	0-30 30-41	Ap B	10YR 3/4 7.5YR 4/4	Loamy Sand Loamy Sand	
JJ 38	Area E	0-22 22-40	Ap B	10YR 3/4 7.5YR 4/4	Loamy Sand Loamy Sand	
JJ 39	Area E	0-32 32-41	Ap B	10YR 3/4 7.5YR 4/4	Loamy Sand Loamy Sand	
JJ 40	Area E	0-16 16-30	Ap B	10YR 3/4 7.5YR 4/4	Loamy Sand Loamy Sand	
JJ 41	Area E	0-26 26-37	Ap B	10YR 3/4 7.5YR 4/4	Loamy Sand Loamy Sand	
JJ 42	Area E	0-23 23-33	Ap B	10YR 3/4 7.5YR 4/4	Loamy Sand Loamy Sand	
JJ 43	Area E	0-36 36-47	Ap B	10YR 3/4 7.5YR 4/4	Loamy Sand Loamy Sand	
JJ 44	Area E	0-34 34-46	Ap B	10YR 3/4 7.5YR 4/4	Loamy Sand Loamy Sand	
JJ 45	Area E	0-26	Ap	10YR 3/4	Loamy Sand	Terminated at root impasse
JJ 46	Area E	0-30 30-40	Ap B	10YR 3/4 7.5YR 4/4	Loamy Sand Loamy Sand	
JJ 47	Area E	0-35 35-45	Ap B	10YR 3/4 7.5YR 4/4	Loamy Sand Loamy Sand	
JJ 48	Area E	0-45 45-56	Ap B	10YR 3/4 7.5YR 4/4	Loamy Sand Loamy Sand	
JJ 49	Area E	0-35 3545	Ap B	10YR 3/4 7.5YR 4/4	Loamy Sand Loamy Sand	
JJ 50	Area E	0-10 10-30	Ap B	10YR 2/1 10YR 3/4	Sandy Loam Loamy Sand	
JJ 51	Area E	0-8 8-20	Ap B	10YR 2/1 10YR 3/4	Sandy Loam Loamy Sand	
JJ 52	Area E	0-11 11-46	Ap B	10YR 2/1 10YR 3/4	Sandy Loam Loamy Sand	
JJ 53	Area E	0-15 15-38	Ap B	10YR 2/1 10YR 3/4	Sandy Loam Loamy Sand	
JJ 54	Area E	0-15 15-33	Ap B	10YR 2/1 10YR 3/4	Sandy Loam Loamy Sand	
JJ 55	Area E	0-20 20-40	Ap B	10YR 2/1 10YR 3/4	Sandy Loam Loamy Sand	
JJ 56	Area E	0-16 16-36	Ap B	10YR 2/2 10YR 3/4	Sandy Loam Loamy Sand with smooth gravel	

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
JJ 57	Area E	0-15 15-39	Ap B	10YR 2/1 7.5YR 4/4	Sandy Loam Loamy Sand	
JJ 58	Area E	0-15 15-38	Ap B	10YR 2/1 7.5YR 3/4	Sandy Loam Loamy Sand	
JJ 59	Area E	0-8 8-14 14-38	Ap Carbon layer B	7.5YR 3/4 10YR 2/1 7.5YR 3/4	Sandy Loam Sandy Loam Loamy Sand	
JJ 60	Area E	0-16 16-33	Ap B	10YR 2/1 10YR 3/4	Sandy Loam Loamy Sand	
JJ 61	Area E	0-20 20-40	Ap B	10YR 2/1 10YR 3/4	Sandy Loam Loamy Sand	
JJ 62	Area E	0-15 15-20	Ap B	10YR 2/1 10YR 3/4	Sandy Loam Loamy Sand	Terminated at root impasse
JJ 63	Area E	0-20 20-40	Ap B	10YR 2/1 7.5YR 4/4	Sandy Loam Loamy Sand	
JJ 64	Area E	0-20 20-46	Ap B	10YR 2/1 10YR 3/4	Sandy Loam Loamy Sand	
JJ 65	Area H/Access Road	N/A	N/A	N/A	N/A	Inundated
JJ 66	Area H/Access Road	0-17 17-20	Ap B	10YR 3/2 10YR 4/2	Sandy Loam Sandy Loam	Inundated at 21 cm
JJ 67	Area H/Access Road	0-20 20-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JJ 68	Area H/Access Road	0-20 20-33	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JJ 69	Area H/Access Road	0-21 21-34	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JJ 71	Area E	0-6 6-46	Ap B	10YR 2/1 10YR 3/4	Sandy Loam Loamy Sand with smooth gravel	
JJ 72	Area G	0-20 20-39	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam with 30% gravel	Saturated, terminated at water table
JJ 73	Area G	0-10 10-31	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam with 30% gravel	
JJ 74	Area G	0-21 21-40	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam with 30% gravel	
JJ 75	Area G	0-17 17-30	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam with 30% gravel	Inundated
JJ 76	Area I	0-15 15-39	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam with 30% cobbles	Saturated
JJ 77	Area I	0-17 17-40	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam with 30% gravel	3 wire nails, 1 cut nail. 2 colorless vessel glass, 1 milk glass, 1 vert. sawn mammal upper facet, all in A hor.

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
JJ77 E5	Area I	0-20 20-40	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam with 30% gravel	9 colorless vessel glass, 2 colorless flat glass, 4 wire nails, 2 whiteware rims, 1 whiteware, 1 molded whiteware, 2 whiteware with smoky underglaze, 1 soft paste porcelain, 3 metal chain links, 1 metal spigot, all in A hor.
JJ77 N5	Area I	0-19 19-37	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam with 15% gravel	3 whiteware, 1 whiteware with blue-red- and green floral decal
MF 1	Area H/Gen-tie line	0-10 10-30	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	
MF 2	Area H/Gen-tie line	0-10	Ap	10YR 3/2	Sandy Clay	Inundated at 10 cm
MF 3	Area H/Gen-tie line	N/A	N/A	N/A	N/A	Inundated
MF 4	Area H/Gen-tie line	0-10 10-30	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	
MF 5	Area H/Gen-tie line	0-10	Ap	10YR 3/2	Sandy Clay	Inundated at 10 cm
MF 6	Area H/Gen-tie line	0-7 7-25	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	
MF 7	Area H/Gen-tie line	0-5 5-20	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	
MF 8	Area H/Gen-tie line	0-30 30-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	
MF 9	Area H/Gen-tie line	0-20 20-30	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	
MF 10	Area H/Gen-tie line	0-20 20-30	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	
MF 11	Area H/Gen-tie line	0-20 20-30	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	
MF 12	Area H/Gen-tie line	0-35 35-45	Ap B	10YR 3/4 7.5YR 4/4	Sandy Loam Silty Sand	
MF 13	Area G/Gen-tie line	0-20 20-35	Ap B	10YR 2/1 7.5YR 4/4	Sandy Loam Silty Sand	Inundated
MF 14	Area G/Gen-tie line	0-20 20-30	Ap B	10YR 2/1 7.5YR 4/4	Sandy Loam Silty Sand	
MF 15	Area G/Gen-tie line	0-20 20-30	Ap B	10YR 2/1 7.5YR 4/4	Sandy Loam Silty Sand	
MF 16	Area G/Gen-tie line	0-16 16-30	Ap B	10YR 2/1 7.5YR 4/4	Sandy Loam Silty Sand	
MF 17	Area G/Gen-tie line	0-18 18-28	Ap B	10YR 2/1 7.5YR 4/4	Sandy Loam Silty Sand	
MF 18	Area G/Gen-tie line	0-15 15-30	Ap B	10YR 2/1 7.5YR 4/4	Sandy Loam Silty Sand	
MF 19	Area H/Switchyard	0-20 20-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	
MF 20	Area H/Switchyard	0-20 20-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
MF 21	Area H/Switchyard	0-15 15-33	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	
MF 22	Area H/Switchyard	0-20 20-30	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	
MF 23	Area H/Switchyard	0-21	Ap	10YR 3/2	Sandy Clay	Terminated at root impasse
MF 24	Area H/Switchyard	0-17 17-34	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	
MF 25	Area H/Switchyard	0-16 16-30	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	Inundated at 30 cm
MF 26	Area H/Switchyard	0-20 20-38	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	Inundated at 38 cm
MF 27	Area H/Switchyard	0-15 15-30	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	
MF 28	Area H/Switchyard	0-15 15-30	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	
MF 29	Area H/Switchyard	0-18 18-35	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	
MF 30	Area H/Switchyard	0-18 18-33	Ap B	10YR 3/2 7.5YR 4/4	Sandy Clay Silty Sand	
MF 31	Area E	0-18 18-33	Ap B	7.5YR 3/4 5YR 4/6	Sandy Loam Silty Sand	
MF 32	Area E	0-42 42-52	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	
MF 33	Area E	0-35 35-45	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	
MF 34	Area E	0-28 28-38	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	
MF 35	Area E	0-35 35-48	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	
MF 36	Area E	0-33 33-48	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	
MF 37	Area E	0-32	Ap B	10YR 4/4	Silty Sand	Terminated at root impasse
MF 38	Area E	0-35 35-58	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	
MF 39	Area E	0-30 30-46	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	
MF 40	Area E	0-35 35-45	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	
MF 41	Area E	0-2 2-12	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	
MF 42	Area E	0-1 1-11	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	
MF 43	Area E	0-43 43-60	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	
MF 44	Area E	0-37 37-47	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	
MF 45	Area E	0-35 35-56	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	
MF 46	Area E	0-29 29-48	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	
MF 47	Area E	0-35 35-50	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	
MF 48	Area E	0-27 27-42	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	
MF 49	Area E	0-22	Ap	10YR 4/4	Silty Sand	1 vessel glass

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
		22-37	B	7.5YR 4/4	Silty Sand	
MF 49E	Area E	0-30 30-40	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	
MF 50	Area E	0-2 2-22	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	Stripped
MF 51	Area E	0-2 2-28	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	Stripped
MF 52	Area E	0-1 1-17	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	Stripped
MF 53	Area E	0-18 18-36	Ap B	10YR 4/4 7.5YR 4/4	Silty Sand Silty Sand	
MG 1	Area H/Gen-tie line	0-42	Ap	10YR 3/3	Sandy Loam	Terminated due to Inundation
MG 2	Area H/Gen-tie line	0-32	Ap	10YR 3/3	Sandy Loam	Terminated due to Inundation
MG 3	Area H/Gen-tie line	0-26 26-36	Ap B	10YR 3/3 10YR 4/4	Sandy Loam Sandy Loam	Inundated at 33 cm
MG 4	Area H/Gen-tie line	N/A	N/A	N/A	N/A	Inundation
MG 5	Area H/Gen-tie line	0-32	Ap	10YR 3/3	Sandy Loam	
MG 6	Area H/Gen-tie line	0-27 27-36	Ap B	10YR 3/3 10YR 4/4	Sandy Loam Sandy Loam	
MG 7	Area H/Gen-tie line	0-33 33-35 35-46	Ap Charcoal B	10YR 3/3 10YR 2/1 10YR 4/4	Sandy Loam Burned Layer Sandy Loam	Charcoal between 33-35 cm
MG 8	Area H/Gen-tie line	0-34 34-44	Ap B	10YR 3/3 5YR 4/4	Sandy Loam Sandy Loam	
MG 9	Area H/Gen-tie line	0-28 28-41	Ap B	10YR 3/3 7.5YR 4/4	Sandy Loam Sandy Loam	
MG 10	Area H/Gen-tie line	0-20 20-31	Ap B	10YR 3/3 10YR 4/4	Sandy Loam Sandy Loam	
MG 11	Area H/Gen-tie line	0-23 23-35	Ap B	10YR 3/3 10YR 4/4	Sandy Loam Sandy Loam	
MG 12	Area H/Gen-tie line	0-27 27-35	Ap B	10YR 3/3 10YR 4/4	Sandy Loam Sandy Loam	
MG 13	Area H/Gen-tie line	0-17 17-33	Ap B	10YR 3/3 10YR 3/6	Sandy Loam Sandy Loam	
MG 14	Area H/Gen-tie line	0-18 18-31	Ap B	10YR 3/3 10YR 3/6	Sandy Loam Sandy Loam	
MG 15	Area H/Gen-tie line	0-28 28-38	Ap B	10YR 2/2 10YR 3/6	Sandy Loam Sandy Loam	
MG 16	Area H/Gen-tie line	0-21 21-35	Ap B	10YR3/3 10YR4/4	Sandy Loam Sandy Loam	
MG 17	Area H/Gen-tie line	0-28 28-37	Ap B	10YR3/3 10YR4/4	Sandy Loam Sandy Loam	
MG 18	Area H/Gen-tie line	0-30 30-43	Ap B	10YR3/3 7.5YR4/4	Sandy Loam Sandy Loam	
MG 19	Area H/Gen-tie line	0-22 22-33	Ap B	10YR3/3 7.5YR4/4	Sandy Loam Sandy Loam	
MG 20	Area H/Gen-tie line	0-26 26-32	Ap B	10YR3/3 7.5YR4/4	Sandy Loam Sandy Loam	
MG 21	Area H/Gen-tie line	0-18 18-34	Ap B	10YR3/2 10YR3/4	Sandy Loam Sandy Loam	
MG 22	Area H/Gen-tie line	0-22 22-33	Ap B	10YR3/2 7.5YR3/4	Sandy Loam Sandy Loam	

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
MG 23	Area H/Gen-tie line	0-16 16-30	Ap B	10YR3/3 7.5YR3/4	Sandy Loam Sandy Loam	
MG 24	Area H/Gen-tie line	0-10 10-21	Ap B	10YR3/2 10YR4/4	Sandy Loam Sandy Loam	Root disturbance, slope to wetland
MG 25	Area G/Gen-tie line	0-20 20-31	Ap B	10YR3/2 10YR4/4	Sandy Loam Sandy Loam	Root disturbance
MG 26	Area G/Gen-tie line	0-23 23-32	Ap B	10YR3/2 10YR4/4	Sandy Loam Sandy Loam	
MG 27	Area G/Gen-tie line	0-15 15-32	Ap B	10YR3/2 10YR4/4	Sandy Loam Sandy Loam	
MG 28	Area G/Gen-tie line	0-19 19-29	Ap B	10YR2/2 10YR4/4	Sandy Loam Sandy Loam	Ground water
MG 29	Area G/Gen-tie line	0-23 23-32	Ap B	10YR2/2 10YR4/4	Sandy Loam Sandy Loam	
MG 30	Area G/Gen-tie line	0-35 35-48	Ap B	10YR3/2 10YR4/6	Sandy Loam Sandy Loam	
MG 31	Area G/Gen-tie line	0-19 19-32	Ap B	10YR3/2 10YR4/6	Sandy Loam Sandy Loam	
MG 32	Area G/Gen-tie line	0-20 20-33	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	
MG 33	Area H/Switchyard	0-22 22-31	Ap B	10YR3/3 10YR4/4	Sandy Loam Sandy Loam	Ground water
MG 34	Area H/Switchyard	0-20 20-31	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	Ground water
MG 35	Area H/Switchyard	0-20 20-31	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	Ground water
MG 36	Area H/Switchyard	0-20 20-30	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	Ground water
MG 37	Area H/Switchyard	0-19 19-30	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	Ground water
MG 38	Area H/Switchyard	0-20 20-33	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	Ground water
MG 39	Area H/Switchyard	0-20 20-33	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	Ground water
MG 40	Area H/Switchyard	0-20 20-30	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	Ground water
MG 41	Area H/Switchyard	0-20 20-31	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	
MG 42	Area E	0-12 12-32	Ap B	10YR2/2 7.5YR3/4	Sandy Loam Sandy Loam	
MG 43	Area E	0-35 35-42	Ap B	10YR3/3 7.5YR4/4	Sandy Loam Sandy Loam	
MG 44	Area E	0-29 29-38	Ap B	10YR3/3 7.5YR4/4	Sandy Loam Sandy Loam	
MG 45	Area E	0-32 32-40	Ap B	10YR3/3 7.5YR4/4	Sandy Loam Sandy Loam	
MG 46	Area E	0-30 30-44	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	Clear glass container base
MG 46E	Area E	0-30 30-40	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	
MG 47	Area E	0-29 29-39	Ap B	10YR3/3 7.5YR4/4	Sandy Loam Sandy Loam	
MG 48	Area E	0-32 32-43	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	
MG 49	Area E	0-17 17-28	Ap B	10YR3/3 7.5YR4/4	Sandy Loam Sandy Loam	
MG 50	Area E	0-22	Ap	10YR3/2	Sandy Loam	

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
		22-32	B	7.5YR4/4	Sandy Loam	
MG 51	Area E	0-32 32-41	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	Modern clear container glass
MG 52	Area E	0-24 24-36	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	
MG 53	Area E	0-32 32-42	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	
MG 54	Area E	0-27 27-43	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	
MG 55	Area E	0-25 25-39	Ap B	10YR3/3 7.5YR4/4	Sandy Loam Sandy Loam	
MG 56	Area E	0-31 31-42	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	Clear container glass
MG 56W	Area E	0-22 22-37	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	Wire nail
MG 56W10	Area E	0-20 20-38	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	
MG 56E	Area E	0-30 30-40	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	
MG 56N2	Area E	0-30 30-40	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Sandy Loam	
MG 57	Area E	0-18	Ap B	7.5YR4/4	N/A	Stripped subsoil at surface
MG 58	Area E	0-29 29-47	Ap B	10YR3/3 7.5YR4/4	Sandy Loam Sandy Loam	
MG 59	Area E	0-9 9-25	Ap B	10YR3/3 7.5YR4/4	Sandy Loam Sandy Loam	Stripped surface
MG 60	Area E	0-23 23-35	Ap B	10YR2/1 10YR3/4	Sandy Loam Sandy Loam	
MG 61	Area E	0-22 22-27 27-41	Ap Carbon Ap	10YR2/2 10YR2/1 10YR3/4	Sandy Loam Sandy Loam Sandy Loam	Black lens at 22-27cm, large root disturbance at 41cm
MG 62	Area E	0-19 19-35	Ap B	10YR2/1 10YR3/4	Sandy Loam Sandy Loam	Gravel present in subsoil
MG 63	Area E	0-18 18-34	Ap B	10YR2/1 10YR3/4	Sandy Loam Sandy Loam	
MG 64	Area E	0-18 18-33	Ap B	10YR2/2 10YR3/4	Sandy Loam Sandy Loam	Gravelly soils
MG 65	Area E	0-15 15-30	Ap B	10YR2/1 10YR3/4	Sandy Loam Sandy Loam	
MG 66	Area E	0-20 20-34	Ap B	10YR2/1 10YR3/4	Sandy Loam Sandy Loam	
MG 67	Area E	0-18 18-25 25-38	Ap Carbon B	10YR2/2 10YR2/1 10YR3/4	Sandy Loam Sandy Loam Sandy Loam	Concentrated black ring at 18-25cm, most likely root decompose
MG 68	Area E	0-19 19-32	Ap B	10YR2/2 7.5YR3/4	Sandy Loam Sandy Loam	
MG 69	Area E	0-17 17-32	Ap B	10YR2/2 7.5YR3/4	Sandy Loam Sandy Loam	
MG 70	Area E	0-16 16-31	Ap B	10YR2/1 7.5YR3/4	Sandy Loam Sandy Loam	
MG 71	Area E	0-15 15-33	Ap B	10YR2/1 7.5YR3/4	Sandy Loam Sandy Loam	
MG 72	Area E	0-13 13-22	Ap Ap/B	10YR2/2 7.5YR3/3	Sandy Loam Sandy Loam	

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
		22-35	B	7.5YR4/6	Sandy Loam	
MG 73	Area E	0-12 12-21 21-35	Ap Carbon B	10YR2/2 10YR2/1 7.5YR3/4	Sandy Loam Sandy Loam Sandy Loam	Dark black ring of organic material
MG 74	Area H/Access Road	0-16 16-33	Ap B	10YR3/2 10YR4/3	Clay Loam Sandy Silt Loam	Ground water
MG 75	Area H/Access Road	0-16 16-27	Ap B	10YR3/2 10YR4/3	Clay Loam Sandy Silt Loam	Ground water
MG 76	Area H/Access Road	0-25 25-37	Ap B	10YR3/3 5YR4/3	Silty Clay Loam Clay Loam	Ground water
MG 77	Area H/Access Road	0-30 30-42	Ap B	10YR3/3 10YR4/3	Silty Clay Loam Sandy Silt Loam	Ground water
MG 78	Area H/Access Road	0-23 23-32	Ap B	10YR3/3 10YR4/3	Clay Loam Sandy Silt Loam	Ground water
MG 79	Area H/Access Road	0-25 25-35	Ap B	10YR3/3 10YR4/3 mottled 7.5YR4/4	Clay Loam Sandy Silt Loam	Ground Water
MG 80	Area H/Access Road	N/A	N/A	N/A	N/A	Inundated
MG 81	Area F/Gen-tie line	0-19 19-31	Ap B	10YR3/2 7.5YR3/4	Silt Loam Sandy Silt Loam	
AS 1	Area H/Gen-tie line	0-17 17-37	Ap B	10YR3/2 10YR4/6	Sandy Loam Sandy Clay Loam	Inundated, roughly 20% gravels bottom layer
AS 2	Area H/Gen-tie line	0-17 17-50	Ap B	10YR3/2 10YR4/6	Sandy Loam Clay Sand	Inundated, roughly 20% cobbles bottom layer
AS 3	Area H/Gen-tie line	0-27	Ap	10YR3/2	Sandy Loam	Inundated, roughly 20% cobbles
AS 4	Area H/Gen-tie line	0-26 26-36	Ap B	10Yr3/2 7.5YR4/6	Loamy Sand Clay Sand	Inundated, 20% gravels top layer
AS 5	Area H/Gen-tie line	0-11 11-25	Ap B	10Yr3/2 7.5YR4/6	Loamy Sand Clay Sand	Inundated, 20% gravels top layer
AS 6	Area H/Gen-tie line	0-30	Ap	10YR3/2	Loamy Sand	Inundated before subsoil, 20% gravels
AS 7	Area H/Gen-tie line	0-15 15-30	Ap B	10YR3/2 10YR4/6	Loamy Sand Sandy Clay Loam	20% gravels top layer
AS 8	Area H/Gen-tie line	0-30 30-44	Ap B	10YR3/2 10YR4/6	Loamy Sand Sandy Clay Loam	5% gravels top layer, 20% slate gravels bottom layer
AS 9	Area H/Gen-tie line	0-5	Ap	10YR3/2	Loamy Sand	Inundated quickly
AS 10	Area H/Gen-tie line	0-14 14-28	Ap B	10YR3/2 10YR4/6	Loamy Sand Sandy Clay Loam	5% gravel top layer, 20% gravel bottom layer

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
AS 11	Area H/Gen-tie line	0-13 13-25	Ap B	10YR3/2 10YR4/6	Loamy Sand Sandy Clay Loam	10% gravel top layer, 50% gravel bottom layer
AS 12	Area H/Gen-tie line	0-25 25-40	Ap B	10YR3/2 10YR4/6	Loamy Sand Sandy Clay Loam	5% gravel top layer, 20% gravel bottom layer
AS 13	Area H/Gen-tie line	0-30 30-40 40-52	Ap B	10YR3/2 10YR6/2 10YR2/1	Sandy Loam Silty Sand Sandy Clay Loam	20% gravel top layer, 5% gravel second layer
AS 14	Area H/Gen-tie line	0-20 20-30	Ap B	10YR3/2 10YR4/6	Loamy Sand Sandy Clay Loam	5% gravel top layer, 20% gravel bottom layer
AS 15	Area H/Gen-tie line	0-25 25-35	Ap B	10YR3/2 10YR4/6	Loamy Sand Sandy Clay Loam	5% gravel top layer, 20% gravel bottom layer
AS 16	Area H/Gen-tie line	0-24 24-35	Ap B	10YR2/1 10YR7/2	Silt Sand Loam Clay Sand	Wetland soils
AS 17	Area H/Gen-tie line	0-25 25-34	Ap B	10YR2/1 10YR7/2	Silt Sand Loam Clay Sand	Wetland soils
AS 18	Area H/Gen-tie line	0-20 20-30	Ap B	10YR2/1 10YR7/2	Silt Sand Loam Clay Sand	Wetland soils
AS 19	Area H/Gen-tie line	0-30 30-40	Ap B	10YR3/2 10YR3/4	Sandy Loam Sandy Silt Loam	10% gravel top layer, 40% gravel/cobbles second layer
AS 20	Area H/Gen-tie line	0-30 30-40	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Silty Sand	10% gravel top layer, 20% cobbles second layer
AS 21	Area H/Gen-tie line	0-29 29-40	Ap B	10YR3/2 10YR7/4 mottled with 10YR81	Clay Sand Loam Silty Sand	Hydric at 40cm, 10% gravel top layer
AS 22	Area H/Gen-tie line	0-20 20-36	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Silty Sand	10% gravel top layer, 50% cobbles second layer
AS 23	Area H/Gen-tie line	0-28 28-45	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Silty Sand	<10% gravel
AS 24	Area H/Gen-tie line	0-26 26-40	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Silty Sand	<10% gravel
AS 25	Area H/Gen-tie line	0-30 30-40	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Silty Sand	<10% gravel
AS 26	Area H/Gen-tie line	0-10 10-20 20-34	Ap B	10YR3/1 10YR8/2 7.5YR4/4	Sandy Silt Loam Sandy Silt Loam Silty Sand	
AS 27	Area H/Gen-tie line	0-20 20-28 28-30 30-43		10YR3/2 mottled with 10YR4/4 10YR2/1 10YR8/2 10YR5/6	Sandy Loam Sandy Loam Loamy Sand Silt Sand Loam	Roots in 0-20cm
AS 28	Area H/Gen-tie line	0-10 10-28	Ap B	10YR3/2 7.5YR4/4	Silt Sand Loam Loamy Sand	<5% gravels
AS 29	Area H/Gen-tie line	0-20 20-30	Ap B	10YR3/2 7.5YR4/4	Silt Sand Loam Loamy Sand	<5% gravels
AS 30	Area H/Gen-tie line	0-14 14-28	Ap B	10YR3/2 7.5YR4/4	Silt Sand Loam Loamy Sand	<5% gravels

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
AS 31	Area G/Gen-tie line	0-15 15-25	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Loamy Sand	20-50% cobbles
AS 32	Area G/Gen-tie line	0-25 15-25	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Loamy Sand	40% cobbles
AS 33	Area G/Gen-tie line	0-25 15-25	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Loamy Sand	40% cobbles
AS 34	Area G/Gen-tie line	0-20	Ap	10YR2/2	Sandy Clay Loam	Terminated at impassable rock
AS 35	Area G/Gen-tie line	0-20 20-30	Ap B	10YR2/2 10YR4/4	Sandy Clay Loam Loamy Sand	20-50% cobbles
AS 36	Area G/Gen-tie line	0-20 20-30	Ap B	10YR2/2 10YR4/4	Sandy Clay Loam Loamy Sand	20-50% cobbles
AS 37	Area G/Gen-tie line	0-15 15-25	Ap B	10YR2/2 10YR4/4	Sandy Loam Loamy Sand	20-30% cobbles
AS 38	Area G/Gen-tie line	0-20 20-30	Ap B	10YR2/2 10YR4/4	Sandy Loam Loamy Sand	20-30% cobbles
AS 39	Area G/Gen-tie line	0-20 20-32	Ap B	10YR2/2 10YR4/4	Sandy Loam Loamy Sand	20-30% cobbles
AS 40	Area G/Gen-tie line	0-11 11-25	Ap B	10YR2/2 10YR4/4	Sandy Loam Loamy Sand	20-30% cobbles
AS 41	Area G/Gen-tie line	0-10 10-21	Ap B	10YR2/2 10YR4/4	Sandy Loam Loamy Sand	20-30% cobbles
AS 42	Area G/Gen-tie line	0-10 10-23	Ap B	10YR2/2 10YR4/4	Sandy Loam Loamy Sand	Terminated at impassable rock
AS 43	Area H/Switchyard	0-22 22-34	Ap B	10YR2/2 10YR4/4	Sandy Loam Loamy Sand	20-30% cobbles
AS 44	Area H/Switchyard	0-20 20-31	Ap B	10YR2/2 10YR4/4	Sandy Loam Loamy Sand	Inundated at 30cm
AS 45	Area H/Switchyard	0-20 20-30	Ap B	10YR2/2 10YR4/4	Sandy Loam Loamy Sand	20-30% cobbles
AS 46	Area H/Switchyard	0-13 13-25	Ap B	10YR3/2 10YR5/6	Sandy Loam Loamy Sand	5-10% gravels
AS 47	Area H/Switchyard	0-10 10-23	Ap B	10YR3/2 10YR5/6	Sandy Loam Loamy Sand	10% cobbles
AS 48	Area H/Switchyard	0-15	Ap	10YR3/2	Sandy Loam	50% cobbles, terminated at impassable rocks
AS 49	Area H/Switchyard	0-15 15-28	Ap B	10YR3/2 10YR5/6	Sandy Loam Loamy Sand	<10% cobbles
AS 50	Area H/Switchyard	0-15 15-30	Ap B	10YR3/2 10YR5/6	Sandy Loam Loamy Sand	<10% cobbles
AS 51	Area H/Switchyard	0-15 15-30	Ap B	10YR3/2 10YR5/6	Sandy Loam Loamy Sand	<10% cobbles
AS 52	Area H/Switchyard	0-10 10-26	Ap B	10YR3/2 10YR5/6	Sandy Loam Loamy Sand	<10% cobbles
AS 53	Area H/Switchyard	0-40 40-50	Ap B	10YR3/2 7.5YR4/4	Sandy Loam Loamy Sand	20% cobbles, Inundated at 45cm
AS 54	Area E	0-56 56-78	Ap B	10YR5/6 10YR6/6	Loamy Sand Coarse Sand	In historic foundation
AS 55	Area E	0-40 40-50	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels
AS 56	Area E	0-34 34-45	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels
AS 57	Area E	0-18 18-28	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels
AS 58	Area E	0-24	Ap	10YR4/4	Loamy Sand	<5% gravels

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
		24-35	B	7.5YR4/4	Sand	
AS 59	Area E	0-28 28-40	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels
AS 60	Area E	0-30 30-40	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels
AS 61	Area E	0-24 24-36	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels
AS 62	Area E	0-24 24-37	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels
AS 63	Area E	0-23 23-37	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels
AS 64	Area E	0-28 28-39	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels
AS 65	Area E	0-36 36-47	Ap B	10YR4/4 mottled with 7.5YR4/4 7.5YR4/4	Sand	Mottling of the Munsell colors throughout layer 1
AS 66	Area E	0-25 25-35	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels
AS 67	Area E	0-30 30-40	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels
AS 68	Area E	0-30 30-40	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels
AS 69	Area E	0-30 30-40	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels
AS 70	Area E	0-35 35-45	Ap B	10YR4/4 mottled with 7.5YR4/4 7.5YR4/4	Sand	Mottling of the Munsell colors throughout layer 1
AS 71	Area E	0-40 40-52	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels
AS 72	Area E	0-30 30-40	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels
AS 73	Area E	0-30 30-40	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels
AS 74	Area E	0-20 20-30	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels, juvenile pig rib with cut mark
AS 74N5	Area E	0-17 17-30	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	
AS 74W5	Area E	0-18 18-36	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	2 glass
AS 74W10	Area E	0-15 15-25	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	
AS 75S5	Area	0-20 20-26 26-44	Ap Root Cast B	10YR 3/3 10YR 2/1 7.5YR 4/4	Loamy Sand Loamy Sand Sand	2 colorless vessel glass w/ red paint
AS 75	Area E	0-30 30-40	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels
AS 76	Area E	0-28	Ap	7.5YR4/4	Sand	No topsoil, stripped
AS 77	Area E	0-20 20-30	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels
AS 78	Area E	0-9 9-20	Ap B	10YR4/4 7.5YR4/4	Loamy Sand Sand	<5% gravels, shallow topsoil area, disturbed/stripped

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
JM 1	Area H/Gen-tie line	0-42	Ap	10YR 4/4	Sandy Loam	Hydric, terminated at water table
JM 2	Area H/Gen-tie line	0-30	Ap	10YR 4/4	Sandy Loam	Hydric, terminated at water table
JM 3	Area H/Gen-tie line	0-38 38-50	Ap B	10YR 4/4 10YR 4/2	Sandy Loam Sandy Clay	Terminated at water table
JM 4	Area H/Gen-tie line	0-28	Ap	10YR 4/4	Sandy Loam	Terminated at water table
JM 5	Area H/Gen-tie line	0-30 30-50	Ap B	10YR 4/4 10YR 4/2	Sandy Loam Sand	Terminated at water table
JM 6	Area H/Gen-tie line	0-35 35-45	Ap B	10YR 4/4 10YR 4/2	Sandy Loam Sandy Loam	Terminated at water table
JM7	Area H/Gen-tie line	0-37 37-50	Ap B	10YR 4/1 10YR 4/2	Sandy Loam Silty Clay	
JM 8	Area H/Gen-tie line	0-52 52-73	Ap B	10YR 4/3 10YR 5/4	Sandy Loam Sand	Terminated at water table
JM 9	Area H/Gen-tie line	0-20 20-30	Ap B	10YR 3/2 10YR 4/4	Sandy Clay Loam Sand	Terminated at water table
JM 10	Area H/Gen-tie line	0-20 20-33	Ap B	10YR 4/2 10YR 5/2	Sandy Loam Sandy Loam	
JM 11	Area H/Gen-tie line	0-18 18-38	Ap B	10YR 3/2 10YR 5/2	Sandy Loam Sandy Loam	
JM 12	Area H/Gen-tie line	0-20 20-42	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JM 13	Area H/Gen-tie line	0-25 25-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JM 14	Area H/Gen-tie line	0-38 38-57	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 15	Area H/Gen-tie line	0-29 29-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JM 16	Area H/Gen-tie line	0-20 20-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 17	Area H/Gen-tie line	0-23 23-40	Ap B	10YR 3/2 10YR 3/6	Sandy Loam Sandy Loam	
JM 18	Area H/Gen-tie line	0-27 27-39	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JM 19	Area H/Gen-tie line	0-10 10-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 20	Area G/Gen-tie line	0-20 20-34	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 21	Area G/Gen-tie line	N/A	N/A	N/A	N/A	No dig, inundated
JM 22	Area G/Gen-tie line	0-20 20-33	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 23	Area G/Gen-tie line	0-20 20-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 24	Area G/Gen-tie line	0-10 10-34	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JM 25	Area G/Gen-tie line	0-20 20-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy Loam	
JM 26	Area E	0-45 45-55 55-60 60-75	Ap B Ab B	10YR 3/2 7.5YR 4/4 10YR 2/2 7.5YR 4/4	Sandy Loam Sand Sand Sand	
JM 27	Area E	0-27	Ap	10YR 4/4	Sandy Loam	

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
		27-40	B	7.5YR 4/4	Sand	
JM 28	Area E	0-20 20-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 29	Area E	0-21 21-31	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sandy	
JM 30	Area E	0-24 24-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 31	Area E	0-25 25-45	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 32	Area E	0-30 30-43	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 33	Area E	0-25 25-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 34	Area E	0-20 20-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 35	Area E	0-20 20-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 36	Area E	0-30 30-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 37	Area E	0-20 20-32	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 38	Area E	0-20 20-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 39	Area E	0-20 20-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 40	Area E	0-30 30-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 41	Area E	0-40 40-50	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 42	Area E	0-80 80-90	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 43	Area E	0-20 20-38	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	1 wire nail
JM 44	Area E	0-20 20-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 45	Area E	0-30 30-48	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
JM 46	Area E	0-20 20-40	Ap B	10YR 3/2 7.5YR 4/4	Sandy Loam Sand	
KA 1	Area F	0-20 20-35 35-61	Ap Ap/B B	7.5YR 2.5/1 7.5YR 2.5/1 mottled with 40% 7.5YR 4/6 7.5YR 5/3	Fine Silty Sand Fine Silty Sand Fine Sand 10% gavel/small pebbles throughout	Diffuse transition from Ap to A/B, clear transition from A/B to Sand
KA 2	Area F	0-13 13-31	Ap B	10YR 2/2 7.5YR 3/4	Sandy Loam with 10% gravel, Sandy Loam	Clear transition from Ap to B
KA 3	Area F	0-31 31-52	Ap B	7.5YR 2.5/1 7.5YR 5/3	Fine Silty Sand Fine Sand 10% gavel/small pebbles throughout	
KA 4	Area F	0-10 10-17 17-40	Ap A B	10YR 2/2 10YR 2/1 7.5YR 3/4	Sandy Loam with 10-15% gravel Sandy Loam Sandy Loam	
KA 5	Area F	0-40	Ap	7.5YR 2.5/1	Fine Silty Sand	

Shovel Test No.	Associated Area/Site	Depth (cmbgs)	Horizon	Munsell	Texture	Notes
		40-73 73-75	AB B	7.5YR 2.5/1 mottled with 40% 7.5YR 4/6 7.5YR 5/3	Fine Silty Sand Fine Sand 10% gavel/small pebbles throughout	
KA 6	Area G	0-27	Ap	10YR 2/2	Sandy Loam	Inundated
KA 7	Area G	0-22 22-36	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam	Wet/hydric, cobbles 50%
KA 8	Area G	0-29	Ap	10YR 2/2	Sandy Loam	Inundated at 27cm
KA 9	Area G	0-10	Ap	10YR 2/2	Sandy Loam	Inundated
KA 10	Area I	0-21 21-36	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam	
KA 11	Area I	0-23 23-39	Ap B	10YR 2/2 7.5YR 4/6	Sandy Loam Sandy Loam	
KA 12	Area I	0-23 23-39	Ap B	10YR 2/2 7.5YR 4/6	Sandy Loam Sandy Loam	
KA 13	Area I	0-30 30-43	Ap B	10YR 2/2 7.5YR 4/6	Sandy Loam Sandy Loam	Inundated at 39cm. Large rocks throughout
KA 14	Area I	0-20 20-40	Ap B	10YR 2/2 7.5YR 4/6	Sandy Loam Sandy Loam	Inundated at 38cm.
KA 15	Area I	0-20 20-36	Ap B	10YR 2/2 7.5YR 4/6	Sandy Loam Sandy Loam	
KA 16	Area I	0-13	Ap	10YR 2/2	Sandy Loam	Terminated at large obstructing root
KA 17	Area I	0-19 19-30	Ap B	10YR 2/2 7.5YR 4/4	Sandy Loam Sandy Loam	Nails (wire), colorless glass with embossed stitch pattern

Appendix E Unanticipated Discovery Plan

CULTURAL RESOURCES UNANTICIPATED DISCOVERY PLAN

Iron Pine Solar Power, LLC

Iron Pine Solar Project
Pine County, Minnesota

Prepared for:
Iron Pine Solar Power, LLC
470 Atlantic Avenue, Suite 601
Boston, MA 02210

Prepared by:
Stantec Consulting Services Inc.
One Carlson Parkway, Suite 100
Plymouth, Minnesota 55447

August 6, 2024

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1 Introduction

Iron Pine Solar Power, LLC (Iron Pine Solar) proposes to construct a photovoltaic electricity-generating facility and associated infrastructure referred to as the Iron Pine Solar Project (Project). The associated facilities include a Project collector substation, switchyard, a short generator tie in line to connect the solar facility to the switchyard, access roads, laydown yards, underground electrical collection system, and an operations and maintenance building. The Project encompasses 2,288 acres in Kettle River Township, Pine County, Minnesota (see Figure 1 in Appendix A).

Stantec Consulting Services, Inc. (Stantec), on behalf of Iron Pine Solar, performed cultural resource evaluations on the Project, including literature reviews, probability analyses, architectural and archaeological surveys.

Based on the results of the investigations, Stantec concludes that there are no properties listed in the National or State Registers of Historic Places and no known or suspected archaeological properties in the area that will be affected by the proposed Project.

As only the modeled high probability portion of the Project Area was subject to a Phase I archaeological survey, an Unanticipated Discovery Plan will be implemented during construction of the project to address the unlikely event that resources are encountered.

This document describes the procedures to be followed by Iron Pine Solar in the event of an unanticipated discovery of archaeological resources or human remains during construction associated with the Iron Pine Solar Project. It is intended to:

- Maintain compliance with applicable Federal and State laws and regulations during construction of the Project;
- Describe to regulatory and review agencies the procedure the Project or its representative will follow to prepare for and deal with unanticipated discoveries; and
- Provide direction and guidance to Project personnel as to the proper procedure to be followed should an unanticipated discovery occur.

This plan applies to Iron Pine Solar employees, contractor(s), and subcontractor(s) during construction, and describes the specific measures to be implemented to protect the resource, should one be identified. The procedures differ depending on whether potentially significant cultural materials (Section 3) or human remains (Section 4) are encountered.

1.1 Training

Prior to commencement of the Project, construction and contractor personnel will receive training from Iron Pine Solar on this plan.

All on-site personnel participating in the construction of the Project will be required to participate in a training program. This program will be designed to educate all personnel on the identification, procedures, and legal responsibilities associated with respect to archaeological and cultural resources. Each individual must attend the training program prior to commencing work on the Project. Individuals who have not fulfilled the requirements of the training will be unable to work on the Project.

The purpose of the program is to educate personnel about the potential for unanticipated discoveries, the protocol to be implemented in and near the Project area and the measures required to protect said resources. It is the responsibility of Iron Pine Solar personnel to protect the environment and natural and cultural resources in accordance with federal and state laws.

The training program will be prepared prior to the start of ground disturbing activities in the Project Area. Personnel should be familiarized with the Unanticipated Discovery Plan. Iron Pine Solar employees and contractors will be provided a basic knowledge of resource types, law and regulations, penalties, and procedures in case of an unanticipated discovery.

The training program will include the following points of discussion for cultural resources:

- Brief historical context of the Project area, including a discussion of Native American resources;
- Information on the identification of archaeological materials and skeletal remains. Basic identification information for major artifact classes will be included; and
- Unanticipated discovery procedures.

A list of potential unanticipated cultural material discoveries is provided in Sections 3 and 6 and a list of potential evidence of human remains and burials is provided in Section 4. These lists will be shared as part of Project personnel training with the knowledge that they are not exhaustive.

2 Unanticipated Discovery Conditions

Ground disturbing activities during Project construction have the potential to uncover previously unknown archaeological materials, human skeletal remains, and possible burial sites, as well as other cultural and natural elements such as modern refuse and faunal remains. The intent of this plan is to explain provisions applicable to any instances where previously unknown materials are encountered during construction.

The Minnesota Private Cemeteries Act (M.S. 307.08 Subd. 10) protects burials, burial markers (including Native American mounds), and burial artifacts from disturbance, including vandalism, defacement, destruction, sale, exchange, excavation, or removal. Evidence of burial sites encountered during ground disturbance can include, but are not limited to:

- Any human remains including articulated or disarticulated bones, teeth, hair, preserved soft tissue, etc.;
- Burial pit or grave shaft outlines in the soil;
- Headstones or footstones; or

- Coffin wood fragments and coffin hardware.

Additional examples of cultural resources you may encounter include:

- Accumulations of shell, burned rocks, or other food-related materials;
- An area of charcoal or dark stained soil;
- Stone tools or stone waste flakes;
- Clusters of glass bottles, cans, jars, bricks, etc.;
- Stone or brick foundations; or
- Buried railroad ties or tracks, machinery, or other industrial equipment.

If an unanticipated discovery is made during the course of the Project, all construction activities within 100 feet of the find location will cease and the on-site construction manager will immediately notify the Iron Pine Solar Project Manager and Environmental Manager. Iron Pine Solar will assist with a coordinated consultation effort among Iron Pine Solar, the Office of the State Archaeologist (OSA), the Minnesota Indian Affairs Council (MIAC), landowners, Professional Archeologist, and other interested parties, including Native American tribes. In the event that a suspected discovery is determined not to involve archaeological materials, human skeletal remains, or a burial site, construction would resume and there would be no need of the consultation process as outlined below; however, documentation of the event must be made and can include notes, photographs, and drawings as appropriate. Note that all actions surrounding unanticipated discoveries would be the subject of written documentation appropriate to the discovery.

All unusual objects or soil deposits should be assumed to be a cultural resource until determined otherwise by the Professional Archaeologist, as described below. If archaeological materials or suspected human skeletal remains are identified during ground disturbing activities, the Iron Pine Solar Project Manager will be notified immediately of the discovery before the following actions ensue:

1) Immediately following identification of the discovery,
   a) construction equipment at the find location will halt, in place,
   b) the on-site construction manager will be notified, and
   c) a 100-foot no-work zone buffer around the edge of the discovery will be established (using flagging, stakes, and/or fencing) will be established.
   d) all construction activities within the buffered area will halt until notified otherwise by Iron Pine Solar, and
   e) implement measures to protect the discovery from looting and vandalism, including 24-hour security, if necessary.

   No cultural material will be transported from its original location. The area of discovery shall be treated as potentially significant and kept intact until a formal determination of significance is made. Do not call 911 (unless there is an actual emergency warranting such action) or speak with the media. Work may continue in other areas outside of the 100-foot buffer zone.

2) Iron Pine Solar will then contact a qualified Professional Archaeologist (for possible archaeological materials) meeting the qualification standards outlined in Title 36 Code of Federal Regulations (CFR) Part 61 in order to conduct the assessment.

3) When contacted by Iron Pine Solar, the Professional Archaeologist shall gather additional information from the discovery area and assess the potential significance and condition and integrity of the discovery according to the guidelines established by the National Park Service (NPS) in Bulletins 15 and 36 and their amendments:

   a) The Professional Archaeologist will conduct an initial assessment and document the find, which may include reviewing photos and/or video from onsite personnel provided the find is not suspected human remains. If the find does not include archaeological materials or cultural resources greater than 45 years of age, or deemed otherwise significant, the Professional Archaeologist will document the discovery for the record and advise Iron Pine Solar that ground disturbing activities may proceed.

   b) If the find includes archaeological material or cultural resources over 45 years of age, the Professional Archaeologist will notify Iron Pine Solar to continue the suspension of work within the identified area. The Professional Archaeologist will record as much information as practical. The initial site determination should be completed within 24 hours. However, depending on the nature of the find, the process of full recordation, additional survey, and testing may extend beyond 24 hours. The Professional Archaeologist will advise Iron Pine Solar during the recordation process and notify them of the status.

   c) When contacted by Iron Pine Solar, the Professional Archaeologist shall investigate the site to assess the likely nature of the remains. If the remains are likely human, then Iron Pine Solar will initiate the process outlined in Section 4 below.

Pursuant to the Minnesota Private Cemeteries Act (M.S. 307.08 Subd. 10), the cemetery condition assessment of non-American Indian cemeteries is at the discretion of the state archaeologist based on identified needs in M.S. 307.08 Subd. 10 or upon request by an agency, a landowner, or other appropriate authority.

Pursuant to the Minnesota Private Cemeteries Act (M.S. 307.08 Subd. 10), the cemetery condition assessment of American Indian cemeteries is at the discretion of MIAC based on identified needs in M.S. 307.08 Subd. 10 or upon request by an agency, a landowner, or other appropriate authority. If MIAC has possession or takes custody of remains they may follow United States Code, title 25, sections 3001 to 3013.

Pursuant to the Minnesota Private Cemeteries Act (M.S. 307.08 Subd. 10) If the cemetery condition assessment of cemeteries that include American Indian and non-American Indian remains or include remains whose ancestry cannot be determined shall be assessed at the discretion of the state archaeologist in collaboration with MIAC based on the identified needs in M.S. 307.08 Subd. 10 or upon request by an agency, a landowner, or other appropriate authority.

ii. If the discovery does not represent human skeletal remains, the Professional Archaeologist will document the discovery for the record in coordination with OSA. The Professional Archaeologist will inform the Iron Pine Project Manager and Environmental Project Manager, who can advise the on-site construction manager ground-disturbing activities may resume.

3 Discovery of Archaeological Materials

Upon the discovery of archaeological materials or cultural resources greater than 45 years of age, the Professional Archaeologist will notify the Environmental Project Manager who will notify MIAC, OSA, and the Minnesota State Historic Preservation Office (SHPO) and provide information regarding its significance and integrity.

(a) Iron Pine Solar will consult with MIAC, SHPO, OSA, and other consulting parties as appropriate, to assess the discovery. Criteria of eligibility for listing on the NRHP will be considered as a guideline to determine the significance of the find and SHPO and OSA may be consulted during the assessment.

(b) If, after consultation, the parties agree that the discovery does not represent an NRHP- eligible or otherwise important resource Iron Pine Solar may resume ground-disturbing activities at the discovery location.

(c) For properties eligible for listing on the NRHP, construction may not resume until SHPO, OSA and/or MIAC, have developed avoidance or mitigation strategies and notified Iron Pine Solar. Consulting parties will provide their response and recommendations within 48 hours. Iron Pine Solar shall carry out the approved treatment measures and, after doing so, may resume construction.

4 Discovery of Human Skeletal Remains or Possible Burial Sites

When human skeletal remains or possible burial sites are encountered during construction activities, Iron Pine Solar will comply with all applicable laws, specifically Minnesota's "Private Cemeteries Act" (M.S. 307.08). **Do not take photos of human remains.**

In the event human skeletal remains or possible burial sites are encountered during ground-disturbing construction activity, all construction shall immediately cease within 100 feet of the find, and Iron Pine Solar will notify the Pine County Dispatch non-emergency line. Barriers will be installed, as appropriate, to ensure any other potential for ground disturbance is prevented in the enclosed area.

As required by M.S. 307.08, Iron Pine Solar will notify MIAC and OSA in the event the find is considered to be an unplatted human burial not associated with a crime scene. All unidentified human remains or burials found during construction activity shall be treated with the utmost respect for all human dignity and dealt with accordingly. If such burials are not American Indian or their ethnic identity cannot be ascertained, as determined by OSA, they shall be dealt with in accordance with provisions established by the state archaeologist and other appropriate authority. If such burials are American Indian, as determined by OSA and MIAC, efforts shall be made to follow procedures as defined in United States Code, title 25, section

3001 et seq., and its implementing regulations, Code of Federal Regulations, title 43, part 10, within and outside of reservation boundaries.

The OSA or MIAC have sole authority to authorize continuation of ground disturbing activities following the discovery of human remains. To ensure that no human remains exist in soils adhered to or otherwise resting on construction machinery, such machinery will not be moved without the OSA and/or MIAC approval. MIAC has the authority to determine if American Indian burials can be removed and relocated, disturbed, or have any fence, tree, or other protective measures removed.

All parties involved will consult and devise a plan of action. Iron Pine Solar will coordinate efforts to as possible to resolve the issues surrounding the unanticipated discovery. After permission to resume construction has been issued by the OSA and MIAC, Iron Pine Solar may restart ground-disturbing activities. No public or press disclosure of any information regarding human remains shall be shared by Iron Pine Solar, at any time, during or after the Project.

Human Remains Suspected of Being Native American

In the instance human remains are suspected of being Native American, no excavation, examination, photographs, or analysis of human remains will be conducted by Iron Pine Solar personnel or its representatives (other than for crime scene investigation), without first consulting with the interested Tribes and receiving concurrence from the claimant Tribes.

Iron Pine Solar, in consultation with the USACE, SHPO, claimant Tribes, and/or other interested parties such as living descendants, may consult with a qualified physical anthropologist, forensic scientist, or other experts as may be needed to examine and assess the inadvertent discovery. Unless the remains were inadvertently removed, the evaluation will be conducted at the site of discovery. The consulting expert will be allowed to draw and measure the exposed remains and associated burial furniture. No photographs or digital images will be permitted. Drawings and other records will be curated at a state-approved curation facility. Drawings cannot be published in any form or shown as part of scholarly presentations without the written permission of the claimant Tribes or nearest living descendant.

Should removal of the human remains or graves be determined, in consultation and concurrence with the claimant Tribes, to be the best course of action, Iron Pine Solar will ensure that:

- Only natural materials, including bamboo, hemp, wood, wool, cotton, cork, paper, and cardboard will be used in the process of collection, transportation, and storage of human remains. No plastic or aluminum foil will be used.
- Each skeletal element will be placed in its own labeled container so as to prevent damage to the remains during their collection, transportation, and storage.
- The surface of the skeletal elements shall not be intentionally marked.
- No attempt at physically reconstructing, either permanently or by temporarily dry- fitting, the remains shall be made.

- All objects that may reasonably be determined to be associated with the human remains will be considered associated with those remains; it is understood that Iron Pine Solar and its contractor's staff will err on the side of caution, i.e., be liberal in their determination of association in consultation and concurrence with the claimant Tribes.
- All objects associated with the human remains will be collected, transported, and stored with the human remains with which they were associated and remain so throughout the process up to, and including, reburial.
- If approved by the USACE, and/or SHPO and claimant Tribes depending on jurisdiction, an amount (to be determined in each case) of soil from identified graves will be collected, preserved, and processed. All soil samples collected from grave locations will be kept with those remains and be processed according to consultation specifications regarding those samples and be processed separately from other samples.

The measures to protect the remains and any associated artifacts will remain in effect until they have been fully evaluated, the appropriate treatment or mitigation of the discovery (if applicable) has been completed, and Iron Pine Solar has received formal notice from the USACE and/or SHPO, and claimant Tribes dependent on jurisdiction, as applicable and required by law, to proceed with the construction activity at the site of discovery. The Professional Archeologist will inform the Iron Pine Project Manager and Environmental Project Manager, who can advise the on-site construction manager ground-disturbing activities may resume.

A report of findings describing the background history leading to and immediately following the reporting and resolution of an inadvertent discovery will be prepared within thirty (30) calendar days of the resolution of each unanticipated discovery. This report will meet the standards and conform to the provisions of the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (49 CFR 44716).

5 Contact List

Agency	Name	Title	Phone	Email
Iron Pine Solar	Monica Howard	Director Environmental Permitting	713-898-8222	
Iron Pine Solar		Project Manager		
Stantec	Angela Julin	Professional Archaeologist	763-245-1005	Angela.julin@stantec.com
Stantec	Joshua Jensen	Physical Anthropologist	612-801-1223	Joshua.jensen@stantec.com
OSA	Amanda Gronhovd	State Archaeologist	651-201-2263	amanda.gronhovd@state.mn.us
SHPO	Lucy Harrington	Environmental Review Archaeologist	651-201-3283	Lucy.harrington@state.mn.us
MIAC	Melissa Cerda	Cultural Resources Manager, Senior	218-308-2750	melissa.cerda@state.mn.us
Pine County Coroner	TBD	Pine County Medical Examiner	651-266-1700	
Pine County Sheriff		Law Enforcement	320-629-8380	
TRIBAL CONTACTS TO BE ADDED UPON REQUEST				

6 Non-Exhaustive Examples of Cultural Resources (Not Project Specific)

Figure 1 Pre-Contact Native American Stone Bifaces.

Figure 2 Pre-Contact Native American Lithic Flakes and Ceramics.

Figure 3 Metal Artifacts, Historic Ceramic Pieces, Buttons, and Bottle Glass Fragments.

Figure 4 Coffin Hardware.

Figure 5 Pre-Contact Native American Features/ Soil Staining.

Figure 6 Historic Foundation Feature.

Figure 7 Historic Brick Foundation Segment.

Appendix A Project Location

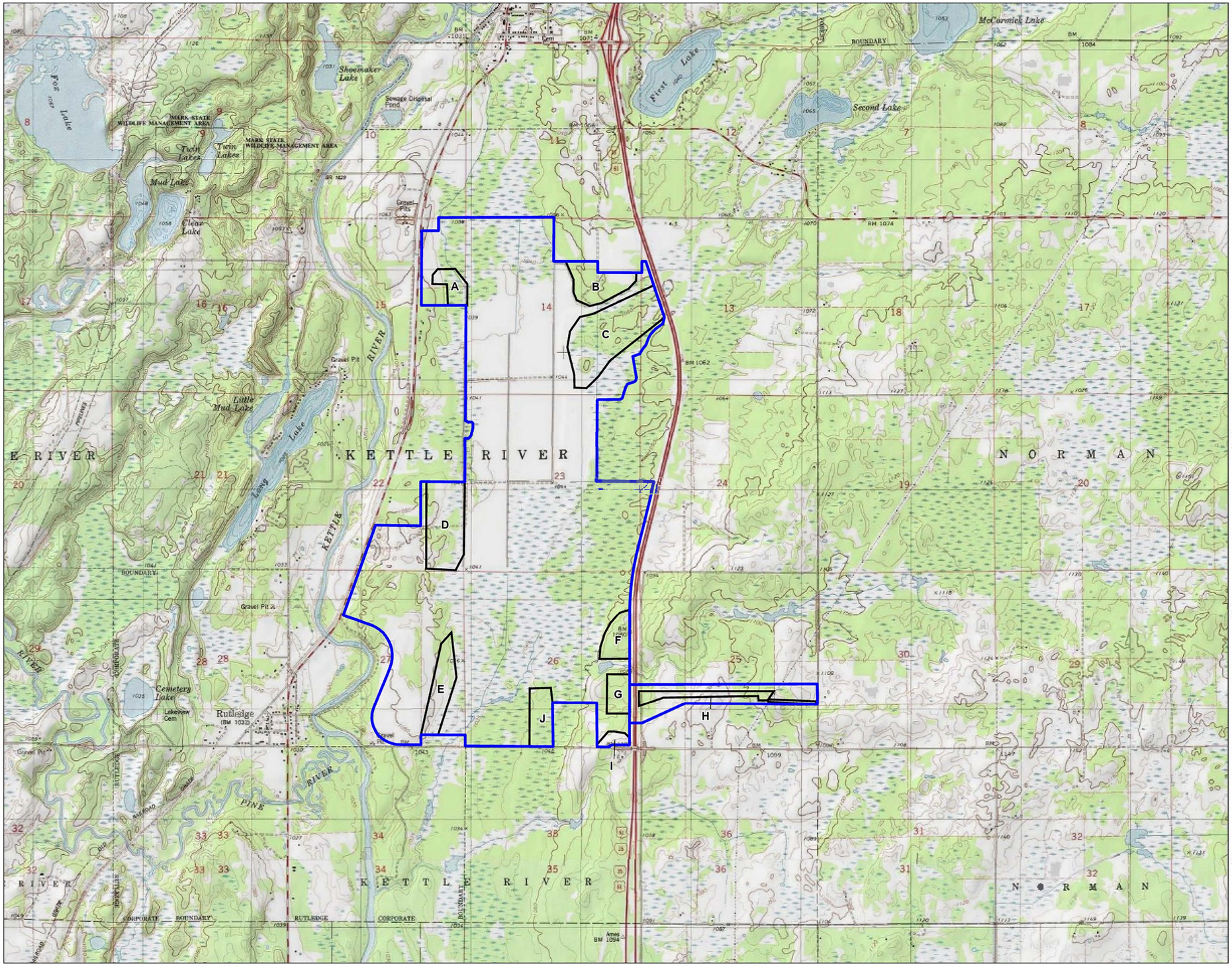


Figure No.
1

Title
Project Location

Client/Project 193708962
Iron Pine Solar Power, LLC
Iron Pine Solar
Cultural Resources Unanticipated Discovery Plan

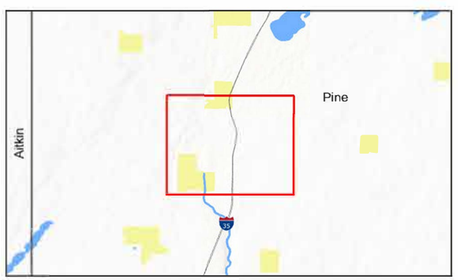
Project Location
Kettle River Township,
Pine County, Minnesota

Prepared by JM on 2023-06-02
TR by MZ on 2023-06-02
IR by JK on 2023-05-

N

0 1,500 3,000 Feet
(At original document size of 11x17)
1:36,000

Legend
- Property Boundary
- Survey Areas



Notes
1. Coordinate System: NAD 1983 UTM Zone 15N
2. Data Sources: Stantec, USGS, NADS, Pine County
3. Background: USGS 7.5' Topographic Quadrangles

Stantec