Appendix H
Phase I Cultural Resource Inventory for the Gopher State Solar Project

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Gopher State Solar, LLC

Phase I Cultural Resource Inventory for the Gopher State Solar Project

Renville County, Minnesota

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EXECUTIVE SUMMARY

Gopher State Solar, LLC (Gopher State Solar) is proposing a utility-scale solar generation project, known as the Gopher State Solar Project (Project), in Renville County, Minnesota. The Project will have a generating capacity of up to 200 megawatts and will comprise approximately 1,800 acres. Due to the size of the Project, it will require a Site Permit from the Minnesota Public Utilities Commission. Gopher State Solar expects to have all necessary permits and approvals by early 2025.

An archaeological survey of 1,087.74 acres was completed by Merjent, Inc. (Merjent) on May 9, 10, and 11 and on November 15, 2023. The survey included high potential areas within the larger Project area. During the survey, no new archaeological sites were identified. Merjent recommends that no historic properties will be affected by the proposed Project. No further archaeological work is recommended for the Project as planned.

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ABBREVIATIONS AND ACRONYMS

BCE	Before Common Era
BLM	Bureau of Land Management
CE	Common Era
CFR	Code of Federal Regulations
GLO	General Land Office
Merjent	Merjent, Inc.
MNSHPO	Minnesota State Historic Preservation Office
NRHP	National Register of Historic Places
OSA	Office of the State Archaeologist
OSA Portal	Secured online dataset of known and suspected archaeological sites maintained by the Office of the State Archaeologist
Project	Gopher State Solar Project
Study Area	Proposed project boundary and a 1-mile extension around it

1.0 PROJECT DESCRIPTION

Gopher State Solar, LLC (Gopher State Solar) is proposing a utility-scale solar generation project, known as the Gopher State Solar Project (Project), in Renville County, Minnesota. The Project will have a generating capacity of up to 200 megawatts and will comprise approximately 1,800 acres. Due to the size of the Project, it will require a Site Permit from the Minnesota Public Utilities Commission (Commission). Gopher State Solar expects to have all necessary permits and approvals by early 2025.

Merjent conducted the Phase I identification survey for the Project on May 9, 10, and 11 and on November 15, 2023. A total of 1,087.74 acres were surveyed. William M. Harding served as Principal Investigator and the field crew consisted of archaeologists Stephen Larsen (crew lead), Jacob Seaton, and Kristina Budde.

1.1 REGULATORY

Merjent, Inc. (Merjent) is assisting Gopher State Solar with preparation of a Site Permit Application for submittal to the Commission. The Commission requires consideration of project impacts to cultural and historical resources by following relevant state historic preservation laws, notably the Field Archaeology Act (MS 138.31-42) and the Private Cemeteries Act (MS 307.08). The State Historic Preservation Office (SHPO) and the Office of the State Archaeologist (OSA) are the agencies that establish guidelines and review projects to assure compliance with the state statutes and guidelines. Merjent, as Gopher State Solar's environmental consultant, is submitting the Project for your review on behalf of the Company. Construction will not begin until all permits and clearances have been received.

2.0 ENVIRONMENTAL SETTING

The Project is in the Minnesota River Prairie Subsection of the North Central Glaciated Plains Section of the Prairie Parkland Province (Minnesota Department of Natural Resources [MNDNR] 2023). The Prairie Parkland Province includes western Minnesota, extending northwest into Manitoba, west into North Dakota and South Dakota, south into Iowa, Nebraska, Kansas, Oklahoma, and Missouri, and east into Illinois and Indiana. The Minnesota River Prairie Subsection is bound to the southwest by the Prairie Coteau. A series of end moraines define the eastern boundary, starting with the Alexandria Moraine to the northeast and ending with end moraines associated with the Des Moines lobe in the southeast.

2.1 TOPOGRAPHY

Loamy ground moraine is the dominant landform in the Minnesota River Prairie Subsection, but end moraines and lake plains also occupy a significant area (MNDNR 2023).

2.2 HYDROLOGY

The Minnesota River Prairie Subsection is drained by the Minnesota River. Most smaller rivers and streams eventually empty into the Minnesota or the Upper Iowa River. Wetlands were very common before settlement. Most have been drained for cropland (MNDNR 2023).

2.3 GEOLOGY

Bedrock within the Minnesota River Prairie Subsection consists of Ordovician dolomite, Cretaceous shales, sandstones, and clays covered by up to 400 feet of glacial till (MNDNR 2023; Morey 1976).

2.4 SOILS

Soils within the Minnesota River Prairie Subsection are well- to moderately well-drained loamy soils formed in gray calcareous till of Des Moines Lobe. Most of the subsection is composed of Udolls and Aquolls on relatively level topography, generally with 15 feet or less of local relief. Dry prairie soils are also present on level to gently rolling topography (Cummins and Grigal, 1981).

2.5 FLORA AND FAUNA

Few remnants of presettlement vegetation remain within the Minnesota River Prairie Subsection as agriculture is currently the predominant land use. Presettlement vegetation consisted of mostly tallgrass prairie with small areas of wet prairie. Forests of silver maple, elm, cottonwood, and willow grew on floodplains along the Minnesota River and other streams.

Presettlement fauna was dominated by bison and occasional elk. White-tailed deer and small animals were abundant along river valleys. Lakes contained populations of aquatic mammals, waterfowl, and fish, as well as edible plants. (MNDNR 2023; Gibbon, et al. 2002).

3.0 BACKGROUND INFORMATION

This section contains the literature review and the cultural resource overview for the Project area.

3.1 LITERATURE REVIEW

This literature search constitutes an analysis of protected datasets on file at the Minnesota State Historic Preservation Office (MNSHPO) and the Minnesota Office of the State Archeologist (OSA). Merjent archaeologist Kevin Mieras received the results of a data request of known archaeological sites and historic structures within the Study Area from MNSHPO on April 12, 2023. Additional data regarding previous cultural resources surveys was obtained from known archaeological site forms and online resources. OSA maintains a secured online dataset of known and suspected archaeological sites and cemeteries, which is regularly updated and referenced (OSA Portal).

TABLE 3.1-1

Gopher State Solar Project Study Area

County	Township Name	Township	Range	Sections included in Study Area
Renville	Kingman	116N	34W	14, 15, 22, 23, 24, 25, 26, 27, 28, 32, 33, 34, 35, 36
Renville	Osceola	116N	33W	17, 18, 19, 20, 29, 30, 31, 32
Renville	Bird Island	115N	34W	1, 2, 3, 4, 5, 10, 11, 12
Renville	Melville	115N	33W	5, 6, 7

The proposed Project boundary consists of 1,769 acres across Kingman, Osceola, Bird Island, and Melville Townships in Renville County, Minnesota. The literature search includes the proposed Project boundary and a 1-mile extension around it; this area encompasses the entire

Study Area. The public land survey system locations for the 1-mile Study Area are listed in Table 1.0-1 and shown as the Study Area on Figure 1 in Appendix A.

3.2 PREVIOUS SITES AND SURVEYS

A literature search for the Project shows that no archaeological inventories have been conducted in the Study Area. Figure 2 in Appendix A shows no documented archaeological sites or cemeteries in the Study Area.

The Study Area primarily occurs within the Low Site Potential Layer of the MnModel (Phase 4) Survey Implementation Model (Minnesota Department of Transportation [MNDOT], 2023). The overall archaeological site density in the Study Area is low and does not reflect intense Native American land use. The impacts of 150 years of cultivation, the general absence of archaeological survey in the Study Area, and artifact collection are possible reasons for this low density.

3.3 PREVIOUSLY RECORDED HISTORIC STRUCTURES

A literature search for the Project shows that there are no previously recorded historic structures present in the Study Area. Figure 2 in Appendix A shows no documented historic structures in the Study Area.

3.4 HISTORICAL MAP REVIEW

Merjent reviewed nineteenth-century General Land Office (GLO) maps and notes on file with the Bureau of Land Management (BLM 2023; see Figure 2 in Appendix A). The 1855 GLO map (Figure 3) shows no cultural features within the Study Area.

Merjent also reviewed aerial photographs taken from 1937 and 1953 on file with the OSA. The Study Area is predominately agricultural fields and largely unchanged since 1937. By 1937, many of the present-day farmsteads, roads, and field drainages were already established. By 1953, a limited number of additional structures had been constructed.

3.5 CULTURAL AND HISTORICAL OVERVIEW

Culturally, the Project is within Minnesota Archaeological sub-region 2 (Southeast Riverine Region). The Southeast Riverine region covers the southeast corner of Minnesota in all or part of Big Stone, Blue Earth, Brown, Carver, Chippewa, Cottonwood, Faribault, Freeborn, Jackson, Lac qui Parle, Le Sueur, Lyon, McLeod, Martin, Nicollet, Redwood, Renville, Scott, Sibley, Stevens, Swift, Watonwan, Yellow Medicine, Douglas, Grand, Kandiyohi, Lincoln, Meeker, Nobles, Otter Tail, Pipestone, Pipe, Rice, Steele, Traverse, and Waseca counties. This region extends into northeastern South Dakota and north-central Iowa (Gibbon et al. 2002).

3.5.1 Precontact Period (10,900 BCE–1650 CE)

The first inhabitants of Minnesota are known as Paleoindians (10,900 to 7,500 years Before the Common Era [BCE]). These people were highly nomadic hunter-gatherers, moving in small bands in search of food and other subsistence resources; however, in the Late Glacial and Early Holocene forests of Minnesota, Paleoindians likely relied more on gathering and the hunting of a variety of smaller animals. Paleoindian sites are small and relatively ephemeral and are commonly identified with the recovery of distinctive spear tips that occur across much of North America (Gibbon et al. 2002).

The Paleoindian peoples were followed by Archaic Tradition hunter-gatherers. At the end of the Ice Age, around 10,000 years BCE, the climate became warmer and drier, which led to major changes in plant and animal communities. Spruce forests followed the retreating glacial ice northward and were replaced by a new landscape comprised of extensive lakes and rivers. Many large-game species became extinct. Archaic Tradition hunters-gatherers (7,500 to 500 BCE) adapted to this new environment, shifting their focus to smaller game such as deer and elk, the abundant fish and shellfish in the numerous lakes and rivers, and wild plants such as nuts and berries (Gibbon et al. 2002).

The Archaic peoples appear to have been less nomadic and lived in smaller household groups. Archaic sites are identified by large notched and stemmed projectile points. Immense sedimentation during the early part of the Archaic, corresponding with the Early and Middle Holocene periods, resulted in many Archaic Tradition sites being deeply buried under river valley deposits; therefore, these sites are not usually evident in surficial contexts (Gibbon et al. 2002).

The Woodland Tradition followed the Archaic Tradition. In Minnesota, the Woodland culture is separated into two periods, the earlier Initial Woodland period (circa 500 BCE to 500 years into the Common Era [CE]), and the later Terminal Woodland period (500 to 1650 CE) (Gibbon et al. 2002).

The frequent surficial expression of Woodland site locations, coupled with burial mounds that frequently mark their place, has resulted in more frequent documentation and excavation of Woodland sites. Due to this higher frequency of identification, many Woodland sites have also been grouped into specific regional archaeological cultures (Gibbon et al. 2002; Gibbon 2012).

The Initial Woodland period is primarily marked by the emergence of precontact ceramic traditions and burial mounds. Regional archaeological cultures of the Initial Woodland period include Howard Lake, Malmo, Elk Lake, and Laurel (Gibbon et al. 2002; Gibbon 2012).

The Terminal Woodland period has been defined throughout eastern and central Minnesota, the Red River Valley, and portions of the Dakotas (Gibbon 2012). During this time period, populations began to increase, which in turn led to an increase in size and number of precontact sites. Burial mounds became more prevalent and the cultural material artifacts began shifting to smaller, unnotched triangular projectile points and thinner ceramic vessels that were more globular in shape. Agriculture and wild rice harvests also increased (Gibbon et al. 2002; Gibbon 2012).

In the northern portion of the state, ceramic types and burial practices indicate specific regional archaeological cultures, including Kathio, Blackduck, and Psinomani. In the southern portion of the state, primarily comprising deciduous forests and prairie, some cultures adopted the cultivation of maize and the construction of effigy burial mounds (Gibbon et al. 2002; Gibbon 2012).

Around approximately 1,000 CE, Mississippian populations from Cahokia, near St. Louis, Missouri, began to extend their influence northward into the Upper Mississippi River Valley and evidence suggests that there were attempts at colonization. Archaeologists tend to regard some southern Minnesota Terminal Woodland cultures as the northern expression of a “Mississippian” lifeway, distinguished by distinctive ceramic styles, larger and more diverse artifact assemblages, and evidence of maize production. In southern Minnesota, three Mississippian complexes have been identified: Silvernale, Oneota, and Plains Village (Gibbon et al. 2002). It was the Mississippian peoples in the south, and the Terminal Woodland peoples in the north, who had

contact with the first Europeans to explore Minnesota in the mid-seventeenth century (Gibbon et al. 2002; Gibbon 2012).

3.5.2 Contact Period (1650–1837 CE)

The Contact Period includes American Indian and Euro-American contexts. The OSA subdivides the American Indian context into "Indeterminate" or "Eastern Dakota," and the Euro-American context into "Indeterminate," "French," "British," and "Initial US" (Gibbon 2012). This section focusses on developing a cultural context and temporal framework for sites relevant to the Project.

Because the Project occurs on traditional Dakota lands, a brief description of the Dakota is warranted. DeMallie (2001) states that Dakota and Lakota (also known as Sioux) tribes share common language, history, social organization, and culture. They were first mentioned in 1640 (Thwaites 1898:18:231) and at that time occupied the area between Mille Lacs and the Missouri River and south into central Iowa. Three divisions were distinguished by the early nineteenth century, the Santee, Yankton and Yanktonai (Dakota), and Teton (Lakota), which mirrored geographical, linguistic, and cultural distinctions. Following government administrators, anthropologists grouped all three divisions under the designation "Dakota" (e.g., Dorsey 1897; Deloria 1944; Holder 1970). Researchers tend to minimize the use of the term "Sioux" for two reasons: 1) it had a foreign origin in an Ojibwa ethnonym; and, 2) it was said to mean "snake," and therefore has pejorative connotations (DeMallie 2001).

Oral histories and various linguistic reconstructions are similar regarding the origins of the Tribe. Linguistic studies place the Proto-Dakota west of Lake Michigan in southern Wisconsin, southeastern Minnesota, northwestern Iowa, and northern Illinois (Munson 1975). Dakota traditions recorded by Nicollet in 1839 indicate an origin near the northern lakes east of the Mississippi prior to moving westward—initially by the Teton, then the Yankton and Yanktonai, and lastly the Santee (DeMallie 1976). A tradition of the Mdewakanton group of Santee states that their ancestors left the lakes around the headwaters of the upper Mississippi and moved to the region of the Minnesota River because bison were more plentiful (Commissioner of Indian Affairs 1849:1006). Oral traditions also state that the Assiniboine split off from a band of Yanktonai (Riggs 1893).

Conventional archaeological methods are unable to answer questions regarding Dakota origins at this time. Generally, sites identified with the precontact Dakota on the northeastern fringe of the plains are lumped into the Woodland Tradition in Minnesota as are early contact sites (Eggan 1952; Winchell 1911).

In the heavily forested regions within Dakota territory, deer were the principal game; however, the plains Dakota made their livelihood hunting bison (DeMallie 2001). In the mid-seventeenth century, the eastern Dakota groups hunted bison in the grassland-forest savannah east of the Mississippi River. War with other groups, notably the Illinois, Fox, and other Central Algonquian tribes, all of whom had access to guns and who hunted bison, likely caused the Dakota to hunt west of the Mississippi River. Also, by the mid-seventeenth century, the Ojibwe began to move west from Sault Sainte Marie to regions they inhabited at the time of Euro-American contact. Initially the Dakota and Ojibwe warred, but eventually came to peaceful terms (for the most part) and the Dakota allowed the Ojibwe to hunt in their territory and act as middlemen in trade with the French (DeMallie 2001).

By the early eighteenth century, traders had built several posts and forts within Dakota territory, including one at Duluth and Fort l'Huillier on the Blue Earth River, a tributary of the Minnesota

River (DeMallie 2001). The fort on the Blue Earth River was seen as an unwelcome incursion into the territory of the Eastern Dakota and they retaliated by robbing two French traders and fired on the post. The western Dakota groups denied any responsibility, which demonstrates the autonomy between villages. Fort l'Huillier was abandoned in 1702, and the Dakota lacked direct contact with the French for the next 20 years (DeMallie 2001).

During this time, the Dakota depended on Fox and Ojibwe as intermediaries for trade. First in 1714 and again in 1721, the Fox made peace with the Dakota, not only for trade purposes, but also as an alliance against the Ojibwe who were expanding southwest from Lake Superior (Edmunds and Peyser 1993). The French negotiated a peace between the Ojibwe and Dakota with the result of undermining the alliance between the Dakota and Fox, although with the unintended result of also undermining the peace with the Ojibwe due to the opening of direct trade (Hickerson 1962).

In the 1730s, Pierra Gaultier de Varennes sieur de la Verendrye financed his search for the western sea by trading with the Native Americans and built posts west and north of Lake Superior. La Verendrye allied himself with the Ojibwe and Cree and, in 1734, his eldest son accompanied a Cree war party against the Dakota (DeMallie 2001). This action precipitated hostilities by the Dakota against the French. By 1736, several Frenchmen, including le Verendrye's youngest son, a Jesuit missionary, and 20 voyageurs were killed, scalped, and decapitated, with their heads placed on beaver skins (Thwaites 1906).

Also, by 1736, most of the Dakota lived west of the Mississippi River. That year the number of Dakota living east of the Mississippi was 300 compared with 2,000 Dakota on the prairies (Thwaites 1906). Although warfare with the Ojibwe had forced the Dakota to abandon their villages around Leech Lake and Mille Lacs, this did not result in an end in hostilities. While Ojibwe traditions recount many victories against the Dakota, most of the Dakota had already located to the Mississippi and Minnesota River valleys due to the availability of bison and the advantages of trade with the French (DeMallie 2001). A 1697 map, with additions in 1699 and 1702, depicts 22 Dakota villages in the upper Mississippi River region (DeMallie 2001).

The Dakota of the east lived in small, scattered villages, each of which was composed of five or six families (Radisson 1961). In addition to these small villages, there were larger ones that they returned to annually, which housed up to 7,000 people (Radisson 1961). Radisson (1961) describes some of the lodges as being covered with mats and some with skins and says lodges were rounded and constructed with long poles. Other accounts indicate that the Dakota of the west lived in tipis that they carried with them whenever they relocated (Neill 1890). There is no mention of Dakota utilization of dogs or horses during this period.

When the Dakota returned to their villages in the spring, they used cache pits to contain surplus wild rice. Radisson (1961) writes that they sowed corn, but that the harvest was small. The wild rice afforded them nourishment throughout the year. Conversely, the Jesuit Relations mention in 1642 that the Dakota harvested corn, but in 1670–1672 it was stated that they did not till land (Thwaites 1898:23:225, 1899:55:169). During the summer, the Dakota gathered for communal bison hunts, which were extremely important since these hunts provided surplus meat to be dried for winter use and hides (De Mallie 2001). Hennepin (1903) reported that sometimes 100 to 120 bison were killed in a single hunt. Because a single hunter or small group could frighten the bison herd away, hunts were strictly controlled by the chiefs for the communal good. Anyone who hunted before the bison were surround was liable for punishment by specially appointed police. Hennepin (1903) described these police as carrying clubs, overturning lodges of offenders, and confiscating their food.

Following the communal bison hunt, the Dakota of the east would return to their villages in the lake country for the wild rice harvest season, part of which, as noted above, was stored in underground cache pits (Radisson 1961; Hennepin 1903). Corn and various other roots, fruits, and berries were gathered and eaten while fresh (Hennepin 1903). Le Sueur provided additional detail in that the Dakota of the west hunted extensively, utilizing the prairies between the upper Mississippi and the Missouri Rivers where canoes were not needed. They practiced no horticulture, did not gather wild rice, and had no fixed villages. All their travel was by foot (Wedel 1974).

DeMallie (2001) writes that the Dakota placed their dead either on scaffolds or buried them in the ground. Oftentimes the bones from the scaffold burial were collected, reburied in the ground, and surrounded by a ring of stones. DeMallie (2001) also reports that occasionally the bones of the dead were preserved, honored, and carried on war expeditions.

The first mention of the Dakota of the west was in 1679–1680. Hennepin (1903) was told by the Dakota of the east that 50 to 75 miles above present-day Minneapolis lived the Nations Tintonha (Inhabitants of the Meadows).

By the late seventeenth and eighteenth centuries, the image that develops from the literature regarding the Dakota is one of small village groups bonded by common language and customs (DeMallie 2001). Dakota villages were bands that traveled around independently of each other and the dispersion of the Dakota of the east into many small villages likely related to the need for each group to use the resources of the area most efficiently, particularly the wild rice.

Gates (1965) states that the Dakota had acquired numerous horses by 1774 and used them for both transportation and pack horses. The acquisition of the horse was an integral innovation that fit into the nomadic bison-hunting economy and intensified earlier subsistence patterns (Wissler 1914). Additionally, the Dakota developed cultural traits that ultimately became central to Plains culture, including the intertribal pipe adoption ceremony and the Sun Dance (Parks 1993).

Following the acquisition of the horse, the westward expansion of the Dakota continued in the early 1800s. The Teton, allied with the Cheyenne and Arapaho, pressed westward, driving the Kiowa and the Crow from the Black Hills area and claiming it as their own (DeMallie 1980). This was the period in which the classic western Dakota culture developed.

After the Louisiana Purchase in 1803 by the United States, the establishment of formal relations with the tribes became integral to the government's need to explore and exploit the new territory. During their trip up the Missouri River, Lewis and Clark met with the Yankton, Yanktonai, and Teton tribes and presented peace medals and U.S. flags to their chiefs, affirming their status and power (DeMallie 2001). In 1805, Lt. Zebulon M. Pike traveled up the Mississippi and signed the first treaty with the Dakota. Under the terms of the treaty, the Mdewakonton ceded to the United States two areas of land near the Mississippi River for the construction of military posts, one of which was at the confluence of the Minnesota and Mississippi Rivers where Fort Saint Anthony (later Fort Snelling) was built in 1819.

The Dakota were divided during the War of 1812 with the eastern Dakota siding with the British and the western Dakota siding with the United States. After the war concluded, in 1815, representatives of several tribes were invited to Portage des Sioux where they signed treaties of peace and friendship with the United States. These treaties were noteworthy in that they specified that the Native American signers acknowledged themselves and their tribes to be under the sole

protection of the U.S. government—the first extension of federal authority over the Dakota (Kappler 1904–1941).

An 1825 military expedition led by General Henry Atkinson and Indian Agent Benjamin O'Fallon up the Missouri River signed four more treaties with the Yankton, Yanktonai, and Teton (Kappler 1904–1941). These treaties specified that the Dakota acknowledged living within the United States, recognized its supremacy, and claimed its protection. The treaties also gave the United States the right to regulate all trade and intercourse with the Dakota.

Other treaties had more focused purposes. The 1830 treaty jointly signed by the Santee, Yankton, Sauk, and Fox, Omaha, Iowa, Otoe, and Missouria tribes at Prairie du Chien (Kappler, 1904–1941) ostensibly was to end intertribal warfare. In actuality, the Dakota, Sauk and Fox surrendered two 20-mile-wide strips of land separating their territories from each other. Also significant, this treaty was the first stating that the Dakota was to obtain annuities from the United States payable over a 10-year period in money or goods. Other similar treaties followed in 1836 and 1837, further eroding Santee and Yankton lands with the promise of annuities (Kappler 1904–1941). The non-deliverance of the annuities, resulting in the starvation of the Dakota confined to small reservations, led directly to the 1862 Dakota War.

3.6 IMPLICATIONS FOR SITE POTENTIAL

The environmental setting and information on known cultural resources suggests intensive field investigation should be focused on areas assessed as having a greater probability to contain significant archaeological sites. Precontact sites are most likely to be located: in undisturbed portions of the Project area near an existing or former large water source, a former or existing perennial stream; on topographically prominent landscape features; near a previously reported site; or near a former or existing historic structure or feature (such as a building foundation or cellar depression).

Areas assessed as having a relatively low potential for containing archaeological resources include inundated areas, former or existing wetland areas, poorly drained areas, and areas with a 20 percent or greater slope.

Causes of disturbance in the Project area include sustained agricultural activity, buried utilities, and road construction and maintenance. Historic-period artifact scatters are possible in the Project area due to the proximity to adjacent farmsteads; however, these remnants of historical occupation have undoubtedly been affected by the same ground disturbing activities discussed above, likely hindering the integrity of site location.

4.0 FIELD SURVEY

4.1 OBJECTIVE AND METHODS

The general objective of a Phase I is to identify archaeological resources within the survey area that are at least 45 years of age. Archaeological resource types considered for this investigation included both 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 current ground surfaces. The focus of this field investigation was to understand if any unknown resources could be positively identified in the survey area. Prior to the start of the survey, and since the project crosses non-federal public lands in the form of transportation

corridors, a Phase I license (License No. 23-046) was applied for, and granted to, William Harding, the project Principal Investigator.

Throughout all stages of this investigation, Merjent applied industry (cultural resource management) best practices and adhered to the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* (48 Code of Federal Regulations 44716). Methods are in accordance with reconnaissance survey described by the *SHPO Manual for Archaeological Projects in Minnesota* (Anfinson 2005) and the *State Archaeologist's Manual for Archaeological Projects in Minnesota* (Anfinson 2011).

Based on the literature review, intensive field investigation focused on areas assessed as having a greater probability to contain significant archaeological sites. The survey was completed prior to recent guidance from the SHPO requesting a breakdown of medium and low probability areas. The high probability areas included undisturbed portions of the Project area:

- Within 500 feet (150 meters) of an existing or former water source of 40 acres (19 hectares) or greater in extent, or within 500 feet (150 meters) of a former or existing perennial stream;
- Located on topographically prominent landscape features;
- Located within 300 feet (100 meters) of a previously reported site; or
- Located within 300 feet (100 meters) of a former or existing historic structure or feature (such as a building foundation or cellar depression).

Areas assessed as having a relatively low potential for containing archaeological resources included inundated areas, former or existing wetland areas, poorly drained areas, and areas with a 20 percent or greater slope. Low potential areas and areas in which Holocene (less than 10,000 years old) deposits have been significantly disturbed were excluded from intensive field survey, although a small percentage of medium probability and low probability areas were transected between high probability areas with negative results. As depicted in Figure 4, the survey area is somewhat smaller than the total Project area.

The survey area was based on files provided by Gopher State Solar that included the temporary workspaces and access roads. Non-overlapping pedestrian survey was conducted by Merjent in the high probability survey area in 15-m transects. Areas exhibiting obvious disturbance, inundation, or exhibiting slope greater than 20 percent were photo documented. The survey was geographically oriented using Geographic Information System data in conjunction with a Trimble R1 Integrated Global Navigation System receiver. Field observations including vegetation, ground surface visibility, slope, general topography, and areas of soil disturbance or inundation were described on field forms.

5.0 CONVENTIONAL ARCHAEOLOGY SURVEY RESULTS

Fieldwork was conducted by Merjent archaeologists Stephen Larsen, Jacob Seaton, and Kristina Budde on May 9, 10, 11 and November 15, 2023. A total of 1,087.94 acres were inventoried. Survey conditions were ideal;. ground surface visibility ranged from 90 to 100 percent across the inventoried area due to the lack of standing crops producing a nearly bare ground surface for excellent surface visibility and ease of walking (Photo 5.0-1, 5.0-2, 5.0-3, 5.0-4); therefore, no

shovel testing was conducted per Anfinson 2005 and 2011. No new archaeological sites were identified.

Photo 5.0-1. Survey Area overview, facing east.

Photo 5.0-2. Survey Area overview, facing north.

Photo 5.0-3. Survey Area overview, facing south.

Photo 5.0-4. Survey Area overview, facing west.

6.0 SUMMARY AND RECOMMENDATIONS

From May 9 to 11 and on November 15, 2023, Merjent conducted a Phase I identification survey for the Project. A literature search conducted prior to fieldwork identified no documented archaeological sites, and no documented historic architectural structures in the Study Area. A

small portion of one parcel and a collector line still require survey (Figure 4) and those results will be detailed as an addendum. No new archaeological sites were identified during the current survey. Merjent recommends that no historic properties will be affected by the proposed Project. No additional archaeological survey is recommended for the Project as planned.

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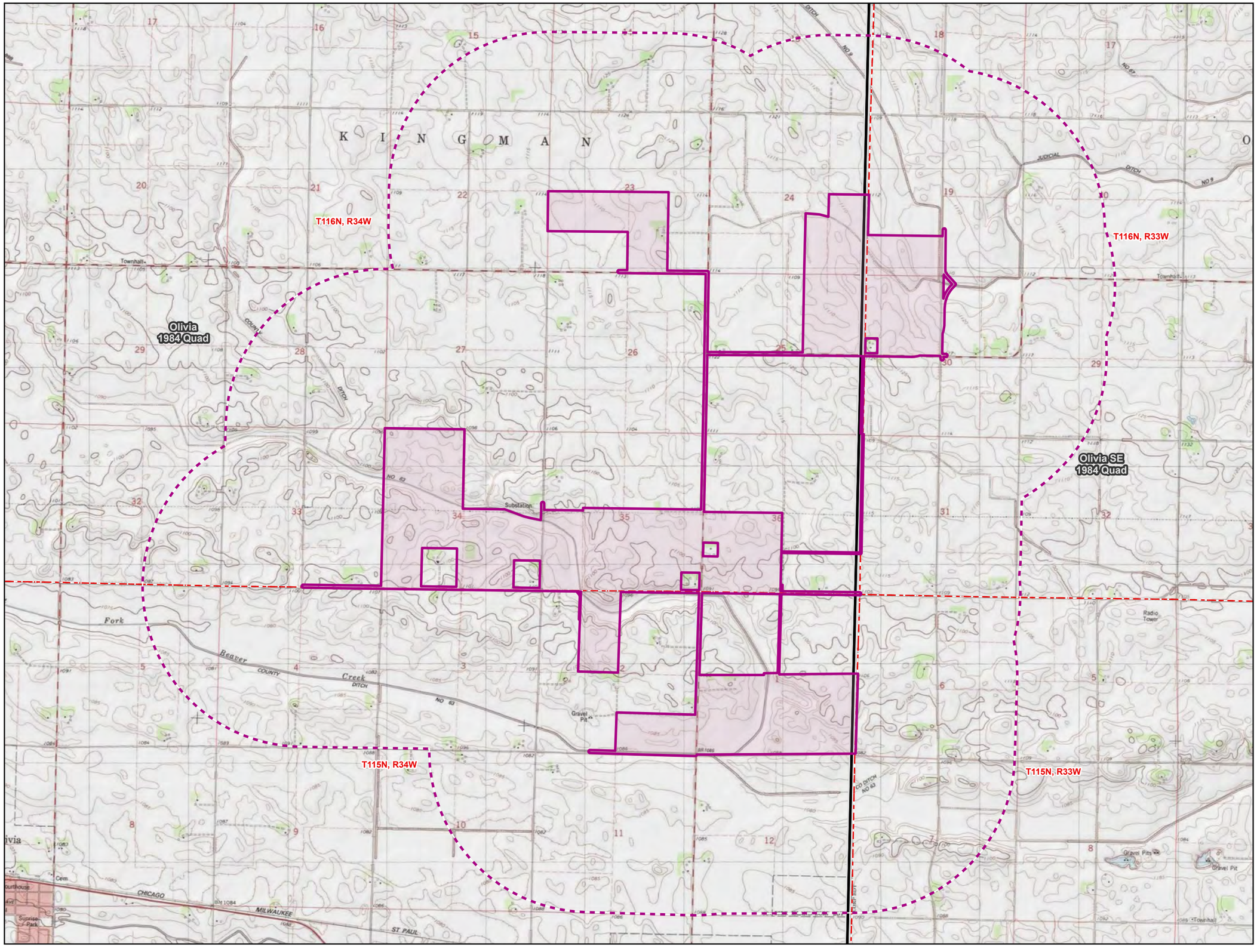
APPENDIX A

FIGURES



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1 inch = 3,000 feet

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- Project APE
- Study Area
- Topographic Quadrangle
- Township Boundary

Figure 1:
Project Location

Ranger Power
Gopher State Solar
Renville County, Minnesota

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For Environmental Review Purposes Only

Source: Z:\Clients\C_T\Ranger_Power\Gopher_State\ArcGIS\Cultural\001_ArcPro\002_Phase1_Report\RangerPower_GopherStateSolar_Cultural.aprx

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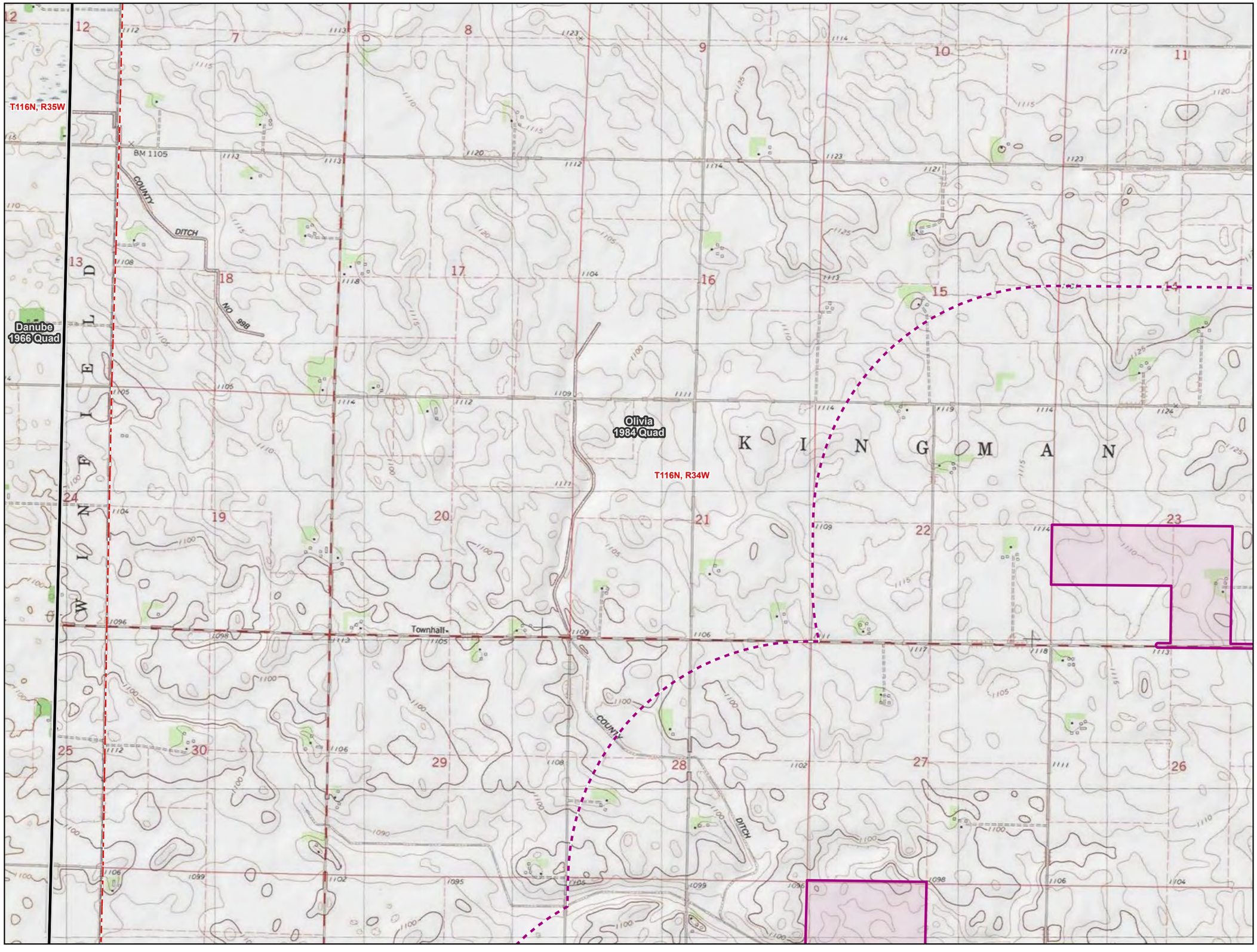

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1 inch = 2,000 feet

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- Project APE
- Study Area
- Topographic Quadrangle
- Township Boundary

Figure 2: Project Location and Previous Cultural Resources

Ranger Power
Gopher State Solar
Renville County, Minnesota

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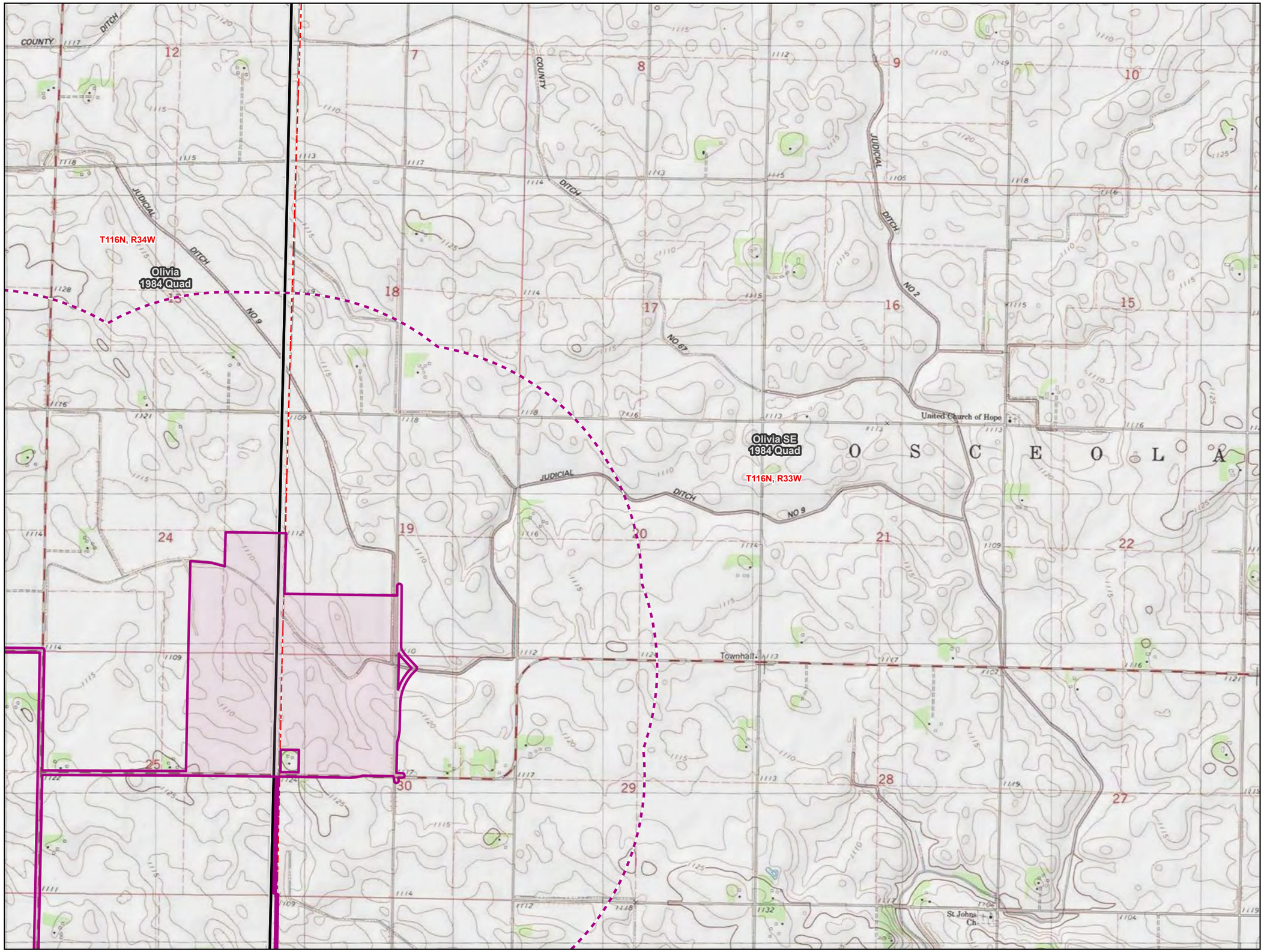

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- Topographic Quadrangle
- Township Boundary

Figure 2: Project Location and Previous Cultural Resources

Ranger Power
Gopher State Solar
Renville County, Minnesota

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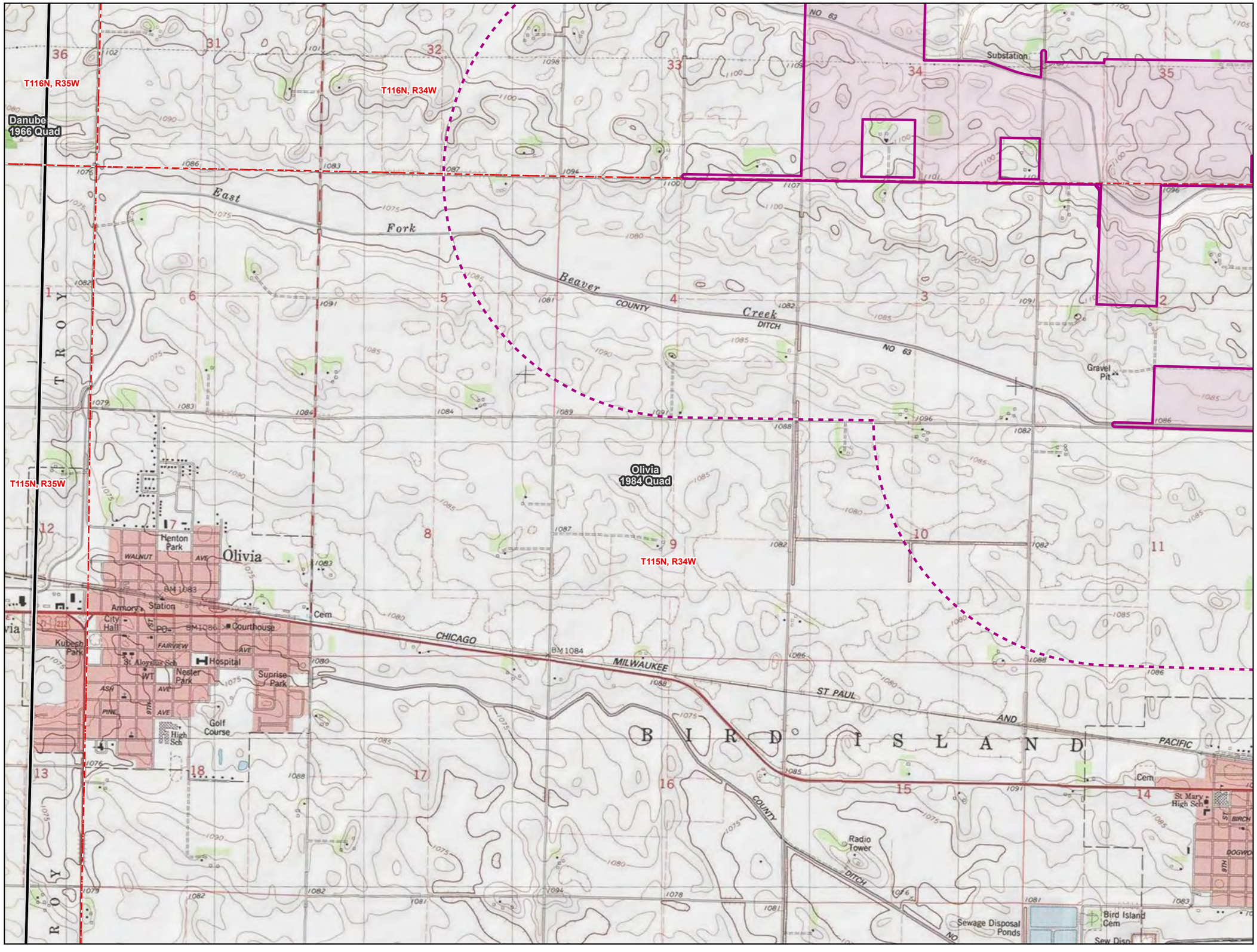

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- Project APE
- Study Area
- Topographic Quadrangle
- Township Boundary

Figure 2: Project Location and Previous Cultural Resources

Ranger Power
Gopher State Solar
Renville County, Minnesota

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For Environmental Review Purposes Only

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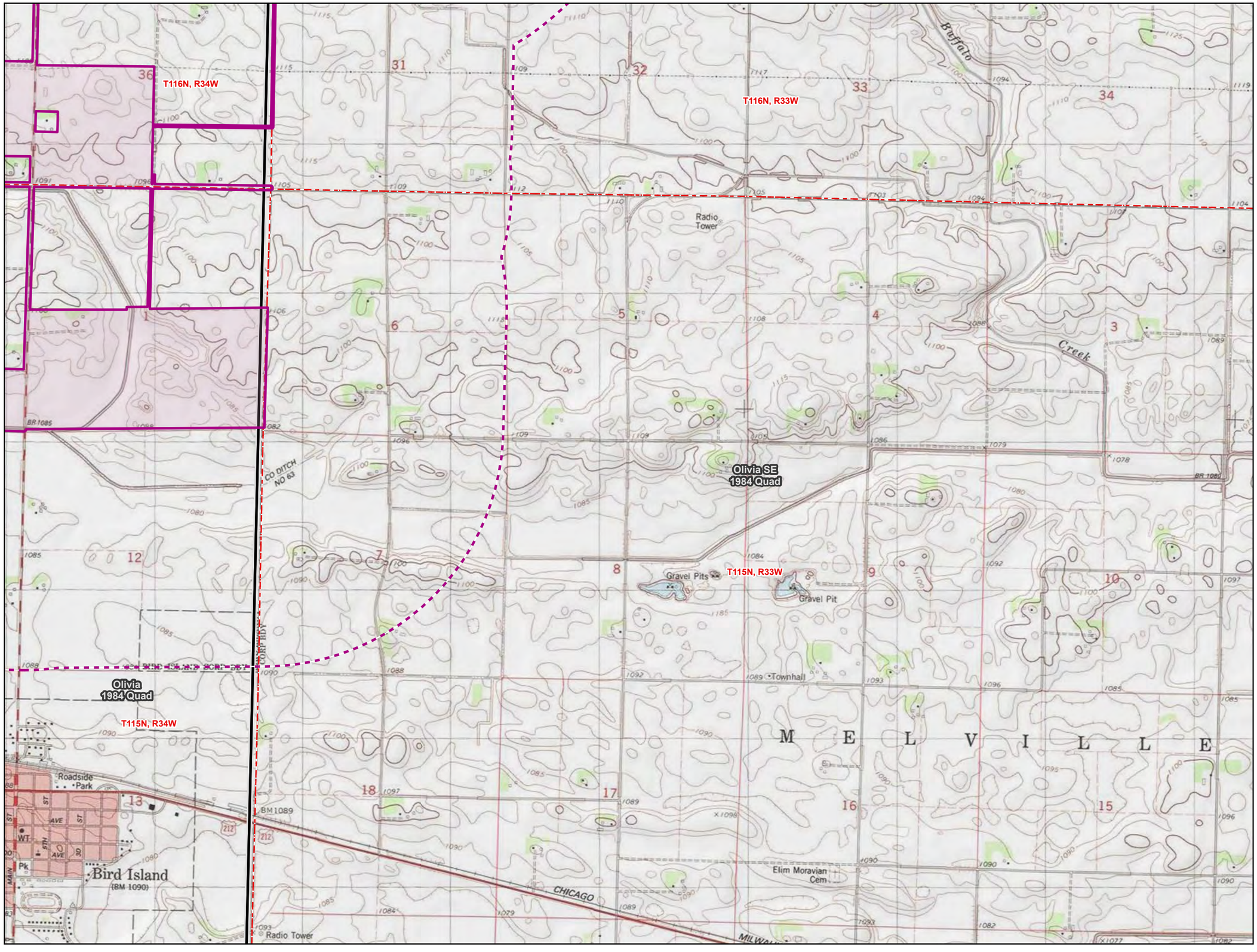

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1 inch = 2,000 feet

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- Project APE
- Study Area
- Topographic Quadrangle
- Township Boundary

Figure 2: Project Location and Previous Cultural Resources

Ranger Power
Gopher State Solar
Renville County, Minnesota

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For Environmental Review Purposes Only

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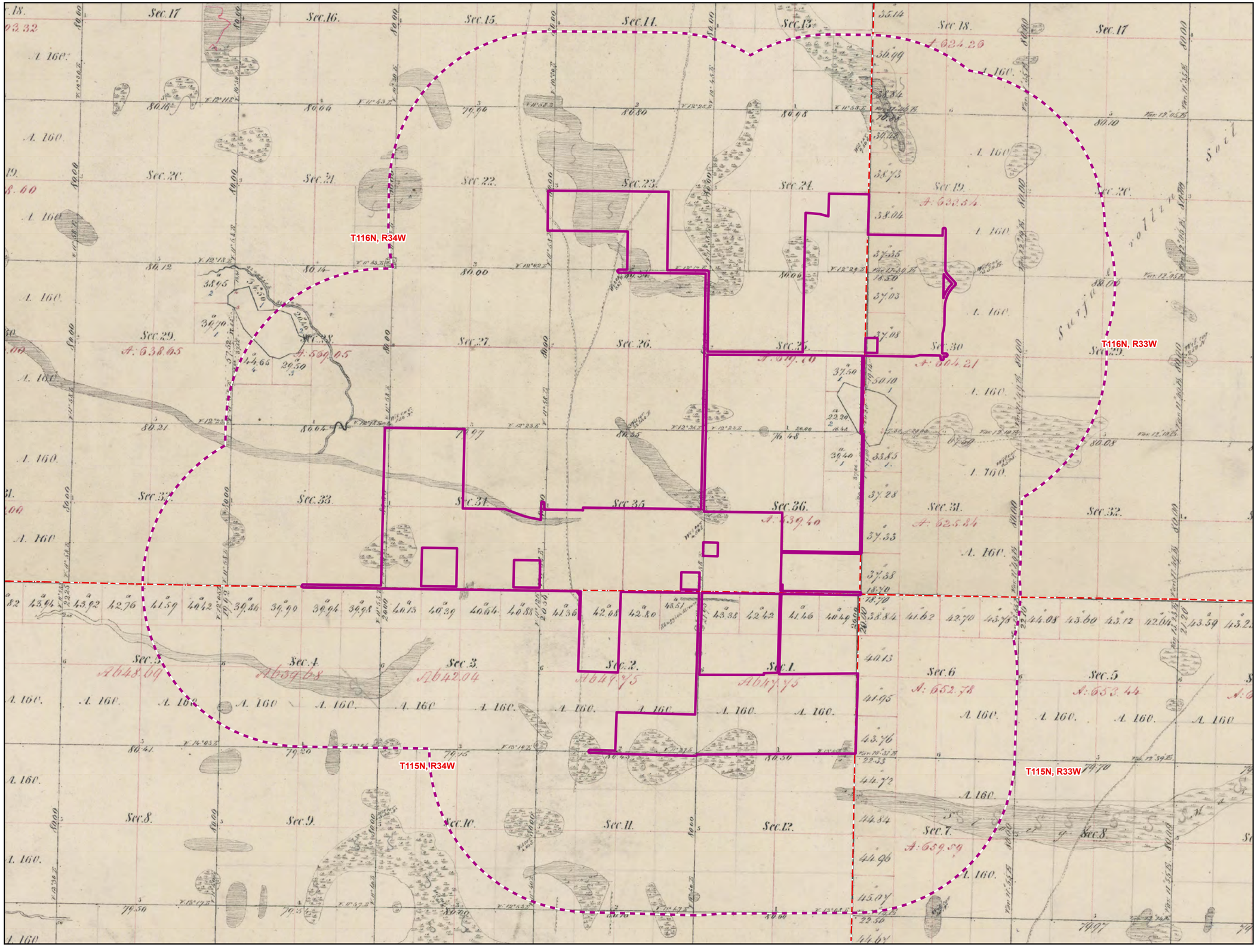

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1 inch = 3,000 feet

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Project APE

Study Area

Township Boundary

Figure 3:
1858 GLO Map
Ranger Power
Gopher State Solar
Renville County, Minnesota

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For Environmental Review Purposes Only

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Date: (8/5/2024)

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16-00470-00
16-00480-00
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16-00461-00
16-00500-00
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T116N, R34W,
Sec. 22
T116N, R34W,
Sec. 24
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16-00510-00
16-00531-00
16-00520-00
16-00570-00
Co Rd 5
860th Ave
380th St
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16-00690-00
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Sec. 26
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Sec. 27
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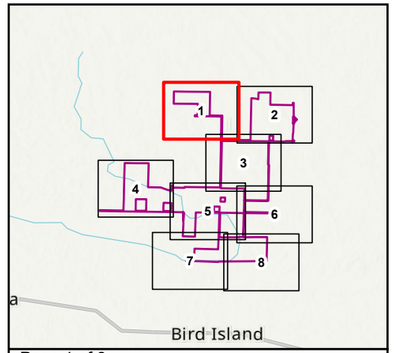

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1 inch = 600 feet

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- Project APE
- Section Boundary
- High Probability Survey Area
- High Probability Survey Area (ROW)
- Medium Probability Survey Area
- Parcel Boundary
- Trans_RoadSegment

Figure 4:
Survey Results
Ranger Power
Gopher State Solar
Renville County, Minnesota

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For Environmental Review Purposes Only

Source: Z:\Clients\Q_T\Ranger_Power\Gopher_State\ArcGIS\Cultural\001_ArcPro\002_Phase1_Report\RangerPower_GopherStateSolar_Cultural.aprx
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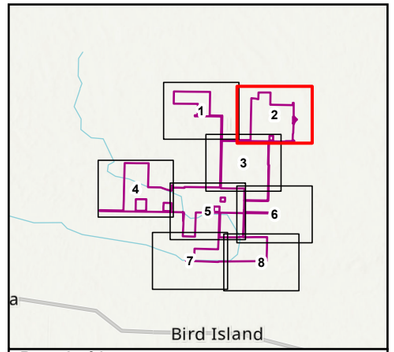

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- Project APE
- Section Boundary
- High Probability Survey Area
- High Probability Survey Area (ROW)
- Medium Probability Survey Area
- Parcel Boundary
- Trans_RoadSegment

Figure 4:
Survey Results
Ranger Power
Gopher State Solar
Renville County, Minnesota

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For Environmental Review Purposes Only

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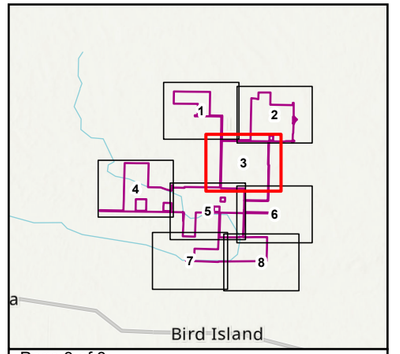

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- Section Boundary
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Figure 4:
Survey Results
Ranger Power
Gopher State Solar
Renville County, Minnesota

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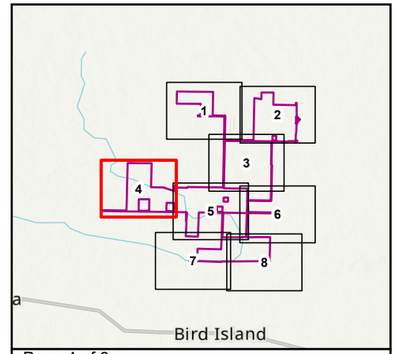

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Renville County, Minnesota

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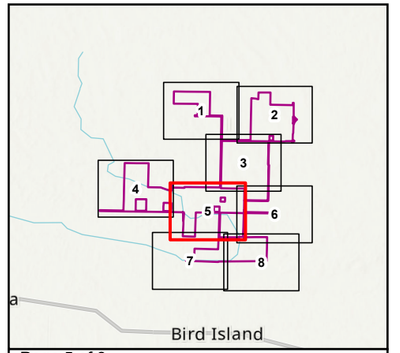

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Figure 4:
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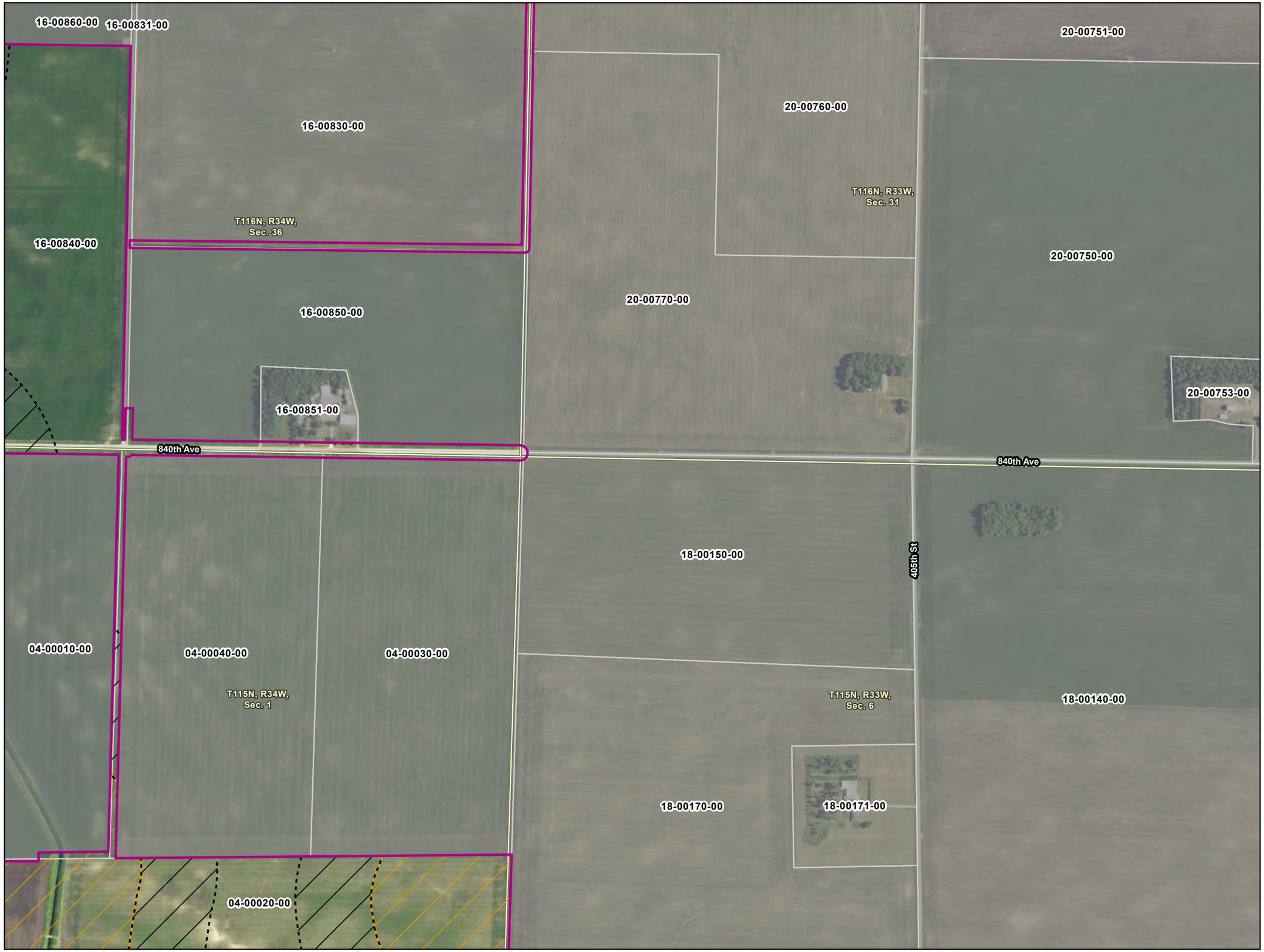

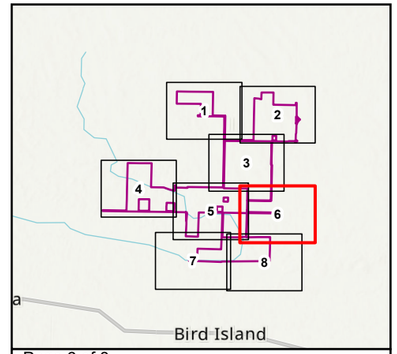

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Renville County, Minnesota

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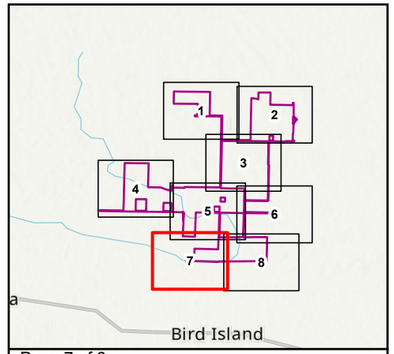

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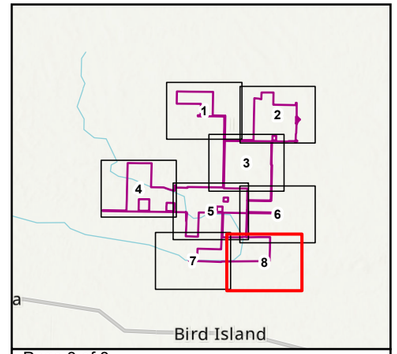

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Survey Results
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Renville County, Minnesota

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For Environmental Review Purposes Only

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