

**PHASE I ARCHAEOLOGICAL SURVEY FOR REPLACEMENT
OF BRIDGE #5968 ALONG TH 42 AT THE CITY OF
ELGIN, WABASHA COUNTY, MINNESOTA.**

**S.P. Number 7901-43
Mn/DOT Contract No. 97489**

MN OSA License No. 10-19

**Authorized and Sponsored by:
Minnesota Department of Transportation
and the Federal Highway Administration**

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&
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Reports of Investigation # 099**

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Consultant's Report

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MANAGEMENT SUMMARY

The Minnesota Department of Transportation (Mn/DOT) plans to replace Bridge #5968 over the North Fork Whitewater River and possibly realign Trunk Highway 42 (TH 42) at Elgin, Minnesota (S.P. 7901-43). The project is sponsored by Mn/DOT and the Federal Highway Administration.

Florin Cultural Resource Services, LLC (FCRS) was retained to conduct a Phase I archaeological survey of the project area, which extends 275 feet (84 meters) north of the existing bridge, 340 feet (104 meters) south of the bridge, and 150 feet (46 meters) on each side of TH 42. The total size of the survey area was 615 feet by 300 feet (188 meters by 92 meters), approximately 4.2 acres (1.7 hectares).

The project area is located in Archaeological Region 3w (Southeast Riverine West) in T108N, R12W, S½ of Section 27, Wabasha County, Minnesota. Fieldwork was conducted between October 4 and 8, 2010. Frank Florin was the principal investigator.

Archaeological field methods included pedestrian survey, shovel tests, and deep auger tests. A total of 63 shovel tests and 12 deep auger tests were dug. Deep auger tests adjacent to the river indicate that there is very low potential for deeply buried sites based on the historic age of the alluvium and the lack of buried soils.

No archaeological sites were identified, and no further archaeological work is recommended for the project. It is the opinion of FCRS that no archaeological sites eligible for or listed on the NRHP will be affected by the project.

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Office of State Archaeologist License

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1. PROJECT DESCRIPTION

The Minnesota Department of Transportation (Mn/DOT) plans to replace Bridge #5968 over the North Fork Whitewater River and possibly realign Trunk Highway 42 (TH 42) at Elgin, Minnesota (S.P. 7901-43). The project is sponsored by Mn/DOT and the Federal Highway Administration. The archaeological investigations were conducted to aid project sponsors in complying with federal historic preservation laws for undertakings with federal funding or permitting.

The Mn/DOT Cultural Resources Unit determined that the area of potential effects (APE) for the project extends 275 feet (84 meters) north of the existing bridge, 340 feet (104 meters) south of the bridge, and 150 feet (46 meters) on each side of TH 42 (Figures 1 and 2). The total size of the survey area was 615 feet by 300 feet (188 meters by 92 meters), approximately 4.2 acres (1.7 hectares). The vertical extent of the APE was 80 cm below surface (cmb). The APE extended to a depth of three meters within 15 meters of the river where deep impacts may occur from new bridge abutments. The APE includes proposed construction areas as well as temporary and permanent easements.

Florin Cultural Resource Services, LLC (FCRS) was retained to conduct a Phase I archaeological survey for the project. The project area is located in Archaeological Region 3w (Southeast Riverine West) in T108N, R12W, S½ of Section 27, Wabasha County, Minnesota. The UTM coordinate (1983 Datum) at Bridge #5968 along TH 42 is E560050 N4886332. Fieldwork was conducted between October 4 and 8, 2010. Frank Florin was the principal investigator.

Land use in the project area consists of a lawn, fallow fields, a soybean field, and gravel parking lots. The landscape in the survey area includes the floodplain and low terrace of the North Fork Whitewater River. All of the land is privately owned except for a small portion owned by the school district in the northwest corner of the project area. A permit to conduct archaeological investigations was obtained from the Minnesota Office of State Archaeologist prior to commencing fieldwork (Appendix).

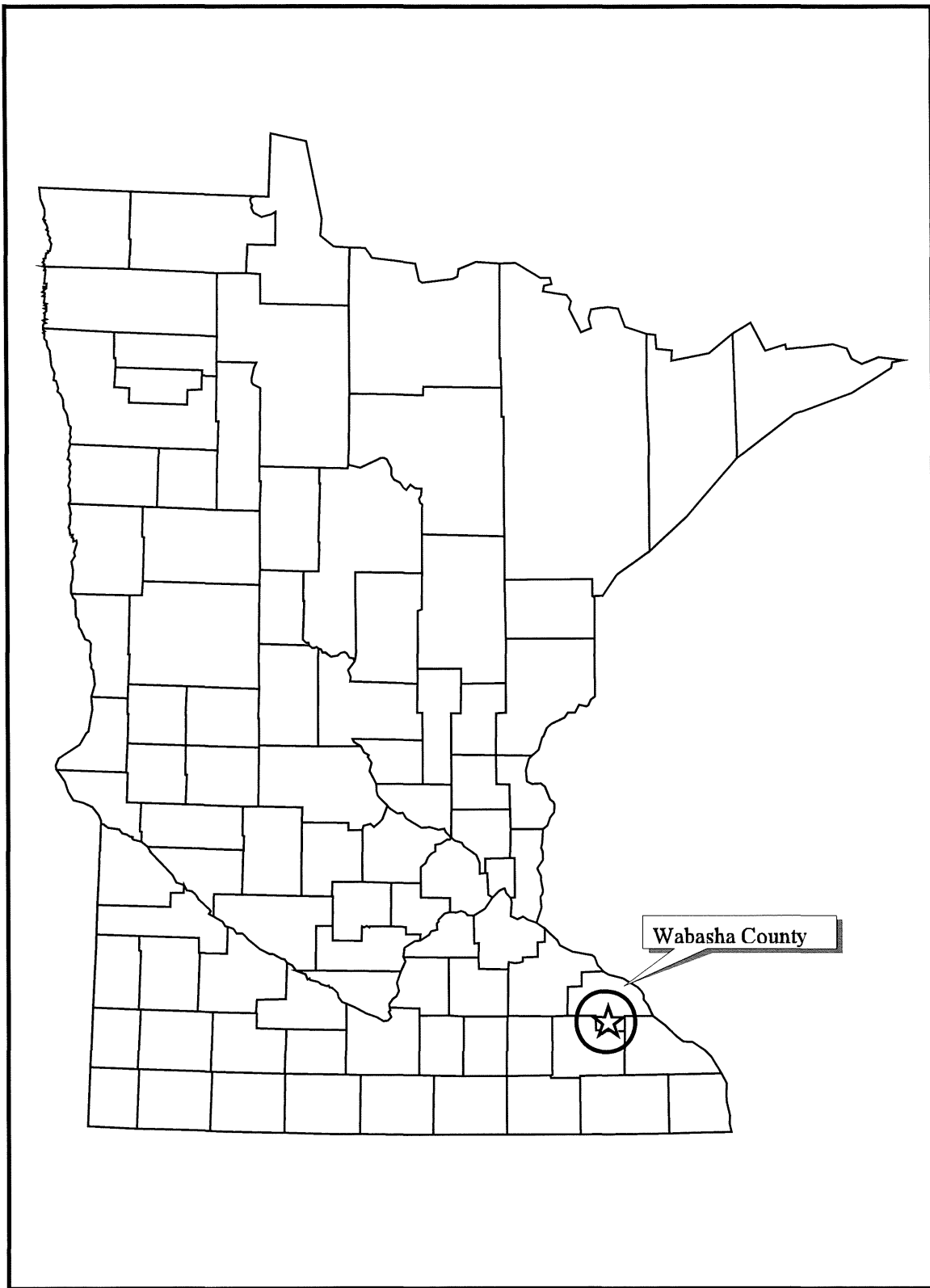


Figure 1. Location of Project Area in Wabasha County, Minnesota.

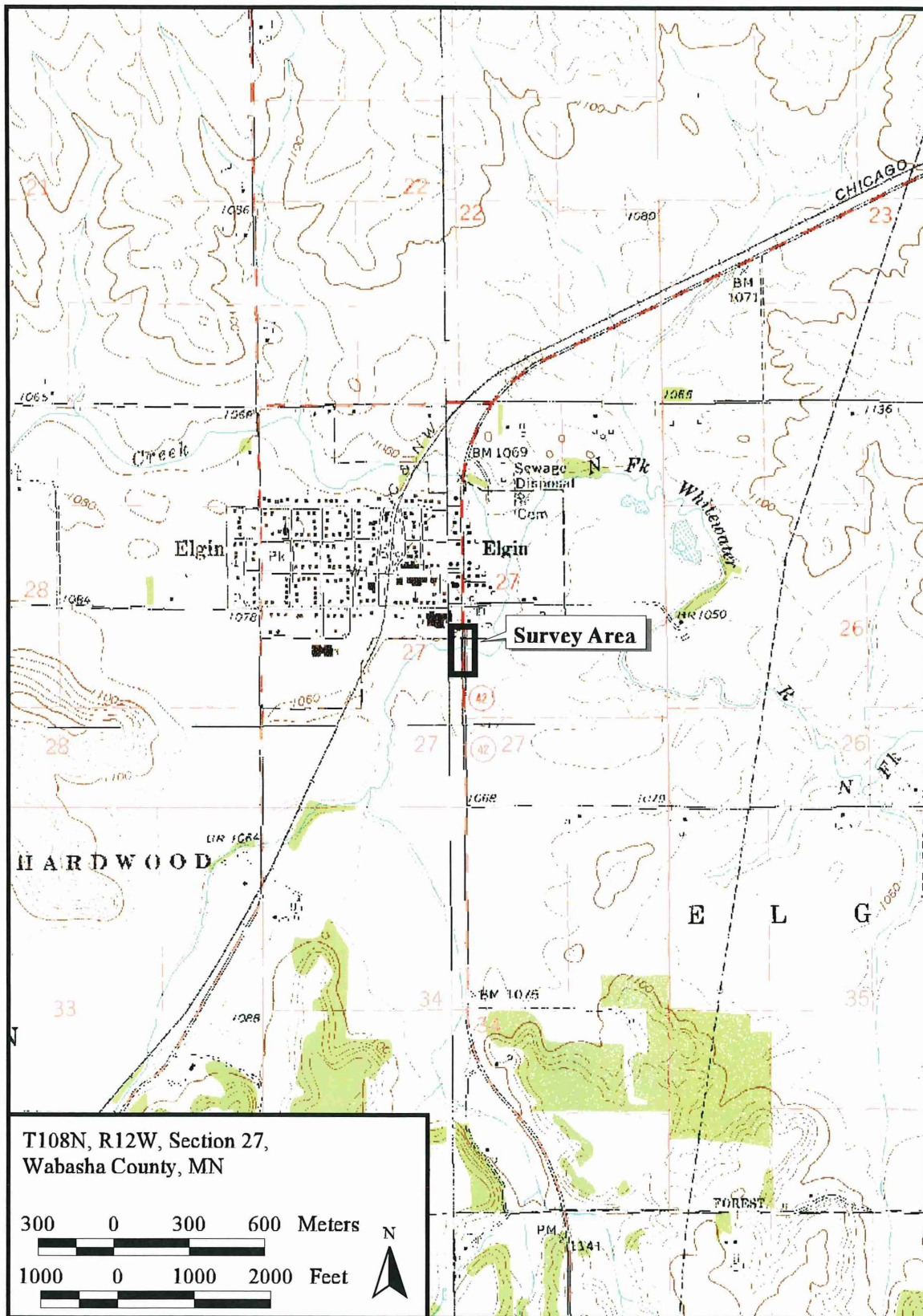


Figure 2. Location of Survey Area on Plainview USGS 7.5' Quad.

2. RESEARCH DESIGN

2.1 Objectives

There are several objectives of the Phase I archaeological investigation: 1) to aid project sponsors in complying with Section 106 of the National Historic Preservation Act and 36 CFR 800: Protection of Historic Properties; 2) to identify archaeological sites; 3) to aid in project planning; and 4) to produce a report documenting the archaeological investigations.

2.2 Aspects of the Research Design

The research design was developed to meet project objectives, and it adhered to the research and field method guidelines established by the Minnesota State Historic Preservation Office (MnSHPO) and Mn/DOT. These methods, which included a literature search, fieldwork, analysis of data, and production of a technical report, are discussed in greater detail in the following sections.

The literature search provided information on previous investigations, previously recorded sites, historic maps, and the environmental setting.

Archaeological fieldwork included pedestrian survey, shovel tests, and deep auger tests. The pedestrian survey was used to identify artifacts or archaeological remains that were present on the ground surface. Shovel tests and auger tests were used to identify artifacts that were present below the ground surface and characterize soils in the survey area.

The report documents the results of research, fieldwork, and provides interpretations of project data and recommendations for the project.

3. FIELD METHODS

3.1 Phase I Archaeological Field Methods

The Phase I archaeological survey methods adhered to the MnSHPO guidelines for archaeological fieldwork. Specific field methods were discussed with Mn/DOT prior to conducting fieldwork.

3.1.1 Pedestrian Survey

Pedestrian survey was conducted at 10-meter-interval transects within the project area. The goal of the pedestrian survey was to identify and record archaeological sites that could be observed on the ground surface. Pedestrian survey was not a practical method for identifying archaeological sites because of poor surface visibility in the project area as a result of thick vegetation and recent flood deposits.

3.1.2 Shovel Tests and Deep Auger Tests

Shovel testing was used to identify archaeological sites not visible on the ground surface and to characterize soils in the survey area. Shovel testing was conducted at 10-meter intervals

throughout the entire project area. Shovel tests extended to a depth of 80 cmbs and were 35 to 40 cm in diameter.

Testing within 15 meters of the river extended to a depth of three meters below the surface to sample for deeply buried sites in the area where deep impacts may occur from new bridge abutments. A Seymour auger with a 20-cm (6-inch) diameter bucket was used for the deep auger tests.

All soils were screened through ¼" hardware mesh. The field crew returned all excavated soil to each test upon completion.

3.1.3 GPS Data Collection

Test locations were recorded with a Garmin® GPS unit, which provided a position accuracy of within three meters. The data was collected in UTM coordinates using the 1983 North American datum format. The UTM coordinates were tabulated in a spreadsheet, imported into ArcView®, and digitally plotted on the USGS 7.5' quadrangle map and digital air photo obtained from the Minnesota Department of Natural Resources web site.

3.1.4 Field Documentation

A record of daily activity was recorded in a log that documented fieldwork and relevant information on the survey area. A sketch map of the project area was drafted using a compass and tape measure. The map depicts the locations of shovel tests, survey limits, significant landforms, geographical markers, and field conditions. Photographs were taken at numerous locations throughout the project area. A record of the photographs was maintained in a project photo log.

A soil profile was recorded for representative shovel tests and deep auger tests. Soil colors, textures, horizons, and disturbances were recorded on the profile. Soil colors were described using the Munsell system, with the soils slightly moistened prior to determining color.

4. LITERATURE SEARCH

4.1 Archival and Background Research

Archival and background research was conducted at MnSHPO and the Minnesota Historical Society Library by FCRS staff in September 2010 to determine whether any previously identified archaeological sites or potential historic sites are located within one mile of the project area. Site inventory files, USGS 7.5' quadrangle site location maps, historic plat maps, and research reports were reviewed to provide information on previously recorded archaeological sites and previous investigations within one mile of the project area. Mr. Tom Cinadr, Survey and Information Management Coordinator at MnSHPO, also conducted a search of the site file database and provided a list of sites within one mile of the project area.

T.H. Lewis conducted the first archaeological survey in Wabasha County during the late 1800s for the Northwestern Archaeological Survey (NWAS). N.H. Winchell subsequently compiled and published the original survey notes and maps from the NWAS survey (Winchell 1911).

Several mound groups were documented in Wabasha County, particularly along the bluffs of the Mississippi River, but none are recorded within five miles of the project area. No archaeological sites are recorded within five miles of the project area.

4.2 Mn/Model Study of Rochester Plateau Subsection

The Mn/Model is a statewide GIS-based predictive model for pre-1837 archaeological site locations. The project is located within the Rochester Plateau, which is a subsection of the Driftless & Dissected Plateau (or Paleozoic Plateau) Section of the Eastern Broadleaf Forest Province (Hudak et al. 2002). The project area is mapped as having medium archaeological site potential because of its location on the North Fork Whitewater River. Low site numbers in the Rochester Plateau subsection required developing a combined model with the Blufflands subsection where the bulk of the sites were recorded. More surveys are needed in the Rochester Plateau subsection so that a reliable model can be built without the use of data from the adjacent Blufflands.

4.3 Historic Map Review

Several historic maps were examined prior to fieldwork to aid in identifying potential historic period sites within the project area. The earliest map examined was the original land survey map of 1854, which was available online (Minnesota Historical Society 2007). Copies of historic plat maps from 1896 (Ogle 1896), 1915 (Webb 1915), and 1916 (Hixson 1916) were also reviewed. No potential cultural resources are depicted within or near the project area on the original land survey map or plat maps.

4.4 Physical Setting

The general project area is mapped as pre-Wisconsinan deposits of loess overlying residuum and bedrock, with loess overlying older drift in some areas (Hobbs and Goebel 1982). The presettlement vegetation in the project vicinity was prairie and brush prairie (Marschner 1974).

Specifically, the project area is located on the low terrace and floodplain of the North Fork Whitewater River. Soils adjacent to the river are mapped as the Huntsville series, which consist of very deep, well drained soils formed in alluvium on flood plains (<http://websoilsurvey.nrcs.usda.gov>). Along the northern and southern margins of the survey area farthest from the river, the soils are mapped as the Waukegan and Port Byron series, which formed on higher ground in loess. However, it appears that these areas also contain post-settlement alluvium, as they are only slightly higher than the floodplain, contained historical materials below the modern plow zone, and sediments from a recent flood were observed on the surface in these areas.

The North Fork Whitewater River is a small stream, approximately five meters wide in the project area, that flows eastward to the Whitewater River, which drains into the Mississippi River. The floodplain extends approximately 10 meters along each side of the river. The low terrace is slightly elevated above the floodplain.

5. PHASE I FIELDWORK SUMMARY

Archaeological fieldwork was conducted between October 4 and 8, 2010. Frank Florin was the principal investigator and field supervisor. The FCRS field crew included Mike Beck, Mike Bradford, Peer Halvorson, Nick Hearth, Frank Koep, James Lindbeck, and Jeff Shapiro.

The following discussion provides information on the field conditions, physical setting, survey methods, and results of the investigation. The location of the survey on a USGS 7.5' quadrangle map was presented in Figure 2. A map of the survey area and test locations on a 2003-2004 Farm Services Administration digital air photo (available at <http://deli.dnr.state.mn.us/>) is depicted in Figure 3, and photos of the project area are included as Figures 4-7.

5.1 North Side of North Fork Whitewater River

5.1.1 North Side of River and West Side of TH 42

The survey area on the north side of the North Fork Whitewater River on the west side of TH 42 was a mowed lawn associated with an abandoned commercial building (Figure 4). A gravel parking lot for a school building is present at the north end of this survey area. Eleven shovel tests and three deep auger tests were dug in the lawn along three transects placed 20, 30, and 40 meters west of the TH 42 centerline. Testing could not be conducted in the gravel parking lot. No artifacts were recovered. A few tests contained nails, window glass fragments, and concrete/brick fragments, which likely represent a secondary refuse deposit, as no former historic structures were present in this portion of the survey area aside from the extant building based on the plat map review. Several tests contained a gravel fill layer that was impenetrable. However, intact soils were present below the fill layer in several tests (Table 1).

Table 1. Typical Soil Profile from Lawn North of River on West Side of TH 42.

| Depth Below Surface (cm) | Description |
|--------------------------|---|
| 0-25 | Gravel fill |
| 25-65 | Very dark gray (10YR 3/1) silty loam; A horizon |
| 65-80 | Dark yellowish brown (10YR 4/4); silty clay loam; B horizon |

The three tests closest to the river were augered to approximately 270 cmbs before waterlogged sand and gravel were encountered and could not be extracted (Table 2). Historical cinders and coal fragments, which were deposited by the river, were recovered up to 250 cmbs in the auger tests. These items may have originated from the Chicago and Northwestern Railway line west of the project area and been carried downstream and deposited by the river. The historic materials indicate that the deposits are post-settlement alluvium.

Table 2. Typical Soil Profile from Deep Auger Test North of River on West Side of TH 42.

| Depth Below Surface (cm) | Description |
|--------------------------|--|
| 0-60 | Very dark gray (2.5Y 3/1) silty clay loam; weak; A horizon; water table at 60 cmbs |
| 60-140 | Very dark gray (2.5Y 3/1) silty clay loam; massive; C horizon |
| 140-260 | Black (2.5Y 2.5/1) silty clay loam; massive; C2 horizon |
| 260-270 | Very dark grayish brown (2.5Y 3/2) coarse sand and gravel; loose; 2C horizon |

5.1.2 North Side of River and East Side of TH 42

The survey area on the north side of the North Fork Whitewater River and east side of TH 42 was a fallow field with the north end in a gravel parking lot (Figure 5). Twelve shovel tests and three deep auger tests were dug along three transects placed 24, 34, and 44 meters east of the TH 42 centerline. Testing could not be conducted in the gravel parking lot. No artifacts were recovered. A few tests contained sparse quantities of historical debris (nails, glass fragments, concrete/brick fragments). These materials likely represent a secondary refuse deposit, as no former historic structures were present in this portion of the survey area based on the plat map review. A typical soil profile is presented in Table 3.

Table 3. Typical Soil Profile from Fallow Area North of River on East Side of TH 42

| Depth Below Surface (cm) | Description |
|--------------------------|---|
| 0-35 | Very dark gray (2.5Y 3/1) silty clay loam; A horizon |
| 35-50 | Very dark grayish brown (2.5Y 3/2) silt loam; B horizon |
| 50-80 | Dark gray (2.5Y 4/1) silty clay loam; BC horizon |

The three tests closest to the river on the east side of the TH 42 were augered to between 240 and 300 cmbs before waterlogged sands and gravels were encountered and could not be extracted (Table 3). A fragment of white porcelain deposited by the river was recovered from approximately 240 cmbs in one of the auger tests. There were no buried soils in the auger tests. The porcelain fragment at 240 cmbs indicates that the deposits are post-settlement alluvium.

Table 4. Typical Soil Profile from Deep Auger Test North of River on East Side of TH 42.

| Depth Below Surface (cm) | Description |
|--------------------------|--|
| 0-70 | Black (2.5Y 2.5/1) silty clay loam; very weak to massive, AC horizon |
| 70-160 | Very dark gray (2.5Y 3/1) silty clay loam; massive; C horizon |
| 160-270 | Light olive brown (2.5Y 5/3) silty clay loam; massive; C horizon |
| 270-300 | Light olive brown (2.5Y 5/3) coarse sand and gravel; loose; 2C horizon |

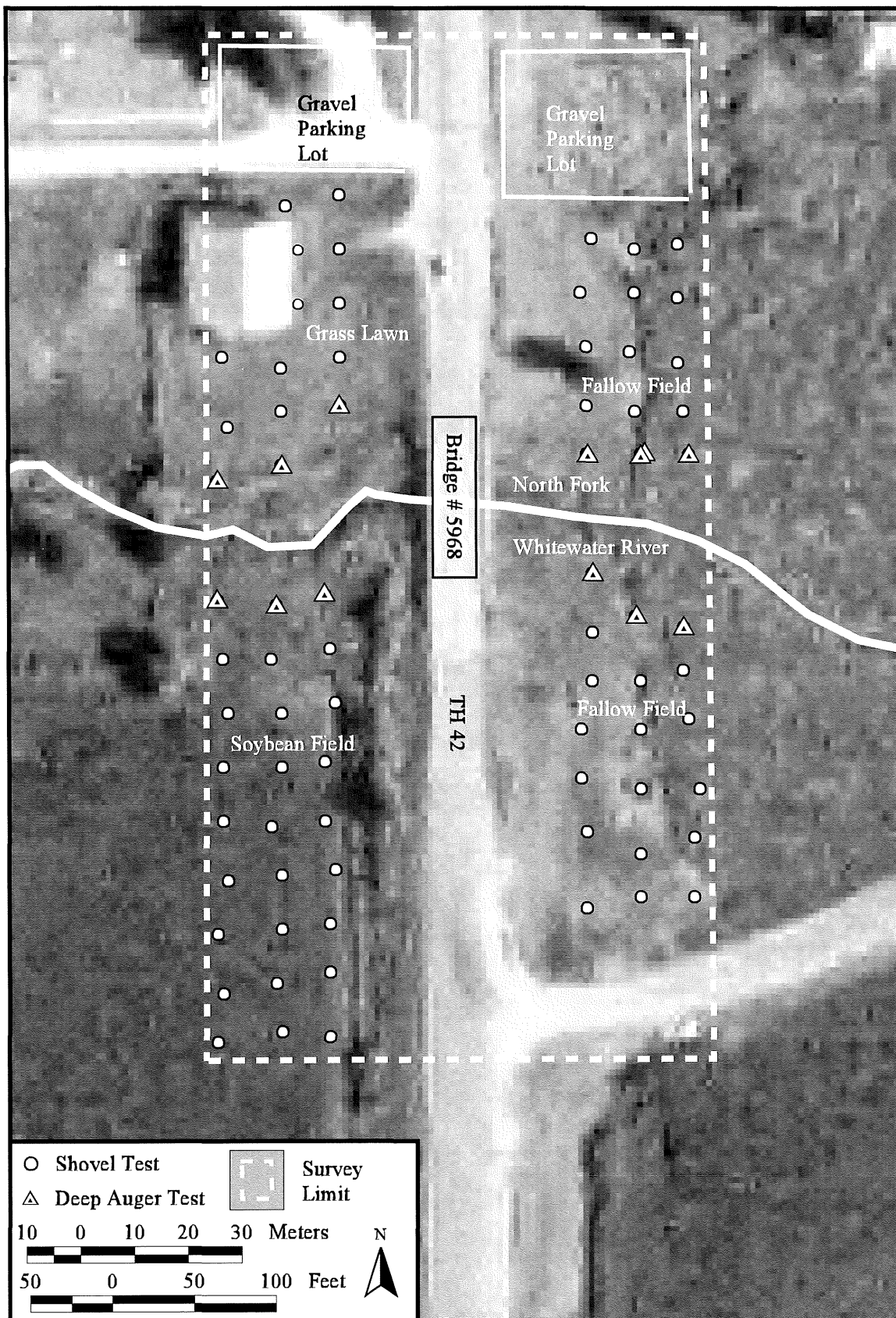


Figure 3. Sketch Map of Survey Area and Shovel Test Locations on 2003-2004 Air Photo.



Figure 4. Photo of Survey Area on North Side of River and West Side of TH 42, Facing South.



Figure 5. Photo of Survey Area on North Side of River and East Side of TH 4, Facing Northeast.

5.2 South Side of North Fork Whitewater River

5.2.1 South Side of River and West Side of TH 42

The survey area on the south side of the North Fork Whitewater River and west of TH 42 (Figure 6) was a soybean field. Surface visibility was very low because a thin veneer of modern flood deposits covered the ground. Twenty-four shovel tests and three deep auger tests were dug along three transects placed 24, 34, and 44 meters west of the TH 42 centerline. No artifacts were recovered, but a few tests contained sparse quantities of historical debris (glass fragments, barbed wire fragments, coal/clinker fragments) below the modern plow zone, indicating that historic alluvium extends below the modern plow zone. These materials likely represent a secondary refuse deposit, as no former historic structures were present in this portion of the survey area based on the plat map review. A typical soil profile is presented in Table 5. One test had an older plow zone buried below the modern plow zone, which clearly demonstrates the historic alluviation of the low terrace landscape.

Table 5. Typical Soil Profile from Field South of River on West Side of TH 42.

| Depth Below Surface (cm) | Description |
|--------------------------|--|
| 0-25 | Very dark grayish brown (2.5Y 3/2) silt loam; Ap horizon |
| 25-50 | Very dark gray (2.5Y 3/1) silt loam; A horizon |
| 50-65 | Very dark grayish brown (2.5Y 3/2) silt loam; Bw horizon; |
| 65-80 | Olive brown (10YR 4/4) silty clay loam; BC horizon; water table at 65 cmbs |

The three tests closest to the river were augered to approximately 300 cmbs (Table 6). No artifacts were recovered. It is expected that the deposits are post-settlement alluvium like the other floodplain areas tested for this project. The soil profile shows no soil development below the topsoil.

Table 6. Typical Soil Profile from Deep Auger Test South of River on West Side of TH 42.

| Depth Below Surface (cm) | Description |
|--------------------------|--|
| 0-90 | Very dark gray (2.5Y 3/1) silty clay loam; weak; A horizon; water table at 60 cmbs |
| 90-120 | Black (2.5Y 2.5/1) silt loam; massive; C horizon |
| 120-140 | Very dark gray (2.5Y 3/1) silty clay loam; massive; C2 horizon |
| 140-180 | Dark gray (2.5Y 4/1) silty clay; massive; C3 horizon |
| 180-270 | Light olive brown (2.5Y 5/3) silty clay; massive; C4 horizon |
| 270-300 | Light yellowish brown (2.5Y 6/4) sand and gravel; loose; 2C horizon |



Figure 6. Photo of Survey Area on South Side of River and West Side of TH 42, Facing Northwest.

5.2.2 South Side of River and East Side of TH 42

The survey area on the south side of the North Fork Whitewater River and east of TH 42 (Figure 7) was in fallow ground. Sixteen shovel tests and three deep auger tests were dug along three transects placed 24, 34, and 44 meters east of the TH 42 centerline. All of the tests were negative. A few tests contained sparse quantities of historical debris (nails, glass fragments, brick fragments) that is likely a secondary refuse deposit, as no former historic structures were present in this portion of the survey area based on the plat map review. A typical soil profile is presented in Table 7.

Table 7. Typical Soil Profile from Field South of River on East Side of TH 42.

| Depth Below Surface (cm) | Description |
|--------------------------|---|
| 0-55 | Very dark gray (2.5Y 3/1) silty clay loam; weak to massive; A horizon |
| 55-80 | Black (2.5Y 2.5/1) silty clay loam; massive; AC horizon; water table at 70 cmbs |

The three tests closest to the river were augered to approximately 300 cmbs (Table 8). Historical materials (fragments of glass, brick, and slag) deposited by the river were recovered between 80-

280 cmbs. There were no buried soils in the auger tests. The historic materials indicate that the deposits are post-settlement alluvium.

Table 8. Typical Soil Profile from Deep Auger Test South of River on East Side of TH 42.

| Depth Below Surface (cm) | Description |
|--------------------------|--|
| 0-100 | Very dark gray (2.5Y 3/1) silty clay loam; A horizon; water table at 80 cmbs |
| 100-180 | Black (2.5Y 2.5/1) silty clay loam; massive; C horizon |
| 180-220 | Light gray (2.5Y 7/1) silty clay loam; massive; C2 horizon |
| 220-270 | Gray (2.5Y 5/1) silty clay; massive; C3 horizon |
| 270-280 | Light olive brown (2.5Y 5/3) sand and gravel; loose; 2C horizon |
| 280-290 | Very dark gray (2.5Y 3/1) silty clay; massive; 3C horizon |
| 290-300 | Very dark gray (2.5Y 3/1) sand and gravel; loose; 4C horizon |



Figure 7. Photo of Survey Area on South Side of River and East Side of TH 42, Facing North.

6. SUMMARY AND RECOMMENDATIONS

The Phase I archaeological survey has been completed for the Bridge #5968 replacement project at Elgin, Minnesota (S.P. 7901-43). A total of 63 shovel tests and 12 deep auger tests were dug. No archaeological sites were identified, and there is very low potential for deeply buried sites at the river crossing based on the historic age of the alluvium and the lack of buried soils. No archaeological sites were identified, and no additional archaeological work is recommended for this project. It is the opinion of FCRS that no archaeological sites eligible for or listed on the NRHP will be affected by this project.

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APPENDIX A: OSA PERMIT

APPLICATION FOR MINNESOTA ANNUAL ARCHAEOLOGICAL SURVEY LICENSE

This license only applies to reconnaissance (Phase I) and evaluation (Phase II) surveys conducted under Minnesota Statutes 138.31-.42 during calendar year 2010. Separate licenses must be obtained for major investigation/Phase III work, for burial site work under Minnesota statutes 307.08, and for survey work that will continue into another calendar year. Only the below listed individual is licensed as a principal investigator, not the institution/agency/company or others who work for that entity. The licensed individual is required to comply with all the conditions attached to this license form. Permission to enter land for the purposes of archaeological investigation must be obtained from the landowner or land manager.

Name: Frank Florin

Institution/Agency/Company Affiliation: Florin Cultural Resource Services

Title/Position: Owner / Principal Investigator

Address: N12902 273rd Street, Boyceville, WI 54725

Work Phone: (715) 643-2918 E-Mail: florin@presenter.com

Name of Advanced Degree Institution: U of MN, Minneapolis Year: 1996

Name of Department: Interdisciplinary Archaeological Studies Degree: X MA MS PhD

Purpose: (check all that may apply)

CRM X Academic Research Institutional Field School

Type of Land: (check all that may apply)

State Owned X County Owned X Township/City Owned X

Other List:

MHS Repository Agreement # 476 Other Approved Curation Facility:

Most recent previous license year: 2009 Type: X Annual Major Project (pre-2006)

Signed (applicant): Frank Florin Date: 2/10/10

Required Attachments: *Curriculum Vita* and Documentation of Appropriate Experience for previously unlicensed individuals.

Submit one copy of this form and attachments to:

Office of the State Archaeologist, Ft. Snelling History Center, St. Paul, MN 55111
612-725-2411 612-725-2729 FAX 612-725-2427 email: mnosa@state.mn.us

Minnesota Historical Society Approval:

Date: 2-16-10

State Archaeologist Approval:

Date: 2/11/10

License Number: 10-19

Form Date: 4/20/06