INTENSIVE PHASE I ARCHEOLOGICAL SURVEY OF A PROPOSED RAIL DEVELOPMENT AREA, A.K.A CAMPBELL PROPERTY, HARDIN TOWNSHIP, HARDIN COUNTY, IOWA

Section 23 and 24, T89N, R21W

BCA 1989

Prepared for Iowa Falls Area Development Corporation
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MANAGEMENT SUMMARY

This report presents the results of an intensive Phase I archeological and geomorphological investigation of a proposed rail development project on the Campbell property for the Iowa Falls Area Development Corporation by Bear Creek Archeology, Inc., Cresco, Iowa. The project area is approximately 31.3 ha (77.4 ac) located in portions of the NE¼ of Section 23 and the NW¼ of Section 24, T89N, R21W, Hardin Township, Hardin County, Iowa. The project area is associated with Des Moines Lobe, and the area is located on glacial upland landform overlooking a Noah Creek Member outwash terrace. Bear Creek Archeology, Inc. personnel conducted the field investigation May 14 and 15, 2013.

Prefield research indicated the project area had a moderate potential to contain archeological deposits. A review of the records held at the Office of the State Archaeologist indicated four previously recorded sites and eight previous investigations were located within a 1.6 km (1 mi) radius of the project area. None of the previous sites or surveys reside within the project area.

The field investigation consisted of documenting local landforms through soil probes \( n = 2 \) and a pedestrian survey. The majority of the area was located on very gently sloping glacial outwash landforms and a small portion of the project area resided on the gently undulating glacial upland features overlooking the outwash terrace. As no artifacts or sites were located during the investigation, Bear Creek Archeology, Inc. recommends no further work for the project area.
INTRODUCTION

Bear Creek Archeology, Inc. (BCA), Cresco, Iowa, conducted an intensive Phase I archeological investigation of a proposed rail development project on the Campbell property for the Iowa Falls Area Development Corporation of Iowa Falls, Iowa. The archival research, fieldwork, analysis, and reporting have been completed in accordance with the National Historic Preservation Act (Advisory Council on Historic Preservation 1999, 2006) and the Secretary of the Interior’s standards for the identification of historic properties (National Park Service [NPS] 1983). The fieldwork and report presented herein meet or exceed the guidelines for archeological investigations in Iowa (Association of Iowa Archaeologists [AIA] 1999). The purpose of this investigation was to identify possible cultural resources at the Phase I level. The fieldwork was conducted on May 14 and 15, 2013.

PROJECT AREA DESCRIPTION

The project area is located in central Iowa within the physiographic region known as the Des Moines Lobe (Prior 1991; Figure 1). The boundaries of the project area were provided to BCA by Cindy Litwiller of the Iowa Falls Area Development Corporation (Figure 2). This area is located adjacent to 140th Street and JJ Avenue between two railroad lines: Chicago, Rock Island, and Pacific Rail Line to the south and southeast and Illinois Central Gulf Rail Line to the north (Figure 3). The project area consists of Dows Formation glacial upland landforms overlooking a Noah Creek Formation outwash terrace to the north. The area examined is 31.3 ha (77.4 ac). The project area is within Hardin Township and includes portions of the NE¼ of Section 23 and NW¼ of Section 24, T89N, R21W, Hardin County, Iowa (Figure 2).

INVESTIGATION PREMISES

The survey strategy of this Phase I investigation was based on an analysis of the project area and the landforms that exist within it. Because geological processes determine the geographic and pedologic character of a region, the understanding of an area’s geologic history is crucial to any evaluation of the archeological record. Landform and soil characteristics have a strong influence on the presence and distribution of the plant and animal communities utilized by human populations. Geological processes not only affect the patterns of human settlement, but they are largely responsible for the preservation and destruction of the archeological record. Thus, the archeological record can be viewed as a product of both cultural and geological processes (Bettis and Green 1991).

Because archeological sites are incorporated into the environment by natural formation processes, they may be viewed not only as cultural remains but also as geological
deposits. This perspective on the location of sites allows the investigator to create predictive models of archeological site occurrence and patterned distributions within a given area relative to its existing landforms (Bettis and Benn 1984; Bettis and Thompson 1981). Such an approach also proves useful in the recognition of post-settlement alluvium, madeland, plowzones (Ap horizons), and other disturbances that may have modified the area under investigation.

This type of landform modeling as a tool of cultural resource management is crucial to the development of survey strategies. More geologically sensitive strategies allow the investigator to focus on those areas where the probabilities of site occurrence are highest, reducing or eliminating the cost of surveying those areas where sites would not logically occur (e.g., madeland, heavily disturbed areas, or landforms consisting entirely of recent alluvium, etc.). Within those areas of focused investigation, informed survey strategies allow for the determination of the depth and distribution of subsurface tests necessary for the location of buried cultural deposits. Additionally, the nature of the proposed impacts can be assessed in terms of the landforms present.

ENVIRONMENTAL CONTEXT

**Physiographic Region**

The project area is located in central Iowa within the Des Moines Lobe physiographic region (Prior 1991; Figures 1 and 4). This region was created during the extension of the Wisconsinan Laurentide ice sheet into Iowa approximately 14,000 years ago (Kemmis et al. 1981). Because this area was covered with glacial ice, the thick deposition of loess common in most of Iowa was prevented (Prior 1991). Subsequently, the Late Wisconsinan-age glacier deposited materials commonly referred to as the Dows Formation (cf. Hoyer 1980; Kemmis et al. 1981; Ruhe 1969). Relief on the Des Moines Lobe is generally low. As the region has only been free of glacial ice for 12,000 years, the drainage system is still developing. Glacial till, more resistant to erosion than loess, further slows the process of valley incision.

A large portion of the lobe area is hummocky with distinct ridges and swales marking the limits of the major ice advances. The hummocky areas are comprised of elevational highs such as end moraines, kettles, and knobs. The relatively flat plains are underlain by ground moraine till (Prior 1991). Swales, depressions, and low relief drainages produce a grid across portions of the Des Moines Lobe. These linked drainage-depression systems are glacial features formed during the collapse of stagnant-ice environments rather than moving ice. Evidence for these environments can be found regionally across the lobe (Bettis et al. 1996). Recent work on the glacial and post-glacial deposition and environmental changes on the Des Moines Lobe have further refined sequences from earlier works (Bettis et al. 1996; Kemmis et al. 1981; Ruhe 1969). The following section summarizes what is currently known about terminal Pleistocene deposits and those associated with the Holocene-age DeForest Formation (Bettis et al. 1996).
**Dows Formation**

Almost all of the uplands within the Des Moines Lobe are covered with thick, glacially deposited sediments termed the Dows Formation (Kemmis et al. 1981). The formation is subdivided into four different members: Alden, Morgan, Lake Mills, and Pilot Knob, which were deposited by glacial advances between ca. 15,000 and 12,000 B.P. (Bettis et al. 1996). The loamy Alden Member contains till that was deposited beneath the glacial ice. Morgan Member is comprised of loamy sediments that exhibit a higher density of coarse materials as compared to the Alden Member. These materials are associated with the upper and marginal portions of the glacier. Morgan Member consists of alternating beds of unsorted and size-sorted sediments. Lake Mills Member consists of an upper bed of fine-grained sediments and a thinner, lower bed of sands and gravels. This member formed in glacial lakes through the initial transport of larger sediments by glacial meltwater followed by fine-grained deposition consistent with low-energy lake environments. Pilot Knob Member contains the coarsest sediments of the Dows Formation. This member consists of sands and gravels associated with subglacial meltwater and streams. The sediment-laden meltwater often resulted in the formation of kames and eskers.

**Noah Creek Formation**

Sediment deposited by water originating from the melting of the Wisconsinan glacial ice between ca. 14,000 and 11,000 B.P. is termed the Noah Creek Formation. These sediments are generally made up of coarse-grained materials, mostly sand and gravel, which reflect the high-energy of the meltwater flow. Noah Creek Formation is found on and within the high terraces along the valley walls of streams originating from the melting glaciers and spread across outwash plains where the glacial water did not produce definite channels (Bettis et al. 1996:22). Terraces of Noah Creek Formation sediment are also called Wisconsinan outwash terraces. Because these outwash terraces are high, well-drained landforms, they are attractive locations for human occupation, and are often found to contain archeological sites. If exposed for long periods, for instance, during prolonged droughts, the sands of the Wisconsinan outwash can be susceptible to the formation of dunes and other eolian reworking. In this way, archeological sites may be buried and preserved within the landform.

**Woden and West Okoboji Members**

Woden Member is located within closed and semi-closed depressions and consists of alternating layers of organic material and mineral sediment. The sediment source is colluviums eroded during times of landscape instability from lands surrounding the wetland basin. On the Des Moines Lobe, these sediments originate from the Dows Formation deposits. Organic materials are deposited during periods of stability in the surrounding uplands and are a result of debris accumulation from the hydrophilic plants within the wetland. West Okoboji Member is composed of the lacustrine sediments settling in existing lakes. Consequently, most deposits of this member are presently
underwater. These members generally have limited archeological potential, but archeological sites can be present along their margins.

**Upland Landform Model**

The upland landform model (Figure 5) used in this report is based on Ruhe’s (1969) analysis of hillslope evolution detailing the erosional and depositional sequences of upland components. Hillslopes are divided into five components (listed in descending order): summit, shoulder, sideslope, footslope, and toeslope. Not all components, however, may be present on a given hillslope.

Summits comprise the upper portion of the uplands and tend to be stable, but are subjected to minor deposition and erosion by eolian processes. Shoulders form by the gradual back cutting of hillslopes at summit margins and are generally convex in cross-section with a low degree of slope. Comprised of backslope, headslope, and noseslope subcomponents, sideslopes are erosional features formed by the back cutting of valley walls. Footslopes, the lower remnants of hillslopes, are eroded and often covered by colluvial deposits derived from the shoulder and backslope. Toeslopes are found at the base of the upland landform and consist almost entirely of colluvial deposits.

Due to their low degree of erosion and relative flatness, summits and shoulders have high potential for containing prehistoric sites that, at times, may be intact and shallowly buried. Footslopes and toeslope areas also have good prehistoric site potential because they represent depositional features (i.e., they are time transgressive in terms of stability), generally have a low degree of slope (Van Nest 1993), and may be relatively close to water. Sideslopes, because of their steeper inclines and higher rates of erosion, rarely contain intact prehistoric materials. Finally, historic archeological sites can be found on any upland landform component.

When using this model, it is important to account for agriculturally induced wind and water erosion. All cultivated upland components have been subjected to erosional pressures. Consequently, summit, shoulder, footslope, and toeslope positions that have undergone decades of cultivation typically possess lower potential for intact sites.

**Project Area Soils and Landscape Analysis**

The following information was obtained from the Soil Survey of Hardin County (Voy 1982) and the Natural Resources Conservation Service (NRCS; 2006). The soils summarized in Table 1 are the series types mapped as potentially occurring within the project area (Figure 6).
<table>
<thead>
<tr>
<th>Symbol/Soil Name</th>
<th>Project Area %</th>
<th>Geomorphic Context</th>
<th>Drainage Class</th>
<th>Parent Material</th>
<th>Native Vegetation</th>
</tr>
</thead>
<tbody>
<tr>
<td>27B Terril loam, 2–5% slopes</td>
<td>1.9</td>
<td>Drainage ways and footslopes of uplands</td>
<td>Moderately well</td>
<td>Loamy local alluvium</td>
<td>Mixed grass prairie</td>
</tr>
<tr>
<td>55 Nicollet loam, 1–3% slopes</td>
<td>5.1</td>
<td>Convex ridges, concave slopes of uplands</td>
<td>Somewhat poor</td>
<td>Loamy glacial till</td>
<td>Mixed grass prairie</td>
</tr>
<tr>
<td>138B Clarion loam, 2–5% slopes</td>
<td>4.4</td>
<td>Convex ridges and slopes of uplands</td>
<td>Well</td>
<td>Glacial till</td>
<td>Mixed grass prairie</td>
</tr>
<tr>
<td>138C2 Clarion loam, 5–9% slopes; moderately eroded</td>
<td>1.5</td>
<td>Knolls and convex side slopes boarding upland drainages</td>
<td>Well</td>
<td>Glacial till</td>
<td>Mixed grass prairie</td>
</tr>
<tr>
<td>177 Saude loam, 0–2% slopes</td>
<td>19.5</td>
<td>Stream terraces</td>
<td>Well</td>
<td>Loamy material over sand and gravel</td>
<td>Mixed grass prairie</td>
</tr>
<tr>
<td>178 Waukee loam, 0–2% slopes</td>
<td>13.4</td>
<td>Stream terraces and outwash areas</td>
<td>Well</td>
<td>Loamy material over sand and gravel</td>
<td>Mixed grass prairie</td>
</tr>
<tr>
<td>225 Lawler loam, 24–32” to sand or gravel; 0–2% slopes</td>
<td>7.0</td>
<td>Stream terraces and outwash areas</td>
<td>Somewhat poor</td>
<td>Loamy deposits over sand</td>
<td>Mixed grass prairie</td>
</tr>
<tr>
<td>226 Lawler loam, 32–40” to sand or gravel; 0–2% slopes</td>
<td>28.3</td>
<td>Stream terraces and outwash areas</td>
<td>Somewhat poor</td>
<td>Loamy deposits over sand</td>
<td>Mixed grass prairie</td>
</tr>
<tr>
<td>284 Flagler sand loam, 0–2% slopes</td>
<td>3.7</td>
<td>Stream terraces</td>
<td>Somewhat excessive</td>
<td>Loamy and sandy materials over sand</td>
<td>Mixed grass prairie</td>
</tr>
<tr>
<td>329 Webster-Nicollet Complex, 1–3% slopes</td>
<td>7.2</td>
<td>Flats and in swales, along with low ridges and slopes of uplands</td>
<td>Poor, somewhat poor</td>
<td>Loamy glacial till</td>
<td>Prairie grasses and water-tolerant plants</td>
</tr>
<tr>
<td>638C2 Clarion-Storden loam, 5–9% slopes</td>
<td>6.9</td>
<td>Knolls, convex ridges, and slopes of uplands overlooking waterways</td>
<td>Well</td>
<td>Glacial till</td>
<td>Mixed grass prairie</td>
</tr>
<tr>
<td>W Water</td>
<td>1.2</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

There five soils associated with upland knolls, ridges, sideslopes, and drainageways. These soils are all representative of the Dows Formation. Overall, along the higher more level portions of these landforms is a moderate potential for the presence of archeological sites. Within the project area, there are six soil types associated with terraces or outwash landforms. These soil types are representative of Noah Creek Formation outwash terraces which have a moderate to high potential for the presence of archeological sites.
There is also one soil type associated with upland flats and swales, Woden or West Okoboji member landforms. These soils represent areas of low archeological potential because of their correlation with wetlands.

A review of the topographic map (Figure 2) indicates that the southwestern corner of the project area resides on a gently undulating upland comprised of several small knolls and ridges that gently slope down to the north and east. The remaining majority of the project area resides on a very gently sloping outwash terrace. The highest elevation within the project area is approximately 347 m (1,140 ft) above the National Geodetic Vertical Datum (NGVD) and the lowest elevation is just below 341 m (1,120 ft). The area with the highest archeological potential is on the outwash terrace, but the uplands overlooking this terrace also have some potential for archeological deposits.

While soil survey and topographic map analyses are essential at the prefield level, field investigation is necessary to determine if the reported information from these sources is accurate. Because much of the soil survey information is documented without localized field inspection and landforms are constantly evolving, one must accurately document the current landscape to determine a given project area’s archeological potential.

METHODS AND RESULTS

To facilitate data collection, two lines of research were conducted to assess the impact of the proposed rail development on cultural resources. Both archival research and field survey were conducted under the guidelines commonly followed in Iowa (AIA 1999).

Archival Research

Prior to fieldwork, information regarding previously documented archeological sites as well as former surveys within or near the project area was obtained from the on-line resource managed by the Office of the State Archaeologist (OSA) in Iowa City. This archival search indicated there were four previously recorded sites within a 1.6 km (1 mi) radius of the project area. Eight archeological surveys had been carried out within 1.6 km (1 mi) of the project area and two of the surveys identified archeological sites (Anderson 1997; Benton et al. 2000; Chaderdon 2002; Heeren and Scott 2012; Hotopp and Burnight 1978; Langseth and Stanley 2013; Morrow 2009a; Whittaker et al. 2004).

The four previously recorded sites within 1.6 km (1 mi) of the project area are 13HA182, 13HA245, 13HA411, and 13HA421. Site 13HA182 is recorded as a prehistoric isolated burial site. The site is described as disturbed and has not been evaluated for its National Register of Historic Places (NRHP) eligibility (Green 1989). Site 13HA245 is recorded as a prehistoric open habitation site and has not been evaluated for its NRHP eligibility (Ulch 1974). Site 13HA411 is recorded as a historic farmstead/residence (Whittaker 2006). The site was identified by the presence of a limestone foundation and is described as the oldest house in Iowa Falls. Further Phase I work was recommended for the site
and it has not been evaluated for its NRHP eligibility. Site 13HA421 was originally identified by Morrow (2009a). One large flake was recovered from 30–40 cm depth, and two other flakes were recovered (Morrow 2009a). Six 1 x 1 m (3.3 x 3.3 ft) test units were later excavated recovering a very sparse number of historic and prehistoric artifacts (Morrow 2009b). The portion of the site within the area tested was determined not eligible for the NRHP.

A General Land Office (GLO) map, an 1875 state atlas, plat maps, and aerial photos were reviewed (Andreas 1875; Gardner Map and Atlas Company 1903; GLO 1850; Midland Map Company 1916; Northwest Publishing Company 1892; Figures 7–11). All of the historic maps and plats referenced show no historic cultural resources located within the project area. Likewise, the aerial photography shows that there are no historic cultural resources located within the project area, and the area has been an agricultural field since at least 1939 (Figures 12 and 13).

While historic plat maps can provide a wealth of information regarding historic properties, structures may exist that were not recorded and those that are recorded can occur in a different location than that depicted. It is for these reasons that historic plat maps must be substantiated through field investigation.

Field Investigation

The field investigation included documenting local landforms through soil probing (n = 2) and a pedestrian survey (interval maximum of 15 m [49.2 ft]). The entire project area was in an agricultural field with 80–90% ground surface visibility (GSV; Figures 3 and 14), except for a small pond surrounded by wooded vegetation along the southeastern boundary (Figures 15 and 16). The majority of the project area consisted of a Noah Creek Formation outwash terrace (Soil Profile 1; Figures 17 and 18), but a small portion of the project area also consisted of knolls and ridges overlooking the outwash terrace (Soil Profile 2; Figures 19 and 20).

DESIGNATION: Soil Profile 1
LANDSCAPE POSITION: outwash terrace
SLOPE: 0–2%
METHOD: soil probe
VEGETATION: plowed agricultural field, 90% GSV
DESCRIBED BY: Jared Langseth
DATE: 5/14/2013
REMARKS: This profile consists of a plowzone over intact A-AB-Bw-BC-C horizons of a Noah Creek Formation outwash terrace.

<table>
<thead>
<tr>
<th>Depth (cm)</th>
<th>Soil Horizon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–20</td>
<td>Ap</td>
<td>Black (10YR 2/1) sandy loam; weak, fine granular structure; friable; clear boundary.</td>
</tr>
<tr>
<td>20–34</td>
<td>A</td>
<td>Black (10YR 2/1) sandy loam; weak, fine granular structure; friable; gradual boundary.</td>
</tr>
</tbody>
</table>
### Soil Profile 2

**DESIGNATION:** Soil Profile 2  
**LANDSCAPE POSITION:** upland ridge  
**SLOPE:** 2–5%  
**METHOD:** soil probe  
**VEGETATION:** agricultural field, 80–90% GSV  
**DESCRIBED BY:** Jared Langseth  
**DATE:** 4/14/2013  
**REMARKS:** This profile consists of a plowzone truncating a B horizon on a glacial upland landform. There is a low probability of identifying intact archeological components on this landform.

<table>
<thead>
<tr>
<th>Depth (cm)</th>
<th>Soil Horizon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>34–37</td>
<td>AB</td>
<td>Very dark grayish brown (10YR 3/2) sandy loam; weak, subangular blocky structure; slightly plastic; gradual boundary.</td>
</tr>
<tr>
<td>37–48</td>
<td>Bw</td>
<td>Brown (10YR 4/3) sandy loam; weak, fine subangular blocky; friable; gradual boundary.</td>
</tr>
<tr>
<td>48–72</td>
<td>BC</td>
<td>Brown (10YR 4/3) loamy sand, weak, medium subangular block structure; friable; gradual boundary.</td>
</tr>
<tr>
<td>72–80+</td>
<td>C</td>
<td>Dark yellowish brown (10YR 4/6) coarse sand with some gravel; single grain; massive structure; loose. End.</td>
</tr>
</tbody>
</table>

Based on the landform and soil analysis, the highest probability for encountering archeological sites existed on the Noah Creek formation outwash terrace, (Soil Profile 1). There was also some probability of finding archeological sites on the glacial upland landforms (Soil Profile 2), however, the upland landforms within the project area are eroded from continued agricultural use and have an overall low probability of containing intact deposits. A pedestrian survey was conducted throughout the project area and no archeological sites were encountered.

### RECOMMENDATIONS AND CONCLUSIONS

BCA conducted a Phase I cultural resources inventory for a proposed Iowa Falls Development Corporation rail development area on the Campbell property. This inventory was produced via pedestrian survey supplemented by soil probing \((n = 2)\). The
examined project area consisted of Noah Creek formation outwash terrace and glacial upland landforms now in use as an agricultural field. The outwash terrace had moderate to high probability of contain archeological sites while the upland landforms had moderate potential.

Archival research conducted prior to the investigation showed four previously recorded sites and eight previous surveys are within 1.6 km (1 mi) of the project area. None of the previously recorded sites or surveys are within the current project area. Historic maps, historic plats, and aerial photography indicated that no documented resources were present within the project area. The landforms within the project area were assessed using NRCS soil survey information, topographic maps, and LiDAR images along with the documenting of landforms through soil probing \((n = 2)\). The entire project area was a plowed agricultural field with 90% GSV and a pedestrian survey (interval maximum of 15 m [49.2 ft]) was conducted during the field investigation. The investigation resulted in no archeological sites within the project area. BCA recommends no further work for the proposed Iowa Falls Area Development Corporation rail development (Campbell property) project area.

No technique of modern archeological research is adequate to identify all archeological sites or cultural deposits within a given area. In the event that any cultural materials not recorded by this investigation are discovered in the course of the proposed development activities, the Bureau of Historic Preservation at the State Historical Society of Iowa is to be contacted immediately. The developer is responsible for the protection of cultural resources from disturbance until a professional examination can be made or authorization to proceed is granted by the SHPO or a designated representative.
REFERENCES CITED

Advisory Council on Historic Preservation


Anderson, Adrian D.

Andreas, Alfred T.

Association of Iowa Archaeologists (AIA)
1999 *Guidelines for Archaeological Investigations in Iowa*. Association of Iowa Archaeologist, Iowa City.

Benton, Charles K., Adam J. Meseke, and Joseph A. Tiffany

Bettis, E. Arthur, III

Bettis, E. Arthur, III, and David W. Benn

1987 Overview of the Quaternary Geology in Lyon County. In *Big Sioux River Archaeological and Historical Resources Survey, Lyon County, Iowa*, edited by David W. Benn, pp. 12–23. CAR 705. Center for Archaeological Research, Southwest Missouri State University, Springfield.
Bettis, E. Arthur, III, and John P. Littke

Bettis, E. Arthur, III, and William Green

Bettis, E. Arthur, III, Deborah J. Quade, and Timothy J. Kemmis

Bettis, E. Arthur, III, and Dean M. Thompson

Chadderdon, Thomas J.

Gardner Map and Atlas Company

General Land Office
1850  ownship plats, Section 23, T89N, R21W, (Hardin Township), Hardin County, Iowa. Secretary of State, State Archives, Iowa State Historical Department, Division of Museums and Archives, Des Moines.

Green, William
1989  Official Site Form for 13HA182. On file, Site Records Office, Office of the State Archaeologist, University of Iowa, Iowa City.

Heeren, Chris L., and Branden K Scott
Hotopp, John A., and Debra Burnight
1978  *F-20-5(14) Hardin County Primary Roads*. Iowa Department of Transportation Project 1(48). Office of the State Archaeologist, University of Iowa, Iowa City.

Hoyer, Bernard E.

Kemmis, Timothy J., George R. Hallberg, and Allen J. Lutenegger

Langseth, Jared A., and David G. Stanley

Midland Map Company

Morrow, Toby A.


National Park Service

Natural Resources Conservation Service (NRCS)

Northwest Publishing Company

Prior, Jean C.

Ruhe, Robert V.
Ulch, Jeff
1974  Official Site Form for 13HA245.  On file, Site Records Office, Office of the State Archaeologist, University of Iowa, Iowa City.

Van Nest, Julieann

Voy, Kermit D.

Whittaker, William E.
2006  Official Site Form for 13HA411.  On file, Site Records Office, Office of the State Archaeologist, University of Iowa, Iowa City.

Whittaker, William F., David J. Stephenson, and Adam Newman
FIGURES
Figure 1. Physiographic location of the project area (adapted from Prior [1991:31]).
Figure 2. Topographic coverage of the project area.
Figure 3. Scale map of the project area.
Figure 4. Location of the project area in the Des Moines Lobe (adapted from Prior [1991:38]).
Figure 5. Diagram of potential landform components (adapted from Ruhe [1969]).
Figure 6. Soil map of the project area (NRCS 2006).
Figure 7. 1850 map of the project area (GLO).
Figure 8. 1875 map of the project area (Andreas).
Figure 9. 1892 map of the project area (Northwest Publishing Company).
Figure 10. 1903 map of the project area (Gardner Map and Atlas Company).
Figure 11. 1916 map of the project area (Midland Map Company).
Figure 12. 1939 aerial photograph of the project area.
Figure 13. 1958 aerial photograph of the project area.
Figure 14. Agricultural field in the project area. View to the west (5/14/13).
Figure 15. Pond along the southeastern boundary of the project area. View to the southwest (5/14/13).

Figure 16. Pond along the southeastern boundary of the project area. View to the southwest (5/14/13).
Figure 17. Coverage of the project area. View to the west (5/14/13).

Figure 18. Coverage of the project area. View to the northeast (5/14/13).
Figure 19. Coverage of the project area. View to the north (5/14/13).

Figure 20. Coverage of the project area. View to the northwest (5/14/13).
APPENDIX A
National Archaeological Database Form
1. **R and C #:**

2. **Authors:** Langseth, Jared A., and Branden K. Scott

3. **Year of Publication:** 2013

4. **Title:** Intensive Phase I Archeological Survey of a Proposed Rail Development Area, a.k.a Campbell Property, Hardin Township, Hardin County, Iowa

5. **Report Title:**

6. **Volume #:**

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8. **Publisher:** Bear Creek Archeology, Inc.

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10. **Unpublished**

11. **Sent From:**

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14. **Federal Agency:**

15. **State:** Iowa

16. **County:** Hardin

17. **Town:**

18. **Work Type:**

19. **Keyword:**

20. **UTM Zone:** 15

21. **Easting:**

22. **Northing:**

23. **Township:** 89N

24. **Range:** 21W

25. **31.3 ha (77.4 ac)**

26. **Outwash terrace**

27. **Des Moines lobe**

28. **Glacial landforms**

29. **No resources**

30. **Other Key Words:**

31. **Other Key Words:**
Other Publication Types:

12. Monographs:
   - Name: ____________________________
   - Place: ____________________________

13. Chapter:
   - In: ________
   - First: ________
   - Last: ________

14. Journal:
   - Volume: ________
   - Issue: ________
   - First: ________
   - Last: ________

15. Dissertation:
   - Degree: Ph.D.  LL.D.  M.A.  M.S.  B.A.  B.S.  Institute: ________________

16. Paper:
   - Meeting: __________________________
   - Place: ____________________________
   - Date: ________________

17. Other:
   - Reference Line: ____________________________

18. Site #:

19. Quad Map:
   - Name: Iowa Falls West, Iowa
   - Date: 1979