MINNESOTA ARCHAEOLOGICAL SITE FORM
OFFICE OF THE STATE ARCHEOLOGIST
Fort Snelling History Center, St. Paul, MN 55111  (612) 725-2729

SITE #: 21-WA10
Site Name: Rattlesnake Group at Afton
Agency/Field #:

_ New Site  _ X Site Update

OSA License #: 16-056  SHPO RC #: 2015-1403

Type of Fieldwork: _ X Reconnaissance/Phase I  Date(s) of This Fieldwork: April 4-22, 2016; May 16-17, 2016
__ Evaluation/Phase II  __ Excavation/Phase III

NRHP Status: _ Listed  _ X Determined Eligible  _ CEF(106)  _ CNEF(106)  _ Undetermined

LOCATIONAL INFORMATION

County: Washington  City/Twp. Name: Afton  SHPO Sub-Region: 4e

USGS 7.5' Quadrangle Map (name and year): Hudson Wis-Minn 1993

Township: 28N  Range: 20W  Section: 22  ¼ Sections (at least 2): E1/2 of SE1/4 of NE1/4

UTM Coordinates: (less than 10 acres use center; over 10 acres define polygon around site; draw points on USGS)
Zone: 15T  Datum: 1927 X 1983  Method: _ USGS Map  ___ GPS  _ X Other
Point 1: Easting 517166.71 m Northing 4971808.06 m
Point 2: Easting Northing
Point 3: Easting Northing
Point 4: Easting Northing
Point 5: Easting Northing

SITE CHARACTERISTICS

Acreage: ~ 3  Site Dimensions: N-S 220 m  E-W 76m  Maximum Cultural Depth (if known) unknown

Site Description (√ all that apply, but only one check per line):
_ single artifact  _ lithic scatter  _ artifact scatter
_ X burial mound (number of mounds 6(8) )  _ non-mound lone grave  _ non-mound cemetery
_ petroglyph  _ pictograph  _ petroform
_ X surface features (list below)
_ other: __________________

Surface Features (√ all that apply):  _ X earthwork  _ pit/depression  _ foundation/ruin  _ other: ________________

Inferred Site Function (√ all that apply):  _ X habitation  _ X mortuary  _ farm  _ industrial  _ transportation
_ X Other (list): ________________  _ X unknown

Current Land Use (list approximate % for all that apply):
_ cultivated  _ fallow  _ X commercial  _ recreational  _ industrial  _ X residential
_ woodland  _ grassland  _ water-covered  _ other: ____________________________

Surface Visibility (list approximate % for all that apply):
_ X excellent  _ good  _ fair  _ 0-10% poor/none

Degree of Disturbance (list approximate % for all that apply or √ unassessed):
_ _ minimal  _ moderate  _ 70% heavy  _ completely destroyed  _ unassessed

Current Threats to Site: (√ all that apply or √ none known)
_ X erosion  _ X development  _ agricultural  _ other: ____________________________  _ none known
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CULTURAL/TEMPORAL AFFILIATION
(list all that apply by level of certainty: 1 = confirmed; 2 = probable or √ “not determined”):

Period: 
- 1 Precontact (9500 BC - 1650 AD)
- Contact (1650-1837)
- Post-Contact (1837-1945)

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

Paleoindian Tradition
- not determined
- Clovis
- Eastern Fluted
- other: 

Archaic Tradition
- not determined
- Prairie
- Lake-Forest
- other: 

Woodland Tradition
- not determined
- Fox Lake
- Blackduck-Kathio
- other: 

Plains Village Tradition
- not determined
- Cambia
- Great Oasis
- Big Stone
- other: 

Mississippian Tradition
- not determined
- Silvernale
- Riverine
- other: 

Oenota Tradition
- not determined
- Blue Earth
- Orr
- other: 

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

American Indian
- not determined
- Dakota
- Ojibwe
- other: 

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

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

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

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

Context Assignment/Dating Methods (√ all that apply):
- artifact type/style
- feature type
- radiometric
- relative stratigraphy
- geomorphology
- historic accounts (list)
- historic maps (list)
- other(s) (specify):

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

MATERIALS PRESENT (√ all that apply):

Basic Artifact Categories

Ceramics
- Aboriginal
- Euro-American

Lithics
- projectile points
- other chipped stone tools
- debitage
- ground/pecked stone
- FCR
- aboriginal copper

Biological Remains
- animal
- human
- unidentified bone
- seeds/nuts
- charcoal
- wood

Historic Materials
- glass
- metal
- brick
- other: 

(For radiometric dates, attach photocopies of laboratory sheets if available.)
**MINNESOTA ARCHAEOLOGICAL SITE FORM**

**SITE #:** 21-WA10  
**Site Name:** Rattlesnake Group at Afton  
**Agency/Field #:**

**Major Exotic Materials** (*V all that apply):  
- catlinite  
- Knife River Flint  
- native copper  
- obsidian  
- Hixton orthoquartzite  
- other:  

**Diagnostic Artifacts:**  
- Ceramics: Prehistoric Types/Wares/Temper:  
- Historic:  
- Prehistoric Lithics:  
- Glass:  
- Metal:  
- Other:  

**ENVIRONMENTAL DATA**  
**Current Topographic Setting** (*V all that apply):  
- Away from Water:  
  - general upland  
  - terrace edge  
  - hilltop  
  - glacial beach ridge  
  - rock outcrop  
  - other:  
- Riverine:  
  - fan  
  - terrace/bluff top  
  - stream-stream junction  
  - bluff-base  
  - cave/rockshelter  
  - floodplain  
  - other:  
- Lacustrine:  
  - inlet/outlet  
  - peninsula  
  - island  
  - isthmus  
  - general shoreline  
  - bog/slough/lake bottom  
  - other:  

Topographic Feature Name from USGS Map:  
- St. Croix River

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

- Ownership Type:  
  - list approximate % for all that apply; if unknown, check here:  
    - Federal  
    - State  
    - 25% Local (public)  
    - Tribal  
    - 75% Private

Land Owner *name and address if known*:  
City of Afton; Richard and Kimberly Myhers 3395 St. Croix Tm. S, Afton;  

**CURRENT INVESTIGATION INFORMATION**  
**Methods/Techniques Employed** (*V all that apply):  
- informant report  
- X small diameter soil coring (∼ 1" diameter)  
- X surface survey  
- shovel testing  
- formal test units  
- mechanical testing  
- max. test depth 100 centimeters  
- geomorphological survey (specify):  
- x geophysical survey (specify): ground penetrating radar (GPR), and electrical resistance  
- other:  

Informant Name and Address (if known): N/A

Known Collectors/Collections: N/A

Artifact Repository *name and accession numbers or repository agreement number*: N/A


Major Previous Bibliographic Reference(s) to Site:

Principal Investigator *name and affiliation*: Steven J. Blondo, MA, Blondo Consulting, LLC

**Form Completed By** *name and date*: Kelly Wolf, MA 7-15-16
Maps: Attach/include original scale copy of 7.5' USGS map with site location clearly outlined or designated. Attach a sketch map if surface features present, if sub-surface testing done, or if complicated boundaries/setting. Sketch map must have re-locatable datum, scale, north arrow, and legend if symbols are used.

Figure 1: Topographic map of site 21WA10.
Figure 2: Site 21WA10 sketch map including shovel tests, test units, the Rattlesnake Mound, and site 21WA0116.

Figure 3: Proposed improvements with the Lewis mapped mound group.
Figure 4: The Lewis mapped mound group with geophysical test areas.
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Figure 5: LiDAR with hillshade illustration from Archaeo-physics (Jones 2016a).
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Figure 5: Lidar local relief model

Local relief modeling essentially “flattens” large-scale variations in elevation, thus enhancing the detectability of small and subtle features. In this image, darker shades indicate higher elevation. Note the raised area coinciding with the head of the snake effigy. This was noted by Arzigian (2016) as a possible expression of the mound. Although its location and height coincide well with the head of the effigy as mapped by Lewis, the diameter is considerably smaller.

Figure 6: LiDAR local relief illustration from Archaeo-physics (Jones 2016a).
Figure 2. Electrical resistance survey (50cm array) of Area 1.

1. A high resistance anomaly probably associated with historic/modern features.
2. Anomalies associated with a historic/modern driveway visible on surface.
3. Faint, possibly rectangular patterning, likely of historic/modern origin.
4. Diffuse linear low. Origin is ambiguous, but relatively near (several meters west) of mapped location of rattlesnake mound.
5. Resistance high. Likely historic/modern disturbance, but also near (slightly east) of rattlesnake mound location.
6. Area of historic/modern disturbance associated with drainage ditch.

Figure 7: Electrical resistance results from Archaeo-physics (Jones 2016b).
1. an area of relatively discrete reflection, ambiguous but consistent with an archaeological feature
2. A strong and relatively distinct reflection. It is near (slightly to the west) the recorded location of the rattlesnake effigy, but largely outside the boundaries of the archaeological investigation.

Figure 8: GPR results from Archaeo-physics (Jones 2016b).
The City of Afton, Minnesota, will soon undertake a series of proposed improvements—the Downtown Improvement Project. The Downtown Improvements Project as a whole involves the construction of a large subsurface soil absorption system, including large subsurface sewage treatment system, a recirculating gravel filter, a series of subsurface soil absorption beds, and the construction of a small control building with pumps and valves, a gravel access drive, the addition of fencing, and other appurtenances. The Project also includes the installation of approximately 1.8 miles of sanitary sewer lateral collection piping to be installed adjacent to, or beneath existing city and county roadways to serve the City’s historic Old Village area, and 8,800 feet of directionally drilled forcemain to connect the City’s Old Village area to the treatment facility. The Project also involves stormwater improvements, improvements to 2,200 linear feet of levee, and improvements to the roads within the Old Village area.

Field methods involved LiDAR and a geophysical survey completed by Archaeo-Physics, LLC to reconstruct the earthwork locations and attempt to detect remnants of earthworks. LiDAR analysis included a combination of archival research and dataset analysis in GIS. The geophysical survey included electrical resistance and ground penetrating radar (GPR) to detect and map subsurface patterning. Subsurface features of interest were identified by Archaeo-Physics during this process as needing further archaeological investigation. Blondo Consulting, LLC completed shovel testing on a regular interval to a depth of culturally sterile sub-soils around the area of the Rattlesnake effigy mound. Most shovel tests were excavated to one meter, often far past the beginnings of sub-soils, to ensure a proper analysis of the site soils. All excavated soils were screened through 0.25-inch mesh. Shovel tests were first placed systematically in a 15-meter grid within the proposed stormwater pond area, and within the area of the proposed lift station. The subsurface features of interest that were identified during the geophysical survey were also marked and tested, along with three separate areas marked for directional drilling. Archaeological testing occurred at various locations throughout the APE: the proposed stormwater pond “South Pond” area, the proposed Lift Station location, and four directional drilling areas. All testing was completed outside the mapped Rattlesnake Mound location. Consultation and coordination with Mr. Jim Jones of MIAC assisted in determining placement of shovel tests. Testing strategies employed varied by location and appropriateness in relation to desired outcomes. For example, in the area of the south pond, thirteen shovel tests were excavated on two 15-meter transects with the intention of identifying intramound features or possible cultural artifacts. When testing features of interest identified by Archaeo-physics during the geophysical survey, a staged approach was utilized. Soil coring to identify soil stratigraphy was first employed. If results were inconclusive or suggested historic in natural features, shovel testing was employed. Once completed and if required, shovel testing was followed by excavation of one-meter by one-meter test units. Moving from less intrusive to more intrusive in testing methods insured protection of features and allowed better interpretation of results. The field process was coordinated with MIAC, Mr. David Mather, SHPO, and State Archaeologist Ms. Amanda Gronhovd.

Originally Mapped Site
Site 21WA10, the “Rattlesnake Group at Afton” was first mapped by T.H. Lewis on June 25, 1883. He recorded the site as having consisted of eight mounds varying in size and shape and of which two were “gone” (Winchell 1911:271). Four round, one oval, and one effigy mound were identified originally. Handwritten notes form the Wilford era state “obliterated – built up by businesses and homes” and “probably destroyed by housing construction – Birk and Peterson field check in 1971” (MN OSA files). In Minnesota’s Indian Mounds and Burial Sites: A Synthesis of Prehistoric and Early Historic Archaeological Data, Arzigan and Stevenson describe the 21WA10 mounds as “six mounds (four circular, one elongated, one rattlesnake effigy); no excavation information found” (2003:516).

In an article for Science magazine in 1887, Lewis discussed three “Snake and snake-like mounds in Minnesota” (Lewis 1887). In discussing site 21WA10, he states “No. 1 is situated on the west side of the St. Croix Lake, on the town-site of Afton, Washington county. The land here slopes toward the lake and the Rattlesnake lies just above the high-water mark. The head is 5 ½ feet high, 88 feet long, and 56 feet wide at the broadest point, which is also the highest, from which it gradually descends to the body. Where the head joins the body the embankment is 22 feet wide and nearly 2 ½ feet high. The body is
but slightly curved. In the next 160 feet the width increases to 26 feet, but the height drops to 2 feet. From this point it gradually diminishes to 18 feet in width and 1 foot in height. Connected with the extremity or tail, there are three small mounds whose bases interlock, thus forming the rattles. The last of these mounds is 20 feet long and 18 feet wide, and the two between it and the tail are each 18 feet in diameter, and all three are of the same height as the end of the tail. The total length of this effigy is 534 feet. One round mounds and one embankment in the group. Formerly there were other mounds but they had been demolished” (Lewis 1887:393).

For the most part, the mounds mapped by Lewis in 1883 are not visible today. Portions of the Rattlesnake Mound are partially visible but the addition of soil to the head has artificially enhanced the height of the Mound. Other mounds are under parking lots, houses, and businesses. Site files and notes from a 1971 field visit states that although the mound group was correctly mapped by Lewis and Winchell, the site was “probably all destroyed by private homes” (Sather 2015). However, when this mound group was again visited in 1985 by State Archaeologist Christy Caine, she noted that the site had been impacted and buried by levee construction activities undertaken in 1971. In 2008, Richard Rothaus suggested that a “majority of these mounds have been destroyed by modern development.” Sather noted, “despite the repeated visits of the site, no systematic assessment of site integrity has been conducted” (2015:2). As Geoffrey Jones describes in Lidar analysis and plotting of T.H. Lewis survey 21WA10 mound group, Afton MN, “Lewis’ survey notes are in the form of tables of angles and distances between mounds and landmarks, mound dimensions, schematic sketch maps, and brief descriptions. Although the mounds had been mapped by Winchell [Winchell et al. 1911] from Lewis’ survey notes, but Winchell’s maps [while generally excellent] have been found to suffer from distortions in scaling and occasional errors” (Jones 2016a:1). Site 21WA10 was originally recorded in the west half of Section 23, more specific mapping shows it to be in the east half of Section 22.

Fieldwork Results: Geophysical Survey
Archaeo-Physics looked at LiDAR modeling, aerial and satellite photography, and previous documentation of the existing sewers and other utilities in the project area. The purpose of the LiDAR analysis was to reconstruct Lewis’ mapped earthworks at site 21WA10 and detect, if possible, extant earthworks through analysis of the LiDAR data. Archaeo-Physics concluded in its report, Lidar analysis and plotting of T.H. Lewis survey 21WA10 mound group, Afton MN, that Lewis had accurately mapped the site 21WA10 within a meter, “with the understanding that outlines and centers of these earthworks themselves were difficult to exactly define” (Jones 2016a:2). Archaeo-Physics suggested that while some “intact or fragmentary archaeological features” may remain, due to the “heavily impacted condition of the site” a geophysical survey of the site would more likely document the historic and modern impacts on site 21WA10 than uncover “Native American archaeological components” (Jones 2016a:2). Archaeological monitoring was strongly recommended. Lastly, Archaeo-Physics stated that a geophysical study could be conducted but that “historic/modern impacts to the site are likely to be far more apparent than Native American archaeological components” and that the value of geophysical survey may “lie more in documenting disturbance (or lack thereof) than in directly detecting features of archaeological interest” (Jones 2016a:2).

As a follow-up to the LiDAR survey, Archaeo-Physics completed a geophysical survey of seven areas within the boundaries of 21WA10 using electrical resistance and ground penetrating radar (GPR). The goal of the geophysical study was to identify subsurface archaeological patterning and provide a guide for archaeological testing. Of these seven tested areas, Areas 3, 4, and 7 were identified as disturbed. The remaining four areas revealed inconclusive results regarding intact soils and disturbance. Archaeo-Physics identified a number of “features of interest,” i.e., areas where geophysical patterning suggested an anomaly within the soil matrix. They are best described as “pockets” within a larger fabric. Six of these features of interest warranted further archaeological investigation (Jones 2016b).

No prehistoric artifacts were recovered during the course of the assessment. No human remains were encountered. Historic (post-contact) artifacts were recovered in a number of locations. In the case of non-diagnostic pieces, artifacts were left in the field. Possibly diagnostic or pieces of interest were collected. At the conclusion of this project, artifacts will be curated with the Minnesota State Historical Society. The archaeological results are summarized below.

Fieldwork Results: Proposed Stormwater Pond Area
The first area tested for cultural material was the proposed stormwater pond location, which was marked by wooden stakes and consisted of manicured lawn, an existing natural stormwater pond and two wooded areas, one on the northermost end and one in the central and southern portions of the proposed stormwater pond. Sixteen shovel tests were initially placed within the proposed pond location on two 15-meter transects. Thirty shovel tests were ultimately completed. Three marked shovel tests were not completed due to heavy visible disturbance from existing sewer systems in the south end of the proposed pond (see Figure 2). Two shovel tests fell within the existing pond area. These showed slightly sandy loam topsoil over a coarse reddish sand (5YR 3/4), which is a consistent subsoil throughout this area. The water table was fairly high in this location, between 60 to 80 centimeters below the ground surface. Two shovel tests were placed within the wooded area.
on the north end of the proposed pond. The one to the east, closest to the existing levee, showed a lot of disturbance from tree roots, sediment build up from flooding, and mixed soils presumably from levee construction. Other shovel tests within the western transect, outside of the existing pond, demonstrated disturbance from filling and a buried sandy loam topsoil. Historic (1630-present) and modern (less than 50 year old) artifacts (glass, rusty metal, plastic, etc.) were noted within the first sandy loam layer and also the second sandy loam layer. Through conversations with the landowner, it was discovered that the existing pond had been dug out and the excess soil had been used to fill and level the backyard within the last 20 years, which would account for the existence of a buried sandy loam topsoil. There were areas of intact soils toward the center of the proposed pond area. Shovel tests 4, 5, 7, 11, 12, and 13 show a clear evidence of historic use and dumping events.

Three features of interest were also located in this area during the geophysical survey and identified by their coordinates within the geophysical blocks (N39 E12, N29 E5, N11 E6). These features of interest were soil probed in the hopes of better understanding them and their precise locations through soil profiles. Each feature of interest was then shovel tested. Many of the features of interest marked changes in soil composition or historic dumping areas. On average these shovel test pits within the proposed stormwater pond location had similar results as the other shovel tests completed in this area that typically consisted of 10YR 2/2 sandy loam then transitioning to 5YR 3/4 reddish coarse sand. The three features of interest tested in this area consisted of a similar profile, but typically contained an extra layer of mottled coarse sand. This extra layer of mottled sand was not uncommon in the standard shovel tests conducted in this area.

Fieldwork Results: Proposed Lift Station Area
Systematic shovel testing was conducted within the area of the proposed lift station, which was also marked by wooden stakes. Vegetation in this area consisted of manicured lawn and sparse trees. One shovel test was completed at each corner and one in the center of the marked lift station location. Shovel tests were excavated using the above methodology. All shovel test pits identified historic materials, but no prehistoric cultural materials were identified. The soils in this area consisted of a more silty loam, but also transitioned into the same reddish coarse sand subsoil as observed previously.

The geophysical survey identified two features of interest in this area, which were also shovel tested (N11.5 E24.5, and N5.5 E12). The feature of interest at N11.5 E24.5 was identified as a thick, dead root system. A shovel test placed near feature of interest N5.5 E12 (Shovel Test 20) resulted in a high amount of historic materials, and an ashy layer containing the highest concentration of historic materials identified. A test unit was excavated at N5.5 E12 to further explore this feature. The test unit uncovered the remains of what was likely the cellar of a building that had been burned down sometime before 1900. According to Edwin G. Robb in his book Afton Remembered the Tilton and Newman sawmill once stood in approximately this location between 1857 and 1860, but Robb had no comments as to what happened to the structure (Robb 1996). This feature has been recorded as site 21WA0116. Due to this newly identified, and determined eligible for inclusion in the National Register of Historic Places, historic site, it was recommended that the proposed lift station be relocated to avoid adverse effects.

Additionally, six shovel tests were placed in the northwestern portion of this area and all showed heavy disturbance above the 5YR3/4 coarse sand subsoil. An additional test unit was also placed in the north central portion of the area (see Figure 2). The test unit showed heavily compacted soils with a small amount of artifacts present. Artifacts are mixed, showing disturbance and includes concrete, styrofoam, plastic, glass, ceramic, and metal. Potential flakes were also recovered in levels 1 and 2 that have been determined to be cultural in nature; however, it is impossible to know the context of these flakes due to the disturbance of this area. Some gravel was also present. Levels 1 through 3 were excavated to approximately 30 centimeters below the ground surface. Due to the heavy disturbance and soil compactness, a shovel test was completed in the center of the unit. The heavily compacted soils continued until approximately 35 centimeters below the surface. Mottled clay sand was present from 35 to 50 centimeters below the surface with some bioturbation visible. Typical subsoil was present beginning at approximately 53 centimeters below the surface consisting of 5YR3/4 coarse sand. The shovel test was concluded at 70 centimeters below the ground surface. Artifacts were not present in the subsoil. Following this additional testing the proposed lift station was relocated to a location well outside the vicinity of site 21WA10 and 21WA0116 and within a heavily landscaped and disturbed area.

Fieldwork Results: Proposed Directional Drilling Locations
In addition to the above outlined project areas, four areas are proposed to undergo directional drilling for the installation of sewer and stormwater piping. Because the drilling will reach depths of 8-12 feet, the disturbance will be well below any potential cultural layers. Therefore shovel testing was only completed at the entrances and exits of these directional drilling areas. Some of these areas were not excavated due to their location on top of the existing levee.

The first shovel test (DD#1) was conducted at the northernmost edge of the project area at the drilling entrance/exit between
the mound and proposed stormwater pond. Large, possibly industrial metal was identified in the shovel test at approximately sixty centimeters below the ground surface. The metal completely obstructed the shovel test pit, and prevented further excavation. This may be consistent with the past industrial use of this area in association with the railroad that previously ran through Afton. No prehistoric cultural materials were identified.

The shovel test pit for the second directional drilling location (DD#2) was conducted east of the mound in the backyard of Afton Leather. This shovel test yielded more historic materials indicative of a historic dump site, and a soil profile consistent with the other shovel tests within the proposed stormwater pond area. No prehistoric cultural materials were identified.

The shovel test pit for the third directional drilling location (DD#3) was conducted near the northeastern corner of Selma’s Ice Cream patio. There is a large pile of cut limestone and concrete slabs by this corner of the patio, and that seems to extend underground to some degree. This shovel test pit could only be excavated down to 40 centimeters below the ground surface before being completely obstructed by concrete and limestone slabs. There was also a broken PVC sewer or drainage pipe that ended within the shovel test pit and appears not to be in use. A large amount of historic materials were found in this shovel test, consistent with materials found throughout the area. No prehistoric cultural materials were identified.

Throughout the course of archaeological testing, no prehistoric cultural materials were identified that directly correspond to the Rattlesnake Mound. What was encountered was so heavily disturbed that the original context is all but lost. No human remains were encountered. Historic (post-contact/Euro-American) artifacts were recorded. Most of these appear to relate to the heavy historic disturbance within the boundaries of site 21WA10. Some pockets of undisturbed soils were identified. These were located outside the boundaries of the effigy mound and (like the areas of disturbance) correlated with previous archaeological results.

**National Register Evaluation of Site 21WA10**

Archaeological testing resulted in the identification of no prehistoric cultural materials or features that can be directly associated with the Rattlesnake Mound due to extreme disturbance. Based on geophysical studies and assumptions made from adjacent archaeological testing, portions of the Rattlesnake Mound are likely intact. Evaluation of site 21WA10 used two Multiple Property Documentation Forms (MPDF). These MPDFs replace historic contexts for the earthworks property types and Woodland Culture and are considered a reliable resource for evaluation criteria. Dr. Clark A. Dobbs’ 1994 *Precontact American Indian Earthworks, 500 B.C. – A.D. 1650* and the 2008 *Minnesota Statewide Multiple Property Documentation Form (MPDF) for the Woodland Tradition* by Constance Arzigian were used in the evaluation of 21WA10. Both have been reviewed by the archaeological community and approved by SHPO and the National Park Service (NPS) for use in Section 106 assessments.

The evaluation of 21WA10 follows the NRHP sequence outlined in the *National Register Bulletin, How to Apply National Register Criteria for Evaluation*. The Bulletin describes the sequence as follows.

1. Categorize the property (e.g., district, site)
2. Determine which prehistoric or historic context(s) the property represents.
3. Determine whether the property is significant under the National Register Criteria (A, B, C or D)
4. Determine whether the property retains integrity.

**1. Categorization of the Property (NR Bulletin, Section IV)**

The Bulletin defines a site as "the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural or archeological value regardless of the value of any existing structure" (U.S. Department of the Interior, 1998:3). 21WA10 is categorized as a "site".

Site 21WA10 was first mapped by T.H. Lewis on June 25, 1883. He recorded the site as having consisted of eight mounds varying in size and shape and of which two were “gone” (Winchell 1911:271). The Minnesota State Archaeological Site Form records 21WA10 as a mound group with four round, one oval, and one effigy mound identified. The following table describes extant mounds within the mound group 21WA10.
Table 3. Status of Mounds within 21WA10

<table>
<thead>
<tr>
<th>Mound Number</th>
<th>Current Status</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>“destroyed north of the property line”</td>
<td>Jones 2016:4</td>
</tr>
<tr>
<td>2</td>
<td>unknown - currently under building</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>unknown - currently under building</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>unknown - under parking lot</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Rattlesnake Mound - extant</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>unknown</td>
<td></td>
</tr>
<tr>
<td>7-8</td>
<td>Lewis identified as “gone” in 1883</td>
<td>Winchell 1911</td>
</tr>
</tbody>
</table>

Due to the lack of extant mounds, as shown above, the National Register evaluation of site 21WA10 focuses on the snake effigy mound portion of the site. The Rattlesnake Mound is the most significant and only visibly extant portion of the original 21WA10 site.

2.) Prehistoric or Historic Context(s) (NR Bulletin, Section V)
The following section will determine (1) the facet of pre/history that the property represents; (2) whether the facet of pre/history is significant; (3) whether it is a type of property that has relevance and importance in illustrating the historic context; (4) how the property illustrates that history; and (5) whether the property possesses the physical features necessary to convey the aspect of the pre/history with which it is associated.

Dr. Clark A. Dobbs’ 1994 Precontact American Indian Earthworks, 500 B.C. - A.D. 1650 and the 2008 Minnesota Statewide Multiple Property Documentation Form (MPDF) for the Woodland Tradition by Constance Arzigian define a number of property types into which site 21WA10 may fit. These property types include: groups of earthworks and mounds (Dobbs), mortuary sites (mound and non-mound) (Arzigian), and special-use sites (Arzigian).

Dobbs defines and describes groups of earthworks as ubiquitous. They are found in many areas of Minnesota, vary in number, form and have a poorly known origin. This property type consists of a number of earthworks located together within a group. Site 21WA10 as mapped in 1883 fits this definition. However, as house and business construction has destroyed most of the original eight mounds, evaluation of 21WA10 as a group of earthworks would not be appropriate.

The Property Type Mortuary Sites include both “mound” and “non-mound mortuary sites”. To date no human remains are recorded as having been identified or removed from the mound group at 21WA10. Local stories suggest that during historic construction, skulls may have been removed but historical research cannot confirm these stories. It is probable that at least some, if not all of the mounds within 21WA10, were created for mortuary purposes. The mound group at 21WA10 is managed under the Minnesota Private Cemeteries Act (State Statute 307.08) for this reason. Regardless, evaluation of a “mortuary site” under the MPDF requires mortuary use of a site. Because it remains an unknown whether 21WA10 (including the Rattlesnake Mound) was used for mortuary purposes, it is not appropriate to evaluate 21WA10 (including the Rattlesnake Mound) under the mortuary property type.

Special-Use Site is a property type defined by Arzigian as “one generally recognized as comparatively rare or unique within the Woodland tradition, with the presence or concentration of artifacts, ecofacts, or features in a context suggesting use for a special purpose other than general habitation or resource procurement and processing. Some possible kinds of sites that could be included here are dated rock art sites, caches, or boulder effigies. Special-use sites are likely to be rare and unusual and reflect activities other than subsistence or resource extraction” (Arzigian 2008:153). The Rattlesnake Mound within Site 21WA10 could be evaluated as a special-use site. As an effigy mound, it is comparatively rare or unique within the Woodland tradition. The presence of features (the effigy mound and lack of identified burials) suggests a special purpose
Culture is poorly understood. Research questions about the culture could be answered by the Rattlesnake Mound, but it does not mean that information could still be gleaned through future excavations.

Arzigian suggests special-use sites would be considered eligible for listing on the National Register under Criterion D (Arzigian 2008:153). Arzigian states that “Special-use sites would be considered eligible for listing on the National Register under Criterion D if they can provide information relevant to research questions as discussed in the statewide or complex-specific research themes and questions” (Arzigian 2008:153). Even though artifacts related to the Rattlesnake Mound were not recovered during the 2016 excavations, does not mean that information could still be gleaned through future excavations. In Minnesota, Effigy Mound Culture is poorly understood. Research questions about the culture could be answered by the Rattlesnake Mound of 21WA10. Possible research questions would include:

- Who built the effigy mounds and when where they constructed? Non-intrusive and non-destructive dating methods, means of dating construction without artifacts or features, and other technological advances will assist in our understanding of sites such as this one.
- What is the purpose of effigy mounds? Are they mortuary in nature? Ceremonial? Do they mark procurement areas of valuable resources? What does the distribution of these individual mounds within groups, and the groups within the landscape tell us about their purpose?
The seven aspects of integrity include: location, design, setting, materials, workmanship, feeling, and association. According to Dobbs “design includes the combination of elements that create the form, plan, space, structure, and style of a property. In the case of earthwork sites, this includes the layout and plan of the earthworks; the form and style of the individual earthwork (conical, effigy, linear, ditchwork, etc); and whether they are still physically present or have been plowed down or otherwise disturbed. To have integrity of design, at least some of the earthworks at the site must be clearly visible and convey the original sense of design and layout” (Dobbs 1994:F2). Portions of the Rattlesnake Mound are visible, notably the head and tail. Subsurface remnants of the Mound may be present but geophysical testing showed that much of the Mound has been disturbed. The head and tail of the Rattlesnake Mound are visible and convey a sense of design and layout. Portions of the body may be present but disturbance in the area reflects historic destruction through construction, landscaping, etc. The design of effigy mounds was such that the importance of the site was in the visibility of the form on the landscape. The visibility of the mound from the water was important. The construction of the levee and decrease in original height of the Rattlesnake Mound make it difficult to view on the landscape thus diminishing the integrity of design within the landscape.

The Rattlesnake Mound does not have integrity of setting. According to Dobbs, setting includes “elements such as topographic features, open-space, viewedash, landscape, vegetation, and manmade features, and the relationship between these features. For earthworks to have integrity of setting, the site area must by and large appear as it did during the site’s period of significance. A broad rule of thumb would be to ask whether the site today would be recognizable to someone who lived at or visited the site at the time it was occupied” (Dobbs 1994:F2). The built environment consisting of the construction of homes, businesses, and a marina, have severely impacted the integrity of the historic setting. A large earthen levee separating the visual and physical connection to the St. Croix River further impacts the setting. Noise from river and street traffic degrade the setting. The lack of associated earthworks, modern vegetation, and current river water levels (after dams, etc) do not resemble the historic landscape. It is highly unlikely that the site would be recognizable to someone who lived at or visited the site at the time it was occupied.

The Rattlesnake Mound has integrity of materials. Materials are defined by Dobbs as “the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property” (Dobbs 1994:F2). Although the Rattlesnake Mound has been disturbed by a variety of activities (landscaping, excavation and fill episodes, and construction of septic systems), it appears that most of the materials at the Mound remained at the Mound. For example, excavation of a utility trench removed soil (materials) from the Mound, these soils were likely replaced during backfilling thus leaving the materials at the site. Dobbs states, “Even plowed or partially destroyed mounds may still contain intact deposits of materials. Soil staining, ditches or faint topographic relief may be visible in aerial photography, allowing reconstruction of the site’s plan” (Dobbs 1994:F2). LiDAR analysis shows that much of the Rattlesnake Mound is present in topographic relief. Dobbs continues, “Mounds which have been partially excavated in the past may still contain clearly defined stratigraphy or additional subsurface features. To possess integrity of materials, a site must have visible earthworks present and intact deposit of materials that are verifiable by a variety of methods of investigation, including aerial photography, geophysical study and imaging, and excavation or other form of sub-surface investigation” (Dobbs 1994:F2). During conversations with one of the local landowners, it was stated that within the last 20 years, portions of the head might have been covered with excavated soils from the existing eastern pond area. This addition of soil may have increased the visual appearance but also preserved intact deposits within the head of the Rattlesnake Mound. Soil probing and shovel testing along the eastern edge of the site (in the area where the proposed stormwater pond is located) show a combination of intact and disturbed soils within the site.
The Rattlesnake Mound has integrity of workmanship. Dobbs defines workmanship as “evidence of labor and skill of the individuals who built the earthwork. An earthwork site must retain enough integrity to demonstrate the construction methods used. Mounds which have been partially reconstructed may still retain integrity of materials. Mounds that have been largely or completely reconstructed do not. In general, workmanship of earthworks is not especially relevant to their significance since the same basic methods were used to construct them through time and space” (Dobbs 1994:F2-F3). As mentioned above under Materials, portions of the Rattlesnake Mound—such as the above ground expressions of the head and tail—remain undisturbed and would have integrity of workmanship. Other portions of the Mound have been disturbed during construction and excavation; these areas do not retain integrity of workmanship. The body of the Rattlesnake Mound has been affected the most by excavation of septic systems and landscaping. This section of the effigy mound does not have integrity of workmanship.

The Rattlesnake Mound has integrity of association. Dobbs defines association as being present “if a site is the place where an event or activity occurred and is sufficiently intact to convey that relationship” (Dobbs 1994:F3). As no artifacts have been identified in association with the Rattlesnake Mound, it is difficult to place the site within a specific temporal period. Effigy Mounds are credited to the Effigy Mound Culture (a temporal period). The construction of an effigy mound clearly suggests some event or activity out of the ordinary. As discussed previously, the head and tail portions of the Rattlesnake Mound are visible above ground. Geophysical survey suggests portions of the Mound may be intact as well.

The lack of artifacts in an effigy mound is common. In his book on Minnesota Archaeology, Gibbon discusses excavation of the Prior Lake Effigy Mound cluster (the only effigy mound excavated in Minnesota) (21SC16) and states “No artifacts were found within the mound. This is the only effigy mound in Minnesota that has been test excavated by an archaeologist” (Gibbon 2012:144). Personal communication with Amy Roseborough, Wisconsin State Historic Preservation Office Archaeologist confirmed that artifacts are rare in effigy mound excavations. Blondo Consulting recommends the Rattlesnake Mound as eligible for inclusion in the National Register of Historic Places under Criteria A, C, and D. The site is significant as an effigy mound (special use site). The site has integrity of design, materials, workmanship, and association.

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Figure 9: Rattlesnake mound head area, facing southwest.
SITE #: 21- WA10  Site Name: Rattlesnake Group at Afton  Agency/Field #:  

Figure 10: Rattlesnake mound head area facing northwest.  

Figure 11: Rattlesnake mound body area, facing southwest.
Figure 12: Rattlesnake mound body area, facing southwest.

Figure 13: Rattlesnake mound tail area, facing north toward head.