

**Agenda**  
**City of Monona Landmarks Commission**  
**Monona City Hall – Conference Room**  
**5211 Schluter Road, Monona, WI**  
**Wednesday April 20, 2016**  
**4:30 p.m.**

1. Call to Order
2. Roll Call
3. Approval of Minutes of February 17, 2016
4. Appearances
5. Unfinished Business
  - A. Discussion of Online Architectural Survey Database, Wisconsin Historical Society.
  - B. Discussion of Pagoda Restoration.
  - C. Discussion of Potential Archaeological History Projects.
6. New Business
  - A. Discussion of Ideas for Preservation Month (May).
  - B. Discussion of Items for Future Agenda.
7. Upcoming meetings – May 18, 2016 and June 15, 2016
8. Adjournment

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Agenda Posted 4/13/16 on the City Hall, Library, and Community Center bulletin boards and on the City of Monona's website, mymonona.com.

**Minutes**  
**Landmarks Commission Meeting**  
**February 17, 2016**  
**4:30 pm**

Acting-Chair Holmquist called the meeting to order at 4:40pm.

Present: Ms. Rebecca Holmquist, Ms. Branda Weix, Mr. Matt Aro, Mr. Rick Bernstein  
Not Present: Chair Aldm. Mary O'Connor  
Also present: City Planner Sonja Reichertz and City Administrator April Little

Approval of Minutes: A motion was made by Mr. Bernstein, seconded by Ms. Weix, to approve the minutes of January 12, 2016. The motion carried with no changes.

Appearances: There were no appearances.

Unfinished Business

**A. Report on Status of Resolution Regarding Ratification of the Landmarks List and Status of the Revised Ordinance 13-1-64.**

City Planner Reichertz reported that the City Council voted on and approved the resolution and ordinance revisions. The Commission also discussed recent updates to Assembly Bill 568 regarding requirements for property owner notification for future landmarks. The Bill no longer requires owner consent as was initially proposed, however it does require notice to property owners about a public hearing. Reichertz noted that these requirements are not specified in our local ordinance, but we need to refer back to the State Statute to follow the state requirements if the Commission proposes designation of new landmarks in the future.

**B. Discussion of Pagoda Restoration.**

Reichertz reviewed a summary letter sent to the Commission by Chair O'Connor on 1/29/2016. The letter summarizes a site visit by Simon Leverett of Henry Frerk Sons of Chicago and Mark Elmer of A & M Masonry in Arlington, WI. They inspected the pagoda and identified a few large cracks that could cause further damage to the pagoda's roof if water gets into the cracks and expands. They recommended a masonry repair material that can fill in the crack to prevent water from entering it in the future. They also said they will provide a quote for restoration of the roof (whether repair or complete replacement). They said forming the ends will be difficult because they cannot drill into the concrete to add more supportive rebar because it is too thin and would crack.

Mr. Aro said there may be an alternative product for the rebar, a sort of fiber mesh that would not be visible.

Mr. Bernstein asked about grading around the pagoda if the other park improvements will impact the structure. Reichertz said the major grading will take place elsewhere in the park, and at this time the immediate area appears to be stable based on information from three companies that have looked at the pagoda.

The Commission requested the following questions be answered before making a decision to move forward:

- A&M Masonry should elaborate on the estimated hours associated with the \$1,500 quote.
- Elaborate on the kind of material that is used to fill the crack.
- A&M Masonry should provide a brief statement of qualifications and example of a similar project for your company.
- Would Mark Elmer of A&M Masonry be the individual doing the work, or would he use another individual at the company or sub-contractor?
- The Commission would like to see the estimate for a price on the full restoration proposal for the pagoda's roof before making a decision on the crack filling for two reasons. First, the cracks cannot be filled until warmer weather anyway. Second, this will help the Commission understand how the \$1,500 quote compares to the full restoration cost.

There was no further discussion.

#### **C. Discussion of Online Architectural History Inventory Database, Wisconsin Historical Society.**

Commissioners updated some of the records. Reichertz summarized that changes should be made and sent to the Wisconsin Historical Society's Chad Thompson to enter into the online database. This includes any photos, which must follow the standards that were included in the Commission's packets. Reichertz noted that while this is the Wisconsin Historical Society's database, it is helpful for the local historic preservation commission to review the records and ensure that the information included is accurate and as complete as possible. Updating the database will also help the Commission identify potential landmarks that could be designated in the future, if they meet the designation criteria listed in our ordinance. Furthermore, most of our city landmarks are not listed in the database, while many do have significant historic architectural features. The process is to first update the thirty-five records included in the database, and then move on to these other opportunities.

#### **D. Discussion of Potential Archaeological Research Projects.**

Reichertz noted that the Commission was interested in pursuing some projects related to Monona's archaeological history. At the last meeting, Ms. Amy Rosebrough from the Wisconsin Historical Society reviewed our archaeological resources and said that two mound groups may be eligible for registration on the National Register of Historic Places (NRHP). Three of Monona's mound groups are already on the NRHP. The Commission agreed that Reichertz will follow-up with Ms. Rosebrough about clarifying the location of the Frost Woods Mounds, and how she has handled the process before for encouraging a private landowner to seek placement on the NRHP.

#### **E. Discussion of Oral Histories for WVMO Radio Records.**

Chair O'Connor has recorded a reading on San Damiano and asked the owners of Monona Motors to record the reading on Ernie's Trading Post. Mr. Bernstein has expanded his reading to include a little bit of background on the Commission itself. Members will schedule 2 minute recordings with Media Director Will Nimmow.

#### New Business

**A. Discussion of Items for Future Agenda.**

For the next meeting, Reichertz will work on getting new information from A&M Masonry regarding the Pagoda, information from Ms. Rosebrough for the archaeological information, and Commissioners will continue working on the online Architectural History Database and radio slots.

Ms. Holmquist said she would like to look into formalizing the process for nominating a building or site to be listed as a local City of Monona landmark. This way an interested resident, property owner, or the Commission, could submit a nomination form which the Commission could review against our designation criteria in the ordinance. Mr. Bernstein volunteered to research a couple options and have them ready for the next meeting.

Mr. Aro said he would like to start looking into designating new landmarks and he has a couple particular sites in mind that would potentially meet the designation criteria.

The next meeting is April 20, 2016 at 4:30 at Monona City Hall.

Adjournment

A motion by Ms. Weix and seconded by Mr. Aro to adjourn was carried. (5:30 pm)

Submitted by:  
Sonja Reichertz  
City Planner

	Historic Name	Other Name	Address	Year Built	Survey Date	Historic Use	Architectural Style	Property Type	Wall Material	Architect	Demolished?	Photo	Monona Landmark
1	Kohl's Supermarket	Rubin's Furniture	4207 Monona Drive	1968		2006 Grocery	Contemporary	Building	Brick		No	no	
2	Monona Professional Building		4201 Monona Drive	1964		2006 Small office building	Contemporary	Building	Stone Veneer		No	no	
3			6300 Metropolitan Lane	1949		1979	Art Moderne		Concrete		No	y	
4	Pooley, Robert House		6003 Winnequah Road	1935		1979 house	International Style	Building	Brick	Beatty and Strang	No	y	
5	Frank Allis House	San Damiano Friary	4123 Monona Drive	1893		2006 House	Dutch Colonial Revival	Building	Stone - Unspecified		No	y	
6	Fred Schluter House	Mark Lederer and Lynn Levin House	5310 Schluter Road	1901		1993 House	Front Gabled	Building	Stucco		No	no	
7	Tower of Memories	Roselawn Memorial Park Cemetery	Roselawn Ave at US 12/18	1936		1979 Cemetery Building	Neogothic Revival	Buildng	Stone-Unspecified	Sheldon, H.K.	No	y	
8			4306 Winnequah Road			1980 House	Craftsman	Building	Clapboard		No	y	
9			4103 Monona Drive	1913		1979 House	Bungalow	Building	Wood	Cora Tuttle	Yes	y	
10	Willard Tompkins House	Matthew and Melissa Aro House	110 Henuah Circle	1937		1979 House	International Style	Building	Wood	Beatty and Strang	No	y	
11			6103 Winnequah Road			1989 House	International Style	Building	Clapboard		No	y	
12			4108 Buckeye Road		1989 and 2015	House	Tudor Revival	Building	Clapboard	Sears and Roebuck	No	no	
13		Asclepius (Greek God of Healing)	5001 Monona Drive	1964		2001 Statue/Sculpture	Not a building			Harry Whitehorse	No	y	
14	Edward A and Irene Thomas House	Doug and Anne Kearney House	809 Owen Road	1936		1980 house	International Style	Building	Brick	Beatty and Strang	No	y	
15		Tyler Engelman House	6003 Midwood	1935		1979 House	One Story Cube	Building	Stucco		No	y	
16		Max and Mollie Lamers House	4314 Shore Acres Road	1940		1979 House	International Style	Building	Stucco		No	y	
17	Thorp Finance Corporation	Capital Travel	4929 Monona Drive	1958		2006 Small office building	Contemporary	Building	Stone Veneer		No	no	
18			807 Delwood Ct	1979		House	Contemporary	Building	Brick		No	y	
19			1001 Femrite Drive			1979 house	Colonial Revival	Building	Clapboard		No	y	
20	Charles Fix House	Nancy and Robert Barth House	4659 Tonywatha Trail	1926		1980 House	Dutch Colonial Revival	Building	Fieldstone		No	y	
21		Immaculate Heart of Mary Church (Catholic)	5101 Schofield Street	1961		1979 Church	Contemporary	Building	Concrete Block		No	y	
22	Gary and Mora Lincoln House	Mora Lincoln House	6015 Winnequah Road			1989 House	International Style	Building	Clapboard		No	y	
23	Nichols School	Monona School District Office	5301 Monona Drive	1937		1979 Elementary, Middle, Jr. High	Collegiate Gothic		Brick	Edward F. Starck and Hubert Schneider - 1937, Stark Sheldon and Schneider	No	y	
24	Schroeder, Otto and Louise House	Victoria and Dennis Hull House	4811 Tonyawatha Trail	1932		1980 House	Tudor Revival	Building	Stone - Unspecified	Frank Riley, Herbert Fritz (studio)	No	y	
25	Paul Harris House		411 W Dean Ave	1935		1980 House	International Style	Building	Brick	John J. Flad	No	y	
26	Marsha Heath House	Draeger House	6106 Winnequah Road	1936		1979 House	International Style	Building	Concrete	Beatty and Strang	No	y	
27	Fulcher, Paul House		6008 Winnequah Road	1935		1979 House	International Style	Building	Brick	Beatty and Strang	No	y	
28	Bump, Marvin House	Zerkxes Taylor House	6103 Winnequah Road	1935		1979 House	International Style	Building	Brick	Beatty and Strang	No	y	
29	Mahoney House		3837 Monona Drive			1979 House	Other Vernacular	Building	Stucco		Yes	y	
30	Cronin-Meyer House		5800 Winnequah Road	1938		1989 House	International Style	Building	Aluminum/Vinyl Siding	Beatty and Strang (Filipowicz Thesis)	No	y	
31			500 Interlake Drive	1956		2013 House	Rustic Style	Building	Log		No	no	
32			4406 Winnequah Road			House	Tudor Revival	Building	Clapboard	Sears and Roebuck	No	y	
33	Ed Rothman House		5215 Tonyawatha Trail	1938		1980 House	International Style	Building	Stucco	Beatty and Strang	No	y	
34	C Wright Thomas House	Edna Thomas House	5903 Winnequah Road	1931		1989 House	International Style	Building	Stucco	Hamilton Beatty	No	y	
35	Hamilton and Gwen Beatty House		5907 Winnequah Road	1931		1989 House	International Style	Building	Aluminum/Vinyl Siding	Hamilton Beatty	No	y	



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## MEMO

TO: Landmarks Commission  
FROM: Sonja Reichertz, City Planner & Economic Development Director  
DATE: April 18, 2016  
RE: Agenda Item – Pagoda Discussion

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The Landmarks Commission has been reviewing options for restoration of the Springhaven Pagoda. We have solicited information and quotes from various contractors and specialists, and have materials to review from the following:

- Casey Concrete & Construction (John Wedekind)
- Concrete preservation specialist Charles Quagliana
- A&M Masonry (Mark Elmer) and Henry Frerk and Sons
- Retired State Preservation Architect Jim Sewell

Enclosed in the April 20, 2016 Landmarks Commission packets are copies of various correspondences and background on this information for your review. These materials include:

- O'Connor summary of site visit with A&M Masonry and Henry Frerk Sons.
- A&M Masonry quote and scope of work for recommended crack injections.
- Material detail on crack injection product provided by A&M Masonry.
- Correspondence between A&M Masonry and City Planner. Includes A&M responses to questions from the Commission. Also includes a request from A&M to retrieve a sample of the pagoda for testing.
- Correspondence between Alder O'Connor and City Planner. Describes potential capital budget request and costs as estimated by preservationist Charles Quagliana.
- Correspondence between retired Preservation Architect Jim Sewell and Bernstein.
- Summary of Charles Quagliana recommendation.

Springhaven Pagoda Repair Consultation  
(Stone Bridge Park)

1/29/16

Rebecca Holmquist arranged for two concrete restoration specialists to examine the pagoda at Stone Bride Park and give us some ideas on what repairs might involve. Their names are Simon Leverett of Henry Frerk Sons of Chicago and Mark Elmer of A & M Masonry, Arlington, WI. Sonja and I met them there, representing the Landmarks Commission.

They pointed out that at least some of the concrete in the roof was poured over barbed wire. Rebar has also been used in spots. With the snow, it's hard to tell just what the pillars are placed on, but whatever it is seems stable. They wondered if there had been a pinnacle on the top of the pagoda. Sunny thought there was a ball and that's confirmed by some old pictures we have.

The pillars look to be in pretty good condition, but there has been a lot of deterioration in the roof. There is a large crack on the south side of the roof which should be repaired soon if we're not going to do any additional work for awhile. There's a masonry repair material that can be applied through a syringe-like instrument to fill in the crack. It won't strengthen it, but will prevent additional water from getting in there and cracking it even more. Given that we probably won't be doing anything with the pagoda for at least a year if not longer, it would be a good interim step. Simon took a picture of the crack and will send it to us. The concrete itself is pretty thin. Normally they would cut it into sections, put rebar or something similar into it and then put new concrete over that. Since it's so thin, they wouldn't be able to use the rebar. They do have a fairly new product that they think will work well instead.

Mark would actually do the work. He's going to put together two estimates for us based on time and materials. One would just cover the cost of filling in the crack in the roof. The second would cover the rest of the repairs.

We wouldn't be able to repair the crack until the weather is warmer. In the meantime, they recommended putting a tarp over the top to prevent more water from getting into the crack and making the situation worse.

Mary O'Connor



February 16, 2016

A & M Masonry LLC

P.O. Box 238

Arlington, WI 53911

P: 715.340.8787

Email: a.m.masonry238@gmail.com

Sonja Reichertz  
City of Monona  
5221 Schluter RD  
Monona, WI 53716

**RE: Monona Pagoda**

Dear Sonja,

I am pleased to submit my proposal for the Masonry Work at the above referenced facility based on our conversation and my site visit.

**Scope of Work:**

- Do crack injections so no further damage is done to the Pagoda.

**Clarifications:**

- This is a time and material bid with a rate of \$90.00 per hour.
- This bid does not include any type of patching or reconstruction of the Pagoda.

**Price:**

**Not to exceed One Thousand Five Hundred Dollars.....\$1,500.00**

**Payment Terms:**

**Full payment is expected within 7 days of completion of work stated herein.**

This proposal constitutes the contract between the parties until and unless it is replaced by a new document signed by the parties.

Thank you for this opportunity to quote. If you have any questions or require further details, please do not hesitate to contact me.

Sincerely,

*Mark Elmer*

Mark A. Elmer

**\*ACCEPTED:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

\*Signed acknowledgement of this proposal confirms acceptance to all above specifications.

# JAHN M30

## Micro Injection Grout

- Concrete and hard stone - #31
- Brick and soft stone - #32

Jahn M30 contains no corrosive constituents, and achieves extraordinary flow capacity, penetration and strong adhesion. **The M30 injection grout is offered in two formulations for varying substrates.** To enhance penetration and bonding, a small amount of synthetic material is included. M30 can be applied via gravity feed or pressure injection into hairline cracks up to 3/16" (5.0 mm) in width. This product may be utilized in both non-structural simple void applications and structural load bearing situations, is available in two levels of compressive strength and can be customized through testing.

## Features And Benefits

- **Single-Component:** Easy to mix correctly, thereby improving quality control at the point of injection.
- **Tenacious Adhesion:** Strong bonding capabilities.
- **Factory Controlled:** No field chemistry resulting in product variation.
- **Low Viscosity:** Deep, thorough penetration.
- **Simple Application:** Can be applied by pouring or by pumping.
- **Water Based:** Environmentally and user safe. No solvent clean up or disposal problems.

## Application Procedures

### Preparation

Wash the surface and interior of the crack using clean water to remove all dust, loose or deleterious material, which could prevent proper flow and/or adhesion.

### Mixing

The mixing ratio is approximately 1 part powder to 1 part water by volume. **Mixing must be done with a high speed drill (3,000 RPM or higher) equipped with a Jiffler-type mixing paddle.** After mixing, the grout should be poured into another clean container using a sieve. Additional or repeated agitation is necessary if the grout is allowed to sit prior to use.

## Injection Procedures

Immediately before injection, moisten interior of the crack by flushing with water. If the crack is allowed to dry out before the grout is injected, this step must be repeated. This is very important.

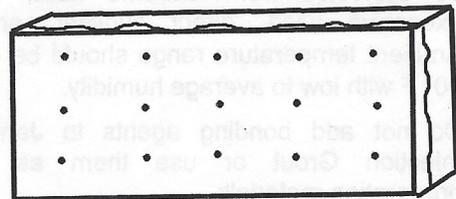
### Transverse Cracks



Drill a series of injection ports in the center of the crack. These ports should be drilled in a downward direction. Seal the crack with removable, non-staining clay, sealant, or caulk.

Inject grout into the lowest port and continue until it flows freely from this port and other ports at the same level. Seal ports using non-staining clay, sealant, or caulk and proceed in identical fashion until the crack is filled. **Clean up overflow and runs immediately with clean water.**

### Lateral Cracks (Delaminating Layers)



Drill a series of injection ports in a square configuration (90° angles) on the face of the substrate to create a "drill frame". Ports should be drilled in a downward direction. Wash the surface and interior of the crack using clean water to remove dust and loose debris. Any dust or debris remaining between the layers will impede the flow of the grout. If this is the case, more holes will be required to attempt to fill all hollow areas.

Inject grout into lower left port and proceed until it flows freely from this port and other ports at the same level. Seal ports using non-staining clay, sealant, or caulk. Inject grout into lower right port

and proceed in identical fashion. The order of injection is lower left, lower right, upper left, and then upper right. **Clean up overflow and runs immediately with clean water.**

### Removal of Sealant

Let the grout dry (approximately 24 hours) and remove all sealant, caulk, or clay. After removing the sealant, repair the crack surface and injection holes with Jahn Mortar that matches the color and type of existing masonry.

### Clean Up

While injecting, continually check for grout runs and spills on the surface of the masonry, and clean the surface before the grout has time to set. This is normally done with a clean sponge and water, and may have to be repeated several times, rinsing the sponge with clean water.

Remove uncured grout from tools and equipment with water as soon as possible. Cured grout may only be removed chemically or mechanically.

### Safety Requirements

It is recommended that safety goggles, gloves, and a dust mask equipped with P-2 filters (or equivalent) be worn for protection while mixing the grout.

### Limitations

- Do not apply Jahn Micro Injection Grout to a frozen or hot substrate. The applied grout must be protected from extreme heat, freezing, excessive wind, direct sunlight, and rain. Ambient temperature range should be 40° F to 90° F with low to average humidity.
- Do not add bonding agents to Jahn Micro Injection Grout or use them as surface preparation materials.

### Packaging

A two-gallon plastic pail contains approximately 15 lb. of material. Coverage will vary depending on the type of substrate and the size of the crack.

### Storage And Shelf Life

Store material in a dry area away from direct sunlight. Ambient storage conditions should be in the range of 40° F to 90° F with low to average humidity. Average shelf life is 10 years in original, unopened packaging.

## Technical Data

### Jahn M30 – #31

#### Micro Injection Grout

Compressive strength	2 days approx. 3 days approx. 7 days approx. 28 days approx.	3600 psi 6400 psi 7400 psi 9000 psi
Tensile strength	28 days approx.	360 psi
Concrete granular size		Smaller than 6.3E-04 inches
Viscosity direct		80 cps
Specific gravity		1.77
Consumption		Ratio water/dry material: 45% of total weight
Application mixed product		Approx. 30 minutes (68°F)

### Jahn M30 – #32

#### Micro Injection Grout

Compressive strength	2 days approx. 3 days approx. 7 days approx. 28 days approx.	1264 psi 2243 psi 2591 psi 3160 psi
Tensile strength	28 days approx.	195 psi
Concrete granular size		Smaller than 6.3E-04 inches
Viscosity direct		80 cps
Specific gravity		1.77
Consumption		Ratio water/dry material: 45% of total weight
Application mixed product		Approx. 30 minutes (68°F)

### Warning

Not for internal consumption. Keep out of reach of children and animals. Consult Material Safety Data Sheet (MSDS) for specific information.

**Notice:** The information contained herein is based on our own research and the research of others, and it is provided solely as a service to help users. It is believed to be accurate to the best of our knowledge. However, no guarantee of its accuracy can be made, and it is not intended to serve as the basis for determining this product's suitability in any particular situation. For this reason, purchasers are responsible to make their own tests and assume all risks associated with using this product.

03/2014

# JAHN M40

## Crack Injection Grout

Jahn M40 is formulated to repair cracks and voids ranging in width from approximately 3/16" to 9/16" (5.0 mm to 15.0 mm) or larger using low pressure mechanical or gravity feed equipment. M40 is completely mineral based, contains no latex or acrylic bonding agents or additives, and is vapor permeable for compatibility with masonry substrates.

### Features and Benefits

- **Single-Component:** Easy to mix correctly, thereby improving quality control at the point of injection.
- **Compatible Formulation:** Compatibility of physical properties ensures that the grout and natural substrate react to the environment in the same way.
- **Contains No Latex or Acrylic Bonding Agents:** It protects the substrate by allowing salts, water vapor, and liquid water to reach the surface, preventing failure due to salt expansion or freeze/thaw cycles.
- **Tenacious Adhesion:** Strong bonding capabilities.
- **Factory Controlled:** No field chemistry resulting in product variation.
- **Low Viscosity:** Deep, thorough penetration.
- **Simple Application:** Can be manually or mechanically applied.
- **Water Based:** Environmentally and user safe. No solvent clean up or disposal problems.

### Application Procedures

Wash the surface and interior of the crack using clean water to remove all dust, loose or deleterious material, which could prevent proper flow and/or adhesion thereby compromising the integrity of the cured injection grout.

### Mixing

The mixing ratio is approximately 2 - 2 1/2 parts powder to 1 part water by volume. Mix by hand or mechanically, using a slow speed drill (400 - 600 RPM) equipped with a Jiffler-type mixing paddle. The material should be mixed for a minimum of three minutes, with continued agitation.

### Injection Procedures

Immediately before injection, moisten interior of the crack by flushing with water. If the crack is allowed to dry out before the grout is injected, this step must be repeated. This is very important.

#### *Transverse Cracks:*

Drill a series of injection ports in the center of the crack. These ports should be drilled in a downward direction. Seal the crack with removable, non-staining clay, sealant, or caulk.

Inject grout into the lowest port and continue until it flows freely from this port and other ports at the same level. Seal ports using non-staining clay, sealant, or caulk and proceed in identical fashion until the crack is filled. **Clean up overflow immediately with clean water.**

#### *Lateral Cracks (Delaminating Layers):*

Drill a series of injection ports in a square configuration (90° angles) on the face of the substrate to create a "drill frame". Ports should be drilled in a downward direction. Wash the surface and interior of the crack using clean water to remove as much dust and loose material as possible. Any dust or debris remaining between the layers will impede the flow of the grout. If this is the case, more holes will be required to attempt to fill all hollow areas.

Inject grout into lower left port and proceed until it flows freely from this port and other ports at the same level. Seal ports using non-staining clay, sealant, or caulk. Inject grout into lower right port and proceed in identical fashion. The order of injection is lower left, lower right, upper left, and then upper right. **Clean up overflow immediately with clean water.**

### Removal of Sealant

Let the grout dry (24 - 48 hours) and remove all sealant, caulk, or clay. After removing the sealant, repair the crack surface and injection holes with Jahn Mortar that matches the color and type of existing masonry.

## Clean Up

While injecting, continually check for grout runs and spills on the surface of the masonry, and clean the surface before the grout has time to set. This is normally done with a clean sponge and water, and may have to be done several times, rinsing the sponge repeatedly with clean water.

Remove uncured mortar from tools and equipment with water as soon as possible. Cured grout must only be removed chemically or mechanically.

## Safety Requirements

It is recommended that safety goggles, gloves, and a dust mask equipped with P-2 filters (or equivalent) be worn for protection while mixing.

## Limitations

- Do not apply Jahn Injection Grout to a frozen or exceedingly hot substrate. The applied grout must be protected from extreme heat, freezing, excessive wind, direct sunlight, and rain. Ambient temperature range should be 40° F to 90° F with low to average humidity.
- Do not add bonding agents to Jahn Injection Grout or use them as surface preparation materials.

## Packaging

A two-gallon plastic pail contains approximately 18 lbs. of material. Coverage will vary depending on the type of substrate and the size of the crack.

A five-gallon plastic pail contains approximately 44 lbs. of material. Coverage will vary depending on the type of substrate and the size of the crack.

## Storage And Shelf Life

Store material in a dry area away from direct sunlight. Ambient storage conditions should be in the range of 40° F to 90° F with low to average humidity. Average shelf life 10 years in original, unopened packaging.

## Technical Data

### Jahn M40 - Crack and Void Injection Grout

LIQUID/PLASTIC PHASE	
Volume mixed M40 in fluid oz. per lb. of dry material	14.3 fl oz/lb (approx.)
HARDENED PHASE	
Compressive strength	1500 to 4400 psi
Tensile bending strength	290 to 730 psi
Tensile strength	58 to 100 psi
Ratio in/3 water/lb of dry material	5.3 to 6.0 fl. oz/lb.
Specific gravity	1.3 (approx.)

## Warning

Not for internal consumption. Keep out of reach of children and animals. Consult Material Safety Data Sheet (MSDS) for specific information.

**Notice:** The information contained herein is based on our own research and the research of others, and it is provided solely as a service to help users. It is believed to be accurate to the best of our knowledge. However, no guarantee of its accuracy can be made, and it is not intended to serve as the basis for determining this product's suitability in any particular situation. For this reason, purchasers are responsible to make their own tests and assume all risks associated with using this product.

03/2014

**From:** [Mark Elmer](#)  
**To:** [Sonja Reichertz](#)  
**Subject:** Re: Monona Pagoda  
**Date:** Thursday, March 24, 2016 9:40:53 PM

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Hi,

I would look for a pice that is ready to break off on the top of the pagoda or something on the edge. I wouldn't have to do any drilling at all. Right now Matt at Henry Frerk Sons is having a hard time trying to put any kind on match together with out a sample. This is something that can't be done on site it has to be sent in so Matt can run whet ever kind of tests he does.

Mark

Thank You,

**Mark Elmer**

A&M Masonry

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Arlington, WI

T.715.340.8787

[a.m.masonry238@gmail.com](mailto:a.m.masonry238@gmail.com)

On Thu, Mar 24, 2016 at 11:18 AM, Sonja Reichertz <[sreichertz@ci.monona.wi.us](mailto:sreichertz@ci.monona.wi.us)> wrote:

Hi Mark,

Can you expand on what kind of sample would be removed? Is it a small scraping, a drilled off chunk, approximate size, etc.? Before we authorize anything I want to make sure we know what the potential impact would be. Also what kind of analysis will be done? Wondering if something needs to be physically removed from the structure or if it can be analyzed on the site instead.

Sonja

**Sonja Reichertz, AICP**

**City Planner & Economic**

**Development Director**

City of Monona

5211 Schluter Road

Monona, WI 53716

[608.222.2525](tel:608.222.2525)

[sreichertz@ci.monona.wi.us](mailto:sreichertz@ci.monona.wi.us)

**From:** Mark Elmer [mailto:[a.m.masonry238@gmail.com](mailto:a.m.masonry238@gmail.com)]

**Sent:** Monday, March 21, 2016 8:04 AM

**To:** Sonja Reichertz

**Subject:** Re: Monona Pagoda

Good Morning,

I have been in contact with Matt Wolf at Henery Frerk Sons about your project. I have sent Matt photos of the project so he can get a feel for it. What he is wondering is if I could get him a sample off of the Pagoda. Then he will be able to analyze the sample. This will be able to get a better match of material that needs to be used.

Because if the wrong product is used it could fail and right now we are not sure on what to use. So at this time I don't have any other information for you.

If you could let me know if its ok to take a sample off of the Pagoda so I can send it to Matt that would be great.

Thanks for your time on this.

Mark

Thank You,

**Mark Elmer**

A&M Masonry

PO Box 238

Arlington, WI

T.[715.340.8787](tel:715.340.8787)

[a.m.masonry238@gmail.com](mailto:a.m.masonry238@gmail.com)

On Fri, Mar 18, 2016 at 9:39 AM, Sonja Reichertz <[sreichertz@ci.monona.wi.us](mailto:sreichertz@ci.monona.wi.us)> wrote:

Hello Mark,

Hope all is well. We have our next Landmarks Commission meeting on April 20<sup>th</sup> and would love to have more information to discuss before then. When will you have numbers put together for a quote on the full restoration of the pagoda roof?

Thank you much,

Sonja

**Sonja Reichertz, AICP**

**City Planner & Economic**

**Development Director**

City of Monona

5211 Schluter Road

Monona, WI 53716

[608.222.2525](tel:608.222.2525)

[sreichertz@ci.monona.wi.us](mailto:sreichertz@ci.monona.wi.us)

**From:** Mark Elmer [mailto:[a.m.masonry238@gmail.com](mailto:a.m.masonry238@gmail.com)]  
**Sent:** Saturday, February 20, 2016 5:56 PM  
**To:** Sonja Reichertz  
**Subject:** Monona Pagoda

Hi Sonja,

So to answer your questions.

- 1) The \$1,500.00 is not to exceed. That's time and material. It should only take me a half a day but it could run into a little bit longer. As for the material I'm not sure how much I will use. That is why I put a dollar amount of \$1,500.00
- 2) Please see attached file on the material.
- 3) I have not used the crack injection product before but I have used the Jahn product from the supplier Cathedral Stone. You have to be certified and trained to buy some of their products as I am.

Projects

- 1) Poynette Public Library. ( Historical Restoration) 2014
- 2) Gates of Heaven in Madison, for the City of Madison. ( Historical Restoration) 2014
- 3) Dan Gilbach, Monroe WI. Complete restoration of his 1853 and 1900 buildings. 2014

4) Forest Hill Cemetery office repairs, for City of Madison.( Historical Restoration ) 2015

5) Forest Hill Chapel, for the City of Madison.( Historical Restoration) 2013 and 2015

6) Madison Municipal Building, for City of Madison.( Historical Restoration and building evaluation. 2015

4) I will be doing the work my self

5) As of right now I don't have a number put together yet.

I hope this helps. If you need anything else please let me know.

Thank You,

**Mark Elmer**

A&M Masonry

PO Box 238

Arlington, WI

T.[715.340.8787](tel:715.340.8787)

[a.m.masonry238@gmail.com](mailto:a.m.masonry238@gmail.com)

**From:** Sonja Reichertz  
**To:** [Mary O'Connor \(mkoconnor73@gmail.com\)](mailto:Mary_O'Connor73@gmail.com)  
**Cc:** [Marc Houtakker](#)  
**Subject:** Landmarks Commission - Capital Budget Request  
**Date:** Friday, October 09, 2015 11:59:23 AM

---

Hi Mary,

I talked with Marc about the Landmarks Commission request for funding the preservation plan/implementation strategy for the Springhaven Pagoda. Marc said this should be a capital item, since it is a study/design work that will ultimately inform the actual park improvements and construction. Capital budgets are already out, so this will need to be done as a budget amendment, which you would need to bring to Council before the second read.

I reviewed the quote we received from the architectural preservationist Charles Quagliana. He recommended **\$1,700 for the preservation plan**, which would include a brief history, statement of significance and proposed treatment options. He estimated the **preservation implementation strategy at \$1,500**, which would include a specific description of how to preserve the pagoda, and an estimate of probable costs and timeline. Finally, Charles recommended an expert in concrete conservation, given the crude construction techniques used in the pagoda, and estimated their **consultation at about \$1,000**.

Let me know if you have additional questions.

Thanks,  
Sunny

**Sonja Reichertz, AICP**  
**City Planner & Assistant Economic**  
**Development Director**  
City of Monona  
5211 Schluter Road  
Monona, WI 53716  
608.222.2525  
[sreichertz@ci.monona.wi.us](mailto:sreichertz@ci.monona.wi.us)

**From:** [Bernstein, Rick A - WHS](#)  
**To:** [Sonja Reichertz](#)  
**Cc:** [Richard Bernstein](#)  
**Subject:** FW: Monona Pagoda  
**Date:** Monday, March 07, 2016 9:26:46 AM

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Sonja - I asked a former colleague of mine, Jim Sewell, to review the Pagoda. Just so you know Jim was the Preservation Architect for the Wisconsin Historical Society for some thirty years, so I trust him implicitly. He is retired now and I think he might be available for some consulting.

If its ok with you I'd like to share this email with the rest of the commission. After which I would suggest engaging Jim as a consultant (if available) for developing a restoration program for the pagoda.

Richard Bernstein, Field Services  
Division of Historic Preservation-Public History  
Wisconsin Historical Society  
816 State Street  
Madison, WI 53706  
608 264 6583

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-----Original Message-----

From: James A. Sewell [<mailto:jim.sewell@charter.net>]  
Sent: Monday, February 29, 2016 5:18 PM  
To: Bernstein, Rick A - WHS  
Cc: [jim.sewell@charter.net](mailto:jim.sewell@charter.net)  
Subject: RE: Monona Pagoda

Rick:

I just inspected the pagoda and I am skeptical that the injection process that is being proposed will do much good. The top of the pagoda is covered with a tarp, which I did not disturb, but it seems clear to me that, given the loss of much of the overhang, as well as the porosity and delamination at the edges, the roof will continue to deteriorate to the point where the overhangs will eventually fail, at which time the underlying perimeter "beam" will begin to deteriorate.

The big problem is that, in its existing condition, with no discernable drip edge or water control, water will continue to seep into the concrete where it will freeze and thaw and eventually destroy the pagoda's overhangs.

This pains me to have to say but, if the pagoda is important as part of the park's cultural landscape, the best and most durable solution may be to replace the roof with an identical new roof. By identical, I mean both in a design sense and with concrete that matches that of the original, including its original aggregate. Contemporary concrete would not be appropriate.

If there wasn't one originally, there should be a drip edge - a kerf on the underside of the overhangs - cast into the concrete.

There is one alternative to replacement, but it is tricky and would require the owners to find a contractor willing and able to carry it out. That alternative would be to re-cast the missing parts. As I said, it would not be impossible, but it would be tricky. This would likely involve drilling holes near the missing areas, inserting stainless steel pins, and then re-casting the overhanging portions of the pagoda roof.

Unless there is something that I'm missing, injection of consolidants is not going to solve the problem.

Feel free to run this analysis by Jen Davel. She may have more information.

I hope that this helps. Let me know if you need anything else.

Jim

-----Original Message-----

From: Bernstein, Rick A - WHS [<mailto:Rick.Bernstein@wisconsinhistory.org>]

Sent: Monday, February 29, 2016 12:02 AM

To: James A. Sewell

Subject: Re: Monona Pagoda

Stone Bridge is off of winnequah

Once you get to the park just walk to the shore and you'll see it to your left. The park is small so it will be impossible to miss. Thanks for being willing to take a look.

Rick

Regards // Rick

Rick Bernstein

Field Services, Southern Region

Wisconsin Historical Society

608 264 6583

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From: James A. Sewell <[jim.sewell@charter.net](mailto:jim.sewell@charter.net)>

Sent: Saturday, February 27, 2016 5:40:13 PM

To: Bernstein, Rick A - WHS

Cc: [jim.sewell@charter.net](mailto:jim.sewell@charter.net)

Subject: RE: Monona Pagoda

Rick:

The crack-injection method of repair is useful when you want to restore the integrity of concrete or masonry that is designed to act monolithically.

For example it was used successfully on Milton House in the late 1970's.

The house, which was designed to act as a monolithic concrete structure, was developing shear cracks that threatened to destabilize the entire structure.

I'm not sure whether crack injection is the best treatment for the Pagoda.

I am not familiar with this structure and have only seen pictures. If you will let me know its whereabouts - approximate street address - I can stop by to look at it. I know, for example, that it's in Stone Bridge Park. I can probably find it on my own but, if you could tell me approximately where it is in the park, that might be helpful.

After I look at it, I will see what I can suggest.

Jim

PS: has anyone consulted the Preservation Brief dealing with concrete?

-----Original Message-----

From: Bernstein, Rick A - WHS [<mailto:Rick.Bernstein@wisconsinhistory.org>]

### **Recommended course of action from Charles Quagliana January 2015:**

1. Develop a preservation plan. This would include a brief history, statement of significance, and proposed treatment options. Probably in the range of \$1,700 +/-
2. Develop a preservation implementation strategy. This would include a description of how to preserve the pagoda (specifics), estimate of probably costs and a time line. Probably in the range of \$1,500.
3. Secure funding.
4. Undertake the preservation work.

It would be best to proceed with steps 1 and 2 at the same time. Given the crude construction techniques used in the concrete structure, a specialist in the conservation of concrete objects will be needed. We are currently working with a company from Chicago with this expertise (on a project in the Milwaukee area). We would have to add in some money for their time and consultation. \$1,000 would be adequate. From my observations the pagoda will have to be stabilized and then raised a few feet to work on foundations and the stone walls below. The bracing would remain in place as treatments of the concrete structure are undertaken. The columns look pretty good but the roof edges are obviously very deteriorated.

<http://www.cquaglianaarchitect.com/>

**From:** [Rosebrough, Amy L - WHS](#)  
**To:** [Sonja Reichertz](#)  
**Subject:** RE: Monona Landmarks Commission Questions  
**Date:** Monday, March 07, 2016 2:37:32 PM  
**Attachments:** [latewoodlandreg8.pdf](#)

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Ms. Reichertz,

I apologize for the lateness of my reply, but hope that the information I'm sending will be helpful to you.

Attached please find the blanket eligibility statement for Late Woodland mounds in this region.

As for your second question, I'm not sure how different commissions have handled site nominations and I suspect it varies. You will need the majority of the landowners for any given nominated property to consent, so working with them would be a must. For archaeological nominations, hiring a regular NRHP consultant won't work. I would recommend contacting George Christiansen at UW-Baraboo, who prepared our latest Late Woodland mound nomination. He knows the NRHP procedure, and is familiar the archaeology.

And on to your first, question, I am attaching a map showing the locations of known surviving mounds at the site. I request that you treat this map as confidential and make sure that it is not distributed outside of the commission.

Amy L. Rosebrough  
Staff Archaeologist  
State Archaeology and Maritime Preservation Program  
Wisconsin Historical Society  
816 State Street, Madison, WI 53706  
1-608-264-6494  
[amy.rosebrough@wisconsinhistory.org](mailto:amy.rosebrough@wisconsinhistory.org)  
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Collecting, Preserving and Sharing Stories Since 1846.

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**From:** Sonja Reichertz [mailto:sreichertz@ci.monona.wi.us]  
**Sent:** Thursday, February 18, 2016 11:01 AM  
**To:** Rosebrough, Amy L - WHS  
**Cc:** Mary O'Connor (mkoconnor73@gmail.com); Bernstein, Rick A - WHS  
**Subject:** Monona Landmarks Commission Questions

Hi Amy,

If I haven't said it already, thank you for taking the time to visit with our Commission in January. The information you provided was very helpful. We continue discussions about projects we can work on related to archaeological history. One option was seeking designation on the National Register for the Frost Woods Mound Group or Fairhaven Mound. We know the owners of the property with the Fairhaven mound are currently going through the process to have it catalogued by the State

process. For that reason, we don't want to interfere and can revisit that mound possibly in the future. We recall you talking about the fork-tailed bird at the Frost Woods Group and its significance. We have a couple questions for how to start this project:

1. Can you provide a map of this mound group showing where they fall on private property and city property?
2. What is your experience in how other Commissions have approached NRHP designation for private property? Do Commissions nominate sites themselves, or work more in partnership with the owner, or does only the owner typically nominate. The Commission thought we might write a letter to the owner describing the benefits of seeking designation and offer to help with the process.
3. You said Bob Birmingham created a sort of blanket eligibility for mounds in this region. Can you share that paper work with us?

Thank you for your time. You can also call, or we can meet in person if that would be easier.

Sonja

**Sonja Reichertz, AICP**  
**City Planner & Economic**  
**Development Director**

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Submitted to NPS 2/19/91

NPS Form 10-900-b  
(Jan 1987)  
Wisconsin Word Processor Format (441L)  
(Approved 10/88)

OMB No. 1024-0018

COPY

United States Department of the Interior  
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES  
MULTIPLE PROPERTY DOCUMENTATION FORM

This form is for use in documenting multiple property groups relating to one or several historic contexts. See instructions in Guidelines for Completing National Register Forms (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. For additional space use continuation sheets (Form 10-900-a) and identify the section being continued. Type all entries. Use letter quality printer in 12 pitch, using an 85 space line and 10 space left margin. Use only archival quality paper (20 pound, acid free paper with a 2% alkaline reserve).

A. NAME OF MULTIPLE PROPERTY LISTING

The Late Woodland Stage in Archaeological Region 8 (AD 650-1300)

B. ASSOCIATED HISTORIC CONTEXTS

The Late Woodland Stage in Archaeological Region 8

C. GEOGRAPHICAL DATA

Archaeological Region 8 covers the southwestern and southcentral part of Wisconsin. This includes Crawford, Grant, Richland, Sauk, Iowa, Lafayette, Columbia, Dane, and Green Counties (Figure 1).

See continuation sheet

D. CERTIFICATION

As designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this multiple property documentation form meets the National Register documentation standards and sets forth requirements for the listing of related properties consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR Part 60 and the Secretary of the Interior's Standards for Planning and Evaluation.

Signature of certifying official

Date

12/4/90

State Historic Preservation Officer-WI  
State or Federal agency and bureau

I, hereby, certify that this multiple property documentation form has been approved by the National Register as a basis for evaluating related properties for listing in the National Register.

Signature of the Keeper of the National Register

Date

---

## E. STATEMENT OF HISTORIC CONTEXTS

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Discuss each historic context listed in Section B.

### ORGANIZATION OF THE MULTIPROPERTY GROUP

This multiproperty nomination is organized around a prehistoric cultural stage referred to as Late Woodland. The Late Woodland stage is recognized by archaeologists through a set of shared cultural characteristics that have broad spatial and temporal boundaries. This multiproperty nomination views Late Woodland in the geographical context of the State Historical Society of Wisconsin's archaeological Region 8 (Figure 1). This region takes in the southwestern and southcentral part of the state. A number of property types are recognized within this theme, although for the purposes of this nomination only one, mounds, is formally defined. Property types include habitation sites such as villages and camps, and non-residential resource extraction locales. Additional property types will doubtlessly be developed as new information is acquired.

The organization of this multiproperty nomination and the use of the regional concept follows the "Plan for the Protection of Prehistoric Sites" as outlined by the Historic Preservation Division of the State Historical Society of Wisconsin. This plan is a three-step process by which information concerning archaeological sites is organized so that decisions regarding significance and research priorities can be made. The first step is to synthesize, on a general level, information concerning the prehistory of the state. This was accomplished with the publication of Introduction to Wisconsin Archaeology: Background for Cultural Resource Management (Green et al. 1986). A second step is to establish regional overviews for the state. For this purpose, the state has been divided up into nine archaeological regions. The third step is to develop in-depth studies of particular cultural manifestations within these regions. This information, among other things, can be used as the basis of multiproperty nominations.

Archaeological Region 8 covers parts of both glaciated and unglaciated portions of the state. The western part of the region lies within the Southwestern Mesic Forest, Oak Savanna, and Prairie Upland Natural Division (Hole 1983). Most of this hilly country is dissected by river and stream valleys, having been avoided by the Late Pleistocene glacial advances. This area is known as the Driftless Area (Martin 1965). Floristically, the area was a mosaic of prairie and forest. Bedrock outcroppings found throughout the area provided natural shelters for Indians throughout prehistory. Two major river systems are found here. These are the Mississippi and the Wisconsin, both of which have broad floodplains. There are numerous other rivers and streams in the region.

The eastern portion of Region 8 falls within the Southeastern Mesic Forest and Oak Savanna Glaciated Plain (Hole 1983). This is a level to gently rolling country that also includes glacial features such as moraines, kames, drumlins, and kettles. The area has extensive wetlands and a number of small and large lakes. Presettlement vegetation consisted of hardwood forests, oak-savannahs, prairies, and wetland plants. Two major drainages within Archaeological Region 8 are the Wisconsin and the Rock, both major tributaries of the Mississippi River.

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CONTINUATION SHEET

Section number E Page 1 Late Woodland Stage in Archaeological Region 8  
State of Wisconsin

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CULTURAL CONTEXT - REGION 8 CHRONOLOGY

Paleo-Indian (9500-8000 BC): The first human beings arrived in southern Wisconsin sometime after the last glaciation. Very little is known about these people besides the fact that they produced distinctive forms of stone projectile points and that they doubtlessly hunted now extinct forms of animals. It is widely believed that the Paleo-Indians were organized into small, highly mobile bands or family groups (Mason 1986).

Archaic (8000-500 BC): During this time, the climate gradually warmed, bringing about important changes in the composition of plant and animal life. Archaic populations were diversified hunters and gatherers that gradually evolved seasonal rounds within specific territories in order to optimize resource utilization. Elsewhere in the midwest, cultivation of indigenous plants has been documented for the later part of the Archaic. After 3000 BC, trade networks developed, involving exotic goods such as copper. Simultaneously, there was an elaboration of burial ceremonialism that often includes the interment of exotic goods with the dead (Stoltman 1986).

Woodland (500 BC-AD 1300): The early part of the Woodland tradition in southern Wisconsin is differentiated from the Archaic by the appearance of pottery and the construction of burial mounds (Boszhardt et al. 1986). The Middle Woodland (100 BC-AD 650) is distinguished by elaborate burial mound ceremonialism and the expansion of long distance trade networks. Early in this time, prehistoric cultures are clearly influenced by the spectacular "Hopewell" societies to the south of Wisconsin. During the later part of the Middle Woodland, the "Hopewell Interaction Sphere" collapses and prehistoric cultures become more regional in character (Salzer 1986).

Late Woodland (AD 650-1300): This stage is characterized by the appearance of the bow and arrow, use of distinctive forms of cord-impressed pottery, construction of animal effigy and geometric earthworks, the gradual adoption of maize horticulture, and, in at least some areas, the appearance of semi-sedentary villages that are frequently encircled with stockades (Hurley 1986; Salkin 1987a).

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Section number E Page 2 Late Woodland Stage in Archaeological Region 8  
State of Wisconsin

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Mississippian (AD 1000-Contact): In Wisconsin, Mississippian cultures are represented by intrusive Middle Mississippian sites from southern Illinois and distinctive local cultures referred to collectively as the Oneota. The Oneota maintained villages supported by maize-bean-squash horticulture and manufactured distinctive forms of shell-tempered pottery (Gibbon 1986). Outside of the recently discovered Fred Edwards Site in Grant County, evidence of a Middle Mississippian presence is scarce in Region 8 (Fred Finney, personal communication). Likewise, although Oneota pottery is found scattered at sites throughout the region, no major site has thus far been reported.

LATE WOODLAND IN REGION 8

Until fairly recently, conceptions of the Late Woodland stage in southern Wisconsin have been based, to a large extent, on excavations of burial mounds and seasonally occupied sites including rockshelters. As late as 1986, Late Woodland people in southern Wisconsin were still being characterized as hunters and gatherers who lived in fairly small bands and who were responsible for the construction of the ubiquitous effigy mound groups (Hurley 1986).

A new and more complex view of Late Woodland has emerged as a result of recent archaeological investigations throughout southern Wisconsin as well as in adjoining states. First, it is clear that at least some Late Woodland societies were relying on maize horticulture after approximately AD 800. Second, after circa AD 900 some Late Woodland people were living in fairly large, sedentary or semi-sedentary villages. These villages were frequently encircled with defensive stockades suggesting the existence of organized warfare. Finally, it is apparent that the Late Woodland stage can be subdivided into a number of phases that have cultural, temporal, and geographical parameters.

As presently conceived, the Late Woodland Stage emerges at approximately AD 650 from a local late Middle Woodland base. For the eastern part of southern Wisconsin, which includes the eastern part of Region 8, Salkin (1987a) has proposed a cultural sequence consisting of two phases. It is based on unpublished excavations at a number of sites and on previously published information.

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State of Wisconsin

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Horicon Phase (AD 650-1200): The Horicon Phase is the earliest of the Late Woodland cultures to emerge and is partly contemporaneous with the Kekoskee Phase. The Horicon Phase people were hunters and gatherers that moved seasonally and inhabited the area of southern Wisconsin from the Driftless Area east to Lake Michigan. They produced cord-impressed pottery of the Madison series (e.g. Madison Cord/Fabric Impressed). Horicon Phase sites include base camps situated near the interface of wetlands and rivers/lakes, briefly occupied upland camps, and rockshelters, used primarily in winter. The Horicon Phase people made the effigy mounds of southeastern and southcentral Wisconsin. The construction of effigy and geometric earthworks was an important part of their ceremonial life. Aside from mound groups and rockshelters, Salkin specifically places the Airport Site, near Madison within the Horicon Phase (Baerreis 1953; Salkin 1987a). The Horicon Phase disappears from the archeological record by AD 1200.

Kekoskee Phase (AD 800-1300): Between AD 800 and 900, Salkin believes that the Kekoskee Phase evolved from the Horicon Phase as a separate cultural entity under influences stemming from east of Wisconsin (Salkin 1987a). The basis of Kekoskee Phase economy was maize horticulture, although hunting, fishing, and gathering continued to be important. A feature of Kekoskee Phase Late Woodland life was the development of permanent villages that contain substantial houses. The villages were also frequently encircled with wooden stockades. Kekoskee Phase ceramics included the Madison series, but were dominated by new styles of cord-impressed and collared wares that were occasionally castellated (Goldstein nd). These included Aztalan Collared, Point Sauble Collared, and Hahn Cord Impressed wares. Aztalan Collared was defined from the Aztalan site in Jefferson County, Wisconsin (Baerreis and Freeman 1958) and has previously been dated to between AD 1000 and 1250. (Stoltman 1976). Village sites in Region 8 that relate to the Kekoskee Phase are all east of the Driftless Area. These include Stricker Pond I (Fay 1978; Salkin 1987b) which is located on an upland area south of Madison, the Dietz Site (Dietz et al 1956), and possibly the Camp Indianola Site (Dirst 1988), a stockaded village on the west shore of Lake Mendota. Salkin argues that the Kekoskee people were not responsible for construction of effigy mounds, although elsewhere Green and Behm (1980) have noted the occasional inclusion of collared ceramics in these mounds. The Kekoskee Phase disappears from the archaeological record by AD 1300.

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State of Wisconsin

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Keyes Phase (AD 600-1000): In the far western portion of Region 8, along and near the Mississippi Trench, recent surveys and excavations conducted by the University of Wisconsin have gone far to help refine the nature of the Late Woodland Stage in the Driftless Area. Here the Late Woodland has been related to the Keyes Phase, a variant of the Effigy Mound Tradition and dated to between AD 600 and 1000, although Finney and Meyer (1989) have quite recently defined a possible late Keyes component (post AD 1000) at a habitation site near Richland Center in Richland County. Keyes Phase ceramics include Madison series types as well as early Late Woodland types common to Iowa. Theler (1987) has recently investigated the subsistence patterns of Woodland people in the Driftless Area through excavations of sites located near Prairie du Chien as well as through a synthesis of previously excavated information from open air sites and rockshelters. He concludes that the Late Woodland people maintained a subsistence base that was heavily oriented towards hunting and gathering, although corn and other crops were grown late in the sequence. Settlement systems involved a bipartite pattern consisting of warm weather camps and extraction locales for the exploitation of major riverine and floodplain resources associated with the Mississippi and Wisconsin Rivers, and cold weather use of rockshelters in the uplands for hunting of deer and other game. He concedes, however, that there may have been Late Woodland peoples living throughout the year in the interior of the Driftless Area to whom this model may not apply.

Arzigian (1987) has recently focused on the role of horticulture in Woodland cultures by studying floral remains recovered from sites in the Driftless Area. She concludes that cultivation of domesticated plants began as early as AD 200 and that this involved squash and sumpweed. Corn was first introduced from the south near the end of the Late Woodland sequence at circa AD 1000. Interestingly, she finds no evidence that the cultivation of maize immediately changed the mobile Late Woodland settlement patterns and suggests that cultivation was simply incorporated into existing patterns to help even out environmental variability. Theler has provided evidence that during this time Late Woodland populations were intensifying their resource extraction strategies, perhaps because of population increases or pressure (Theler 1987). The adoption of maize horticulture here and elsewhere may have been in response to a need to increase the productivity and reliability of the resource base.

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State of Wisconsin

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Unlike the eastern portions of Region 8, sites with significant amounts of late Late Woodland collared ceramics are uncommon (Stoltman 1976; Theler 1987). Village sites analagous to those of the Kekoskee Phase appear to be lacking - with one notable exception. The Fred Edwards Site, located in Grant County, is a stockaded village occupied by people who were clearly intrusive to Wisconsin (Fred Finney, personal communication). Ceramics include Illinois and Iowa Late Woodland, and Middle Mississippian types from southern Illinois. The site is dated AD 1050-1150. As it stands, the post AD 1000 Late Woodland chronology of the southwestern part of the state needs further refinement.

In summary, early Late Woodland societies in Region 8 were a part of a larger cultural system that was characterized by a common material culture and a basic ideological system most visibly represented by the construction of Effigy Mounds. Within this system, evidence suggests that there was a great deal of local variation in subsistence and settlement patterns that reflected local environmental conditions as well as socio-economic relationships with other midwestern societies. Later in the sequence, at least some Late Woodland people adopted more complex socio-economic patterns that included maize horticulture and fairly large and occasionally stockaded villages. It is probable that this change reflected the diffusion of new ideas and/or people from other regions. However, the specifics of synchronic and diachronic cultural variation within the Late Woodland Stage have yet to be adequately worked out.

#### PROPERTY TYPES AND RESEARCH ISSUES

A number of property types are associated with the Late Woodland in Region 8. These include villages, open air campsites, rockshelters, specialized resource extraction areas and mound groups. Collectively, these site types have a potential to yield important information concerning the following research topics:

1) Origins of Late Woodland. As presently conceived, Late Woodland in the Driftless Area of Region 8 is perceived as an in situ development from a Middle Woodland (Millville Phase) base. Further work at early Late Woodland sites will help define ceramic styles that will identify the roots of Late Woodland societies. Analysis of ceramic and lithic artifacts, as well as of faunal and floral remains will help explain cultural changes that distinguish Late Woodland from its Middle Woodland antecedents. Information from all site types, with the possible exception of specialized resource extraction sites, can be used to answer this question.

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2) Late Woodland Phases and Chronology. At present, radiocarbon dates for Late Woodland sites in Region 8 support range between AD 650 and 1300, although both earlier and later dates have been advanced. Additional radiometric dating will help refine Late Woodland chronology. Further excavations at Late Woodland sites will also help to better define geographic and temporal variation among Late Woodland societies. Data from all site types can potentially contribute to an answer to this problem.

3) Settlement and Subsistence Practices. Until fairly recently, Late Woodland populations in the Region were generally characterized as mobile hunters and gatherers with a settlement pattern consisting of seasonal encampments of variable duration. Recent work has demonstrated that maize horticulture was being practiced late in the Late Woodland sequence and that some Late Woodland people were living in at least semi-permanent villages. The reasons why human populations at various times in various parts of the world shifted to horticulture has long been an important anthropological research question. The Late Woodland case can provide further insights into the problem. Analysis of Late Woodland habitation sites can help document the shift from hunting and gathering to horticulture, internal settlement organizational plans, and the structure of the overall Late Woodland settlement system. In so doing, it can identify changes in the functions of different settlement types. Analysis of bone and teeth from human burials can provide information on dietary emphasis, including changes in health patterns. Data from all site types are needed to answer these questions.

4) Interregional Relationships. The appearance of collared cord-impressed ceramics late in the Late Woodland sequence indicates influences from south and east of Wisconsin. Additionally, after about AD 1000 ceramics and other characteristics of the complex Middle Mississippian culture of southern Illinois appear at sites throughout the state. At about the same time, the Oneota culture emerges and dominates some parts of the state, although apparently not in Region 8. The relationships among contemporaneous Late Woodland, Oneota, and Middle Mississippian cultures is one of the most intriguing research problems in late prehistoric studies in the midwest. Further investigations of ceramic styles and non-local artifacts found at Late Woodland sites can help clarify these relationships. Information from all site types can be used to answer this question.

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5) Fate of the Late Woodland People. There is currently little evidence that the Late Woodland Stage in Region 8 persisted beyond ca. AD 1300. No habitation sites have been located that post-date this time, and Benn's (1979) analysis of radiocarbon dates from effigy mounds suggest that construction of these monuments ceased by AD 1100. What exactly happened to Late Woodland people and when is not clear. Stoltman (1985) has suggested that they all evolved into the Oneota through direct and indirect Middle Mississippian influences. While this may be so, the virtual absence of Oneota sites in Region 8 suggests a more complicated scenario. Continued research at Late Woodland sites, especially habitation and mound sites, as well as surveys for other late prehistoric occupation sites is clearly needed to resolve this important dilemma.

CONDITION OF LATE WOODLAND SITES IN REGION 8

According to Wisconsin's Archaeological Site Inventory, several hundred archaeological sites with Late Woodland components have been recorded in Region 8. Seventeen of these, mostly mound groups and rockshelters, are currently on the National Register of Historic Places. Because the site inventory spans nearly 80 years of reporting, and because only a few areas of the region have been systematically surveyed, an accurate assessment of the condition of Late Woodland sites is difficult to make. However, a number of observations can be made. First, Region 8 is heavily agricultural. Over a century of intensive farming has damaged, to one extent or another, the vast majority of prehistoric archaeological sites. Second, urban residential and recreational development in the region has concentrated on major river valleys and lakes as well as on adjacent upland areas - the very locations where substantial Late Woodland habitation areas and mound groups can be expected to be found. Thus modern development has undoubtedly destroyed many key sites - and continues to do so.

One specific study undertaken by Robert Peterson (1979) and funded by a Historic Preservation subgrant illustrates the points outlined above. Peterson conducted an archival search and a limited field survey investigating the present condition of all effigy mound groups recorded by the State Historical Society of Wisconsin for the southern part of the state. He determined that at least 80% of these sites had already been destroyed. In Dane County alone, he found that only 209 of an original count of 1094 individual mounds survived, and many of the remaining mounds have been damaged by construction, landscaping, and looting. Mounds have continued to disappear even after his study.

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## F. ASSOCIATED PROPERTY TYPES

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I. Name of Property Type: Late Woodland Mounds

II. Description:

Late Woodland mound groups consist of low earthen tumuli that are conical, linear, or constructed in the shapes of birds, reptiles, amphibians, mammals, and other as yet unidentified forms. Typically mound groups contain a variety of these forms. Wisconsin is the heartland of the so-called Effigy Mound Tradition, although these mounds have been found in eastern Iowa, southeastern Minnesota, and northern Illinois. Effigy mounds are typically located on high places overlooking major bodies of water, although there are many important exceptions. Archaeological excavations have indicated that some mounds contain human burials, while others do not. The mounds also occasionally contain artifacts, pits, hearths, and stone concentrations or "altars" (Hurley 1986). Radiocarbon dating indicates that effigy mounds were constructed between AD 650 and 1300, although both wider and more restricted temporal ranges have been suggested (Benn 1979).

III. Significance:

X See continuation sheet

IV. Registration Requirements:

Studies have indicated that over 80% of the effigy mounds that once existed in the region have been destroyed (Peterson 1984). As a result of this, all surviving mounds are potentially eligible for listing on the National Register either singly or in groups. To be eligible for listing in the National Register of Historic Places, Late Woodland mounds must meet the following requirements.

1. Physical Appearance: The site must have an effigy, conical, or linear earthen mound, or a group of such mounds.
2. National Register of Historic Places Criteria: The site must be eligible for listing on the National Register of Historic Places on the basis of Criterion D, in that it yields or is likely to yield information important in prehistory.
3. Establishment of antiquity: The site must be of demonstrably prehistoric construction, on the basis of associated artifact types, radiocarbon assays, history of discovery, comparability to dated mounds, or by other reasonable and appropriate means.
4. Integrity: It must be demonstrated that single mounds or mound groups maintain sufficient integrity to have the potential to provide important information on the Late Woodland Stage and the Effigy Mound Tradition, as outlined in Section E. Integrity considerations shall be evaluated at either the level of both individual mounds and the mound group as a whole, when applicable, taking into account the fact that a portion of the original mounds in a mound group still has the potential to yield information about the mound group as a whole. Reconstructed mounds are not eligible for listing in that they lack integrity.

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       See continuation sheet for additional property types

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SIGNIFICANCE: Late Woodland Mounds

Effigy mounds are among the most visible yet enigmatic prehistoric manifestations on the Wisconsin landscape. It is estimated that at one time individual mounds associated with the so-called Effigy Mound Tradition numbered in the thousands and could be found in groups of highly variable sizes (Hurley 1986). However, recent studies have also indicated that over 80% of effigy mounds that once existed have been destroyed by modern land use (Peterson 1984).

Wisconsin effigy mounds have been studied by archaeologists for over a century. Yet, as Hurley has recently pointed out in an article in Introduction to Wisconsin Archaeology: Background for Cultural Resource Planning (1986: 283-301), very basic questions still remain, such as: When were they built? Why were they built? What do the effigies represent? Additionally, while archaeologists are confident that the mounds were built by Late Woodland people, the socio-economic systems of these people and regional and temporal differences in these systems have not been fully described and explained. The study of surviving mound groups will help address all of these important issues.

As for the dating of effigy mounds, Hurley (1975) has garnered evidence to suggest that effigy mounds first appeared as early as AD 300 and were still being built at the time of European contact. Benn (1979) has analyzed radiocarbon dates from mound excavations and argues for a more restrictive temporal range of AD 650-1200. Recently, James Stoltman (personal communication) has suggested an even more narrow dating of between AD 800 and 1100. Mounds and mound groups can be expected to contain radiometrically datable material such as charcoal and human bone and therefore have the potential to contribute to the resolution of the problem.

Several of the most vexing questions relating to effigy mounds concern the function of effigy groups and the meaning of the effigies themselves. That they are at least to some extent associated with mortuary behavior is clear from the fact that many contain human burials. However, the fact that not all mounds even within a particular group have human interments suggests that mound building in this prehistoric society transcended simple concern for burial of the dead. In light of the fact that mounds are now protected as burial places under Wisconsin state law, it is relevant to point out that significant information concerning Late Woodland peoples can be gained from Effigy Mound groups through non-destructive studies.

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One prevalent hypothesis is that each mound group represents a periodic, perhaps even annual, gathering place for a social group that for most of the time is dispersed in small family groups over a wide territory (Mallam 1976). In this view, mounds are constructed in the context of a variety of religious, social, political, and economic activities that broadly served to integrate an otherwise fragmented social group. Burial of the dead is simply one of these activities. The mound groups themselves serve as visual signifiers of a particular territory and of the social group that occupied it.

For instance, Clark Mallam has studied the location and arrangement of Effigy Mound groups as well as Effigy Mound types in Iowa and has gained some insights into Late Woodland social systems and ideology as a result. By analyzing the geographical distribution of Effigy Mound types, for example, he concludes that a number of separate social groups were responsible for Effigy Mound construction in northeastern Iowa (Mallam 1976).

In a more recent essay, Mallam (1984) suggests that the meaning and function of Effigy Mound groups can be addressed through such analysis aided by ethnographic analogy. He observes, for example, that Effigy Mound groups tend to be located near zones of predictable and annual occurring resources. This suggests to him that a complex set of ideological, social, political, and economic relationships may be involved in mound construction. He suggests that mounds "are not so much burial sites as they are metaphorical expressions about the idealized state that should exist between nature and culture—balance and harmony." In his view, the Late Woodland people were expressing their "cosmological convictions" by "sacralizing the earth" (Mallam 1984:19), through the construction of mounds,

In other words, they consecrated the mosaic environment with its varied resources and ecological relationships by defining it as sacred space. If the rhythm -balance and order—of this region could be maintained, the resources on which humans depended would continue. In this sense, mound building may be perceived as an ongoing world renewal ritual, a sacred activity humans entered into in order to insure regular and consistent production of natural resources. (Mallam 1984:19)

As to the effigies themselves, researchers have speculated that they represent clan affiliations (Radin 1923; Benn 1979), star constellations (Hurley 1986), or elements of nature critical to life - air (birds), earth (bears and other mammals), and water (lizards, turtles, etc.) (Mallam 1976). Less interpretive work has been done on the meaning of conicals and linears.

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The mapping of mound groups and mound alignments have convinced others that they functioned primarily as calendric devices and recorded symbolic geometries. (Scherz 1987).

Clearly, much additional research is needed to clarify these important issues. Such research must consist of comparative analysis of mound groups, analysis of the internal structuring of the groups, investigation of activities associated with the mounds, and the careful application of ethnographic analogies drawn from more recent American Indian culture. Surviving mounds and mound groups can contribute important archaeological information to this research concerning the nature of the Effigy Mound Tradition in southwestern Wisconsin.

Archaeologists have linked effigy mounds to Late Woodland people who made a distinctive form of pottery broadly referred to as Madison Ware, and whose material culture also included such elements as bows and arrows. However, the socio-economic system or systems of these people is not well understood. For example, the social system of Effigy Mound people have been characterized as small bands of highly mobile hunters and gatherers (Mallam 1976; Storck 1974). However, there is increasing evidence to suggest that at least some Late Woodland people had adopted maize horticulture and a more sedentary existence (Arzigian 1987; Salkin 1987a; Goldstein nd).

A clearer picture of Late Woodland society will emerge as more habitation sites are investigated. Analysis of the styles of artifacts which are occasionally found associated with the mounds will also help clarify regional and temporal social relationships. This is important, since it has recently been proposed that not all Late Woodland populations participated in the construction of effigy mounds (Salkin 1987a). Charcoal and other organic material associated with ceremonial activities can provide radiocarbon dates that will further refine the temporal span of mound construction. Since Late Woodland mounds frequently contain burials, analysis of teeth and bone chemistry can provide insights into the changing diet of the Effigy Mound people.

Benn (1979) and Goldstein (Ritzenthaler 1985) have suggested that the actual locations of mound groups may provide clues to population movements related to seasonal resource exploitation. Benn (1979) has hypothesized that Late Woodland people gathered during the summer in such areas where there would have been abundant floodplain and lacustrine resources, and has suggested that mounds were constructed at that time. Further analysis of mound group locations along with the information from Late Woodland habitation sites will help identify patterns of land use and subsistence for the effigy mound builders in Region 8.

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G. SUMMARY OF IDENTIFICATION AND EVALUATION METHODS

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Discuss the methods used in developing the multiple property listing.

The multiproperty listing is based on information from the Wisconsin Archaeological Site Inventory as well as published and unpublished manuscripts, including the results of excavations and numerous surveys conducted throughout the region and the state. An overview of these sources is provided below.

X See continuation sheet

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x See continuation sheet

Primary location of additional documentation:

<u>x</u> State historic preservation office	_____ Local government
_____ Other State agency	_____ University
_____ Federal agency	_____ Other

Specify repository: \_\_\_\_\_

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I. FORM PREPARED BY

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name/title	Robert Birmingham, State Archeologist	date	April 1989
organization	State Historical Society of Wisc.	telephone	(608) 262-0991
street & number	816 State Street	state	WI
city or town	Madison	zip code	53706

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The earliest surveys of mounds in Wisconsin were non-systematic undertakings by antiquarians, but they did produce many excellent site maps of mounds and mound groups that are extremely useful today. Many of the mounds mapped in the mid to late 19th century have been destroyed and others altered by land use practices, making these early documents our only source of information on many sites. Foremost among these early investigators are Lapham (1855), Lewis (n.d.), Thomas (1894) to a lesser extent, and later Brown (n.d.).

Hurley (1975) provides an excellent overview of this early period of mound exploration in Wisconsin. The main question asked by investigators at this time was "Who made the mounds?" Thomas' investigations (1894) effectively answered that question, demonstrating that mounds were constructed by Native Americans. Increasingly, questions turned to a discussion of which particular Native American groups made mounds (cf. Radin 1911, 1923).

By the 1920's, the Milwaukee Public Museum began a systematic survey of mounds in Wisconsin (Barrett and Skinner 1932; McKern 1928, 1930; Nash 1933; among others). Excavations were conducted at both effigy and non-effigy mounds. From these investigations, McKern concluded that the Winnebago did not exclusively construct the effigy mounds. The research also culminated in the publication of a trait list material culture items associated with the Effigy Mound Tradition (McKern and Ritzenthaler 1949).

After the Second World War, research continued at mound sites, but increasingly shifted toward Late Woodland habitation sites. Baerreis (1953a) excavated the first habitation site felt to be associated with the Effigy Mound Tradition, the Blackhawk Village site. Hall (1950) also contributed to the classification of Woodland ceramic types. Rowe (1956) synthesized the extant data on Effigy Mound Tradition burial practices using ethnographic analogy. Finally, Hurley (1975) investigated both mound and habitation sites and provided new interpretations of dating and cultural processes for the Effigy Mound Tradition.

Recent research has focused on archival investigation such as Peterson (1979) and mapping of previously identified mound sites. Still, unknown mounds continue to be reported (Lowe 1989). Excavations at habitation sites has increased (Baerreis 1953b; Finney and Meyer 1989) and has contributed to the identification of a new site type, the palisaded village (Dirst 1987; Salkin 1987) for the Late Woodland Stage.

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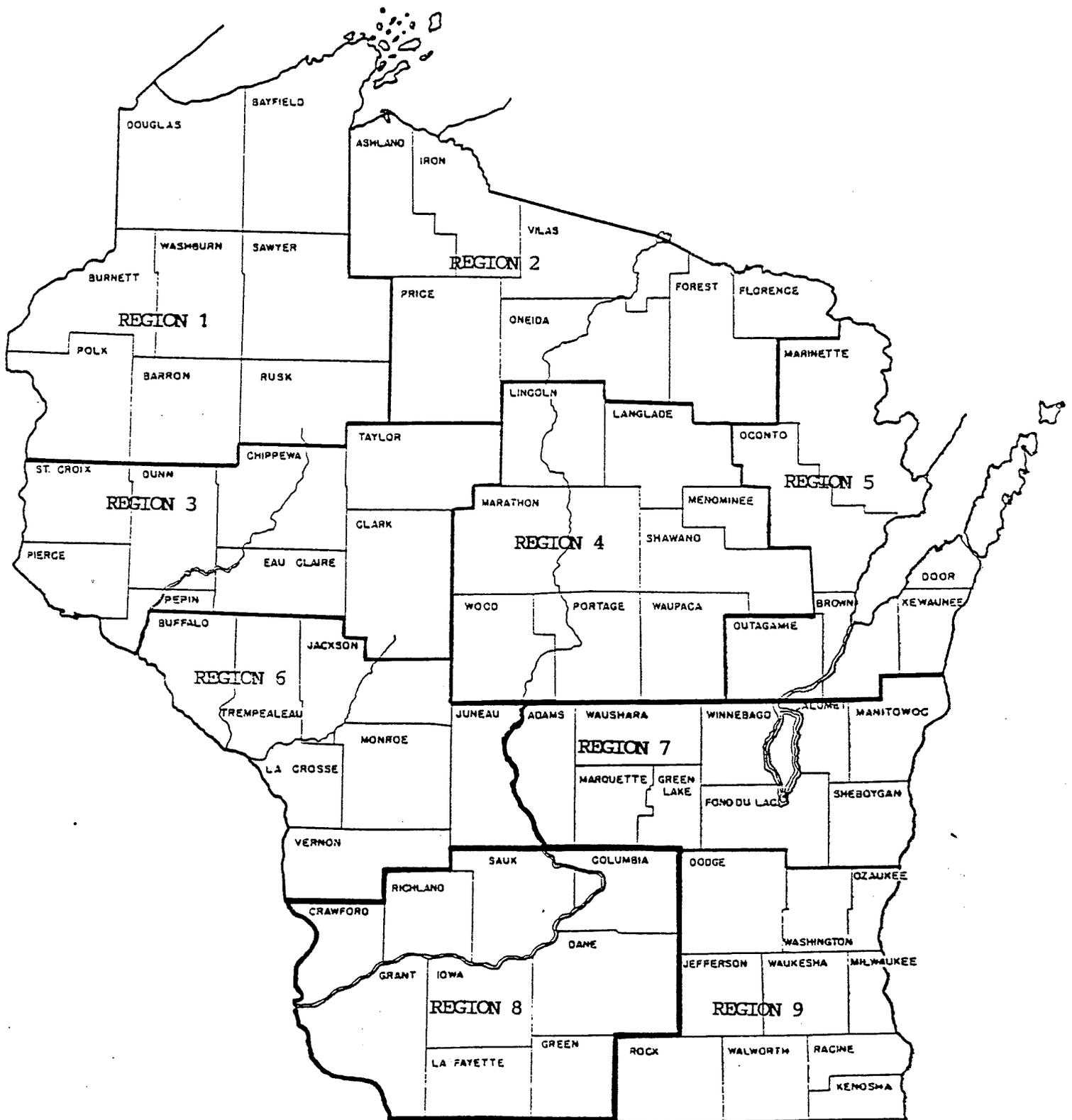


Figure 1: Archaeological regions in Wisconsin.

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# Landmark Nomination

## 1. Name

historic

and/or common

## 2. Location

street & number

city, town

congressional district

state

WISCONSIN

code

055

county

## 3. Classification

### Category

district  
 building(s)  
 structure  
 site  
 object

### Ownership

public  
 private  
 both

### Public Acquisition

in process  
 being considered

### Status

occupied  
 unoccupied  
 work in progress

### Accessible

yes: restricted  
 yes: unrestricted  
 no

### Present Use

agriculture  
 commercial  
 educational  
 entertainment  
 government  
 industrial  
 military

museum  
 park  
 private residence  
 religious  
 scientific  
 transportation  
 other:

## 4. Owner of Property

name

street & number

city, town

\_\_\_\_\_ vicinity of

state

ZIP

## 5. Location of Legal Description

(In County Courthouse)

courthouse, registry of deeds, etc.

street & number

city, town

state Wisconsin

## 6. Representation in Existing Surveys

title

date \_\_\_\_\_ federal \_\_\_\_\_ state \_\_\_\_\_ county \_\_\_\_\_ local

depository for survey records

city, town

state

---

## 7. Description

---

**Condition**

excellent  
 good  
 fair

deteriorated  
 ruins  
 unexposed

**Check one**

unaltered  
 altered

**Check one**

original site  
 moved date \_\_\_\_\_

---

**Describe the present and original (if known) physical appearance**

# 8. Significance

(Continue on separate sheets if necessary)

Period	Areas of Significance—Check and justify below			
<input type="checkbox"/> prehistoric	<input type="checkbox"/> archeology-prehistoric	<input type="checkbox"/> community planning	<input type="checkbox"/> landscape architecture	<input type="checkbox"/> religion
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> archeology-historic	<input type="checkbox"/> conservation	<input type="checkbox"/> law	<input type="checkbox"/> science
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> agriculture	<input type="checkbox"/> economics	<input type="checkbox"/> literature	<input type="checkbox"/> sculpture
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> architecture	<input type="checkbox"/> education	<input type="checkbox"/> military	<input type="checkbox"/> social/
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> art	<input type="checkbox"/> engineering	<input type="checkbox"/> music	<input type="checkbox"/> humanitarian
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> commerce	<input type="checkbox"/> exploration/settlement	<input type="checkbox"/> philosophy	<input type="checkbox"/> theater
<input type="checkbox"/> 1900-	<input type="checkbox"/> communications	<input type="checkbox"/> industry	<input type="checkbox"/> politics/government	<input type="checkbox"/> transportation
		<input type="checkbox"/> invention		<input type="checkbox"/> other (specify)

Specific dates

Builder/Architect

Statement of Significance (Give specific sources for all statements of fact.)

