

Prepared for Dodge County
by MacDonald & Mack Architects
with Mattson Macdonald Young Structural Engineers &
10,000 Lakes Archaeology, Inc.

July 29, 2016



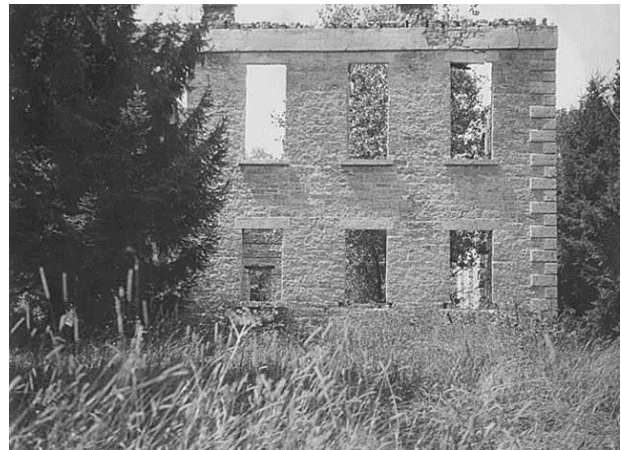
This publication was made possible in part by the people of Minnesota through a grant funded by an appropriation to the Minnesota Historical Society from the Minnesota Arts and Cultural Heritage Fund. Any views, findings, opinions, conclusions or recommendations expressed in this publication are those of the authors and do not necessarily represent those of the State of Minnesota, the Minnesota Historical Society, or the Minnesota Historic Resources Advisory Committee.

THE WASIOJA SEMINARY RUINS HISTORY

Established in 1857, in the public square of the village of Wasioja, the Wasioja Seminary opened one year later under the instruction of the Free Will Baptists, namely Reverend A.D. Williams. Built in local Wasioja limestone, the two story structure was roughly 45 feet deep and 60 feet long. Each floor had a central hall that had a pair of classrooms to either side. Thirty-six windows provided illumination to the eight classrooms of the Seminary. Over one thousand members of the community attended the official dedication in 1860, at which point the building was called Northwest College. Before the disruption of the Civil War the Seminary was well attended with over 300 students the first year it was open but many students and faculty left to fight in the war led by Professor Clinton A. Cilley. Fighting as Company C of the 2nd Minnesota more than three quarters of the Seminary students who enlisted lost their lives in battle. The seminary changed names and hands over the years, becoming the Groveland Seminary in 1868 and the Wesleyan Methodist Seminary in 1872. As the Wesleyan Methodist Seminary, under the direction of Principal Lorenzo Hand, the school was known for its library of over 500 books that brought in students from as far away as Ohio. After closing in 1894, due to pressures from the new free public high school in Mantorville, the building was briefly used by Picke Billy Williams for a pickle factory before sitting vacant until a large fire in 1905 left it in ruins despite the best efforts of the village bucket brigade. After the fire the ruins were deeded to Dodge County by Reverend A.B. Gould with the intent to preserve the ruins, an effort still ongoing today. The ruins are part of a State Historic District that was designated in 1971 and listed on the National Register of Historic Places in 1975.



1890 meeting outside Wesleyan Methodist Seminary provided by MNHS



1910 ruins of the Seminary provide by MNHS

Sources

- Seminary Park. Minnesota Dodge County. 2013. http://www.co.dodge.mn.us/departments/parks_and_trails/seminarypark.php
- Lewis, Lois M. Wasioja manuscript. Minnesota Historical Society: Manuscripts Notebooks P1120-2, circa 1952.

PRESERVATION APPROACH

There are several ways in which these ruins can be stabilized. In order to ascertain the best methods and details for preservation, we have evaluated them based on several criteria:

1. The preservation should meet the Secretary of the Interior's Standards for Preservation.

There are ten standards in the Secretary of the Interior's Standards for Preservation. The standard that will likely have the biggest impact on the experience of the visitor is having the new interventions distinguishable from the historic construction. We view this standard as meaning that the treatment of the ruins be relatively subtle. Of course there will be significant, additional structure required to brace and support the remaining walls which in the near-term will not be subtle. There will also be interventions required to repair the masonry walls and eliminate as much water infiltration as possible.

The following definition and standards of Preservation as a treatment are taken directly from the National Park Service:

Preservation as a Treatment

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.

Standards for Preservation

1. A property will be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces, and spatial relationships. Where a treatment and use have not been identified, a property will be protected and, if necessary, stabilized until additional work may be undertaken.
2. The historic character of a property will be retained and preserved. The replacement of intact or repairable historic

materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

3. Each property will be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve existing historic materials and features will be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. The existing condition of historic features will be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material will match the old in composition, design, color, and texture.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

2. The preservation should be long-lasting and durable.

Since these are ruins that will someday be a part of the park system, they will be well-visited, but they won't have the type of surveillance that an occupied building would have. We recommend that interventions be as long-lasting and durable as possible. There is a gentle balance to be met here. Deterioration of building materials is inevitable. While we recommend that preservation measures be durable, they must be less durable than the historic masonry they are intended to protect and stabilize.

3. The preservation should be affordable.

A stabilization treatment of the ruins can only be effective if it is attainable.

CONDITION ASSESSMENT AND TREATMENT PLAN



*Wasioja Seminary Ruins
(5/20/2014)*



*Window Opening at Wasioja
Seminary Ruins (5/20/2014)*

Overall, the ruins are in fair but precarious condition. This assessment is, of course, relative to the fact that we are looking at the ruins, not at the building they once were. Because of the precarious nature of the ruins, it is not possible to assume personal safety around the walls. Our inspection of the ruins was limited to what we could see from the ground and with minimal disturbance to the walls.

While the ruins are essentially entirely structural and this report is a collaborative effort between MacDonald & Mack Architects and Mattson Macdonald Young Structural Engineers each firm has an area of focus by discipline. We have integrated the two disciplines and the recommendations of 10,000 Lakes Archaeology into one report for ease of reading, but we recommend also reviewing the entire structural and archaeological reports which can be found as appendices to this report.

One of the biggest causes of deterioration in buildings as well as ruins is water. Water enters into the walls through small cracks and voids. During spring and fall the temperature fluctuates above and below freezing frequently. Water infiltration is especially damaging because the water that easily traveled into the walls during warm temperatures freezes. Since ice occupies more space than water, the ice forces adjacent materials out of its way. This causes small cracks to become larger cracks and it causes stones to break. In the case of these ruins, it can be catastrophic, causing window lintels to fail and walls to fall. Most of our recommendations are aimed to mitigate water infiltration and damage.

Our treatment plan is a combination of a secondary structural system to stabilize the walls and masonry interventions to prevent as much water from entering the walls as possible. In this report, we will outline the condition of several components of the ruins with general recommendations for their preservation.

GENERAL CONDITIONS

The walls of the ruins are tall and slender and there are sections missing which are crucial to structural integrity. This makes them delicate. A secondary, structural system to support the walls is necessary both for preventing any further collapse and for allowing masons to be able to safely carry out interventions to make the walls more water resistant. The secondary, structural system is also necessary in order to assure a reasonably safe environment for archaeological investigation. Neither activity will be safe until the walls are stabilized.

GENERAL RECOMMENDATIONS

We recommend stabilizing the structure prior to commencing any other activities in or around the ruins including masonry restoration and archaeological investigations. Since these activities will likely be completed during the same construction period it is only mentioned in this report for clarity.

We recommend approaching the stabilization of the ruins in two phases:

1. The first phase would be the treatment plan found in this report: a temporary secondary, structural system and masonry interventions. An archaeologist should monitor all earthmoving activities during the installation of the temporary structural system.
2. The second phase would be a permanent secondary, structural system which would be less visually obtrusive and longer-lasting than the structural system in the first phase. This phasing approach will also allow for proper safety for archaeological investigations inside the ruins.

We recommend viewing all of the treatment recommendations in this report as holistic or parts of a whole. After the walls are stabilized with additional structural members, parts of the building that had been inaccessible and/or unsafe will be both accessible and safe. It will be possible to see what is unseen now. It is likely that with more information, a more complete treatment plan will be possible. At that point, we recommend revisiting the treatment recommendations. Regardless of the specifics of the treatment plan for Phase 2, an archaeologist should investigate the interior of the ruins prior to the removal of any debris.



View of interior of ruins through back door opening (5/20/2014)

It will be necessary to have the construction phase of the preservation be overseen by both an architect and a structural engineer who have experience with historic masonry structures. An archaeologist should provide guidance on conduction stabilization-related construction activities to avoid disturbance to archaeological evidence, in addition to conducting archaeological investigations inside the ruins prior to removal of debris.

We recommend commissioning a laser scan of the ruins. A laser scan will minimize the risk to personal safety, document the existing structure, and provide important information. We recommend scanning the ruins in the early spring of the same year that the initial preservation measures will be undertaken. That will give the most accurate information for the architect, engineer, and contractor involved in the preservation construction project. It will eliminate many unknowns, increase safety, and will likely result in a more competitive bidding environment.

We recommend creating a preservation language for the various treatments required to stabilize the ruins. This language would carry through each of the interventions and repairs and allow visitors to the site to be able to discern between the historic ruins and the new work. This would also allow the story of the site to be told in a simple and elegant manner.

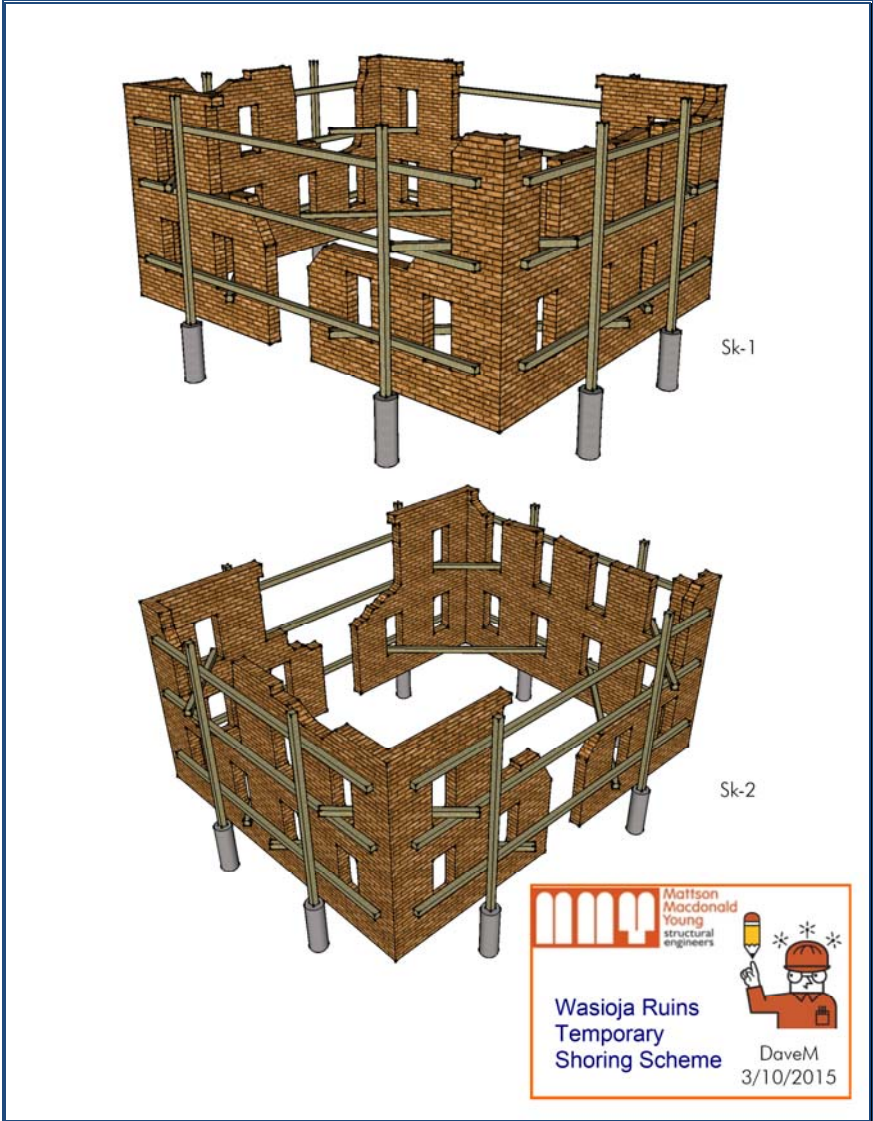
SPECIFIC RECOMMENDATIONS FOR STRUCTURAL TREATMENT OF WALLS

Mattson Macdonald Young Structural Engineers

- Install a small concrete pier at the building perimeter, approximately 2 each side of the building. The piers will serve as the base for vertical shoring columns. These piers would be installed with light equipment such as a bobcat with little adverse effect on the building. To avoid damage to archaeological evidence however, hand excavation or mechanized augering is recommended when it does not adversely impact safety.
- Thread timber shoring beams diagonally through the first floor window openings across each building corner. The shoring beams can temporarily rest on the sills of the openings.
- At the first floor opening level, place a horizontal shoring beam against the face of the wall and resting on the protruding ends of the diagonal beams. Connect the horizontal beam to the diagonal beam with thru bolts or steel angles and lag screws.
- Place a timber column over each of the piers. The column would stand away from the building perhaps 8" to 12" and would extend to the height of the top of the walls. The columns are to be mechanically anchored to the concrete piers and connected to the horizontal shoring beam at the first floor window location. Temporary bracing of the tops of the columns may be needed to keep them plumb.
- Place horizontal shoring beams against the face of the wall at the level of the second floor window sills. Connect these beams to the columns.
- Thread timber shoring beams diagonally through the second floor window openings across each building corner. The shoring beams rest on the horizontal shoring beam placed at this level and are connected with thru bolts or steel angles and lag screws.
- Place horizontal shoring beams against the face of the wall just below the level of the top of the walls. Connect these beams to the columns.

- Using tie down straps (similar to those used to anchor cargo and equipment on flatbed trucks.) with a ratchet assembly, loop the straps around each pier, between window openings, and any location that can be used to anchor the wall to the timber beams and columns at the exterior face of the wall.
- Add posts and shoring in openings with damaged, missing or deteriorated lintels.
- When this bracing is installed, anchored and strapping has been placed and tightened, the workers can enter the building interior to remove debris. The extent of the basement area can be verified and any framing over the basement can be inspected and stabilized.
- Once the interior is cleaned and the first floor framing is stabilized, a shoring system, similar to the assembly placed at the building exterior could be duplicated on the inside face. A more permanent and less unsightly method of “strapping” the walls to the bracing can be used in lieu of cargo tie downs. The bracing at the exterior face could then be removed.
- New lintel members will be needed under the stone wall, behind the existing stone veneer lintels. The new lintels could be 8” or 6” steel tube members placed in the cavity that remains from the wood lintel that was at the inside face of the wall. A plate or angle, welded to the tube would extend under the stone veneer member and be grouted tight to the underside of the stone.

The following drawings Sk-1 and Sk-2 illustrate the method described above. This is by no means a final designed solution, only a schematic suggestion of one possible method for consideration.



EXTERIOR FACE OF WALLS



Quoins at corner (left) and square beaded joint in facing stone (right). (5/20/2014)



Biological growth on ruins (seen at window sills and top of wall in this image). (5/20/2014)



Missing quoins (bottom three stones at corner in this image). (5/20/2014)

Our biggest concern while stabilizing these ruins is to eliminate water infiltration as much as possible. The exterior face of the walls of the ruins were designed and constructed to shed water. Repairs to the exterior façade are fairly straight-forward.

We recommend that the exterior face of the wall be completely repointed. The joint for the majority of the exterior face is a square, beaded joint. It is an interesting one that should be replicated. It is uncommon and will require a masonry contractor with experience working on historic buildings. The joint between the quoins at the corners of the building have a narrower, simpler joint. That joint should be replicated as well.

The mortar should match the existing in color, texture, and strength. Given the age of the building, it is likely that a matching mortar will not be a standard mix, but rather a specific mix with local sand. The mortar should have a lower strength than the adjacent masonry. Masonry walls are designed so that the mortar can be replaced indefinitely. The masonry units are intended to last. To achieve that, the mortar needs to be the sacrificial material in the wall.

We recommend leaving a section of the exterior face of the wall intact as-is. If there is a section of the face stone that has relatively sound mortar joints, it would be interesting to protect and retain those joints as an example of the craftsmanship of the original masons. It would be a nice way to help visitors interpret the ruins and their place in history.

We recommend using the gentlest means possible to clean the walls. There are a variety of stains on the structure. Most of which are not a serious cause for concern. There are both atmospheric staining and biological staining on the ruins. Biological staining or growth is damaging to masonry walls, but at an incredibly slow rate. That type of growth shows the passage of time and is expected on ruins. If there was no other work being done on the ruins, we would not recommend removing the biological growth. However, we are recommending 100% repointing which will necessitate the removal and replacement of the existing (growth-covered) mortar and cleaning of the adjacent masonry. In this instance, we feel that it is advisable to remove the biological growth to avoid a patchy appearance on the stone. We

expect that, with time, the biological growth will return at which time the necessity to remove the growth should be revisited.

At this time, we do not recommend treatment to the face of the facing stones. The limestone face stone is weathered and eroded, but still appears sound. We recommend a close inspection after structural stabilization to assure that this is indeed the case.

MISSING ELEMENTS

We recommended limited rebuilding of missing masonry elements. While there are areas of the exterior face of the walls that are in good condition, there are other areas where mortar is cracked or missing from the joints. There are also some instances of either missing face stone or back up masonry while the other remains intact.

We recommend that areas of rebuilding be chosen on a case by case basis as necessary to ensure structural stability. One such area will likely be over the top of the first floor window lintels. Enough of the masonry above the windows will need to be rebuilt in order to allow the remaining wall above it to rest on the new steel lintel. There is evidence of such measures taken in the 1994 stabilization. The treatment of the window lintels is discussed in the structural support recommendations of this report.

We recommend that the existing masonry be repointed without replacing the missing quoins. There are a few missing quoins at a corner of the building, perhaps in the area where the corner stone was removed.

INTERIOR FACE OF WALLS

The real challenge will be with the interior faces of the historic, masonry walls. These surfaces were never intended to be visible much less waterproof.

There are several areas of the interior faces of the walls that are particularly vulnerable to water infiltration including joist pockets and slits in the masonry where the nailing strips for the lath were once embedded. These details are interesting clues about the original construction and assembly. Any treatment to prevent water from infiltrating at these voids should be carefully considered so that it does not change the information they impart about how the building was originally constructed.



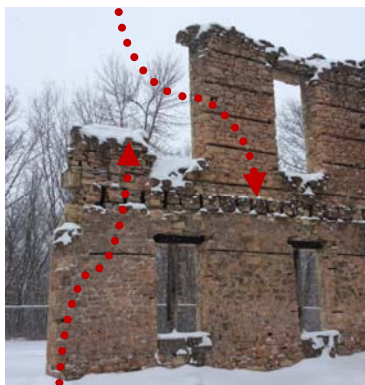
Interior face of wall (5/20/2014)

Interior face of wall:

- Top photo 5/20/2014
- Middle photo 2/25/2015
- Bottom photo 5/20/2014



Joist pocket once held the second floor joists



Coating/cap at top of wall



While simply filling these voids with brick or stone similar to those adjacent would be affordable, durable, and functional, it would alter the story of the ruins. It would remove information that the ruins currently tells about itself.

We recommend installing a mortar wash in deeper openings in the walls, such as joist pockets, to encourage water to shed from the wall. This type of treatment is fairly simple. It entails mortar laid on the horizontal surface of the opening and shaped to form a wedge (with the new “top” surface being pitched to drain water away from the center of the wall). This type of treatment will eventually fail and the typical failure involves the mortar separating from the sides of the opening or the wedge of mortar itself cracking.

We recommend installing a mortar in the slits in the masonry walls which once held the nailing strips. This mortar should be a different color and/or texture from the mortar used for repointing so these areas receive a distinct treatment from the mortar joints.

TOPS OF WALLS

Another challenging aspect of preserving the ruins will be the treatment to the tops of the walls. These walls were designed and intended to have a roof over them to protect them. Without a roof, the walls are vulnerable because the thickness of the top of the wall collects snow and ice and does not shed water. It’s a small surface area, but it’s an area that allows water to move quickly into the center of the walls.

The tops of the walls also prove challenging because the limestone has been exposed to fire. Burning limestone is part of the process of producing lime. It’s possible that the blocks of limestone that have been burned have changed chemically. They may not react as expected during preservation. They may not be as hearty during the removal of mortar in adjacent joints. They may not hold mechanical fasteners as predicted. They may not be as watertight as the limestone on the building that has not been exposed to fire.

We recommend a close inspection of this current coating on the tops of the walls after the ruins are stabilized. The coating or cap looks fairly thin and perhaps cementitious. In at least one instance, the cap is

holding a broken limestone lintel in place. Caps of this nature are generally not the most durable solution but are effective, lightweight, and visually unobtrusive. They do require routine inspection and replacement.

We recommend installing a similar coating type of cap (rather than a form of mechanically fastened flashing). This will allow for the most unobtrusive protection of the tops of the walls which are quite irregularly shaped. We further recommend that the final secondary, structural support be designed in a manner that will allow it to be used as a means to gain access to the tops of the walls if possible.



Second floor window lintel facing stone held in place with coating/cap (5/20/2014)

BOTTOM OF WALLS, FLOOR, AND FOUNDATION

The face stones at the bottom edge of the walls of the ruins are cracked. We hypothesize that this may be caused by rising damp (which is a phrase common in historic preservation and refers to water wicking into the stone from the ground) or by snow building up against the wall during the winter. In either event, mitigation of these causes could be rather invasive. *We recommend monitoring this deterioration to see if the cause can be narrowed down or confirmed.* This will likely take several seasonal cycles. Masonry interventions at the base of the wall could take place along with the installation of the permanent secondary, structural system.



Cracks in bottom stones (at grade) (5/20/2014)

We recommend planning to address the floor and foundation walls of the ruins along with the installation of the permanent secondary, structural walls. The area is currently too unpredictable to commence an investigation or any restoration work.

OPINION OF PROBABLE COSTS

The recommendations listed in this report are included in the cost estimate below. These recommendations, as a group, are one approach to the preservation of the Wasioja Seminary Ruins. This approach is preliminary in nature and will need to be refined by a preservation architect and structural engineer and synthesized into more precise construction documents for a contractor to bid and work from. The cost estimate itself reflects the imprecise nature of the treatment plan in this early stage. The estimate is useful for planning purposes, but we recommend thinking of it as a ballpark estimate (with this ballpark hopefully being on the high end).

The professional fees for typical architectural projects range from 7-10%. Historic preservation projects are slightly higher than that and range quite a bit depending on several things including the level and complexity of intervention required, the bidding process, and the schedule. The project should be led by a Historical Architect who meets the Secretary of the Interior's Professional Qualification Standards for Historical Architects and is a licensed architect in the State of Minnesota.

An archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for Archaeologists and is licensed in Minnesota should be involved in the preservation of the ruins. An estimate of archaeological fees is included in the professional fees below.

In addition to the recommendations from this report, we have included the contractor's overhead and profit and mobilization expenses in the cost estimate. We have also included a contingency in the estimate.

PRESERVATION CONSTRUCTION PROJECT
(Phase One – Masonry repairs and Temporary Bracing)

Construction Description	Estimate
Masonry Repairs	\$325,000
Temporary Bracing System	\$90,000
<i>General Conditions</i>	
Contractor overhead and profit	\$33,200
Mobilization	\$15,000
Subtotal	\$48,200
Subtotal without Contingency	\$463,200
Contingency (25%)	\$115,800
Total Estimated Construction Budget	\$579,000

Professional Fees: \$35,800

(including Design Development, Construction Documents, Bidding, and Construction Administration Services)

Laser Scan of Ruins: \$4,000

(we recommend that an architect specialized in historic preservation with an understanding of laser scanning coordinate the scan to ensure that the proper data is collected)

**APPENDIX A:
STRUCTURAL ASSESSMENT**



**Mattson
Macdonald
Young**
structural
engineers

Bassett Creek Business Center
901 North 3rd Street, #100
Minneapolis, MN 55401

612-827-7825 voice
612-827-0805 fax

March 19, 2015

Angela Wolf Scott
MacDonald and Mack Architects
712 Grain Exchange Building
400 South 4th Street
Minneapolis, MN 55415

Re: Structural Condition Review
Wasioja Seminary Ruins

Dear Angela:

As you requested, we have performed a condition review of the building remnants for the Wasioja Seminary. The following is a summary of our findings and recommendations:

The building is a two story stone structure constructed in 1860 and, typical of the permanent structures built in that era, consisted of native limestone perimeter walls supporting floors and roof constructed with timber and dimension lumber. A fire occurred in the year 1905 destroying all of the existing wood framing leaving only the stone walls that are seen standing today.

The stone walls are in fair to poor condition and large portions of the original perimeter walls are missing. These apparently have collapsed in the period since the building fire. This is likely the result of continued deterioration and degradation of the masonry as water and snowmelt have penetrated the stone lenses and mortar joints.

The walls may appear stable as a whole, but without the support and bracing that is normally provided by the floors and roof, the walls are at risk of collapse as water and the affects of weather further degrade the condition of the masonry. While no specific area or element appeared to be in immediate threat of collapse or failure, there is no way of determining precisely how much further deterioration or what severity of wind load can be withstood before failure might occur. It is our recommendation that masonry restoration be undertaken as soon as possible and that a system of permanent bracing be installed to provide the needed stability to the walls.

It would be irresponsible to expect a contractor to work in close proximity to the building without first providing some sort of temporary bracing for the walls. For that reason we are recommending that a temporary bracing system be installed that will allow a masonry restoration contractor to make repairs to the wall and allow workers inside the building perimeter to clean debris and prepare the site for a permanent bracing system. The temporary bracing system would consist of a combination of timber or steel vertical columns, horizontal shoring beams and diagonal braces that act to "crate" the walls and provide the needed stability.

By necessity the temporary bracing system should be constructed from the outside of the building, wrapping the building exterior face. This would avoid the need to have workers inside the building while the walls are in an unknown condition of stability. Once the exterior bracing is installed, the masonry restoration could be undertaken and the permanent, less visible permanent bracing can be constructed inside the building walls.

The process for the installation of a temporary exterior bracing system would be as follows:

- Install a small concrete pier at the building perimeter, approximately 2 each side of the building. These would be installed with light equipment such as a bobcat with little adverse affect on the building. The piers will serve as the base for vertical shoring columns.
- Thread timber shoring beams diagonally through the first floor window openings across each building corner. The shoring beams can temporarily rest on the sills of the openings.
- At the first floor opening level, place a horizontal shoring beam against the face of the wall and resting on the protruding ends of the diagonal beams. Connect the horizontal beam to the diagonal beam with thru bolts or steel angles and lag screws.
- Place a timber column over each of the piers. The column would stand away from the building perhaps 8" to 12" and would extend to the height of the top of the walls. The columns are mechanically anchored to the concrete piers and connected to the horizontal shoring beam at the first floor window location. Temporary bracing of the tops of the columns may be needed to keep them plumb.
- Place horizontal shoring beams against the face of the wall at the level of the second floor window sills. Connect these beams to the columns.
- Thread timber shoring beams diagonally through the second floor window openings across each building corner. The shoring beams rest on the horizontal shoring beam placed at this level and are connected with thru bolts or steel angles and lag screws.
- Place horizontal shoring beams against the face of the wall just below the level of the top of the walls. Connect these beams to the columns.
- Using tie down straps (similar to those used to anchor cargo and equipment on flatbed trucks.) with a ratchet assembly, loop the straps around each pier, between window openings, and any location that can be used to anchor the wall to the timber beams and columns at the exterior face of the wall.
- Add posts and shoring in openings with damaged, missing or deteriorated lintels.

The attached sketches Sk-1 and Sk-2 illustrate what this bracing might look like when installed.

When this bracing is installed, anchored and strapping has been placed and tightened, the workers can enter the building interior to remove debris. The extent of the basement area can be verified and any framing over the basement can be inspected and stabilized.

With the temporary bracing system installed, the masonry restoration can be undertaken. This work should include 100% repointing of the stone walls. New lintel members will be needed under the stone wall, behind the existing stone veneer lintels. The new lintels could be 8" or 6" steel tube members placed in the cavity that remains from the wood lintel that was at the inside face of the wall. A plate or angle, welded to the tube would extend under the stone

veneer member and be grouted tight to the underside of the stone. Some type of cap or capstone should be placed at the top of the walls to prevent water migration into the stone.

Once the interior is cleaned and the first floor (where it is found to exist) framing is stabilized, a shoring system, similar to the assembly placed at the building exterior could be duplicated on the inside face. A more permanent and less unsightly method of “strapping” the walls to the bracing can be used in lieu of cargo tie downs. The bracing at the exterior face could then be removed. Final pointing should be undertaken at the limited areas that might have been inaccessible due to the presence of the temporary shoring members.

The permanent bracing system might look much like the temporary support system except it would be constructed on the inside of the building and would be built using structural steel members instead of timber. The permanent bracing system would also likely include diagonal bracing that extends from each column to the ground surface.

With the final installation of the permanent interior bracing system, the completion of the masonry restoration in combination with periodic inspection and normal attention to the maintenance of the exposed bracing and masonry, it is my opinion that the ruins can be expected to remain standing and perform properly for the foreseeable future.

If you have any questions concerning the above, please do not hesitate to contact me.

Sincerely
Mattson Macdonald Young, Inc.



David H. Macdonald P.E.

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.



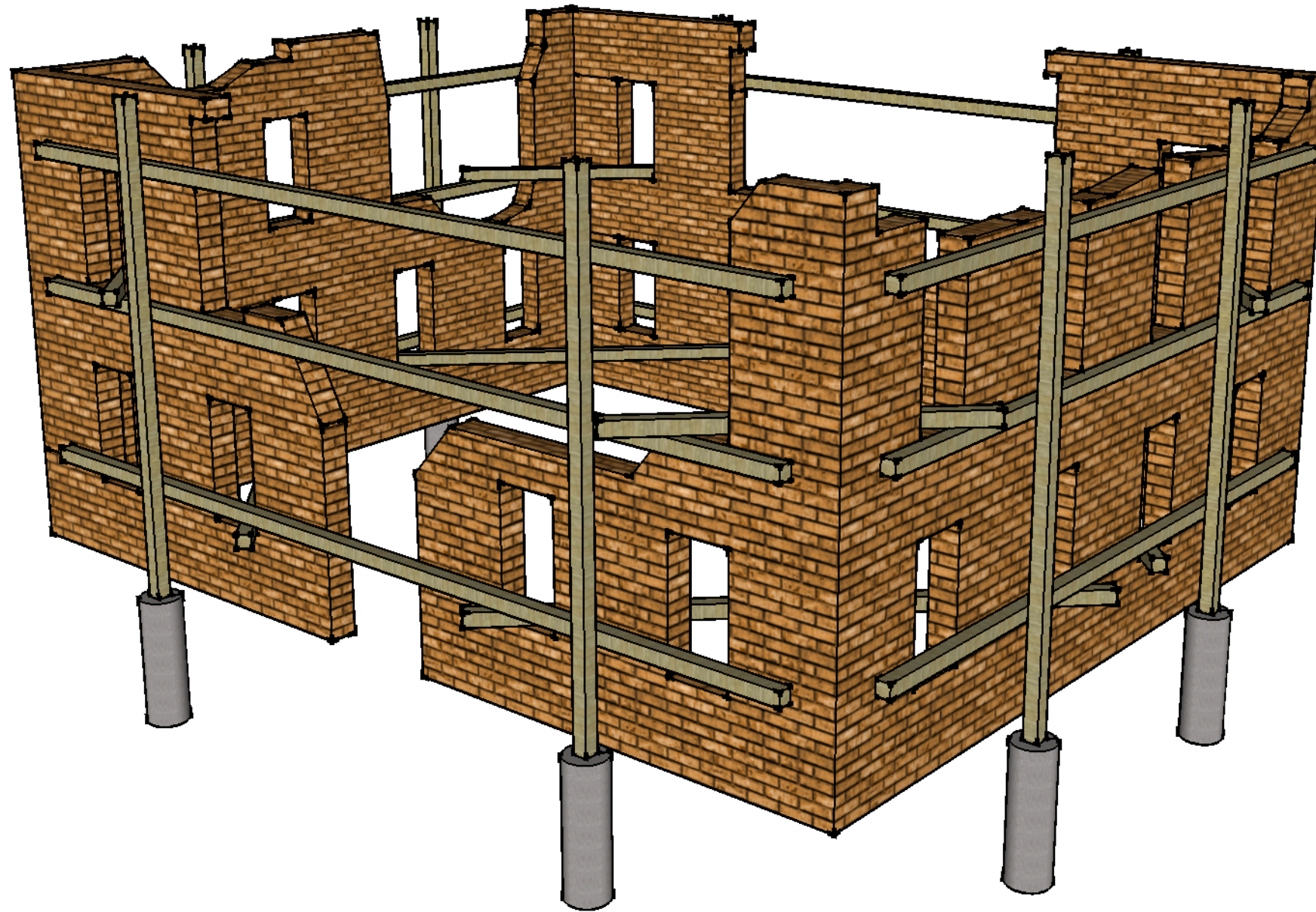
David H. Macdonald P.E.

3/19/2015

MN Reg. No. 14751



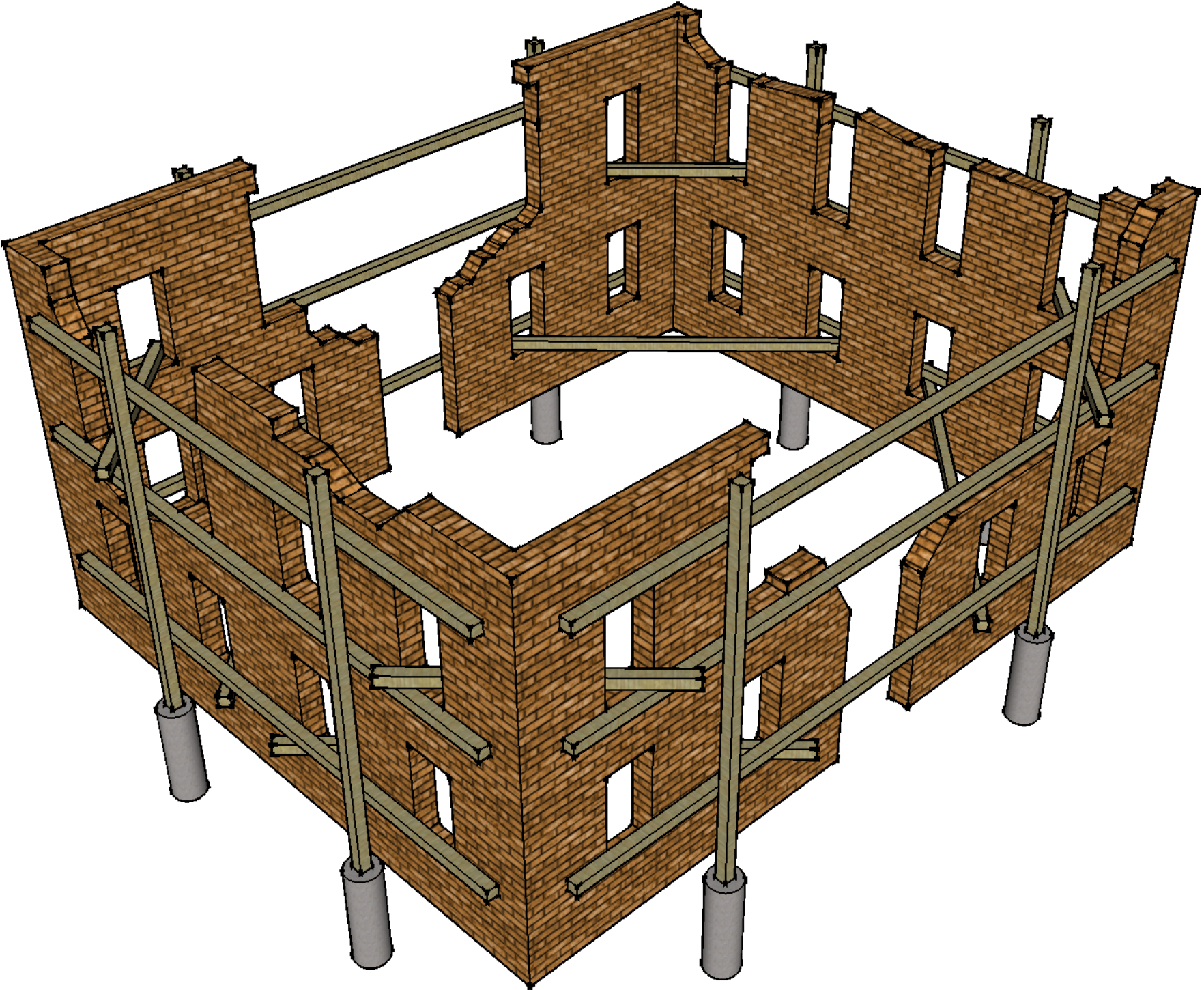
Wasioja Ruins
Temporary
Shoring Scheme
Sk-1



Mattson
Macdonald
Young
structural
engineers



Wasioja Ruins
Temporary
Shoring Scheme
Sk-2



**APPENDIX B:
ARCHAEOLOGICAL ASSESSMENT**

10,000 Lakes Archaeology, Inc.

220 9th Avenue South South St. Paul, MN 55075

February 15, 2016

Angela Wolf Scott, AIA, LEED AP
MacDonald & Mack Architects
400 South Fourth Street, Suite 712
Minneapolis, Minnesota 55415

Dear Angela:

10,000 Lakes Archaeology, Inc. is pleased to submit this letter report regarding archaeological potential at the Wasioja Seminary Ruins in Dodge County, Minnesota. This project involved examining site photos and reviewing the *Wasioja Seminary Ruins: Conditions Assessment and Treatment Plan* (MacDonald & Mack 2015).

The conditions assessment and proposed treatment plan for the Wasioja Seminary Ruins includes recommendations regarding documenting and stabilizing the above-ground remains of the Wasioja Ruins (MacDonald & Mack 2015). One of the first steps proposed is a laser scan of the ruins in order to “minimize the risk [posed by the unstable ruin walls] to personal safety, document the existing structure, and provide important information” (MacDonald & Mack 2015: 5). This step is key, since the Wasioja Ruins comprise a very large, visible, above-ground artifact. The treatment plan also recommends that stabilization of the interior walls of the ruins “should be carefully considered so that it does not change the information they impart about how the building was put together” (MacDonald & Mack 2015:10). This is an important aspect of the treatment recommendations, because original structure construction provides potentially vital information for future researchers.

The overall treatment plan proposes an exterior, temporary shoring structure that will subsequently be replaced by a permanent, less visually intrusive, interior shoring structure. Areas that appear to have the highest potential for archaeological deposits are the exterior of the east and west elevations, where the doors were located, and throughout the interior of the ruins.

The external shoring system is necessary because it will allow workers to safely access the interior of the ruins during construction of the internal system. The external system involves limited areas of earthmoving activity. The treatment plan suggests using a bobcat to conduct this excavation.

Ideally, an archaeologist would conduct test excavations prior to the installation of the external shoring piers, and piers would be installed using either hand excavation or mechanized augering to reduce the impact to potential archaeological deposits adjacent to the building. If it is unsafe to conduct archaeological testing prior to the installation of the exterior shoring system, an archaeologist should monitor all earthmoving activity during the external system's installation. This is especially important on the east and west elevations where the entrances to the building were situated.

After the temporary external shoring system is installed, a permanent internal shoring system will be constructed. This system "would be less visually obtrusive and longer-lasting" than the exterior shoring system (MacDonald & Mack 2015:5). The first step in constructing the internal system is to remove the debris from the interior of the ruin. Before any debris is removed from the interior, an archaeologist should assess and document the nature and significance of the debris. The interior of the ruins has a very high potential for containing significant archaeological deposits, and no earthmoving should take place prior to archaeological investigations.

In conclusion, the laser scanning and carefully considered treatment methods to avoid obscuring the Wasioja Seminary construction methods or techniques are significantly beneficial because they preserve the potential for future research. Archaeological testing or monitoring construction will help ensure that no potentially significant archaeological deposits are inadvertently disturbed during the stabilization of the Wasioja Ruins. Specifically, the following investigations and precautions are recommended during the stabilization of the Wasioja Ruins:

1. All areas where earthmoving is proposed should be tested by an archaeologist prior to construction, if safe;
2. If archaeological testing is unsafe, all earthmoving activity should be monitored by an archaeologist;
3. Earthmoving activity should be as unobtrusive as feasible, and employ methods such as hand excavation or auger-ing, as possible;
4. Areas particularly sensitive include the exterior of the ruins, along the east and west elevations, and the entire interior of the ruins.

If you have any questions or comments, please do not hesitate to call me at 612-670-6431 or email me at Gronhovd@10000LakesArchaeology.com.

Sincerely,
10,000 Lakes Archaeology, Inc.



Amanda Gronhovd, MS, RPA
President

MacDonald & Mack Architects with Mattson Macdonald Young Structural Engineers
2015 *Wasioja Seminary Ruins: Conditions Assessment and Treatment Plan.*