



City of Madison Planning Division
215 Martin Luther King Jr. Blvd. | Room LL.100 | P.O. Box 2985 | Madison, WI 53701-2985

Madison Landmarks Commission APPLICATION

1. LOCATION

Project Address: 3502 Gregory Street - Glenwood Children's Park Aldermanic District: 13th

2. PROJECT

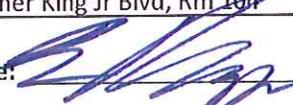
Date Submitted: 7/9/2018

Project Title / Description: Stormwater Improvements Glenwood Children's Park

This is an application for: *(check all that apply)*

- Alteration / Addition to a Designated Madison Landmark
- Alteration / Addition to a building adjacent to a Designated Madison Landmark
- Alteration / Addition to a building in a Local Historic District *(specify)*:
 - Mansion Hill Third Lake Ridge First Settlement
 - University Heights Marquette Bungalows
- New Construction in a Local Historic District *(specify)*:
 - Mansion Hill Third Lake Ridge First Settlement
 - University Heights Marquette Bungalows
- Demolition
- Variance from the Landmarks Ordinance
- Referral from Common Council, Plan Commission, or other referral
- Other *(specify)*: Maintenance work to storm sewer system within a landmarked park

3. APPLICANT

Applicant's Name: Janet Schmidt Company: City of Madison - Engineering Div
 Address: 210 Martin Luther King Jr Blvd, Rm 115 City/State: Madison, WI Zip: 53703
 Telephone: 608-261-9688 E-mail: jschmidt@cityofmadison.com
 Property Owner *(if not applicant)*: Eric Knepp, Parks Superintendent
 Address: 210 Martin Luther King Jr Blvd, Rm 101 City/State: Madison, WI Zip: 53703
 Property Owner's Signature:  Date: 7/9/18

GENERAL SUBMITTAL REQUIREMENTS
 Twelve (12) collated paper copies and electronic (.pdf) files of the following: *(Note the filing deadline is 4:30 PM on the filing day)*

- Application
- Brief narrative description of the project
- Scaled plan set reduced to 11" x 17" or smaller pages. Please include:
 - Site plan showing all property lines and structures
 - Building elevations, plans and other drawings as needed to illustrate the project
 - Photos of existing house/building
 - Contextual information (such as photos) of surrounding properties
- Any other information that may be helpful in communicating the details of the project and how it complies with the Landmarks Ordinance, including the impacts on existing structures on the site or on nearby properties.

Questions? Please contact the Historic Preservation Planner:
 Amy Scanlon
 Phone: 608.266.6552
 Email: ascanlon@cityofmadison.com

NOTICE REGARDING LOBBYING ORDINANCE: If you are seeking approval of a development that has over 40,000 square feet of non-residential space, or a residential development of over 10 dwelling units, or if you are seeking assistance from the City with a value of \$10,000 (including grants, loans, TIF or similar assistance), then you likely are subject to Madison's lobbying ordinance (Sec. 2.40, MGO). You are required to register and report your lobbying. Please consult the City Clerk's Office for more information. Failure to comply with the lobbying ordinance may result in fines.

STORMWATER IMPROVEMENTS AT GLENWOOD CHILDREN'S PARK – NARRATIVE

Glenwood Children's Park has experienced increased runoff and erosion over several years, with the area of concern located at the northern end of the park near the existing limestone arch railroad culvert and then downstream as the erosion degraded the channel. In the 1950s a storm sewer pipe was installed to help relieve some of the erosion that was occurring but over time that pipe has been clogged and is not efficiently capturing stormwater. Historically this park has had issues with erosion and runoff for decades until an additional parallel storm sewer system was installed in the 1990s to help handle the water that the existing storm sewer system that was built in the 1950s is not able to handle. Although the storm sewer capacity has increased since the newer storm sewer was installed, there are still issues with run off and erosion that have been caused by the inefficiency of the system at the upstream end due to a failing diversion wall that was constructed to direct stormwater. In addition, the storm sewer that was constructed circa 1950 is an older corrugated metal pipe which has propensity to clogging at the existing inlet. These metal pipes also will fail over time as the bottom of the pipes rust and deteriorate.

The proposed maintenance improvements to the park will include reconfiguration and construction of additional storm sewer pipe to more effectively capture the water as it leaves the discharge point at the railroad arch; construction of a headwall to help capture the storm water and direct it to the storm sewer system before it runs off and further erodes the landscape to the south; and construction of an overflow which will allow for large rain events to overtop the storm sewer system and cascade down stone or riprap steps, which will help reduce the energy and thus help mitigate excessive erosion. Additional improvements will also include lining the existing corrugated metal pipe to help prolong the life of the storm sewer, placement of an additional inlet downstream of the existing inlet to help with drainage in case the existing inlet becomes clogged, and restoration with topsoil, seed and matting of the turf area where gully erosion has occurred.



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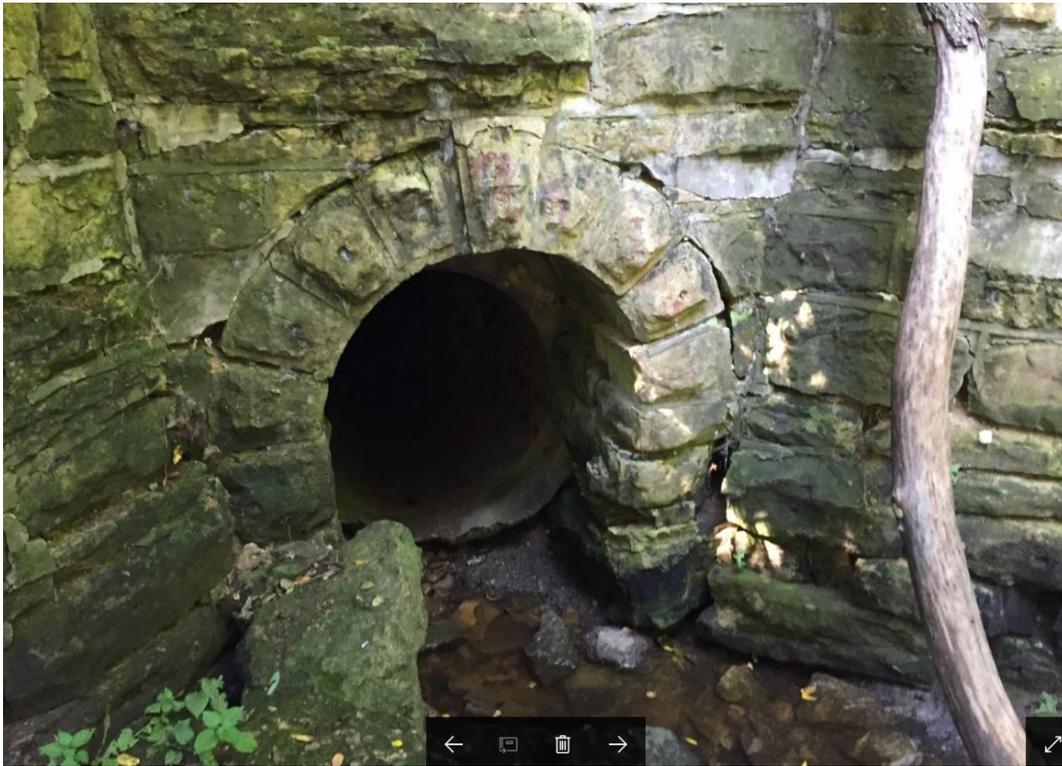
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City of Madison, WI - GIS/Mapping data

Printed By: pascl

Disclaimer: The City makes no representation about the accuracy of these records and shall not be liable for any damages



Existing Limestone Railroad Arch Summer 2017



Existing Limestone Railroad Arch Spring 2018

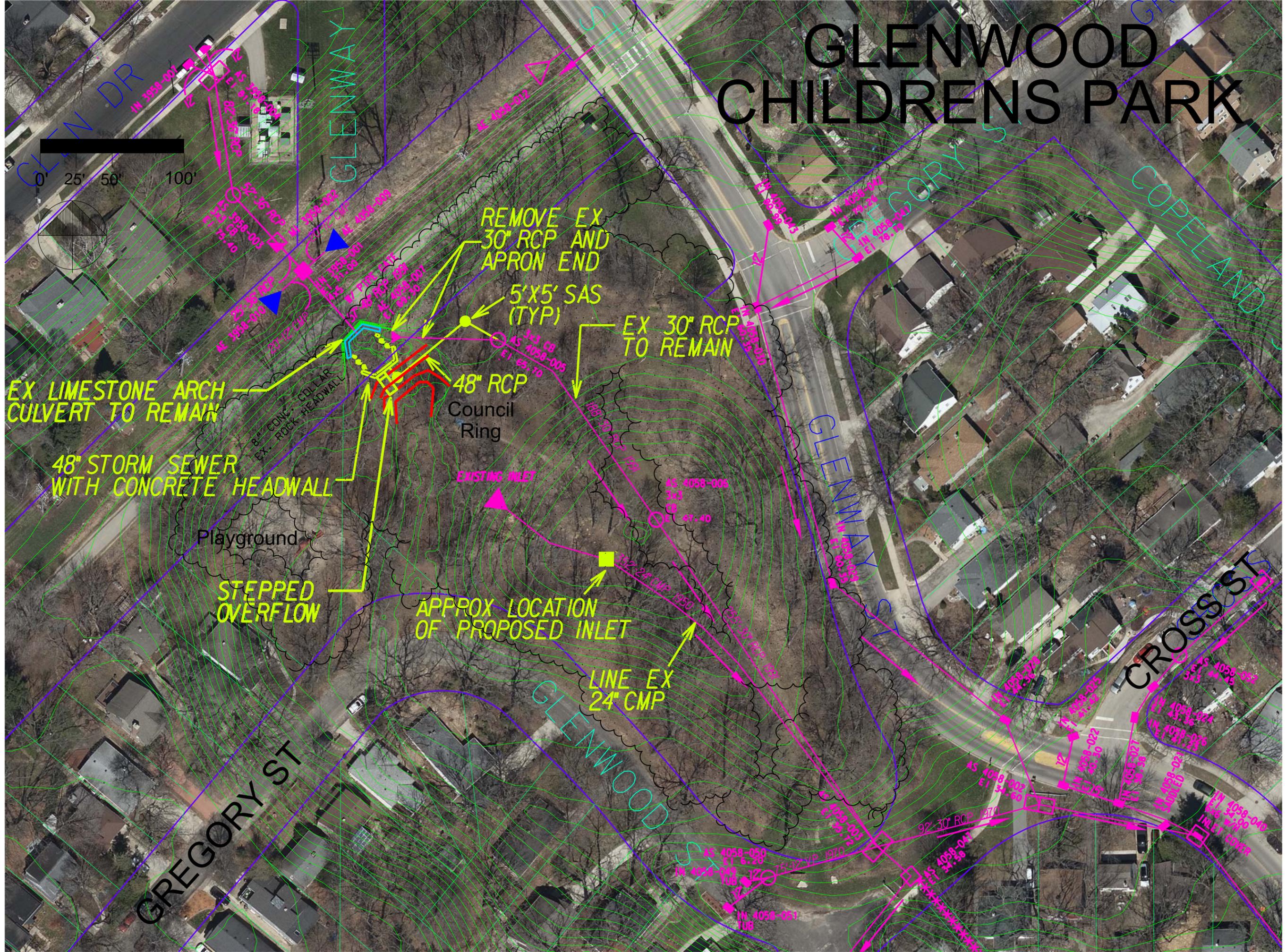


Erosion Downstream of Existing Inlet



Erosion at the upstream storm sewer caused by failure of the diversion wall

GLENWOOD CHILDRENS PARK





**RAILROAD ARCH CULVERT
PRELIMINARY ASSESSMENT
GLENWOOD CHILDREN'S PARK
MADISON, WISCONSIN**

**ATTENTION OF:
JANET SCHMIDT, PE
PRINCIPAL ENGINEER - STORMWATER
CITY OF MADISON ENGINEERING DIVISION
210 MARTIN LUTHER KING JR. BLVD. RM 115
MADISON, WI 53703**



InSite Consulting Architects
Madison, Wisconsin
Chicago, Illinois
St. Louis, Missouri

Railroad Arch Culvert Preliminary Assessment

Glenwood Children's Park, Madison, WI

Prepared for: City of Madison
By: InSite Consulting Architects

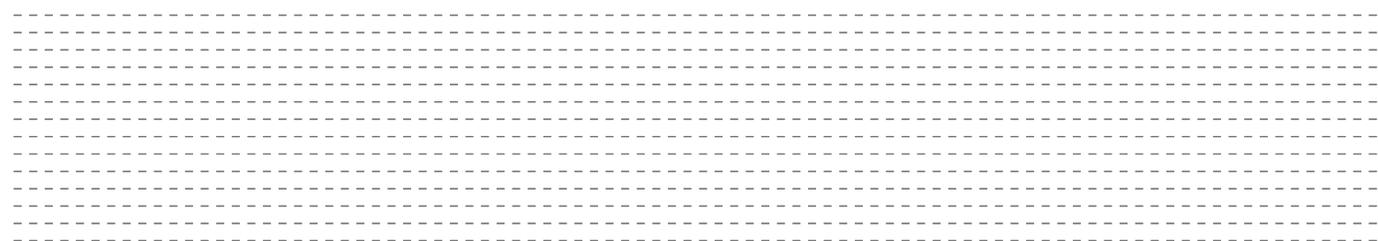
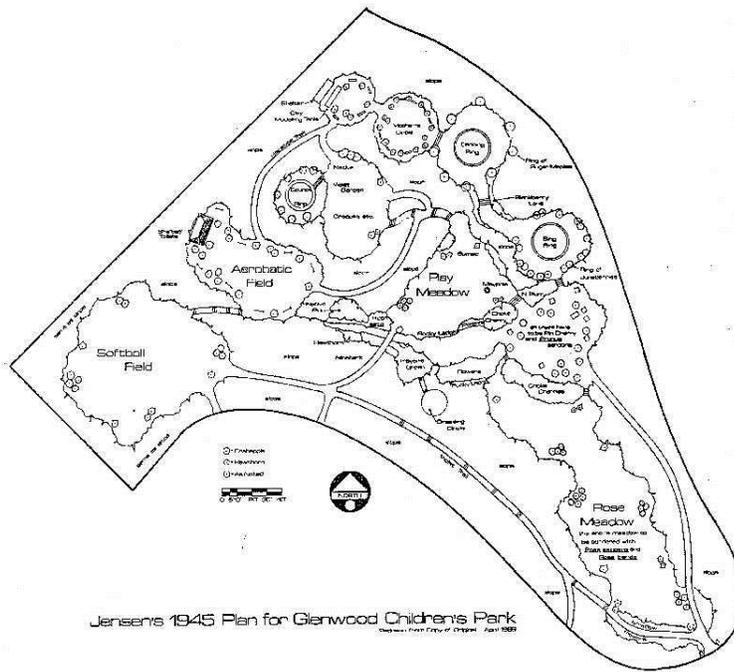
June 5, 2018

EXECUTIVE SUMMARY

General History:

The Glenwood Children's Park is in the Dudgeon-Monroe Neighborhood of Madison, WI. The park was dedicated on October 7th, 1949. The park is a city historic landmark. The site contained a former sandstone quarry. Jens Jensen designed this park around the existing features using his trademark stone council rings, a trademark feature of Jensen's design for creating outdoor rooms and spaces defined by trees, with each circle was designed with a different purpose in mind.

In the early 1960's expanding neighborhood were developed to the northwest of the park and the resulting runoff flowing through the railroad arch viaduct contributed to erosion problems in the park.



Location:

Adjacent to the Glenwood Children's Park
Roughly centered on the northwest property border along the southwest commuter path

Features and construction:

The historic railroad trestle was constructed of locally quarried sandstone of rusticated ashlar blocks and a dated keystone in the central arch wall and well fitted large rubble blocks in the wing walls.

Assessment:

This is a preliminary condition assessment of the historic stone railroad arch for the City of Madison conducted on May 29, 2018. The arch is located directly adjacent to the historic 1949 Jens Jensen designed Glenwood Children's Park and was originally built to convey lower volume drainage from northwest of the site under an existing railroad ROW. The City of Madison is currently under agreement with the State of Wisconsin (the owner of the rail right-of-way) and is responsible for its maintenance. Consistent with the City of Madison's commitment with the preservation of historic structures and landscapes, there is concern for its current condition and the effects of stormwater drainage on the area and the landmark park. In the 1960's the development north of the site dramatically increased the volume and peak flows generated during weather events. The stone for the arch likely was from the site which had been a Madison Sandstone quarry prior to the establishment of the park. The arch predates the historic park.

The general assessment is that the arch is deteriorating rapidly but is not in danger of eminent collapse.

The construction of the current Southwest Commuter Bike Path and stormwater culverts appear to be in good condition and not threatened by the condition of the arch. The stormwater controls placed immediately downstream of the arch are needed to protect the park from erosion that has plagued it since the 1960's.

The arch was originally constructed in 1887 of rusticated ashlar cut stone. The surrounding stone transitions to well fitted rustic and rubble blocks and overlaid on the uppermost courses with slightly overhanging slabs and soil.

The arch has two primary threats. The failing physical integrity of the weathering sandstone and the undercutting and settling of the base layer of sand, stone and earth.

The ashlar blocks of the arch are in better condition than the flanking stones that are in more direct contact with soil and may have been cut from less cohesive sandstone. The consistency of the sandstone varies from easily crumbled to touch to more solid on dryer faces where stone is not perpetually wet.

The settling and degradation of the base and surrounding stone is causing misalignment of the inner arch. Many of the surrounding stones are disintegrating so rapidly that only the mortar left suspended in space outlines where the stone head and bed faces had been.

The conclusion is that the entire masonry structure must be deconstructed and rebuilt in strict accordance with the Secretary of the Interior's Standards for the preservation of the historic elements of the arch and retaining wall. This should occur as soon as funds are available. The stones of the inner arch are in good enough condition to be used as templates to fabricate replacements (as required). The face rustication includes the original lifting holes which add interest and still might be usable in disassembly.

The preservation will require removing the overburden above the natural stone arch and wing walls. The newer concrete culvert that supports the roadbed for the bike path appears in good condition and can remain after a more detailed assessment confirms there are no current issues or future needs that would impact the rebuilt arch.

It is noted that the temporary and ad hoc stormwater measures that are intended to slow the flow and force of stormwater affecting the park are contributing to the deterioration of the arch and wing walls. The original construction also does not deal with back pressure and moisture drive that contributes to the rate of aging and disintegration of the natural cut sandstone.

A comprehensive preservation will require surveying the complete historic structure and disassembly. Salvageable arch and surrounding stones can serve as templates. Cost will be significantly impacted by the suitability of exiting stone for reuse, the amount of overburden needed to be removed and replaced during the work and access to the site.

SUMMARY OF ESTIMATED COSTS (PRELIMINARY)

RECONSTRUCTION OF HISTORIC RAILROAD ARCH CULVERT		RANGE OF PROBABLE COSTS	
TOTAL ESTIMATE		\$400,000	- \$500,000

Notes:

Stone Replacement: We will be working with The City of Madison on a study of Madison sandstone - specifically for Gates of Heaven. One of the primary goals of the study is to find a suitable replacement stone. Because that study will not be complete for some time, we have included stone replacement costs from other similar sandstone projects on our budgeting for this project. The stone that has typically been used for Madison sandstone, while excellent for use in some contexts, might not be appropriate here for a variety of reasons. The cost for ICA to provide stone sourcing assistance is \$4,500 to \$6,000, is included in the budget provided, but must be completed before bidding can occur. What is not included in the budget are design/engineering fees, which for a project of this relatively small size, prominence and complexity should be budgeted at 20% of the cost of construction. After the stone is sourced, the budget, including all design fees, can be adjusted as required.

Site Access: Access for this project is tricky. We have assumed a top-down approach to staging in our estimate. This minimizes impact in the park but would affect the adjacent bike path. We make this recommendation with input by any of the stakeholders, so we expect the actual access and staging plan will change. This can have a significant impact on cost.

Deferral: Any deferral beyond 2019 must include quarterly site reviews by a qualified Architect/Engineer to monitor any changes in conditions and verify the dynamic conditions onsite. This will help to mitigate the added risk of indefinite deferral. The cost of these reviews/reports should be budgeted for until the preservation project occurs. We estimate the cost of this work to the \$4,000 - \$5,000 annually.

Immediate Recommended Action: As part of any effort to mitigate stormwater run-off into the park through the culvert terminated with the historic sandstone area, we recommend a temporary stainless steel frame be constructed to hold the existing stone masonry in place. This would allow the stones to continue in their current position until a full restoration can take place. The cost for this work will be from \$10,000 - \$25,000 and will provide the stabilization required for the deferral period.

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

Best regards,

InSite Consulting Architects

A handwritten signature in black ink, appearing to read 'S. Mar-Pohl', with a horizontal line extending to the left.

Stephen E. Mar-Pohl, AIA, NCARB

President

(608) 513-1992



Figure 1: Height of arch and overburden above.

Overall rough dimensions:

Height varies maximum ~8-9'

Central arch wall width varies: ~ 7' at base, ~13' at top

Wing-walls (splay backwards going up) at base: ~15' w.



Figure 2: View of capstones and minimal overburden above the wing walls (additional soil over the ventral arch wall.)



Figure 3: Overall view of arch.



Figure 4: General disintegration of stone above the arch.



Figure 5: Right side of arch deflection and beginning of collapse.



Figure 6: Arch bearing condition at right.



Figure 7: Defaced Keystone needs to be deciphered.



Figure 8: Undercutting of the arch at left and 2-3' stone construction depth to the intact concrete culvert that conveys stormwater under the bike path.



Figure 9: Defaced keystone needs to be deciphered.

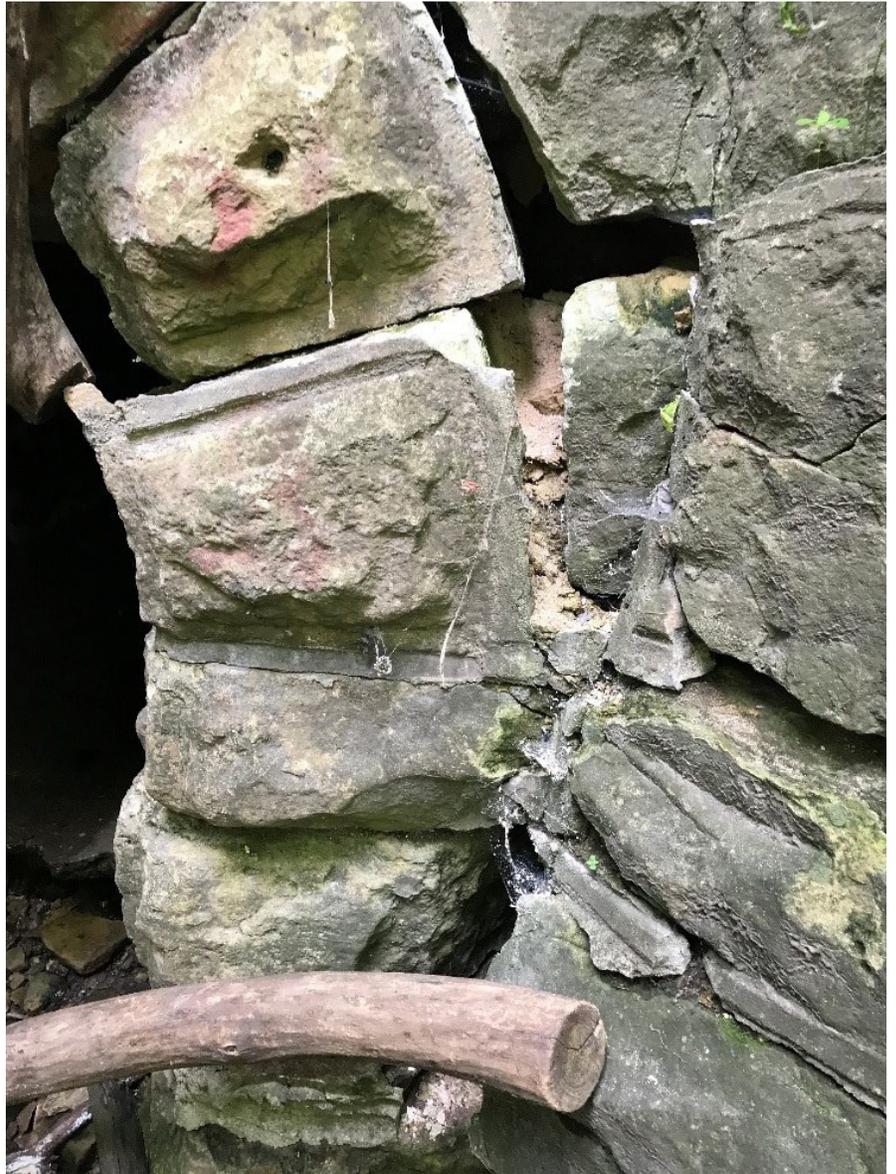


Figure 10: Degradation of the sandstone at the wing walls is most advanced at the face.



Figure 11: Degradation of the sandstone at the wing walls is most advanced at the face.



Figure 12: Degradation of the arch stones deeper in the wall is visible from the open joints where the arch has come out of alignment due to settling at the base at the right.