ANNIE C. STEWART MEMORIAL FOUNTAIN
CONSERVATION/PRESERVATION PLAN
MADISON, WISCONSIN

ATTENTION OF:
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EXECUTIVE SUMMARY

Annie C. Stewart Fountain

Madison, Wisconsin

Prepared by:

InSite Consulting Architects

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Annie C. Stewart Fountain Conservation/Preservation Plan

Prepared for the City of Madison
By InSite Consulting Architects

August 15, 2017

EXECUTIVE SUMMARY

The City of Madison has committed resources to identify the best course of action for restoring and preserving the Annie C. Stewart Memorial Fountain. Repair, restoration and preservation attempts have been made in the past, but none of the previous efforts have met with lasting success because the underlying causes of the issues have never been satisfactorily addressed.

This is not intended to be an historical report and as such it is not intended to address the obvious historic nature of the fountain/monument, the artist, its namesake or any other cultural characteristic of its existence. For the purposes of this report we will consider these aspects of the fountain, and its site, as self-evident. We will however, touch on previous efforts to ameliorate the condition of the fountain as we identify methods that have failed in the past as they will help inform our recommendations for the future.

This is a technical report, focusing primarily on two types of stone: Rutland White Vermont (Calcite) marble and Indiana (Oolitic) limestone, and their responses to the effects of the Wisconsin environment and other forces to which they have been subjected.

This report will describe the conditions and circumstances that have led to the fountain's deterioration, the primary mode of material failures, recommendations for its restoration/preservation/conservation and for the measures that must be taken to prevent its further degradation in the long-term.

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APPROACH

Our approach included the careful review of the conditions onsite. Additionally, we reviewed the available knowledge base regarding Rutland White Vermont marble and Indiana Oolitic Limestone, and that regarding the artist and manufacturer of the fountain.

Our areas of focus included: 1) Exterior Applications; 2) the effects of freeze-thaw cycling; 3) the impact of atmospheric pollutants; 4) the risk of damage from seemingly benign biological agents.

We have identified: 1) Restoration, preservation and conservation recommendations; 2) Recommend courses-of-action; 3) Potential Outcomes; 4) Potential Costs.

FINDINGS

Please refer to the attached photographic appendices for images and related commentary.

CONCLUSIONS

The fountain pieces (sculptural fountain, pedestal and base) have suffered from deferred maintenance and must be preserved or removed.

The lack of regular maintenance and the previous use of repair materials that have covered the symptoms of issues have contributed to the very poor conditions observed. These materials are not currently recommended in a preservation context as they are not reversible.

The concrete sub-base is deteriorated to the point where we must recommend replacement. The conditions of the site have rendered the foundations vulnerable to water infiltration and continued degradation.

The limestone base, while historic, has deteriorated to the point where it must be replaced. Typically in this type of context we do not recommend the replacement of historic material. It is our opinion that the limestone base is beyond repair.

The marble fountain figures are historic, should be landmarked, and *must* be preserved/conserved.

RECOMMENDATIONS

We recommend that the Annie C. Stewart Memorial Fountain receive a variety of treatment that ranges from replacement/restoration to conservation.

1. We recommend the careful deconstruction of all of the elements of the fountain under the direction of a conservator to document and fully understand the components, their construction, modes of failure and other information pertinent to the full restoration of the fountain as a sculpture. Special attention must be paid to the following aspects of the construction (at a minimum):
    - Materials
    - Means & Methods of the original installers
    - Spirit & Intent of the benefactor, those who originally implemented the gift, the neighborhood and the city

2. We recommend the full reconstruction of sub-base (foundation), base and reinstallation of a fully restored sculpture.

3. We recommend that the statues and base be protected from winter through the use of a removeable structure designed to protect them from the elements.

4. We recommend that a Long-Range Plan (LRP) for the management/maintenance of the sculpture be developed and implemented which may include:
    - The use of an inert biocide such as D2 Solutions
    - Regular checks of signs of organic growth and plant infestation
    - Periodic tests for acidity in the environment (rarely observed except in areas where coal is used)
    - Protection from damage from freeze-thaw

5. We recommend that the foundation and base be replaced at this time. Their overall contribution to the historic landscape is minimal but the construction must follow in the form and spirit as the original.

6. We recommend that the limestone base be replaced with a precise replica. This would be best accomplished by the use of a conservator to assist in the documentation of delicate original botanical ornamentation (bas-relief or low relief). Laser scanning technology should be employed to provide an accurate depiction of the pieces and their 3-dimensional character. Hand carving would be the preferred method. All components must be recreated verbatim. The steel tension must be stainless steel. Accommodations may be made for internal drainage if the intent is to never recreate a fountain.

7. We recommend the full restoration/conservation of the marble figures. This work must be undertaken by a conservator in a controlled environment.

8. Once the city completes the restoration of the fountain as a statue, we recommend that the city establish a program for effective/proactive management of the whole asset. This should be funded in perpetuity if possible.

9. We recommend the development of interpretation to engage the community. One opportunity might be to work with institutions within the city to call attention to mental illness and depression. Annie Stewart suffered and was an early Attic Angel. The opportunities for the enrichment of the city's residents and visitors are excellent.

Further, more specific recommendations can be developed upon request.

SUMMARY OF COSTS

BUDGET ITEM		**RANGE OF PROBABLE COSTS**		
TOTAL ESTIMATE		$350,000	-	$425,000

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

Best regards,

InSite Consulting Architects

Stephen E. Mar-Pohl, AIA, NCARB

President

Dolphin in 1973 - The detail evident in this image is exceptional. While unconfirmed, it is apparent that the sculpture was either recently cleaned prior to this photograph or was benefited by a more proactive cleaning and maintenance program. When compared to a contemporary image of the same details it is evident that a significant amount of organic material obscures the detail. A proper conservation cleaning will help to ascertain what, if any, additional damage the piece has suffered.

Dolphin in 2017- Much of the fine detail is obscured by organic growth. Cleaning using a benign biocide and appropriate (field tested/verified) techniques will reveal the true condition of the marble subjects. The nature of the piece's subjects, their delineation in stone, their orientation, neighboring vegetation and exposure to the elements will come to light after a proper conservation-based cleaning.

Similar to the dolphin figure of the overall piece, the other figures' features have been obscured by organic growth. In order to determine the best course of action for the piece, further study will be required as part of a conservation-based study/procedure. Clearly there has been some measure of degradation and material loss, the exact measure of this loss, its cause(s) and potential remedies should be the result of further study that are outside the scope of the report. A thorough cleaning using the gentlest means possible should be undertaken at which time a full conservation plan can be developed and implemented.

Trade Magazine image (1921) of one of the missing Tritons that were produced by Vermont Marble Company, Proctor, Vermont. Under the direction of the artist this portion of the work was completed several years before the final installation. The Triton and his context were executed with a very high level of detail and relief. These details were too tempting for vandals and did not last 20 years in situ.

The transition from marble to limestone has fared poorly overall, but better than some of the "downslope" details. This is likely due to the fact that it was designed to handle significant amounts of water.

Egregious damage to the limestone base has come not only from the effects of the environment but also from repairs executed in the mid-1980's. The sealing of the surfaces of the stone eventually accelerated its deterioration and introduced long-term moisture exposure to the interior of the base's structure. Excessive corrosion of the stone's steel tension ring have contributed to significant deterioration from expansive metals.

PHOTO REPORT

Annie C. Stewart Fountain

Madison, Wisconsin

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TITLE: Annie C. Stewart Memorial Fountain
ARTIST: Frederick J. Clasgens, Cincinnati, OH
MAKER: Vermont Marble Company Proctor, Vermont
INSTALLER: F.M. Schlim Gino Monument Works, Madison, WI
EXECUTION DATE: 1924
INSTALLATION DATE: 1925
MEDIA (FIGURES): Rutland White Marble
Likely Source Based on Producer's Quarries
Rutland-Florence Quarry, Rutland,Vermont
White Calcitic Marble (Similar to Carrara)
BASE MATERIAL: Indiana Limestone
Likely Source Based on Availability
Indiana Limestone Company, Bedford Indiana
Oolitic Limestone
DIMENSIONS (MAXIMUM/APPROXIMATE):
FIGURE: 9'- 4" high x 4'- 0" wide
BASE: 6'- 4" high x 12'- 2" diameter
OUTER RING: 24' diameter

Figure 1: Overall view of condition of marble figures

LOCATION: South of 632 Wingra Street, Madison, Dane, WI
Formerly a pedestrian entrance feature for the Vilas Park and the Henry Vilas Zoo

FEATURES: Concrete basin and oolitic limestone base with marble figures imparting a nautical theme including a mermaid (sea nymph), two Tritons and a dolphin (porpoise).

Figure 2: Overall view of condition of marble figures

CONDITION: The Basin and Base have been treated (1994) with an epoxy cement-type repair material typically used for concrete and occasionally employed to preserve and protect Indiana Limestone. Typically, these efforts fail as the material is aggressive in terms of strength, bond to the base material, water vapor transmission characteristics, color and texture. Evident damage can be seen in the following figures. Significant areas of water-borne damage throughout the limestone base and concrete basin are, simply, beyond repair. Preservation of the material, while perhaps possible, will not meet any acceptable preservation standard. It is recommended that the basin be rebuilt in-kind as a replica.

Figure 3: Overall view of condition of marble figures

The figures appear to have been cleaned and maintained as photographs from 1973 indicated the dolphin figure was in excellent condition. In the intervening 44 years organic growth has been allowed to establish a presence. The pieces should be removed for cleaning and further conservation and preservation treatments.

Water feature: We do not recommend the repair/resurrection of the water feature. However, several elements, such as the cornucopia may require some protection as they collect water. The collection points allow water and organic material damage to occur.

Figure 4: View of cornucopia water feature

The previous treatment of the pedestal and base materials with the epoxy cement overcoat has altered and damaged the material beyond repair. Further, it is likely that this material will be damaged when the figures are removed for preservation/conservation based repairs. The area directly beneath the sculpture (pedestal) appears to be in the best overall condition of all the limestone that was treated in 1994. The cracks at the pedestal have been repaired and the surface treated. In this case, the configuration of the stone, the lack of fine detail, and its water shedding design helped the pedestal maintain its overall material and form.

Figure 5: Upper view of pedestal and base - note damage to pedestal has been repaired and appears to have stabilized

Cracks have formed at the base of the pedestal due to the differential movement of the pieces as produced and set. The interior "plumbing" of the fountain is likely to have an affect on this movement as it would act as a pinning point. Conservation of the piece would entail the careful deconstruction of the work to ascertain the interior configuration of the fountain, and its impact on the remainder of the piece.

Figure 6: View of marble figures and upper view of pedestal and base - note damage to pedestal has been repaired and appears to have stabilized

The shallow basin at the top of the pedestal collects water, promoting organic growth and the deterioration of the stone. This is a natural feature of the piece that must not be altered. It simply requires a regular maintenance regimen to keep it in optimal condition.

Figure 7: Upper view of pedestal and base - note damage to pedestal has been repaired and appears to have stabilized

The organic growth has caused more damage to the limestone base as might be expected due to the relatively open nature of the stone as compared to marble. This part of the piece appears to be beyond repair and must be replaced. The long-term performance of any new work will also require a regular maintenance regimen to keep it in optimal condition.

Figure 8: Upper view of pedestal and base - note damage to pedestal has been repaired and appears to have stabilized

The organic growth at the marble portions of the piece appears to be mostly superficial. This must be confirmed through a thorough conservation-based cleaning and study. The long-term preservation of the marble artwork must be maintained regularly with a prescribed regimen, properly funded. A conservation plan must be developed and implemented if the piece is to remain available to the public.

Figure 9: View of marble figures and upper view of pedestal and base - note organic buildup

Extraordinary care must be given during the preservation process to assure that the delicate details such as the Triton's arms are not damaged during the removal process.

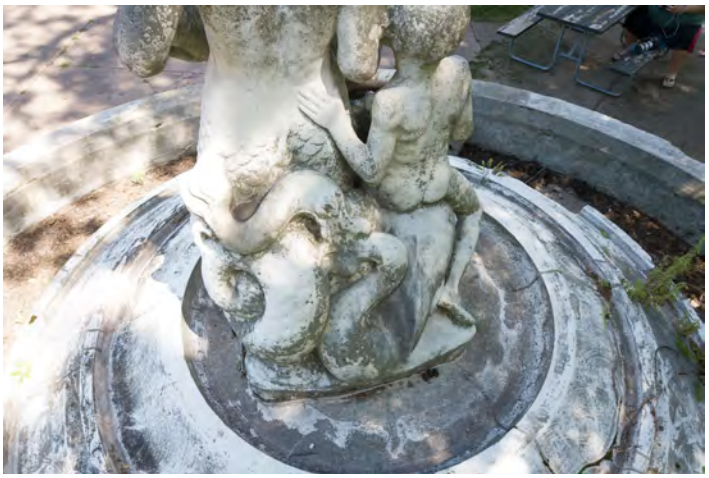

Figure 10: View of marble figures and upper view of pedestal and base - note mineral and organic buildup

A chain of custody plan must also be established to ensure that the piece's whereabouts are known throughout the process as one of the Tritons have been "lost" during its restoration and storage.

Figure 11: View of marble figures

It is recommended that, once the piece has been restored to its best possible condition that it be laser-scanned to memorialize its condition digitally. From this scan a replica could be made and missing elements may be restored.

Figure 12: View of dolphin figure - note the apparent loss of detail from organic buildup

Depending on the conditions discovered one of the elements that may be restored in the future might be the sea-nymph's nose that was damaged by vandalism. The city and it's conservator may develop plans for such work if budgets and the public's interest allow. Further, depending on the availability of documentation from the Vermont Marble Company and other sources, it is possible that the Tritons might also be reconstructed.

Figure 13: View of mermaid and cornucopia - note the apparent loss of detail from organic buildup

The complex and delicate nature of the sculpture will necessitate the use of a carefully developed and modeled plan to make certain that the act of deconstruction can be done without damage to the marble figures. The limestone base should be considered "sacrificial" and may be partially wrecked to accomplish a safe removal of the marble figures.

Figure 14: View of intricate spatial arrangement of marble figures from above

The support of the removal will likely require the restraint and/or confinement of certain details within the sculpture, such as the negative space between the Triton and Mermaid. This must be executed with precision to avoid breakage.

Figure 15: Close up view of Triton - note organic growth on surface of marble

The opening of the cornucopia must not be altered to allow for water to shed on the surface. Instead we recommend that the openings for the fountain be used to allow for internal drainage. This will keep the "bowl" of the cornucopia to remain empty. This will, of course, need to be cleaned on a regular basis.

Figure 16: View of mermaid and cornucopia

The outer ring of concrete and the "stools" that supported the outer Tritons must be recreated verbatim. They must be installed in the same configuration and locations.

Figure 17: Overhead view of entire fountain

The sculpture and pedestal must also be reinstalled in precisely using the same configuration and orientation. This is a critical aspect of the overall composition and must be replicated.

Figure 18: Close up overhead view of marble figures

The sculpture must be separated from the base with a minimum of damage to all of the original materials. Minimal wrecking may be required, but the pieces were set using some sort of mechanism/plan. We were unable to ascertain the method, further study is required.

Figure 19: Relatively intact base/pedestal transition

The limestone base was beautiful in its own right. The details of the shells and finely detailed bas-relief botanical motifs are unique and locally relevant through its depiction of plants indigenous to the area.

Figure 20: Shell motif condition amid limestone damage indicating restoration or replacement at some point in time

Deterioration at the limestone is, simply put, beyond repair. This is due to limestones vulnerability to damage from moisture infiltration, freeze-thaw cycling, and organic growth.

Figure 21: Excessive limestone damage adjacent to steel tension ring - causing iron oxide (rust) staining

This piece, because of its structural loading (holding itself and the marble piece above), required a tension ring at the top of the limestone base. This tension ring was made using steel rod that was given a radius and resisted the spread of the base when the marble pieces were installed. This steel rod has corroded, expanded and caused irreparable harm to the limestone.

Figure 22: Overall condition of stone base - the damage is excessive and beyond repair

This piece of limestone came from the area shown in Figure 22 and is lying on the ground. It sheared off of the main base as the underlying steel corroded and expanded.

Figure 23: Broken piece on the site

The outer ring was constructed using a coarse-aggregate concrete. Either at the time of construction or in the intervening years, a thin coat of cement stucco was applied to the outer ring to give it its finished appearance.

Figure 24: Coarse ring aggregate concrete at lower perimeter

The term "emerging damage" could be used throughout this report. This is one of many examples of the deterioration at the fountain that will continue to worsen. In our experience, these issues manifest themselves at an increasing rate as time progresses and neglect continues.

Figure 25: View of emerging damage at concrete at lower perimeter ring

The fountain's base must be reconstructed.

Figure 26: Excessive damage and improper repair with organic growth that is indicative of the level of disrepair

The reconstruction can be based on the pieces that remain.

Figure 27: Primary area that should be used when recreating the stone base

The entire fountain must first be fully documented using laser scanning techniques.

Figure 28: Close up of primary area that should be used when recreating the stone base

Then the fountain should be carefully deconstructed with as little loss to the original material as possible. Using an art conservator and a stone mason with experience in such work.

Figure 29: Excessive damage and improper repair with organic growth that is indicative of the level of disrepair

Preservation of the pieces that make up the entire installation is critical to the overall success of the process.

Figure 30: View of intact botanical motifs

Careful documentation of the construction, particularly at the junctures of dissimilar materials must be executed with care in order to guide the reconstruction process.

Figure 31: Stone to concrete transition

The concrete sub-base/foundation may actually be a cap over a cistern that was likely part of the original installation. Again, great care must be given when deconstructing the fountain.

Figure 32: Degradation and mineral staining at trailing water

Concrete from the Mid-1920s was very different from concrete today. The concrete used on site must be analyzed to ensure that the correct aggregate size, shape, density as well as the correct cement chemistry, color and strength are considered during the reconstruction process.

Figure 33: View of relief at fountain base

Intact areas of material transition may be studied to develop a plan for the best reconfiguration of the work. Based on the effect still visible nearly 100 years after installation, the precision in designing and installing the base is exceptional.

Figure 34: Relatively intact stone to concrete transition

The botanical motifs employed in the base must be preserved and recreated or restored. The final decision regarding the disposition of the materials of the base should be considered carefully.

Figure 35: View of relief at foundation base

It is possible that the base was conceived by the artist and executed by others (as had been the case with the marble pieces). We believe that it is possible that this work was done by local artisans, although, we have not been able to confirm this.

Figure 36: View of intricate detail at base, mineral deposits at trailing water

The shell motifs appear to have been part of a separate preservation effort, or, their shape and materials have led them to withstand the effects of the elements at the site better than the surrounding stone. Further study is required.

Figure 37: Shell motif condition amid mineral deposits at trailing water

The mineral deposits appear to emanate from the sub-surface steel components of the base.

Figure 38: Shell motif condition amid mineral deposits at trailing water

This is the location of one of the missing Tritons.

Figure 39: View of base of "dry" Triton

The location of the second missing Triton that was plumbed for the drinking fountain.

Figure 40: View of base of "wet" Triton

The damage to the fountain's base of limestone and concrete is not reversible. Complete restoration is required.

Figure 41: View of extreme damage to the limestone

The damage to the fountain's base of limestone and concrete is not reversible. Complete restoration is required.

Figure 42: View of damage at tension ring

The damage to the fountain's base of limestone and concrete is not reversible. Complete restoration is required.

Figure 43:View of plant infestation and damage

The damage to the fountain's base of limestone and concrete is not reversible. Complete restoration is required.

Figure 44: Overall view of base

The damage to the fountain's base of limestone and concrete is not reversible. Complete restoration is required.

Figure 45: View of damage to limestone at base and relatively intact condition of shell motif

The damage to the fountain's base of limestone and concrete is not reversible. Complete restoration is required.

Figure 46: View of weep holes, cracked limestone mineral deposits and trailing water

The damage to the fountain's base of limestone and concrete is not reversible. Complete restoration is required.

Figure 47: View of weep holes, cracked limestone mineral deposits and trailing water

The damage to the fountain's base of limestone and concrete is not reversible. Complete restoration is required.

Figure 48: View of cattail motif

The damage to the fountain's base of limestone and concrete is not reversible. Complete restoration is required.

Figure 49: View of weep holes at shell, cracked limestone mineral deposits and trailing water

The damage to the fountain's base of limestone and concrete is not reversible. Complete restoration is required.

Figure 50: View of weep holes, cracked limestone mineral deposits and trailing water

The damage to the fountain's base of limestone and concrete is not reversible. Complete restoration is required.

Figure 51: View of floral motif

The damage to the fountain's base of limestone and concrete is not reversible. Complete restoration is required.

Figure 52: View of missing shell

The damage to the fountain's base of limestone and concrete is not reversible. Complete restoration is required.

Figure 53: View of degraded material at cattail motif

The damage to the fountain's marble elements appears to be both treatable and reversible. Conservation is required.

Figure 54: View of dolphin in 2017

This is the best example we could find of the condition of the marble sculpture in a preserved state. We believe that the marble should be restored to a condition as close to this as possible.

Figure 55: View of dolphin in 1973