

Memorandum

Department of Public Works



TO: Michael O. Geisel, City Administrator
Tom McCarthy, Director of PR&A

FROM: James A. Eckrich, P.E. *JAE*
Director of Public Works / City Engineer

DATE: August 25, 2022

RE: Eberwein Park Improvement Project - Dam Reconstruction

As you know, in early 2021 the City of Chesterfield City Council authorized Staff to pursue the reconstruction of the aggregate trails in Eberwein Park. These trails have been affected by large-scale erosion problems for some time and portions of the trails have been closed since 2020. On May 3, 2021 City Council authorized a contract for engineering design services with Horner and Shifrin in order to design improvements to permanently fix the problems in Eberwein Park. Horner and Shifrin completed design of the Plans, Specifications, and Estimate (PS&E) earlier this year, at which time the project was advertised for bid. On June 7, 2022 City Council authorized a construction contract with the low bidder, Kozeny Wagner, in an amount not to exceed \$844,000. Construction began the week of August 1, 2022.

In order to eliminate the erosion problems which have impacted the trails since their initial construction, Horner and Shifrin's design completely relocates portions of the trail. Previously there were two independent "loops" with no connection; one on the north side of the park (where the dog park is located) and one on the south side of the park. The new trail design lessens the grade of the trails (in order to eliminate the erosion) and connects both sides of the park, resulting in a superior trail experience. This is accomplished by constructing a new section of trail west of the existing pond which connects the north side of the park to the south. See the attached drawing.

When excavating for the new section of trail west of the pond, we discovered that the pond's dam is leaking. Further investigation uncovered that there are actually several leaks and a number of trees / stumps incorporated into the dam. Constructing a new trail over a leaking dam would be irresponsible and would certainly lead to failure of the trail in that area.

At this time the City needs to make a decision as to how to proceed. There are two viable options which are described in detail within the attached memorandum from

Senior Civil Engineer Jeff Paskiewicz. One option (Option 2 in Jeff's memo) is to stop construction of the new trail on both sides of the dam. This would allow the project to be constructed within the Council approved allocation. The drawback to selecting this option is that we are left with a failing dam and an unconnected trail system in Eberwein Park.

Another option (Option 1 in Jeff's memo) is to remove the dam and reconstruct it with a clay liner and piped overflow structure. This option would include removing all of the trees / stumps in the dam, excavating the pond to allow for an appropriate depth, and then constructing the trail immediately adjacent to the dam. This is certainly the preferred option, but the estimated cost from the contractor is \$250,000. If the City proceeds with this option, I would negotiate a scope and fee with the contractor whereby the City would pay for this work on a "time and materials" basis in an amount not to exceed \$275,000.

It is my recommendation that this matter be presented to the Parks, Recreation and Arts Committee of City Council in order to obtain direction as to how to proceed.

- If the PR&A Committee selects Option 2 there is no need for an additional budgetary allocation. The project would be constructed as designed except that the proposed trail will terminate on both sides of the dam. If this option is selected the leak in the dam will continue as-is and a repair / restoration will have to be funded, designed, and scheduled at a later date.
- If Option 1 is chosen I will immediately begin negotiations with the contractor on a scope and fee on a "time and materials" basis. The dam will be reconstructed, the pond will be improved, and a new trail section will be constructed (as originally designed) which will connect the north and south sections of Eberwein Park. Proceeding in this manner will require a supplementary budget allocation of \$275,000 from the Parks Fund – Fund Reserves.

As this project is currently under construction it is imperative that a decision be made as soon as possible. Accordingly, I am requesting that this matter be placed on a PR&A Committee meeting agenda during the week of August 29 and the City Council agenda for September 6, 2022.

Action Recommended

This matter should be presented to the Parks, Recreation, and Arts Committee of City Council as soon as possible. The matter should then be forwarded to the full City Council on September 6, 2022 for direction as to how to proceed regarding the Eberwein Park project.

Concurrence:



Jeannette Kelly, Director of Finance

Memorandum

Department of Public Works



TO: James A. Eckrich, PE – Director of Public Works /City Engineer

FROM: Jeff Paskiewicz, PE – Senior Civil Engineer *JJP*

DATE: August 25, 2022

RE: Eberwein Park Trail Restoration Project (2021-PW-10)
Dam Repair and Excavation of Existing Pond

As you are aware, Kozeny-Wagner is currently working on the trail reconstruction project located in Eberwein Park. A portion of the new trail will be located just west of the dam for the existing pond. While trees and brush were being cleared from the back side of the dam several leaks in the dam were discovered. Please see the attached photos and plan sheet.

In order for the trail to be constructed adjacent to the dam, the dam will first need to be repaired. At this point in time there are two options for moving forward.

Option 1:

Option 1 is to rebuild the dam. This would entail draining the pond, removing the existing dam and reconstructing a new dam in the same location. While the pond is drained and the existing dam removed, we would remove the sedimentation that has accumulated in the pond. The pond existed when the City acquired the property in 2009 and depths of the current pond range from 4-6 feet. The surface of the pond is currently covered with algae/vegetation. Once the dam is removed, the pond would be excavated to provide depths ranging from 5 to 12 feet. The material excavated from the pond would be incorporated into the park design, allowed to dry and then seeded. The dam would then be rebuilt, including a clay liner on the pond side of the dam with a piped overflow. Once the dam is rebuilt the trail can then be built adjacent to the dam as originally planned. Staff has obtained a preliminary proposal from Kozeny-Wagner to perform the work at an estimated cost of \$250,000. Since the back side of the dam and adjacent downstream areas are currently disturbed, it would be advantageous to have Kozeny-Wagner perform the dam repair at this time. Reconstructing the dam now would allow for the new trail to be constructed adjacent to the dam and the project to be constructed as designed.

Option 2:

Option 2 is to leave the existing dam in place, temporarily terminate the concrete trail on the north and south sides of the dam, and plan for the dam to be replaced in the future. The trail termination points would be established such that they are outside of any future land disturbance that would occur with future reconstruction of the dam. A temporary mulch path would be created across the existing dam which would connect the termination points of the new concrete trail on both sides of the dam. At such time in the future when the dam is rebuilt, the concrete trail would then be extended across the dam. The area that is currently disturbed on the backside of the dam would be vegetated and rock placed in the area of the leak to provide temporary stabilization as this area will remain wet. The mulch trail would be considered a temporary condition and NOT ADA accessible. The benefit in proceeding in this manner is it allows for the majority of the project to be constructed within the approved allocation.

In order to not cause delays to current trail restoration project, I will need direction in a timely manner on how to proceed.

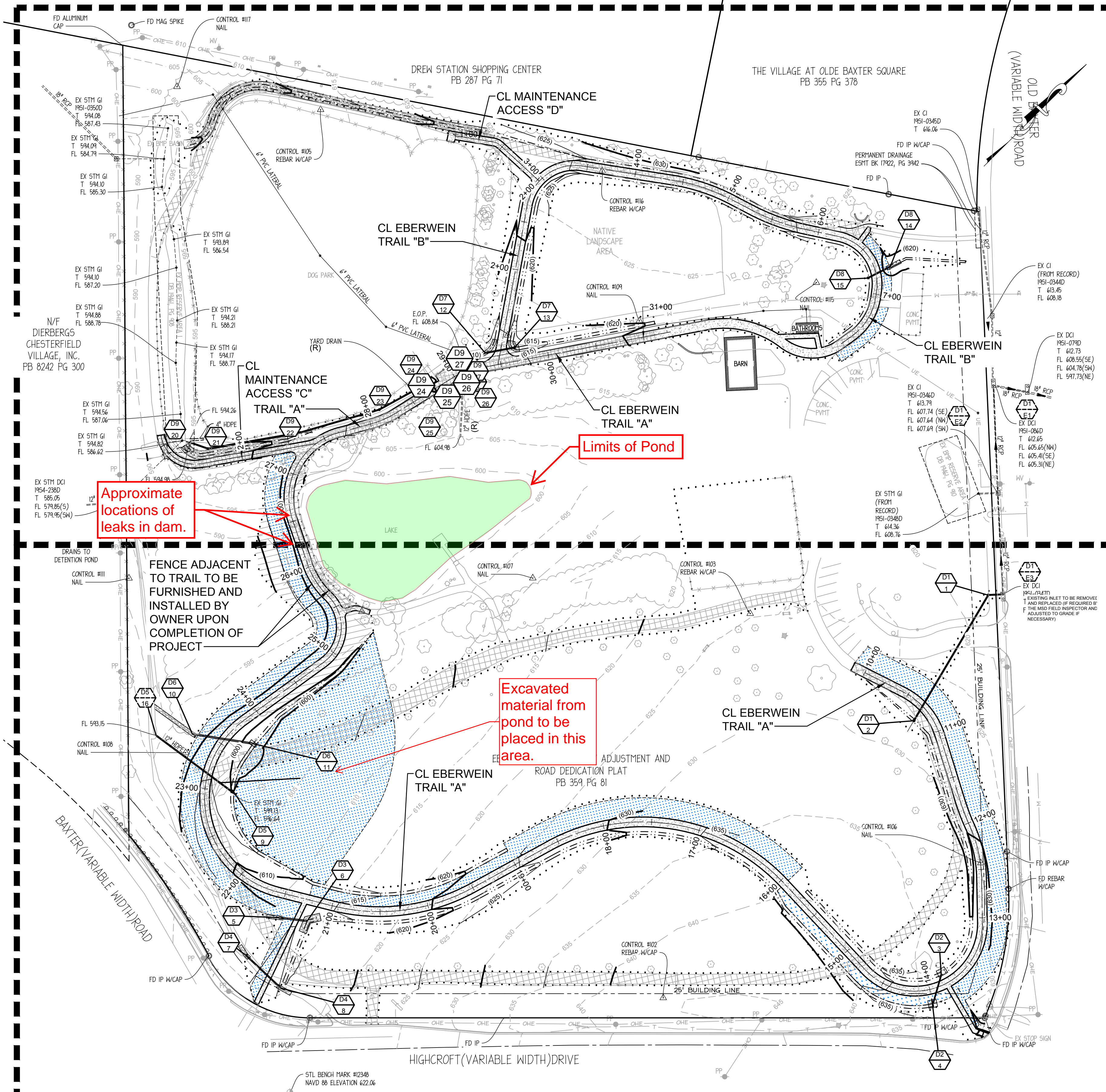
Attachments: Photos
 Annotated Plan Sheet C4.0

Cc: Zach Wolff, Assistant City Engineer
 File 2021-PW-10

SEE SHEET C4.1

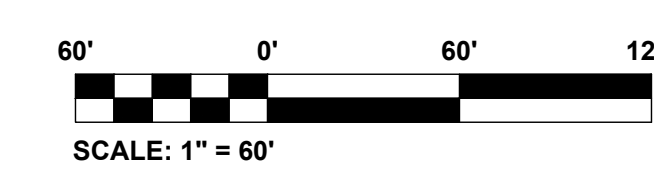
GRADING NOTES:

- SEE SHEETS C0.0 AND C0.2 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
 - UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF THE LOCATION OF ALL UNDERGROUND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE LOCATED PRIOR TO GRADING OR CONSTRUCTION OF IMPROVEMENTS.
 - NO GRADING OR EXCAVATION ACTIVITIES SHALL BE PERFORMED ON THE SITE UNTIL ALL NECESSARY PERMITS HAVE BEEN SECURED AND EROSION CONTROL MEASURES HAVE BEEN INSTALLED ON AND ADJACENT TO THE PROJECT SITE.
 - ALL FILL SOILS SHALL BE COMPACTED TO A MINIMUM OF 95% OF STANDARD PROCTOR DENSITY (ASTM D-698) WITHIN 3% OF OPTIMUM MOISTURE CONTENT IN LIFTS NOT TO EXCEED EIGHT (8) INCHES OF COMPACTED THICKNESS.
 - EVERY LIFT SHALL BE TESTED BY A GEOTECHNICAL ENGINEER AT THE FREQUENCY DETERMINED BY GEOTECHNICAL ENGINEER IN THE FIELD. TEST REPORTS SHALL BE PROVIDED TO OWNER WITHIN 7 DAYS OF TESTING. CONTRACTOR TO COORDINATE WITH CITY'S GEOTECHNICAL ENGINEER.
- | MATERIAL TESTED | PROCTOR TYPE | MIN % DRY DENSITY |
|-------------------------------------|------------------------|-------------------|
| STRUCT FILL(COHEISIVE) | MODIFIED (ASTM D 1557) | 90 |
| | STANDARD (ASTM D 698) | 95 |
| STRUCT FILL (GRANULAR) | MODIFIED | 95 |
| | STANDARD | 98 |
| LANDSCAPED AREAS (NON-LOAD BEARING) | MODIFIED | 88 |
| | STANDARD | 90 |
| UTILITY TRENCH BACKFILL | MODIFIED | 90 |
| | STANDARD | 95 |
- IN ALL AREAS WHERE SEWER AND APPURTENANCES ARE TO BE CONSTRUCTED IN FILLED GROUND, THE FILL WILL BE PLACED, COMPACTED AND TESTED TO FINISH GRADE PER PROJECT REQUIREMENTS.
 - ELEVATIONS AND CONTOURS SHOWN ARE TO TOP OF FINISHED GROUND OR PAVED SURFACE, UNLESS NOTED OTHERWISE.
 - NO SLOPE SHALL BE GREATER THAN 3 (HORIZONTAL) TO 1 (VERTICAL).
 - ALL TRASH, DEBRIS, ORGANIC MATERIAL, REFUSE, FROZEN EARTH, ETC., SHALL BE REMOVED FROM FILL AREAS PRIOR TO THE PLACEMENT OF CONTROLLED FILL. ALL FILLS AND BACKFILLS SHALL BE MADE OF SELECTED EARTH MATERIALS, FREE FROM BROKEN MASONRY, ROCK, FROZEN EARTH, RUBBISH, ORGANIC MATERIAL AND DEBRIS.
 - ALL GRADING WORK SHALL BE PERFORMED IN SUCH A MANNER THAT ADJACENT PROPERTIES ARE NOT DAMAGED OR ADVERSELY AFFECTED.
 - ALL LOW PLACES, WHETHER ON-SITE OR OFF-SITE SHOULD BE GRADED TO PROVIDE POSITIVE DRAINAGE.
 - ANY DAMAGE, INCLUDING SURFACE SCARRING, TO THE EXISTING ACCESS DRIVES SHALL BE REPAIRED, REPLACED OR RE-CONSTRUCTED IN LIKENESS OR BETTER, AT THE CONTRACTOR'S EXPENSE.
 - CARE SHALL BE EXERCISED IN COMPACTION OF BACKFILL MATERIALS OVER THE TOP OF STRUCTURES OR PIPES IN ORDER TO PREVENT DAMAGE TO THE WATERPROOFING MEMBRANES, JOINTS, SEALS, AND/OR THE PIPES AND STRUCTURES THEMSELVES.



GRADING PLAN LEGEND

DESCRIPTION	SYMBOL
EXISTING CONTOURS	--- 430 --- 431 ---
PROPOSED CONTOURS	— (430) — (431) —
SPOT ELEVATIONS	• 500.00
MATCH EXISTING (ME)	• 500.00ME
BOTTOM OF CURB (BC)	500.00BC
TOP OF CURB (TC)	500.00TC
TOP OF WALL (TW)	500.00TW
BOTTOM OF WALL (BW)	498.00BW



NO.	DATE	REVISION

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August 23, 2022 01:53PM
Eberwein Dog Park
St. Louis County

Photo taken from bottom of dam looking east at leak.



August 23, 2022 01:54PM
Eberwein Dog Park
St. Louis County

Photo take from the dam looking east. Existing dock can be seen in background.