

DRAFT Preliminary Evaluation

To: College Place Lions Club
By: John Wells, PE, Anderson Perry & Associates, Inc.
RE: Fishing Pond Improvements
Date: January 13, 2015

Introduction

This memorandum is a preliminary evaluation of the College Place Lions Club fishing pond's existing characteristics and potential improvements to improve the pond for safety and functionality. The College Place Lions Park fishing pond is located off of Larch Avenue in the south east corner of Lions Park as shown on Figure 1. The pond serves the community as a walking path and public recreation area. The pond is a good location for a youth fishing pond, and has served to facilitate youth fishing opportunities for College Place and surrounding community.

The pathway around the pond is a potential safety hazard due of the settling concrete sidewalks around the perimeter of the pond sloping toward the water surface with vertical drop off at the water's edge. In addition, the pond has some water quality concerns including direct stormwater discharge and ongoing sediment accumulation from Garrison Creek. The stormwater discharged from local roads to the fishing pond carries sediment and potentially other pollutants.

Pond Description

The current pond system is hydraulically connected to Garrison Creek as it flows across the south corner of the park from east to west. The pond is located in the southeast corner of the park with the pond inlet along the far eastern property boundary and the outlet located at the pond termination point where the creek returns to surface stream channel. There is currently no inlet diversion to direct water out of Garrison Creek since the entire creek flows through the pond. The existing pond outlet check structure at the downstream end of the pond allows water to exit the pond by spilling over a weir. The outlet check structure is approximately 5 feet tall with wooden check boards installed to create the impoundment as shown in Photo 1.



Photo 1. Fishing Pond Outlet

The pond is approximately 240 feet in length from east to west and approximately 180 feet in length from north to south, but is oblong shaped with an area of approximately 0.54 acres. The pond has concrete sidewalk around the edge of the pond, some of which is sloping toward the water's edge with a vertical drop off at the water's edge.



Photo 2. Pond Inlet showing the vertical drop off at the waters edge

The pond appears to be approximately 18 inches deep immediately off of the concrete sidewalk and appears to deepen to between 4 to 6 feet at its deepest point in the middle of the pond. Some of the concrete sidewalk has cracks and is showing signs of deterioration, especially at the ponds edges where the concrete is sloping most toward the water surface(Photo 3).



Photo 3 - Sloping concrete pathway at the water's edge of the pond

The pond has an interior island that is covered with trees, briars, and bushes (Photo 4). The stormwater pipe enters at the southwest corner of the pond. This stormwater pipe collects stormwater from along Southeast 12th Avenue until reaching Dalles Military Road as shown on Figure 1. The stormwater pipe is shown in photo 5 as the concrete manhole against the hillside covered in vegetation.

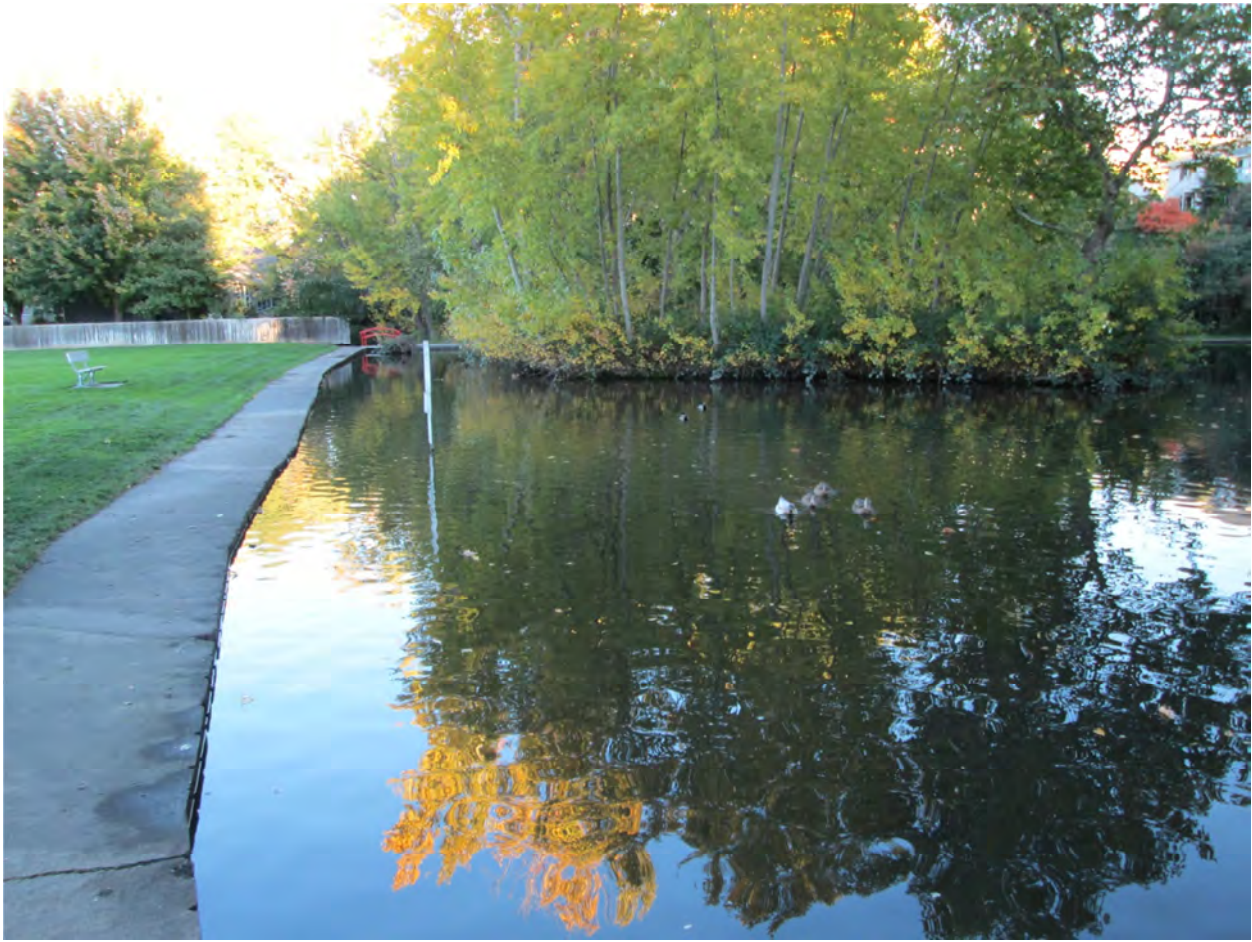


Photo 4 – Tree covered island. Facing from near existing pond outlet toward the east and the new proposed inlet.



Photo 5. Stormwater inlet pipe to the fishing pond.

Problem Description

As previously noted, the existing pond has several issues, one of which is the sloping concrete sidewalk which tends to slope toward the water's edge in many places. Throughout many times of the year the concrete perimeter walkway is wet and slippery. The walkway is a public safety hazard to young children and the disabled who could inadvertently slip and fall into the water. In addition, wheel chairs being driven on the walkway could lose traction and end up sliding off the edge into the water. Both of these scenarios could potentially lead to loss of life.

A second problem is that stormwater enters this pond directly from Southeast 12th Avenue and does not receive any treatment prior to being discharged directly into surface water which then flows to the confluence with the Walla Walla River. Sediment and pollutants from nearby roadways are potentially carried by stormwater and deposited in the pond and then downstream.

A third issue is related to the sediment deposition, some of which may be coming from the aforementioned culvert and stormwater pipe, but also, sediment accumulates from depositional load as a result of Garrison Creek storm events which bring sediment laden stormwater into the pond and is deposited in the pond as a result of the increased channel cross sectional area and the slower velocities within the pond. The deposition of sediment within the pond results in the pond needing to be cleaned

out every few years to maintain adequate capacity for the pond fishing activities. When sediment is removed it is accomplished by mechanical means (excavator and dump trucks) to maintain capacity of the pond.

Option Analysis

Potential Safety Improvements

Several options are available to address the sloping concrete perimeter sidewalk around the pond.

Option A – Remove and replace extreme sloping perimeter concrete pathway segments and install hand rail around the entire pond. The handrail would likely need to be 30 inches tall with two 1-1/4 inch steel pipe hand rails and kick plate at the bottom. The handrail system would be either galvanized or epoxy coated for longevity. The handrail would be anchored to the existing concrete except for some removable hand rail segments to facilitate future pond cleaning. The hand rail at the edge of the pond would reduce public safety risk for accidents for small children and handicapped individuals. The handrail would need to run continuously around the pond.

Option B – Remove the entire concrete perimeter sidewalk around the pond and replace with a berm and an earthen graveled walking path. The concrete walkway is 4 feet wide and is estimated to be 4-inches thick. Based on the perimeter length of 680 feet there would be 50 tons of concrete to removed and disposed from the site. To create a berm around the pond would require 550 cubic yards assuming a berm 1.5 feet tall, 10 feet wide 3H:1 vertical sloping sides and a top width of 5 feet. Landscape features would likely be desired to reduce soil erosion. Also gravel would be required to a minimum depth of 4-inches on the walkway area would require 42 cubic yards of gravel.

The advantage of having a concrete surface around the pond is that it provides additional opportunity for handicapped individuals to access the pond. Sloping concrete that needs to be removed and replaced is estimated to be approximately 100 feet in length or 45 square yards of concrete. The abrupt edge of the pond at the water's edge can only be mitigated by removing additional concrete or installing a hand rail around the pond.

Stormwater Improvements

The stormwater pipe that discharges directly into the pond should be routed to a stormwater treatment area such as a grass lined swale as shown in Figure 2. The stormwater pipe comes down a steep hill before entering the fishing pond. This pipe could be intercepted and routed along the hillside at approximately a 1 percent slope until exiting to the west side of the pond into the open area that would be converted into a grass lined swale. The swale could be run through the open park area toward the west. The swale would be dry during the majority of the summer season and only carry water during the rainy season. The grass-lined swale would be a stormwater treatment feature which would improve stormwater quality and would also capture some of the sediment and pollutants. Depending on City and County requirements, the stormwater feature could also function for some storage prior to discharging into the creek approximately 100-200 feet downstream of the existing pond structure. This stormwater swale would be an improvement to the City stormwater and would result in some benefit of reducing sediment and potential pollution of oils and grease discharged to Garrison Creek. The added benefit would also be to reduce sediment deposition directly into the fishing pond.

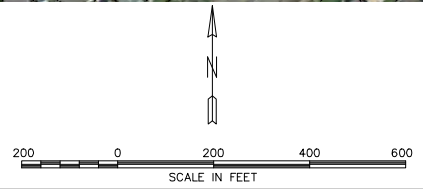
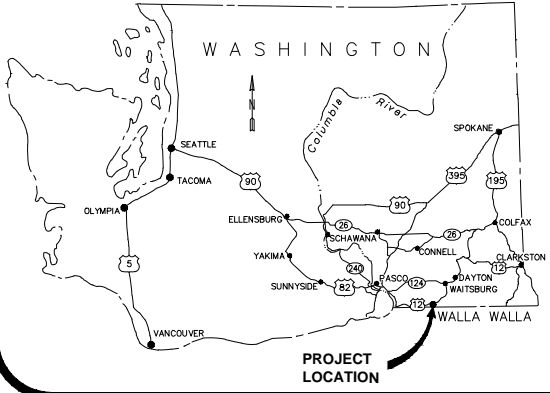
Sediment Improvements

Option 1

Reduction of sediment to the fishing pond from Garrison Creek would require a new inlet and outlet of the fishing pond. The island would be eliminated tied in and connected to the existing land and would be turned in to a land bridge(Figure 3). The fishing pond size would be reduced by about half, but this is not expected to be an issue since the remaining area is the most used by anglers. The north side of the pond would be turned into a stream. The outlet structure of the existing pond would be removed and the stream would be sloped toward the east at approximately a 2 percent slope, forming one continuous riffle from the current pond outlet structure upstream to the new pond inlet structure as shown on Figure 2. The new stream channel formed would be approximately 260 feet long, 2 percent slope, 10 feet wide at the bottom. It would be about 5 feet deep when matching into the existing channel bottom near the current pond outlet structure as shown on Figure 3. The stream section would be filled with stream bed simulation material, (boulders and gravels) to form a roughened channel. These improvements would remove the island from the fishing pond and the new north bank would now be covered in trees, and there would likely be a small walking path developed through this tree area to allow full access around the pond. The pond would be taken out of the main sediment channel by installing a new diversion structure at the far western point of the property. This diversion structure would need to take water off of the middle of the Garrison Creek water column, letting sediment and debris primarily by-pass the pond and would need to have a fish screen to keep fish in the stream and prevent leaves and other deposits from entering the pond at the surface. This diversion would be a new diversion structure. Since the fishing pond is being enclosed, the outlet would be an overflow outlet, along with a drain outlet.

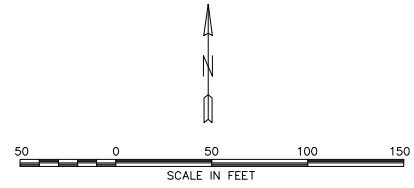
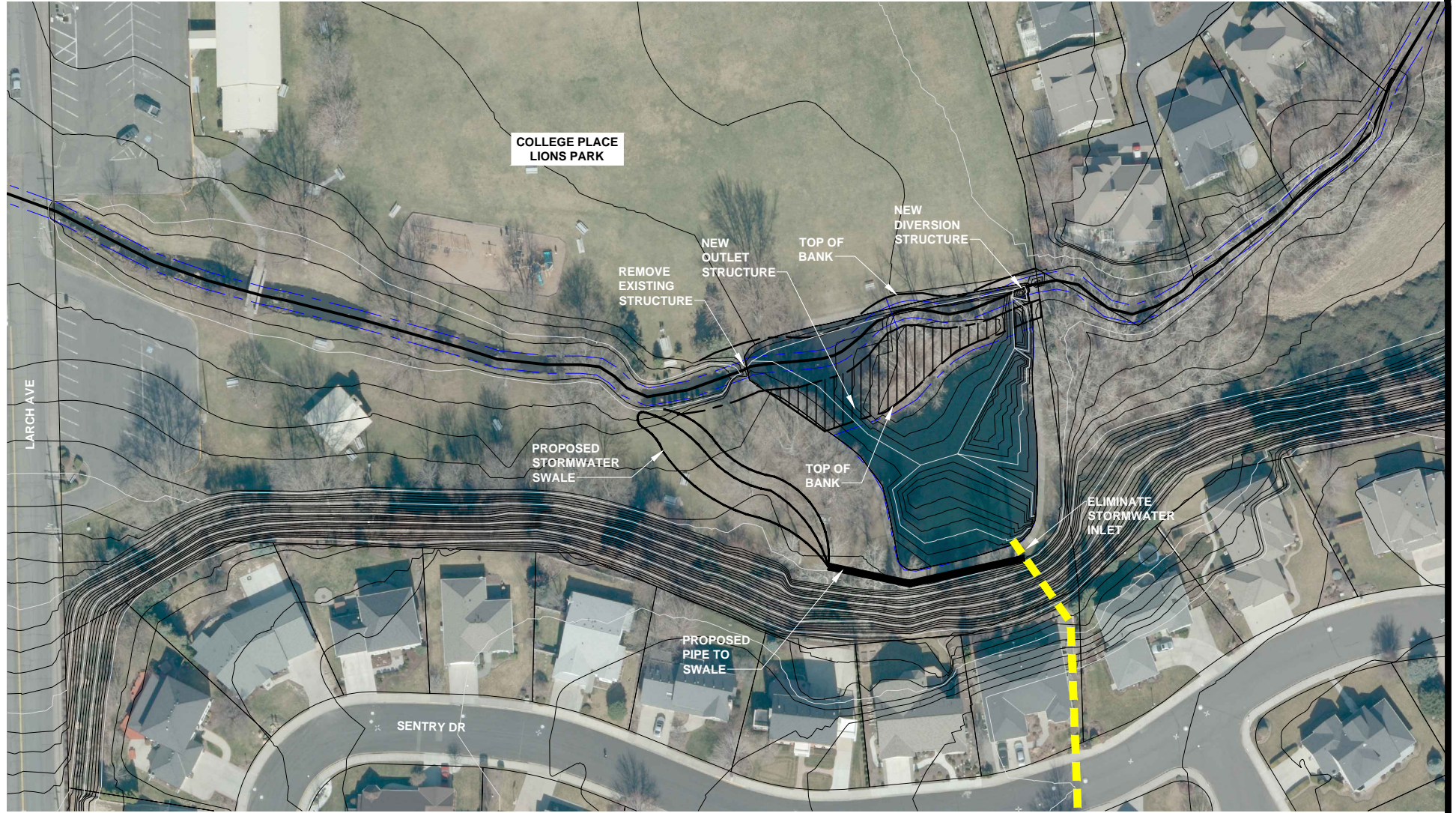
Option 2

Another option for removing sediment from the pond would be to purchase or rent a floating dredge, above ground piping and big gun irrigation sprinkler. The sediment deposited in the pond would be excavated using the floating hydraulic dredge and sprayed on the adjacent park and ball field. This solution would require the purchase and storing of dredging equipment which would only be used every few years. The benefit of this option is the reduction of large mechanical equipment needed to remove sediment from the fishing pond. The dredge water and solids would need to be spray irrigated in a manner to ensure the park grass was not damaged. This would require short periods of irrigation followed by a rest period prior to the next application. This option would not reduce the amount of sediment entering the pond.



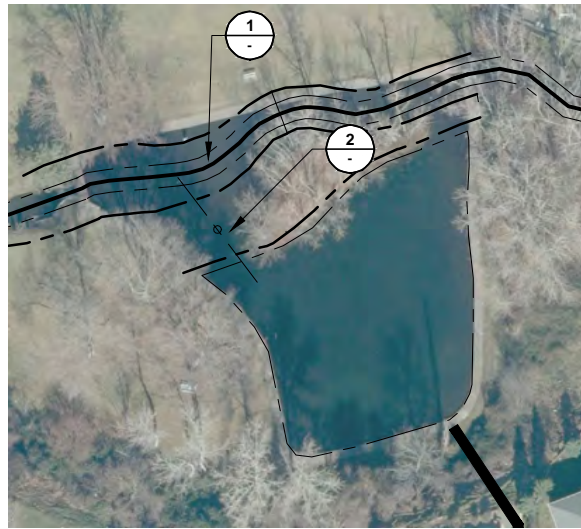
**CITY OF COLLEGE PLACE
LIONS PARK
VICINITY MAP**

**FIGURE
1**

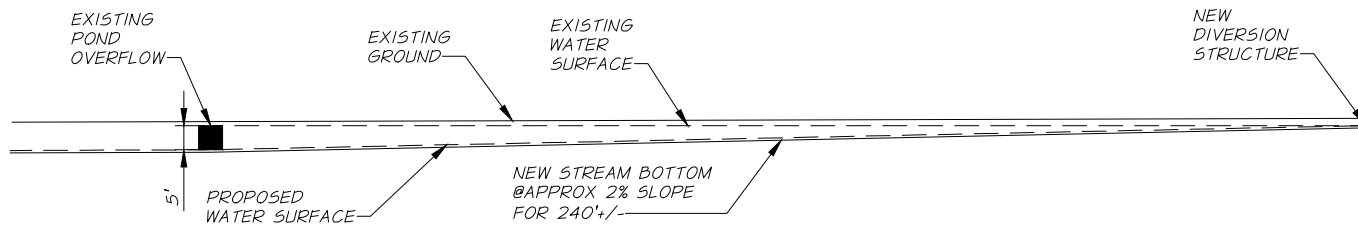
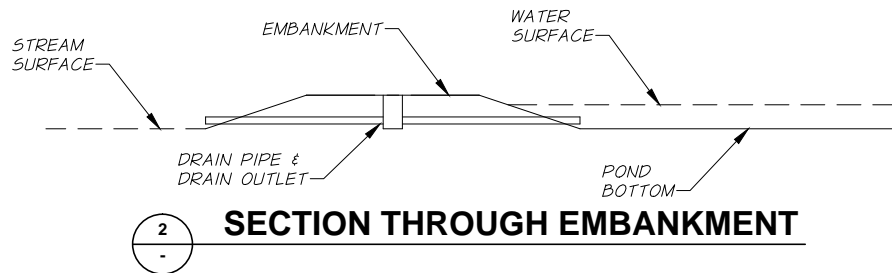
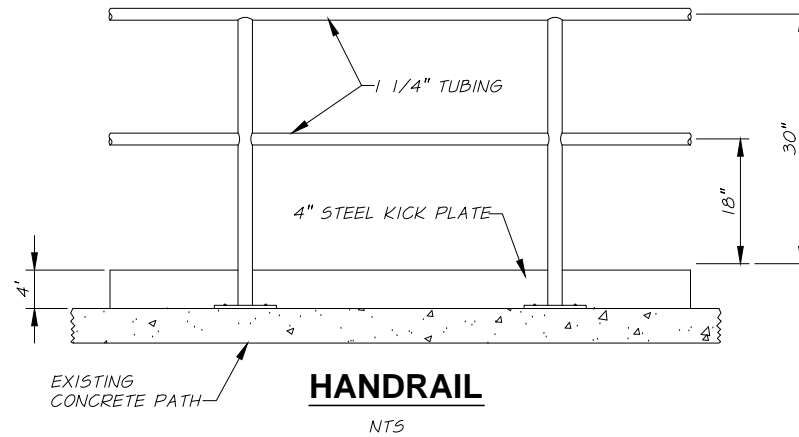
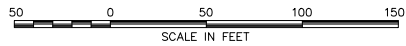


CITY OF COLLEGE PLACE
 LIONS PARK
 FISHING POND IMPROVEMENTS
 SITE PLAN

FIGURE
 2



POND



STREAM PROFILE



CITY OF COLLEGE PLACE
LIONS PARK
**FISHING POND IMPROVEMENTS
POND SECTIONS**

FIGURE

3