



CITY COUNCIL ACTION REPORT

October 23, 2014

TO: Brian Kischnick, City Manager

FROM: Mark F. Miller, Director of Economic and Community Development
Steven J. Vandette, City Engineer

SUBJECT: Approval to Submit Application for EPA Funding – Sylvan Glen Phase 2
Project No. 14.301.5

History

The City has been pursuing outside funding for the Sylvan Glen Streambank Stabilization Phase 2 project for several years. Work on Phase 1 was completed in 2008. Several grant applications have been unsuccessful, but recent discussions has led the EPA to request an application from the City to submit for the next phase of the Sylvan Glen project (email from EPA attached).

Phase 2 includes improvements in four primary areas, as identified in the attached documents. These include:

- Project Area A: Gibson-Renshaw (repairs to work in areas in Phase 1)
 - Address erosion to outfalls, restore channel dimensions, repair storm sewer end sections and storm sewer, restore with native riparian vegetation along the channel
- Project Area B: West Gibson – Near Parking Lot
 - Remove existing stream crossing (culvert under the old access drive), address erosion to outfalls, restore natural meanders, riffle-pool bed topography, channel dimensions, install natural riffle grade controls and floodplain bench excavation in channelized areas, restore with native riparian vegetation along the channel
- Project Area C: West Gibson – 18th Fairway
 - Address erosion to outfalls, restore natural meanders, riffle-pool bed topography, channel dimensions, install natural riffle grade controls and floodplain bench excavation in channelized area, restore with native riparian vegetation along the channel.
- Project Area D: West Gibson – 9th Fairway
 - Remove existing stream crossing (bridge), address erosion to outfalls, restore natural meanders, riffle-pool bed topography, channel dimension, install natural riffle grade controls and floodplain bench excavation in channelized area, restore with native riparian vegetation along the channel.

The work in Phase 2 is similar in nature to what was completed in Phase 1. It will primarily address areas in Phase 1 that need maintenance, bank erosion along the drain, remove the failing culvert under the access drive, remove and replace an existing bridge as well as restoring 3,500 feet of stream, reduce over 40 tons of sediment per year in the Clinton River all of which work toward delisting the Beneficial Use Impairments in the Clinton River. Coordination with the golf course will be required to minimize impacts to play as much as possible.

Financial

The EPA is interested in providing funding for this project in the amount of \$375,000 contingent upon an approvable application by the City and barring any unforeseen circumstances. The total project cost is \$850,000, meaning the City's share of the project is \$475,000 or a 45% federal share and 55% local share.

The City's 3-year budget includes \$100,000 in 2014/15 and \$750,000 in 2015/16 within the Drains Fund, with \$375,000 in grant funding anticipated as outside revenue.

Recommendation

It is recommended that City Council approve submittal of an application to the EPA for the Sylvan Glen Phase 2 project and barring any unforeseen circumstances, the EPA projects being able to make an award of \$375,000 in calendar year 2014 towards the project.

William J Huotari

From: Mosier, Bart <mosier.bart@epa.gov>
Sent: Tuesday, October 21, 2014 1:34 PM
To: Steven J Vandette
Cc: William J Huotari; Jaffess, Sharon; Virgilio, Susan
Subject: Sylvan Glen restoration

Mr. Vandette,

EPA requests that you submit an application for your Sylvan Glen project. EPA is interested in providing funding for this project because the Clinton River Public Advisory Council identified it as an important aquatic habitat restoration project that will contribute to removing the Degraded Fish and Wildlife Populations and Loss of Fish and Wildlife Habitat Beneficial Use Impairments in the Area of Concern.

As we have discussed, your application should include an EPA share of \$375,000, and the City of Troy will provide match for the remainder of the costs of the project.

If you are able to submit an approvable application timely, and barring any unforeseen circumstances, we would project being able to make an award in CY 2014. This email is not a promise of funding, as EPA cannot make such a promise prior to the official award of a grant.

I look forward to continuing to work with you on this project.

Bart A. Mosier
Program Analyst
Great Lakes National Program Office
U.S. Environmental Protection Agency
77 W. Jackson Boulevard, G-17J
Chicago, IL 60604
(312) 353-4513



**EPA Great Lakes Restoration Initiative Request for Applications
Funding Opportunity Number: EPA-R5-GL2014-2
Watershed Management Implementation**

Project Scope:

- Removing two stream culverts
- Address erosion at outfalls
- Repair storm sewer end sections and storm sewer
- Restore natural meanders, riffle-pool bed topography, and channel dimensions
- Install natural riffle grade controls and floodplain bench excavation in channelized areas
- Restore with native riparian vegetation along the channel.

Deliverables:

- Review of existing data on stream conditions and Preliminary Monitoring Evaluation
- Soil Erosion and Sedimentation Control Permits
- Final Design Plans and Specifications for bidding (including Safety Plan)
- Bid tab, contractor bid reviews, and engineer's recommendations
- Documented implementation of Construction
- Public education and awareness
- Post-Construction Monitoring Reports

Project Time Line:

Some milestone dates are as follows:

- Project Initiation Meeting – November, 2014
- Permit Applications Submittals – December, 2014
- Final Design Plans and Specifications – February, 2015
- Bidding – March, 2015
- Construction – April, 2015 – May, 2016 **
- Monitoring – May, 2016 – August, 2016
- Project Final Reports–August, 2016

** The project time line will be coordinated with golf course staff to avoid interruptions to golf playing season.

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Estimated Construction Costs:

Table 2: Preliminary Estimate of Probable Project Costs

Engineers Estimate of Probable Construction Costs						
August 18, 2014				HRC Job No. 20090277.07		
<u>Item</u>	<u>Qty</u>		<u>Cost</u>			<u>Total Cost</u>
<i>Project Area A: Gibson-Renshaw</i>						
Address erosion to outfalls, restore channel dimensions, repair storm sewer end sections and storm sewer, restore with native riparian vegetation along the channel.	1	lsum	@	\$80,000.00	=	\$80,000.00
<i>Project Area B: West Gibson – Near Parking Lot</i>						
Remove existing stream crossing, address erosion to outfalls, restore natural meanders, riffle-pool bed topography, channel dimensions, install natural riffle grade controls and floodplain bench excavation in channelized areas, restore with native riparian vegetation along the channel.	1	lsum	@	\$200,000.00	=	\$200,000.00
<i>Project Area C: West Gibson (18th Fairway)</i>						
Address erosion to outfalls, restore natural meanders, riffle-pool bed topography, channel dimensions, install natural riffle grade controls and floodplain bench excavation in channelized areas, restore with native riparian vegetation along the channel.	1	lsum	@	\$140,000.00	=	\$140,000.00
<i>Project Area D: West Gibson (9th Fairway)</i>						
Remove existing stream crossing, address erosion to outfalls, restore natural meanders, riffle-pool bed topography, channel dimensions, install natural riffle grade controls and floodplain bench excavation in channelized areas, restore with native riparian vegetation along the channel.	1	lsum	@	\$200,000.00	=	\$200,000.00
Sub Total Estimated Construction Cost					=	\$620,000.00
Contingencies (~10%)					=	\$60,000.00
TOTAL ESTIMATED CONSTRUCTION COST					=	\$680,000.00
Design Engineering					=	\$100,000.00
Construction Engineering					=	\$70,000.00
TOTAL ESTIMATE PROJECT COSTS					=	\$850,000.00

**EPA Great Lakes Restoration Initiative Request for Applications
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Photos:



Photo 1 – Project Area A: Gibson-Renshaw



Photo 2 – Project Area A: Gibson-Renshaw

**EPA Great Lakes Restoration Initiative Request for Applications
Funding Opportunity Number: EPA-R5-GL2014-2
Watershed Management Implementation**



Photo 3 – Project Area A: Gibson-Renshaw



Photo 4 – Project Area A: Gibson-Renshaw

**EPA Great Lakes Restoration Initiative Request for Applications
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Photo 4 – Project Area B: West Gibson – Near Existing Culvert



Photo 2 – Project Area B: West Gibson – At Culvert

**EPA Great Lakes Restoration Initiative Request for Applications
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Photo 3 – Project Area B: West Gibson – Near Parking Lot



Photo 4 – Project Area B: West Gibson – Near Parking Lot

**EPA Great Lakes Restoration Initiative Request for Applications
Funding Opportunity Number: EPA-R5-GL2014-2
Watershed Management Implementation**



Photo 1 – Project Area C: West Gibson (18th Fairway), Looking Downstream

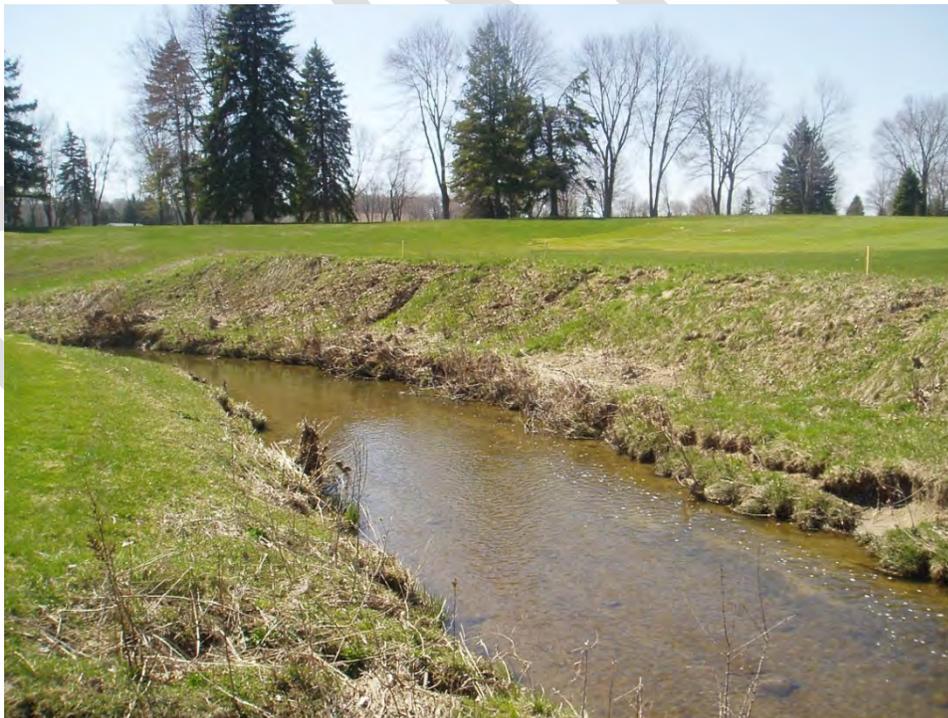


Photo 2 – Project Area C: West Gibson (18th Fairway), Looking Downstream

**EPA Great Lakes Restoration Initiative Request for Applications
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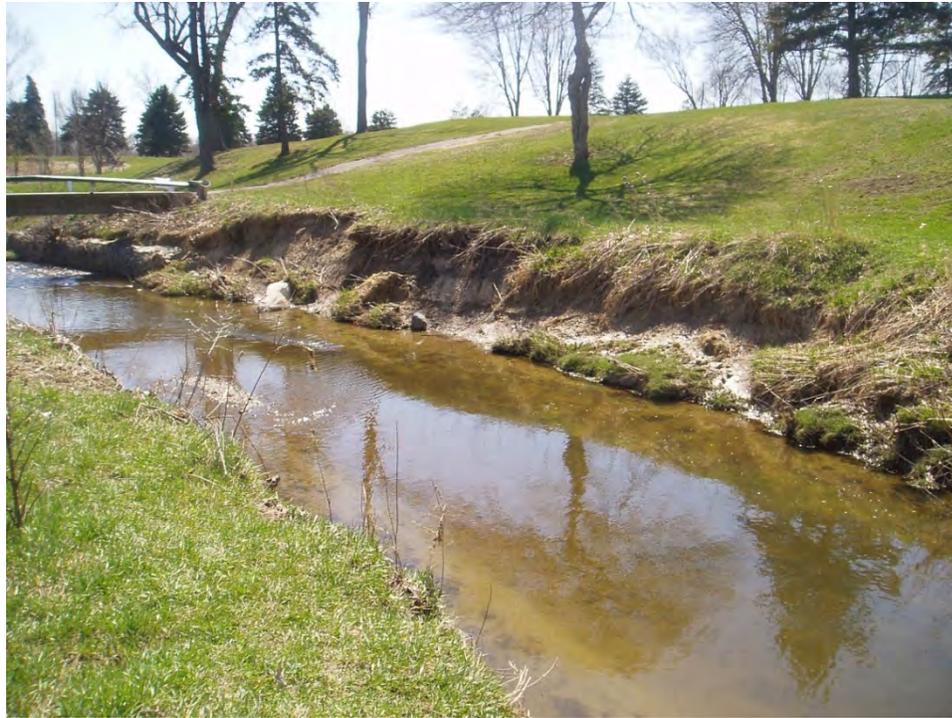


Photo 3 – Project Area C: West Gibson (18th Fairway), Right Bank



Photo 4 – Project Area D: West Gibson (9th Fairway), Looking Upstream

**EPA Great Lakes Restoration Initiative Request for Applications
Funding Opportunity Number: EPA-R5-GL2014-2
Watershed Management Implementation**



Photo 5 – Project Area D: West Gibson (9th Fairway), Right Bank



Photo 6 – Project Area D: West Gibson (9th Fairway), Looking Upstream

**EPA Great Lakes Restoration Initiative Request for Applications
Funding Opportunity Number: EPA-R5-GL2014-2
Watershed Management Implementation**



Photo 7 – Project Area D: West Gibson (9th Fairway), Right Bank



Photo 8 – Project Area D: West Gibson (9th Fairway), Right Bank

Sylvan Glen Golf Course Culvert

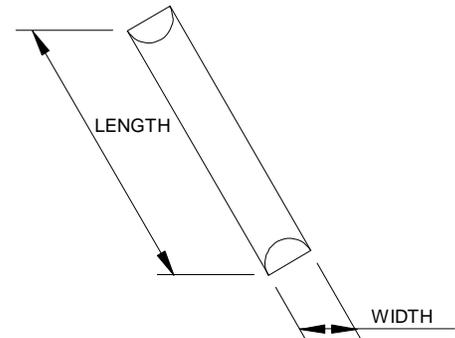


Sylvan Glen Golf Course Maintenance Road over Renshaw County Drain Inspection Summary & Recommendations

1. Inspection Date: August 22, 2011

2. Culvert Description

- a. Owner – City of Troy, MI
- b. Location – 0.40 Miles south of Square Lake Road & 0.10 Miles west of Rochester Road
- c. Type – Corrugated Multi-Plate Pipe-Arch Culverts (14'-10" x 9'-10" Pipe Arch)
- d. Dimensions – Length: 59', Width: 14'-10'
- e. Year Built – Unknown
- f. Road Over – 1 lane, 16-ft wide gravel road with 54' long guardrail on each side



3. Culvert Condition

- a. Culvert – Poor condition. Several areas of the pipe along the water line have corroded through exposing the backfill material. A large heaved/buckled section of the pipe is located a little more than halfway through and has flaked, chipped steel as well as corroded and missing bolts. Culvert inlet and outlet have raised ~6" on both ends.
- b. Joints/Bolt Lines – Poor condition. The bolt lines at water level are severely corroded. Bolt lines mid-pipe are in fair condition but are visibly skewed indicating significant movement of the pipe. Bolt lines above the water line and in the pipe ceiling are in good condition and appear to have little or no corrosion.

4. Site Issues

- a. Scour – Visible erosion sediment in the culvert base and at local buckled and failed areas. Flowing water exists in many sections below the pipe.
- b. Channel – Fair condition. Well vegetated on both sides. Steep slopes on both sides with a large erosion pocket in the southwest quadrant.

5. Recommended Maintenance Items

- a. N/A – refer to Action Items. Culvert condition should be monitored on a regular basis, especially after rain events.

6. Recommended Action Items

- a. Culvert Replacement – The culvert is in very poor condition and its structural integrity has been compromised.
 - i. Precast Culvert Box - \$70,000
 - ii. Dual Concrete Pipes - \$35,000
 - iii. 3-Sided Concrete Arch - \$57,000
 - iv. Multi-Plate Pipe Arch - \$24,000
 - v. Aluminum Ellipse Pipe - \$24,000

Sylvan Glen Golf Course Culvert



Note: Replacement option costs are approximate and include only the primary replacement structure itself. Each option will also include similar construction costs to remove and replace the structure and have not been included in these price estimates.

Note: Range pole, shown for scale in photos, is 4 feet tall (1-ft segments).

Sylvan Glen Golf Course Culvert



Undermined culvert outlet (south end)

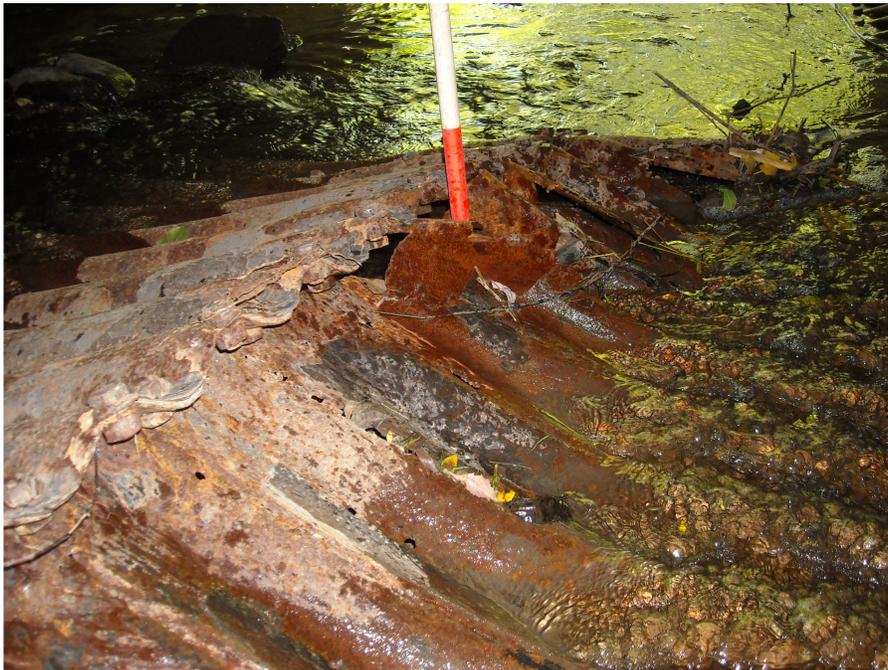


Corroded steel at heaved/buckled section of culvert and at water line.

Sylvan Glen Golf Course Culvert

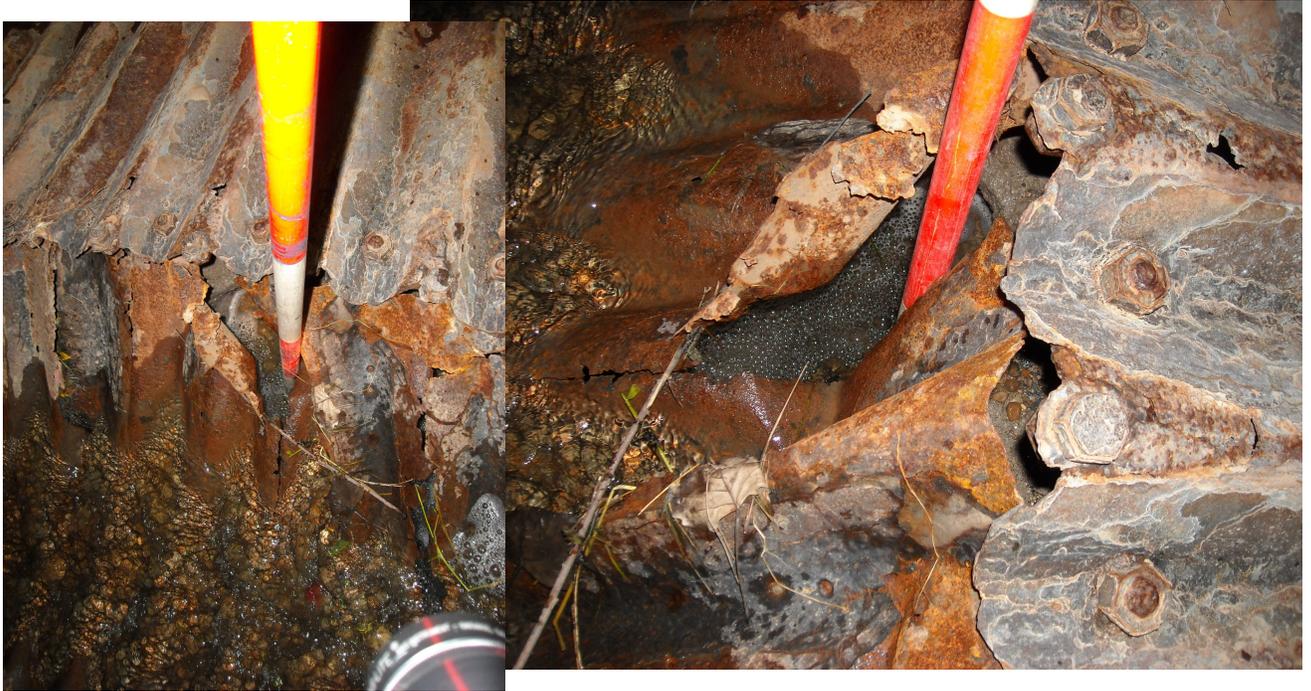


Heaved/buckled section of culvert looking north.



Heaved/buckled section of culvert looking south.

Sylvan Glen Golf Course Culvert



Deterioration in bolt-line in heaved/buckled section of pipe. Erosion of base material and flowing water under the culvert.



Heavy debris built up inside culvert.

Sylvan Glen Golf Course Culvert



Erosion pocket in slope in the southwest quadrant (above culvert)



Renshaw County Drain looking upstream of culvert inlet.

Sylvan Glen Golf Course Culvert



Renshaw County Drain looking downstream of culvert outlet.



Gravel maintenance road over culvert (additional aggregate has been added).

Sylvan Glen Golf Course Culvert



Sunken portion of road (north side) with shifted guardrail.