



**ONTARIO  
RIVERS  
ALLIANCE**

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9 February 2023

Sarbjit Singh, E.I.T.  
Water Control Structures Technologist  
Upper Thames River Conservation Authority  
1424 Clark Road  
London, ON N5V 5B9  
By email: [SinghS@thamesriver.on.ca](mailto:SinghS@thamesriver.on.ca)

Re: Embro Dam Class Environmental Assessment – PIC No. 4  
Spring Creek

Dear Sir:

The Ontario Rivers Alliance (ORA) is a not-for-profit grassroots organization with a mission to protect, conserve, and restore riverine ecosystems.

The ORA is grateful for this opportunity to comment on the alternatives presented at the 30 January 2023 Public Information Centre. I chose not to use the form as I found it a bit constrictive and ask that you please accept ORA's comments in this format. However, I will adhere to your questions.

Weighting:

- Technical Feasibility 10%
- Natural Environment 50%
- Social Cultural Environment 30%
- Economic 10%

Alternative 1 – Do Nothing

Doing nothing is not a feasible option, as Engineering Assessments have identified Embro Dam as not meeting dam safety guidelines. The dam did not meet the standards for hydraulic capacity or structural integrity and is a risk for failure, which could incur damages with costs.

It is also reported that below Embro Dam the channel has degraded in depth and width since the last inspection, and the upstream is aggrading with an accumulation of sediment due to backwatering caused by the dam. These conditions will continue to deteriorate over time and will require some maintenance and tax dollars.

Dams block fish passage and flow, degrade water quality and water in the shallow pond warms in the sun. Not a healthy environment for Brook Trout.

**“Healthy Rivers – Healthy Communities”**



Scientists predict that as climate change progresses, we will face increasing incidents of extreme rain and possible atmospheric river events that could increase the dam's risk of failure. The federal government is also warning municipalities all across Canada to increase the capacity of dams to pass more water to prevent the risk of flooding. At the same time, scientists are recommending increasing the resilience of streams and lakes to better withstand the extremes of climate change.

The Upper Thames River Conservation Authority (UTRCA) has already spent seven years preparing studies and considering alternatives, so it is now time to take action.

### Alternative 2 – Repair Dam

For the sake of stream resilience and the health and biodiversity of aquatic life in Spring Creek, this option is rejected by ORA. The dam serves no useful purpose, and its repair and occasional removal of sediment from the pond will have a high initial cost and ongoing municipal tax dollars to pay for maintenance.

Repairing the dam would allow the pond to remain in place and create an ongoing contribution of GHG emissions being released into the atmosphere. This small shallow pond warms in the sun and collects sediment and leaf/grass/branch litter in the pond behind the dam. This creates the perfect environment for microbes to decompose submerged organic matter in a process that results in carbon, methane and nitrous oxide being released into the atmosphere.

Repairing the dam would entail most of its original downfalls, except the structure would be safer.

### Alternative 3 – Remove the Dam and Construct a Natural Channel

Removing the dam and pond would open up an additional 2.5 km of prime habitat for Brook Trout and other aquatic species. Adding small pools, riffles, and bends in the creek with some trees, shrubs and grasses along the riverbank, as shown in Section A-A, would provide badly needed shade from the sun, some variation in habitat and lovely trails as an invitation to the community to enjoy the beauty of nature.

These mitigation measures would improve water quality, lower stream temperature and provide additional refuge in times of extreme heat and drought. The design could also provide prime spawning and nursery areas. These measures will encourage a healthy, thriving and growing Brook Trout population for the community to enjoy and have pride in.

Brook Trout are very sensitive to temperature, requiring cold and pristine waters at sustained temperatures no greater than 19 to 20°C, and temperatures below 9°C are needed to spawn. Optimum growth relies on temperatures between 13 and 16°C. Their upper incipient lethal temperature is 25.3°C with a maximum mean tolerance temperature of 22.3°C.



Removing the pond (a key source of solar warming) will help keep stream temperatures cool. It will also remove a potent source of GHG emissions at a time when Canada is looking to reduce emissions by 30% by 2030.

Dam removal is a one-time cost that will have a multitude of positive and compelling social, cultural and environmental improvements. It would allow the transport of sediment downstream and removes the threat during extreme rain events of water backing up behind the dam and flooding the area.

This is ORA's top choice of the best outcome for the Spring Creek ecosystem, for Brook Trout and for a safe and healthy local community! It ticks all the boxes with top scores for the technical, social, cultural, natural environment, and ongoing economic costs of maintenance.

#### Alternative 4 – Remove Pond and Construct Offline Pond(s) or Wetlands(s)

Removing the inline pond and constructing an offline pond would not support our climate change goals or the Brook Trout fishery, as I explained previously. However, I would place the creation of a free-flowing stream and an off-line wetland as a second-place alternative. A healthy wetland can serve as a GHG sink and allow a place for fish and other aquatic life to find refuge; however, creating a healthy wetland can be challenging, and for some time, it could be more like a shallow pond that we should avoid for reasons explained earlier.

#### Alternative 5 – Lower Dam Crest and Outlet and Naturalize New Pond Perimeter

ORA is also opposed to a lower dam crest and naturalized new pond, as it is still a dam blocking flow and fish passage. The shallow pond would have the same negative impacts as mentioned above. Costs would also be required to rebuild the dam and pond and would incur costs for the ongoing maintenance and removal of sediment from time to time.

#### General Comments

There are very few thriving Brook Trout populations left in southern Ontario, and it is especially surprising to find them present as far south as London, Ontario. Brook Trout are a sentinel species - the canary in the coal mine. In southern Ontario, Brook Trout populations have seen an 80% decline in their numbers over the last 50 years. Their populations have been under increasing pressure from a warming climate as well as agricultural, urban, rural and industrial development.

Removing the Dam and headpond to create a free-flowing and healthy coldwater Brook Trout fishery would be the perfect place for a family to go for walk, play or picnic in the Embro Conservation Area. It would provide a healthy riverine ecosystem and a beautiful natural environment for the entire community to enjoy!!

Thank you for this opportunity to comment!



Please let me know if you have any further questions or require further information.

I have attached a copy of your Scoring Sheet as I was having difficulty with the pdf format.

Respectfully,

Linda Heron  
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Attachments