

## Briefing Note for Town of Georgina Council Meeting on May 6, 2020 regarding Pefferlaw Dam

### Introduction

The Pefferlaw dam was constructed in the 1800s. The original purpose of the dam was to provide water storage to power various mills located on the watercourse. The mills ceased operation many decades ago and now the dam controls water levels to provide recreation and aesthetic benefits to local residents and the community.

The basic configuration and operation of the dam can be summarized as follows:

- The dam itself is a 31-metre concrete weir structure with wing walls on the upstream and downstream sides.
- A steel truss access bridge is constructed over the dam to allow for access and installation of the stop logs and flashboards
- Annually, water levels are controlled by the addition and removal of stop logs and flashboards in the spring and fall.
- Each May water levels are slowly raised to summer levels.
- Summer reservoir water levels are typically 225.48 metres above sea level
- Each October water levels are dropped slowly to reach winter levels.
- Winter reservoir water levels are typically 224.33 metres above sea level (1.15metres or approximately 4 feet lower than summer levels).

LSRCA has operated the dam since 1982 and the current configuration is a result of the reconstruction of portions of the dam in 1990.

### Brief overview of changes to the dam since 1982

**1982:** The current steel truss access bridge was constructed over the dam. Concrete restoration work was also completed. The west mill race was decommissioned, and earth berm extensions were added on both sides of the structure.

**1990:** The water control structure was converted from a twin sluice\* configuration to the current single sluice. The west weir was modified, and a new flashboard system was installed, and the east weir was repaired.

\*Sluice: a device to control water flow.

**1994:** Armour stone retaining walls were constructed on both sides of the watercourse, immediately downstream of the dam.

## Background

Operation and Structural Safety of the Pefferlaw Dam:

On April 3, 2020, Lake Simcoe Region Conservation Authority (LSRCA) staff tabled a report to the Board of Directors regarding a change in the annual operation of the Pefferlaw Dam (please see Staff Report No. 15-20-BOD (pages 70-79) of the [April 3, 2020 Board of Directors' Meeting Agenda](#)).

The change in operation is in response to safety issues identified by D.M. Wills Associates Ltd., a structural engineering consultant who was contracted to inspect the Pefferlaw Dam. The report dated December 2019 identified significant safety concerns and recommended several immediate and high priority actions:

- The dam's concrete structure is in poor condition and needs to be rehabilitated.
- Structurally the truss bridge is unsafe and needs to be replaced.
- Flashboards and flash board posts need to be replaced.
- The erosion occurring along the east/west armour stone retaining walls needs to be addressed.

An additional six recommendations were also made, and while still needing to be addressed, these are considered lower on the priority list. For more information, please review the [Dam Inspection Report](#).

Given the known safety issues and uncertainty regarding the integrity of the concrete dam structure itself, it was recommended by staff, and approved by the Board of Directors to not install the flash boards and stop logs at this time. As this is wholly a safety issue, this decision was not subject to public consultation.

However, notice was provided to all the impacted property owners via a written, Canada post-delivered letter and a subsequent plan to release the information publicly was also ready to implement.

## Ownership

Another issue identified within Staff Report No. 15-20-BOD is that of ownership of the structure. As part of LSRCA's Conservation Landholding Assessment (2016), staff have been working to fill data gaps in LSRCA's property ownership and title information.

The Pefferlaw Dam property has a long history beginning in the late 1800s when a private dam was constructed at this location. Prior to taking ownership of the two parcels of land on either side of the dam from the Town of Georgina in 1981, the Town (as our records indicate) owned and operated the dam.

When LSRCA acquired the property from the Town, it was to be solely for the purposes of accessing provincial capital works funding (available only to the conservation authority) to restore the dam, on behalf of the Town of Georgina.

Upon completion of the dam restoration works, it was the expressed intent to transfer the lands back to the Town of Georgina, for reasons not documented, this did not occur. Since that time, LSRCA has continued to operate the dam. Based on a detailed property title search completed by a consultant LSRCA retained in fall of 2019), it was confirmed that there is no historical chain of ownership to indicate that LSRCA owns the Dam. At the same time, it was not clearly determined which agency owns the existing dam structure and adjacent waterway. LSRCA staff have been directed by the Board of Directors to request confirmation from the Province of Ontario on dam ownership and what provincial funding may be available to assist with options to address the future operation of the Pefferlaw Dam.

It should be noted that no further decisions have been made regarding the dam beyond the operational direction from the Board of Directors not to install the stop logs to address staff and public safety. At the direction of the Board, staff have also begun the process to determine ownership of the dam structure and to discuss current concerns and the future operation of the Pefferlaw Dam with our municipal partners at the Town of Georgina and the Province of Ontario.

## **Current Activities**

To proactively assist in future discussions and consultation with the Town and the Province of Ontario, LSRCA is currently in the process of collecting additional information on which to base informed decisions regarding the future operation of the Pefferlaw Dam.

Specifically, staff are:

- Obtaining an estimate to undertake a concrete condition assessment for the dam, including concrete coring and detailed surface mapping. Based on the results of the concrete condition assessment, further consideration can be given to prepare a detailed rehabilitation design for the concrete components of the structure.
- Requesting confirmation from the Province of Ontario on dam ownership and enquiring about the possibility/availability of provincial funding.



- Requesting that the Province consider deeming the concrete condition assessment as an essential service under the current Provincial State of Emergency so that it can proceed immediately once funding is secured and a contract is issued.
- Working with the Town of Georgina to discuss current concerns and the future operation of the Pefferlaw Dam.
- Continuing to develop and issue communications to interested residents via a subscription-based e-newsletter, and answer telephone, e-mail, social media and traditional media inquiries and post relevant updates on a dedicated LSRCA web page, [www.lsrca.on.ca/Pefferlaw-Dam](http://www.lsrca.on.ca/Pefferlaw-Dam)

**During this period, the stop logs and flash boards will not be installed due to safety concerns and we are asking for the community's patience as we gather more information.**

## **Future Activities**

Once LSRCA staff have gathered the necessary information, a series of options for moving forward will be developed based on a fulsome review of associated costs and measurable benefits. Options, ownership and costs will then be discussed with all necessary parties, including the public.