



# Belfountain Dam & Headpond

Class Environmental Assessment

Technical Report 3 – Implementation Options & Detailed Assessment of Environmental Effects

“FINAL”

Prepared for:

**Credit Valley Conservation**  
Mississauga, Ontario, Canada

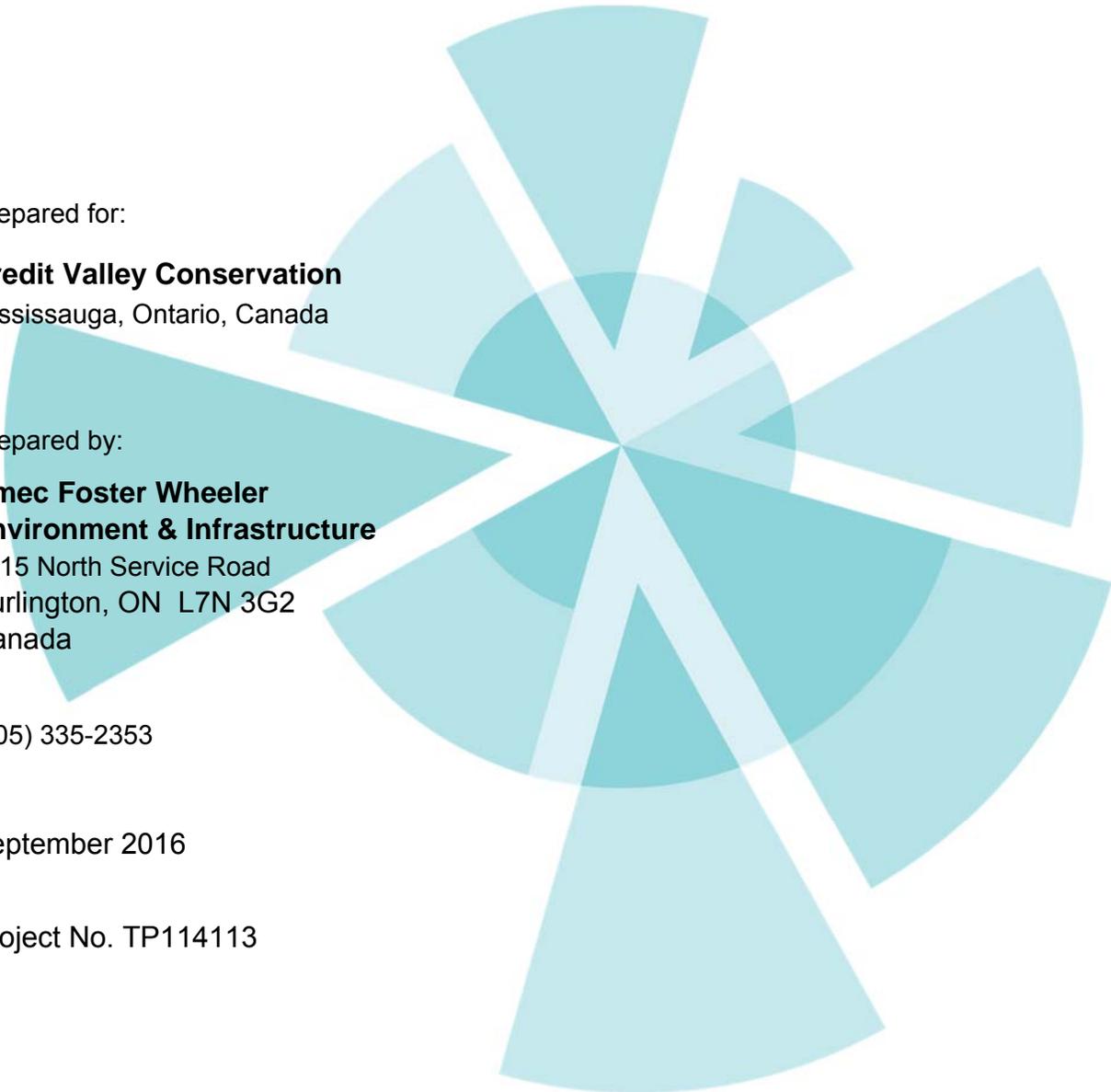
Prepared by:

**Amec Foster Wheeler**  
**Environment & Infrastructure**  
3215 North Service Road  
Burlington, ON L7N 3G2  
Canada

(905) 335-2353

September 2016

Project No. TP114113





**BELFOUNTAIN DAM & HEADPOND  
CLASS ENVIRONMENTAL ASSESSMENT**

**TECHNICAL REPORT 3  
IMPLEMENTATION OPTIONS  
& DETAILED ASSESSMENT  
OF ENVIRONMENTAL EFFECTS**

**“FINAL”**

Submitted to:

**Credit Valley Conservation**

Submitted by:

**Amec Foster Wheeler Environment & Infrastructure  
A division of Amec Foster Wheeler Americas Limited**

3215 North Service Road  
Burlington, ON L7N 3G2

Tel: 905-335-2353

Fax: 905-335-1414

**September 2016**

TP114113

## TABLE OF CONTENTS

		PAGE
<b>1.0</b>	<b>INTRODUCTION.....</b>	<b>1</b>
1.1	Purpose .....	1
1.2	Project Team .....	1
1.3	Study Area.....	2
1.4	Background .....	2
1.5	Study Objectives .....	3
<b>2.0</b>	<b>CONSERVATION ONTARIO CLASS ENVIRONMENTAL ASSESSMENT PROCESS..</b>	<b>5</b>
2.1	Overview .....	5
2.2	Conservation Ontario Class EA Process.....	5
2.3	Consultation Plan Overview .....	8
<b>3.0</b>	<b>SUMMARY OF TECHNICAL REPORT 1 – BASELINE INVENTORY.....</b>	<b>11</b>
<b>4.0</b>	<b>SUMMARY OF TECHNICAL REPORT 2 – MANAGEMENT ALTERNATIVES .....</b>	<b>16</b>
<b>5.0</b>	<b>SELECTION OF THE PREFERRED ALTERNATIVE .....</b>	<b>20</b>
<b>6.0</b>	<b>IMPLEMENTATION OPTIONS.....</b>	<b>21</b>
6.1	Key Design Elements .....	21
6.2	Implementation Options .....	23
6.3	Preferred Implementation Options .....	29
<b>7.0</b>	<b>DETAILED ANALYSIS OF ENVIRONMENTAL IMPACT.....</b>	<b>30</b>
<b>8.0</b>	<b>PRELIMINARY DESIGN.....</b>	<b>35</b>
8.1	Dam Modifications .....	35
8.2	Channel .....	37
8.3	Terrestrial Ecology .....	39
8.4	Sediment Management .....	39
8.5	North Retaining Wall .....	40
8.6	Capital Cost Estimate .....	41
<b>9.0</b>	<b>IMPLEMENTATION.....</b>	<b>42</b>
9.1	Seasonal Constraints .....	42
9.2	Construction Phasing .....	43
9.3	Permitting Requirements.....	45
9.4	Monitoring.....	46
9.5	Next Steps.....	48

## LIST OF TABLES

Table 4.1:	Screening Criteria
Table 6.1:	Implementation Options for the Preferred Alternative
Table 7.1:	Detailed Analysis of Environmental Impact for the Preferred Alternative

## TABLE OF CONTENTS Cont'd

### LIST OF FIGURES

#### By Report Section:

Figure 2.2.1: Conservation Ontario Class Environmental Assessment for Remedial Flood and Erosion Control Projects (June 2002, Amended June 2013).

#### Following the Report:

Figure 1: Study Area Location Plan  
Figure 2: Study Area  
Figure 3: Belfountain Complex  
Figure 4: Credit River Subwatershed Boundary Plan

### LIST OF APPENDICES

Appendix A Public Consultation  
Appendix B Photographic Reconnaissance  
Appendix C Alternatives  
Appendix D Implementation Options  
Appendix E Preliminary Design

## 1.0 INTRODUCTION

This Technical Report constitutes the third prepared for the Belfountain Dam and Headpond Class Environmental Assessment. *Technical Report 1: Baseline Inventory* (Amec Foster Wheeler, August 2015) characterized the existing conditions within the Study Area. *Technical Report 2: Management Alternatives* (Amec Foster Wheeler, December 2015) characterized and evaluated various management alternatives for the dam and headpond. This report (*Technical Report 3*) identifies implementation options for key design elements of the Preferred Alternative and advances the recommended options, including preparation of the preliminary design and related impact assessment. Sections 1, 2, 3 and 4 of this report reproduce or summarize information originally presented in Technical Reports 1 and 2, including the Study Purpose, Project Team, Study Area, Background, Study Objectives and Key Findings from Technical Reports 1 and 2. This information has been included in Technical Report 3 in order that this report may be read as a stand-alone document. Readers familiar with Technical Reports 1 and 2 may wish to skip to Section 5.

### 1.1 Purpose

Amec Foster Wheeler has been retained by Credit Valley Conservation (CVC) to assess various alternatives and associated implementation options for future management of the Belfountain Dam and Headpond, under the guiding principles of the Conservation Ontario Class Environmental Assessment (Class EA) process. The Class EA will document baseline environmental conditions, establish a long-list of management alternatives, evaluate each alternative using appropriate physical, biological, cultural and socioeconomic criteria leading to the selection of the Preferred Alternative(s). Implementation options will then be developed for the Preferred Alternative, and a detailed impact and mitigation plan will be prepared. Significant public, agency and stakeholder consultation is planned for each stage of the project and input will be used to inform the process.

### 1.2 Project Team

The Amec Foster Wheeler Team includes four (4) consultants with specialists in thirteen (13) key study disciplines:

- ▶ Amec Foster Wheeler Environment & Infrastructure: Project Management, Public Consultation, Water Resources Engineering, Structural Engineering, Geotechnical Engineering, Cultural and Built Heritage, and Archaeology
- ▶ PARISH Aquatic Services, A Division of Matrix Solutions Inc.: Stream Morphology, Aquatic Ecology, Terrestrial Ecology and Sediment Quality
- ▶ Collins-Ferrara Engineering Inc.: Mechanical Engineering
- ▶ Ameresco Inc.: Financial Analysis

### 1.3 Study Area

The formal Study Area is comprised of the Belfountain Dam and Headpond and the immediate surrounding area that may be impacted by implementation of management alternatives (ref. Figure 1 and 2). The Study Area contains several anthropogenic and natural features including the Belfountain Dam and Headpond, other historic structures including the 'Yellowstone Cave', retaining walls and building foundations, a pedestrian bridge over the dam, a large terrace recreational area, the West Credit River and significant mature forest land. Appendix B provides a photographic catalogue depicting the Study Area in its current and historic states.

The dam is located within the Belfountain Conservation Area (BCA), which, along with the Willoughby Property and the Cox Property comprise the larger Belfountain Complex (ref. Figure 3). The closest settlement is Belfountain, a village within the Town of Caledon and the Region of Peel.

The study must also consider the dam within the context of the West Credit River subwatershed. The area upstream of Belfountain Dam influences the hydraulic, fluvial, aquatic and riparian conditions through the Study Area, and likewise the dam influences these factors downstream. Figure 4 illustrates the West Credit River subwatershed.

### 1.4 Background

The site of the Belfountain Dam originally contained a smaller water control structure associated with a historic mill operation. Charles Mack, a wealthy Toronto manufacturer, purchased the land in 1908 with the intention to create a public recreational area. The Belfountain Dam was built in an attempt to mimic Niagara Falls and create a feature for his park, which opened to the public in 1914. The dam served as an aesthetic feature and through the generation of a headpond, enabled recreation (swimming, boating and fishing). Pre-contact aboriginal and euro-Canadian artifacts have been found on the site and nearby sites. A detailed discussion on regional and park history and archeological resources can be found in Technical Report 1, *Section 3.7 Cultural & Built Heritage* and *Section 3.8 Archaeology*.

After Mack's death the park was sold. CVC acquired Mack's Park in 1959 and began to acquire additional parcels comprising part of what is now the Belfountain Complex. CVC has made some improvements to the dam over time including the addition of the sluiceway and connected concrete retaining walls which were installed in the early 1960s. The sluiceway was modified in 1986 to convert one of the two (2) stop log bays to a bottom draw outlet to mitigate thermal impacts. Otherwise, the main spillway structure remains largely original and continues to serve the same aesthetic/recreational purpose for the BCA (the dam has never provided flood control or purposed flow augmentation). The engineering aspects of the dam (hydrology, hydraulics, structural and geotechnical) are well understood from recent and formative studies. Of particular note, a recent geotechnical investigation has determined that various components of the dam do not meet current Provincial guidelines for dam stability and as such the structure now presents a safety concern that must be mitigated. A detailed discussion on the dam, previous investigations and governing legislature can be found in Technical Report 1, *Section 3.1 Formative Studies*.

Additional structural and geotechnical investigations have been completed in support of the current Class EA in order to address gaps identified in previous studies and are summarized in Technical Report 1, Sections 3.2 and 3.3.

As noted, the Belfountain Dam is located on the West Credit River. The watercourse and its associated valley lands represent some unique and valuable aquatic and terrestrial habitat. Throughout the Study Area, the local ecology has adjusted over time to the presence of the dam and headpond, including the species it supports. Further, the dam represents a barrier to fish passage, providing protection to upstream native brook trout from downstream non-native species. It is, however, unclear if the reach was historically passable to fish due to the likely presence of steep waterfall/rapid features created by exposed bedrock. Technical Report 1, Sections 3.5 and 3.6 provide characterization of *Aquatic Ecology* and *Terrestrial Ecology*. Similarly, the function of the watercourse itself has been impacted by the presence of the dam, most significantly in the impoundment of sediment in the headpond, sediment that would have otherwise been transported downstream; Technical Report 1, *Section 3.4 Stream Morphology & Sediment* provides a discussion on these elements.

The Belfountain Dam & Headpond Class EA is being undertaken concurrently with the Belfountain Complex Management Plan (BCMP). The BCMP study area includes the three (3) properties comprising the Complex and will outline the future management plan for the Complex. Due to the complex engineering issues related to the Belfountain Dam, and given that some of the potential outcomes trigger a Conservation Ontario Class EA, it has been considered preferable and necessary to evaluate the management of the dam and headpond in a separate planning process (the current Class EA).

## 1.5 Study Objectives

CVC has established seven (7) guiding objectives for the Class EA:

Objective #1: Maintain a Fisheries Barrier - Maintain a barrier between upstream brook trout and downstream non-native and invasive species.

Objective #2: Reduce/minimize risk to visitors, staff, affected property and downstream dams

Objective #3: Maintain or improve the visitor experience - Maintain the high quality visitor experience that the public expects when they visit Belfountain Conservation Area.

Objective #4: Conserve and enhance cultural heritage attributes - Maintain and improve the cultural heritage attributes that are representative of Belfountain Conservation Area's history as a rare example of an early 20th century park.

Objective #5: Promote natural stream function - Maintain and improve the natural function of the West Credit River and its ecosystem.

Objective #6: Strive for long-term sustainability including economic viability - Maintain or improve BCA's ability to function as an active conservation area within CVC's Core 10 Conservation Area System and as part of the Niagara Escarpment Parks and Open Space System with the resources currently available.

Objective #7: Conserve and enhance natural heritage attributes - Contribute to the form and function of the Study Area as well as nearby natural heritage features by maintaining or enhancing the cover of natural area.

These objectives have been considered in the development and evaluation of management alternatives and the Preferred Alternative has been deemed to meet the stated objectives.

## 2.0 CONSERVATION ONTARIO CLASS ENVIRONMENTAL ASSESSMENT PROCESS

### 2.1 Overview

This study is following the process outlined in the Conservation Ontario Class Environmental Assessment for Remedial Flood and Erosion Control Projects (June 2002, Amended June 2013) which is approved under the Environmental Assessment Act (1990). The Conservation Ontario Class EA process outlines mandatory principles, details of project consultation and technical requirements. A Conservation Ontario Class EA document is considered a legal document which outlines project recommendations and next steps, based on a technical assessment, to the public and to technical practitioners and agencies, who have to review and implement the findings of the study. The Class EA approach is considered a suitable means for the planning of remedial flood and erosion control projects for Conservation Authorities, because such projects:

- ▶ have a common process of planning, design, approval, construction, operation and monitoring; and,
- ▶ have a generally predictable range of effects, which, though significant enough to require environmental assessment, are generally responsive to standard mitigation measures.

It is the responsibility of the Conservation Authority to ensure that the planning process, as set out in the Class EA document, is undertaken. The projects that will be assessed are those with predictable environmental effects and proposed mitigation measures will be identified and documented. The Class EA process provides a consistent, streamlined, easily understood process for planning and implementing flood and erosion control projects. The process provides a means for the identification of issues and concerns, and the preferred means of addressing them, with due regard to environmental management, protection, and mitigation measures. The process also provides the flexibility to be tailored to the activity, taking into account the environmental setting, *public* interest, and unique situation requirements.

### 2.2 Conservation Ontario Class EA Process

The Conservation Ontario Class EA Process applies to Remedial Flood and Erosion Control Projects, which are required to protect human life and property, in previously developed areas, from an impending *flood* or *erosion* problem. The Class EA document categorizes projects according to the following groupings:

- ▶ **Riverine Flooding:** Two main causes of flooding in the riverine system are an increase in water level from a storm event or rapid snow melt, and a result of the formation of ice jams, frazil ice, or other debris in watercourses.
- ▶ **Riverine and Valley Slope Erosion:** Riverine erosion is the result of fluvial processes which are determined by the watercourses flow and the sediment mixture of the watercourses bed and banks. Bluff/bank instability problems can also occur along river or stream banks as a result of weathering, internal drainage problems, or the removal of stabilizing vegetation and soil material from the surface of the slope.

- ▶ **Shoreline Flooding:** Shoreline flooding varies from a river system because an additional component, that of wave action, must be considered in addition to increases in water levels. The still water level plus the wave action (wave uprush/run-up, overtopping, ice accumulation) result in a final storm elevation.
- ▶ **Shoreline Erosion:** The erosion processes along the shoreline differ from those in a riverine system. Erosion is predominantly brought about by waves, currents, shore geomorphology, ice and changes in water levels. Shoreline erosion can result in deterioration of bluffs/banks, dunes, berms and beaches.

The Planning and Design process as shown in Figure 2.2.1 outlines the steps required to be undertaken by the proponent including how the Class EA process is initiated and the environmental planning and design principles that are to be employed in this process. **Technical Report 3 (this report) fulfills the fifth step shown on Figure 2.2.1.**

As part of the Class EA process the following key principles have been considered:

- ▶ *Establish a Problem and Opportunity Statement;*
- ▶ *Consult with affected parties early in and throughout the process, such that the planning process is a cooperative venture;*
- ▶ *Consider a reasonable range of alternatives, both functionally different “alternatives” and “alternative methods” of implementing the solution;*
- ▶ *Systematic evaluation of alternatives in terms of their advantages and disadvantages, to determine their net environmental effects; and,*
- ▶ *Provision of clear and complete documentation of the planning process followed, to allow “traceability” of decision-making with respect to the project.*

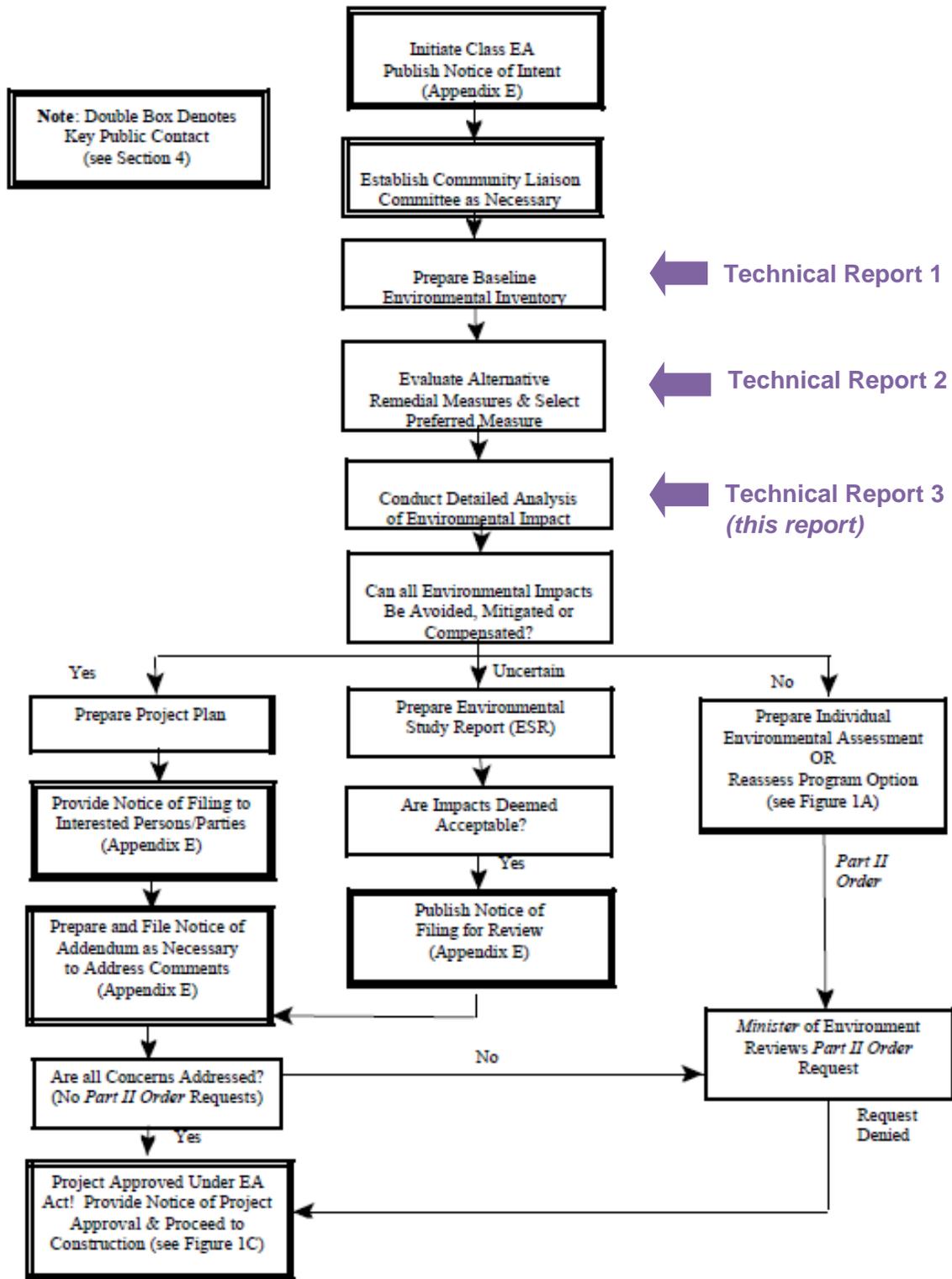


Figure 2.2.1: Conservation Ontario Class Environmental Assessment for Remedial Flood and Erosion Control Projects (June 2002, Amended June 2013).

## 2.3 Consultation Plan Overview

A Consultation Plan (Plan) has been developed for this study to support the required EA consultation activities and identify opportunities to further enhance those engagement activities with the general public, interested persons, Aboriginal communities and government agencies. This Project will need to meet the regulatory requirements of the Conservation Ontario Class EA document. The Plan (May 2015) is presented in Appendix A and the following summarizes the proposed activities.

### Notifications

The general public, interested persons, and Aboriginal communities will be informed and invited to participate in the planning and design aspects of the Project through the placement of notices in newspapers and through other means as outlined in the following.

- ▶ Notice of Intent to Undertake a Remedial Project – published in local newspapers and sent directly by mail to the project mailing list (including Aboriginal communities and contact groups) and Conservation Ontario (CO)/Ministry of the Environment and Climate Change (MOECC) Region offices. The Notice of Intent was published on **May 7, 2015** in local newspapers (Caledon Enterprise, Orangeville Banner, Erin Advocate, Georgetown Independent), posted onto the website (<http://www.creditvalleyca.ca/wp-content/uploads/2015/05/belf-dam-notice-of-intent.pdf>) and issued to interested agencies and persons (ref. Appendix A).
- ▶ Notice of Public Open House – published in local newspapers and sent directly by mail to the project mailing list (including Aboriginal communities and contact groups) and CO office. Three (3) public open houses have been held as part of the study. The open houses were held on **September 22, 2015** and **December 1<sup>st</sup>, 2015** at Caledon Ski Club and **May 12<sup>th</sup>, 2016** at Belfountain Public School.
- ▶ Notice of Filing of an Environmental Study Report – published in local newspapers and sent directly by mail to the project mailing list (including Aboriginal communities and contact groups) and CO/MOECC Region offices.
- ▶ Notice of Filing Addendum (if required) – published in local newspapers and sent directly by mail to the project mailing list (including Aboriginal communities and contact groups) and CO/MOECC Region offices
- ▶ Notice of Project Approval – sent directly by mail to the project mailing list and CO office.
- ▶ Notice of Project Completion – sent directly by mail to the project mailing list and CO/MOECC Region offices.

Notices will also be issued to individuals that have requested to be kept informed about the Project and whose names have been added to the Project Mailing List. This list will be updated as individuals identify an interest to be added or subsequently removed.

## **Community Liaison Committee**

The guidelines identify that a Community Liaison Committee (CLC) is to be formed. In the case of this Project, a Stakeholder Advisory Committee (SAC) already exists, which will assume the function of the CLC. This committee will discuss the Environmental Study Report outcomes and recommendations prior to the Notice of Filing being issued to provide input and subsequently to address comments received. CVC will consider any requests from interested individuals who may wish to join and participate in this committee. The contact list for the CLC is provided in Appendix A, along with the agency contact list and CVC Core and Review Teams.

## **Methods of Participation**

Individuals who have an interest in the Project can participate through a number of ways that CVC will make available, including:

- ▶ Reviewing copies of reports and documents;
- ▶ Providing oral and/or written comments;
- ▶ Attending information sessions to obtain information and to have questions answered;
- ▶ Meeting with CVC to discuss concerns;
- ▶ Becoming a member of CVC's contact group by adding their names to the Project Mailing List to be directly notified of future updates to the undertaking; and
- ▶ Requesting to be a member of the SAC.

## **Aboriginal Communities**

CVC recognizes the value and requirement of engaging with potentially affected First Nations and Métis communities. The variety of perspectives that these Aboriginal communities can provide to a Project, add value to the process and results. Consultation is specific to each community and can only be determined subsequent to an introductory meeting (and in some cases correspondence) to introduce CVC and the Project. Efforts will be made to ensure that First Nations and Métis communities are made aware of the Project and are given opportunity to become informed and provide input on the Project.

CVC has contacted the Ministry of Aboriginal Affairs (MAA) and Aboriginal Affairs and Northern Development Canada (AANDC) for assistance in determining which Aboriginal communities may have an interest in the Project. Subsequent, to receiving direction from the government, introductory letters and follow-up calls will be made to each community. Based on the outcomes of this initial contact, consultation with each community may include meeting with Chief and Council, community and/or providing further documentation.

## Consultation Activities

A variety of methods to inform and seek feedback from the general public, interested persons, Aboriginal communities and government agencies will be used. These methods include:

- ▶ **Website:** CVC will develop webpages to host information about the Project, including background, objectives, overview of safety and environmental concerns, and post Project-related documentation (such as fact sheets, presentations). The webpages can be accessed at: <https://www.creditvalleyca.ca/enjoy-the-outdoors/conservation-areas/belfountain-conservation-area/belfountain-conservation-area-management-plan/class-environmental-assessment-for-belfountain-dam-and-headpond-area/>
- ▶ **Frequently Asked Questions (FAQs):** to proactively address the anticipated questions that may arise, CVC will develop responses to these questions and make them available on the website and in hardcopy at the CA and public meetings. The FAQs can be accessed at: <http://www.creditvalleyca.ca/wp-content/uploads/2015/05/belf-dam-faq.pdf>
- ▶ **Fact Sheets:** CVC will prepare fact sheets to provide background information on the Project, its objectives and next steps. These fact sheets will be distributed to stakeholders and Aboriginal communities through email and posted to the website. The fact sheets will be made available in hard copy format at events (such as an open house, a focus group). The first fact sheet can be accessed at: <http://www.creditvalleyca.ca/wp-content/uploads/2015/05/belf-dam-factsheet.pdf>
- ▶ **Multi-Stakeholder Committee:** CVC has an established SAC that will provide a forum for in-depth discussions regarding Project issues, bring transparency to Project-related activities, and help to foster good community relations. Meeting minutes and presentations can be accessed at: <http://www.creditvalleyca.ca/enjoy-the-outdoors/conservation-areas/belfountain-conservation-area/belfountain-conservation-area-management-plan/consultation/stakeholder-advisory-committee/>
- ▶ **Open Houses:** CVC has hosted three community information sessions to communicate important Project information and seek feedback about attendees' Project-related priorities and interests.
- ▶ **Feedback Forms:** CVC will solicit feedback about the Project and the methods/activities used to involve the public through comment forms (hard copy and online). This feedback will be incorporated into the Project planning process. Where feedback is consistent from stakeholders, specific activities may be identified to address these concerns to ensure transparency of the process.
- ▶ **Consultation Tracking:** CVC will maintain a record of contacts with stakeholders and Aboriginal people. This record of contacts will include a summary of the event, parties involved, identify questions/concerns raised as well as responses given, commitments made and actions required.

### 3.0 SUMMARY OF TECHNICAL REPORT 1 – BASELINE INVENTORY

Establishing a Baseline Inventory involves assessing the condition and performance of the existing environment and systems within the Study Area. The following systems, or disciplines of study have been characterized because they either influence the existing problem or are required to understand potential impacts or opportunities related to mitigation alternatives:

- ▶ structural engineering
- ▶ hydrology and hydraulics
- ▶ aquatic ecology
- ▶ cultural and built heritage
- ▶ finance
- ▶ geotechnical engineering
- ▶ stream morphology
- ▶ terrestrial ecology
- ▶ archaeology

The Baseline Inventory was completed and documented in the *Belfountain Dam and Headpond Class Environmental Assessment Technical Report 1 Baseline Inventory* (Amec Foster Wheeler, August 2015). This section provides a summary of the key outcomes, constraints and opportunities that have been identified by each discipline study carried out in support of the Baseline Inventory. The items summarized are expected to influence and guide the development and evaluation of alternatives, may be important for assessing the impact of alternatives and/or are critical in developing a plan to mitigate impacts. For more information on the items summarized below, refer to the *Belfountain Dam and Headpond Class Environmental Assessment Technical Report 1 Baseline Inventory* (Amec Foster Wheeler, August 2015).

#### ***Hydrology & Hydraulics***

- ▶ Should the dam be proposed to remain, the Hazard Potential Classification (HPC) will need to be updated, including selection of the appropriate Inflow Design Flood (IDF). The HPC may be affected by the downstream Stonecutter's Dam, in accordance with current guidelines issued under the Lakes and Rivers Improvement Act.
- ▶ Any alteration to the performance of the dam must not have an impact on upstream or downstream property, including the Stonecutters Dam.

#### ***Structural Engineering***

- ▶ The dam spillway structure does not have the required sliding factor of safety under the usual summer and winter loading conditions (ref. Terraprobe 2013) in accordance with the Technical Bulletins (2011) issued by MNRF under the Lakes and Rivers Improvement Act. Mitigation will be required if the dam is proposed to remain.
- ▶ Based on the visual site inspection, the dam structure is in a good condition with localized poor areas of defective concrete that will require rehabilitation.
- ▶ The retaining wall along the downstream side of the north embankment (left side looking downstream) is unstable during flood or flood-earthquake combined conditions (ref. Terraprobe 2013). Mitigation will be required if the dam is proposed to remain.

- ▶ Based on the visual site inspection, the concrete retaining walls are in a fair to good condition overall with localized areas of defective concrete and undermining, which will require rehabilitation.
- ▶ The stability of the south masonry embankment could be jeopardized by the active soil erosion or slope instability of the south earth embankment. Remedial measures to stabilize the south earth embankment will be required.

### ***Geotechnical Engineering***

- ▶ A test pitting investigation program has been completed to obtain information on the downstream north abutment retaining wall (left side looking downstream) backfill and overburden soil behind the backfill.
- ▶ Review of topography and manual assessment of the soil cover of the right abutment slope is required to assess the stability of the slope and assess possible alternatives.

### ***Stream Morphology***

- ▶ The change from underlying hard-rock to a softer more erodible shale likely created a natural reach break via a knick-point or substantial gradient change along the river. As such, the presence of the dam itself cannot be directly linked to the general channel characteristics within the study area (i.e., steeper gradient downstream).
- ▶ Direct effects of the dam on channel morphology can be seen in the deep scour pool immediately downstream and the accumulation of sediment and ponding of water, which acts to over widen the upstream, natural channel.
- ▶ While fine grain sediment is actively accumulating upstream of the dam and downstream sediment deprivation is likely occurring to some degree, lack of finer grain sediments located immediately downstream from the dam (as observed during field reconnaissance) could be attributed to higher flow velocities able to readily transport the particles out of the Study Area. This condition likely persists to the confluence with the main branch of the Credit River where bed slopes are reduced. Given these observations, it is difficult to predict the impact the dam may have on grain size distributions downstream.
- ▶ Results of the RGA indicate that Study Area reaches are in a transitional state with channel widening being the predominant geomorphic process affecting the channel. Being classified as transitional indicates that the river falls below the threshold for active form adjustment. Adjustments to channel discharge, sediment load, sediment size distribution, or gradient may produce changes to overall morphology of the channel.
- ▶ Opportunities exist to improve channel dynamics, which would improve sediment transport and aquatic habitat and function (e.g. log or rock deflectors).

### ***Headpond Sediment***

- ▶ Headpond sediment is predominantly composed of fine grain silty-fine sand with some organic debris. Surficial probing indicates the top layer of unconsolidated sediment has a volume of 2500 m<sup>3</sup>. The estimated total sediment accumulated behind the dam is approximately 14,000 m<sup>3</sup>.

- ▶ Sediment quality does not pose significant implications for disposal or remediation, however some sediment quality mitigation may be required, depending on the results of more detailed sediment sampling. If the headpond sediment were to be dredged and pollutants mitigated (e.g. dilution through mixing with clean material), management and disposal of the material could likely be done either on site (i.e., landscaping fill) or by transporting offsite for use or disposal elsewhere.
- ▶ The low level of contaminants within the samples also indicate that if the sediment remains in the channel for natural transport downstream, there would be a low risk of adverse effects to the in-stream ecosystem expected.

### **Aquatic Ecology**

- ▶ The Belfountain Dam acts as a barrier between the native brook trout (*Salvelinus fontinalis*) population upstream of the dam and the naturalized brown trout (*Salmo trutta*) and rainbow trout populations downstream, but also prevents other aquatic species, such as the Atlantic salmon and the endangered American eel, from moving upstream of the dam (it is noted that Atlantic salmon are stocked upstream and downstream of the dam)
- ▶ The slow-moving waters and relatively large surface area within the headpond create a thermal impact which negatively impacts coldwater fish communities and sensitive species downstream of the dam.
- ▶ Any works completed within the dam must be done in accordance with the Fisheries Act by avoiding serious harm to fish. Emphasis will be placed on ensuring no serious harm occurs to the American eel which is classified as endangered under the Ontario Endangered Species Act.

### **Terrestrial Ecology**

- ▶ The BCA contains high quality woodland and valleyland environments.
- ▶ There are several species at risk surrounding the study area which include butternut (*Juglans cinerea*), little brown myotis (*Myotis lucifugus*), northern myotis (*Myotis septentrionalis*), Jefferson salamander (*Ambystoma jeffersonianum*), eastern snapping turtle (*Chelydra serpentina*), chimney swift (*Chaetura pelagica*), Canada warbler (*Cardellina canadensis*), eastern wood peewee (*Contopus virens*), wood thrush (*Hylocichla mustelina*), and Louisiana waterthrush (*Parkesia motacilla*). The presence of these species at risk will effect when any works surrounding the dam may take place in order to avoid important timing windows.
- ▶ It has been noted by CVC that the headpond of the Belfountain Dam has limited value to wildlife; however it does provide feeding opportunities for some water forager species.
- ▶ A unique tufa feature exists on the south shoreline of the river, downstream of the dam

### **Cultural & Built Heritage**

- ▶ Mack Park, a part of BCA, is designated as a candidate Cultural Heritage Landscape in the Town of Caledon Cultural Heritage Inventory (BC-13 Mack's Park, BCA, 10 Credit Street).

- ▶ Numerous built heritage resources have been identified within the Study Area.
- ▶ The following recommendations are made to mitigate potential project effects on heritage resources and will be considered in the development and evaluation of alternatives:
  - i. When the preferred remediation option is selected and specific potential project impacts to heritage resources can be identified, appropriate mitigation measures should be proposed;
  - ii. In general, the rehabilitation, removal, or rebuilding of the dam and the subsequent changes to the headpond should respect the both the structure and the landscape as physical records of their time, place and use;
  - iii. New interventions should be physically and visually compatible, but identifiable as new work;
  - iv. Documentation of the existing structure should be undertaken before any rehabilitation work is done; and,
  - v. Heritage interpretive signage should be created that tells the history of the site and depicts it with representative early photos of the site.

### **Archaeology**

- ▶ Mack Park is a registered archaeological site in the Ontario Archaeological Sites Database (OASD, Site: AjHa-10).
- ▶ The Willoughby Industrial Heritage Site (AkHa-20) is within one-kilometre of the Study Area
- ▶ 88% (12.49 hectares) of the Study Area has archaeological potential and warrants Stage 2 archaeological assessment
- ▶ It is recommended that prior to land altering activities within any portion of the Study Area deemed to have archaeological potential, a Stage 2 archaeological assessment by means of test pit survey must be carried out in accordance with the Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* (2001).

### **Financial**

- ▶ Day use fees represent a significant portion of total program revenues and impact to visitation should therefore be considered when evaluating the management alternatives for the dam and headpond.
- ▶ With program spending generally increasing, and revenue relatively constant, the following opportunities for alternative revenue could be considered:
  - Donations and fundraising activities are becoming a good source of alternative revenue for discretionary services where the tax base is becoming increasingly constrained. Fundraising opportunities may be tied with existing annual events such as the fall Salamander Festival. New fundraising activities or special events may serve to increase awareness of the special heritage and cultural features available in the BCA, thereby also attracting more visitors to the area. Individuals with a special interest in maintaining or enhancing the natural heritage features in

the conservation area may wish to consider including Credit Valley Conservation as a beneficiary in their will. These are all opportunities that are being explored through CVC's Foundation.

- Day use fees may be able to be increased. It has been shown that the median family income within the primary trade area is significantly greater than the Ontario median family income according to 2006 Census data, which may suggest that visitors to attractions in this area may be less resistant to increases in cost.
- There may be other alternative sources of revenue (e.g. a festival that charges a premium on the day pass) that could be investigated and developed in order to raise the funding that will be necessary in order to maintain and enhance the cultural and natural heritage features under study.
- Use of a reserve may wish to be considered in order to set aside day use fee revenue in years when the number of visitors is higher than anticipated in order to offset years where the number of visitors is unexpectedly lower than usual. Since the number of visitors attending the conservation area attractions is affected most by uncontrollable weather patterns, use of a reserve would be valuable in managing the net tax impact from year to year.

## 4.0 SUMMARY OF TECHNICAL REPORT 2 – MANAGEMENT ALTERNATIVES

The management alternatives for the Belfountain Dam and Headpond were characterized, evaluated and documented in the *Belfountain Dam and Headpond Class Environmental Assessment Technical Report 2 Management Alternatives* (Amec Foster Wheeler, December 2015). This section provides a summary of the alternatives, evaluation, short-listed alternatives and the Preferred Alternative.

### ***Management Alternatives***

Although the dam and headpond are fundamentally linked (the headpond exists because of the dam), the two features have been considered separately to some extent. As such, a separate list of alternatives has been developed for the dam and the headpond with an overall consideration of linked functionality. The alternatives listed below are considered the core alternatives for each feature. Several variations on each alternative may exist.

### **Dam Alternatives**

- D1. Do Nothing*
- D2. Rehabilitate the dam*
- D3. Replace the dam*
- D4. Lower the spillway*
- D5. Decommission the dam*

### **Headpond Alternatives**

- H1. Do Nothing*
- H2. Rehabilitate the headpond*
- H3. Expand tableland into the headpond*
- H4. Convert part of headpond to wetlands*
- H5. Backfill headpond & construct channel*
- H6. Construct channel & offline pond*
- H7. Restore natural valley and channel*

For the purpose of the alternative evaluation, logical implementation combinations of dam and headpond alternatives have been considered. The following identifies the combinations advanced to the evaluation and a brief description of each. For detailed information on all alternatives, refer to *Technical Report 2 Management Alternatives* (Amec Foster Wheeler, December 2015). Graphical representations of each alternative described below are provided in Appendix C.

D1H1: Do Nothing - Under this alternative, no works would be proposed and the dam would be left as it is today. This alternative is included as it is required as a baseline benchmark by the Conservation Ontario Class EA process.

D2H2: Rehabilitate the dam and headpond – This alternative would address the deficient factor-of-safety for sliding of the existing dam spillway and bring the structure into compliance with Provincial dam design criteria. The headpond would be restored under this alternative by removing the accumulated sediment.

D2H3: Rehabilitate the dam & expand the tableland – This alternative has common elements with D2H2, and also proposes to fill some of the headpond to generate additional tableland which would be purposed for natural restoration and/or recreational areas.

D2H4: Rehabilitate the dam & convert headpond to wetlands - This alternative also has common elements with D2H2, and proposes to convert an area of the existing headpond to wetland area.

D4H5: Lower the spillway & backfill headpond & construct channel – Under this alternative it is proposed to backfill the headpond and construct a natural channel cross throughout its extents. The natural channel width would be less than the existing headpond and as such additional tableland area would be generated which would be purposed for natural restoration and/or recreational areas. In order to generate sufficient gradient for the channel, the spillway crest would be lowered by 1 m +/-.

D4H6: Lower the spillway and construct channel and offline headpond – This alternative has common elements with D4H5, however it proposes to maintain a smaller offline headpond parallel to the proposed channel. Separation between the channel and headpond would be created by constructing a retaining wall or berm. The new headpond area would utilize the available area remaining after the channel is constructed.

D5H6: Decommission the dam & restore natural valley and channel – Under this alternative Belfountain Dam is proposed to be removed (decommissioned) and headpond would be restored to a natural valley and river cross section.

### ***Alternative Evaluation***

In order to assess and select the Preferred Alternative(s) for the future management of the Belfountain Dam and Headpond, a systematic and transparent approach has been developed to evaluate all viable alternatives. The extent of impacts of each alternative, both positive and negative, have been measured using seventeen (17) evaluation criteria selected from within the four (4) study environments. A summary of these evaluation criteria is provided in Table 4.1.

**Table 4.1: Screening Criteria**

<b>Environ-ment</b>	<b>Criteria</b>	<b>Signifi-cance</b>	<b>Description</b>
<b>Physical</b>	Natural Stream Function	High	The ability of the West Credit River to function as a natural stream through the Study Area, with consideration to impacts on downstream reaches. Considerations include sediment transport, oxygenation, habitat, etc. The dam/headpond inhibit this function.
	Watercourse Thermal Regime	High	The West Credit River is cold water fish habitat. The headpond allows for increased solar inputs which negatively affect water temperature both within the Study Area and downstream.
<b>Biological</b>	Maintain Fish Barrier	High	Maintain a barrier to upstream migration of non-native and invasive species for the purpose of protecting upstream brook trout populations.
	Aquatic Habitat	High	The quality and extent of habitat for brook trout and other aquatic species in the Study Area (i.e. headpond). Algae growth, sediment, and water temperature are current concerns.
	Riparian Habitat	Moderate	The quality and extent of riparian habitat within the Study Area.
	Terrestrial Habitat	Low	The quality and extent of habitat for terrestrial species within the Study Area. Jefferson Salamander, Small Brown Bat, other local significant species are of specific concern. The Study Area is also a designated ANSI, ESA and is within Niagara Escarpment Plan, Escarpment Natural Area.
<b>Cultural</b>	Built Heritage Features	High	Built heritage features that may be impacted directly or indirectly by construction including the dam, retaining walls, fountain and other features.
	Cultural Landscape Heritage Features	High	Mack Park is a candidate heritage landscape and the priority would be to maintain/re-instate the character of the original landscape design.
	Archaeological /Resources	Low	The Study Area contains pre-contact Aboriginal and historic Euro-Canadian resources that must be protected from impact or mitigated where impact is unavoidable.
<b>Socio economic</b>	Visitor Experience	High	The BCA is considered to provide a unique combination of experiences specifically related to the dam: natural/ and anthropogenic vistas (river, waterfall and headpond), and built heritage features and access to water. Protecting these experiences and providing new experiences is a priority.
	Flood Risk and Public and Staff Safety	High	The extent of potential flood damages to life, property, environment and heritage features (including dams) downstream. The presence of a dam increases flood risk. Safety considerations and liability associated with the presence/operation of the dam/headpond including safety of park visitors and staff, and transient access to flood vulnerable areas downstream are included in this criteria. This criteria considers the ability to meet the LRIA guidelines.
	Visitor Revenue	Moderate	Revenue generated from park entrance fees

Table 4.1: Screening Criteria			
Environment	Criteria	Significance	Description
	Capital Cost	Moderate	Cost of construction associated with the alternative. Capital cost estimates have been prepared for each alternative (ref. Appendix C)
	Major Maintenance Costs	Low	Costs associated with the major maintenance requirements (e.g. sediment removal), also including the need for specialist dam safety inspections.
	Liability	Moderate	Liability associated with ownership/operation of the alternative
	Village Tourism/Economy	Moderate	The dam/headpond are iconic to the region and a major draw for park visitors who support the village to the Belfountain village which supports the local and regional economy.
	Local Community	Moderate	The dam/headpond are a major draw for park visitors. The local community is affected by the associated traffic, parking, noise, trash, etc.

The potential positive and negative effects of each alternative on a given criterion has been determined. Effects have been determined to be either *Positive*, *Positive/Neutral*, *Neutral*, *Negative/Neutral* or *Negative* relative to the existing (baseline) condition (or the 'Do Nothing' alternative). The evaluation has resulted in alternatives either being 'Short-listed' or 'Screened Out' or based on their overall positive or negative effects across all evaluation criteria. Generally, if an alternative has been deemed to have significant and unjustifiable negative effects, it has been screened out. The alternative evaluation has been summarized in a matrix format (ref. Appendix C). The following alternatives were short-listed:

- Alternative D2H2: Rehabilitate the dam and headpond
- Alternative D4H5: Lower the spillway & backfill headpond & construct channel
- Alternative D4H6: Lower the spillway and construct channel and offline headpond

## 5.0 SELECTION OF THE PREFERRED ALTERNATIVE

Following completion of *Technical Report 2 Management Alternatives* (Amec Foster Wheeler, December 2015), CVC undertook consultation with the agencies, public and other groups to allow all stakeholders to provide feedback on the short-listed alternatives and to indicate which alternative they preferred. The Technical Steering Committee considered all stakeholder input along with internal CVC staff input as part of the deliberation that led to the selection of the Preferred Alternative: ***Alternative D4H5: Lower the spillway & backfill headpond & construct channel.***

Alternative D4H5 has been advanced as the Preferred Alternative, as it is considered to be the alternative that provides the most positive effects across the Physical, Biological, Cultural and Socioeconomic environments, and provides opportunity to mitigate any potential negative effects through its implementation. The following summarizes the key benefits of Alternative D4H5 (refer to the Alternative Evaluation in Technical Report 2 for more detail):

- ▶ Improved natural stream function
- ▶ Mitigation of existing thermal impacts
- ▶ Improved aquatic habitat
- ▶ Improved riparian habitat
- ▶ Protection of built heritage (Belfountain Dam)
- ▶ Structural rehabilitation of the Belfountain Dam, reduced flood risk and improved safety

Further, Alternative D4H5 is considered to best meet the objectives as set out at the beginning of the study (refer to Section 1.5).

The following sections discuss *Implementation Options*, the *Detailed Analysis of Environmental Impacts*, and the *Preliminary Design* of the Preferred Alternative.

## 6.0 IMPLEMENTATION OPTIONS

There exist several design or implementation options for various elements of the Preferred Alternative. This section identifies key design considerations for *Alternative D4H5: Lower the spillway & backfill headpond & construct channel*, presents all feasible implementation options and advances the recommended options.

### 6.1 Key Design Elements

Eleven (11) key *design elements* have been identified for the Preferred Alternative and have been considered for which multiple implementation options or approaches are available.

- |                                   |                                      |
|-----------------------------------|--------------------------------------|
| A. Spillway Geometry              | G. North Retaining Wall              |
| B. Natural Channel Alignment      | H. Sediment Management               |
| C. Spillway Structural Mitigation | I. Safety features                   |
| D. Sluiceway Configuration        | J. Supplementary Heritage Mitigation |
| E. Repurposed Headpond Area Use   | K. Supplementary Elements            |
| F. Headpond Bridge Configuration  |                                      |

For each design element, the implementation options generally represent a trade-off between two to three primary design objectives. This section provides a description of each design element and the key considerations, which often represent competing objectives.

**A. Spillway Geometry** - The spillway is proposed to be lowered in order to generate a positive gradient to support a functional natural channel through the existing headpond. The minimum functional channel gradient is considered to be 0.5 % +/-, while the upstream reach of the Credit River has a gradient of 1% +/- and is considered more ideal locally. Grade control downstream of the headpond bridge will be required to generate the desired channel gradient, and may result in pool depths up to 1 m +/-, subsequently creating a backwater area up to 80 m +/- (Note: this reach is currently under backwater from the dam). The further the spillway is lowered, the less the need for upstream grade control, however the greater impact on built heritage and park vistas (i.e. through a reduced dam height). Channel planform length will also impact overall channel gradient (see Element B). The further the spillway is lowered, the greater the reduction in upstream flood levels. Implementation options primarily relate to how much the spillway is lowered, and how much channel grade control is required, with the requirement to also consider channel planform.

Key Considerations: Spillway height/built heritage/park vistas, natural channel function, flooding

**B. Natural Channel Alignment** - A natural channel is proposed within the headpond and connected to the upstream reach of the West Credit River. Channel alignment options impact channel length and gradient, however to a lesser extent than spillway geometry. Channel alignment will impact where additional tablelands are created and may impact the associated preferred land use. Implementation options relate to the new river's planform and how it is established.

Key Considerations: Natural channel function, park use and vistas, construction duration

**C. Spillway Structural Mitigation** - Structural mitigation measures are required to increase the factor of safety against sliding in order to meet the requirements of the Lakes and Rivers Improvement Act Technical Bulletin (MNR, 2011). Implementation options relate to how additional resistance to sliding forces can be implemented.

Key Considerations: Structural factor of safety, Built heritage, Capital cost

**D. Sluiceway Configuration** - The existing sluiceway will no longer be required once the headpond is decommissioned since sediment and thermal/seasonal considerations will be addressed by the proposed naturalized channel. Implementation options relate to how this element of the existing dam is managed.

Key Considerations: Built heritage, Capital cost

**E. Repurposed Headpond Area Use** - The headpond is proposed to be backfilled and a natural channel is to be constructed over its length. Channel width will be less than the headpond width and additional land will be available for repurposing. Implementation options relate to land use.

Key Considerations: Park use, Ecological function

**F. Headpond Bridge Configuration** - The existing headpond bridge span is less than the upstream river bankfull width and therefore impedes natural channel function. Implementation options relate to whether the bridge is replaced, and the replacement span; higher spans are preferred from a channel function perspective.

Key Considerations: Natural channel function, Capital cost, Tableland area

**G. North Retaining Wall Mitigation** - Structural mitigation measures are required to increase the factor of safety against sliding in order to meet the requirements of the Lakes and Rivers Improvement Act Technical Bulletin (MNR, 2011). Implementation options relate to how additional resistance to sliding forces can be implemented.

Key Considerations: Structural factor of safety, Capital cost

**H. Sediment Management Approach** - An estimated 14,000 m<sup>3</sup> (+/-) of sediment is impounded behind the Belfountain Dam and although the headpond is proposed to be backfilled, sediment levels are high enough that the bed of the proposed natural channel will require removal of some volume of sediment. Additional sediment sampling and testing is required to further characterize sediment quality which will establish possible constraints to sediment management based on Provincial guidelines under the Environmental Protection Act. Implementation options relate to how and where the existing sediment is managed.

Key Considerations: Sediment quality, Capital cost

**I. Safety Measures** - Public safety must be addressed as the spillway/waterfall is proposed to be maintained under the Preferred Alternative. Safety measures may have a negative impact to park landscape and vistas. Implementation options relate to reducing risk to park users.

Key Considerations: Safety, Park vistas

**J. Supplementary Heritage Mitigation** - The Preferred Alternative will have both positive and negative impacts on cultural heritage. The spillway elevation will be reduced (negative), however the width will be increased to a pre-1980 configuration (positive). More significantly, open water associated with the headpond will no longer persist (negative). Considering the overall heritage impacts, supplementary mitigation measures are considered required to document and preserve the original character of Mack Park.

Key Considerations: Cultural heritage, Capital cost

**K. Other Supplementary Elements** - Implementation of the Preferred Alternative could be accompanied by other improvements to the Study Area. These options though have not been considered key design elements.

Key Considerations: Various, Capital cost

## 6.2 Implementation Options

Implementation options for each design element have been characterized and advantages and disadvantages with respect to the key design considerations have been identified in Table 6.1, along with the recommended options. Generally, the recommended options are those which provide more significant advantages. Graphics and/or representative photographs associated with the options are presented in Appendix D.

**Table 6.1: Implementation Options for the Preferred Alternative**

Design Element	Option	Recommended Option	Description	Key Considerations	Advantages	Disadvantages
<b>A. Spillway Geometry</b>  (ref. Figure D1)	1 Lower 1 m	✓	Results in 6 m +/- high spillway. Requires larger grade control structure at the upstream limit of the headpond reach to generate a functional channel gradient of 0.5% to support riffle/pool sequencing and sediment transport.	Spillway Height Natural Channel Function	Maximizes resulting spillway/waterfall height and original built heritage character.	Sediment transport may be impaired. Requires 1 m +/- grade control.
	2 Lower 1.5 to 2 m	X	Results in 5 to 5.5 m +/- high spillway. Provides a channel gradient of 0.9 – 1.2% more representative of the reach upstream of the headpond.	Flooding	Improved riffle/pool sequencing and sediment transport. Reduces likelihood that shear anchors will be required. Greater reduction in upstream floodplain.	Further compromises resulting spillway/waterfall height and original built heritage character.
<b>B. Natural Channel Alignment</b>  (ref. Figure D2)	1 Central planform	X	Channel alignment generally centred within the headpond, resulting in a moderate channel length (140 m +/-). <u>All options:</u> Assuming the spillway is lowered by 1 m, in order to create the minimum channel grade, a tie-in elevation of 359 m is proposed and will require a grade control feature located downstream of the existing pedestrian bridge crossing and resulting in a 1 m +/- deep pool. The pool will create backwater effects for approx.. 80 m +/- upstream.	Natural channel function  Park use & vistas  Construction duration	Provides opportunities for repurposing the headpond on both the north and south banks.	May limit scope of opportunities on either shore due to division of repurposed headpond area.
	2 North planform alignment	X	The channel would be aligned proximate to the north bank. This would result in a shorter channel (130 m +/-) length and increase the channel gradient and minimize the required scour pool under all spillway options.		Minor improvement to channel gradient (i.e. increase) or reduced height of required grade control. More opportunities to disperse visitors to the repurposed headpond area on the south shore	Limited opportunity to expand space on the north shore where most of the existing visitor attractions are found (pool, fountain, cave, access to cottage site, popular view points etc)
	3 South planform alignment	✓	The channel would be aligned proximate to the south bank. This would result in a longer channel length (160 m +/-) and decrease the channel gradient under all spillway options. Sufficient space would be allowed to accommodate a boardwalk along the south shore		Maximizes opportunity to expand space on the north shore where most of the existing visitor attractions are found (pool, fountain, cave, access to cottage site, etc). Improves channel proximity to groundwater seeps on the south shoreline	Minor reduction in channel gradient. Does not encourage dispersal of visitors around the headpond.
	4 Adaptive management	X	Allow channel planform to adjust naturally in headpond sediment.		Channel achieves planform more naturally.	May create sediment management issues relating to a short-term unstable channel and potential for short-term discharge of sediment downstream, as well as potential issues with the quality of the channel bed material. Difficult to plan for repurposed headpond areas. Would require phased implementation to allow time for the channel to stabilize before the repurposed headpond areas are constructed around it.

**Table 6.1: Implementation Options for the Preferred Alternative**

Design Element	Option	Recommended Option	Description	Key Considerations	Advantages	Disadvantages	
<b>C. Spillway Structural Rehabilitation</b>  (ref. Figure D3)	1	Shear Anchors	✓	Shear anchors would be installed by drilling through the core of the dam and into the founding bedrock to increase resistance to sliding. The need and number of shear anchors required would be determined by detailed structural analysis and would depend on the ultimate spillway elevation (i.e. how far it is lowered).	Structural Factor Of Safety	No impact to built heritage. Lowest cost.	None
	2	Toe Works	X	Exposed bedrock at the toe of the existing dam would be removed and additional concrete mass would be added and keyed into bedrock to increase resistance to sliding. The design of the toe modifications would be determined by detailed structural analysis and would depend on the ultimate spillway elevation (i.e. how far it is lowered).	Built Heritage Capital Cost	None	Higher cost. Impacts to built heritage and aesthetics
<b>D. Sluiceway Configuration</b>  (ref. Figure D4)	1	Decommission	X	The sluiceway would be decommissioned by replacing the stop logs with a concrete wall and closing/sealing the screw gate. The sluiceway structure would remain in-place.	Built Heritage Capital Cost Maintenance	Lowest capital cost. Potential future flexibility related to dewatering/ maintenance/etc.	Least representative of built heritage.
	2	Partial heritage rehabilitation	X	The sluiceway would be decommissioned by replacing the stop logs with a concrete wall and closing/sealing the screw gate. The top of the sluiceway structure would be lowered to the ultimate elevation of the spillway, and filled with concrete to create a crest similar to the spillway. The abutments on the downstream side would continue to be visible and distinct from the geometry of the spillway.		Maximizes waterfall width. Improved aesthetics and original built heritage character.	Higher capital cost.
	3	Full heritage rehabilitation	✓	The sluiceway structure would be decommissioned and modified such that its ultimate geometry (cross section) would be consistent with the spillway, including cobble surface treatment on the downstream face.		Maximizes waterfall width. Maximizes aesthetics and original built heritage character.	Highest capital cost.
<b>E. Repurposed Headpond Area Use</b>  (ref. Figure D5)	1	Recreation	✓	Majority of additional tableland is re-purposed as maintained turf area. Specific uses could include sitting areas, heritage reflection through interpretive signage, or open space. A naturalized bank would be provided with a buffer, at minimum.	Park use	Visitor crowding in terrace area potentially reduced.	No specific disadvantages.
	2	Floodplain rehabilitation	✓	Potential habitat restoration endpoints will be dependent upon future use of the newly created floodplain areas adjacent to the new channel, as well as adjacent recreational uses and goals for user access and future viewsheds of the river, e.g. selection of tree vs. shrub vs. herbaceous / graminoid species, combinations, locations, etc	Ecological function	Representative of historically natural condition prior to development of Mack Park and similar to upstream/ downstream reaches.	No specific disadvantages.

**Table 6.1: Implementation Options for the Preferred Alternative**

Design Element	Option	Recommended Option	Description	Key Considerations	Advantages	Disadvantages
	3 Wetland rehabilitation	X	Seasonal floodplain (with marsh) habitat can be created through varied grading in filled areas, with source water coming from the river when flows access floodplain. The lands can be graded to create seasonal amphibian habitat, or to create more “wet meadow” conditions with minimal standing water. Gradations between these habitat types can also be created. Seepage wetlands along the toe of the valley wall would be an option if the channel alignment is along the north shore. These features could become permanently inundated features that can provide additional wildlife habitat value.		New wildlife habitat. Effective barrier to preventing unwanted visitor access to the river (potentially ecological/safety benefit)	Wetland habitat is not native to the study area. Challenging from a grading perspective and likely to require increased maintenance.
<b>F. Headpond Bridge Configuration</b>	1 Existing (6 m span)	X	The existing headpond bridge is left in place. Feasibility contingent on results of structural inspection.	Natural channel function  Capital cost	No capital cost.	Span is considerably less than the river bankfull and impedes natural channel function resulting in a scour pool and local instability. Does not meet CVC guidelines for pedestrian crossings
	2 18 m < Span > 6 m Prefabricated Steel Span Bridge	X	Replace the existing headpond bridge with a steel span bridge with a span greater than 6 m and less than 18 m. <i>All options:</i> bridge deck to be above 25 year flood elevation, where feasible		Span would be less than bankfull width of the upstream river, but would improve channel function over existing (larger span, greater improvement).	Higher capital cost. Does not meet CVC guidelines for pedestrian crossings
	3 18 m +/- Prefabricated Steel Span Bridge	✓	Replace the existing headpond bridge with a 18 m +/- steel span bridge. Span is equivalent to bankfull width of the upstream river, and although additional span would allow for meander adjustment, the span is considered the maximum from a practical perspective, considering for the park landscape.		Minimizes constraint on natural channel function to the extent considered feasible.	Highest capital cost.
<b>G. North Retaining Wall Mitigation (ref. Figure D6)</b>	1 Wall drains & impervious barrier	✓	Drains would be installed in the wall at a specified elevation and spacing to relieve the water level in the backfilled soils. An impervious barrier would be installed below the surface treatment to prevent infiltration and saturation of the retained soils.	Structural factor of safety  Capital cost	Mitigates structural factor of safety. Lowest capital cost.	None
	2 Perforated pipe & impervious barrier	X	A longitudinal perforated pipe would be constructed along the length of the wall, set back some distance from the wall to lower ground water levels in the backfilled area. The pipe would be required to outlet through the wall at some point downstream. An impervious barrier would be installed below the surface treatment to prevent infiltration and saturation of the retained soils.		Mitigates structural factor of safety.	Higher capital cost.
	3 Tie-backs	X	Tie-backs would be anchored to the wall at some spacing and embedded into bedrock behind the wall. The tie backs would provide additional lateral support.		Mitigates structural factor of safety.	Highest capital cost.

**Table 6.1: Implementation Options for the Preferred Alternative**

Design Element	Option	Recommended Option	Description	Key Considerations	Advantages	Disadvantages
<b>H. Sediment Management Approach</b>	1	Cap in place	Headpond sediment would be managed in-situ to the extent possible by capping/mixing. MOECC guidelines for soil quality in watercourse would be met. Details would be subject to further sediment sampling/analysis.	Sediment quality  Capital cost Safety	Lowest capital cost.	None. Potentially contaminated soil left in place.
	2	Dispose on-site	Sediment would be largely excavated from the headpond and disposed of as fill elsewhere in the Belfountain Complex. No specific need for fill has been identified. MOECC guidelines for soil quality for disposal on-site would be met. Fill borrow would be required to backfill the headpond. Details would be subject to further sediment sampling/analysis.		Lower capital cost than disposal off-site.	Potential impacts to floodplain storage must be considered. Potential impacts to landscape/use at disposal site. Higher capital cost than Cap in-place.
	3	Dispose off-site	Sediment would be largely excavated from the headpond and disposed of off-site. Fill borrow would be required to backfill the headpond. MOECC guidelines for soil quality for disposal off-site would be met. Details would be subject to further sediment sampling/analysis.		All potentially contaminated material would be removed from the site.	Highest cost option.
<b>I. Safety Features</b>  (ref. Figure D7)	1	Signage	Install signage warning of the downstream waterfall hazard.	Safety  Park vistas	Clearly communicates hazard. Minimal visual impact.	Not a physical barrier.
	2	Existing fencing	Maintain existing fencing on north headpond retaining wall with minor modifications as necessary. Install fencing on south bank for some distance upstream (20-30 m +/-).		Effective physical barrier.	Visual impact. Can be circumvented by visitors.
	3	Extend fencing	Extend existing fencing along the north and south banks of new channel.		Most effective physical barrier, less likely to be circumvented.	Visual impact.
	4	Landscaped barriers	Plant mid-height shrubs that maintain vistas of the river at a density that discourages access to the river. Shrubs would be an extension to existing fencing.		Improved physical barrier. More natural system.	Greatest visual impact (obstruction of river vistas)
	5	Spillway barrier	Install roped (or other) barrier on crest of spillway. May be most appropriate in winter months when ice provides easier access to the crest of the spillway.		Effective barrier in winter months.	Visual impact if left in place in summer months.
<b>J. Supplementary Heritage Mitigation</b>  (ref. Figure D8)	1	Interpretive signage	Interpretive signage would provide historic information on Mack Park and could include earlier uses of the Study Area including the original mill and pre-contact aboriginal uses. Signage could be within a future on-site building, in the Yellowstone Cave, or spread around the headpond area.	Cultural heritage	Cultural heritage. Low capital cost.	None
	2	Renovate Mack Pool	Renovate pool area to highlight original structure and use including walls, ladders, etc. Possible options include lowering the turf area to highlight the walls, a purposed river viewing area, ecological/heritage signage, patio area with seating, vestibule.	Capital cost	Cultural heritage.	Higher cost than interpretive signage.

**Table 6.1: Implementation Options for the Preferred Alternative**

Design Element	Option	Recommended Option	Description	Key Considerations	Advantages	Disadvantages
	3 Pulpit	X	Incorporate viewing pulpit representative of the original Mack Park pulpit. The original location was in the south east corner of the headpond, adjacent to the dam abutment, on the valley slope.		Cultural heritage. Provides elevated perspective on dam and headpond area landscape.	High capital cost. Impacts to the south valley slope woodlot.
<b>K. Other Supplementary Elements</b>	1 South shore trail improvements	✓	Construct accessible trail on the south side of the headpond. Potential boardwalk. Potential to locate on re-purposed headpond area.	Various Capital cost	Improved access. Improved vistas. Opportunity rehabilitate south valley slope impacts caused by the existing trail system	Boardwalk would be more flood prone than a trail on the valley wall
	2 South shore clearing	X	Selective tree removal to improve vistas and access to the south shoreline. The option would inherently include riparian restoration. The option may not be warranted if the channel is aligned along the north shore and repurposed headpond area is available on the south		Improved vistas from the existing south trail system. Opportunity for improved riparian habitat.	Potential for local impacts to terrestrial ecology (Jefferson salamander habitat).
	3 Fish ladder	X	Incorporate fish ladder designed to provide passage for Atlantic salmon. Agency perspectives vary on whether this would be positive or negative impact to upstream fisheries, particularly Brook trout populations.		Potential for Atlantic salmon passage improved and access provided to upstream habitat.	Atlantic salmon passage upstream of the dam may impact Brook trout populations. Capital and operational costs.

### 6.3 Preferred Implementation Options

The following design elements are considered to be the most important in terms of defining the function and character of the Preferred Alternative:

- A. Spillway Geometry
- B. Natural Channel Alignment
- E. Repurposed Headpond Area Use

These elements are interdependent in that selection of an option for one directly impacts the others. The other design elements are generally more independent. The spillway geometry and natural channel alignment will directly impact the resulting channel function. The following provides the basis for the preferred implementation options for the key design elements, as presented in Table 6.1:

**A. Spillway Geometry** – *Option 1 Lower 1 m* has been selected as the preferred option as reductions in the spillway height beyond 1 m +/- are considered to have unacceptable impacts on built heritage, and especially existing vistas and visitor experience relating to the magnitude of the waterfall. Further, the resulting channel gradient is expected to generate acceptable channel function, and represent a significant improvement over existing channel function.

**B. Natural Channel Alignment** – *Option 3 South Planform Alignment* has been selected as the preferred option for the following reasons: proximity of the channel to the more south valley slope would provide improved connection to the existing groundwater seeps; the channel will be more proximate to the existing south slope forest area which will provide increased shade and improve terrestrial-riparian-aquatic habitat linkages (versus the more recreational features found on the north shore); the majority of the re-purposed tableland will be connected to the existing north terrace areas which would make them more functional for recreational uses (verses dividing tableland between the north and south shores) and will help to relieve existing crowding issues; sufficient tableland will still be generated along the south shore to accommodate a future boardwalk.

**E. Repurposed Headpond Area Use** – *Option 1 Recreation* and *Option 2 Floodplain rehabilitation* have been advanced in combination as the preferred headpond area use. A need for additional recreational area around the existing dam, terraces and other park features has been identified and this can be accommodated while also achieving objectives to improve terrestrial and riparian habitat in the park provided by the proposed floodplain rehabilitation, including buffer areas (minimum 1 to 5 m) between the proposed channel and recreational areas. Introduction of wetlands (Option 3) to the study area has not been considered appropriate given the lack of historical presence at this location, as well as for park use and engineering challenges.

For the balance of the design elements, the advantages and disadvantages identified for the various implementation options summarized in Table 6.1 provide the justification for selection of the preferred options.

## 7.0 DETAILED ANALYSIS OF ENVIRONMENTAL IMPACT

A detailed analysis of environmental impacts has been undertaken for the Preferred Alternative and the associated preferred implementation options. The analysis has followed the format outlined in Table 3 in the *Conservation Ontario Class Environmental Assessment for Remedial Flood and Erosion Control Projects* (June 2002, Amended June 2013) and the screening criteria identified in Table 3 of that document are reproduced here in Table 7.1. The screening criteria represent all potential *Physical, Biological, Cultural* and *Socioeconomic* features that may be present in a study area, some criteria are not relevant to the Belfountain Dam and Headpond Study Area; where this is the case it is identified in Table 7.1. For the balance of the screening criteria, a rating of potential positive or negative effect the Preferred Alternative is expected to have on the criteria is identified in Table 7.1, along with a discussion of the effect and proposed mitigation where the effect is negative.

Table 7.1 identifies where the potential effect is **negative (-)**, **neutral (NIL)** or **positive (+)** and rates the potential effect as relatively **high (H)**, **medium (M)**, **low (L)** or **not applicable (N/A)**.

**Table 7.1 – Detailed Analysis of Environmental Impact for the Preferred Alternative**

Screening Criteria	Rating of Potential Effect	Discussion on Effects & Mitigation
<i>Physical</i>		
Unique Landforms	Nil	The Study Area is within the Niagara Escarpment Plan Development Area. No impact to defining features of the Niagara Escarpment are predicted to occur.
Existing Mineral/Aggregate Resources Extraction Industries	N/A	None identified in the Study Area.
Earth Science - Areas of Natural and Scientific Interest (ANSI)	Nil	The limits of disturbance associated with the Preferred Alternative will not impact the nearby Caledon Meltwater Deposits Earth Science ANSI
Specialty Crop Areas	N/A	None identified in the Study Area.
Agricultural Lands or Production	N/A	None identified in the Study Area.
Niagara Escarpment	Nil	The Study Area is within the Niagara Escarpment Plan Development Area. No impact to defining features of the Niagara Escarpment are predicted to occur.
Oak Ridges Moraine	N/A	Study Area not within the Oak Ridges Moraine.
Environmentally Sensitive/Significant Areas (physical)	+L	The Study Area is within the Credit Forks – Devil’s Pulpit ESA. The Study Area represents a small portion (<1 ha) of the 287 ha ESA. Defining physical features of the ESA are the Niagara Escarpment (no effect) and significant groundwater recharge areas (no effects expected). Fluvial function will be improved and riparian buffer areas will be provided as part of the construction of the natural channel. Overall, the Preferred Alternative is considered to have some positive effects on the ESA.
Air Quality	-L	Localized temporary impacts including dust and vehicle emissions associated with construction. Dust suppression and minimizing construction vehicle idling would mitigate temporary effects to the extent possible.
Agricultural Tile or Surface Drains	N/A	None identified in the Study Area.
Noise Levels and Vibration	-L	Localized temporary impacts including increased noise and vibration associated with construction. Negative effects to local residents can be minimized by following local municipal by-laws which outline permitted construction days/hours.
High/Storm Water Flow Regime	+L	The Preferred Alternative proposes to lower the spillway of the Belfountain Dam, and replace the headpond bridge, both of which would provide minor local reductions in high flow conditions. The existing headpond does not provide measurable peak flow attenuation and no impacts to the high water flow regime are expected downstream. Updated hydraulic modelling is proposed at detailed design.
Low/Base Water Flow Regime	Nil	The headpond does not have significant volume and as such does not measurably augment downstream baseflow, as such, no impact is expected.
Existing Surface Drainage and Groundwater Seepage	Nil	No effect on existing surface drainage. The Preferred Alternative will maintain or improve connection of existing groundwater seeps on the south valley slope to the West Credit River by way of French drains (pending implementation of the option).
Groundwater Recharge/Discharge Zones		
Falls within a vulnerable area as defined by the Clean Water Act,	Nil	The Study Area is within a Wellhead Protection Area (Surface Vulnerability Area) within the Inglewood area as defined in the Approved Updated Assessment Report: Credit Valley Source Protection Area (CVC, July 27, 2015). Temporary risks to surface water quality during construction are proposed to be mitigated by the proposed dewatering and erosion and sediment control plan.
Littoral Drift	N/A	No coastal areas in the Study Area.
Other Coastal Processes	N/A	No coastal areas in the Study Area.
Water Quality	+M	Removal of the headpond is expected to result in increased dissolved oxygen and reduced water temperature throughout the headpond reach, with some benefit extending to downstream reaches. Potential short term negative effects associated with sediment release are proposed to be mitigated with the proposed dewatering and erosion and sediment control plan.

**Table 7.1 – Detailed Analysis of Environmental Impact for the Preferred Alternative**

Screening Criteria	Rating of Potential Effect	Discussion on Effects & Mitigation
Soil/Fill Quality	Nil	Construction vehicle fueling presents the only risk to soil/fill quality and can be mitigated with standing refueling practices.
Contaminated Soils/Sediments/Seeps	+L	Existing headpond sediment samples showed exceedances relative to current guidelines. Further sediment sampling is proposed as part of detailed design to determine the extent and distribution of contaminants and determine the preferred method of mitigating any exceedances.
Existing Transportation Routes	-L	Minor temporary negative effects to local traffic are expected associated with construction vehicle ingress/egress on Forks of the Credit Road. Negative effects can be mitigated to the extent possible by following MTO guidelines for construction signage and flagging.
Constructed Crossings (e.g. bridges, culverts)	+L	No impacts to municipal or Provincial bridges/culverts are expected. The existing headpond bridge within the park is proposed to be improved as part of the Preferred Alternative
Geomorphology	+M	The fluvial function of the reach of the West Credit River will be improved in the replacement of the existing headpond with a functional natural channel.
<b>Biological</b>		
Wildlife Habitat	Nil	Impacts to wildlife habitat will be minimal. A narrow band of trees (<5m) may require removal along the southern shoreline to accommodate the channel design. Tree removals and construction will be timed to mitigate impacts on migratory birds and Jefferson salamander.
Habitat Linkages or Corridors	+L	Wildlife passage through the study area may be improved with the removal of the headpond and the establishment of a “natural” channel system with a vegetated riparian corridor.
Significant Vegetation Communities	Nil	The Preferred Alternative may impact a narrow band (<5 m) of the Significant Woodlot within the Belfountain Complex along the south shore of the existing headpond, however will introduce improved riparian corridor habitat.
Environmentally Sensitive/Significant Areas (biological)	+L	The Study Area is within the Credit Forks – Devil’s Pulpit ESA. The Study Area represents a small portion (<1ha) of the 287 ha ESA. Defining biological features of the ESA are the woodlot (minor tree loss may occur along the south headpond shoreline). Aquatic and riparian habitat will be improved as part of the construction of the natural channel. Overall, the Preferred Alternative is considered to have some positive effects on the ESA.
Fish Habitat	+M	Significant local positive effects are expected in the conversion of the headpond to a channel for native fish species (e.g. Brook trout).
Species of Concern (e.g. species at risk, vulnerable/threatened/ endangered species, conservation priorities - either flora or fauna)	Nil	The implementation of the Preferred Alternative should not impact regulated Jefferson salamander habitat. Construction-related activities will be timed and staged, as a precautionary measure, to avoid any potential impacts to migrating Jefferson salamanders and its habitat. It is not anticipated that the removal of trees along the southern shoreline will impact maternity roost habitat for Little Brown Myotis and Northern Myotis. Butternut trees have not been observed within the study area.
Exotic/Alien and Invasive Species	Nil	Disturbance to existing vegetation will be minimal. Where disturbance occurs, or where the headpond will be repurposed as tableland, risks associated with invasive species can be mitigated by implementing the proposed native landscaping plan immediately following grading.
Wildlife/Bird Migration Patterns	Nil	It is not anticipated that the implementation of the Preferred Alternative will have impacts on wildlife migration patterns.
Wildlife Population	Nil	Extent of construction disturbance is limited to the headpond and its perimeter. No impact to local wildlife population is expected.
Wetlands	N/A	None identified in the Study Area.
Microclimate	Nil	Reduction in local evaporation associated with removal of pond.

**Table 7.1 – Detailed Analysis of Environmental Impact for the Preferred Alternative**

Screening Criteria	Rating of Potential Effect	Discussion on Effects & Mitigation
Life Science ANSIs	Nil	The limits of disturbance associated with the Preferred Alternative will not impact the adjacent Credit Forks Life Science ANSI
Unique Habitats	Nil	The limits of disturbance associated with the Preferred Alternative will not impact the tufa formation located on the south shore downstream of the dam.
<b>Cultural</b>		
Traditional Land Uses	Nil	No traditional land uses identified.
Aboriginal Community or Reserve	Nil	Aboriginal communities or reserves are not located in the Study Area.
Outstanding Native Land Claim as identified by the Aboriginal Community	Nil	The Mississauga's of the New Credit First Nation (MNCFN) assert that they have unextinguished aboriginal title to all water in their traditional territory and will be submitting a claim to all water, land under water and floodplains in their traditional territory, which includes the Study Area. The works associated with the Preferred Alternative are within the West Credit, consultation with First Nation's is ongoing. First Nation's will be provided the opportunity to participate in future archaeological study.
Transboundary Water Management Issues	N/A	None in the Study Area
Riparian Uses	Nil	No impacts offsite
Recreational or Tourist Uses of a Water Body and/or Adjacent Lands	+L	The West Credit River is not a navigable water body. The Preferred Alternative will provide improved opportunities for access and interpretation of the river through the Study Area.
Recreational or Tourist Uses of Existing Shoreline Access	+L	The Preferred Alternative will include improvements to trails adjacent to the West Credit River within the Study Area.
Aesthetic or Scenic Landscapes or Views	Nil	The Belfountain Dam 'waterfall' and built heritage are considered to provide regionally unique vistas. The Preferred Alternative will have a negative effect on the height of the waterfall, however removal of the existing sluiceway will improve the aesthetic of the spillway and increase flow over the waterfall. The construction of a functional natural channel through the headpond area is considered to change the existing aesthetic, however the change is considered neither positive or negative.
Archaeological Resources	Nil	Archaeological potential remains along the south shoreline of the existing headpond. Stage II archaeological investigations are proposed prior to construction to mitigate any risk to resources.
Built Heritage Resources	-L	The existing Belfountain Dam is considered to have value as built heritage, although it is not formally designated. The Preferred Alternative proposes to reduce the height of the original structure. However removal of the existing sluiceway will return the north section to a condition more representative of the original structure and can be considered a balancing mitigative measure. Heritage signage is proposed to offer further mitigation.
Cultural Heritage Landscapes	-M	The Belfountain Headpond forms a part of the designated Cultural Heritage Landscape known as Mack Park. The Preferred Alternative proposed to convert the headpond to a channel which is considered a negative effect. The effects are deemed to be warranted when considered with the positive effects to fluvial function, aquatic habitat and water quality. As a mitigating measure, the existing headpond retaining walls are proposed to remain as landmarks delineating the original headpond extents. Cultural heritage signage is also proposed.
Historic Canals	N/A	None in the Study Area
Federal Property	N/A	None in the Study Area
Heritage River System	N/A	The West Credit River is not a designated Heritage River.

**Table 7.1 – Detailed Analysis of Environmental Impact for the Preferred Alternative**

Screening Criteria	Rating of Potential Effect	Discussion on Effects & Mitigation
<b>Socioeconomic</b>		
Surrounding Neighbourhood or Community	Nil	No direct effect on the surrounding community is expected.
Surrounding Land Uses or Growth Pressure	Nil	No effect to surrounding lands
Existing Infrastructure, Support Services, Facilities	Nil	No effect to existing infrastructure on adjacent lands
Pedestrian Traffic Routes	Nil	No effect to existing pedestrian traffic routes on adjacent lands. Trail improvements are proposed as part of the Belfountain Complex Master Plan
Property Values or Ownership	Nil	No effect to ownership of adjacent lands
Existing Tourism Operations	+L	Belfountain Conservation Area is a popular destination for regional tourism. The Preferred Alternative is considered to improve visitor experience.
Property/Farm Accessibility	Nil	The Preferred Alternative will not impact access to nearby properties.
<b>Engineering / Technical</b>		
Rate of Erosion in Ecosystem	+M	The Preferred Alternative improves fluvial function for 400 m +/- of the West Credit River. Erosion rates would be expected to increase (to more natural levels) and sediment deposition would be expected to significantly decrease.
Sediment Deposition Zones in Ecosystem		
Flood Risk in Ecosystem	+M	Structural rehabilitation of the Belfountain Dam would bring the structure into compliance with current structural guidelines specified under the Lakes and Rivers Improvement Act.
Slope Stability	Nil	No significant effect on slope stability is expected; backfilling of the headpond may provide some improvement in stability of the south valley wall. Further geotechnical study is proposed to determine the existing stability of the south valley wall.
Existing Structures	+M	The Preferred Alternative proposes improvements to three existing structures within the Study Area: Belfountain Dam, the north retaining wall and the headpond bridge. No structures outside of the Study Area will be effected.
Hazardous Lands	Nil	The Preferred Alternative complies with Provincial legislation regarding natural hazards.
Hazardous Sites	N/A	No hazardous sites identified in the Study Area.

## 8.0 PRELIMINARY DESIGN

The Preferred Alternative has been advanced to preliminary design depicted on the preferred implementation drawings (ref. Section 6.2). The following sections describe the key elements of the preliminary design and identify where additional study is required. Refer to Appendix E for preliminary design drawings.

### 8.1 Dam Modifications

The proposed modifications of the Belfountain Dam, which consist of lowering the spillway structure by approximately 1 meter and partially removing and infilling the sluiceway to match the adjacent spillway cross section, were assessed for structural stability in accordance with the Lakes & Rivers Improvement Act (LRIA) Technical Bulletins and Best Management Practices (MNR, August 2011). The stability assessment was performed based on available drawings and records provided by CVC and visual observations performed by Amec Foster Wheeler on June 29, 2015, and based on the proposed modifications. For the purpose of the structural analysis, it has been assumed that the area upstream of the Dam is completely backfilled.

The overall dam stability has been assessed based on three performance indicators, namely: position of resultant force, normal stress and sliding factors. It has been determined that the proposed dam configuration can satisfy the requisite structural safety requirements (factors of safety) outlined in the Technical Bulletins by way of installation of twelve (12) additional shear anchors, ten (10) within the spillway and two (2) in the sluiceway. Shear anchors would be installed by drilling through the existing dam and into the founding bedrock. For a detailed discussion of the structural analysis including reporting of load combinations and resultant factors of safety, refer to Appendix E.

Additional features to be considered for incorporation into the modified spillway at detailed design include a concrete low flow channel 'bank' (see Section 8.2 for further details) and the original Mack 'step' waterfall design located at the north and south ends of the spillway (ref. Figure 8.1).



Figure 8.1 – Historical photo illustrating the Mack 'step' waterfall design

Based on the assessment completed during the baseline inventory, the following recommendation should also be addressed at detailed design:

1. Rehabilitation of concrete defects in the north retaining wall
2. Infilling of ongoing undermining of the north retaining wall footing; and,
3. Installation of erosion protection at the south abutment.

As a result of the lowering of the spillway and the removal of the sluice gate, flood depths will decrease throughout the Study Area. The reduction in the 2 to 100 year and Regional floodplain should be established through hydraulic analysis at detailed design. Benefits to flood risk in the Study Area should be identified, including actively used recreational area, cultural resources and the north retaining wall (which has not been designed to withstand the currently predicted overtopping during the Regional event).

#### *South Valley Wall*

Additional geotechnical investigation is required to determine the existing stability of the south valley slope and assess any positive or negative, temporary and long-term impacts on slope stability as a result of the proposed backfilling of the headpond. Notionally, drawing down the headpond may have a negative impact on overall slope stability while backfilling of the headpond would have a positive impact on stability. The following describes the high level scope of geotechnical field investigation and slope stability analysis proposed at detailed design:

- ▶ Test pit or borehole investigation of the south valley slope to assess subsurface conditions;
- ▶ Topographic survey to define the top of slope and any topographic features (the bottom of slope has previously been surveyed)
- ▶ Slope stability analyses of critical sections considering the i) existing condition, ii) head pond drawdown condition and, iii) final configuration with backfilling of the head pond.

#### *South Abutment Seepage*

Previous dam safety investigations (Klohn Crippen Berger, 2007; Terraprobe, 2013) have identified seepage at the south abutment. It is not clear however if there are any changes in quantity and/or quality of the seepage since 2013. It is considered likely that the seepage is mainly emanating from the upstream headpond through fractures, joints, and seams in the bedrock. It is also possible that groundwater contributes to the observed seepage. The Preferred Alternative proposes to backfill a portion of the headpond, thus significantly reducing the hydrostatic pressure on the dam and abutments and possibly eliminating the observed seepage. The Preferred Alternative also proposes removal or mitigation of the unconsolidated sediment in the headpond and earth works or grading at the abutment-bedrock interface to provide the opportunity to grout the interface to some depth below the surface. The extent of this opportunity would be determined by additional sediment sampling proposed as part of detailed design (ref. Section 8.4). In any case, following implementation of the Preferred Alternative, monitoring of seepage at the south abutment should be undertaken.

## 8.2 Channel & Tablelands

The proposed functional channel design has been developed using natural channel design principles, overall site constraints and the vision for the headpond area, developed as part of this study. Additional considerations for the design include: the objective to maximize park expansion space along the north shore, inclusion of groundwater seepages from the south valley slope, and the use of 'soft' bank treatments. Key design features include the grade control riffle feature downstream from the Headpond bridge, vegetated block bank treatments, vegetated stone bank treatments, and Luncker™ bank treatments for enhanced aquatic habitat. Proposed bank treatment details and locations are advanced as preliminary at this stage. Additional bank treatment options/combinations/locations will be evaluated at detailed design to establish the desired diversity in riparian/aquatic habitat, bank/floodplain roughness, aesthetics, etc. A French drain system has been identified as an option to more directly convey south valley slope seepage flow to the proposed channel. The French drains should be evaluated further at detailed design with further consideration for advantages and disadvantages related to aquatic habitat (i.e. spawning, other), water temperature, overbank erosion, bank stability (i.e. overland seeps may saturate banks), the existing tufa feature and its formative groundwater source, and the overall local groundwater regime.

An appropriate design should convey existing storm flows and accommodate the constraints imposed by adjacent land use and natural features. The proposed channel form has been developed based on elevation constraints of the proposed lowering of the dam and the existing upstream profile of the West Credit River at the headpond bridge crossing. The channel dimensions have been derived from field data to convey the bankfull flow. It is noted that the overall width/depth ratio is higher than what naturally would occur, however is governed by constraints associated with the park vision. Nevertheless, the proposed channel generally conforms with natural channel design principles and will have some ability to adjust over time. These expected changes are part of a natural maintenance process, in which the channel adjusts to maintain equilibrium with the current flow and sediment regime. The newly designed channel would also allow for bank-topping during flood events, which promotes floodplain health and diversity.

A dynamically stable channel requires a balance between erosive forces and resisting forces; the channel discharge and slope should be in balance with the sediment load and texture (i.e. size distribution). The channel geometry, including the cross-section, profile, and planform, controls the magnitude and distribution of the two opposing forces and the rates at which energy is dissipated along the channel. Outside of the channel, the floodplain and other corridor characteristics promote energy dissipation during high flows.

Taking into consideration the constraints present at the site, a preliminary channel design has been developed to advance the Preferred Alternative. The preliminary channel design establishes a broad meander bend connecting the upstream channel to the dam structure with a single apex located towards the south valley wall. This planform alignment allows for approximately 160 m of channel length and an overall bankfull gradient of 0.41%. Cross sections are anticipated to be

16 m (+/-) wide and 0.75 m to 1.9 m in depth at the bankfull level, providing a bankfull flow of approximately 20 m<sup>3</sup>/s, based on the upstream reference reach. In order to accommodate the desired channel cross section depth through the upper headpond reach, the existing pool terrace walls are proposed to be raised by 0.3 m. The cross sections have been designed to accommodate both anticipated bank full flows based on surveyed conditions upstream, as well as the gradient restrictions imposed by the invert of the spillway. Channel width will transition to a wider cross section approaching the spillway. The spillway is approximately 25 m and this is considered to be wider than ideal for channel function. Channel widening is proposed to be limited as it crosses the spillway by installing a concrete 'bank' (would be formed into the spillway crest), that would maintain desired flow depth in low flow conditions, but allow full utilization of the spillway in higher flow conditions. The 'bank' is proposed to be 3 m minimum, detailed fluvial analysis at detailed design would be required to determine its ultimate dimension (width, height), and confirm it is required.

Currently the groundwater seeps drain along the south slope and into the headpond. However with the construction of the channel, this connection will be disrupted by the instillation of floodplain area. The optional French drains are intended to collect groundwater from the slope and convey it to the channel underneath the floodplain, discharging within the proposed Lunkers and creating "premium" cold water habitat and allowing the outlet of the drain to remain hidden. The French drains also limit the possibility of thermal warming of the seep water before it has a chance to reach the channel and limit the potential for overbank erosion (vs overland). As noted above, further evaluation is required at detailed design.

It will be necessary to further refine the cross section sizing with additional hydraulic analysis to confirm bankfull and design discharges at detailed design. Additional data on bankfull channel dimensions and hydraulic characteristics may need to be collected from channel tie-in locations. Supporting the detailed design process, hydraulic analysis will be required in order to verify bankfull flows through the proposed headpond channel. Sediment analysis will be required to confirm depths of consolidated material as well as management options.

As discussed in Section 8.1, reductions in flood levels through the headpond area are expected. However, the introduction of new tablelands and the siting of park features (e.g. boardwalk) and passive recreation areas in these lands requires the characterization of flood risks and potentially the consideration of ingress/egress plans, the siting of flood hazard warning signs and the development of emergency response plans. Additional hydraulic analysis is required to establish the frequency, depth and velocity of flows within the re-claimed tableland area, and the overall floodplain throughout the Study Area. The proposed boardwalk should be sited above the 25 year flood level, at minimum. The alignment of the proposed boardwalk shown on Sheet 5 (Appendix E) is considered preliminary and will be finalized at detailed design considering for various site constraints (e.g. channel top of bank and required setback, existing trees, visitor experience, etc).

### **8.3 Terrestrial Ecology**

Studies completed by CVC identified that the Belfountain Conservation Area and the encompassing Credit Forks-Devil's Pulpit ESA contain high quality woodland and valleyland environments providing habitat for numerous species at risk. The Class EA further indicated that the main constraints affecting the implementation of the Preferred Alternative will be the avoidance of key timing windows for breeding birds (April-August) and migrating salamanders (March-May), and the avoidance of impacts to Jefferson Salamander habitat. Construction of the preferred alternative, therefore, will need to be timed to avoid these key timing windows. The preliminary design has also considered the extent of potential Jefferson Salamander habitat mapped by CVC and MNRF such that construction of the new channel will avoid directly impacting these areas. While it is possible that some trees occurring along the toe of the south slope may have to be removed to accommodate the construction of the southern bank of the new channel, it is not anticipated that these localized removals will impact the quality and function of identified Jefferson Salamander habitat. As part of the landscaping plan for the re-purposed tablelands, additional tree plantings can be included as compensation for any tree removals required.

### **8.4 Sediment Management**

Additional analyses of PCB/pesticides, TP, TKN, TOC and total metals in addition to the previous suite of chemical parameters will be required to further the understanding of local sediment contaminants and confirm disposal or treatment options. Options for sediment management fall under three broad categories: natural remediation, removal and in-situ treatment (Guidelines for Identifying, Assessing and Managing Contaminated Sediments in Ontario, MOE, 2008).

Natural remediation can be considered in a situation where the level of sediment contamination is not severe enough to warrant immediate removal. This consists of leaving the sediment in place, and burying it with newer, cleaner, material. This option effectively reduces the availability of a contaminant from reaching the surrounding environment. In the instance that chemical parameters exceed allowable limits, the sediment will need to be removed and treated.

In-situ treatment methods work mainly through aiding and enhancing natural remediation processes in order to reduce, but not necessarily eliminate contamination. In-situ treatment can involve capping the contaminated material (i.e., burying with clean material) as well as potential fixation/stabilization procedures which involve adding chemicals or additives that will either bind with contaminants to effectively remove them from circulation or to enhance their decomposition (this method is in development stages and has not been demonstrated in full scale). Considerations when employing the capping method include the density of the capping material (i.e., the capping material needs to be less dense than the material being capped to avoid sinking through), and the potential for erosion of the cap material by chemical or fluvial processes.

In order to construct the proposed headpond channel, the channel design will require, at minimum, the excavation of all unconsolidated sediment within the existing headpond as it relates to the proposed planform and channel dimensions. Depending on further sediment analysis, this excavated material may either be used in the construction of the proposed floodplain area and

capped in place, or it will be removed off site for disposal. The sediment not identified for excavation will need to be capped in place with suitable clean material brought in to construct the over bank flood plain.

The proposed channel design requires the installation of a grade control feature constructed downstream from the headpond bridge, which will be tied into the existing consolidated material, pending confirmation of its soil quality parameters. The stone used for the grade control feature is expected to represent a significant proportion of the material placed along the channel bed; the remaining channel bed will be generally graded along the consolidated material, with minor cut and fill required. Should the channel bed material also need to be capped due to chemical exceedances, further excavation will be required in order to accommodate the channel profile and depths of the cap material.

### **8.5 North Retaining Wall**

Stability analyses have indicated that the north retaining wall does not meet current Lakes and Rivers Improvement Act requirements, as outlined in the Technical Bulletins (MNRF, 2011), for the factor of safety for the sliding mode of failure under the design flood loading condition. The primary causes for the deficient factor of safety are:

- ▶ high lateral water pressure on the wall, and
- ▶ large uplift force at the base of the retaining wall which reduces the sliding resistance.

In order to address the unsatisfactory factor of safety it is proposed to place an impervious layer on top of the granular backfill soil along the wall extending to 5 m +/- behind the wall. The impervious layer should extend from the downstream limit of the wall to a point upstream where the height of the retaining wall is less than 1 m +/- in height; this will be the upstream face of the spillway after the headpond has been backfilled in accordance with the Preferred Alternative (ref. Sheet 4, Appendix E). The impervious layer (which would be covered in a turf or stone or other landscaped surface) would eliminate infiltration into the granular backfill behind the wall where it is applied. Drains are proposed to be installed into the concrete retaining wall at approximately 1 m +/- spacing on the tail-water side of the wall to drain the granular backfill soils. Perpetual maintenance of the drains and impervious layer would be required for the life of the retaining wall. Detailed seepage and stability analyses are required at detailed design to determine the final specification of the impervious layer coverage and drain spacing.

### **8.6 Headpond Bridge**

The existing headpond bridge would represent a constraint to the fluvial function of the proposed new channel through the headpond and has been proposed to be replaced with a 18 m steel span structure designed for pedestrian and small vehicle loads. The span is nominally greater than the local reach bank width and considered the practical maximum width considering constraints associated with trail connectivity on either bank. It is recommended that the bridge deck be free and clear of the 25 year flood level, based on the approved design storm distribution for the West Credit River. Hydraulic modelling at detailed design is required to determine if this objective can be met, capacity greater than the 25 year event should be provided where practical.

## 8.7 Capital Cost Estimate

An itemized quantity and price schedule has been prepared based on the preliminary design of the preferred alternative and is presented, along with assumptions, in Appendix E. The capital cost estimate includes modifications to the dam, mitigation of the north retaining wall, construction of the proposed channel (including associated sediment removal), rehabilitation of existing retaining walls, a new headpond bridge, and the proposed boardwalk along the south shoreline (not included in previous cost estimates at the Alternative evaluation stage), as well as design services (10%), contingency (25%) and HST (13%). The capital cost of the Preferred Alternative is estimated at approximately **\$2 million +/-**.

## 9.0 IMPLEMENTATION

### 9.1 Seasonal Constraints

Construction scheduling and phasing must consider relevant ecological constraints. The Study Area provides habitat to several terrestrial and aquatic species for which spawning/breeding seasons are protected by restricted activity timing windows under the Species at Risk Act, Fisheries Act and the Migratory Bird Convention Act. Table 9.1 identifies the protected species, timing windows and construction activity which must adhere to the restricted timing windows.

<b>Table 9.1 Restricted Activity Timing Windows</b>		
<b>Species</b>	<b>Restricted Activity Timing Window</b>	<b>Related Construction Activity</b>
Jefferson salamander	March 1 to April 30	Any construction disturbance to possible dispersion/migration and foraging habitat
Fisheries (Downstream Brook trout, Brown trout and Atlantic salmon habitat)	September 15 to June 30	In-water construction
Migratory Birds	May 1 to July 31	Tree clearing

Construction scheduling must also consider seasonal operation of the Belfountain Conservation Area (Open April 30 to October 24 in 2016), where possible.

The fisheries window becomes the most constraining window given that a majority of works associated with the Preferred Alternative are in-water. The available window for in-water construction is only 2.5 months and is not considered adequate to complete all in-water work phases (see Phases 2 to 4 in Section 9.2). As such, it is considered required that either drawing down the headpond (Phase 2) be completed within the restricted activity timing window, or that construction be completed over multiple seasons. Extending construction over multiple seasons is considered less preferred for three (3) reasons:

1. The overall risk of sediment release downstream is considered to be higher given that overall construction duration would be higher, with the primary concern being exposure of sediment and unstabilized fill in the headpond to storm flows, in addition to the requirement for multiple mobilization/demobilization cycles
2. Increase construction costs due to multiple mobilization/demobilization cycles and the requirement for temporary stabilization between seasons.
3. Loss of park use for multiple seasons.

It is expected that by drawing down the headpond over a long duration (2 – 3 months) in combination with implementing rigorous sediment controls throughout the headpond and at the sluiceway, the risk of sediment release, and the associated risk to downstream fisheries can be minimized. It is understood that CVC staff would generally prefer that the drawdown occur prior

to the unrestricted window (i.e. before July 1) versus extending into the fall (after September 15). CVC is planning spawning surveys to further characterize the risk to fisheries downstream.

Given the foregoing, preliminary construction timing for the Preferred Alternative is proposed as following:

<b>Table 9.2: Preliminary Construction Timing</b>		
<b>Construction Activity</b>	<b>Proposed Timing</b>	<b>Notes</b>
Tree clearing	Prior to March 1	
Drawdown of the headpond	Prior to June 30	Further consultation with CVC and MNR staff to confirm approval. Subject to spawning surveys.
Dewatering and in-water work	July 1 to September 15	Consider extending window in either direction to accommodate single season construction. Further consultation with CVC and MNR staff required. Subject to spawning surveys.
Balance of grading, restoration and landscaping (out of water)	September 15 to spring, as required	

The preliminary schedule would allow approximately eleven (11) weeks to complete in-water construction (Phases 3 and 4, ref. Section 9.2). This is considered to be a highly constrained construction schedule and would require a highly efficient contractor and suitable weather and flow conditions. Storm events would pose a significant risk to the already constrained construction window. The extent and form of sediment removal and disposal from the site is expected to be a major factor in the final construction schedule. As noted, considering potential impacts to downstream fisheries, and to park operation, it is considered preferred that in-water works be completed in one season. Accordingly, CVC and MNR should also consider a contingency plan whereby the fisheries window could strategically be extended for active construction (i.e. earlier into June or later into September), as required, to allow completion of in-water works. During detailed design, construction scheduling and phasing should be evaluated carefully to confirm the feasibility of completing the works in the available window and within a single season. As noted above, options for multi-season phasing are available, however less preferred.

## 9.2 Construction Phasing

Construction phasing is expected to be driven by site dewatering required for construction of the proposed channel, modifications to the dam and for sediment removal/management and will be a key consideration for the successful implementation of the Preferred Alternative. Given the relatively high base flow in the West Credit River, a dam and pump operation, which would allow isolation and dewatering of the entire headpond and dam, is not considered practical. Rather, it is expected that in-water work would be completed in phases while maintaining flow through the construction site. The following summarizes the preliminary proposed phasing plan (refer to Sheet 1 for the proposed works associated with the Preferred Alternative). Construction timing is

considered preliminary and subject to further consideration at detailed design and consultation with CVC and MNRF staff (ref. Section 9.1).

**Phase 1 – Clearing** (*Prior to March 1*)

- ▶ Complete tree clearing as required along the southwestern shore of the headpond, in the vicinity of the proposed new headpond bridge abutments, and along the eastern shore of the headpond between the headpond bridge and the pool terrace

**Phase 2 – Headpond drawdown and spillway dewatering** (*Prior to June 30*)

- ▶ Draw down the headpond by fully opening the sluiceway valve and removing the stop logs, including the steel plate reinforcement. Draw down should be completed incrementally by opening the valve in stages and removing each stop log individually, with stages separated by several days (at minimum) to minimize the rate and quantity of sediment release over the drawdown period. Sediment controls should also be employed.
- ▶ Figure 9.1 illustrates the existing headpond bathymetry and the expected channel thalweg following draw down of the headpond. Figure 9.2 depicts drawdown of the headpond and dewatering of the spillway for improvements to the sluiceway completed in 1987
- ▶ Consideration should be made for turbidity monitoring during draw down to ensure discharge from the headpond will not have negative effects on downstream habitat. If conditions permit, turbidity control measures such as curtains or other best management practices should be considered.
- ▶ Installation of erosion and sediment control measures (i.e. sediment control fence, vehicle mud mats) should be installed in preparation for the in-water work period.

**Phase 3 – Construction of the channel, southern floodplain area and modification of the spillway** (*July 1 to September 15*)

- ▶ Following draw down, excavation of a temporary channel by way of removal of the unconsolidated sediment along the north side of the headpond is proposed to connect the existing upstream headpond thalweg to the sluiceway structure in order to allow isolation and dewatering of the south headpond area.
- ▶ A barrier is proposed to contain the temporary channel along the north side of the headpond while facilitating construction in the southern headpond area. Selection of an appropriate barrier and final alignment will require consideration of channel hydraulics, scour protection, worker safety and geotechnical conditions.
- ▶ Once isolated, sediment would be removed from the southern headpond area (extent of sediment removal to be determined by future testing) followed by the proposed lowering of the existing spillway
- ▶ An appropriate location to decant sediment removed from the site will need to be identified. The open space area upstream of the headpond and on the west side of the river may provide sufficient space and allow dewatering to the river, while not interfering with potential construction access routes.
- ▶ Construction of the proposed channel and south floodplain area, including optional French drains, would then be completed
- ▶ Construction of the western headpond bridge abutment would be completed during this phase

**Phase 4 – Construction of the northern floodplain area and modification of the sluiceway**  
(September to December, as required)

- ▶ Following completion of Phase 2, flow would be permanently flipped over to the newly constructed channel and modified spillway. Work for Phase 3 is generally proposed to move in an upstream fashion which would allow demobilization of heavy equipment from the site without disturbing recently completed works
- ▶ Proposed modifications of the existing sluiceway would be constructed along with the proposed north retaining wall mitigation works
- ▶ Rehabilitation of the north retaining wall would then be completed along with the proposed raising of the pool terrace retaining wall
- ▶ Filling/grading of the remaining portion of the northern floodplain area would be completed
- ▶ Construction of the remaining portion of the channel at the upstream limit of the headpond would then be completed in conjunction with the eastern headpond bridge abutment, including installation of the bridge
- ▶ The barrier dividing the northern and southern areas would be removed as part of this phase

**Phase 5 – Restoration and landscaping** (Spring of the following year)

- ▶ Phase 3 marks the completion of the active in-water construction. Phase 4 consists of restoration of natural and landscaped areas, including construction of amenities such as the potential south shoreline boardwalk and any improvements to the pool terrace and north terrace areas
- ▶ Once the construction site is stabilized (vegetation is established and/or hard landscaping surfaces are completed), sediment control fencing can be removed.

### 9.3 Permitting Requirements

The following summarizes the permits/approvals that will be required, the administering agency and the relevant legislation:

- i. *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* – Credit Valley Conservation (Ontario Regulation 160/06)
- ii. *Letter of Advice* – Ministry of Natural Resources and Forestry (Species at Risk Act)
- iii. *Application for Works Permit* – Ministry of Natural Resources and Forestry (Public Lands Act); the riverbed (headpond) is Crown land and works require Provincial approval
- iv. *Request for Review/Letter of Authorization* – Department of Fisheries and Oceans (Fisheries Act)
- v. *Approval for 'Channelization/Decommissioning' under the Lake & Rivers Improvement Act* – Ministry of Natural Resources and Forestry (Lakes and Rivers Improvement Act); the

modifications proposed to the existing Belfountain Dam and Headpond are understood to de-classify the structure as a dam and that approval would advance under channelization, confirmation from MNRF is pending.

- vi. *Development Permit* – Niagara Escarpment Commission (Niagara Escarpment Planning and Development Act); early consultation with NEC has indicated that a Development Permit will be adequate for implementation of the preferred alternative, however formal approval has not been secured. Alternatively, NEC may determine that an application for an Amendment to the Act is required.

## **9.4 Monitoring**

Several elements of the Preferred Alternative are recommended for monitoring during and after construction and are summarized below. Certain components of CVC's Integrated Watershed Monitoring Program and Restoration Monitoring Protocols can be adopted into a pre- and post-construction monitoring program as the proposed channel construction would affect local aquatic and riparian systems. These monitoring components may include benthic macroinvertebrates, fish, fish habitat, and channel morphology.

### **Structural**

It is recommended that inspection of the spillway and retaining walls be undertaken every 10 years at minimum. Should the structure be determined by MNRF to be a dam, inspection should be carried out at the frequency outlined in the Technical Bulletins (MNR, 2011) issued under the Lakes and Rivers Improvement Act. In this scenario, formal Dam Safety Reviews will also be required.

### **Geotechnical**

The following geotechnical monitoring is recommended:

- ▶ Install survey monuments at critical sections on the south valley slope and monitor them during construction and after. Survey monuments to be monitored frequently (daily to weekly, depending on the construction activity) during the construction period. Monitoring could be reduced to monthly to yearly following completion of construction.
- ▶ Monitor seepage at the south dam abutment during and after construction.
- ▶ Monitor the north retaining wall by continuing to collect readings from the existing inclinometer. It is recommended that the inclinometer to be read frequently (bi-weekly to monthly, depending on the construction activity) during construction, and monthly to yearly after completion of the construction.

### **Stream Morphology**

During construction, it is recommended that the geomorphologist/engineer/or equivalent, be onsite for the majority of construction. It would be expected that daily inspections would occur in

order to provide input to the contractor regarding design elements or to assist with any field-fit requirements.

To initiate monitoring, and create a basis for comparison, at the completion of construction an as-built survey of the channel and associated features should be prepared. The channel features surveyed will need to include four to five cross-sections at the original chainages provided in the design and a longitudinal profile which will include sufficient detail to accurately compare elevations, locations and profiles. A review of stone sizes and bank treatments would also be completed, as well as a review of overall channel condition. The as-built survey would serve as a baseline to allow for accurate monitoring in the future of constructed conditions, as well as the identification of any discrepancies between the design and constructed channel.

Following construction, a detailed monitoring program is recommended in order to determine whether the constructed channel functions as intended. The monitoring should include the establishment of a series of control features (such as cross sections, longitudinal profile, and erosion pins) for the repeated measurement of the channel, as well as a photographic inventory collected from fixed vantage points within the site. Cross sections should correspond with the four to five surveyed during the as-built survey.

It is recommended that monitoring take place twice per year, for a minimum of two years with surveys being completed as soon as possible following the spring freshet and again under dry/fall conditions. Conducting a monitoring survey following the spring freshet would allow for fast turn-around in the identification of erosion areas or potential failures within the proposed 'soft' bank treatments. Conducting the second survey in the fall will capture the typical period of low flow and will aid in the assessment of vegetation success.

Additional considerations for monitoring include establishing a geomorphic monitoring site downstream from the dam. Altering the form and function of the existing headpond into a functional natural channel may potentially have implications for the downstream channel reach (i.e., changes to the hydrology or sediment regimes). In order to monitor changes, it is recommended that monitoring of a downstream section also be completed twice annually, for a minimum of two years. These surveys can be performed in conjunction with the headpond channel monitoring, and the twice-annual surveys will allow for the identification of seasonal patterns in the sediment regime. A specific monitoring program will be developed in coordination with CVC requirements during the detailed design phase.

### **Ecological Monitoring**

During construction, the site observer or equivalent should conduct daily inspections of all erosion and sediment control features to ensure minimal impact to the surrounding Environmentally Sensitive Area. A certified arborist or equivalent should be onsite for the restoration planting phase to ensure vegetation is installed correctly.

As certain design objectives are to enhance the existing ecosystem of the Belfountain Dam complex, following construction an ecological monitoring program should be implemented that will

incorporate both aquatic and terrestrial components. Evaluation and monitoring of these systems allows for the establishment of quantifiable restoration targets and provides benchmarks to assess enhancements within the study area.

Aquatic monitoring should incorporate the documentation of instream habitat (i.e., in-stream cover, habitat types and substrate types available to both fish and benthos), fish community sampling (i.e., community composition and relative abundance), water quality (i.e., turbidity, conductivity, pH, temperature, and total suspended solids) as well as benthics (i.e., community composition and relative abundance).

Terrestrial monitoring should incorporate the documentation of vegetation performance (of the restoration plan). Assessments completed following the construction and after several years of regeneration can be compared with pre-construction site conditions or with reference sites within the Belfountain Complex to determine the success in recreating or restoring a desirable vegetation community. It is also recommended that terrestrial monitoring extend beyond the construction disturbance limits to include the south valley slope. Extending the terrestrial monitoring along the south valley slope will ensure that communities within the ESA have not been negatively impacted by construction. Terrestrial monitoring techniques such as transects or quadrants can be established in order to create repeatable measurements of species composition and distribution within designated areas. Amphibian and breeding bird habitat monitoring should also be considered within the terrestrial monitoring program due to the close proximity of Jefferson Salamander habitat to the study area. Ecological monitoring should be completed annually, generally in the fall, for a minimum of two years post construction.

## **9.5 Next Steps**

Technical Report 3 Implementation Options & Detailed Assessment of Environmental Effects (this report) will be circulated to partner agencies and posted on the CVC website for public review. Following receipt and consideration of public and agency input, the Environmental Study Report will be prepared and filed along with the Notice of Completion. At this time the 30 Day Review Period will commence, during which stakeholders are provided with a final opportunity to provide comments on the study. During this time, stakeholders may review the Environmental Study Report and bring any outstanding environmental concerns to CVC's attention. If concerns cannot be resolved with CVC, a stakeholder can request the Minister of the Environment and Climate Change to issue a Part II Order, which would require the CVC to prepare an Individual EA. Details on how to request a Part II Order can be found here:

<https://www.ontario.ca/page/class-environmental-assessments-part-ii-order>



**Appendix 'A'**

**Public Consultation**



## **Notice of Commencement**

# Belfountain Dam and Headpond

## Conservation Ontario Class Environmental Assessment - Notice of Intent

### THE STUDY

Credit Valley Conservation (CVC) has begun a study of the Belfountain dam and headpond, located within Belfountain Conservation Area in the Town of Caledon (see map). The dam does not currently meet all structural and safety standards. The study will be conducted at the same time as the ongoing Belfountain Complex Management Plan to determine the preferred management alternative for the dam and headpond in the context of the greater Belfountain Complex (Belfountain Conservation Area and the neighbouring Willoughby and Cox properties).

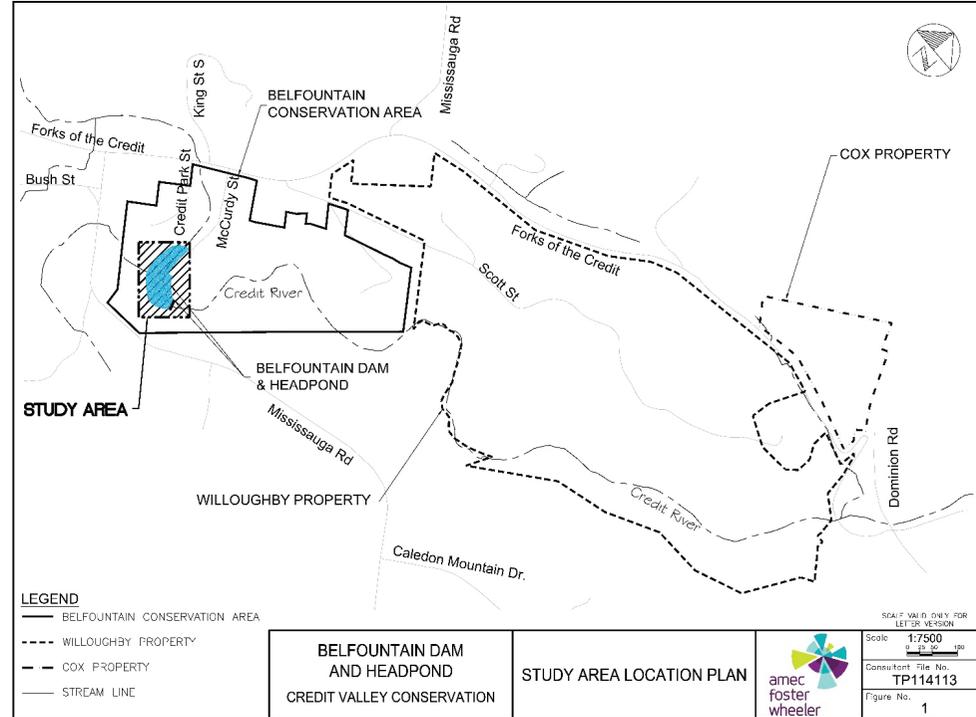
### THE PROCESS

The study is being conducted in accordance with Conservation Ontario's procedures outlined in the Class Environmental Assessment for Remedial Flood and Erosion Control Projects (Class EA). The Class EA process includes public and agency consultation, characterization of the study area and evaluation of alternatives. It looks at potential environmental, social and economic effects of the preferred alternative and identifies measures to mitigate any adverse impacts.

CVC invites you to participate in the study. If you wish to provide comments, ask questions or receive information, please contact one of the project representatives identified below. Information on the project is available at [www.creditvalleyca.ca](http://www.creditvalleyca.ca). Additional consultation opportunities will be made available as the study progresses.

Credit Valley Conservation  
Ms. Laura Rundle  
Conservation Lands Planner  
1255 Old Derry Road  
Mississauga, Ontario, L5N 6R4  
905-670-1615 ext.535  
[lrundle@creditvalleyca.ca](mailto:lrundle@creditvalleyca.ca)

Amec Foster Wheeler  
Environment & Infrastructure  
Mr. Ron Scheckenberger, M.Eng., P.Eng., Project Manager  
3215 North Service Road, P.O. Box 220  
Burlington, Ontario, L7N 3G2  
905-335-2353 • 1-866-751-2353  
[ron.scheckenberger@amecfw.com](mailto:ron.scheckenberger@amecfw.com)





Stakeholder Group	Organization	Department	First Name	Last Name	Title	Email	Phone	Fax	Cell	Address	City	Province	Postal Code	Notes
Technical Steering Committee - Core	Credit Valley Conservation Authority		Eric	Baldin		EBaldin@creditvalleyca.ca								
Technical Steering Committee - Core	Credit Valley Conservation Authority		Paul	Biscaia		PBiscaia@creditvalleyca.ca								
Technical Steering Committee - Core	Credit Valley Conservation Authority		Kate	Burgess		KBurgess@creditvalleyca.ca								
Technical Steering Committee - Core	Credit Valley Conservation Authority		Jon	Clayton		JClayton@creditvalleyca.ca								
Technical Steering Committee - Core	Credit Valley Conservation Authority		Charlotte	Cox		ccox@creditvalleyca.ca								
Technical Steering Committee - Core	Credit Valley Conservation Authority		Jesse	DeJager		JDeJager@creditvalleyca.ca								
Technical Steering Committee - Core	Credit Valley Conservation Authority		Rizwan	Haq		rhaq@creditvalleyca.ca								
Technical Steering Committee - Core	Credit Valley Conservation Authority		Kate	Hayes		KHayes@creditvalleyca.ca								
Technical Steering Committee - Core	Credit Valley Conservation Authority		Bill	Lidster		JDeJager@creditvalleyca.ca								
Technical Steering Committee - Core	Credit Valley Conservation Authority		Frank	Liu		FLiu@creditvalleyca.ca								
Technical Steering Committee - Core	Credit Valley Conservation Authority		Joana	Marques		JMarques@creditvalleyca.ca								
Technical Steering Committee - Core	Credit Valley Conservation Authority		Liam	Marray		LMarray@creditvalleyca.ca								
Technical Steering Committee - Core	Credit Valley Conservation Authority		Bob	Morris		BMorris@creditvalleyca.ca								
Technical Steering Committee - Core	Credit Valley Conservation Authority		Scott	Sampson		SSampson@creditvalleyca.ca								
Technical Steering Committee - Core	Credit Valley Conservation Authority		Mark	Thompson		MThompson@creditvalleyca.ca								
Technical Steering Committee - Core	Credit Valley Conservation Authority		Shawn	Verge		SVerge@creditvalleyca.ca								
Technical Steering Committee - Core	Credit Valley Conservation Authority		Jeff	Wong		JWong@creditvalleyca.ca								
Technical Steering Committee - Core	Credit Valley Conservation Authority		Heather	Lynn		Hlynn@creditvalleyca.ca								
Technical Steering Committee - Commenting Team	Credit Valley Conservation Authority		Olivia	Bakowski		OBakowski@creditvalleyca.ca								
Technical Steering Committee - Commenting Team	Credit Valley Conservation Authority		David	Beaton		DBeaton@creditvalleyca.ca								
Technical Steering Committee - Commenting Team	Credit Valley Conservation Authority		Charlie	Brady		CBrady@creditvalleyca.ca								
Technical Steering Committee - Commenting Team	Credit Valley Conservation Authority		Sandy	Camplin		SCamplin@creditvalleyca.ca								
Technical Steering Committee - Commenting Team	Credit Valley Conservation Authority		Victoria	Edwards		vedwards@creditvalleyca.ca								
Technical Steering Committee - Commenting Team	Credit Valley Conservation Authority		Sharlene	Hardwar		sHardwar@creditvalleyca.ca								
Technical Steering Committee - Commenting Team	Credit Valley Conservation Authority		Andrew	Kett		AKett@creditvalleyca.ca								
Technical Steering Committee - Commenting Team	Credit Valley Conservation Authority		Rod	Krick		RKrick@creditvalleyca.ca								
Technical Steering Committee - Commenting Team	Credit Valley Conservation Authority		Annabel	Krupp		AKrupp@creditvalleyca.ca								



Stakeholder Group	Organization	Department	First Name	Last Name	Title	Email	Phone	Fax	Cell	Address	City	Province	Postal Code	Notes
Technical Steering Committee - Commenting Team	Credit Valley Conservation Authority		Eric	Mailloux		EMailloux@creditvalleyca.ca								
Technical Steering Committee - Commenting Team	Credit Valley Conservation Authority		Heather	Marcks		HMarcks@creditvalleyca.ca								
Technical Steering Committee - Commenting Team	Credit Valley Conservation Authority		Roy	Mosher		RMosher@creditvalleyca.ca								
Technical Steering Committee - Commenting Team	Credit Valley Conservation Authority		Kerry	Mulchansingh		KMulchansingh@creditvalleyca.ca								
Technical Steering Committee - Commenting Team	Credit Valley Conservation Authority		David	Orr		DOrr@creditvalleyca.ca								
Technical Steering Committee - Commenting Team	Credit Valley Conservation Authority		Mike	Puddister		MPuddister@creditvalleyca.ca								
Technical Steering Committee - Commenting Team	Credit Valley Conservation Authority		Baljit	Sharma		BSharma@creditvalleyca.ca								
Technical Steering Committee - Commenting Team	Credit Valley Conservation Authority		Yasmine	Slater		YSlater@creditvalleyca.ca								



Stakeholder Group	Organization	Department	First Name	Last Name	Title	Email	Phone	Fax	Cell	Address	City	Province	Postal Code	Notes
Stakeholder Advisory Committee	Belfountain Community Organization		Judy	Mabee		judy.mabee@gmail.com								
Stakeholder Advisory Committee	Belfountain Heritage Society		Sarah	Bohan		sarah.bohan@belfountainheritage.com								
Stakeholder Advisory Committee	Belfountain Heritage Society - Alternate		Steve	Goyeche		sgoyeche@rogers.com								
Stakeholder Advisory Committee	Belfountain Public School													
Stakeholder Advisory Committee	Caledon Chamber of Commerce		Valerie	Arnold-Judge		vjudge@rogers.com								
Stakeholder Advisory Committee	Caledon Environmental Advisory Committee		Adrie	Lamers		adrielamers@hotmail.com								
Stakeholder Advisory Committee	Caledon Hills Bruce Trail Club		Carol	Sheppard		4sheppard@rogers.com								
Stakeholder Advisory Committee	Credit River Anglers Association		Mike	Ewaschuk		mewaschuk@live.ca								
Stakeholder Advisory Committee	Credit Valley Conservation		Dave	Orr		dorr@creditvalleyca.ca								
Stakeholder Advisory Committee	Credit Valley Conservation - Alternate		Shawn	Verge		sverge@creditvalleyca.ca								
Stakeholder Advisory Committee	Credit Valley Heritage Society		Susan	Robertson		Sul_robe@hotmail.com								
Stakeholder Advisory Committee	Headwaters Communities in Action		Dave	Dyce		mddyce@xplornet.com								
Stakeholder Advisory Committee	Headwaters Communities in Action - Alternate		Chris	Broom		chris_broom@hotmail.com								
Stakeholder Advisory Committee	Hills of Headwaters		Michele	Harris		michele@thehillsofheadwaters.com								
Stakeholder Advisory Committee	Izaak Walton Fly Fishing Club		Don	Arthurs		drarthurs@sympatico.ca								
Stakeholder Advisory Committee	Ministry of Natural Resources and Forestry		Susan	Cooper		Susan.cooper@ontario.ca								
Stakeholder Advisory Committee	Ministry of Natural Resources and Forestry		Mark	Heaton		mark.heaton@ontario.ca								
Stakeholder Advisory Committee	Niagara Escarpment Commission		Lisa	Grbinicek		lisa.grbinicek@ontario.ca								
Stakeholder Advisory Committee	Ontario Heritage Trust		Kendrick	Doll		kendrick.doll@ontario.ca								
Stakeholder Advisory Committee	Ontario Parks		Jillian	Van Niekerk		jillian.vanniekerk@ontario.ca								
Stakeholder Advisory Committee	Region of Peel - Alternate		Liz	Brock		Liz.brock@peelregion.ca								
Stakeholder Advisory Committee	Region of Peel - Alternate		Gino	Dela Cruz		Gino.delacruz@peelregion.ca								
Stakeholder Advisory Committee	Region of Peel - Alternate		Heather	Hewitt		heather.hewitt@peelregion.ca								
Stakeholder Advisory Committee	Town of Caledon	Parks	Tina	Fernandes		Tina.fernandes@caledon.ca								
Stakeholder Advisory Committee	Town of Caledon	Planning	Tim	Manley		Tim.manley@caledon.ca								
Stakeholder Advisory Committee	Trout Unlimited	Greg Clark Chapter	Brian	Greck		briangreck@rogers.com								
Stakeholder Advisory Committee	Upper Credit Field Naturalists													



Stakeholder Group	Organization	Department	First Name	Last Name	Title	Email	Phone	Fax	Cell	Address	City	Province	Postal Code	Notes
Federal	Aboriginal Affairs and Northern Development Canada	Consultation & Aboriginal Affairs and Northern Development Canada Consultation & Accommodation Unit				CAU-UCA [CAU-UCA@aadnc-aandc.gc.ca				10 Wellington Street, 5H - 5th Floor	Gatineau	QC	K1A 0H4	Email only
Federal	Department of Fisheries and Oceans		Stuart	Niven	Senior Fisheries Protection Biologist	Stuart.Niven@dfo-mpo.gc.ca.	867-669-4928	867-669-4941		867 Lakeshore Road, P.O. Box 5050	Burlington	ON	L2R 4A6	
Federal	Ministry of Aboriginal Affairs	Consultation Unit Aboriginal Relations and Ministry Partnership Division								160 Bloor Street East	Toronto	ON	M7A 2E6	
Municipal	Region of Peel		Heather	Hewitt	Planner	heather.hewitt@peelregion.ca				10 Peel Centre Drive, Suite A and B	Brampton	ON	L6T 4B9	
Municipal	Town of Caledon		Tim	Manley	Senior Policy Planner	Tim.manley@caledon.ca				6311 Old Church Road	Caledon	ON	L7C 1J6	
Provincial	Ministry of Agriculture Food and Rural Affairs		David	Cooper	Manager, Environmental and Land Use Policy	david.cooper@ontario.ca				Ontario Government Bldg 1 Stone Rd W, 3rd Flr	Guelph	ON	N1G 4Y2	
Provincial	Ministry of Natural Resources and Forestry	Auroa District	Paul	Heeney	District Manager	paul.heeney@ontario.ca	905-713-7372			50 Bloomington Road	Aurora	ON	L4G 0L8	
Provincial	Ministry of the Environment and Climate Change	Central Region Technical Support Section Air, Pesticides & Environmental Planning	Trevor	Bell	EA/ Planning Coordinator	<a href="mailto:trevor.bell@ontario.ca">trevor.bell@ontario.ca</a>	416-326-4886			Place Nouveau, 5775 Yonge St, 9th Flr	Toronto	ON	M2M 4J1	
Provincial	Ministry of Tourism, Culture & Sport		Rosi	Zirger	Heritage Planner	rosi.zirger@ontario.ca				401 Bay Street, Suite 1700, 17th Floor	Toronto	ON	M7A 0A7	
Provincial	Niagara Escarpment Commission		Lisa	Grbinicek	Planner	<a href="mailto:lisa.grbinicek@ontario.ca">lisa.grbinicek@ontario.ca</a>	905-877-7815			232 George Street		ON		
Utility	Bell Canada		Collen	Murphy		collen.murphy@bell.ca								
Utility	Enbridge Gas Distribution		Darren	Tavares		darren.tavares@enbridge.com	905-458-2133			6 Colony Court	Brampton	ON	L6T 4E4	
Utility	Enbridge Gas Distribution		Elena	Sorokova	Distribution Asset Management	mark-up@enbridge.com								
Utility	Hydro One		Gordon	Messervey		subdivision@hydroone.com								
Utility	Hydro One Networks Inc.		Donovan	Dockrill		donovan.dockrill@hydroone.com				420 Welham Road	Barrie	ON	L4N 8Z2	
Utility	Hydro One Telecom		Ian	Mitchell	Outside Plant Manager	ian.mitchell@hydroone.com	416-240-6701							
Utility	Union Gas Ltd.		Enzo	Greco		egreco@uniongas.com								
Utility	Bell Canada		Lisa	Grbinicek		lisa.grbinicek@ontario.ca				5115 Creekbank Road, 3rd Floor	Mississauga	ON	L4W 5R1	
Utility	Enbridge Gas Distribution Inc.	Planning & Design Special Projects	Rob	D'Onofrio	Planning and Design	robert.donofrio@enbridge.com	905-641-4876	905-704-3683		3401 Schmon Parkway, P.O. Box 1051	Thorold	ON	L2V 5A8	
Utility	Enbridge Pipelines Inc.	Eastern Region Office	Jillian	Van Niekerk	Supervisor Right-of-way Services	jillian.vanniekerk@ontario.ca				801 Upper Canada Drive, P.O. Box 128	Sarnia	ON	N7W 1A3	
Utility	Hydro One Networks Inc.	Transmission Asset Management	Tianyuan	Li		Tianyuan.Li@HydroOne.co	416-345-6475			483 Bay Street, North Tower, 14th Floor Reception	Toronto	ON	M5G 2P5	



Stakeholder Group	Organization	Department	First Name	Last Name	Title	Email	Phone	Fax	Cell	Address	City	Province	Postal Code	Notes
Utility	TransCanada Pipelines	Canada Pipeline Operations Eastern Region	Ian	Chisholm	Maintenance Manager Maple/Niagara Facilities	ian_chisholm@transcanada.com				1020 Rymal Road	Hamilton	ON	L8W 3N6	



**PIC #1**

# **PUBLIC CONSULTATION**

## **BELFOUNTAIN CONSERVATION AREA**

### **CLASS EA AND MANAGEMENT PLAN**

Credit Valley Conservation is hosting a public open house to present the Environmental Assessment (Class EA) information for the Belfountain dam and headpond as well as management plan concepts for the Belfountain Complex.

The management plan will guide the management of resources and the use of the conservation area. The open house will include a presentation with opportunities to review the concepts and provide feedback.

For more information, visit:

[www.creditvalleyca.ca/bcmp](http://www.creditvalleyca.ca/bcmp)

**Tuesday, September 22, 2015**  
**6 to 9 p.m.**

Presentation from 6:30 to 7:30 p.m.

### **Caledon Ski Club**

17431 Mississauga Road  
Caledon, Ontario, L7K 0E9

**Contact:** 905-670-1615 ext. 535  
or [lrundle@creditvalleyca.ca](mailto:lrundle@creditvalleyca.ca)



**Credit Valley  
Conservation**



## Belfountain Dam and Headpond Class Environmental Assessment

September 22, 2015



### Who is Amec Foster Wheeler?

- Amec Foster Wheeler was retained by CVC to carry out the Belfountain Dam and Headpond Class Environmental Assessment
- The Amec Foster Wheeler 'Team' includes professionals specializing in all relevant aspects of the project:
  - Planning
  - Engineering
  - Natural sciences
  - Heritage & archaeology
  - Public consultation



Present today:  
Aaron Brouwers  
Ron Scheckenberger  
Heather Dearlove  
Mary Kelly



## Outline

- Study Need, Purpose and Approach
- Study Area
- Class Environmental Assessment Process
- Study Objectives
- Baseline Inventory
- Preliminary Long-list of Alternatives
- Next Steps



## Study Need, Purpose & Approach

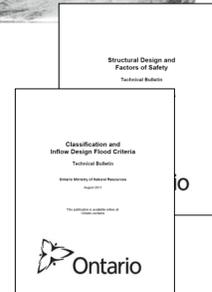
Why is the study required?

What will it achieve?

How will it achieve it?

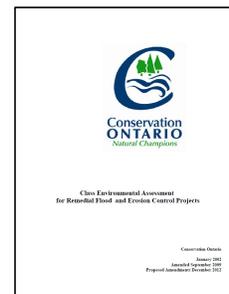
## Study Need

- The need for this study was identified in a previous evaluation of the dam's safety which revealed *Belfountain Dam does not meet all of the current provincial standards* for safety
- Although the dam could simply be repaired, other management options are available that require additional study of several important factors including:
  - Park visitors
  - Cultural heritage
  - Natural heritage
  - Economics
  - And more



## Study Need

- CVC is a public body, and as such certain activities must be planned in accordance with the *Environmental Assessment Act*
- Under the Act, CVC is required to undertake a *Conservation Ontario, Class Environmental Assessment for Remedial Flood and Erosion Control (Class EA)*





## Study Purpose & Approach

- The **purpose** is to determine how to manage the Belfountain Dam and Headpond in the future
- The **approach** used will be the Class EA process:
  1. Document baseline environmental conditions
  2. Establish a long-list of management alternatives
  3. Evaluate each alternative using appropriate physical, biological, cultural and socioeconomic criteria
  4. Select the preferred management alternative for the Belfountain Dam & Headpond



## Study Area

## Study Area

- The formal Study Area is comprised of the following components:
  - Belfountain Dam
  - Headpond
  - the immediate surrounding area within the Belfountain Conservation Area that may be impacted by the various management alternatives



## Study Area

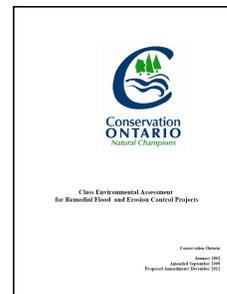


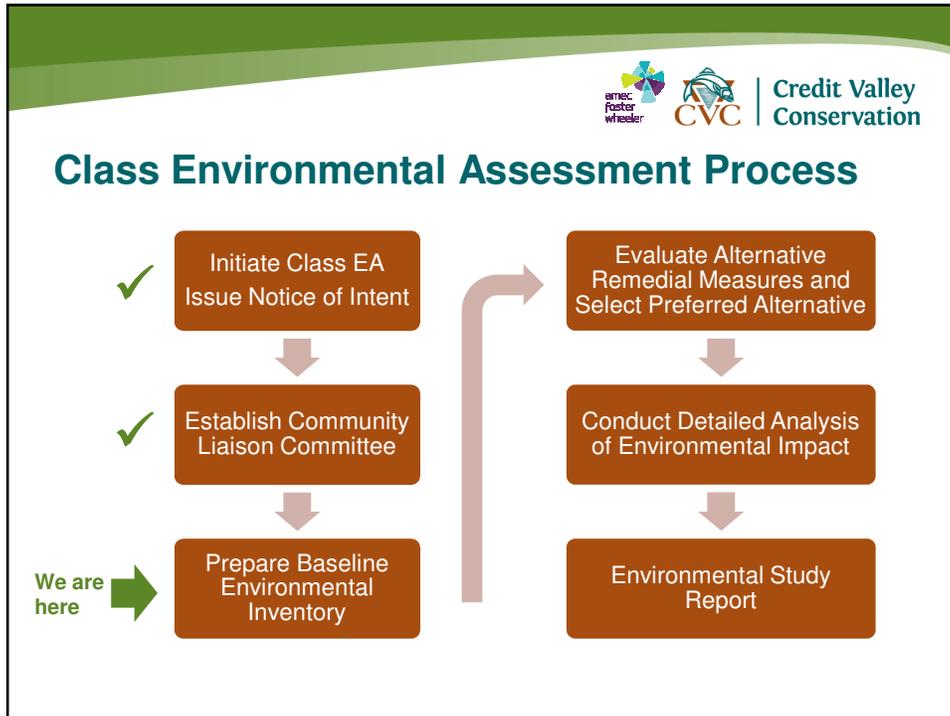


## Class Environmental Assessment Process

## Class Environmental Assessment Process

- This study follows: Conservation Ontario's Class Environmental Assessment for Remedial Flood and Erosion Control Projects
- The process provides a project planning and design framework for proponents (Conservation Authorities like CVC) to ensure they meet the requirements of the Provincial *Environmental Assessment Act*
- Consultation with all stakeholders including the public and agency partners at all stages





- 
- Class Environmental Assessment Process**
- Several 'teams' and 'committees' have been organized to represent all interested stakeholders and provide support and input to the study including:
    - Project Team
    - Technical Steering Committee (TSC)
    - Stakeholder Advisory Committee (SAC)
    - Agency Partners
- Logos: amec foster wheeler, CVC Credit Valley Conservation



## Study Objectives

What will the preferred alternative need to achieve?



## Study Objectives

- 1) *Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species*
- 2) *Reduce/minimize risk to visitors, staff and affected property*
- 3) *Maintain or improve the visitor experience*
- 4) *Conserve and enhance cultural heritage attributes*
- 5) *Promote natural stream function*
- 6) *Strive for long-term sustainability including economic viability*
- 7) *Conserve and enhance natural heritage attributes*

## Baseline Inventory

A summary of existing conditions and background information

## Baseline Inventory

- Nine (9) component technical studies have been completed:

### 1. Hydrology and Hydraulics

- River flows and levels



Flow over the dam



Flow in the river

### 2. Structural Engineering

- Stability of the dam & retaining walls



Dam and retaining wall



Concrete deterioration

## Baseline Inventory

- Nine (9) component technical studies have been completed:

### 3. Geotechnical Engineering

- Soils
- Slope stability



Test pitting behind north retaining wall

### 4. Stream Morphology and Sediment

- Creek processes



West Credit River



Sediment in the headpond

## Baseline Inventory

- Nine (9) component technical studies have been completed:

### 5. Aquatic Ecology

- Water species and their habitat



Brook trout



Brown trout

### 6. Terrestrial Ecology

- Land species and their habitat



Species at Risk:  
Jefferson Salamander

## Baseline Inventory

- Nine (9) component technical studies have been completed:

### 7. Cultural & Built Heritage

- Representations of past human activity: *structures, landscapes*



Mack Park (early 1900's)

### 8. Archaeology

- Representation of past human populations: *artifacts*



Archeological potential in Belfountain CA

LEGEND

- Study area
- Area of archaeological potential (1990s-2000s)
- Area of archaeological potential (1900s-1990s)
- Area of archaeological potential (1900s)
- Area of archaeological potential (1900s)

## Baseline Inventory

- Nine (9) component technical studies have been completed:

### 7. Financial Analysis

- Park revenue & operating costs
- Capital & maintenance cost of preferred alternative



## Preliminary Long-list of Alternatives



## Preliminary Long List of Alternatives

- A long list of potential alternatives to address the issues/objectives has been developed for the **Dam** and **Headpond** separately
- Additional sub-options also identified which include variations in the core alternatives
- Additional 'complementary options' are aimed at meeting study objectives but would not be fundamental to the solution and could be 'added' to the alternatives:
  - Example: Fish Ladder
- It is important to note that the respective alternatives, depending on their scope, may also have some overlap with the Belfountain Complex Management Plan

## Preliminary Long List of Alternatives

### Dam Alternatives

1. Do Nothing
2. Repair dam
  - i. In-kind
  - ii. Restore dam to historic condition
3. Replace dam
  - i. In-kind
  - ii. Restore dam to historic condition
  - iii. Relocate
4. Modify Dam (Lower spillway)
5. Decommission the dam and naturalize the river
  - i. Full
  - ii. Partial (leave portion of structure)
6. Offline dam and natural channel



## Preliminary Long List of Alternatives

### Headpond Alternatives

1. Do Nothing
2. Rehabilitate existing headpond
3. Expand table land
4. Convert to wetland
5. Natural channel (dependent on dam)
6. Offline pond/wetland (dependent on dam)





Credit Valley Conservation

## Preliminary Long List of Alternatives

### Complementary Options

1. Fish ladder
2. Trail/boardwalk improvements, new lookouts
3. Water wheel, water ram
4. Sediment removal
5. Built heritage protection/mitigation/compensation
6. Natural heritage enhancement options
7. Etc.



*\* Some of these element may be realized through the Belfountain Complex Management Plan*



Credit Valley Conservation

## Next Steps



## Next Steps

- Characterize the alternatives
- Evaluate the alternatives
- Select a preliminary preferred alternative
- Public Information Centre #2 – November 2015



## Questionnaire & Presentation Boards




## Belfountain Dam and Headpond Class Environmental Assessment

September 22, 2015

**Study Area**



The formal Study Area is comprised of the Belfountain Dam; Headpond, and the immediate surrounding area within the Belfountain Conservation Area

The Class Environmental Assessment Study Area is a sub-area within the Belfountain Complex and the outcomes will be incorporated into the Belfountain Complex Management Plan.

**LEGEND**

- BELFOUNTAIN CONSERVATION AREA
- BULLOCH PROPERTY
- DDA HIGHWAY
- SUDEN LANE
- EXISTING HEADPOND

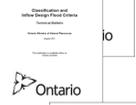





## Study Need, Area and Purpose and Approach

**Study Need**

- The need for this study was identified in a previous evaluation of the dam's safety which revealed *Belfountain Dam does not meet all of the current provincial standards* for safety
- Although the dam could simply be **repaired**, other management options are available that require additional study of several important factors including:
  - Park visitors
  - Cultural heritage
  - Natural heritage
  - Economics
  - And more
- CVC is a public body, and as such certain activities **must** be planned in accordance with the *Environmental Assessment Act*
- Under the Act, CVC is required to undertake a *Conservation Ontario, Class Environmental Assessment for Remedial Flood and Erosion Control (Class EA)*



**Study Purpose and Approach**

- The purpose is to determine how to manage the Belfountain Dam and Headpond in the future using the Class EA approach
- The approach applies the Class EA process, and will:
  - Document baseline environmental conditions
  - Establish a long-list of management alternatives
  - Evaluate each alternative using appropriate physical, biological, cultural and socioeconomic criteria
  - Select the preferred management alternative for the Belfountain Dam & Headpond




## Study Process and Objectives




### Study Process

- This study follows: Conservation Ontario's Class Environmental Assessment for Remedial Flood and Erosion Control Projects
- The process provides a project planning and design framework for proponents (Conservation Authorities like CVC) to ensure they meet the requirements of the Provincial Environmental Assessment Act
- Consultation with all stakeholders including the public and agency partners at all stages



Initiate Class EA Issue Notice of Intent

↓

Establish Community Liaison Committee

↓

Prepare Baseline Environmental Inventory

Evaluate Alternative Remedial Measures and Select Preferred Alternative

↓

Conduct Detailed Analysis of Environmental Impact

↓

Environmental Study Report

We are here →

### Study Objectives

CVC has established seven (7) Study Objectives for this project:

- Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species
- Reduce/minimize risk to visitors, staff and affected property
- Maintain or improve the visitor experience
- Conserve and enhance cultural heritage attributes
- Promote natural stream function
- Strive for long-term sustainability including economic viability
- Conserve and enhance natural heritage attributes





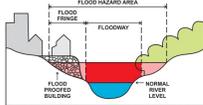

## Baseline Inventory




Nine (9) component technical studies have been completed to document existing conditions in the Study Area.

### Hydrology and Hydraulics

- The study of flows, levels and velocities in the West Credit River and through the dam
- Analyses primarily determined the impacts to flood conveyance and inundation (extent of flooding or risk) within the study area and downstream areas caused by the dam
- Any alteration to the configuration of the dam must not have an impact on its flood risk performance related to upstream or downstream properties, including the Stonecutters Dam



### Structural Engineering

- Dam Stability:** certain components of the dam do not meet Provincial factors of safety – a factor of safety is a measure to ensure the structural loads the dam can withstand are greater than those they are likely to experience
- Retaining Wall Stability:** The north retaining wall is unstable during flood or flood-earthquake combined conditions. Mitigation will be required if the dam is proposed to remain
- Dam/Retaining Wall Condition:** the dam structure and retaining walls are in overall "good" condition with localized "poor" areas of concrete and undermined areas that will require rehabilitation



Dam outlet and north retaining wall



Concrete deterioration

### Geotechnical Engineering

- The geotechnical investigation relates to area soils and slope stability:
  - Test pits have been completed to obtain information on the retaining wall backfill
  - A review of the south valley wall will be completed to determine slope stability



Test pitting behind north retaining wall



South valley slope

## Baseline Inventory




Nine (9) component technical studies have been completed to document existing conditions in the Study Area.

### Stream Morphology

- The study of stream stability and sediment transport within the West Credit River and how it is impacted by the dam
- The primary impacts of the dam are:
  - Creation of a deep scour pool downstream of the dam
  - Accumulation of sediment in the headpond upstream
  - Widening of the upstream river
- Opportunities exist to improve channel dynamics, which would improve sediment transport and aquatic habitat and function



### Aquatic Ecology

- The study of aquatic (water) species and their habitats
- The dam acts as a barrier and protects the native brook trout population upstream from the more competitive brown trout population downstream
- The dam also prevents other species, such as Atlantic salmon and the endangered American eel, from moving upstream of the dam
- The slow-moving water within the headpond has the potential to create a warming effect which could negatively impact cold-water fish communities and sensitive species downstream of the dam



Brook trout



Atlantic salmon



Brown trout



American eel

### Terrestrial Ecology

- The study of terrestrial (land) species and their habitats
- The Bellfountain Conservation Area contains high quality woodland and valleyland environments
- There are several "Species at Risk" surrounding the study area including Jefferson Salamander, little brown bat, and others



## Baseline Inventory




Nine (9) component technical studies have been completed to document existing conditions in the Study Area.

### Archaeology

- Study Area has significant (88% of the area) archaeological potential
- Two known archaeological sites are registered in the Ontario Archaeological Sites Database: Mack Park (A1Ha-10) and Willoughby Industrial Heritage Site (AKHa-20)
- If these areas would be disturbed as a result of the preferred alternative further archaeological investigations would be required



### Cultural and Built Heritage

- Bellfountain Dam and Headpond were constructed in the early 1900's by a wealthy Toronto business man, Charles Mack, to recreate Niagara Falls as part of Mack Park
- Town of Caledon has designated Mack Park as a Cultural Heritage Landscape
- Numerous built heritage resources have been identified within the Study Area including the dam, Yellowstone Cave, various walls and pathways, etc.
- Alternatives will consider how to manage potential effects on heritage resources



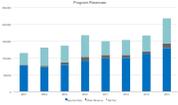
### Headpond Sediment Analysis

- Headpond fills naturally fills with sediment
- Sediment sampling conducted to determine sediment volume and quality
  - Volume: approx. 2,500 cubic metres (equivalent to Olympic swimming pool)
  - Quality: low level contaminants (no significant implication to removal/cleanup of sediment or to stream ecosystem)



### Finance

- Day use fees represent 60% +/- of total program revenues
- The balance of funding is raised from taxes
- The dam is understood to be a major draw for visitors
- Capital and maintenance costs of the preferred alternative must also be considered



## Preliminary Long-List of Alternatives




### Dam Alternatives

1. Do Nothing
2. Repair dam
  - i. In-kind
  - ii. Restore dam to historic condition
3. Replace dam
  - i. In-kind
  - ii. Restore dam to historic condition
  - iii. Relocate
4. Modify Dam (Lower spillway)
5. Decommission (remove) the dam and naturalize the river
  - i. Full
  - ii. Partial (leave portion of structure)
6. Offline dam and natural channel



The dam could be repaired, replaced or lowered. It could look as it does today, or be restored to a condition more similar to the original



DECOMMISSIONING/NATURALIZE RIVER

### Headpond Alternatives

1. Do Nothing
2. Rehabilitate existing headpond
3. Expand table land into headpond
4. Convert to wetland
5. Natural channel (dependent on dam)
6. Offline pond/wetland (dependent on dam)



CONVERT PORTION OF HEADPOND TO WETLAND/RAISE



EXPAND TABLELAND

### Complementary Options

1. Sediment removal
2. North retaining wall stability mitigation
3. Built heritage protection/mitigation/compensation options
4. Natural heritage enhancement options
5. Dam aesthetics
6. Fish ladder
7. Trail/boardwalk improvements, new lookouts
8. Headpond bridge
9. Water wheel, water ram



COMPLEMENTARY OPTIONS



FISH LADDER      WATER WHEEL



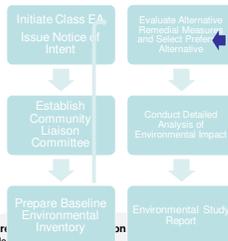
SEDIMENT IN THE HEADPOND      HISTORIC LOOKOUT

## Next Steps and How to Submit Comments




### Next Steps

- Consider and incorporate comments from the public
- Characterize the alternatives
- Develop criteria and evaluate the alternatives
- Select a preliminary preferred alternative
- Public Information Centre #2 – November 2015



```

graph TD
    A[Initiate Class EA, Issue Notice of Intent] --> B[Establish Community Liaison Committee]
    A --> C[Evaluate Alternative Remedial Measures and Select Preferred Alternative]
    B --> D[Prepare Baseline Environmental Inventory]
    C --> E[Conduct Detailed Analysis of Environmental Impact]
    D --> F[Environmental Study Report]
    
```

### How to Submit Comments

You can complete a comment form and submit it to the Study Team today. Or send your comments to either of the contacts provided below by:

- Mail
- Phone
- Fax
- e-mail

**Conservation Lands Planner**  
 Ms. [Name] 1255 Old Derry Road  
 Mississauga, Ontario, L5N 6R4  
 Tel: (905) 670.1615 ext.535  
 email: [lunde@ccreditvalleyca.ca](mailto:lunde@ccreditvalleyca.ca)

**Amec Foster Wheeler Environment & Infrastructure**  
 Mr. Ron Scheckenberger, M.Eng., P.Eng., Project Manager  
 3215 North Service Road, P.O. Box 220  
 Burlington ON L7N 3G2  
 Tel: 905.335.2353  
 Toll Free: 1.866.751.2353  
 Email: [ron.scheckenberger@amecfw.com](mailto:ron.scheckenberger@amecfw.com)

**Please submit comments no later than October 7, 2015**

**Thank you for your participation!**

# Questionnaire & Comment Sheet

## Public Consultation Session

Thank you for attending CVC's public consultation session for the Belfountain Complex Management Plan and Class Environmental Assessment. Your feedback is important to us and is an integral part of both the Management Plan and Class Environmental Assessment processes.

---

### **PLEASE PRINT**

Name/Association: \_\_\_\_\_

E-mail: \_\_\_\_\_

Address: \_\_\_\_\_

Municipality: \_\_\_\_\_

Postal Code: \_\_\_\_\_

---

**Please return completed questionnaires to any member of the Study Team during the meeting or to the following contacts after the meeting:**

#### **Credit Valley Conservation**

Ms. Laura Rundle  
Conservation Lands Planner  
1255 Old Derry Road  
Mississauga, Ontario, L5N 6R4  
Tel: (905) 670.1615 ext.535  
email: lrundle@creditvalleyca.ca

#### **Amec Foster Wheeler**

**Environment & Infrastructure**  
Mr. Ron Scheckenberger, M.Eng., P.Eng.  
Project Manager  
3215 North Service Road, P.O. Box 220  
Burlington ON L7N 3G2  
Tel: 905.335.2353  
Toll Free: 1.866.751.2353  
Email: ron.scheckenberger@amecfw.com

**Please ensure that your questionnaire is in the mail no later than  
Wednesday, October 7<sup>th</sup>, 2015.**

## Questionnaire #1 - Belfountain Dam & Headpond Class EA

CVC is undertaking a Conservation Ontario Class Environmental Assessment (Class EA) to determine how best to manage the Belfountain Dam and Headpond in the future. A Class EA must follow a specific process that can be summarized with the following steps:

1. Document the Baseline Inventory (background information) & identify the problem
2. Evaluate alternative solutions and select a preferred alternative
3. Conduct a detailed analysis of environmental impact

At this time, the baseline inventory (Step 1) has been completed, and development of the alternatives (Step 2) has begun but is not yet completed. Public consultation is integral component of a Class EA and public input will be considered at every step.

Please note that this questionnaire is specific to the Belfountain Dam and Headpond Class EA; a separate questionnaire has been provided in your package regarding the Belfountain Complex Management Plan.

CVC has established seven (7) Study Objectives for this project. The preferred alternative for the Belfountain Dam and Headpond will be required to meet these objectives.

<b>Objective</b>	<b>Ranking</b>
1) <i>Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species</i>	
2) <i>Reduce/minimize risk to visitors, staff and affected property</i>	
3) <i>Maintain or improve the visitor experience</i>	
4) <i>Conserve and enhance cultural heritage attributes</i>	
5) <i>Promote natural stream function</i>	
6) <i>Strive for long-term sustainability including economic viability</i>	
7) <i>Conserve and enhance natural heritage attributes</i>	

1. Please rank the objectives (1 to 7) in order of importance to you in the space provided above. Place a '1' beside the most important, '2' beside the second most important, etc.





## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Forecourt:** Please let us know what you think about the concepts for the forecourt (entrance and lower picnic area):

5. What is your preferred option for the forecourt? \_\_\_\_\_

6. Why? \_\_\_\_\_

7. What features do you particularly like or dislike in the forecourt?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Pedestrian Entry-way						
Accessible Drop-off Area						
River Access						
Bike Parking						
Accessible Trail						
Defined Picnic Spaces						
Flexible Picnic Spaces						
Shoreline & Inland Plantings						

9. Do you have any other thoughts or comments about the forecourt area?

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Visitor Centre and Parking:** Please let us know what you think about the concepts for the visitor centre and parking area:

10. What is your preferred option for the visitor centre and parking area? \_\_\_\_\_

11. Why? \_\_\_\_\_

12. What features do you particularly like or dislike in the visitor centre and parking area?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Drop off area/Entry plaza						
Increased Parking Spaces						
Overflow Parking Area						
New Visitor Centre & Workshop (One Building)						
New Visitor Centre & Existing Workshop (Two Buildings)						

13. Do you have any other thoughts or comments about the visitor centre and parking area?

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Hillside Garden:** Please let us know what you think about the concepts for the hillside garden (upper picnic area):

14. What is your preferred option for the hillside garden? \_\_\_\_\_

15. Why? \_\_\_\_\_

16. What features do you particularly like or dislike in the hillside garden?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Picnic Pods						
Accessible Trail						
Forest Trail						
Footpath						
Removal of Existing Staircase						
Reconstruction of Existing Staircase						

17. Do you have any other thoughts or comments about the hillside garden?

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Portico:** Please let us know what you think about the concepts for the portico (pumphouse, bridge area):

18. What is your preferred option for the portico? \_\_\_\_\_

19. Why? \_\_\_\_\_

20. What features do you particularly like or dislike in the portico?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Existing building retrofitted with accessible washroom						
Lawn with informal seating						
Covered deck with informal seating						
Riverside deck						

21. Do you have any other thoughts or comments about the portico?

**Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans**

22. Do you have any ideas for special events or activities that would be a good fit for Belfountain Conservation Area?

---

---

---

---

---

---

---

23. Please use the following space to ask any other questions you may have and the Study Team will provide a response within the following weeks. You can also use this space to provide general comments:

---

---

---

---

---

---

---

---

# Public Consultation Session Summary

## Belfountain Complex Management Plan & Class Environmental Assessment

### Fall 2015

---

### Consultation Overview

Credit Valley Conservation (CVC) has committed to hosting public consultation sessions at key points during the planning process for the Belfountain Complex Management Plan and Class Environmental Assessment for the Belfountain Dam and Headpond (Class EA). Public consultation provides an opportunity to both inform interested parties about the project as well as consult on recommendations and proposals. The project's Stakeholder Advisory Committee and agency partners are also involved in providing input and feedback into the plan.

The first public consultation session for this project was held in December, 2014 to formally announce the project and seek initial ideas for the Complex and comments related to early proposals. The second round of consultation for this project was held in September and early October, 2015 and focused on introducing the Class EA and presenting early design concepts for Belfountain Conservation Area. The consultation schedule for the second round of consultation included a formal evening public meeting as well as onsite consultation that involved setting up a booth for four days in Belfountain Conservation Area to reach out to the public.

This summary focuses on CVC's second round of public consultation for the Belfountain Management Plan and Class EA (September and October 2015) and is organized into four main components:

1. Overview of Public Meeting
2. Overview of Onsite Consultation
3. Summary of Questions and Discussion
  - 3.1. Summary of Question and Answer Period at the Public Meeting (September 22, 2015)
  - 3.2. Summary of Discussion and Feedback Received (verbal)
  - 3.3. Questionnaire Responses and Results
4. Next Steps

The meeting agenda for the public meeting held on September 22<sup>nd</sup> is included in this report as Attachment A. The questionnaire is included as Attachment B.

This summary was put together by Credit Valley Conservation staff. It is not intended to provide a verbatim transcript; rather it reflects key feedback received. **If you have any suggested edits, please send them to Laura Rundle at [lrundle@creditvalleyca.ca](mailto:lrundle@creditvalleyca.ca) by Monday, November 17<sup>th</sup>, 2015**, after which point the summary will be finalized and posted on CVC's website.

### 1. Overview of Public Meeting

On Tuesday, September 22, 2015 approximately 50 people attended the public consultation session for Belfountain Complex Management Plan and Class EA. Forty-six individuals signed-in at the event and the postal codes collected during registration indicate that the vast majority of individuals were from Belfountain, although a few attendees were from the broader Caledon area, Halton Hills and Orangeville.

### **Public Consultation Meeting Details**

Date: Tuesday, September 22<sup>nd</sup>, 2015

Time: 6p.m. to 9p.m.

Presentation: 6:30p.m. to 7:30p.m.

Location: Caledon Ski Club, 17431 Mississauga Road Caledon, ON

The purpose of the meeting was to present the preliminary concept designs for Belfountain Conservation Area as well as to introduce the Class EA and the preliminary work done to date. The input received during the first round of public consultation (December, 2014) and how it has or will be integrated in the Management Plan, or addressed, was also discussed.

The evening was separated into three main components:

- 1) PowerPoint presentation
- 2) Question & answer period
- 3) Public review the project posters and one-on-one or small group discussions with staff

The agenda for the public meeting is located in Attachment A. Each participant was provided with a questionnaire (Attachment B) to help focus how questions and comments were received.

Staff from Credit Valley Conservation, Amec-Foster Wheeler (firm retained to undertake Class EA) and Brook McIlroy (firm retained to develop concept plans and architectural sketches), were available to discuss the project and answer questions. The materials that were discussed and presented during the public meeting are available on CVC's website: <http://www.creditvalleyca.ca/enjoy-the-outdoors/conservation-areas/belfountain-conservation-area/belfountain-conservation-area-management-plan/consultation/public-information-session-september-22-2015/>

## **2. Overview of Onsite Consultation**

Consultation took place onsite at Belfountain Conservation Area from 10am to 4pm on the following dates:

- Saturday, September 26<sup>th</sup> (as part of the Salamander Festival)
- Sunday, September 27<sup>th</sup>
- Friday, October 2<sup>nd</sup>
- Saturday, October 3<sup>rd</sup>

Over the course of the four days, CVC staff discussed the Management Plan and Class EA, in varying levels of detail with approximately 70 individuals. Several people took surveys and materials and about twenty provided their contact information indicating that they were interested in receiving updates, learning more or becoming more involved in the planning process.

As can be expected, conversations with different individuals and groups varied widely based on individual interests and concerns. General comments and feedback received (verbal), have been included in section 3.2., which also contains verbal feedback received during the public meeting.

### 3. Summary of Questions and Discussion

This section contains an overview of the questions and feedback that were received through consultation events as well as through completed questionnaires. **It is important to note, with the exception of section 3.1., that CVC's responses to the comments and input received are not included in this summary.** A disposition table identifying all comments and how they will be addressed, will be included in an upcoming report.

#### 3.1. Summary of Question and Answer Period at the Public Meeting (Sept 22, 2015)

One of the three main components of the public meeting on September 22, 2015 was a question and answer period. Questions have been bolded; answers from staff are recorded in *italics*. Note that in some cases, similar questions have been grouped together.

- **What is the purpose of the new visitor centre?** *A new visitor centre would provide much needed indoor space at Belfountain Conservation Area. It would contain updated washroom facilities, an area for interpretation and educational displays and an area that could be used for educational and special events. Space for CVC operations (staff office, equipment storage), could remain in the existing building or be incorporated into a new building.*
- **Will one visitor centre take over as opposed to several small buildings?** *Yes, one space could work. No more than two buildings are proposed in the main development area (the existing workshop and washroom facilities may or may not be separate from the proposed visitor centre).*
- **How much will the management plan cost? What is the budgeting process?** *We won't have a final cost identified for the management plan until preferred options (including the size and placement of features), is selected. The budgeting process may involve asking for special levy funds from our municipal partners, applying for grants and funds that become available and fundraising through the CVC Foundation. Depending on available funding, a phased approach may be utilized to implement the Plan over several years. Conversely, if a large amount of money is available, we may try to complete the project in a short period of time.*
- **What is the intent of the expansion and enhancement of Belfountain Conservation Area? Is it to generate additional revenue for CVC?** *The main purpose of the planning process is to deal with existing issues onsite and enhance what already exists. Revenue generation has not been a focus of the planning process. Though revenue is important for maintaining the conservation area (decreases have not been incorporated) revenue is not an objective of the facilities.*
- **Generation of revenue would likely be derived from increased facilities and amenities.** *The purpose of enhancing facilities and amenities is to increase visitor experience and alleviate concerns that have been identified through the planning process (e.g. parking, traffic). Revenue may increase based on increased fees to support infrastructure development.*
- **Some community members are more impacted than others. We have concerns with traffic, visitors, noise, trash left in the village. Bus traffic and school buses during the week also cause noise. We need to consider better noise mitigation and site lines for neighbours. What are you going to do for those of us living here?** *We are trying to address many of these comments through the management plan. Several will relate to the development of new policies, such policies about the*

number of buses that can be permitted onsite at one time. We are also working to try to alleviate some of the broader concerns regarding traffic and parking with our agency partners.

- **What considerations do you have for buffers around the parking lot?** Once a preferred alternative is selected, we will be able to make recommendations for buffers around the parking area. Generally, these concepts indicate a 5m buffer between the parking area and boundary line. Please let us know your comments.
- **Parking and traffic is the issue here. What is the alternative if we do not increase the parking in the conservation area?** Increasing the parking area in Belfountain Conservation Area will alleviate some of the parking issues in Town. CVC is working with the Town of Caledon, Region of Peel and other partner agencies to identify additional solutions to these problems. These include utilizing additional parking areas on the weekend (for example, Belfountain Public School), using signage to better direct visitors vs regular traffic, exploring a shuttle service on weekends and marketing strategies.
- **Vandalism is a huge concern.** We are aware that any concepts that are selected will have to be managed effectively. Part of this involves working with our partner agencies, such as the Ontario Provincial Police and the municipalities. Security and enforcement are also key items that will be addressed in the management through internal policy development.
- **Current visitor traffic on weekends and during the weekdays is a huge concern. How many people visit each day? How many visitors do you have per year? If we keep building, more people will come.** Over the past several years, our visitation has generally remained consistent (25,000 – 30,000 people per year). Visitation has increased in 2015 (an estimated 10% - 15% increase from 2014 as of September 2015). We are unsure exactly what has caused this increase, but assume that it is a number of factors, including general population growth and perhaps radio commercials featuring the Belfountain area (Mazda). We are exploring ways to better manage this, including encouraging off-peak visitation and managing visitation on weekends.
- **Why are you closing the unsanctioned trails in the Complex?** Unsanctioned or unauthorized trails refer to trails that are not maintained by CVC. These include trails that access the water and contribute to degradation and the spread of invasive species. These do not include the Trimble Trail, Crow's Nest Loop, the Pond Trail or the Gorge Loop Trail – these are all sanctioned trails that are important to conservation area visitors and operations. The Right-of-Way located on the Willoughby Property is owned by the Ontario Heritage Trust; they are addressing the use of this area.
- **What is the future water source of the visitor centre?** A well will likely be the future water source of a new visitor centre. Once the preferred option is selected, we will look into the quality and quantity of water from a local well to ensure that maintain the building is feasible.

### 3.2. Summary of Discussion and Feedback Received (verbal)

The feedback below was shared by participants (verbally) to staff during the poster review portion of the public meeting, as well as through onsite consultation in Belfountain Conservation Area. CVC responses are not provided to each individual comment in this summary report; feedback for each response will be included in a report that thoroughly details all of the comments received. Please note that some of these comments are similar topics to the questions received (section 3.1.)

### Visitation and Capacity Comments

- Why doesn't CVC just close the gates when the park is full?
- Develop a parking app to be able to tell people to go away when there is no more parking because the park is closed.
- Why keep the park open at all?
- Biggest problem within Belfountain Conservation Area is flow – getting visitors to disperse around the site and not just stay near the entrance.
- Resident noted that they had visited High Park and was disappointed that they had a reservation only for picnic sites. She now understands why such a policy would be implemented and encourages a similar policy for BCA.
- Control the borders. Everybody who enters should pay.
- CVC should have a yearly capacity for visitors, and when that is reached, the park should be closed for the rest of the year.
- This park really needs more parking.

### Vandalism and Safety Comments

- Onsite security is important – residents feel that the conservation area is contributing negatively to the overall safety of the community. CVC needs to make a plan to address this.
- Site security is a concern, particularly to those that border the conservation area. This presents a concern not only to the conservation area but for their property as well.
- Entrance needs a gate at the road as people park on the dead end section of road at night to access the park after hours. Teenagers mostly and they ruin things
- Gates need to be moved to the front entrance to deter vandals
- You should install permanent picnic tables that are cemented into the ground – this will help with accessibility. They also won't be thrown into the river.

### Activities and Programming Comments

- Don't do picnics at all because they are low value. Picnics do not benefit the local community or businesses.
- Don't allow buses in at all; buses are noisy and block traffic
- Potential programming for a visitor centre could include: ideas around culture, arts, music, and food. Events that the community could participate in and that CVC could generate some revenue from. This could include local food nights, cooking demonstrations, local wine/cider/beer tastings and pairings, etc.
- Residents would like to see a plan identifying exactly what is proposed for the visitor centre.
- Develop Belfountain CA only for hikers and picnickers; they seem to be the ones using the site the most.
- I love the Salamander Festival – you need to have more events like this.

### Class EA Comments

- Resident had been coming to Belfountain CA since they were a kid – would love to be able to swim in the headpond again.
- It will be very interesting to see how the outcome of the Class EA for Belfountain compares to the EA for the Erin dam.
- Getting Atlantic Salmon up should not be an objective in the Class EA.
- Resident was not supportive of removing Brown Trout below the Dam.

### Community Relationship Comments

- Residents once felt welcome at the conservation area and were proud to live within walking distance of this gem. When CVC withdrew friendship passes and insisted on charging residents, they felt they were no longer welcome. With the new change in policy re active transportation, there was little done to communicate this to the community and believe they found out by accident which undermined the very purpose of this initiative.
- Connecting with local eateries, wine makers, bakers, etc. is very important. Promote local businesses. People become frequent day tripper to entire area.
- CVC should report park usage to residents –report/time/dates/activities (monthly/weekly/weekend)
- The lack of investment in the site has led to its slow deterioration which has diminished resident's faith that CVC is a responsible land manager of this site.

### Other Comments

- Noise is a major problem. How can we mitigate noise with design techniques? Maybe having an inside space would reduce some noise, but operational change might be needed to (idling of buses, etc.).
- It's nice to see that CVC wants to put money into Belfountain Conservation Area – it is long overdue.
- Area of sloped land north of gatehouse should be left as is. There is an old hunter's cottage in there that is a hidden gem. Forest provides privacy to neighbouring properties.
- Sustainable elements of the landscape plan should be considered carefully as they are a big maintenance commitment and need sufficient funding for upkeep.
- All consultants and CVC staff should visit the park on a Saturday at 2pm in the summer to get a true idea of how busy it can be.
- If the park continues to be overrun with visitors, then newly renewed landscapes will be ruined quickly.
- My wife and I own road frontage on a local road not far from the Belfountain park entrance. I am wondering if the Credit Valley Conservation would be interested in acquiring the larger part of our property or the whole property with the house seeing a there are many changes going on in park and with parking. You could have additional parking, overflow parking or a pavilion park area etc. The home would also make a great visitor or classroom learning centre.
- Visitor first came to Belfountain CA from Guelph for a field trip in 1956. Sad to see some of the old cottages go overtime, but happy to see that CVC plans to pay respect to some of Mack's original features.
- Any investment that is made is only temporary – it will only be degraded by visitors.
- I don't think that many of the residents would be interested in supporting the gardens like they used to – CVC should look for other volunteers.
- It's nice to hear that accessibility is a main element – using the driveway to get down to the picnic area is too difficult and steep.

### 3.3. Questionnaire Responses and Results

This section includes the comments and feedback received from the completed questionnaires that were distributed both during the public meeting as well as during onsite consultation. In total, thirteen completed questionnaires were received. The raw responses have been included in the summary for informational purposes only. CVC has not prepared comments for each individual response in this summary report; comments will be addressed in detail in a future report.

## Class EA Questions (Questionnaire #1)

1. Please rank the objectives (1 to 7) in order of importance to you in the space provided above. Place a '1' beside the most important, '2' beside the second most important, etc.

The objectives have been organized by level of importance as indicated by the tabulated questionnaire results:

1. Promote natural stream function
2. Conserve and enhance natural heritage attributes
3. Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species
4. Conserve and enhance cultural heritage attributes
5. Strive for long-term sustainability including economic viability
6. Reduce/minimize risk to visitors, staff and affected property
7. Maintain or improve the visitor experience

2. Are there other objectives you think the Class Environmental Assessment should consider? Why? (These should be specific to the dam and headpond)

- We cannot stop the river so we should eventually have some idea of decommissioning
- Keep the dam and headpond intact
- Nope
- I haven't visited Belfountain in the spring, but if the flora natural to the area aren't currently there, I suggest adding them
- We don't feel qualified to offer suggestions for rehabilitation, so we must rely on scientific and professional data and expertise
- Fix What's Broken. I see no need to reimagine what is at present a unique and special feature – water running over the dam, mossy rocks, fronted by the suspension bridge that connects to the Pond Loop Trail
- Naturalize stream/river by removing/lowering the spillage. Keep some type of barrier to keep invasive species at bay. Preserve tufa deposits are an important plant habitat due to porosity.
- I note that #6 suggests that striving for long-term sustainability must include economic viability. Sustainability is an economic, social and environmental concept, so naturally it includes economic concerns. Question: Whose economic viability is being referenced? The CVC? The Hamlet of Belfountain? Please clarify.
- Other objectives that the Class EA should consider? Yes. Maintain or improve the community's experience. This is a modification of #3, but one that I believe holds equal merit. We are living in the headwaters of the Credit, and the dam and headpond are part of our immediate environment. The local community's experience is definitely critical.
- We do not have additional objectives to contribute, as we believe the objective to "Promote natural stream function" includes minimizing the thermal and sediment impacts of the Headpond on the river downstream, which is our most significant concern.

3. What is your vision for the Belfountain Dam and Headpond?

- Naturalization
- That the dam and headpond be maintained; kept functional
- A natural environment capable of supporting native species
- Visitor experience should not be a factor in these infrastructure decisions. What is the best solution for affected species and the natural landscape?

- Conservation of this unique and special feature with repairs and enhancements limited to what is necessary for maintaining the fisheries barriers, considering any downstream implications and ensuring visitor safety
- Potential use of the headpond in winter for skating
- To strive for sustainability, both environmental and economic
- Naturalize same for better long-term environmental habitat.
- To preserve/conservate the natural and cultural aspects of the same. To preserve history and heritage for our children and future generations.
- Vision for the dam and headpond? I want it to be upgraded for safety purposes, and I want a healthy fisheries and local terrestrial environment. In order to provide you with a more specific vision, I will need to better understand the pros and cons of each of the options identified.
- Recognizing their heritage and social value, as well as their role in partitioning the upper West Credit River, we would envision the Dam and Headpond contributing optimized habitat to downstream fishes (Including Atlantic Salmon through their life cycle), leading to improved fishing opportunities within existing fishing regulations. We also see Belfountain CA remaining as an important stocking site for Atlantic Salmon restoration in the Credit River.

4. *The presentation and poster boards provide the Baseline Inventory (background information) for the study area under various technical study categories. **Is there any information that you think is important to the study that the Study Team may not be aware of?** This could be problems you've observed in the study area, wildlife observations, or other relevant information.*

(This information will be included in both the Class EA and Management Plan disposition tables, as it relates to both/either of these projects).

- Nope
- We have noticed fewer wildlife sightings in the past few years, as numbers of visitors increase. We've now opted to hike in a less fragile area to do our part (Island Lake).
- Degradation of the site due to excessive numbers of visitors – both environmental and property degradation are occurring. More security could help. A cap on the number of visitors would also be very helpful in reducing the problems around garbage and vandalism.
- Draft Background Report dated February 2014 contains reference to "carrying capacity" in section 4.2.2, however figures were not provided.
- Park rules and regulations – are there posted rules and regulations? If no, there should be. Please refer to Algonquin Park Rules and regs available on their website as they are an amazing example.
- Looks quite comprehensive
- In terms of the baseline inventory, I walk through the park on a regular basis and I am not aware of any other additional information that I can contribute at this time.
- In our review of the Baseline Inventory we noted an emphasis on providing fish passage for Atlantic Salmon and American Eel, and would comment that the need for either of these species to have access beyond the Belfountain Dam is extremely limited. The number of returning Atlantic Salmon adults is currently low, and even with increased returns in the future there is expected to be adequate spawning habitat between the Norval fishway and the Cataracts/Belfountain Dam. American Eel numbers in the Credit River are even lower, and the key bottlenecks for the species in Lake Ontario are external to the Credit River. Additionally, fishways are expensive to install and operate as a means to gate fish in perpetuity. The existing fishways at Streetsville and Norval are only being minimally operated now for the selective passage of fish, and gating fish at a third location would further strain staff resources for a very limited gain. Should information on historic access, recovery strategies, or fish numbers change, then upstream fish passage should be reviewed once more, but we do not feel it is critical at this time. We would like to add, however, that any modifications to the Dam and Headpond should also take into account the need for downstream migration of fishes such as smelting Atlantic Salmon or Rainbow Trout or the downstream movement of non-migratory fishes.

## Management Plan Questions (Questionnaire #2)

5. *What is your preferred option for the forecourt?*



*Additional Responses:*

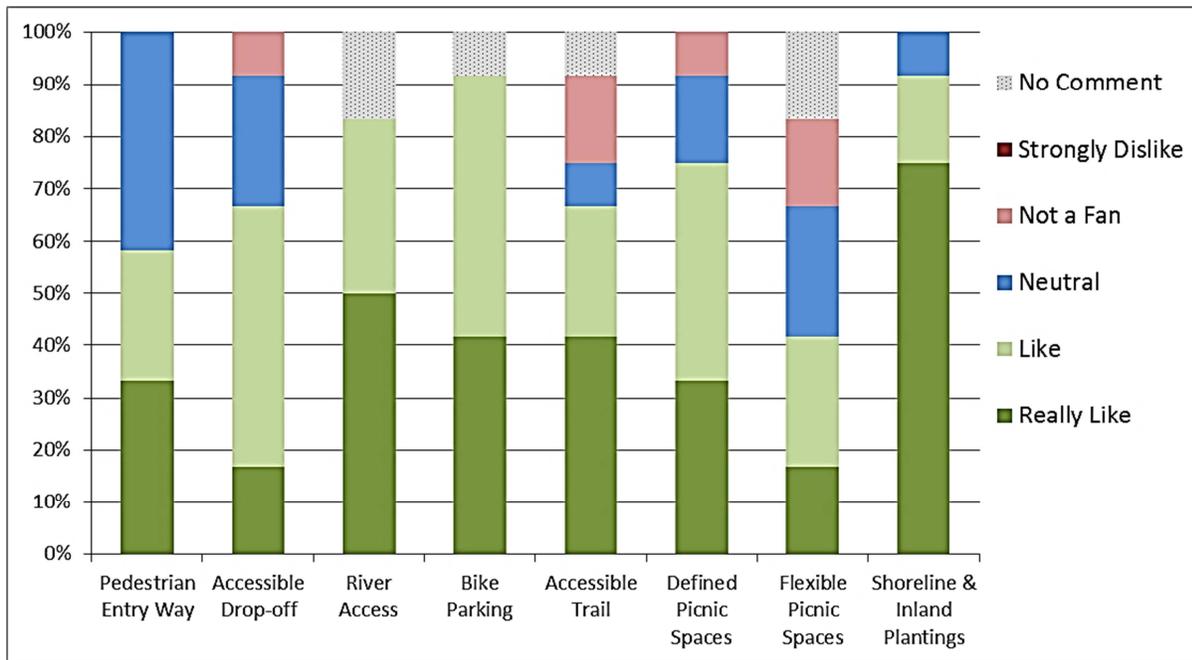
- Do not increase parking
- Option #2, except that the picnic area is reduced
- Very defined and controlled picnic area
- I don't care about any of the options for the forecourt. They are all the same.
- The forecourt is where we stage our school visits in the CA and is very popular with the classes. Based on our use of the area, as well as an interest in rehabilitating the stream bank while still providing access to parts of the river, Options 1 or 2 would be the preferred options.

6. *Why do you prefer this option?*

- CVC should not be a "money maker" – wrong priority
- (Option 1) Moderate shoreline and inland planting
- (Option 1) Accessibility and maximum shoreline planting
- (Option 2) Minimal impact, reduced picnic zones to keep numbers in check, ecologically sound
- (Option 2) To prevent littering and set tone for environmental sustainability
- (Option 2) Least environmental impact
- (Option 1) Defined picnic area, bike parking
- They are all the same, just variations of a theme.
- I think the river access rocks are hilarious. They will not stop people from entering elsewhere. Look at other facilities across Canada, and you will see evidence that that has not worked.

7. *What features do you particularly like or dislike in the forecourt?*

The graph below indicates how survey respondents reacted to the different features identified in the forecourt.

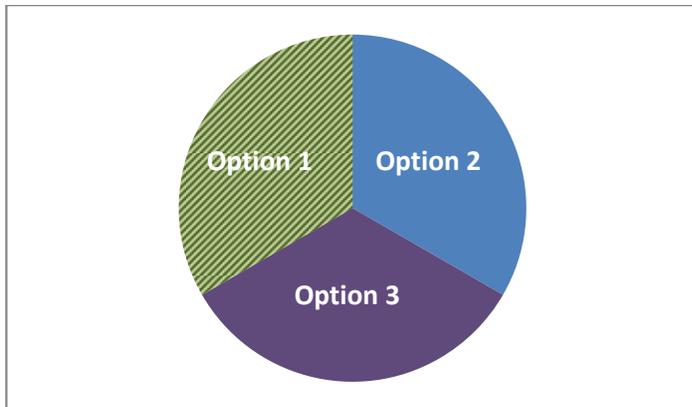


*Additional Comments:*

Component	Comments
Pedestrian Entry Way	<ul style="list-style-type: none"> <li>- should be on west, opposite side of road</li> <li>- a given</li> </ul>
Accessible Drop-off	<ul style="list-style-type: none"> <li>- appropriate to picnic/shore use</li> <li>- should be one way</li> </ul>
River Access	<ul style="list-style-type: none"> <li>- (like) if shoreline is protected with native plantings</li> <li>- defined boundary;</li> <li>- I think the river access rocks are hilarious. They will not stop people from entering elsewhere. Look at other facilities across Canada, and you will see evidence that that has not worked.</li> </ul>
Bike Parking	<ul style="list-style-type: none"> <li>- encourage low impact visitation</li> </ul>
Accessible Trail	<ul style="list-style-type: none"> <li>- low impact development, permeable pavers</li> <li>- not feasible in this location</li> <li>- environmental trail designers, landscape architects, should be involved in all trails</li> <li>- should not be paved-packed - small gravel or limestone works well and is better for drainage</li> </ul>
Defined Picnic Spaces	<ul style="list-style-type: none"> <li>- Reduce</li> <li>- with a few flexible spaces</li> <li>- all options for defined picnic space is an increase in area</li> </ul>
Flexible Picnic Spaces	<ul style="list-style-type: none"> <li>- I don't know what this is</li> <li>- fewer in number and choice of sites</li> <li>- creates more space for potential garbage</li> </ul>
Shoreline & Inland Plantings	<ul style="list-style-type: none"> <li>- ensures limited access to river</li> <li>- native restoration critical to protect natural environment</li> <li>- seems more natural</li> </ul>

<p>9. Do you have any other thoughts or comments about the forecourt area?</p>	<ul style="list-style-type: none"> <li>- The vision of an English garden unsuitable to this natural area despite Mack heritage, as they would be difficult and costly to create and maintain</li> <li>- We volunteered years ago to clean-up and plant the gardens from the entrance, parking area and fountain. Watering and weeding maintenance was not very successful. Annual plants and design not appropriate to site</li> <li>- Yes to riparian restoration and native plantings. Include a defined trail through this to limit risk of degradation of planted area. There may be additional strategies to provide for protecting the planted areas?</li> <li>- I agree that the forecourt should be a welcoming place. Bike parking? Bikes park at the coffee shop, not the park. I rarely see anyone using a bike to get to the park. The defined picnics spaces may be cute, and with sufficient plantings, may actually allow for some biodiversity of habitat in the heavily used visitor area.</li> </ul>
--	--

10. What is your preferred option for the visitor centre and parking area?



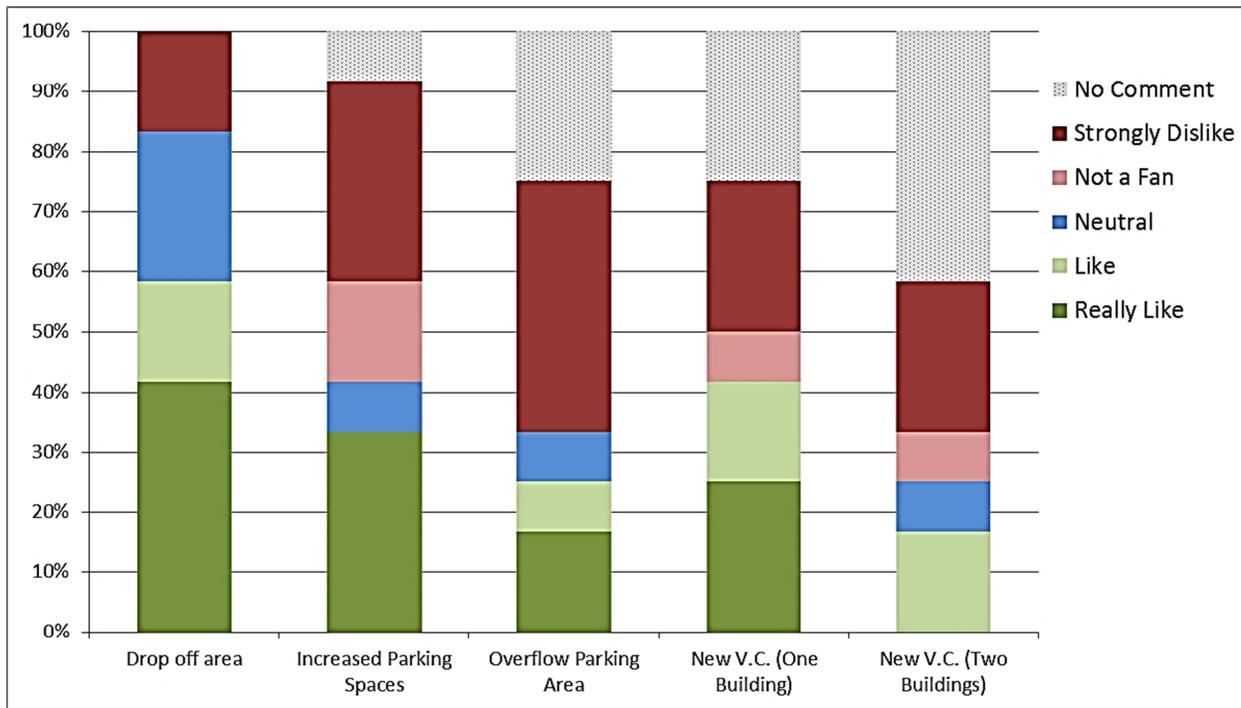
Additional Responses:

- Definitely not increased parking
- Less, not more parking
- No increase in parking
- It is not clear if all options offered a bus-only exit or only Option 1, but as our visits almost always include one or more school buses, the smooth and safe movement of buses and students in this area is an important feature for us and a bus-only exit would enhance that.
- I prefer NOT to have a visitor centre.

11. Why do you prefer this option?

- Keep it natural, CVC should not be a money maker
- (Option 1) Limits regular public access to currently used area
- (Option 2) Most parking
- Parking must be minimized to ease excessive noise, traffic and environmental impact
- There are too many visitors already
- (Option 3) Option is increased by only 4 spaces
- (Option 2) Increased Parking
- This is an expenditure that does not make sense to me. It will increase visitation, increase damage to the park, and quite honestly, I think it is a waste of money. A covered place for visitors would be welcome, I am sure, but it does not have to be a large visitor centre. A consideration – why not take the old pumphouse out and put a covered structure there. You can add displays about the headpond, dam and history there. But do not build a visitor centre.

12. What features do you particularly like or dislike in the visitor centre and parking area?

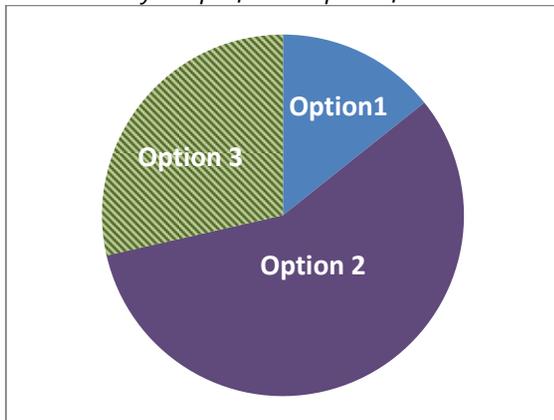


*Additional Comments:*

Component	Comments
Drop off area	- Seems natural flow
Increased Parking Spaces	- Keep the park in a natural setting - Not appropriate for such a small, fragile area so close to the hamlet - Since parking/traffic is a big issue in Belfountain - this would help manage those issues. People will not stop coming - the residents need to focus on managing volume
Overflow Parking Area	- more pavement is not appropriate in this fragile area - not necessary with option
New V.C. (One Building)	- Depends on the size - far too large for a small park
New V.C. (Two Buildings)	- 2 buildings ok but large visitor centre is completely out of scale (500 sq. ft.) - limit size of visitor centre to accommodate interpretive info and seminar space, not large events - makes more sense to have it under one roof - environmentally, economically, etc.
13. Do you have any other thoughts or comments about the visitor centre and parking area?	- "If you build it, they will come". This is the problem – too many thoughtless visitors The building should be as "green" as possible - Additional parking will not relieve car issues in the Hamlet. In town, as soon as one car leaves, another occupies the space – all summer long. Build it and they will come is not the answer. - One of your objectives in a previous stakeholder handout says "protect and enhance ecological diversity". This must trump visitor augmentation and experience. The conservation plan should be about conservation, not tourism. - Consider a wooded buffer zone between parking area and neighbours

	<p>Maintain operations centre if "it ain't broke"</p> <ul style="list-style-type: none"> <li>- Location of visitor centre in option 1 – offers view; is prominent and welcoming to visitors arriving by car</li> <li>- Mississauga Rd does not have the width or sight lines in this area to allow for tour buses and drop off locations</li> <li>- Do not increase parking spaces. Look to your plans and put caps on the number of people visiting the park. Encourage off-peak visitation. Do what you are already suggesting but do not increase parking. "If you build it they will come"...the same will happen with a visitor centre and with increased parking.</li> <li>- Is the existing workshop up to code? If it is, then use it, but upgrade it and put an addition on it to create a positive working space for staff, and increase number of washrooms.</li> </ul>
--	--

14. What is your preferred option for the hillside garden?



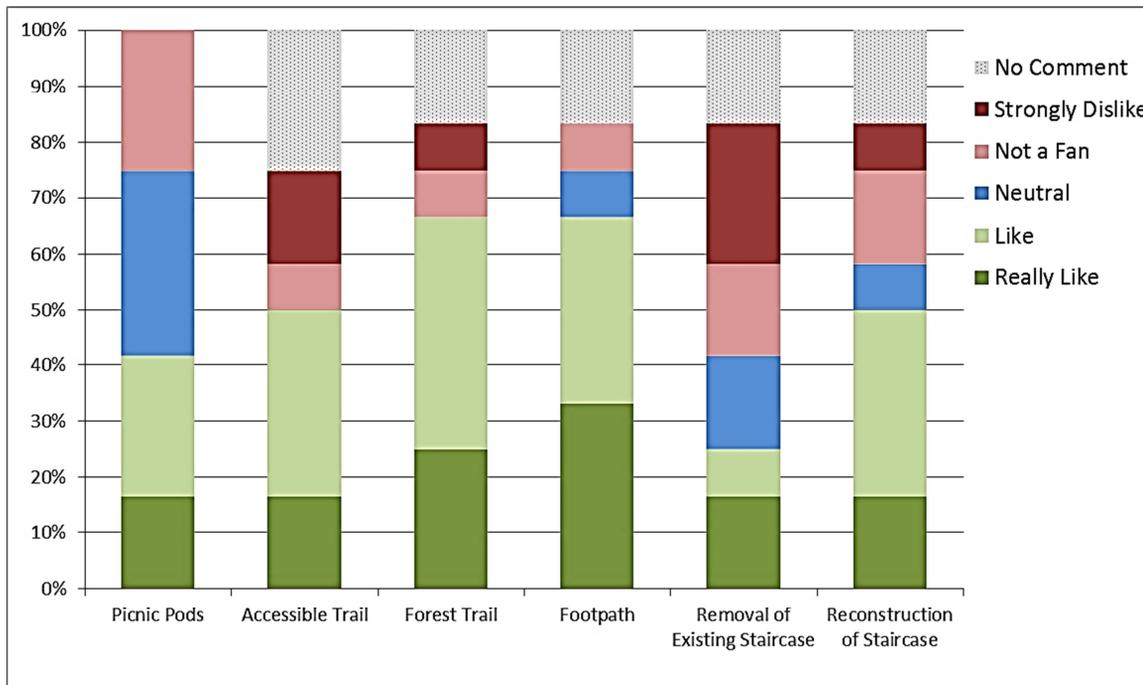
Additional Responses:

- Good idea to upgrade
- I have no preferred option for the hillside garden.
- While we do not generally use the hillside garden as a picnic area, when we have students out with us we do use it as a pathway down to the forecourt that is safely away from vehicles on the driveway. With that in mind, while also recognizing the potential for naturalizing the slope, we support Option 2 because of its accessible ramp. While rare, we occasionally have students requiring wheelchair access at the CA.

15. Why do you prefer this option?

- Enhances the overall concept of the park
- (Option 2) Stair integration through middle of zigzag walkway path
- (Option 2) Accessibility – though the picnic spaces are too close to the stairs – not private enough
- (Option 3) Least impact to the natural site while rehabilitating eroded area. No additional building on site is preferable
- (Option 1) Least environmental impact
- (Option 2) Path design and accessibility
- They all look the same, as I have noted. Erosion is always going to happen, so ensure limited erosion through effective landscaping

16. What features do you particularly like or dislike in the hillside garden?



*Additional Comments:*

Component	Comments
Picnic Pods	<ul style="list-style-type: none"> <li>- define area; nice</li> <li>- small but intimate</li> </ul>
Accessible Trail	<ul style="list-style-type: none"> <li>- far too intrusive for the topography</li> <li>- Desirable for strollers, walkers and wheelchairs, but is it practical for this slope?</li> <li>- too damaging to the slope</li> <li>- fabulous;</li> <li>- I like an accessible trail...if investments are going to be made in this park, having some kind of accessibility option is worthwhile.</li> </ul>
Forest Trail	<ul style="list-style-type: none"> <li>- too formal</li> <li>- too damaging to the slope</li> <li>- located elsewhere on trail system perhaps</li> </ul>
Footpath	<ul style="list-style-type: none"> <li>- more informal and stylistically appropriate for this small parkette;</li> <li>- a marked trail in a location deemed acceptable by a landscape architect; allow maximum walking through area</li> </ul>
Removal of Existing Staircase	<ul style="list-style-type: none"> <li>- allows for leisurely walks</li> </ul>
Reconstruction of Staircase	<ul style="list-style-type: none"> <li>- Pedestrians should assume liability issues</li> <li>- safe, easy access without creating an additional footprint</li> <li>- is it necessary? Does it become high maintenance and costly?</li> </ul>
<i>17. Do you have any other thoughts or comments about the hillside garden?</i>	<ul style="list-style-type: none"> <li>- Good idea</li> <li>- Option 3, thankfully does not show a building "less is more". Defined areas that remain natural looking are much more sympathetic to the area.</li> <li>- Option 1 – offers the most picnic pods, nicely separated and sited in the landscape and accessed by the trail</li> <li>- Add "you are here" trail map</li> <li>- No</li> </ul>

18. *What is your preferred option for the portico?*



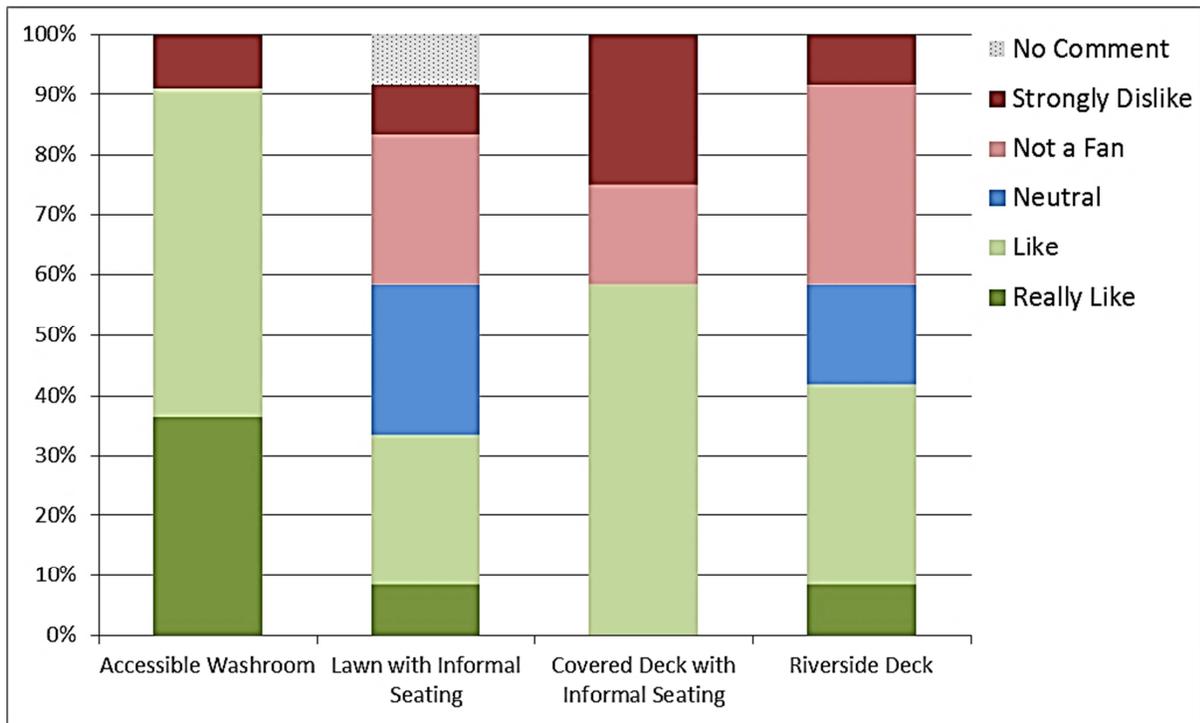
*Additional Responses:*

- Keep in line with country/culture design (presentation photo)
- Upgrade pumphouse and bridge area
- Option 2 – but with some covered seating
- N/A
- We would support Option 1 as it has no new impact on the west side of the river, allowing for increased naturalization there while still providing new amenities at the portico on the east side of the river.

19. *Why do you prefer this option?*

- Enhances park
- (Option 1) Uses current infrastructure and footprint
- I don't see the purpose of the circular area in front of covered seating in Option 1.
- (Option 2) Minimizes infrastructure, less formal – in keeping with the parks small acreage
- (Option 1) Uses existing building, accessible restroom conveniently located, interpretive and way finding info
- Less construction
- (Option 1) Encourages crossing water and creates anticipation of trails, etc.
- Very similar

20. *What features do you particularly like or dislike in the portico?*



*Additional Comments:*

Component	Comments
Accessible Washroom	- Less costly, perhaps use existing
Lawn with Informal Seating	- It's a park! - allows one to sit on mother earth
Covered Deck with Informal Seating	- Bring your own lawn chair/blankets this would also reduce theft/vandalism if there are no chairs to throw in the river - allows for rainy days or those with limited mobility
Riverside Deck	
21. Do you have any other thoughts or comments about the portico?	<ul style="list-style-type: none"> <li>- Keep it, restore it to historic standards</li> <li>- This park should be as natural and un-construed as possible owing to its small size and fragility. Encourage a low impact, natural experience of walking, observing nature and natural elements rather than creating a man-made tourist theme park. Minimal landscapes, minimal signage = maximum value</li> <li>- Many benches burnt and/or thrown into pond/river in the past – even the bridge downstream badly vandalized soon after construction. How is this policed!</li> <li>- The construction of a covered deck/riverside deck is a ridiculous waste of funds.</li> <li>- Concerns are water supply for toilets – would solution include using water (rain) from roof tops, collecting it, storing it and using for flushing? Drinking water could be accessible in visitor centre if required. Most hikers bring drinking water along.</li> <li>- If a Visitor Centre is needed, then use this site as a place to do interpretation. Have the covered space here, but don't make it too large or it will overwhelm the site. Do not offering "programming". This is not a</li> </ul>

provincial park and we don't need to interpret everything.
--

22. *Do you have any ideas for special events or activities that would be a good fit for Belfountain Conservation Area?*

- Keep them small, quiet; no late nights/after dark
- Naturalist meetings; school groups for science projects
- Restrict events that increase noise; loud music – no wedding receptions please
- An event in spring – similar to the Salamander Festival
- Salamander festival be the weekend (2 days)
- Kids fishing event at Belfountain
- More volunteer opportunities – I would love to be involved
- Workshops
- Yoga in the park
- Low-impact environmental (nature) walks, studies, guided educational?
- Not a location for weddings, film shoots, large gatherings owing to the fragility of the size of the parkette
- Excerpt from previous objectives handout “mitigate impacts of human activities such as visitor use...” - this should be respected. Manage non-native invasive species. Maintain or improve amount of natural cover. Monitor, maintain and enhance habitat for species at risk.
- Winter skating on the pond
- I see this park as a centre for experiencing and learning about the natural and environmental aspects of the Niagara Escarpment and Credit River watershed and World Biosphere Reserve and not as a venue for weddings, conferences and commercial events
- Hiking is always enjoyable but I don't go when it is packed with noisy, littering and unappreciative of nature tourists
- Get park rangers that eject litterers and people who are combative, disruptive. Enforce rules and regulations, including afterhours vandals
- Guided hikes (partner with salamander festival)
- Concerts in the park (partner with Melville White Church Music Programs)
- I think you need partner activities with Belfountain existing celebrations. Show good will and motivation to work with the community.
- Not right now.
- In addition to our annual stocking and education activities, we have had several formal Atlantic Salmon events at the CA in the past, and hope to have more.

23. *Please use the following space to ask any other questions you may have and the Study Team will provide a response within the following weeks. You can also use this space to provide general comments:*

- Security cameras (night time), video surveillance
- Do not be afraid to charge a significant fee for park usage, especially for special functions
- Weekend security dictates a more enforced/enforceable way of keeping out after-hour non-desirables
- Keep the park in a natural state
- Electronic billboard size signage at outskirts of park to inform visitors of heavy usage days that park is at capacity.
- As a resident of Belfountain, I am upset about the proposed expansion of the conservation area – no additional parking spaces should be added – it will not alleviate the parking and congestion in the village. There are far too many people allowed in the park at peak times. The majority of visitors do not care about educational info etc. They just want a green spot to get far away from their homes in Brampton/Mississauga, though school groups would benefit from the educational aspect, many visitors have no respect for the environment – tossing garbage and dirty diapers in the village. Obstructing safe entry to our driveways and extra parking spaces will not help.
- Extra parking will just bring in more people. The water/wells in Belfountain are already compromised. The residents in Belfountain should have respect from the CVC we need to be listened to. Not just have meetings here. I fear plans will go ahead despite the impact on this changing village.

- You guys do a great job. Many thanks!
- Thank-you! Staff on site on Sept 27 were excellent – very knowledgeable and enthusiastic, clearly love their work.
- How do you expand with added infrastructure to accommodate or foster expected growth without seriously degrading or destroying this iconic small jewel?
- Is the CVC's mandate conservationism or tourism? This site is too fragile to be exploited.
- Unsanctioned use is a huge issue. Excessive rowdiness, noise and even smoke have been witnessed/heard from our property across the valley. How can this be monitored/ policed?
- The dam and headpond reconstruction will be very costly and presumably is the priority, surely. The definition of iconic needs to be addressed in the context of this unique situation.
- The proximity of the Belfountain hamlet creates a very unique situation in terms of traffic, traffic noise and pollution, water issues and land use encroachment.
- Rural life in this area is becoming increasingly compromised. Would the CVC commit to helping concerned citizens preserve this fabulous setting and help protect it from severe urban pressures that have threatened this fragile area.
- Visitor's experience of the natural environment is not enhanced by the crowds that amusement and theme parks attract. The parking area and park itself are not large enough to support huge numbers of visitors and events. Any enhancement to the facility should recognize and correspond in scale to the site's real visitor capacity. This would mean downsizing the scale of the proposed visitor's centre and enforcing capacity limits for the picnics, events and buses.
- Recommendations re: Gardens. 1) native species maintained in a somewhat English garden aesthetic where formal beds might be considered. 2) Native species planted to replicate natural woodland and meadow and riparian habitats 3) the plan should incorporate commitment to funds and maintenance that are not dependent on volunteers from the community. A sustainable plan requires a high level of expertise, coordination and time commitment.
- Make more picnic pods all around the park – off the trails on both sides of the pond and river. Make them as unobtrusive as possible, giving the feeling of a touch of privacy/remoteness/natural uniqueness, while providing each with its unobtrusive view of some feature (river, pond, falls, rapids – a Big challenge!). To accomplish this in the forecourt make the picnic pods by the river, semi hidden with surrounding natural plantings. One space should be left to encourage and welcome walkers to the river's edge.
- The info centre by the parking lot should have a partially covered deck with a "window" looking over a portion of the pond – not to expose the around the pond picnic sites.
- Admission: free walk-in policy encourages people to clog the village with packed cars. What about free admission for walk-ins with a postal code beginning with (LXXXX) or a Bruce Trail membership card. Admit all cyclists free. Cars -\$15 with one adult, \$10 with two adults, \$5 with three adults, Free with 4 adults or some such incentives.
- Thanks for trying to get it right.
- What is the carrying capacity for the park?
- What is the budget allocated for these repairs, renovations and improvements?
- Does the EA provide details of visitor impact detrimental to the environment?
- Has the safety issue for pedestrians been resolved for the Willoughby/OHT owned property?
- Can Ontario Parks, Provincial Parks and Conservation Reserve Act regulations be adopted, specifically regarding visitor capacity and ecological capacity?
- Ecological integrity re: increased # of bathrooms on septic facilities does the EA take into effect existing figures or projected figures and the proximity of the new bathrooms to the river?
- Pavilions, visitor centre, capacity dictated by compliance with building code and Ontario Fire code. Based on the square footage will visitors to the park be capped at the capacity of the visitors centre?
- What about designating # of visitors by # of parking spaces with additional # of pedestrian visitors allowed based on a total figure (that figure being ecologically sustainable).
- There was a concern raised about the size of the visitor/interpretive centre. Some folks were against 5,000 sq. ft. if building is used for washrooms, CVC office space and interpretive centre, perhaps a 'blue print' of space allocations would be more helpful. Can the building be 1.5 stories to reduce its footprint perhaps? Should it have vending machines with water bottles which would allow the water source for flushing to come from collected rain water supplemented from river flow?

## Additional Comments

- Talk to stewardship about signs/birdhouses for participating in programs
- I am a long time resident of Caledon, and I cherish its grace and elegance. I understand why people from more urban locations choose to visit the Belfountain Conservation Area. It is a small, lovely site that is close to Toronto, Mississauga and other parts of the GTA. As I heard your Chief Administration Officer explain at the recent Public Meeting, it is the jewel in the crown of the Credit Valley Conservation. It is my hope that you and all the CVC staff intend on keeping it that way. As I review the feedback received and management policies document, I see that a lot of hard work is being put into addressing many of the issues that are faced daily at the CA. I do have a number of comments and questions, however, that I will include here.
- With respect to the Questionnaire #2, my first statement is that all the options are basically the same, with small changes. So I will not bother you with specifics about preferred options. What I am most curious about is why this work is being considered? Why does the facility require new landscaping? I am certain there will need to be some work following the EA work, but why sink all sorts of money into creating a new landscape? Would it not be preferable to sink that money into restoring the ecological integrity of the site? I would recommend installing features that restore and maintain EI, rather than upgrade the look of the site...which in turn will attract more visitors and continue to damage the EI.
  - Why does the CVC wish to increase visitation?
  - Why does the CVC want to build a visitor centre
  - Why does the CVC believe a visitor centre is needed? (not wanted, but needed)
  - Why does the CVC want to increase parking inside the park? (I am well aware of parking issues in the hamlet, but I don't understand why that would be the concern of the CVC).

## Summary of Key Themes

The following points reflect the key themes that emerged through participants' questions and comments. Note that these key themes are numbered for reference only.

1. **Many participants felt that the traffic caused by the current level of visitors to Belfountain Conservation Area was creating impacts on the Hamlet of Belfountain and other nearby residential communities.**
2. **Some participants indicated confusion over the purpose and use of the proposed visitor centre.**
3. **Some participants indicated concern over vandalism and after-hours activities that sometimes take place in Belfountain Conservation Area.**
4. **Several participants stated that they were in agreement with many of the projects, in general, but were concerned over increased visitation and traffic.**
5. **Some participants indicated that they were happy to see effort going into the management of the Complex.**

## Attachment A. Meeting Agenda

### Belfountain Complex Management Plan and Class Environmental Assessment Public Information Centre

**Date:** September 22, 2015

**Time:** 6:00 pm – 9:00 pm

**Location:** Caledon Ski Club - 17431 Mississauga Rd, Caledon, ON L7K 0E9

#### Draft Agenda:

Time	Topic	Lead
6:00pm – 6:30pm	<b>Registration &amp; Welcome</b> - Review of poster boards	CVC
6:30pm – 6:35pm	<b>Welcome and Thank-you</b>	CVC
6:35pm – 6:45pm	<b>Presentation</b> Belfountain Complex - Project Review Overview	CVC
6:45pm – 7:00pm	Belfountain Dam and Headpond Class EA - Introduction and Overview	AMEC-FW
7:00pm – 7:10pm	Belfountain Management Plan - Guiding Statements & Management Policies	CVC
7:10pm – 7:25pm	Belfountain Conservation Area Concept Plans	BMI
7:25pm – 7:30pm	Thank you and Next Steps	CVC
7:30pm – 7:45pm	<b>Open Q&amp;A Period</b>	AMEC-FW, CVC
7:45pm – 9:00pm	<b>Review of Poster Boards</b>	All

#### Acronyms

**CVC:** Credit Valley Conservation

**AMEC-FW:** Amec Foster Wheeler (Consultant retained to undertake Class Environmental Assessment on the Belfountain Dam and Headpond)

**BMI:** Brook McIlroy Inc. (Landscape architecture firm retained to develop concepts and designs for the Belfountain Complex)

# Questionnaire & Comment Sheet

## Public Consultation Session

Thank you for attending CVC's public consultation session for the Belfountain Complex Management Plan and Class Environmental Assessment. Your feedback is important to us and is an integral part of both the Management Plan and Class Environmental Assessment processes.

**PLEASE PRINT**

Name/Association:

E-mail:

Address:

Municipality:

Postal Code:

**Please return completed questionnaires to any member of the Study Team during the meeting or to the following contacts after the meeting:**

**Credit Valley Conservation**

Ms. Laura Rundle  
Conservation Lands Planner  
1255 Old Derry Road  
Mississauga, Ontario, L5N 6R4  
Tel: (905) 670.1615 ext.535  
email: lrundle@creditvalleyca.ca

**Amec Foster Wheeler**

**Environment & Infrastructure**  
Mr. Ron Scheckenberger, M.Eng., P.Eng.  
Project Manager  
3215 North Service Road, P.O. Box 220  
Burlington ON L7N 3G2  
Tel: 905.335.2353  
Toll Free: 1.866.751.2353  
Email: ron.scheckenberger@amecfw.com

**Please ensure that your questionnaire is in the mail no later than  
Wednesday, October 7<sup>th</sup>, 2015.**

CVC is undertaking a Conservation Ontario Class Environmental Assessment (Class EA) to determine how best to manage the Belfountain Dam and Headpond in the future. A Class EA must follow a specific process that can be summarized with the following steps:

1. Document the Baseline Inventory (background information) & identify the problem
2. Evaluate alternative solutions and select a preferred alternative
3. Conduct a detailed analysis of environmental impact

At this time, the baseline inventory (Step 1) has been completed, and development of the alternatives (Step 2) has begun but is not yet completed. Public consultation is integral component of a Class EA and public input will be considered at every step.

Please note that this questionnaire is specific to the Belfountain Dam and Headpond Class EA; a separate questionnaire has been provided in your package regarding the Belfountain Complex Management Plan.

CVC has established seven (7) Study Objectives for this project. The preferred alternative for the Belfountain Dam and Headpond will be required to meet these objectives.

Objective	Ranking
1) <i>Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species</i>	
2) <i>Reduce/minimize risk to visitors, staff and affected property</i>	
3) <i>Maintain or improve the visitor experience</i>	
4) <i>Conserve and enhance cultural heritage attributes</i>	
5) <i>Promote natural stream function</i>	
6) <i>Strive for long-term sustainability including economic viability</i>	
7) <i>Conserve and enhance natural heritage attributes</i>	

1. Please rank the objectives (1 to 7) in order of importance to you in the space provided above. Place a '1' beside the most important, '2' beside the second most important, etc.

2. Are there other objectives you think the Class Environmental Assessment should consider? Why? (These should be specific to the dam and headpond)

---

---

---

---

---

---

---

---

---

---

---

---

3. What is your vision for the Belfountain Dam and Headpond?

---

---

---

---

---

---

---

---

---

---

---

---

4. The presentation and poster boards provide the Baseline Inventory (background information) for the study area under various technical study categories. **Is there any information that you think is important to the study that the Study Team may not be aware of?** This could be problems you've observed in the study area, wildlife observations, or other relevant information.

---

---

---

---

---

---

---

---

---

---

---

---

**Forecourt:** Please let us know what you think about the concepts for the forecourt (entrance and lower picnic area):

5. What is your preferred option for the forecourt? \_\_\_\_\_

6. Why? \_\_\_\_\_

7. What features do you particularly like or dislike in the forecourt?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Pedestrian Entry-way						
Accessible Drop-off Area						
River Access						
Bike Parking						
Accessible Trail						
Defined Picnic Spaces						
Flexible Picnic Spaces						
Shoreline & Inland Plantings						

9. Do you have any other thoughts or comments about the forecourt area?

**Visitor Centre and Parking:** Please let us know what you think about the concepts for the visitor centre and parking area:

10. What is your preferred option for the visitor centre and parking area? \_\_\_\_\_

11. Why? \_\_\_\_\_

12. What features do you particularly like or dislike in the visitor centre and parking area?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Drop off area/Entry plaza						
Increased Parking Spaces						
Overflow Parking Area						
New Visitor Centre & Workshop (One Building)						
New Visitor Centre & Existing Workshop (Two Buildings)						

13. Do you have any other thoughts or comments about the visitor centre and parking area?

**Hillside Garden:** Please let us know what you think about the concepts for the hillside garden (upper picnic area):

14. What is your preferred option for the hillside garden? \_\_\_\_\_

15. Why? \_\_\_\_\_

16. What features do you particularly like or dislike in the hillside garden?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Picnic Pods						
Accessible Trail						
Forest Trail						
Footpath						
Removal of Existing Staircase						
Reconstruction of Existing Staircase						

17. Do you have any other thoughts or comments about the hillside garden?

**Portico:** Please let us know what you think about the concepts for the portico (pumphouse, bridge area):

18. What is your preferred option for the portico? \_\_\_\_\_

19. Why? \_\_\_\_\_

20. What features do you particularly like or dislike in the portico?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Existing building retrofitted with accessible washroom						
Lawn with informal seating						
Covered deck with informal seating						
Riverside deck						

21. Do you have any other thoughts or comments about the portico?

22. Do you have any ideas for special events or activities that would be a good fit for Belfountain Conservation Area?

---

---

---

---

---

---

---

---

23. Please use the following space to ask any other questions you may have and the Study Team will provide a response within the following weeks. You can also use this space to provide general comments:

---

---

---

---

---

---

---

---

**Attachment C. Consultation Images**



**Public Consultation Session - September 22 2015**

## Dearlove, Heather

---

**Subject:** FW: Belfountain CA EA comments deadline

-----Original Message-----

From: Rundle, Laura [mailto:LRundle@creditvalleyca.ca]

Sent: September-21-15 12:20 PM

Thank you for your email.

I am sorry to hear that you are unable to attend any of our consultation sessions. Please note, however, that there are several opportunities to participate in the process and provide to feedback. Our website will be updated with the presentation and questionnaire for this round of consultation shortly. I will send you the link once everything has been organized and posted. I will also keep your email on file to notify you of our next round of consultation.

If you or any of your local contacts would prefer to meet onsite to discuss the project, we are happy to arrange that as well. September is pretty busy with consultation, but my schedule opens up in October. I've found that meeting onsite is often the best way to discuss the details of a project.

Please do not hesitate to contact me if you have any questions.

Thank you,

Laura Rundle  
Conservation Lands Planner | Credit Valley Conservation  
905.670.1615 ext 535 | 1.800.668.5557  
lrundle@creditvalleyca.ca | creditvalleyca.ca

Sent: September 21, 2015 11:51 AM

To: Rundle, Laura

Subject: Belfountain CA EA comments deadline

Hello Laura,

The Belfountain CA planning process and EA review has just come to our attention, as has tomorrow night's public meeting. Unfortunately as of right now I don't believe myself or our other program staff can attend tomorrow, or this weekend or next at the CA itself, but the OFAH would like to provide comments. We are active in the watershed with the Atlantic Salmon program as well as having members who fish the river, and Belfountain is where we bring most of our classroom hatchery participants in the spring to release their school-raised Atlantic Salmon.

When would you need us to have comments submitted by? I'm hoping to look over the materials in the next few days and then discuss with other staff and some of our members local to the Credit River.

J

CVCN OCT18/15-12152

# Questionnaire & Comment Sheet

## Public Consultation Session

Thank you for attending CVC's public consultation session for the Belfountain Complex Management Plan and Class Environmental Assessment. Your feedback is important to us and is an integral part of both the Management Plan and Class Environmental Assessment processes.

---

### PLEASE PRINT

Name/Association: \_\_\_\_\_

E-mail: \_\_\_\_\_

Address: \_\_\_\_\_

Municipality: \_\_\_\_\_

Postal Code: \_\_\_\_\_

---

**Please return completed questionnaires to any member of the Study Team during the meeting or to the following contacts after the meeting:**

**Credit Valley Conservation**  
Ms. Laura Rundle  
Conservation Lands Planner  
1255 Old Derry Road  
Mississauga, Ontario, L5N 6R4  
Tel: (905) 670.1615 ext.535  
email: lrundle@creditvalleyca.ca

**Amec Foster Wheeler**  
**Environment & Infrastructure**  
Mr. Ron Scheckenberger, M.Eng. P.Eng.  
Project Manager  
3215 North Service Road, P.O. Box 220  
Burlington ON L7N 3G2  
Tel: 905.335.2353  
Toll Free: 1.866.751.2353  
Email: ron.scheckenberger@amecfw.com

**Please ensure that your questionnaire is in the mail no later than  
Wednesday, October 7<sup>th</sup>, 2015.**

## Questionnaire #1 - Belfountain Dam & Headpond Class EA

CVC is undertaking a Conservation Ontario Class Environmental Assessment (Class EA) to determine how best to manage the Belfountain Dam and Headpond in the future. A Class EA must follow a specific process that can be summarized with the following steps:

1. Document the Baseline Inventory (background information) & identify the problem
2. Evaluate alternative solutions and select a preferred alternative
3. Conduct a detailed analysis of environmental impact

At this time, the baseline inventory (Step 1) has been completed, and development of the alternatives (Step 2) has begun but is not yet completed. Public consultation is integral component of a Class EA and public input will be considered at every step.

Please note that this questionnaire is specific to the Belfountain Dam and Headpond Class EA; a separate questionnaire has been provided in your package regarding the Belfountain Complex Management Plan.

CVC has established seven (7) Study Objectives for this project. The preferred alternative for the Belfountain Dam and Headpond will be required to meet these objectives.

Objective	Ranking
1) <i>Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species</i>	2
2) <i>Reduce/minimize risk to visitors, staff and affected property</i>	6
3) <i>Maintain or improve the visitor experience</i>	7
4) <i>Conserve and enhance cultural heritage attributes</i>	5
5) <i>Promote natural stream function</i>	3
6) <i>Strive for long-term sustainability including economic viability</i>	1
7) <i>Conserve and enhance natural heritage attributes</i>	4

1. Please rank the objectives (1 to 7) in order of importance to you in the space provided above. Place a '1' beside the most important, '2' beside the second most important, etc.



**Questionnaire #1 - Belfountain Dam & Headpond Class EA**

4. The presentation and poster boards provide the Baseline Inventory (background information) for the study area under various technical study categories. **Is there any information that you think is important to the study that the Study Team may not be aware of?** This could be problems you've observed in the study area, wildlife observations, or other relevant information.

Degradation of the site due to excessive numbers of visitors - both environmental and property degradation are occurring. More security could help. A cap on the number of visitors would also be manageable. Very helpful in reducing the erosion problems around garbage and vandalism.

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Forecourt:** Please let us know what you think about the concepts for the forecourt (entrance and lower picnic area):

5. What is your preferred option for the forecourt? Very defined and controlled picnic area

6. Why? to prevent littering + set tone for environmental sustainability

7. What features do you particularly like or dislike in the forecourt?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Pedestrian Entry-way	<input checked="" type="checkbox"/>					
Accessible Drop-off Area	<input checked="" type="checkbox"/>					
River Access		<input checked="" type="checkbox"/>				
Bike Parking	<input checked="" type="checkbox"/>					
Accessible Trail	<input checked="" type="checkbox"/>					
Defined Picnic Spaces	<input checked="" type="checkbox"/>					
Flexible Picnic Spaces			<input checked="" type="checkbox"/>			
Shoreline & Inland Plantings	<input checked="" type="checkbox"/>					

9. Do you have any other thoughts or comments about the forecourt area?

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Visitor Centre and Parking:** Please let us know what you think about the concepts for the visitor centre and parking area:

10. What is your preferred option for the visitor centre and parking area? no increase in parking

11. Why? there are too many visitors already

12. What features do you particularly like or dislike in the visitor centre and parking area?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Drop off area/Entry plaza	<input checked="" type="checkbox"/>					
Increased Parking Spaces					<input checked="" type="checkbox"/>	
Overflow Parking Area					<input checked="" type="checkbox"/>	
New Visitor Centre & Workshop (One Building)					<input checked="" type="checkbox"/>	
New Visitor Centre & Existing Workshop (Two Buildings)					<input checked="" type="checkbox"/>	

13. Do you have any other thoughts or comments about the visitor centre and parking area?

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Hillside Garden:** Please let us know what you think about the concepts for the hillside garden (upper picnic area):

14. What is your preferred option for the hillside garden? \_\_\_\_\_

15. Why? \_\_\_\_\_

16. What features do you particularly like or dislike in the hillside garden?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Picnic Pods			✓			
Accessible Trail						
Forest Trail	✓					
Footpath	✓					
Removal of Existing Staircase	✓					
Reconstruction of Existing Staircase						

17. Do you have any other thoughts or comments about the hillside garden?

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Portico:** Please let us know what you think about the concepts for the portico (pumphouse, bridge area):

18. What is your preferred option for the portico? \_\_\_\_\_

19. Why? \_\_\_\_\_

20. What features do you particularly like or dislike in the portico?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Existing building retrofitted with accessible washroom	✓					
Lawn with informal seating	✓					
Covered deck with informal seating				✓		
Riverside deck				✓		

21. Do you have any other thoughts or comments about the portico?

**Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans**

22. Do you have any ideas for special events or activities that would be a good fit for Belfountain Conservation Area?

---

---

---

---

---

---

---

---

---

---

23. Please use the following space to ask any other questions you may have and the Study Team will provide a response within the following weeks. You can also use this space to provide general comments:

---

---

---

---

---

---

---

---

---

---

K.

# Questionnaire & Comment Sheet

## Public Consultation Session

CVCA OCT 13 '15 PM 1:52

Thank you for attending CVC's public consultation session for the Belfountain Complex Management Plan and Class Environmental Assessment. Your feedback is important to us and is an integral part of both the Management Plan and Class Environmental Assessment processes.

---

**PLEASE PRINT**

Name/Association

E-mail:

Address:

Municipality:

Postal Code:

---

**Please return completed questionnaires to any member of the Study Team during the meeting or to the following contacts after the meeting:**

**Credit Valley Conservation**  
Ms. Laura Rundle  
Conservation Lands Planner  
1255 Old Derry Road  
Mississauga, Ontario, L5N 6R4  
Tel: (905) 670.1615 ext.535  
email: lrundle@creditvalleyca.ca

**Amec Foster Wheeler**  
**Environment & Infrastructure**  
Mr. Ron Scheckenberger, M.Eng. P.Eng.  
Project Manager  
3215 North Service Road, P.O. Box 220  
Burlington ON L7N 3G2  
Tel: 905.335.2353  
Toll Free: 1.866.751.2353  
Email: ron.scheckenberger@amecfw.com

**Please ensure that your questionnaire is in the mail no later than  
Wednesday, October 7<sup>th</sup>, 2015.**

## Questionnaire #1 - Belfountain Dam & Headpond Class EA

CVC is undertaking a Conservation Ontario Class Environmental Assessment (Class EA) to determine how best to manage the Belfountain Dam and Headpond in the future. A Class EA must follow a specific process that can be summarized with the following steps:

1. Document the Baseline Inventory (background information) & identify the problem
2. Evaluate alternative solutions and select a preferred alternative
3. Conduct a detailed analysis of environmental impact

At this time, the baseline inventory (Step 1) has been completed, and development of the alternatives (Step 2) has begun but is not yet completed. Public consultation is integral component of a Class EA and public input will be considered at every step.

Please note that this questionnaire is specific to the Belfountain Dam and Headpond Class EA; a separate questionnaire has been provided in your package regarding the Belfountain Complex Management Plan.

CVC has established seven (7) Study Objectives for this project. The preferred alternative for the Belfountain Dam and Headpond will be required to meet these objectives.

Objective	Ranking
1) <i>Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species</i>	1
2) <i>Reduce/minimize risk to visitors, staff and affected property</i>	6
3) <i>Maintain or improve the visitor experience</i>	7
4) <i>Conserve and enhance cultural heritage attributes</i>	3
5) <i>Promote natural stream function</i>	4
6) <i>Strive for long-term sustainability including economic viability</i>	5
7) <i>Conserve and enhance natural heritage attributes</i>	2

1. Please rank the objectives (1 to 7) in order of importance to you in the space provided above. Place a '1' beside the most important, '2' beside the second most important, etc.

## Questionnaire #1 - Belfountain Dam & Headpond Class EA

2. Are there other objectives you think the Class Environmental Assessment should consider? Why? (These should be specific to the dam and headpond)

- Naturalize the Stream/River by removing or lowering the spillway.
- Keep some type of barrier to keep invasive species at Bay.
- Preserve TUFA Deposits, reduce causes of damage as TuFa deposits are an important plant habitat due to porosity.

3. What is your vision for the Belfountain Dam and Headpond?

- Naturalize same for better long term environmental sustainability.

Questionnaire #1 - Belfountain Dam & Headpond Class EA

4. The presentation and poster boards provide the Baseline Inventory (background information) for the study area under various technical study categories. Is there any information that you think is important to the study that the Study Team may not be aware of? This could be problems you've observed in the study area, wildlife observations, or other relevant information.

① Draft Background report dated February 2014 contains reference to "Carrying Capacity" in section 4.2.2, however no figures were provided.

② Park Rules & Regulations: are there posted rules and regulations? If no, there should be. Please refer to Abonguin Park Rules & reg's, available on their website as an amazing example.

## Questionnaire #2 - Belfountain Complex Management Plan - Concept Plans

**Forecourt:** Please let us know what you think about the concepts for the forecourt (entrance and lower picnic area):

5. What is your preferred option for the forecourt?

Option 2

6. Why?

Least Environmental Impact

7. What features do you particularly like or dislike in the forecourt?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Pedestrian Entry-way		X				
Accessible Drop-off Area		X				
River Access						
Bike Parking		X				
Accessible Trail			X			Environmental trail designers landscape architects should be involved in all trails.
Defined Picnic Spaces				X		All options for defined space is an increased area.
Flexible Picnic Spaces		X				
Shoreline & Inland Plantings	X					

9. Do you have any other thoughts or comments about the forecourt area?

Existing comments on visitor conflict could easily be addressed by capping the number of visitors to an environmentally and socially responsible number.

## Questionnaire #2 - Belfountain Complex Management Plan - Concept Plans

Visitor Centre and Parking: Please let us know what you think about the concepts for the visitor centre and parking area:

10. What is your preferred option for the visitor centre and parking area?

OPTION 3

11. Why? Parking is increased only by 4 spaces.

12. What features do you particularly like or dislike in the visitor centre and parking area?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Drop off area/Entry plaza					X	
Increased Parking Spaces					X	
Overflow Parking Area					X	
New Visitor Centre & Workshop (One Building)		X				
New Visitor Centre & Existing Workshop (Two Buildings)					X	

13. Do you have any other thoughts or comments about the visitor centre and parking area?

# Mississauga Rd does not have the width or signal lines in this area to allow for four buses and drop off locations.

## Questionnaire #2 - Belfountain Complex Management Plan - Concept Plans

Hillside Garden: Please let us know what you think about the concepts for the hillside garden (upper picnic area):

14. What is your preferred option for the hillside garden? OPTION 3

15. Why? Least environmental impact.

16. What features do you particularly like or dislike in the hillside garden?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Picnic Pods				X		
Accessible Trail					X	To damaging to the slope.
Forest Trail					X	To damaging to the slope.
Footpath				X		A marked trail in a location deemed acceptable by the landscape architect.
Removal of Existing Staircase				X		
Reconstruction of Existing Staircase		X				

17. Do you have any other thoughts or comments about the hillside garden?

*\* Add "you are here" Trail map.*

## Questionnaire #2 - Belfountain Complex Management Plan -- Concept Plans

Portico: Please let us know what you think about the concepts for the portico (pumphouse, bridge area):

18. What is your preferred option for the portico?

OPTION 2

19. Why?

Less "construction"

20. What features do you particularly like or dislike in the portico?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Existing building retrofitted with accessible washroom		X				
Lawn with informal seating					X	It's a Park!
Covered deck with informal seating					X	Bring your own lawn chairs for blankets/fousels! This will also reduce theft & vandalism
Riverside deck					X	If there are no chairs to throw in the river.

21. Do you have any other thoughts or comments about the portico?

The construction of a covered deck / riverside deck is a ridiculous waste of funds.

## Questionnaire #2 - Belfountain Complex Management Plan - Concept Plans

22. Do you have any ideas for special events or activities that would be a good fit for Belfountain Conservation Area?

- Hiking is always enjoyable but I don't go when it is polluted with noise, littering and unappreciative of nature tourists.
  - Get Park Rangers that eject litterers; people who are combative, disruptive. Enforce rules; Regulations, including after hours vandals,
23. Please use the following space to ask any other questions you may have and the Study Team will provide a response within the following weeks. You can also use this space to provide general comments:

- 1 What is the carrying capacity for the park?
- 2 What is the Budget allotted for these repairs, renovations & improvements?
- 3 Does the EPA provide details of visitor impact detrimental to the environment?
- 4 Has the safety issue for pedestrians been resolved for the Willoughby/OHT owned property?

- 3 Can Ontario Parks, Provincial Parks & Conservation - Reserve Act (PPCRA) regulations be adopted, specifically regarding visitor capping vs. Ecological Integrity?
- 6 Ecological Integrity vs. Increased # of Bathrooms on Septic Facilities, does the EPA take into affect existing figures or projected figures & the proximity of the new bathrooms to the river?
- 7 Pavilions, Visitor Centre Capacity is dictated by Compliance with the building code & Ontario Fire Code. Based on the square footage will visitors to the pavilions be capped at the capacity of the visitors centre?
- 8 What about designating # of visitors by # of parking spaces, with an additional # of Pedestrian visitors allowed based on a total figure? (That figure being ecologically sustainable?)

I

CVC9 OCT13'15 PM 1:19

# Questionnaire & Comment Sheet

## Public Consultation Session

Thank you for attending CVC's public consultation session for the Belfountain Complex Management Plan and Class Environmental Assessment. Your feedback is important to us and is an integral part of both the Management Plan and Class Environmental Assessment processes.

---

### PLEASE PRINT

Name/Association: \_\_\_\_\_

E-mail: \_\_\_\_\_

Address: \_\_\_\_\_

Municipality: \_\_\_\_\_

Postal Code: \_\_\_\_\_

---

**Please return completed questionnaires to any member of the Study Team during the meeting or to the following contacts after the meeting:**

**Credit Valley Conservation**  
Ms. Laura Rundle  
Conservation Lands Planner  
1255 Old Derry Road  
Mississauga, Ontario, L5N 6R4  
Tel: (905) 670.1615 ext.535  
email: lrundle@creditvalleyca.ca

**Amec Foster Wheeler**  
**Environment & Infrastructure**  
Mr. Ron Scheckenberger, M.Eng. P.Eng.  
Project Manager  
3215 North Service Road, P.O. Box 220  
Burlington ON L7N 3G2  
Tel: 905.335.2353  
Toll Free: 1.866.751.2353  
Email: ron.scheckenberger@amecfw.com

**Please ensure that your questionnaire is in the mail no later than  
Wednesday, October 7<sup>th</sup>, 2015.**

## Questionnaire #1 - Belfountain Dam & Headpond Class EA

CVC is undertaking a Conservation Ontario Class Environmental Assessment (Class EA) to determine how best to manage the Belfountain Dam and Headpond in the future. A Class EA must follow a specific process that can be summarized with the following steps:

1. Document the Baseline Inventory (background information) & identify the problem
2. Evaluate alternative solutions and select a preferred alternative
3. Conduct a detailed analysis of environmental impact

At this time, the baseline inventory (Step 1) has been completed, and development of the alternatives (Step 2) has begun but is not yet completed. Public consultation is integral component of a Class EA and public input will be considered at every step.

Please note that this questionnaire is specific to the Belfountain Dam and Headpond Class EA; a separate questionnaire has been provided in your package regarding the Belfountain Complex Management Plan.

CVC has established seven (7) Study Objectives for this project. The preferred alternative for the Belfountain Dam and Headpond will be required to meet these objectives.

Objective	Ranking
1) <i>Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species</i>	4
2) <i>Reduce/minimize risk to visitors, staff and affected property</i>	2
3) <i>Maintain or improve the visitor experience</i>	6
4) <i>Conserve and enhance cultural heritage attributes</i>	7
5) <i>Promote natural stream function</i>	3
6) <i>Strive for long-term sustainability including economic viability</i>	5
7) <i>Conserve and enhance natural heritage attributes</i>	1

1. Please rank the objectives (1 to 7) in order of importance to you in the space provided above. Place a '1' beside the most important, '2' beside the second most important, etc.

## Questionnaire #1 - Belfountain Dam & Headpond Class EA

2. Are there other objectives you think the Class Environmental Assessment should consider? Why? (These should be specific to the dam and headpond)

Fix what's 'broken'.  
I see no need to reimagine what is  
at present a unique and special  
feature - water rushing over the dam  
& rocky rocks, fronted by the  
suspension bridge that connects to  
the Pond Loop Trail

3. What is your vision for the Belfountain Dam and Headpond?

- Conservation of this unique and special feature, with repairs & enhancements limited to what is necessary for maintaining the fisheries barrier, considering <sup>any</sup> downstream implications, and ensuring visitor safety.
- Potential use of the Headpond in winter for skating.



## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Forecourt:** Please let us know what you think about the concepts for the forecourt (entrance and lower picnic area):

5. What is your preferred option for the forecourt? 1

6. Why? \_\_\_\_\_

7. What features do you particularly like or dislike in the forecourt?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Pedestrian Entry-way			<input checked="" type="checkbox"/>			
Accessible Drop-off Area			<input checked="" type="checkbox"/>			
River Access	<input checked="" type="checkbox"/>					
Bike Parking	<input checked="" type="checkbox"/>					
Accessible Trail						
Defined Picnic Spaces	<input checked="" type="checkbox"/>					
Flexible Picnic Spaces	<input checked="" type="checkbox"/>					
Shoreline & Inland Plantings	<input checked="" type="checkbox"/>					

9. Do you have any other thoughts or comments about the forecourt area?

Yes to riparian restoration and native plantings.  
 Include a defined trail through this to limit risk of degradation of planted area. There may be additional strategies to consider for protecting the planted areas.

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Visitor Centre and Parking:** Please let us know what you think about the concepts for the visitor centre and parking area:

10. What is your preferred option for the visitor centre and parking area? 1

11. Why? \_\_\_\_\_

12. What features do you particularly like or dislike in the visitor centre and parking area?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Drop off area/Entry plaza	✓					
Increased Parking Spaces	✓					
Overflow Parking Area	✓					
New Visitor Centre & Workshop (One Building)						
New Visitor Centre & Existing Workshop (Two Buildings)		✓				limit size of Visitor Centre to accommodate interpretive info and a common space,

13. Do you have any other thoughts or comments about the visitor centre and parking area?

- Consider a wooded buffer zone between parking area & neighborhoods
- Maintain existing Operations Centre if it isn't broken
- Location of visitor centre in Option 1 - offers views - is prominent & welcoming to visitors arriving by car

NOT large events:

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Hillside Garden:** Please let us know what you think about the concepts for the hillside garden (upper picnic area):

14. What is your preferred option for the hillside garden? 1

15. Why? \_\_\_\_\_

16. What features do you particularly like or dislike in the hillside garden?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Picnic Pods	<input checked="" type="checkbox"/>					
Accessible Trail						Desirable for strollers, walking wheelchairs, but is it practical for some people?
Forest Trail	<input checked="" type="checkbox"/>					
Footpath						
Removal of Existing Staircase						
Reconstruction of Existing Staircase	<input checked="" type="checkbox"/>					

17. Do you have any other thoughts or comments about the hillside garden?

*Option 1 - remove the picnic pods, nicely separated and sited in the landscape, and screened from the trail*

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Portico:** Please let us know what you think about the concepts for the portico (pumphouse, bridge area):

18. What is your preferred option for the portico? \_\_\_\_\_ / \_\_\_\_\_

19. Why?

*None exist - building's accessible path is a barrier to wheelchair users*

20. What features do you particularly like or dislike in the portico?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Existing building retrofitted with accessible washroom	✓					
Lawn with informal seating				✓		
Covered deck with informal seating		✓				
Riverside deck				✓		

21. Do you have any other thoughts or comments about the portico?

## Questionnaire #2 - Belfountain Complex Management Plan - Concept Plans

22. Do you have any ideas for special events or activities that would be a good fit for Belfountain Conservation Area?

• Visitors relaxing on the grass

• I see this park as a venue for experiential learning about the natural & environmental aspects of Niagara Escarpment and Great Lakes watershed and Wood Buffalo Rams and NOT as a venue for weddings, conferences & other commercial events.

23. Please use the following space to ask any other questions you may have and the Study Team will provide a response within the following weeks. You can also use this space to provide general comments:

• Visitors' experience of a natural environment is not enhanced by the crowds that ornament and theme parks attract. The parking area & park itself are not large enough to support large numbers of visitors & events. Any enhancement to the facility should recognize & respond in scale to the area's real visitor capacity.

This would mean downgrading the scale of the proposed Visitors Centre & enforcing capacity limits for picnics, events & buses.

Additional Comments on verso →

## Recommendations re Gardens:

- native species maintained in a somewhat English garden aesthetic where formal beds might be considered, and
- native species planted to replicate natural meadow and meadow ~~habitats~~ and riparian habitats
- The plan should incorporate commitment to funds and maintenance that are NOT dependent on volunteers from the community.

A sustainable plan requires a high level of expertise, coordination and time commitment.

More...

Make more picnic nodes all around the park.

- off the trails, on both sides of the pond and the river.

- make them as unobtrusive as possible, giving the feeling of a touch of privacy/remote ness/natural uniqueness while providing each with its unobstructive view of some feature - river, pond, falls, rapids. - A BIG CHALLENGE

- to accomplish this in the forecourt make the picnic pods by the river, semi hidden with surrounding natural plantings. One space should be left to encourage & welcome walkers to the river's edge.

The info-centre by the parking lot should have a partially covered deck with a "window" looking over a portion of the pond. - not to expose the around the pond picnic sites.

ADMISSION: free walk-in policy encourages people to clog the village with parked cars.

What about free admission for walkers with a postal code beginning with (L-----) or a Bruce Trail membership card. Admit all cyclists for free.

Cars - \$15 with one adult \$10 with 2 adults \$5 with three, FREE with 4 adults OR some such incentive.

Thanks for trying to get it right.

Bob

## **Questionnaire & Comment Sheet**

### **Public Consultation Session**

Thank you for attending CVC's public consultation session for the Belfountain Complex Management Plan and Class Environmental Assessment. Your feedback is important to us and is an integral part of both the Management Plan and Class Environmental Assessment processes.

---

#### **PLEASE PRINT**

Name/Association: \_\_\_\_\_

E-mail: \_\_\_\_\_

Address: \_\_\_\_\_

Municipality: \_\_\_\_\_

Postal Code: \_\_\_\_\_

---

**Please return completed questionnaires to any member of the Study Team during the meeting or to the following contacts after the meeting:**

#### **Credit Valley Conservation**

Ms. Laura Rundle

Conservation Lands Planner

1255 Old Derry Road

Mississauga, Ontario, L5N 6R4

Tel: (905) 670.1615 ext.535

email: lrundle@creditvalleyca.ca

#### **Amec Foster Wheeler**

**Environment & Infrastructure**

Mr. Ron Scheckenberger, M.Eng., P.Eng.

Project Manager

3215 North Service Road, P.O. Box 220

Burlington ON L7N 3G2

Tel: 905.335.2353

Toll Free: 1.866.751.2353

Email: ron.scheckenberger@amecfw.com

**Please ensure that your questionnaire is in the mail no later than  
Wednesday, October 7<sup>th</sup>, 2015.**

## Questionnaire #1 - Belfountain Dam & Headpond Class EA

CVC is undertaking a Conservation Ontario Class Environmental Assessment (Class EA) to determine how best to manage the Belfountain Dam and Headpond in the future. A Class EA must follow a specific process that can be summarized with the following steps:

1. Document the Baseline Inventory (background information) & identify the problem
2. Evaluate alternative solutions and select a preferred alternative
3. Conduct a detailed analysis of environmental impact

At this time, the baseline inventory (Step 1) has been completed, and development of the alternatives (Step 2) has begun but is not yet completed. Public consultation is integral component of a Class EA and public input will be considered at every step.

Please note that this questionnaire is specific to the Belfountain Dam and Headpond Class EA; a separate questionnaire has been provided in your package regarding the Belfountain Complex Management Plan.

CVC has established seven (7) Study Objectives for this project. The preferred alternative for the Belfountain Dam and Headpond will be required to meet these objectives.

Objective	Ranking
1) <i>Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species</i>	1
2) <i>Reduce/minimize risk to visitors, staff and affected property</i>	2
3) <i>Maintain or improve the visitor experience</i>	5
4) <i>Conserve and enhance cultural heritage attributes</i>	<del>3</del> 4
5) <i>Promote natural stream function</i>	3
6) <i>Strive for long-term sustainability including economic viability</i>	7
7) <i>Conserve and enhance natural heritage attributes</i>	6

same thing



1. Please rank the objectives (1 to 7) in order of importance to you in the space provided above. Place a '1' beside the most important, '2' beside the second most important, etc.





## Questionnaire #1 - Belfountain Complex Management Plan – Concept Plans

**Forecourt:** Please let us know what you think about the concepts for the forecourt (entrance and lower picnic area):

5. What is your preferred option for the forecourt? Option 2, except that the picnic area is reduced.
6. Why? Accessibility and Max Shoreline and planting

7. What features do you particularly like or dislike in the forecourt?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Pedestrian Entry-way	✓					
Accessible Drop-off Area	✓					
River Access	✓					
Bike Parking	✓					
Accessible Trail	✓					
Defined Picnic Spaces	✓					
Flexible Picnic Spaces						I don't know what this is,
Shoreline & Inland Plantings	✓					

9. Do you have any other thoughts or comments about the forecourt area?

# Questionnaire #1 - Belfountain Complex Management Plan – Concept Plans

**Option 1**

- Low Entry Wall
- Pedestrian Entrance
- River Access
- Prominent Trailhead with Bike Parking
- Two-way Accessible Drop-off & Crosswalk
- Moderate Shoreline & Inland Planting
- Defined Picnic Zones (reduced 10%)

**Option 2**

- Low Entry Wall
- Pedestrian Entrance
- River Access
- Linear Trailhead
- One-way Accessible Drop-off & Crosswalk
- Maximum Shoreline & Inland Planting
- Flexible Picnic Zones (reduced 35%)

**Key Design Considerations:**

- Entry Experience
- Pedestrian & Cyclist Access
- Accessible Drop-off/Pick-up
- Define Picnic Area
- Formalize Water Access
- Naturalization

**Selected Comments & Feedback received to date:**

- CVC needs to enhance enable accessibility including infrastructure, signage and programming
- We need to better define the picnic areas to reduce conflict and enhance the natural features through river and inland planting
- You should provide a designated river access to reduce tramping along the shoreline
- Riparian restoration should be considered a high priority for this area
- Make sure all of the buildings and features maintain a consistent theme
- Enhancing the visitor flow is important in order to address confusion and orient visitors throughout the property.

**Option 3**

- Low Entry Wall
- Pedestrian Entrance & Trailhead
- River Access
- Paved Trails
- Minimum Shoreline & Inland Planting
- Flexible Picnic Zones (increased 10%)

### Questionnaire #1 - Belfountain Complex Management Plan – Concept Plans

Visitor Centre and Parking: Please let us know what you think about the concepts for the visitor centre and parking area:

10. What is your preferred option for the visitor centre and parking area? Option 2
11. Why? Best parking

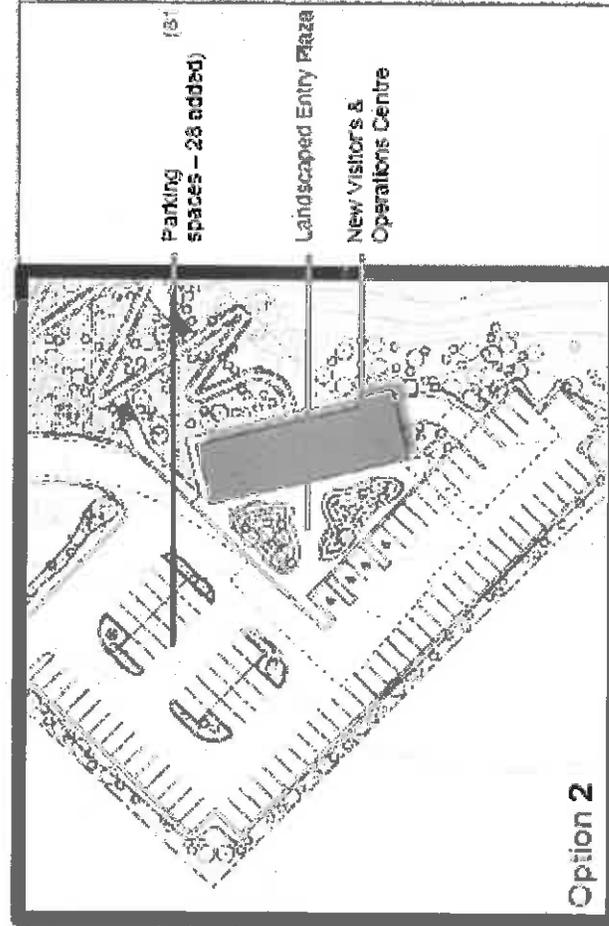
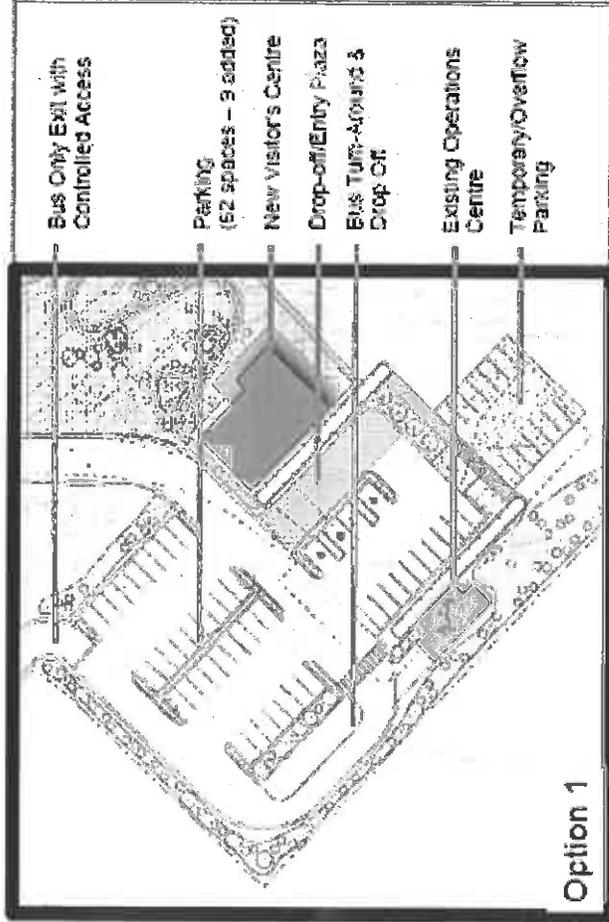
12. What features do you particularly like or dislike in the visitor centre and parking area?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Drop off area/Entry plaza	✓					
Increased Parking Spaces	✓					
Overflow Parking Area						
New Visitor Centre & Workshop (One Building)	✓					
New Visitor Centre & Existing Workshop (Two Buildings)						

13. Do you have any other thoughts or comments about the visitor centre and parking area?

*The building should be as "green" as possible.*

# Questionnaire #1 - Belfountain Complex Management Plan – Concept Plans

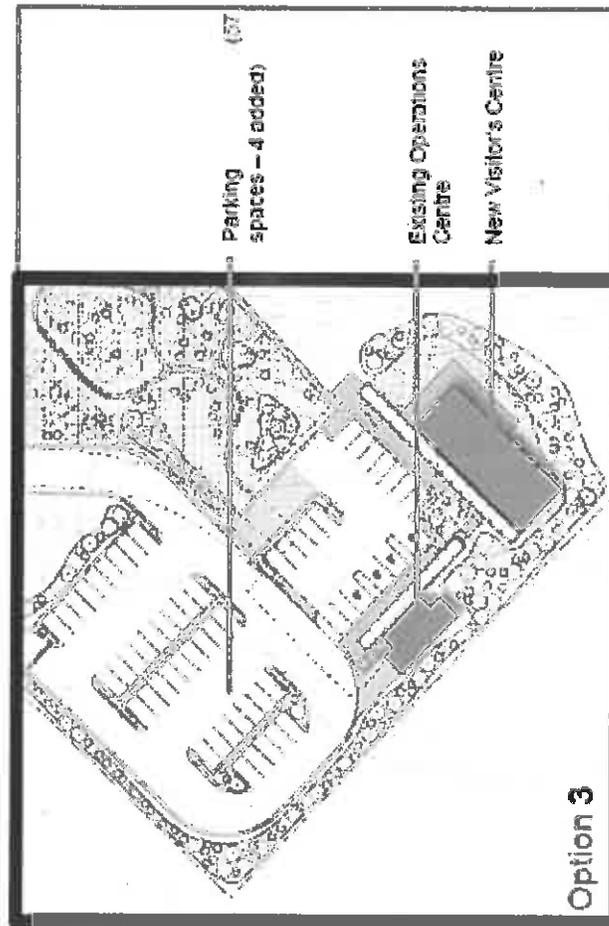


**Key Design Considerations:**

- Visitor Centre as Gateway
- Increase Parking Capacity
- Safety
- Optimize Operations
- Scenic Views
- Define Picnic Areas
- Restore Slope
- Naturalization

**Select Comments & feedback received to date:**

- CVC needs to use space more efficiently and maximize parking
- This area should improve visitor flow and the visitor experience – don't clutter the area with too many buildings
- Consider adding covered space/shelter for inclement weather
- Add more parking to help alleviate traffic congestion within the Hamlet
- Provide a bus turnaround and parking for school buses
- CVC needs to provide information to help educate about the property
- This area needs to be accessible



## Visitor Centre & Parking

# Questionnaire #1 - Belfountain Complex Management Plan -- Concept Plans

Hillside Garden: Please let us know what you think about the concepts for the hillside garden (upper picnic area):

14. What is your preferred option for the hillside garden? Option 2

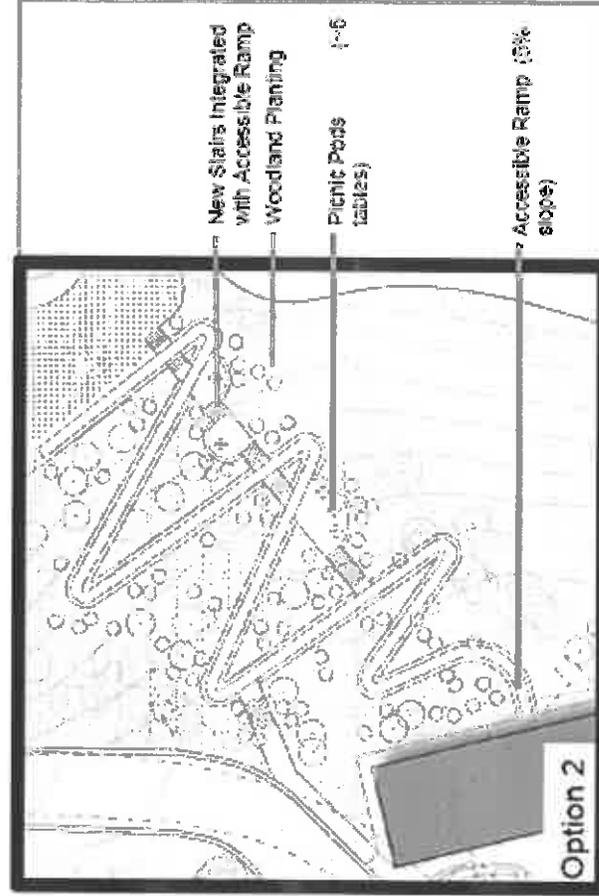
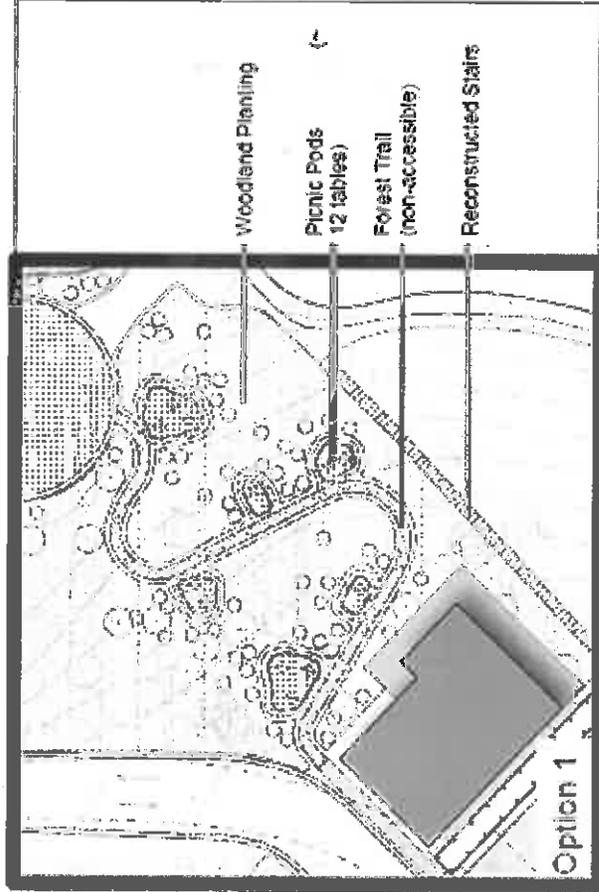
15. Why? Accessibility - through the picnic spaces are too close to the stairs - not private enough.

16. What features do you particularly like or dislike in the hillside garden?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Picnic Pods				<input checked="" type="checkbox"/>		
Accessible Trail	<input checked="" type="checkbox"/>					
Forest Trail	<i>WA</i>		<input checked="" type="checkbox"/>			
Footpath						
Removal of Existing Staircase		<input checked="" type="checkbox"/>				
Reconstruction of Existing Staircase				<input checked="" type="checkbox"/>		

17. Do you have any other thoughts or comments about the hillside garden?

# Questionnaire #1 - Belfountain Complex Management Plan – Concept Plans

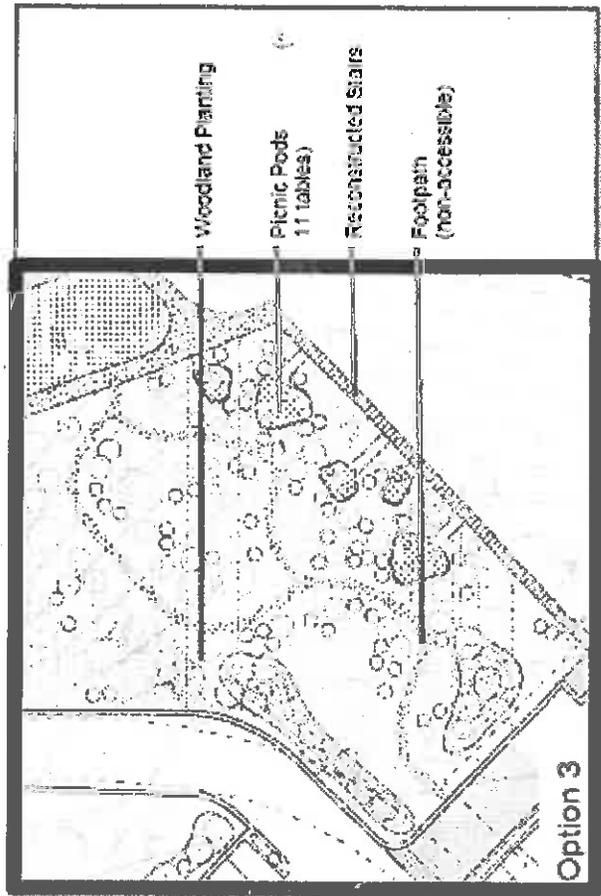


**Key Design Considerations:**

- Restore Slope
- Scenic Views
- Naturalization
- Define Picnic Areas

**Select Comments & Needs as received to date:**

- Define areas for family/individual picnics
- A pavilion in this area would crowd it
- This area should help guide visitors throughout property
- The stairs are awful – please reconstruct the stairs
- Make a trail from the upper picnic area to lower day-use area to provide safe passage and reduce trampling of tree roots
- This would be a good location for gardens



## Questionnaire #1 - Belfountain Complex Management Plan -- Concept Plans

**Portico:** Please let us know what you think about the concepts for the portico (pumphouse, bridge area):

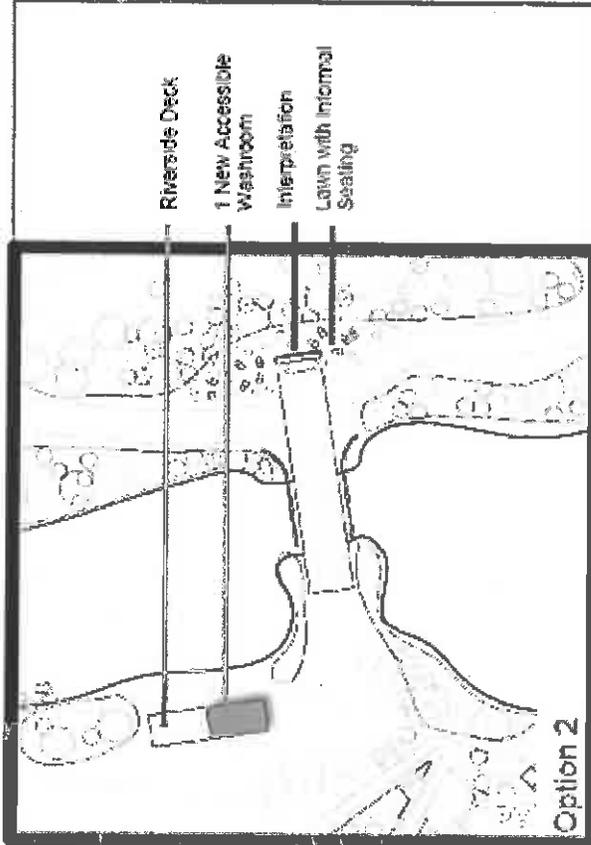
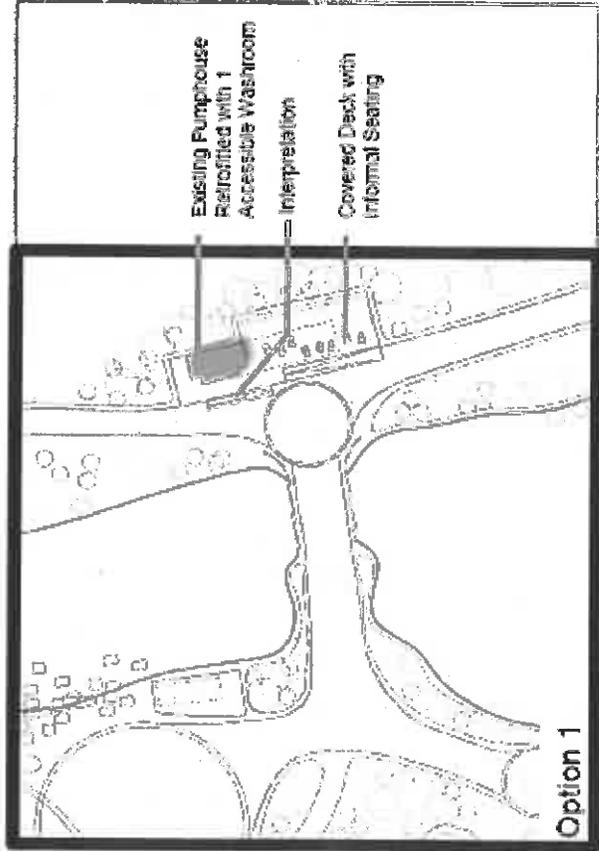
18. What is your preferred option for the portico? Option 2, but with some covered seating,
19. Why? I don't see the purpose of the circular area in front of covered seating in Option 1.

20. What features do you particularly like or dislike in the portico?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Existing building retrofitted with accessible washroom		✓				
Lawn with informal seating		✓				
Covered deck with informal seating		✓				
Riverside deck		✓				

21. Do you have any other thoughts or comments about the portico?

# Questionnaire #1 - Belfountain Complex Management Plan – Concept Plans

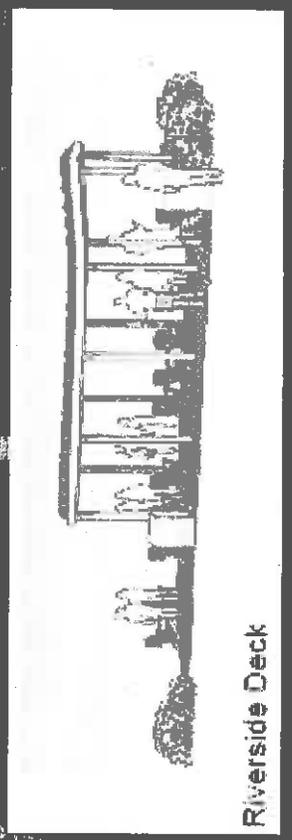
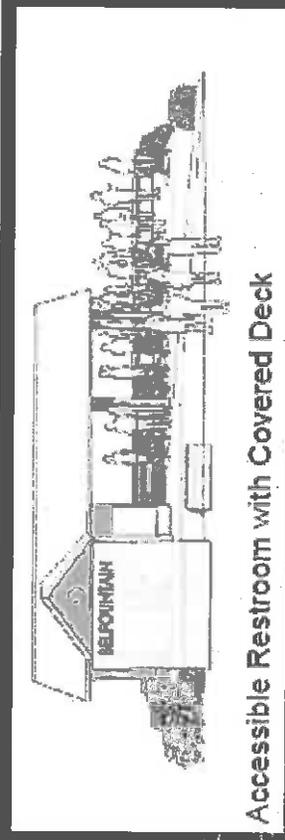


**Key Design Considerations:**

- Prominent Gateway Site
- Visual Connection
- Interpretive Node
- Enhance Pump House
- Activate River Crossing

**Selected Comments & Feedback received to date:**

- Consider adding covered space/shelter from inclement weather
- Guide visitor flow throughout property
- Consider adding washroom facilities closer to interior park features
- Add interpretation and site feature information
- Add rest areas
- Enhance site and feature accessibility including infrastructure, signage and programming



## Questionnaire #1 - Belfountain Complex Management Plan – Concept Plans

22. Do you have any ideas for special events or activities that would be a good fit for Belfountain Conservation Area?

---

---

---

---

---

---

---

---

23. Please use the following space to ask any other questions you may have and the Study Team will provide a response within the following weeks. You can also use this space to provide general comments:

---

---

---

---

---

---

---

---

Thank you! Staff on site on Sept. 27 were excellent -  
Very knowledgeable and enthusiastic, clearly love their work.

# Questionnaire & Comment Sheet

## Public Consultation Session

Thank you for attending CVC's public consultation session for the Belfountain Complex Management Plan and Class Environmental Assessment. Your feedback is important to us and is an integral part of both the Management Plan and Class Environmental Assessment processes.

---

### **PLEASE PRINT**

Name/Association:

E-mail:

Address:

Municipality:

Postal Code:

---

**Please return completed questionnaires to any member of the Study Team during the meeting or to the following contacts after the meeting:**

**Credit Valley Conservation**  
Ms. Laura Rundle  
Conservation Lands Planner  
1255 Old Derry Road  
Mississauga, Ontario, L5N 6R4  
Tel: (905) 670.1615 ext.535  
email: lrundle@creditvalleyca.ca

**Amec Foster Wheeler**  
**Environment & Infrastructure**  
Mr. Ron Scheckenberger, M.Eng. P.Eng.  
Project Manager  
3215 North Service Road, P.O. Box 220  
Burlington ON L7N 3G2  
Tel: 905.335.2353  
Toll Free: 1.866.751.2353  
Email: ron.scheckenberger@amecfw.com

**Please ensure that your questionnaire is in the mail no later than  
Wednesday, October 7<sup>th</sup>, 2015.**

## Questionnaire #1 - Belfountain Dam & Headpond Class EA

CVC is undertaking a Conservation Ontario Class Environmental Assessment (Class EA) to determine how best to manage the Belfountain Dam and Headpond in the future. A Class EA must follow a specific process that can be summarized with the following steps:

1. Document the Baseline Inventory (background information) & identify the problem
2. Evaluate alternative solutions and select a preferred alternative
3. Conduct a detailed analysis of environmental impact

At this time, the baseline inventory (Step 1) has been completed, and development of the alternatives (Step 2) has begun but is not yet completed. Public consultation is integral component of a Class EA and public input will be considered at every step.

Please note that this questionnaire is specific to the Belfountain Dam and Headpond Class EA; a separate questionnaire has been provided in your package regarding the Belfountain Complex Management Plan.

CVC has established seven (7) Study Objectives for this project. The preferred alternative for the Belfountain Dam and Headpond will be required to meet these objectives.

Objective	Ranking
1) <i>Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species</i>	3
2) <i>Reduce/minimize risk to visitors, staff and affected property</i>	5
3) <i>Maintain or improve the visitor experience</i> <sup>lessen</sup> <sub>environmental impact</sub>	7
4) <i>Conserve and enhance cultural heritage attributes</i>	6
5) <i>Promote natural stream function</i>	2
6) <i>Strive for long-term sustainability including economic viability</i> <sup>natural</sup>	4
7) <i>Conserve and enhance natural <u>heritage</u> attributes</i>	1

1. Please rank the objectives (1 to 7) in order of importance to you in the space provided above. Place a '1' beside the most important, '2' beside the second most important, etc.

**Questionnaire #1 - Belfountain Dam & Headpond Class EA**

2. Are there other objectives you think the Class Environmental Assessment should consider? Why? (These should be specific to the dam and headpond)

We don't feel qualified to offer suggestions for rehabilitation, so we must rely on scientific & professional data & expertise

3. What is your vision for the Belfountain Dam and Headpond?

Visitor experience should not be a factor in these infrastructure decisions. What is the best solution for affected species and the natural landscape?

**Questionnaire #1 - Belfountain Dam & Headpond Class EA**

4. The presentation and poster boards provide the Baseline Inventory (background information) for the study area under various technical study categories. **Is there any information that you think is important to the study that the Study Team may not be aware of?** This could be problems you've observed in the study area, wildlife observations, or other relevant information.

We have noticed fewer wildlife sightings in the past few years, as the numbers of visitors increase. We now opt to hike in a less fragile (Island Lake) area to do our part.

## Questionnaire #2 - Belfountain Complex Management Plan - Concept Plans

**Forecourt:** Please let us know what you think about the concepts for the forecourt (entrance and lower picnic area):

5. What is your preferred option for the forecourt? OPTION 2

6. Why? Minimal impact; reduced picnic zones to keep numbers in check; more ecologically sound.

7. What features do you particularly like or dislike in the forecourt?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Pedestrian Entry-way			✓			a given
Accessible Drop-off Area		✓				appropriate to picnic/shore use If shoreline is protected
River Access		✓				with native plantings
Bike Parking		✓				- encourages low-impact visitation
Accessible Trail				✓		- not feasible in this location (topography)
Defined Picnic Spaces		✓				- fewer in number - choice of site
Flexible Picnic Spaces	✓					- native restoration critical to protect natural environment
Shoreline & Inland Plantings	✓					

9. Do you have any other thoughts or comments about the forecourt area?

- The water of an English Garden compatible to this natural area despite the mark heritage. so they would be very difficult & costly to create and maintain.
- We volunteered years ago; to clean up & plant the gardens from the entrance parking area & to the fountain. Watering & weeding maintenance. Annual plant design not appropriate to site.

## Questionnaire #2 - Belfountain Complex Management Plan - Concept Plans

Visitor Centre and Parking: Please let us know what you think about the concepts for the visitor centre and parking area:

10. What is your preferred option for the visitor centre and parking area? 3

11. Why? Parking must be managed to avoid excessive noise, traffic & environmental impact.

12. What features do you particularly like or dislike in the visitor centre and parking area?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Drop off area/Entry plaza			✓			
Increased Parking Spaces					✓	not appropriate for such a small, fragile area, add close to the tram
Overflow Parking Area					✓	more pavement is not appropriate for the natural area
New Visitor Centre & Workshop (One Building)					✓	far too large for small park
New Visitor Centre & Existing Workshop (Two Buildings)	?	?	?	?	?	2 bldg. stay; but large visitor central is completely out of scale for this site.

13. Do you have any other thoughts or comments about the visitor centre and parking area?

(5000 sq. ft !)

- Additional parking will NOT relieve car issues in the hamlet. In town, car pool & one car leaves, another occupies the space - All Summer long. "Build it and they will come!" is not an answer.
  - One of your objectives in a previous stakeholder handout, say: "Protect & enhance ecological diversity". THIS MUST TRUMP visitor augmentation & experience!
- This conservation plan should be about conservation not tourism.

## Questionnaire #2 - Belfountain Complex Management Plan -- Concept Plans

Hillside Garden: Please let us know what you think about the concepts for the hillside garden (upper picnic area):

14. What is your preferred option for the hillside garden? 3

15. Why? least impact to the natural site while rehabilitating needed area

16. What features do you particularly like or dislike in the hillside garden?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Picnic Pods			✓			define area
Accessible Trail					✓	too too intertwined for the topography
Forest Trail				✓		too formal
Footpath	✓					more informal + adequately appropriate for this space, natural palette
Removal of Existing Staircase					✓	
Reconstruction of Existing Staircase	✓					safe, easy access without creating an additional footprint

17. Do you have any other thoughts or comments about the hillside garden?

Option 3 Thankfully, does not show a building. Less is more. Replaced areas that remain natural looking, are much more sympathetic to the area.

## Questionnaire #2 - Belfountain Complex Management Plan - Concept Plans

Portico: Please let us know what you think about the concepts for the portico (pumphouse, bridge area):

18. What is your preferred option for the portico? 2

19. Why? Minimize infrastructure, less formal - in keeping with park's small beverage

20. What features do you particularly like or dislike in the portico?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Existing building retrofitted with accessible washroom					✓	Too long + formal
Lawn with informal seating			✓			Maintenance will be an issue (lawn?) + grass inside washroom
Covered deck with informal seating					✓	Too large, too confined architecturally - No + a Sci Lodge
Riverside deck	✓					Not too large? Native planting a must along edge of river

21. Do you have any other thoughts or comments about the portico?

This park should be as natural + unconfined as possible giving to its small size and fragility. Encourage a less impact, natural experience of walking, observing a native + natural elements rather than creating a man-made touristy theme park.  
- eg. Minimal landscaping, minimal signage ⇒ maximum value

\* Many benches burnt +/or thrown into pond/river in the past  
- avoid the bridge down stream. Ideally embedded soon after



The dam's headpond reconstruction will be very costly and presumably is the priority, and the definition of issues needs to be addressed in the context of this unique situation.

The proximity of the Beaufortian hamlet creates a very unique situation in terms of traffic, traffic noise and pollution, water issues and land use encroachment.

Rural life in this area is becoming increasingly compromised. Would the C/E commit to helping concerned citizens pressure this fabulous setting and help protect it from severe urban pressures that have threatened this fragile area?

I have included the following edited excerpt I presented to Caledon Council last year as a delegate :

We understand that the tourism industry is a tremendous growth industry. It can generate significant economic revenue for the Region

We also understand that the quality of the environment, both natural and man-made, is essential to tourism. However, tourism's relationship with the environment is very complex. It involves many activities that can have adverse effects.

I would now like to explore three main environmental impacts of tourism taken from a 2001 United Nations Environmental Program Paper and relate them specifically to our area of discussion.

#### A. The Natural Environment

The paper says: Tourism can put enormous pressure on an area and lead to impacts such as, # 1: soil erosion, (and we clearly see this at the Cheltenham Badlands), #2: increased pollution (in our area, excessive noise and emissions from motorcycles and cars, especially on the Forks of the Credit Rd., now that it has been "improved", and excessive garbage left behind on the Badlands and on area roads) #3: natural habitat loss and increased pressure on endangered species, (in the Belfountain area, the rare Jefferson salamander), #4: heightened vulnerability to forest fires (we find evidence in the burnt logs found in the Belf. park and on nearby Bruce trails), and #5: tourism often puts a heavy strain on water resources, (and we know that the hamlet has very limited water for its own residents as per the survey conducted last Spring.)

#### B. Pollution

(We have touched on air, noise and light pollution as a major despoiler of the natural areas, rivers, scenic areas and roadsides, so I move on to...

#### C. Physical Impacts

The U.N. paper goes on to say that the numbers of people using the same trails over and over contribute to trampled vegetation, soil erosion and a loss of biodiversity. In our specific case, the Belf Conser. Area is a small, fragile eco-system under increased pressure to accommodate many more paying customers with so-called value-added amenities. The history of vandalism at this park is already of great concern, (picnic tables thrown into the river, attempts to burn the bridges, etc.), and the means by which it can be patrolled, very limited to non-existent.

At a CVC Stakeholders workshop, on the Belf Complex Plan, it was noted that the park was a "haven for species diversity, unspoiled due to accessibility challenges." Let me repeat that...unspoiled due to accessibility challenges. Why then, <sup>we</sup> are changing something that is working? Buried in the CVC discussion handout was the following question: Do we need change on this site? One of the options to circle was: No change is a relevant option. And yet we seem to be moving on toward expansion,

I would like to share the National Geographic Geo-tourism definition and excerpts from their Charter.

They define geo-tourism as tourism that sustains or enhances the geological character of a place- its environment, culture, aesthetics, heritage and well-being of its residents. <sup>One</sup> Three of their 13 principles are as follows:

a) Under protection and enhancement of destination appeal, they say: Encourage businesses to sustain natural habitats, heritage sites, aesthetic appeal and local culture. Prevent degradation by KEEPING VOLUMES OF TOURISTS WITHIN ACCEPTABLE LIMITS.

Surely our leaders, counsellors, our consultants are aware of the groundswell of concerned citizens in rural Ontario as we take on the fight to preserve our beloved countryside. And isn't this what we desire of our citizenry...involved, impassioned, knowledgeable, tireless and dedicated people willing to share their ideas and give of their time to preserve our heritage to make this a better place?

This isn't nimbysism, this is genuine stewardship!

Thank you for taking the time  
to consider our input.

# ONTARIO FEDERATION OF ANGLERS & HUNTERS



*Ontario Conservation Centre*

P.O. Box 2800, 4601 Guthrie Drive, Peterborough, Ontario K9J 8L5  
Phone: (705) 748.6324 • Fax: (705) 748.9577 • Visit: [www.ofah.org](http://www.ofah.org) • Email: [ofah@ofah.org](mailto:ofah@ofah.org)

OFAH File: 420  
October 7, 2015

Laura Rundle  
Conservation Lands Planner  
Credit Valley Conservation  
1255 Old Derry Road  
Mississauga, Ontario  
LSN 6R4

Dear Ms. Rundle:

**Subject: OFAH Comments on Belfountain Complex Management Plan and Class Environmental Assessment**

On behalf of the Ontario Federation of Anglers and Hunters (OFAH), its 100,000 members, subscribers and supporters, and 725 member clubs, we are pleased to provide comments on the Belfountain Complex Management Plan and Class Environmental Assessment related to the Belfountain Dam and Headpond.

As you may know, the OFAH is a lead partner with the province in the Lake Ontario Atlantic Salmon Restoration Program, which stocks production Atlantic Salmon from a provincial hatchery below the Belfountain Dam, and school- and club-raised Atlantic Salmon in smaller numbers above the dam. Specific to the school program, the OFAH and partners such as the Toronto Zoo bring students each year with their school-raised Atlantic Salmon to the Belfountain Conservation Area (CA). There, the students release the fish into the river, operating under a stocking permit from the Ministry of Natural Resources and Forestry and with the permission of Credit Valley Conservation. Approximately 10-20 visits are made each year, and the schools are visiting from Brampton, Mississauga, Orangeville, Erin, and Caledon. The students often also have a picnic in the CA, walk the trail, and visit the CA's sites. During some trips, the students have planted trees/shrubs or pulled garlic mustard as part of a planned activity with Credit Valley Conservation staff. Outside of the Atlantic Salmon program, OFAH members also have an interest in fishing in and downstream of the CA.

With that background in mind, we would like to provide comments specific to our interests in Belfountain, using the questionnaire provided to the public as guidance.

***OFAH Ranked Priorities for the Study Objectives:***

1. Promote natural stream function.
2. Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species.
3. Reduce/minimize risk to visitors, staff, and affected property.
4. Conserve and enhance natural heritage attributes.
5. Conserve and enhance cultural heritage attributes.
6. Maintain or improve the visitor experience.
7. Strive for long-term sustainability including economic viability.

We do not have additional objectives to contribute, as we believe the objective to “Promote natural stream function” includes minimizing the thermal and sediment impacts of the Headpond on the river downstream, which is our most significant concern.

***Vision for the Belfountain Dam and Headpond:***

Recognizing their heritage and social value, as well as their role in partitioning the upper West Credit River, the OFAH would envision the Dam and Headpond contributing optimized habitat to downstream fishes (including Atlantic Salmon through their life cycle), leading to improved fishing opportunities within existing fishing regulations. We also see the Belfountain CA remaining as an important stocking site for Atlantic Salmon restoration in the Credit River.

***Other Information for the Study Team:***

In our review of the Baseline Inventory we noted an emphasis on providing fish passage for Atlantic Salmon and American Eel, and would comment that the need for either species to have access beyond the Belfountain Dam is extremely limited. The number of returning Atlantic Salmon adults is currently low, and even with increased returns in the future, there is expected to be adequate spawning habitat between the Norval fishway and the Cataracts/Belfountain Dam. American Eel numbers in the Credit River are even lower, and the key bottlenecks for the species in Lake Ontario are external to the Credit River.

Additionally, fishways are expensive to install and operate as a means to gate fish in perpetuity. The existing fishways at Streetsville and Norval are only being minimally operated now for the selective passage of fish, and gating fish at a third location would further strain staff resources for very limited gain. Should information on historic access, recovery strategies, or fish numbers change, then upstream fish passage should be reviewed once more, but we do not feel it is critical at this time.

We would like to add, however, that any modifications to the Dam and Headpond should also take into account the need for downstream migration of fishes such as smolting Atlantic Salmon or Rainbow Trout, or the downstream movement of non-migratory fishes.

***Belfountain Complex Management Plan – Forecourt Concept Plans:***

The forecourt area is where we stage our school visits in the CA and is a very popular area with the classes. Based on our use of the area, as well as an interest in rehabilitating the stream bank while still providing access to parts of the river, Options 1 or 2 would be the preferred options.

***Belfountain Complex Management Plan – Visitor Centre and Parking Concept Plans:***

It was not clear if all options offered a bus-only exit or only Option 1, but as our visits almost always include one or more school buses, the smooth and safe movement of buses and students in this area is an important feature for us and a bus-only exit would enhance that.

***Belfountain Complex Management Plan – Hillside Garden Concept Plans:***

While we generally do not use the hillside garden as a picnic area, when we have students out with us we do use it as a pathway down to the forecourt that is safely away from vehicles on the driveway. With that

use in mind, while also recognizing the potential for naturalizing the slope, we support Option 2 because of its accessible ramp. While rare, we do occasionally have students requiring wheelchair access at the CA.

***Belfountain Complex Management Plan – Portico Concept Plans:***

We would support Option 1 as it has no impact on the west side of the river, allowing for increased naturalization there while still providing new amenities at the portico site on the east side of the river.

Thank you for the opportunity to provide comments on the Class Environmental Assessment and Belfountain Complex Management Plan. In addition to our annual stocking and education activities, we have had several formal Atlantic Salmon events at the CA in the past, and hope to have more. If there are outreach events in the CA where environmental NGOs are invited to have displays or host activities, please keep the OFAH and the Atlantic Salmon program in mind.

Please let me know if you have any questions or comments about our feedback to the plan and Environmental Assessment. I can be reached at 705-748-6324 Ext. 237 or [chris\\_robinson@ofah.org](mailto:chris_robinson@ofah.org).

Yours in Conservation,



Chris Robinson, M.Sc.  
OFAH Atlantic Salmon Program Coordinator

/cjr

cc: Matt DeMille, OFAH Manager, Fish and Wildlife Services  
Tom Brooke, OFAH Fisheries Biologist

# Questionnaire & Comment Sheet

## Public Consultation Session

Thank you for attending CVC's public consultation session for the Belfountain Complex Management Plan and Class Environmental Assessment. Your feedback is important to us and is an integral part of both the Management Plan and Class Environmental Assessment processes.

---

### **PLEASE PRINT**

Name/Association:

E-mail:

Address:

Municipality:

Postal Code:

---

**Please return completed questionnaires to any member of the Study Team during the meeting or to the following contacts after the meeting:**

**Credit Valley Conservation**  
Ms. Laura Rundle  
Conservation Lands Planner  
1255 Old Derry Road  
Mississauga, Ontario, L5N 6R4  
Tel: (905) 670.1615 ext.535  
email: lrundle@creditvalleyca.ca

**Amec Foster Wheeler**  
**Environment & Infrastructure**  
Mr. Ron Scheckenberger, M.Eng. P.Eng.  
Project Manager  
3215 North Service Road, P.O. Box 220  
Burlington ON L7N 3G2  
Tel: 905.335.2353  
Toll Free: 1.866.751.2353  
Email: ron.scheckenberger@amecfw.com

**Please ensure that your questionnaire is in the mail no later than  
Wednesday, October 7<sup>th</sup>, 2015.**

## Questionnaire #1 - Belfountain Dam & Headpond Class EA

CVC is undertaking a Conservation Ontario Class Environmental Assessment (Class EA) to determine how best to manage the Belfountain Dam and Headpond in the future. A Class EA must follow a specific process that can be summarized with the following steps:

1. Document the Baseline Inventory (background information) & identify the problem
2. Evaluate alternative solutions and select a preferred alternative
3. Conduct a detailed analysis of environmental impact

At this time, the baseline inventory (Step 1) has been completed, and development of the alternatives (Step 2) has begun but is not yet completed. Public consultation is integral component of a Class EA and public input will be considered at every step.

Please note that this questionnaire is specific to the Belfountain Dam and Headpond Class EA; a separate questionnaire has been provided in your package regarding the Belfountain Complex Management Plan.

CVC has established seven (7) Study Objectives for this project. The preferred alternative for the Belfountain Dam and Headpond will be required to meet these objectives.

Objective	Ranking
1) <i>Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species</i>	6
2) <i>Reduce/minimize risk to visitors, staff and affected property</i>	5
3) <i>Maintain or improve the visitor experience</i>	3
4) <i>Conserve and enhance cultural heritage attributes</i>	1
5) <i>Promote natural stream function</i>	7
6) <i>Strive for long-term sustainability including economic viability</i>	4
7) <i>Conserve and enhance natural heritage attributes</i>	2

1. Please rank the objectives (1 to 7) in order of importance to you in the space provided above. Place a '1' beside the most important, '2' beside the second most important, etc.







## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

Visitor Centre and Parking: Please let us know what you think about the concepts for the visitor centre and parking area:

10. What is your preferred option for the visitor centre and parking area? 2

11. Why? WORKS GOOD PARTIALS

12. What features do you particularly like or dislike in the visitor centre and parking area?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Drop off area/Entry plaza	X					SEEMS NATURAL FLOW
Increased Parking Spaces	X					SINCE PARKING/TRAFFIC IS A BIG ISSUE, NOT NECESSARY TO OTHRN.
Overflow Parking Area						
New Visitor Centre & Workshop (One Building)	X					MAKES MORE SENSE TO HAVE IT UNDER ONE
New Visitor Centre & Existing Workshop (Two Buildings)				X		

13. Do you have any other thoughts or comments about the visitor centre and parking area?

ROOF - ENVIRONMENTALLY FRIENDLY, ETC

IN BELFOUNTAIN - THIS WOULD HELP MANAGE THOSE ISSUES. PEOPLE WILL NOT STOP COMING - THE RESIDENTS NEED TO FOCUS ON MANAGING VOLUME.

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

Portico: Please let us know what you think about the concepts for the portico (pumphouse, bridge area):

18. What is your preferred option for the portico? \_\_\_\_\_

1

19. Why? EXISTING PUMPHOUSE POSSIBLE WATER & CROCHETS ACTIVITIES  
DE TRAILS, E.T.S

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Existing building retrofitted with accessible washroom	✓					LEGS (BEST) REPAIRS USE EXISTING ARCHES OR TO GIVE MORE ENERGY
Lawn with informal seating		✓				ARCHES FOR SHADE OR THESE WITH LIMITED MOBILITY
Covered deck with informal seating		✓				
Riverside deck				✗		

21. Do you have any other thoughts or comments about the portico?

CONCRETE ARE WATER SUPPLY FOR TABLETS  
WOULD SOLUTED INCLINE USING WATER (RHW)  
FROM ROOFTOPS, COLLECTING IT, STORE IN IT  
4 GALLONS PER FLUSHABLE. DRINKING WATER?  
WOULD BE AVAILABLE IN VISITOR CENTER  
IF REQUIRED. MOST LIKEABLE BRIDGE DRINKING  
WATER AVAILABLE

WATER AVAILABLE

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

Hillside Garden: Please let us know what you think about the concepts for the hillside garden (upper picnic area):

14. What is your preferred option for the hillside garden? 2

15. Why? PATH DESIGN + ACCESSIBILITY.

16. What features do you particularly like or dislike in the hillside garden?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Picnic Pods	✓					NICE - SMALL BUT INTIMATES
Accessible Trail	✓					FABULOUS
Forest Trail						ADDED ESSENTIALS TO TRAIL SYSTEM REMAINS
Footpath	✓					ALLOW MAINTENANCE WALKING THROUGH AREA
Removal of Existing Staircase	✓					ALLOWS FOR TRAILERS FOR WALK
Reconstruction of Existing Staircase						IS IT NECESSARY?

17. Do you have any other thoughts or comments about the hillside garden?

DOES IT BECOME HIGH MAINTENANCE & COSTLY

## Questionnaire #2 - Belfountain Complex Management Plan - Concept Plans

22. Do you have any ideas for special events or activities that would be a good fit for Belfountain Conservation Area?

• GUIDED HIKES (PARTNER W/ SALAMAUER FESTIVAL ??)

• CONCERTS IN THE PARK (PARTNER W/ ITY

MEVILLE WHITE CHURCH MUSIC PROGRAMS)

IT HINK YOU NEED TO PARTNER ACTIVITIES W/ ITY

BEFOUNTAIN EXISTING CELEBRATIONS. SHOULD GOOD

WILL & A MOTIVATION TO WORK W/ ITY THE

COMMUNITY.

23. Please use the following space to ask any other questions you may have and the Study Team will provide a response within the following weeks. You can also use this space to provide general comments:

THERE WAS A CONCERN RAISED ABOUT THE SIZE

OF THE VISITOR / INTERPRETIVE CENTRE. SOME

FOLKS WERE WORRY AT 5000 SQ FT. IF BUILDING

IS USED FOR WASHROOMS, CUR OFFICE SPACE

+ INTERPRETIVE CENTRE PERHAPS A "BLUESPRINTS"

OF SPACE ALLOCATION WOULD BE MORE MERITFUL.

CAN THE BUILDING BE 1 1/2 STOREYS & NO

REDUCE IT'S FOOT PRINT PERHAPS, SHOULD

IT MAKE DECISIONS MAINLY TO WATER BOTTLERS

WHICH WOULD AROUND THE WATER SOURCE FOR  
FURTHER TO COME FROM WATER, AND  
WATER OF SUPPLEMENTED BY RIVER  
FACED

## Dearlove, Heather

---

**Subject:** FW: Questionnaire and Comments  
**Attachments:** CVC input.docx; ATT00001.htm

---

**From:**  
**Sent:** October 5, 2015 9:46 AM  
**To:** Rundle, Laura  
**Subject:** Questionnaire and Comments

Hi Laura;

I have attached a note to you regarding my comments for the Belfountain Complex Management Plan and Class EA. I want to make sure you are aware that my comments are directed at the CVC and not to yourself. I admire your work and your dedication, and appreciate your involvement in this activity very much. I think you are well suited to this position and you are doing a terrific job, given the sensitivities of the local community. So thank you.

My concerns lie in this development. I am disappointed that the CVC is planning on making significant changes to the site because I do not understand the need. Perhaps there is data or information to which I am not privy, but from what is accessible to me, I still do not understand why there needs to be such financial investment in the park beyond meeting the EA requirements.

Thank you for the opportunity to provide comments.

The information contained in this Credit Valley Conservation electronic message is directed in confidence solely to the person(s) named above and may not be otherwise distributed, copied or disclosed including attachments. The message may contain information that is privileged, confidential and exempt from disclosure under the Municipal Freedom of Information and Protection and Privacy Act and by the Personal Information Protection Electronic Documents Act. The use of such personal information except in compliance with the Acts, is strictly prohibited. If you have received this message in error, please notify the sender immediately advising of the error and delete the message without making a copy. Thank you.

Hi Laura;

Thanks for chatting with me briefly during the Salamander Festival.

I am a long time resident of Caledon, and I cherish its grace and elegance. I understand why people from more urban locations choose to visit the Belfountain Conservation Area. It is a small, lovely site that is close to Toronto, Mississauga and other parts of the GTA. As I heard your Chief Administration Officer explain at the recent Public Meeting, it is the jewel in the crown of the Credit Valley Conservation.

It is my hope that you and all the CVC staff intend on keeping it that way. As I review the feedback received and management policies document, I see that a lot of hard work is being put into addressing many of the issues that are faced daily at the CA. I do have a number of comments and questions, however, that I will include here.

Here are my responses to the Questionnaire #1.

1. My ranked objectives are as follows: 7, 5, 1, 6, 2, 4, 3  
I note that #6 suggests that striving for long-term sustainability must include economic viability. Sustainability is an economic, social and environmental concept, so naturally it includes economic concerns. Question: Whose economic viability is being referenced? The CVC? The Hamlet of Belfountain? Please clarify.
2. Other objectives that the Class EA should consider? Yes. Maintain or improve the community's experience. This is a modification of #3, but one that I believe holds equal merit. We are living in the headwaters of the Credit, and the dam and headpond are part of our immediate environment. The local community's experience is definitely critical.
3. Vision for the dam and headpond? I want it to be upgraded for safety purposes, and I want a healthy fisheries and local terrestrial environment. IN order to provide you with a more specific vision, I will need to better understand the pros and cons of each of the options identified.
4. In terms of the baseline inventory, I walk through the park on a regular basis and I am not aware of any other additional information that I can contribute at this time.

With respect to the Questionnaire #2, my first statement is that all the options are basically the same, with small changes. So I will not bother you with specifics about preferred options. What I am most curious about is why this work is being considered? Why does the facility require new landscaping? I am certain there will need to be some work following the EA work, but why sink all sorts of money into creating a new landscape? Would it not be preferable to sink that money into restoring the ecological integrity of the site? I would recommend installing features

that restore and maintain EI, rather than upgrade the look of the site...which in turn will attract more visitors and continue to damage the EI.

5. I don't care about any of the options for the forecourt. They are all the same
6. They are all the same, just variations of a theme.
7. I think the river access rocks are hilarious. They will not stop people from entering elsewhere. Look at other facilities across Canada, and you will see evidence that that has not worked.
8. I don't see a question #8
9. I agree that the forecourt should be a welcoming place. Bike parking? Bikes park at the coffee shop, not the park. I rarely see anyone using a bike to get to the park. The defined picnics spaces may be cute, and with sufficient plantings, may actually allow for some biodiversity of habitat in the heavily used visitor area.
10. I prefer NOT to have a visitor centre.
11. This is an expenditure that does not make sense to me. It will increase visitation, increase damage to the park, and quite honestly, I think it is a waste of money. A covered place for visitors would be welcome, I am sure, but it does not have to be a large visitor centre. A consideration – why not take the old pumphouse out and put a covered structure there. You can add displays about the headpond, dam and history there. But do not build a visitor centre.
12. Do not increase parking spaces. Look to your plans and put caps on the number of people visiting the park. Encourage off-peak visitation. Do what you are already suggesting but do not increase parking. “IF YOU BUILD IT THEY WILL COME” ...the same will happen with a visitor centre and with increased parking.
13. Is the existing workshop up to code? If it is, then use it, but upgrade it and put an addition on it to create a positive working space for staff, and increase number of washrooms.
14. I have no preferred option for the hillside garden.
15. They all look the same, as I have noted. Erosion is always going to happen, so ensure limited erosion through effective landscaping
16. I like an accessible trail...if investments are going to be made in this park, having some kind of accessibility option is worthwhile.
17. No
18. N/A
19. Very similar
20. No comment
21. If a Visitor Centre is needed, then use this site as a place to do interpretation. Have the covered space here, but don't make it too large or it will overwhelm the site. Do not offering “programming”. This is not a provincial park and we don't need to interpret everything.
22. Not right now.
23.
  - a. Why does the CVC wish to increase visitation?

- b. Why does the CVC want to build a visitor centre
- c. Why does the CVC believe a visitor centre is needed? (not wanted, but needed)
- d. Why does the CVC want to increase parking inside the park? (I am well aware of parking issues in the hamlet, but I don't understand why that would be the concern of the CVC).

## Dearlove, Heather

---

**From:** Brouwers, Aaron  
**Sent:** September-25-15 9:28 AM  
**To:** Dearlove, Heather  
**Subject:** FW: Belfountain CA EA comments deadline  
**Attachments:** Belfountain PIC#1 Final\_with concept plans.docx

For the file

-----Original Message-----

From: Rundle, Laura [mailto:LRundle@creditvalleyca.ca]  
Sent: September-25-15 8:29 AM  
To: 'Chris Robinson' <chris\_robinson@ofah.org>  
Cc: Burgess, Kate <KBurgess@creditvalleyca.ca>; Baldin, Eric <EBaldin@creditvalleyca.ca>; Brouwers, Aaron <aaron.brouwers@amec.com>  
Subject: RE: Belfountain CA EA comments deadline

Good morning Chris,

I hope that this email finds you well.

CVC's website has been updated with the presentation and posters from Tuesday's consultation session. They can be accessed here: <http://www.creditvalleyca.ca/enjoy-the-outdoors/conservation-areas/belfountain-conservation-area/belfountain-conservation-area-management-plan/consultation/public-information-session-september-22-2015/>

I have attached a copy of the questionnaire that was distributed at the consultation session. We are asking for the completed forms to be returned by Wednesday, October 7th. If you would like to provide comments in another format (e.g. letter, etc.), we are more than happy to accept that as well. The questionnaire contains questions about both the management plan and the Class EA; please feel free to provide feedback on one or both projects.

Please feel free to contact me if you have any questions or require any clarification on the online content or the questionnaire.

Thank you,

Laura Rundle  
Conservation Lands Planner | Credit Valley Conservation  
905.670.1615 ext 535 | 1.800.668.5557  
lrundle@creditvalleyca.ca | creditvalleyca.ca

-----Original Message-----

From: Rundle, Laura  
Sent: September 21, 2015 12:20 PM  
To: 'Chris Robinson'  
Cc: Burgess, Kate; Baldin, Eric; 'Brouwers, Aaron'  
Subject: RE: Belfountain CA EA comments deadline

Hi Chris,

Thank you for your email.

I am sorry to hear that you are unable to attend any of our consultation sessions. Please note, however, that there are several opportunities to participate in the process and provide to feedback. Our website will be updated with the presentation and questionnaire for this round of consultation shortly. I will send you the link once everything has been organized and posted. I will also keep your email on file to notify you of our next round of consultation.

If you or any of your local contacts would prefer to meet onsite to discuss the project, we are happy to arrange that as well. September is pretty busy with consultation, but my schedule opens up in October. I've found that meeting onsite is often the best way to discuss the details of a project.

Please do not hesitate to contact me if you have any questions.

Thank you,

Laura Rundle  
Conservation Lands Planner | Credit Valley Conservation  
905.670.1615 ext 535 | 1.800.668.5557  
lrundle@creditvalleyca.ca | creditvalleyca.ca

-----Original Message-----

From: Chris Robinson [mailto:chris\_robinson@ofah.org]  
Sent: September 21, 2015 11:51 AM  
To: Rundle, Laura  
Subject: Belfountain CA EA comments deadline

Hello Laura,

The Belfountain CA planning process and EA review has just come to our attention, as has tomorrow night's public meeting. Unfortunately as of right now I don't believe myself or our other program staff can attend tomorrow, or this weekend or next at the CA itself, but the OFAH would like to provide comments. We are active in the watershed with the Atlantic Salmon program as well as having members who fish the river, and Belfountain is where we bring most of our classroom hatchery participants in the spring to release their school-raised Atlantic Salmon.

When would you need us to have comments submitted by? I'm hoping to look over the materials in the next few days and then discuss with other staff and some of our members local to the Credit River.

Yours in Conservation,  
Chris

Chris Robinson, M.Sc.  
OFAH Atlantic Salmon Restoration Program Coordinator Ontario Federation of Anglers and Hunters  
4601 Guthrie Drive, PO Box 2800  
Peterborough ON, K9J 8L5  
Phone: (705) 748-6324 Ext. 237  
E-mail: chris\_robinson@ofah.org  
Web: <http://www.bringbackthesalmon.ca>  
Facebook: <http://www.facebook.com/ontariosalmon> (ontariosalmon)  
Twitter: <http://twitter.com/ontariosalmon> (@ontariosalmon)

If you have not already done so, please visit [www.ofah.org/enews](http://www.ofah.org/enews) and sign up for our email list to stay connected with the OFAH.

Visit us online at [www.ofah.org](http://www.ofah.org)

Follow us on Twitter @ofah

Find us on Facebook - Ontario Federation of Anglers and Hunters

The information contained in this Credit Valley Conservation electronic message is directed in confidence solely to the person(s) named above and may not be otherwise distributed, copied or disclosed including attachments. The message may contain information that is privileged, confidential and exempt from disclosure under the Municipal Freedom of Information and Protection and Privacy Act and by the Personal Information Protection Electronic Documents Act. The use of such personal information except in compliance with the Acts, is strictly prohibited. If you have received this message in error, please notify the sender immediately advising of the error and delete the message without making a copy. Thank you.

# Questionnaire & Comment Sheet

## Public Consultation Session

Thank you for attending CVC's public consultation session for the Belfountain Complex Management Plan and Class Environmental Assessment. Your feedback is important to us and is an integral part of both the Management Plan and Class Environmental Assessment processes.

---

### **PLEASE PRINT**

Name/Association: \_\_\_\_\_

E-mail: \_\_\_\_\_

Address: \_\_\_\_\_

Municipality: \_\_\_\_\_

Postal Code: \_\_\_\_\_

---

**Please return completed questionnaires to any member of the Study Team during the meeting or to the following contacts after the meeting:**

**Credit Valley Conservation**  
Ms. Laura Rundle  
Conservation Lands Planner  
1255 Old Derry Road  
Mississauga, Ontario, L5N 6R4  
Tel: (905) 670.1615 ext.535  
email: lrundle@creditvalleyca.ca

**Amec Foster Wheeler**  
**Environment & Infrastructure**  
Mr. Ron Scheckenberger, M.Eng. P.Eng.  
Project Manager  
3215 North Service Road, P.O. Box 220  
Burlington ON L7N 3G2  
Tel: 905.335.2353  
Toll Free: 1.866.751.2353  
Email: ron.scheckenberger@amecfw.com

**Please ensure that your questionnaire is in the mail no later than  
Wednesday, October 7<sup>th</sup>, 2015.**

## Questionnaire #1 - Belfountain Dam & Headpond Class EA

CVC is undertaking a Conservation Ontario Class Environmental Assessment (Class EA) to determine how best to manage the Belfountain Dam and Headpond in the future. A Class EA must follow a specific process that can be summarized with the following steps:

1. Document the Baseline Inventory (background information) & identify the problem
2. Evaluate alternative solutions and select a preferred alternative
3. Conduct a detailed analysis of environmental impact

At this time, the baseline inventory (Step 1) has been completed, and development of the alternatives (Step 2) has begun but is not yet completed. Public consultation is integral component of a Class EA and public input will be considered at every step.

Please note that this questionnaire is specific to the Belfountain Dam and Headpond Class EA; a separate questionnaire has been provided in your package regarding the Belfountain Complex Management Plan.

CVC has established seven (7) Study Objectives for this project. The preferred alternative for the Belfountain Dam and Headpond will be required to meet these objectives.

Objective	Ranking
1) <i>Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species</i>	2
2) <i>Reduce/minimize risk to visitors, staff and affected property</i>	6
3) <i>Maintain or improve the visitor experience</i>	7
4) <i>Conserve and enhance cultural heritage attributes</i>	1
5) <i>Promote natural stream function</i>	3
6) <i>Strive for long-term sustainability including economic viability</i>	4
7) <i>Conserve and enhance natural heritage attributes</i>	5

1. Please rank the objectives (1 to 7) in order of importance to you in the space provided above. Place a '1' beside the most important, '2' beside the second most important, etc.





## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Forecourt:** Please let us know what you think about the concepts for the forecourt (entrance and lower picnic area):

5. What is your preferred option for the forecourt? \_\_\_\_\_

6. Why? \_\_\_\_\_

7. What features do you particularly like or dislike in the forecourt?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Pedestrian Entry-way			✓			
Accessible Drop-off Area		✓				
River Access						
Bike Parking						
Accessible Trail		✓				
Defined Picnic Spaces		✓				REMOVED
Flexible Picnic Spaces						
Shoreline & Inland Plantings		✓				

9. Do you have any other thoughts or comments about the forecourt area?

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Visitor Centre and Parking:** Please let us know what you think about the concepts for the visitor centre and parking area:

10. What is your preferred option for the visitor centre and parking area? DEFINITELY NOT INCREASED
11. Why? \_\_\_\_\_

12. What features do you particularly like or dislike in the visitor centre and parking area?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Drop off area/Entry plaza			✓			
Increased Parking Spaces				✓		
Overflow Parking Area					✓	
New Visitor Centre & Workshop (One Building)						DEPENDS ON THE SITE
New Visitor Centre & Existing Workshop (Two Buildings)			✓			

13. Do you have any other thoughts or comments about the visitor centre and parking area?  
 IF YOU BUILD IT, THERE WILL BECOME!! THIS IS THE PROBLEM, TOO MANY THOUGHTLESS VISITORS

## Questionnaire #2 - Belfountain Complex Management Plan -- Concept Plans

**Hillside Garden:** Please let us know what you think about the concepts for the hillside garden (upper picnic area):

14. What is your preferred option for the hillside garden? \_\_\_\_\_

15. Why? \_\_\_\_\_

16. What features do you particularly like or dislike in the hillside garden?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Picnic Pods		<input checked="" type="checkbox"/>				
Accessible Trail		<input checked="" type="checkbox"/>				
Forest Trail		<input checked="" type="checkbox"/>				
Footpath		<input checked="" type="checkbox"/>				
Removal of Existing Staircase					<input checked="" type="checkbox"/>	
Reconstruction of Existing Staircase		<input checked="" type="checkbox"/>				

17. Do you have any other thoughts or comments about the hillside garden?

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

Portico: Please let us know what you think about the concepts for the portico (pumphouse, bridge area):

18. What is your preferred option for the portico? Kiosk in Lane with Courty/Culture Pavilion (Presentation Photo)
19. Why? \_\_\_\_\_

20. What features do you particularly like or dislike in the portico?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Existing building retrofitted with accessible washroom		<input checked="" type="checkbox"/>				
Lawn with informal seating		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
Covered deck with informal seating		<input checked="" type="checkbox"/>				
Riverside deck			<input checked="" type="checkbox"/>			

21. Do you have any other thoughts or comments about the portico?

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

22. Do you have any ideas for special events or activities that would be a good fit for Belfountain Conservation Area?

KEEP THEM SMALL / QUIET / NO LATE NIGHTS / AFTER DARK

23. Please use the following space to ask any other questions you may have and the Study Team will provide a response within the following weeks. You can also use this space to provide general comments:

WEEK END SECURITY DISTRICTS & MORE EXPOSURE / BUREAU  
WANT TO KEEP OUT AFTER-HOUR VISITORS / EXPOSURES FOR  
AROUND THE LITTLE PARK (not asked)

# Questionnaire & Comment Sheet

## Public Consultation Session

Thank you for attending CVC's public consultation session for the Belfountain Complex Management Plan and Class Environmental Assessment. Your feedback is important to us and is an integral part of both the Management Plan and Class Environmental Assessment processes.

---

### **PLEASE PRINT**

Name/Association

E-mail:

Address:

Municipality:

Postal Code:

---

**Please return completed questionnaires to any member of the Study Team during the meeting or to the following contacts after the meeting:**

#### **Credit Valley Conservation**

Ms. Laura Rundle  
Conservation Lands Planner  
1255 Old Derry Road  
Mississauga, Ontario, L5N 6R4  
Tel: (905) 670.1615 ext.535  
email: lrundle@creditvalleyca.ca

#### **Amec Foster Wheeler**

**Environment & Infrastructure**  
Mr. Ron Scheckenberger, M.Eng. P.Eng.  
Project Manager  
3215 North Service Road, P.O. Box 220  
Burlington ON L7N 3G2  
Tel: 905.335.2353  
Toll Free: 1.866.751.2353  
Email: ron.scheckenberger@amecfw.com

**Please ensure that your questionnaire is in the mail no later than  
Wednesday, October 7<sup>th</sup>, 2015.**

## Questionnaire #1 - Belfountain Dam & Headpond Class EA

CVC is undertaking a Conservation Ontario Class Environmental Assessment (Class EA) to determine how best to manage the Belfountain Dam and Headpond in the future. A Class EA must follow a specific process that can be summarized with the following steps:

1. Document the Baseline Inventory (background information) & identify the problem
2. Evaluate alternative solutions and select a preferred alternative
3. Conduct a detailed analysis of environmental impact

At this time, the baseline inventory (Step 1) has been completed, and development of the alternatives (Step 2) has begun but is not yet completed. Public consultation is integral component of a Class EA and public input will be considered at every step.

Please note that this questionnaire is specific to the Belfountain Dam and Headpond Class EA; a separate questionnaire has been provided in your package regarding the Belfountain Complex Management Plan.

CVC has established seven (7) Study Objectives for this project. The preferred alternative for the Belfountain Dam and Headpond will be required to meet these objectives.

Objective	Ranking
1) <i>Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species</i>	2
2) <i>Reduce/minimize risk to visitors, staff and affected property</i>	7
3) <i>Maintain or improve the visitor experience</i>	6
4) <i>Conserve and enhance cultural heritage attributes</i>	4
5) <i>Promote natural stream function</i>	1
6) <i>Strive for long-term sustainability including economic viability</i>	5
7) <i>Conserve and enhance natural heritage attributes</i>	3

1. Please rank the objectives (1 to 7) in order of importance to you in the space provided above. Place a '1' beside the most important, '2' beside the second most important, etc.

**Questionnaire #1 - Belfountain Dam & Headpond Class EA**

2. Are there other objectives you think the Class Environmental Assessment should consider? Why? (These should be specific to the dam and headpond)

We cannot stop the use  
so we should eventually  
have some idea of decommissioning

3. What is your vision for the Belfountain Dam and Headpond?

naturalization



## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Forecourt:** Please let us know what you think about the concepts for the forecourt (entrance and lower picnic area):

5. What is your preferred option for the forecourt? \_\_\_\_\_

6. Why? \_\_\_\_\_

7. What features do you particularly like or dislike in the forecourt?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Pedestrian Entry-way		✓				
Accessible Drop-off Area		✓				
River Access		✓				
Bike Parking		✓				
Accessible Trail		✓				
Defined Picnic Spaces		✓				
Flexible Picnic Spaces		✓				
Shoreline & Inland Plantings		✓				

9. Do you have any other thoughts or comments about the forecourt area?

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Visitor Centre and Parking:** Please let us know what you think about the concepts for the visitor centre and parking area:

10. What is your preferred option for the visitor centre and parking area? \_\_\_\_\_

11. Why? \_\_\_\_\_

12. What features do you particularly like or dislike in the visitor centre and parking area?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Drop off area/Entry plaza		✓				
Increased Parking Spaces				✓		
Overflow Parking Area			✓			
New Visitor Centre & Workshop (One Building)		✓				
New Visitor Centre & Existing Workshop (Two Buildings)						

13. Do you have any other thoughts or comments about the visitor centre and parking area?

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Hillside Garden:** Please let us know what you think about the concepts for the hillside garden (upper picnic area):

14. What is your preferred option for the hillside garden? \_\_\_\_\_

15. Why? \_\_\_\_\_

16. What features do you particularly like or dislike in the hillside garden?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Picnic Pods		✓				
Accessible Trail						
Forest Trail		✓				
Footpath						
Removal of Existing Staircase						
Reconstruction of Existing Staircase		✓				

17. Do you have any other thoughts or comments about the hillside garden?

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Portico:** Please let us know what you think about the concepts for the portico (pumphouse, bridge area):

18. What is your preferred option for the portico? \_\_\_\_\_

19. Why? \_\_\_\_\_

20. What features do you particularly like or dislike in the portico?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Existing building retrofitted with accessible washroom		✓				
Lawn with informal seating						
Covered deck with informal seating		✓				
Riverside deck		✓				

21. Do you have any other thoughts or comments about the portico?

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

22. Do you have any ideas for special events or activities that would be a good fit for Belfountain Conservation Area?

---

---

---

---

---

---

---

---

---

---

23. Please use the following space to ask any other questions you may have and the Study Team will provide a response within the following weeks. You can also use this space to provide general comments:

*security cameras (night time) order surveillance*

*Do not be afraid to charge as significant fee for park usage especially special functions.*

---

---

---

---

---

---

---

---

---

---

**Dearlove, Heather**

---

**Subject:** FW: Belfountain Management Plan - Feedback and Thank-you

**From:** Rundle, Laura [<mailto:LRundle@creditvalleyca.ca>]

**Sent:** September-24-15 1:59 PM

**Cc:** Baldin, Eric <[EBaldin@creditvalleyca.ca](mailto:EBaldin@creditvalleyca.ca)>; Burgess, Kate <[KBurgess@creditvalleyca.ca](mailto:KBurgess@creditvalleyca.ca)>; Brouwers, Aaron <[aaron.brouwers@amec.com](mailto:aaron.brouwers@amec.com)>

**Subject:** Belfountain Management Plan - Feedback and Thank-you

Good afternoon,

Thank you for attending the public consultation session for the Belfountain Complex Management Plan & Class EA that took place on Tuesday, September 22<sup>nd</sup> at the Caledon Ski Club.

The comments and feedback that were provided during the session will be incorporated into the next phase of the management planning process. If you did not submit a completed questionnaire, but what like to, please do so by Wednesday, October 7<sup>th</sup>. The presentation and posters from Tuesday evening are now located on CVC's website: <http://www.creditvalleyca.ca/enjoy-the-outdoors/conservation-areas/belfountain-conservation-area/belfountain-conservation-area-management-plan/consultation/public-information-session-september-22-2015/>.

Please note that we will be putting together a short report highlighting the questions and comments received during this round of consultation. This will be sent to you by email in early October, once our onsite consultations at Belfountain Conservation Area are complete.

Thank you again for your interest and participation in the Belfountain Complex Management Plan. Please feel free to contact me if you have any questions, require clarification, or would like to discuss any aspect of this project in detail.

Kind regards,

Laura

**Laura Rundle**

Conservation Lands Planner | Credit Valley Conservation

905.670.1615 ext 535 | 1.800.668.5557

[lrundle@creditvalleyca.ca](mailto:lrundle@creditvalleyca.ca) | [creditvalleyca.ca](http://creditvalleyca.ca)

The information contained in this Credit Valley Conservation electronic message is directed in confidence solely to the person(s) named above and may not be otherwise distributed, copied or disclosed including attachments. The message may contain information that is privileged, confidential and exempt from disclosure under the Municipal Freedom of Information and Protection and Privacy Act and by the Personal Information Protection Electronic Documents Act. The use of such personal information except in compliance with the Acts, is strictly prohibited. If you have received this message in error, please notify the sender immediately advising of the error and delete the message without making a copy. Thank you.

# Questionnaire & Comment Sheet

## Public Consultation Session

Thank you for attending CVC's public consultation session for the Belfountain Complex Management Plan and Class Environmental Assessment. Your feedback is important to us and is an integral part of both the Management Plan and Class Environmental Assessment processes.

---

### **PLEASE PRINT**

Name/Association: \_\_\_\_\_

E-mail: \_\_\_\_\_

Address: \_\_\_\_\_

Municipality: \_\_\_\_\_

Postal Code: \_\_\_\_\_

---

**Please return completed questionnaires to any member of the Study Team during the meeting or to the following contacts after the meeting:**

#### **Credit Valley Conservation**

Ms. Laura Rundle  
Conservation Lands Planner  
1255 Old Derry Road  
Mississauga, Ontario, L5N 6R4  
Tel: (905) 670.1615 ext.535  
email: lrundle@creditvalleyca.ca

#### **Amec Foster Wheeler**

**Environment & Infrastructure**  
Mr. Ron Scheckenberger, M.Eng. P.Eng.  
Project Manager  
3215 North Service Road, P.O. Box 220  
Burlington ON L7N 3G2  
Tel: 905.335.2353  
Toll Free: 1.866.751.2353  
Email: ron.scheckenberger@amecfw.com

**Please ensure that your questionnaire is in the mail no later than  
Wednesday, October 7<sup>th</sup>, 2015.**

## Questionnaire #1 - Belfountain Dam & Headpond Class EA

CVC is undertaking a Conservation Ontario Class Environmental Assessment (Class EA) to determine how best to manage the Belfountain Dam and Headpond in the future. A Class EA must follow a specific process that can be summarized with the following steps:

1. Document the Baseline Inventory (background information) & identify the problem
2. Evaluate alternative solutions and select a preferred alternative
3. Conduct a detailed analysis of environmental impact

At this time, the baseline inventory (Step 1) has been completed, and development of the alternatives (Step 2) has begun but is not yet completed. Public consultation is integral component of a Class EA and public input will be considered at every step.

Please note that this questionnaire is specific to the Belfountain Dam and Headpond Class EA; a separate questionnaire has been provided in your package regarding the Belfountain Complex Management Plan.

CVC has established seven (7) Study Objectives for this project. The preferred alternative for the Belfountain Dam and Headpond will be required to meet these objectives.

Objective	Ranking
1) <i>Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species</i>	4
2) <i>Reduce/minimize risk to visitors, staff and affected property</i>	5
3) <i>Maintain or improve the visitor experience</i>	7
4) <i>Conserve and enhance cultural heritage attributes</i>	1
5) <i>Promote natural stream function</i>	2
6) <i>Strive for long-term sustainability including economic viability</i>	6
7) <i>Conserve and enhance natural heritage attributes</i>	3

1. Please rank the objectives (1 to 7) in order of importance to you in the space provided above. Place a '1' beside the most important, '2' beside the second most important, etc.





## Questionnaire #2 - Belfountain Complex Management Plan -- Concept Plans

**Forecourt:** Please let us know what you think about the concepts for the forecourt (entrance and lower picnic area):

5. What is your preferred option for the forecourt? do not increase parking

6. Why? CVC should not be a "money maker" => increase parking

7. What features do you particularly like or dislike in the forecourt?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Pedestrian Entry-way			✓			
Accessible Drop-off Area			✓			
River Access	✓					
Bike Parking		✓				
Accessible Trail	✓					
Defined Picnic Spaces			✓			
Flexible Picnic Spaces			✓			
Shoreline & Inland Plantings	✓					

9. Do you have any other thoughts or comments about the forecourt area?

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

**Visitor Centre and Parking:** Please let us know what you think about the concepts for the visitor centre and parking area:

10. What is your preferred option for the visitor centre and parking area? LESS NOT MORE PARKING!

11. Why? keep it natural CVC should not be a museum in a box!

12. What features do you particularly like or dislike in the visitor centre and parking area?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Drop off area/Entry plaza			X			
Increased Parking Spaces					X	} keep the park in a natural setting
Overflow Parking Area					X	
New Visitor Centre & Workshop (One Building)					X	
New Visitor Centre & Existing Workshop (Two Buildings)					X	

13. Do you have any other thoughts or comments about the visitor centre and parking area?

## Questionnaire #2 - Belfountain Complex Management Plan – Concept Plans

Hillside Garden: Please let us know what you think about the concepts for the hillside garden (upper picnic area):

14. What is your preferred option for the hillside garden? good idea to upgrade

15. Why? enhances the overall concept of park

16. What features do you particularly like or dislike in the hillside garden?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Picnic Pods			X			
Accessible Trail		✓				
Forest Trail		✓				
Footpath		✓				
Removal of Existing Staircase				X		
Reconstruction of Existing Staircase				X		pedestrians should assume LIABILITY ISSUES

17. Do you have any other thoughts or comments about the hillside garden?

good idea

## Questionnaire #2 - Belfountain Complex Management Plan -- Concept Plans

**Portico:** Please let us know what you think about the concepts for the portico (pumphouse, bridge area):

18. What is your preferred option for the portico? upgrade pumphouse + bridge area
19. Why? enhances park

20. What features do you particularly like or dislike in the portico?

Item	Really Like	Like	Neutral	Not a Fan	Strongly Dislike	Comments
Existing building retrofitted with accessible washroom		✓				
Lawn with informal seating				X		
Covered deck with informal seating					X	
Riverside deck				X		

21. Do you have any other thoughts or comments about the portico?

*Keep it fresh to historic standards*

## Questionnaire #2 - Belfountain Complex Management Plan -- Concept Plans

22. Do you have any ideas for special events or activities that would be a good fit for Belfountain Conservation Area?

nature list meetings; school groups for natural sciences projects

RESTRICT ~~EVENTS~~ EVENTS THAT INCUR NOISE; NO MUSIC

~~NO~~ NO WEDDING RECEPTIONS PLEASE!

this park should not be a "money maker" for the CVC

23. Please use the following space to ask any other questions you may have and the Study Team will provide a response within the following weeks. You can also use this space to provide general comments:

Keep the park in a natural state

ELECTRONIC BILLBOARD SIZE SIGNAGE AT OUTSKIRTS OF PARK  
TO WORK VISITORS ON HEAVY USAGE DAYS THAT PARK IS AT  
CAPACITY

## Dearlove, Heather

---

**Subject:** FW: |  
**Attachments:** September 20 cvc.docx

---

**From:** Martin-Downs, Deborah  
**Sent:** September 21, 2015 1:00 PM  
**To:** Rundle, Laura; Baldin, Eric; Thompson, Mark  
**Cc:** Payne, Jeff  
**Subject:** FW: Nando

For your information. I do not intend to prepare another response on behalf

### Deborah Martin-Downs

Chief Administrative Officer | Credit Valley Conservation  
905.670.1615 ext 235 | C: 416.399.6050 | 1.800.668.5557  
[dmartin-downs@creditvalleyca.ca](mailto:dmartin-downs@creditvalleyca.ca) | [creditvalleyca.ca](http://creditvalleyca.ca)

**From:**  
**Sent:** September 21, 2015 9:28 AM  
**To:** Martin-Downs, Deborah  
**Subject:** Nando

Good Morning

I am having a technical failure message from email address. Would you pass on the attached letter and include an invitation to attend the CVCA meeting at the ski club tomorrow?

Thanks  
Steve

The information contained in this Credit Valley Conservation electronic message is directed in confidence solely to the person(s) named above and may not be otherwise distributed, copied or disclosed including attachments. The message may contain information that is privileged, confidential and exempt from disclosure under the Municipal Freedom of Information and Protection and Privacy Act and by the Personal Information Protection Electronic Documents Act. The use of such personal information except in compliance with the Acts, is strictly prohibited. If you have received this message in error, please notify the sender immediately advising of the error and delete the message without making a copy. Thank you.

September 20, 2015

Thank you very much for your reassuring letter of July 14 stating that no decisions have been made on the Mack Park Dam and the outcome of the Dam is not predetermined. I hope you can appreciate that the first two proposed objectives appear to be in conflict:

1. Conserve and enhance the ecological and unique natural heritage features and functions of the Belfountain Complex.
2. Conserve and enhance the unique heritage attributes of the Belfountain Complex.

The uninitiated may get this opinion from the numerous self-descriptions the CVCA gives of itself:

“environmental organization dedicated to protecting, restoring, managing the natural resources of the Credit River watershed”

“CVC is a community based environmental organization dedicated to conserving, restoring, developing and managing natural resources on a watershed basis.”

The CVCA does not promote itself as a dedicated to the protecting, restoring and developing cultural heritage.

Public statements regarding the Mack’s Dam have not been encouraging:

“we do not recommend rebuilding the dam...” 2002 Management Plan/ Credit River Fisheries

“Long term, removing the dam maybe cheapest.” Meeting #5 Stakeholders Advisory Committee 2001

“The dam should be removed.” 2003 consultant’s report

In your letter you stated the six proposed objectives of the Belfountain Complex. Reading the CVCA’s website it mentions the Guiding Principles, Goals and Objectives for a Natural Heritage System:

“A system made up of natural heritage features and areas and linkages intended to provide connectivity and support natural processes which are necessary to maintain biological and geological diversity, viable populations of indigenous species and ecosystems.”

Can you see where someone may think this would be incompatible with a heritage site like Mack’s Dam?

I appreciate the CVCA is talking to a variety of stakeholders. Certainly if you were only preaching to the converted like other ecological groups or special interest groups like Trout’s Unlimited or Izaak Walton Fly Fishing Club (Bring back the brookies), I would be concerned.

Recently the Belfountain area has had negative experiences with consultative meetings. In the case of the Badlands and the Willoughby trail, meetings were held and then the agency went ahead and did what it wanted.

The CVCA has a history in this area of developing rural “parks” like Terra Cotta, Upper Credit, and Island Lake. The Belfountain Complex is attempting to develop in Belfountain, essentially doing, which has the potential of being disruptive to our community.

The CVCA website has no qualms in stating its power lies in the Conservation Authorities Act and Provincial Policy Statement 2014, and is somewhat shielded from Municipal and Ministry of Natural Resources in planning and management. I thought this meant the CVCA can do what it wanted but I now realize that should the community oppose some or all of the Belfountain Complex that Caledon town council can take appropriate action with the Honourable Minister of Natural Resources and Forestry, Bill Mouro as well as other measures.

Thank you again for writing to me and your interest in heritage conservation.

Sincerely,



**PIC #2**

# **PUBLIC CONSULTATION**

## **BELFOUNTAIN COMPLEX CLASS EA AND MANAGEMENT PLAN CONSULTATION SESSION**

**Credit Valley Conservation** is hosting a public consultation session to present the short list of alternatives for the Environmental Assessment (Class EA) for the Belfountain dam and headpond. The focus of the session will be on the Class EA. An update on the Belfountain Complex Management Plan will be provided.

The consultation session will include a presentation and the opportunity to speak to staff, ask questions and provide feedback.

For more information, visit:

**[www.creditvalleyca.ca/bcmp](http://www.creditvalleyca.ca/bcmp)**

**Tuesday, December 1, 2015**

**6 to 9 p.m.**

Presentation starts at 6:30 p.m.

**Caledon Ski Club** - West Lodge  
17431 Mississauga Road  
Caledon, Ontario, L7K 0E9

**Contact:** 905-670-1615 ext. 535  
or [lrundle@creditvalleyca.ca](mailto:lrundle@creditvalleyca.ca)



**CREDIT VALLEY  
CONSERVATION**



# **Belfountain Dam and Headpond Class Environmental Assessment**

## **Public Information Centre #2**

December 1, 2015



# Who is the Amec Foster Wheeler Team?

- **Amec Foster Wheeler** was retained by CVC to carry out the Belfountain Dam and Headpond Class Environmental Assessment
- The **Amec Foster Wheeler** 'Team' includes professionals specializing in all relevant aspects of the project:
  - Planning
  - Engineering
  - Natural sciences (**Parish Aquatic Services**)
  - Heritage & archaeology
  - Public consultation



**Present today:**  
Ron Scheckenberger  
Aaron Brouwers  
Mary Kelly  
Heather Dearlove



Credit Valley  
Conservation

# Outline

1. Study Need, Purpose and Approach
2. Study Area
3. Review of PIC #1
4. Long List of Alternatives
5. Alternative Evaluation
6. Short List of Alternatives
7. Next Steps
8. Open Question Period



Credit Valley  
Conservation

# 1. Study Need, Purpose & Approach

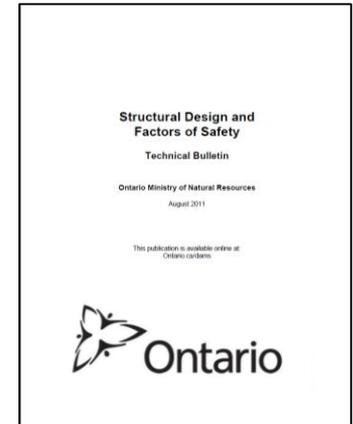
Why is the study required?

What will it achieve?

How will it achieve it?

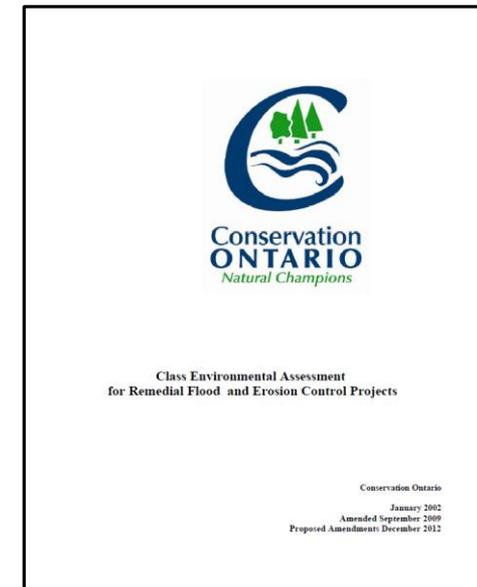
## Study Need, Purpose & Approach

- The need for this study is two fold:
  - Belfountain Dam does not meet all of the current provincial standards for safety
  - CVC must plan for the future management of Belfountain Conservation Area
- The purpose of this study is to determine how to manage the Belfountain **Dam and Headpond** in the future



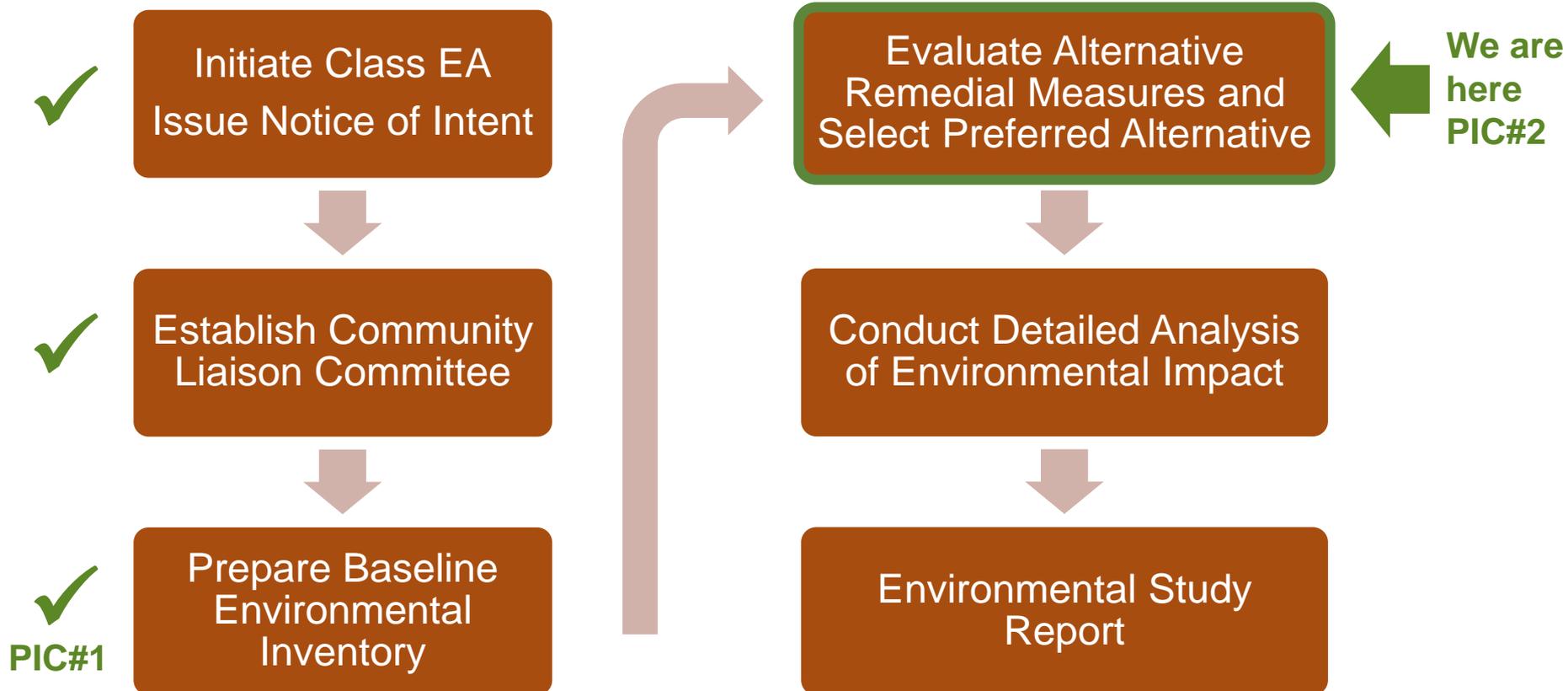
# Study Approach

- The study *approach*: Conservation Ontario's Class Environmental Assessment for Remedial Flood and Erosion Control Projects
- The process provides a project planning and design framework for proponents (Conservation Authorities like CVC) to ensure they meet the requirements of the Provincial *Environmental Assessment Act*
- Consultation with all stakeholders including the public and agency partners at all stages



# Study Approach

## Class Environmental Assessment Process



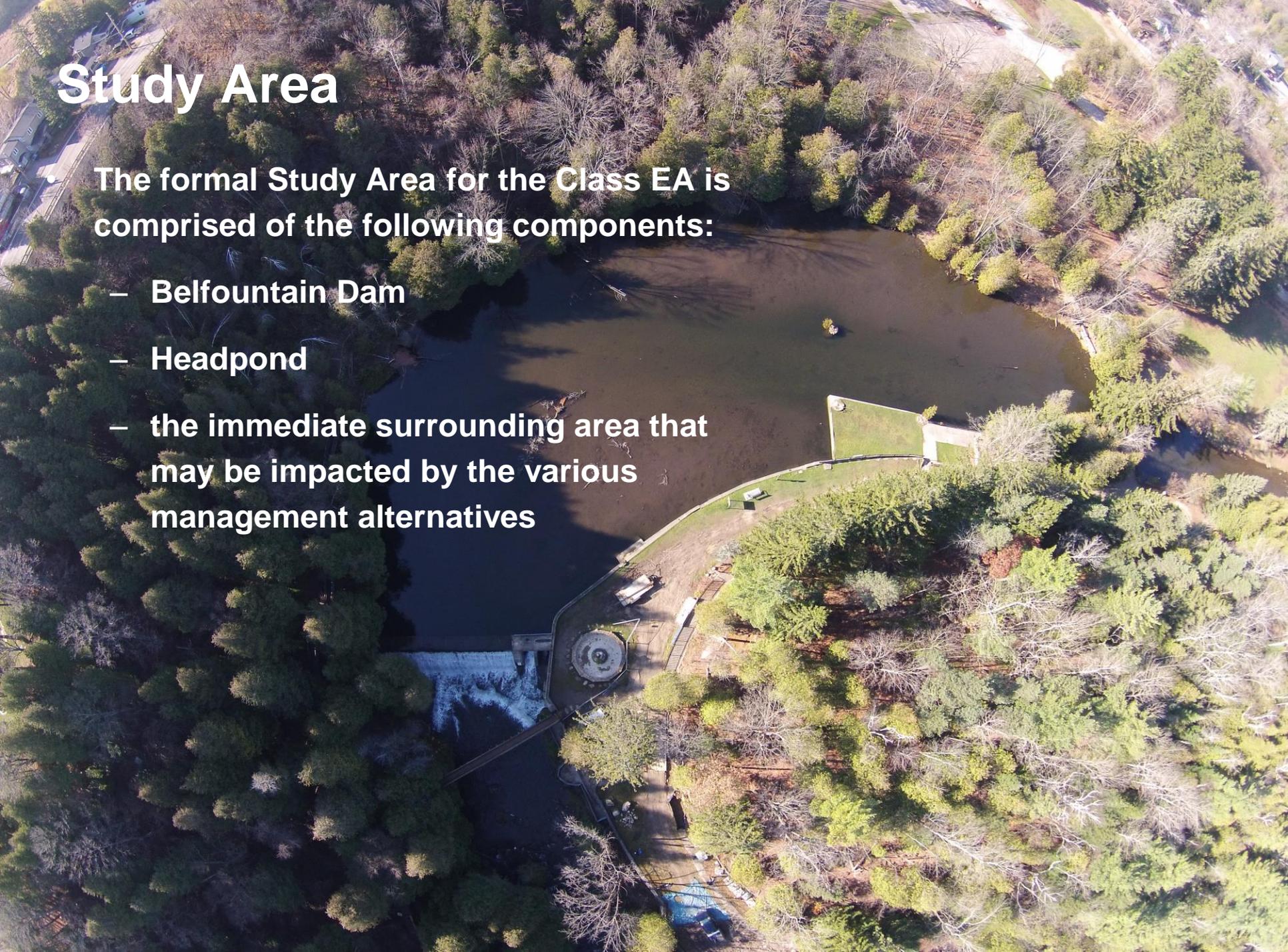


Credit Valley  
Conservation

## 2. Study Area

What elements and areas are included?

# Study Area

An aerial photograph showing a large body of water (headpond) behind a dam. The dam is a concrete structure with a spillway on the left side where water is cascading. The surrounding area is densely forested with green trees. A road and some buildings are visible in the upper left corner. The overall scene is a natural setting with a man-made structure.

• The formal Study Area for the Class EA is comprised of the following components:

- Belfountain Dam
- Headpond
- the immediate surrounding area that may be impacted by the various management alternatives



Credit Valley  
Conservation

## 3. Review of PIC#1

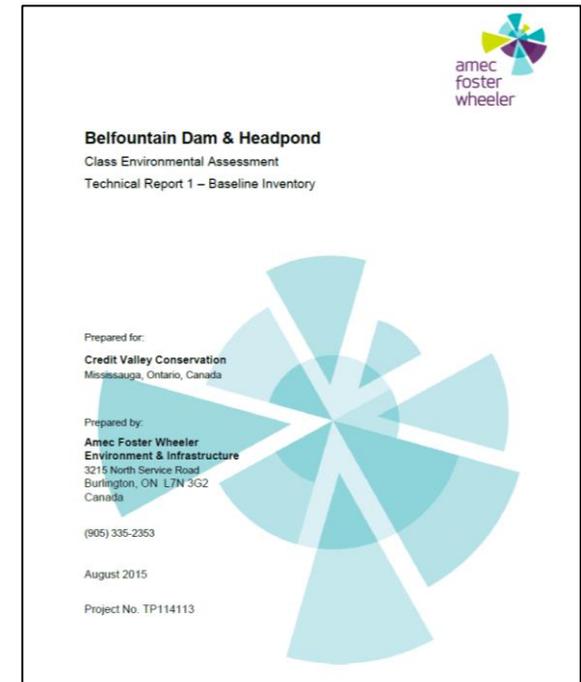
## Review of PIC#1

- Hosted on September 22, 2015 @ Caledon Ski Club
- Served as joint meeting for:
  - **Belfountain Complex Management Plan, and**
  - **Belfountain Dam & Headpond Class Environmental Assessment**
- Content (Class EA):
  - Study Objectives
  - Baseline Inventory
- Feedback:
  - Verbal - formal & informal question period
  - Written - questionnaire

# Review of PIC#1

## Baseline Inventory

- Nine (9) component technical studies have been completed:
  1. Hydrology and Hydraulics
  2. Structural Engineering
  3. Geotechnical Engineering
  4. Stream morphology & sediment
  5. Aquatic ecology
  6. Terrestrial ecology
  7. Cultural & built heritage
  8. Archaeology
  9. Financial analysis



# Review of PIC#1

**Study Objectives** *in order of importance based on public feedback:*

1. Promote natural stream function
2. Conserve and enhance natural heritage attributes
3. Maintain a fisheries barrier between upstream brook trout and downstream invasive and non-native species
4. Conserve and enhance cultural heritage attributes
5. Strive for long-term sustainability including economic viability
6. Reduce/minimize risk to visitors, staff and affected property
7. Maintain or improve the visitor experience

# Review of PIC#1

## What is your vision for Belfountain Dam & Headpond?

- “Naturalization”
- “Keep the dam and headpond”
- “A natural environment”
- “Conservation of this unique feature”
- “Preserve/conserve the natural and cultural aspects”

## Review of PIC#1

- A significant number of comments on varying aspects of the BCMP and the Class EA were received
- For a complete summary of comments received, refer to:

**Public Consultation Session Summary  
Belfountain Complex Management Plan & Class Environmental Assessment  
Fall 2015**

Available at [www.creditvalleyca.ca](http://www.creditvalleyca.ca)



Credit Valley  
Conservation

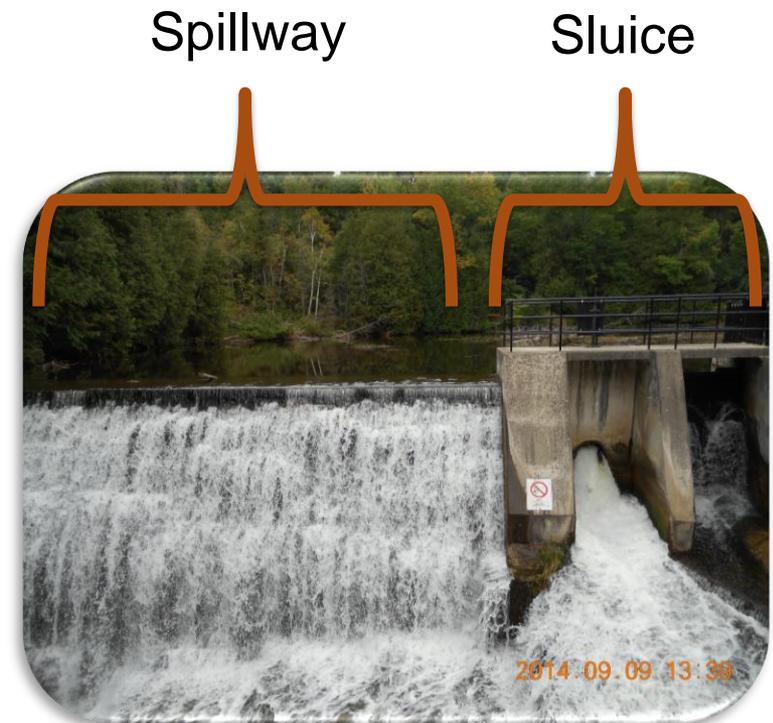
## 4. Long-list of Alternatives

All viable options for managing the dam and headpond

# Long-list of Alternatives

## Dam 'Lingo'

- **Dam** – a barrier that obstructs river flow and impounds water
- **Headpond** – a body of water resulting from a dam
- **Sluice** – a water channel controlled by a gate, typically to releasing low flows from the dam
- **Spillway** – provides controlled release of higher flows
- **Decommission** – remove the dam from service
- **Alter/lower** – change the dimensions and operation of the dam



# Long-list of Alternatives

## Dam Alternatives

- D1. Do Nothing*
- D2. Rehabilitate the dam*
- D3. Replace the dam*
- D4. Lower the spillway*
- D5. Decommission the dam*



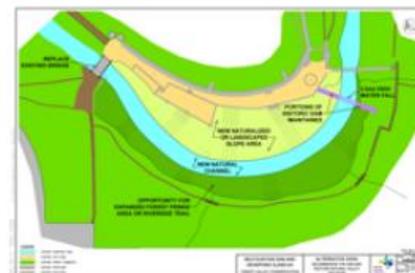
## Headpond Alternatives

- H1. Do Nothing*
- H2. Rehabilitate the headpond*
- H3. Expand tableland into the headpond*
- H4. Convert part of headpond to wetlands*
- H5. Backfill headpond & construct channel*
- H6. Construct channel & offline pond*
- H7. Restore natural valley and channel*



# Long List of Alternatives

- All viable options for the dam and headpond are considered
- Seven (7) alternatives for the dam and headpond have been developed
- **Concept plans are presented on the display boards**





Credit Valley  
Conservation

## 5. Alternative Evaluation

Identifying positive and negative effects of the management alternatives

# Alternative Evaluation

- Sixteen (16) evaluation criteria developed under four (4) environments:
  - **Physical** (e.g. stream function)
  - **Biological** (e.g. aquatic habitat)
  - **Cultural** (e.g. built heritage)
  - **Socioeconomic** (e.g. visitor experience)



# Alternative Evaluation

- Each criteria is assigned a **significance factor** to indicate its relative importance within the Study Area
  - High
  - Moderate
  - Low
- Each alternative is then assigned a **score** for each criteria
  - Positive 
  - Positive-Neutral 
  - Neutral 
  - Neutral-Negative 
  - Negative 

# Alternative Evaluation

- Where 'negative' effects are considered unacceptable, the alternative has been **screened**
  - E.g. decommissioning the dam is considered to have unacceptable impacts on cultural heritage*
- Otherwise the alternative has been advanced to the **short-list**
- The evaluation is summarized

in a matrix



*Presented in large format on the display boards*

Table 5.2: Alternative Evaluation

Environment	Screening Criteria	Factor Significance	Alternative						
			D101: Do Nothing	D201: Rehabilitate the dam and the headpond	D202: Rehabilitate the dam and headpond	D301: Rehabilitation the dam & convert part of the headpond to wetlands	D401: Lower the spillway & install treatment & sediment channel	D402: Lower the spillway, construct sediment & debris pass	D501: Decommission the dam & restore natural valley and channel
Physical	Nature/Stream Function	High	Stream function impaired by headpond	Stream function impaired by headpond	Stream function impaired by headpond	Stream function impaired by headpond	Natural stream function restored	Natural stream function restored	Natural stream function restored
	Watercourse Thermal Regime	High	Thermal impact of headpond	Thermal impact of headpond	Thermal impact of headpond	Thermal impact of headpond	Thermal impact significantly reduced	Thermal impact significantly reduced	Thermal impact significantly reduced
	Maintenance of Fish Dam	High	Barrier maintained for all fish species	Barrier maintained for all fish species	Barrier maintained for all fish species	Barrier maintained for all fish species	Barrier maintained for all fish species	Barrier maintained for all fish species	Barrier maintained for all fish species
Biological	Aquatic Habitat	High	No change	No significant benefit	No significant benefit	No significant benefit	Coldwater habitat restored	Coldwater habitat restored	Coldwater habitat restored
	Riparian Habitat	Moderate	No change	No change	No change	"Wetland habitat" is considered positive improvement, brought out relative to D1	Riparian habitat associated with natural channel introduced	Riparian habitat associated with natural channel introduced	Riparian habitat associated with natural channel introduced
	Terrestrial Habitat	Low	No change	No change	No change	No change	Additional floodplain habitat	No significant change	Additional valley/floodplain habitat
Cultural	Wild Heritage Features	High	No change	Longevity of wetland improved by structural mitigation	Longevity of wetland improved by structural mitigation	Longevity of wetland improved by structural mitigation	Negative effect on spillway	Negative effect on spillway	Removal of majority of spillway
	Landscape Heritage Features	High	No change	Headpond structure required through sediment removal	Some change to heritage landscape	Some change to heritage landscape	Loss of headpond feature in heritage landscape	Some change to heritage landscape	Loss of headpond feature in heritage landscape
	Archaeological/Recreational	Low	No effect expected	No effect expected	No effect expected	No effect expected	No effect expected	No effect expected	No effect expected
Socioeconomic	Visitor Experience	High	No change	Aesthetics of headpond	Improved aesthetics of headpond	Improved aesthetics of headpond	Improved aesthetics of headpond	Improved aesthetics of headpond	Improved aesthetics of headpond
	Flood Risk and Safety	High	Deterioration of the dam over time would increase risk of failure. Also associated with the LRIA.	Flood hazard associated with dam failure persists. Dam and headpond (deep water) present risk to staff and park visitors.	Flood hazard associated with dam failure persists. Dam and headpond (deep water) present risk to staff and park visitors.	LRIA criteria met. Flood hazard associated with dam failure persists. Dam and headpond (deep water) present risk to staff and park visitors.	LRIA criteria met. Flood hazard associated with dam failure persists. Dam and headpond (deep water) present risk to staff and park visitors.	LRIA criteria met. Flood hazard associated with dam failure persists. Dam and headpond (deep water) present risk to staff and park visitors.	Flood hazard associated with dam failure persists. Dam and headpond (deep water) present risk to staff and park visitors.
	Visitor Revenue	Moderate	No change expected	No change expected	No change expected	No change expected	No change expected	No change expected	Potential for reduced visitation
Socioeconomic	Capital Cost	Moderate	No Cost	Moderate Cost	Moderate/High Cost	Moderate Cost	Moderate Cost	High Cost	Moderate/High Cost
	Major Maintenance Costs	Low	No change	Public sediment removal, dam assessments, potential for structural repairs.	Public sediment removal, dam assessments, potential for structural repairs.	Public sediment removal, dam assessments, potential for structural repairs.	Public sediment removal, dam assessments, potential for structural repairs.	Public sediment removal, dam assessments, potential for structural repairs.	No significant capital maintenance costs required.
	Village Tourism Economy	Moderate	No change	No change	No change	No change	No change	No change	Potential reduction in associated business opportunities
Summary	Less Community	Moderate	No change	No change	No change	No change	No change	No change	No change
	Summary		Screened. Not compliant with the LRIA, does not address unacceptable levels of the existing dam	Short-listed. Potential for positive effects. Physical or biological perspective.	Screened. Positive socio-economic effects. No positive Physical/Biological effects. Opportunity for comparison with All alternatives.	Screened. Negative socio-economic effects. No positive Physical/Biological effects. Opportunity for comparison with All alternatives.	Short-listed. Potential from a Physical/Biological perspective. Less preferred from a Cultural perspective.	Short-listed. Potential from a Physical/Biological perspective. More preferred from a Cultural perspective. Less preferred from the Economic perspective.	Screened. Negative Cultural and Socio-economic effects are not considered acceptable.

LEGEND: Positive (Green), Positive-Neutral (Light Green), Neutral (White), Neutral-Negative (Light Red), Negative (Red)



Credit Valley  
Conservation

## 6. Short List of Alternatives

The alternatives advanced for further consideration

## Short List of Alternatives

- Based on the **Alternative Evaluation**, three (3) alternatives advanced:

**D2H2: Rehabilitate the dam & headpond**

**D4H5: Lower the spillway, backfill the headpond & construct a natural channel**

**D4H6: Lower the spillway & construct a natural channel & offline pond**

# Short List of Alternatives

## D2H2: Rehabilitate the dam & headpond



# Short List of Alternatives

## D2H2: Rehabilitate the dam & headpond

### Advantages

- Pond depth increases: improved aesthetics
- No impact to cultural heritage (built or landscape)

### Disadvantages

- High cost for ongoing dam & pond maintenance (inspection & dredging)
- No improvements to natural stream function or natural heritage

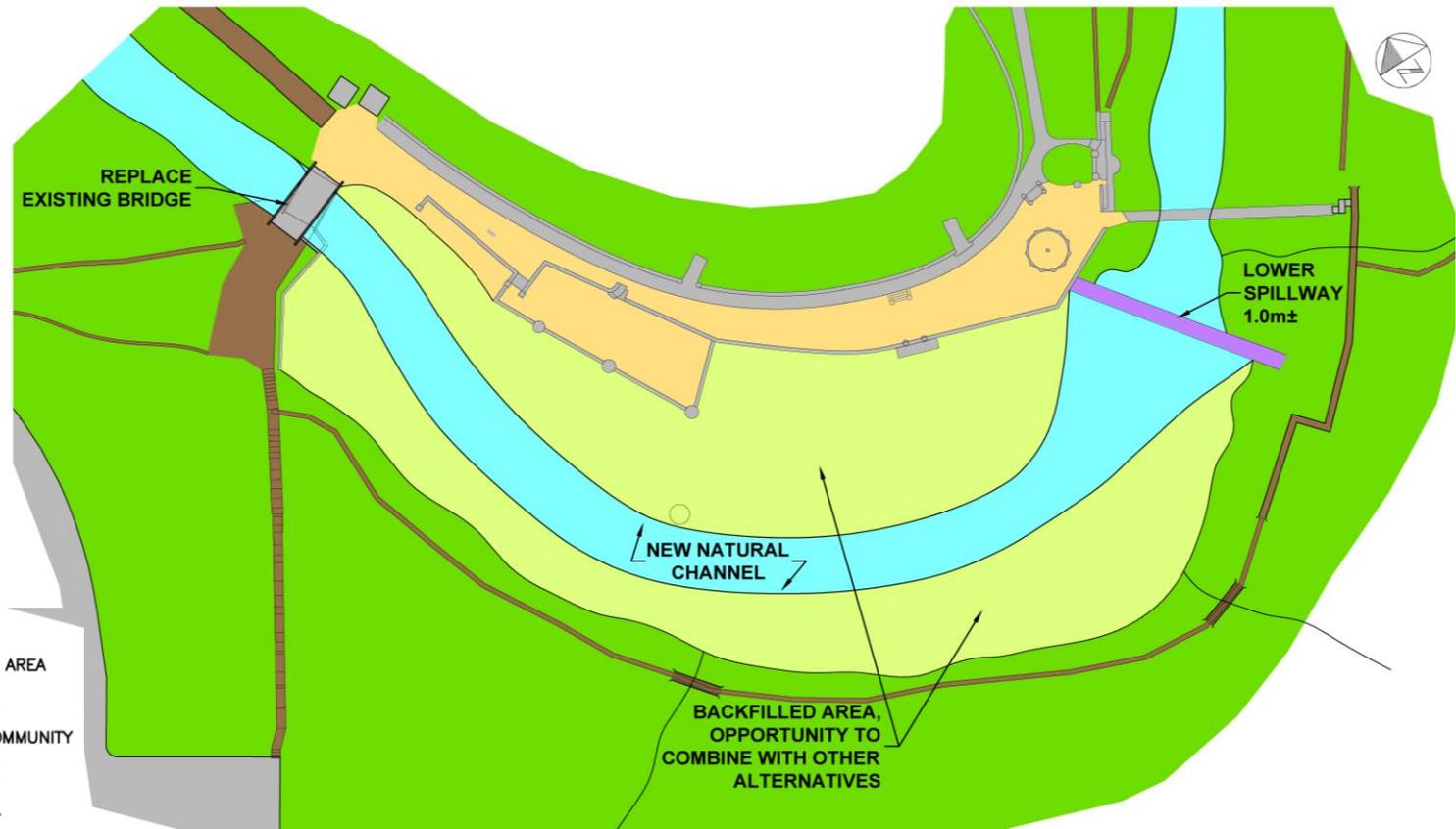


**BrookMcIlroy**

**Option D2H2**  
Rehabilitate the Dam  
and Headpond

# Short List of Alternatives

**D4H5: Lower the spillway, backfill the headpond & construct a natural channel**



## Short List of Alternatives

### D4H5: Lower the spillway, backfill the headpond & construct a natural channel

Advantages	Disadvantages
<ul style="list-style-type: none"><li>- Flood risk reduced</li><li>- Natural stream function enhanced</li><li>- Aquatic &amp; riparian habitat improved</li><li>- Open space opportunities for recreation</li></ul>	<ul style="list-style-type: none"><li>- Change in drama of waterfall (lower but wider)</li><li>- Impacts to built cultural heritage (reduction of dam height) and cultural landscape (elimination of pond)</li></ul>



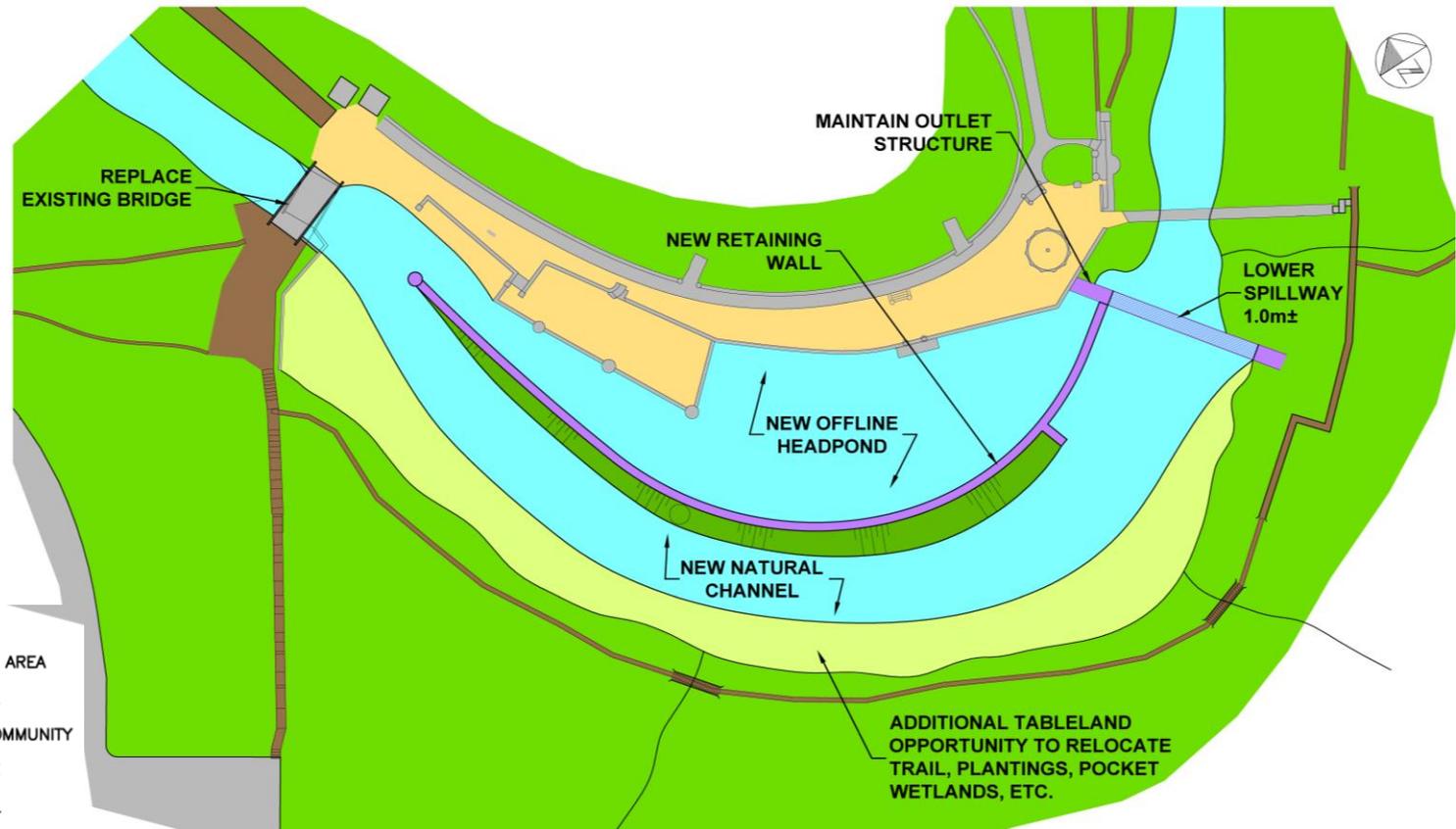
**BrookMcIlroy**

**Option D4H5**

Lower the Spillway, Backfill the  
Heapond and Construct Channel

# Short List of Alternatives

## D4H6: Lower the spillway & construct a natural channel & offline pond



# Short List of Alternatives

## D4H6: Lower the spillway & construct a natural channel & offline pond

Advantages	Disadvantages
<ul style="list-style-type: none"><li>- Flood risk reduced</li><li>- Natural stream function enhanced</li><li>- Aquatic &amp; riparian habitat improved</li><li>- Headpond retained, in altered fashion</li></ul>	<ul style="list-style-type: none"><li>- Reduced drama (height) of waterfall</li><li>- Impacts to built heritage</li><li>- Change to headpond aesthetic</li><li>- High Cost</li></ul>



**BrookMcIlroy**

**Option D4H6**

Lower the Spillway and Construct  
Channel and Offline Headpond

# Short-List of Alternatives

- The **Preferred Alternative** will
  - be selected from the **short-list** of alternatives
  - be selected with consideration for **input from the public and partner agencies**
  - need to meet the **study objectives**

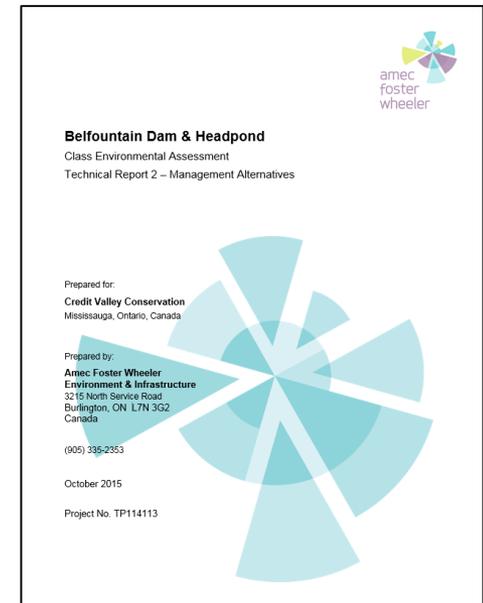


Credit Valley  
Conservation

## 7. Next Steps

## Next Steps

- Circulate partner agencies on *Technical Report #2 – Management Alternatives*  
(also available at [www.creditvalleyca.ca](http://www.creditvalleyca.ca))
- Collect and consider input from the public
- Select a preliminary preferred alternative
- Analyze and select preferred method of implementation
- Conduct detailed analysis of environmental effects
- Prepare final Project File
- Issue Notice of Completion (May 2016)





Credit Valley  
Conservation

## 8. Open Question Period

# Participation Expectations

Speak one at a time

Stay on topic

Turn-off or silence phones

Respect each other

**Together,  
we will**

Come up and use the microphone

Share the airtime

Listen to understand



Credit Valley  
Conservation

Please review the **display boards**  
at the back of the room

**Project staff** are available to  
discuss the project further



# Belfountain Dam and Headpond Class Environmental Assessment Public Information Centre No.2

December 1, 2015



The formal Study Area is comprised of the Belfountain Dam; Headpond, and the immediate surrounding area within the Belfountain Conservation Area

The *Class Environmental Assessment* Study Area is a sub-area within the Belfountain Complex and the outcomes will be incorporated into the *Belfountain Complex Management Plan*.

- LEGEND**
- BELFOUNTAIN CONSERVATION AREA
  - WILLOUGHBY PROPERTY
  - COX PROPERTY
  - STREAM LINE
  - EXISTING HEADPOND



# Study Need, Purpose and Approach



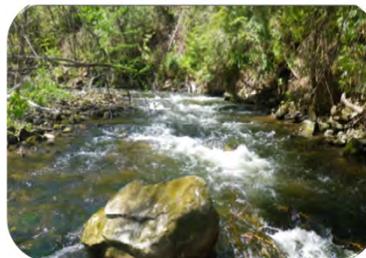
## Study Need

- The need for this study was identified in a previous evaluation of the dam's safety which revealed *Belfountain Dam does not meet all of the current provincial standards* for safety
- Although the dam could simply be repaired, other management options are available that require additional study of several important factors including:
  - Park visitors
  - Cultural heritage
  - Natural heritage
  - Economics
  - And more
- CVC is a public body, and as such certain activities must be planned in accordance with the *Environmental Assessment Act*
- Under the Act, CVC is required to undertake a *Conservation Ontario, Class Environmental Assessment for Remedial Flood and Erosion Control (Class EA)*



## Study Purpose

- The purpose is to determine how to manage the **Belfountain Dam and Headpond** in the future using the Class EA approach

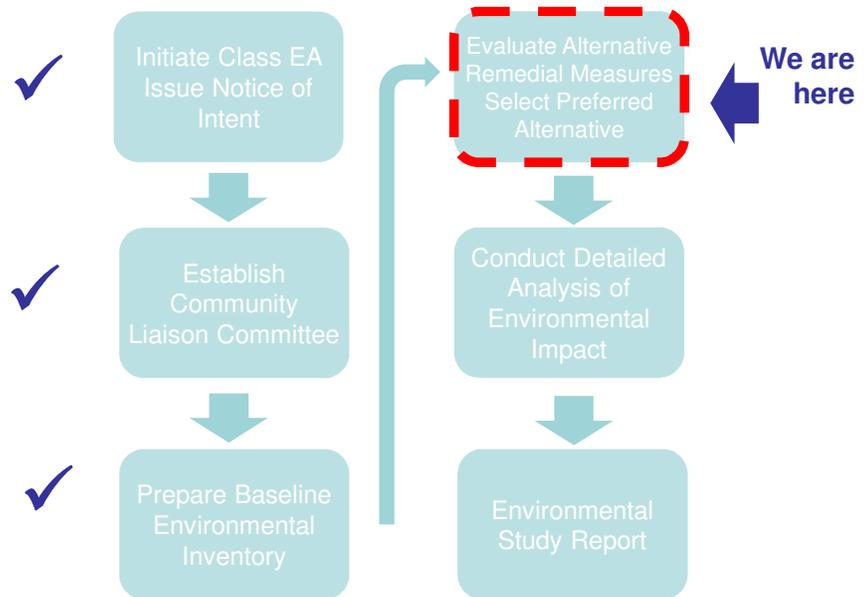




# Study Approach and Objectives

## Study Approach

- This study approach: Conservation Ontario's Class Environmental Assessment for Remedial Flood and Erosion Control Projects
- The process provides a project planning and design framework for proponents (Conservation Authorities like CVC) to ensure they meet the requirements of the Provincial Environmental Assessment Act
- Consultation with all stakeholders including the public and agency partners at all stages



## Study Objectives

CVC has established seven (7) Study Objectives for this project:

- 1) Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species
- 2) Reduce/minimize risk to visitors, staff and affected property
- 3) Maintain or improve the visitor experience
- 4) Conserve and enhance cultural heritage attributes
- 5) Promote natural stream function
- 6) Strive for long-term sustainability including economic viability
- 7) Conserve and enhance natural heritage attributes



# Baseline Inventory



## A summary of existing conditions and background information

- Nine (9) component technical studies have been completed and have been summarized in Technical Report #1. This information was presented at PIC #1
  - 1) Hydrology and Hydraulics
  - 2) Structural Engineering
  - 3) Geotechnical Engineering
  - 4) Stream morphology & sediment
  - 5) Aquatic ecology
  - 6) Terrestrial ecology
  - 7) Cultural & built heritage
  - 8) Archaeology
  - 9) Financial analysis



## Examples of some of the work and observations made as part of the Baseline Inventory



Test pitting behind north retaining wall (geotechnical engineering)



Concrete deterioration (structural engineering)



Historic photo of Belfountain Dam (cultural heritage)



Brook trout (aquatic ecology)



Jefferson salamander (terrestrial ecology)



West Credit River (Stream morphology)

# Long List of Alternatives

- All viable options for managing the dam and headpond are considered
- Alternatives for the dam and headpond have been developed somewhat independently and compatible combinations have been advanced for evaluation
- The following boards illustrate concept plans for the combination of dam and headpond alternatives

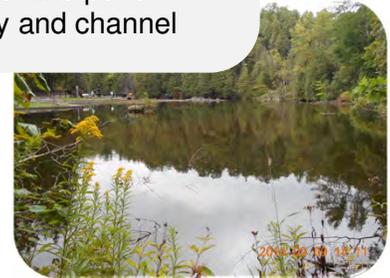
## Dam Alternatives

- D1. Do Nothing
- D2. Rehabilitate the dam
- D3. Replace the dam
- D4. Lower the spillway
- D5. Decommission the dam

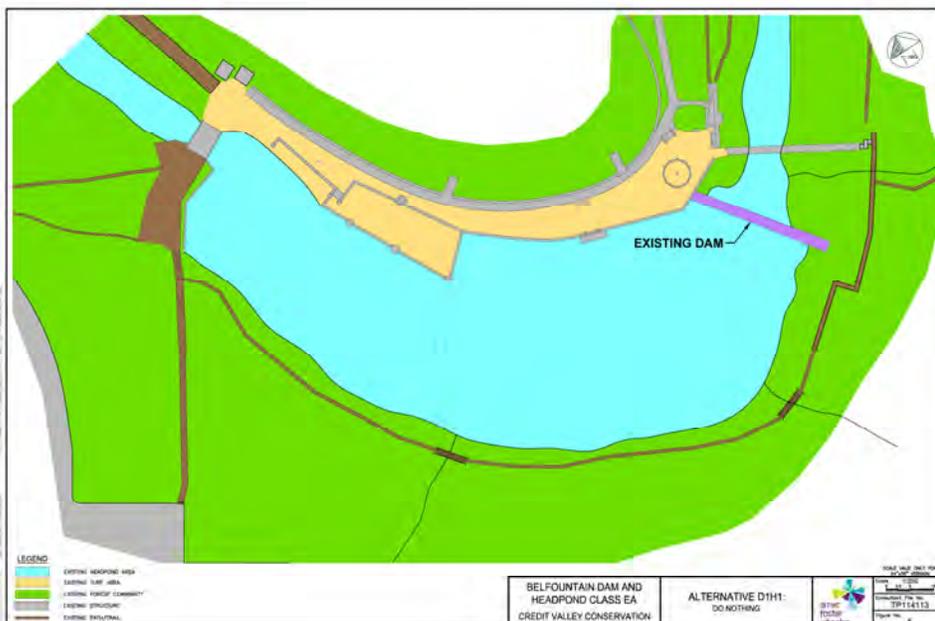


## Headpond Alternatives

- H1. Do Nothing
- H2. Rehabilitate the headpond
- H3. Expand tableland into the headpond
- H4. Convert part of headpond to wetlands
- H5. Backfill headpond & construct channel
- H6. Construct channel & offline pond
- H7. Restore natural valley and channel



## Alternative D1H1: Do Nothing



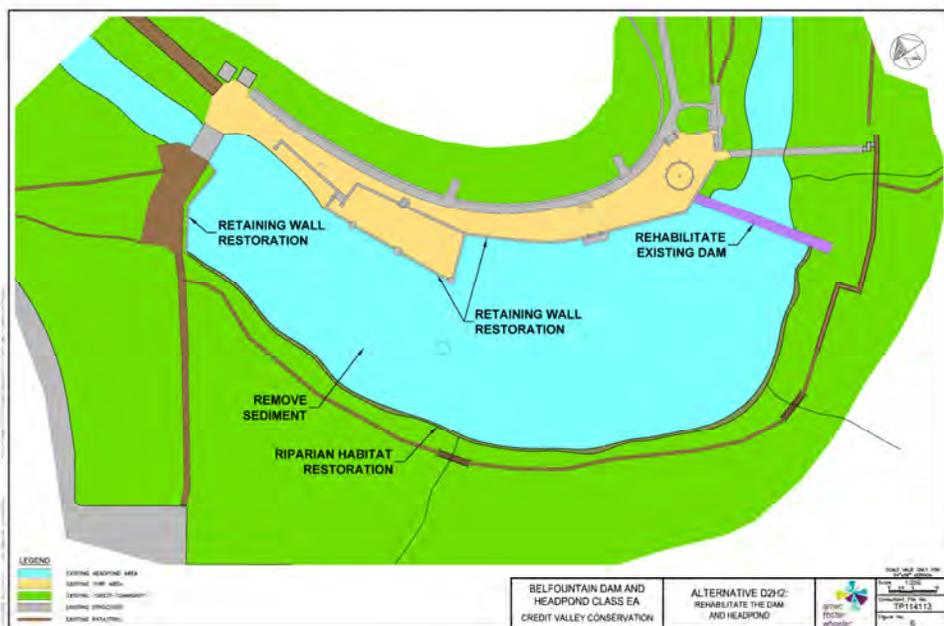
### Under this alternative:

- No changes are proposed to the dam or headpond
- The 'Do Nothing' alternative must be considered as part of the Class Environmental Assessment process and provides a 'baseline' for which to compare the effects of other management alternatives

# Long List of Alternatives



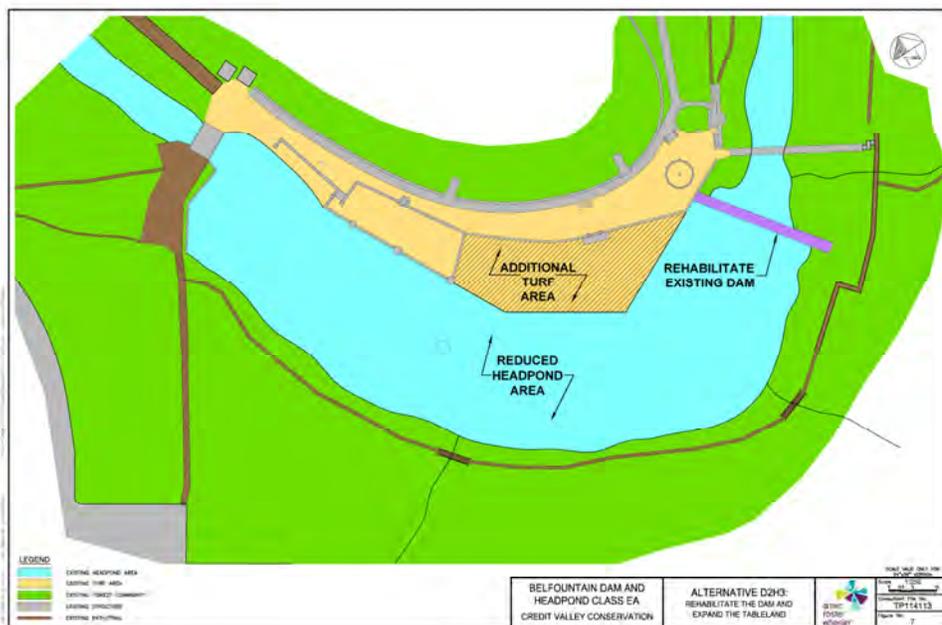
## Alternative D2H2: Rehabilitate the Dam and Headpond



### Under this alternative:

- The structural and safety issues associated with the dam would be addressed; the dam would continue to look much as it does today
- The sediment in the headpond would be cleaned out, the retaining walls would be restored and improvements to the natural south shoreline would be made (plantings, trails, etc)

## Alternative D2H3: Rehabilitate the Dam and Expand the Tableland



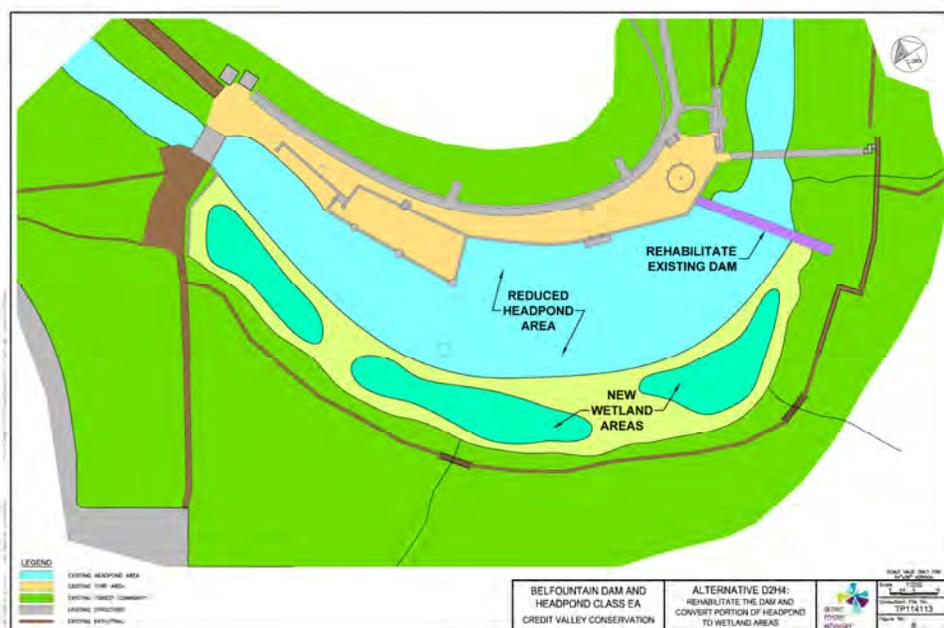
### Under this alternative:

- The elements included in Alternative D2H2 are proposed in addition to:
- A portion of the headpond would be reclaimed as additional turf area to provide more space for park visitors

# Long List of Alternatives



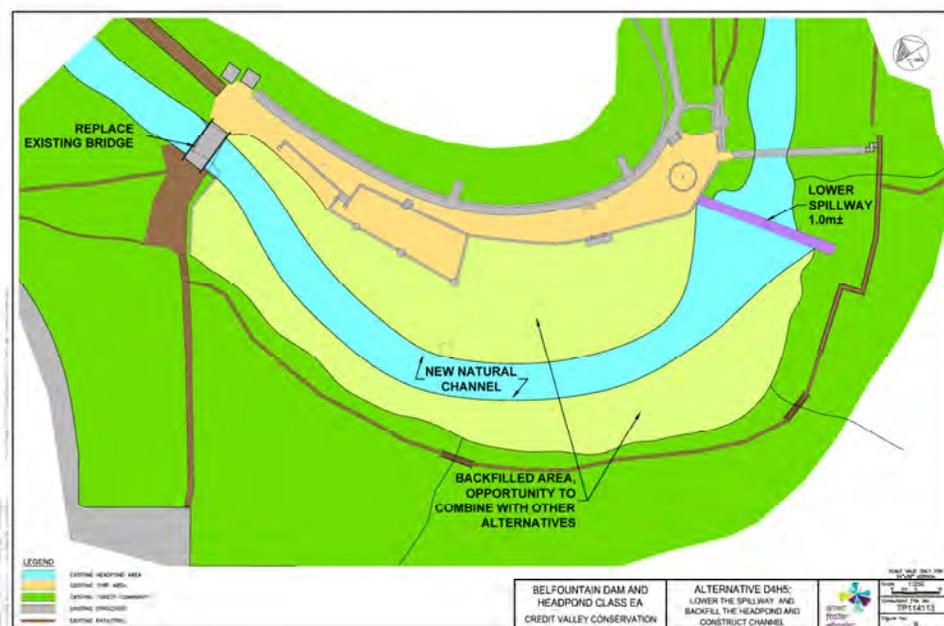
## Alternative D2H4: Rehabilitate the Dam and Convert Portion of headpond to wetland aArea



### Under this alternative:

- The elements included in Alternative D2H2 are proposed in addition to:
- A portion of the headpond would be reclaimed as wetland areas

## Alternative D4H5: Lower the spillway, backfill the headpond & construct a natural channel



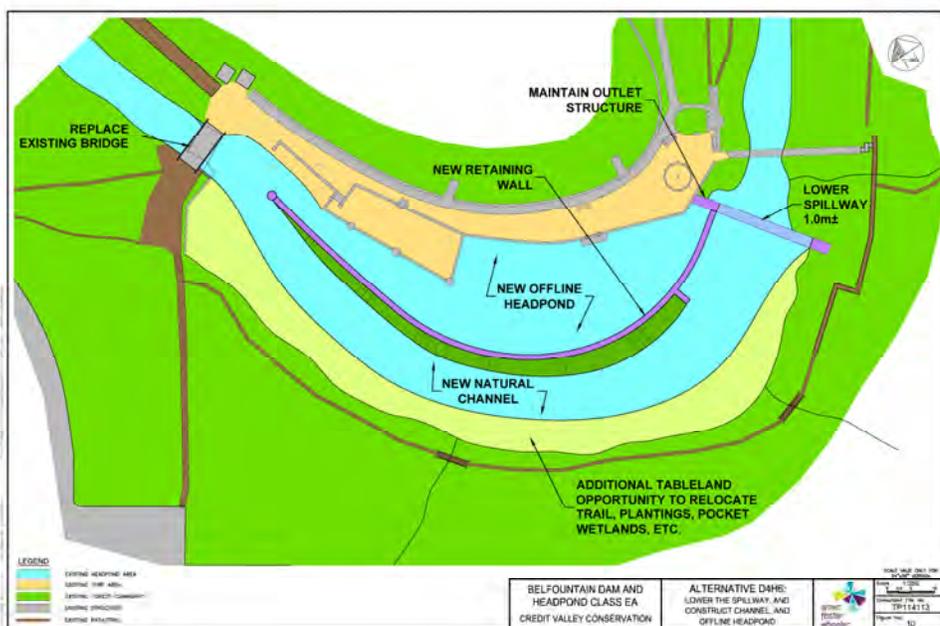
### Under this alternative:

- The dam spillway would be lowered by 1 m +/- to provide adequate grade for a flowing natural channel
- The headpond would be backfilled, capping the sediment in place, and a natural channel would be constructed
- Additional open space would create an opportunity for new natural or recreational areas
- A wider headpond bridge would be preferred to accommodate the natural channel

# Long List of Alternatives



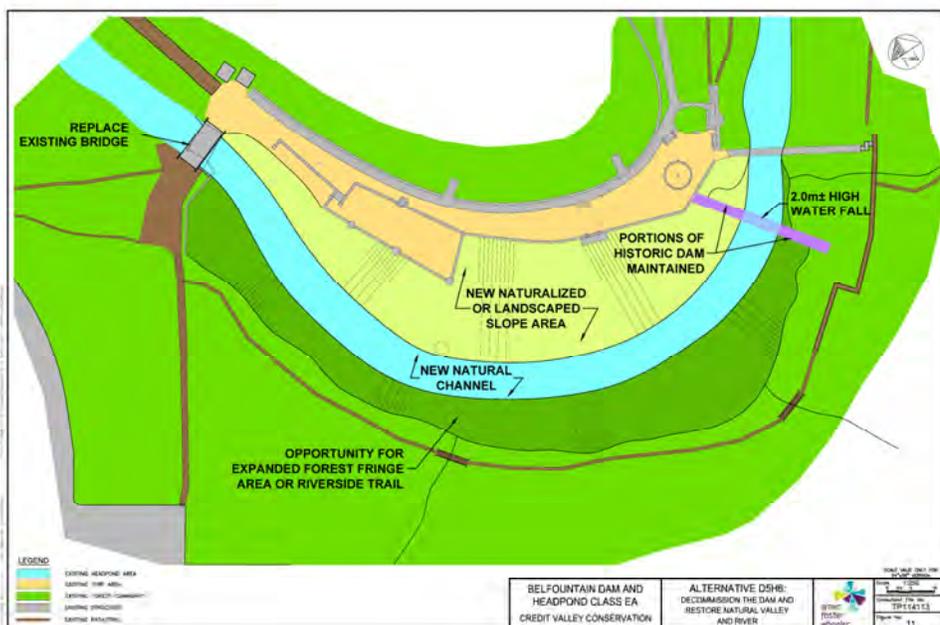
## Alternative D4H6: Lower the Spillway and Construct Channel and Offline Headpond



### Under this alternative:

- The dam spillway would be lowered by 1 m +/- to provide adequate grade for a flowing natural channel
- The headpond would be backfilled on the south side to accommodate a natural channel
- A retaining wall would be extended from the existing sluice gate to create an offline pond; existing sediment would be removed
- A wider headpond bridge would be preferred to accommodate the natural channel

## Alternative D5H7: Restore Natural Valley and River



### Under this alternative:

- The dam spillway would be lowered by 1 m +/- to provide adequate grade for a flowing natural channel
- The headpond would be backfilled, capping the sediment in place, and a natural channel would be constructed
- Additional open space would create an opportunity for new natural or recreational areas
- A wider headpond bridge would be preferred to accommodate the natural channel

# Alternative Evaluation



- Sixteen (16) evaluation criteria have been developed under four (4) environments – these are summarized in the table below
- Each criteria is assigned a **significance factor** (high, moderate or low) to indicate its relative importance within the Study Area



Environment	Criteria	Significance	Description
Physical	Natural Stream Function	High	The ability of the West Credit River to function as a natural stream-through the Study Area, with consideration to impacts on downstream reaches. Considerations include sediment transport, oxygenation, habitat, etc. The dam/headpond inhibit this function.
	Watercourse Thermal Regime	High	The West Credit River is cold water fish habitat. The headpond allows for increased solar inputs which negatively effect water temperature both within the Study Area and downstream.
Biological	Maintain Fish Barrier	High	Maintain a barrier to upstream migration of non-native and invasive species for the purpose of protecting upstream brook trout populations.
	Aquatic Habitat	High	The quality and extent of habitat for brook trout and other aquatic species in the Study Area (i.e. headpond). Algae growth, sediment, and water temperature are current concerns.
	Riparian Habitat	Moderate	The quality and extent of riparian habitat within the Study Area.
	Terrestrial Habitat	Low	The quality and extent of habitat for terrestrial species within the Study Area. Jefferson Salamander, Small Brown Bat, other local significant species and the ANSI are of specific concern.
Cultural	Built Heritage Features	High	Built heritage features that may be impacted directly or indirectly by construction including the dam, retaining walls, fountain and other features.
	Landscape Heritage Features	High	Mack Park is a candidate heritage landscape and the priority would be to maintain/re-instate the character of the original landscape design.
	Archaeological /Resources	Low	The Study Area contains pre-contact Aboriginal and historic Euro-Canadian resources that must be protected from impact or mitigated where impact is unavoidable.
Socio economic	Visitor Experience	High	The BCA is considered to provide a unique combination of experiences specifically related to the dam: natural/ and anthropogenic vistas (river, waterfall and headpond) built heritage features and access to water. Protecting these experiences and providing new experiences is a priority.
	Flood Risk and Safety	High	The extent of potential flood damages to life, property, environment and heritage features (including dams) downstream. The presence of a dam increases flood risk. Safety considerations and liability associated with the presence/operation of the dam/headpond including safety of park visitors and-staff, are included in this criteria. This criteria considers the ability to meet the LRIA criteria.
	Visitor Revenue	Moderate	Revenue generated from park entrance fees
	Capital Cost	Moderate	Cost of construction associated with the alternative
	Major Maintenance Cost	Low	Maintenance costs associated with capital improvements to the park infrastructure, also including the need for specialist dam safety inspections.
	Village Tourism/ Economy	Moderate	The dam/headpond are iconic to the region and a major draw for park visitors to the Belfountain village which supports the local and regional economy.
	Local Community	Moderate	The dam/headpond are a major draw for park visitors. The local community is affected by the associated traffic, parking, noise, trash, etc.



- Each alternative is then assigned a **score** for each criteria

- Positive
- Positive-Neutral
- Neutral
- Neutral-Negative
- Negative



- Where 'negative' effects are considered unacceptable, the alternative has been **screened**
- Otherwise the alternative has been **advanced to the short-list**
- See the 'Summary' row in the evaluation matrix
- **The evaluation matrix is presented on the next board**



# Alternative Evaluation

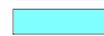
Environment	Screening Criteria	Factor Significance	Alternative																				
			D1H1: Do Nothing		D2H2: Rehabilitate the dam and headpond		D2H3: Rehabilitate the dam & expand the tableland		D2H4: Rehabilitate the dam & convert part of the headpond to wetlands		D4H5: Lower the spillway & backfill headpond & construct channel		D4H6: Lower the spillway, construct channel & offline pond		D5H7: Decommission the dam & restore natural valley and channel								
Physical	<i>Natural Stream Function</i>	High	Stream function impaired by headpond		Stream function impaired by headpond		Stream function impaired by headpond		Stream function impaired by headpond		Natural stream function restored		Natural stream function restored		Natural stream function restored								
	<i>Watercourse Thermal Regime</i>	High	Thermal impact of headpond unchanged		Thermal impact of headpond unchanged		Headpond area reduced. Thermal impact reduced		Headpond area reduced. Thermal impact reduced		Thermal impact eliminated		Thermal impact significantly reduced		Thermal impact eliminated								
Biological	<i>Maintenance of Fish Barrier</i>	High	Barrier maintained for all fish species		Barrier maintained for all fish species		Barrier maintained for all fish species		Barrier maintained for all fish species		Barrier maintained for all fish species		Barrier maintained for all fish species		Barrier maintained for all fish species								
	<i>Aquatic habitat</i>	High	No change		No significant benefit		No significant benefit		No significant benefit		Coldwater habitat restored		Coldwater habitat restored		Coldwater habitat restored								
	<i>Riparian Habitat</i>	Moderate	No change		No change		No change		Wetland habitat is considered positive improvement, though not native to area		Riparian habitat associated with natural channel introduced		Riparian habitat associated with natural channel introduced		Riparian habitat associated with natural channel introduced								
	<i>Terrestrial Habitat</i>	Low	No change		No change		No change		No change		Additional floodplain habitat		No significant change		Additional valley/floodplain habitat								
Cultural	<i>Built Heritage Features</i>	High	No change		Longevity of spillway improved by structural mitigation		Longevity of spillway improved by structural mitigation		Longevity of spillway improved by structural mitigation		Negative effect on spillway		Negative effect on spillway		Removal of majority of spillway								
	<i>Landscape Heritage Features</i>	High	No change		Headpond character restored through sediment removal		Some change to heritage landscape		Some change to heritage landscape		Loss of headpond feature in heritage landscape		Some change to heritage landscape		Loss of headpond feature in heritage landscape								
	<i>Archaeological / Resources</i>	Low	No effect expected		No effect expected		No effect expected		No effect expected		No effect expected		No effect expected		No effect expected								
Socioeconomic	<i>Visitor Experience</i>	High	No change		Aesthetics of headpond improved		Reduced crowding in fountain area. Negative effect on open water vistas		Increased opportunity for ecologic interpretation. Negative effect on open water vistas		Drama of waterfall reduced with 1 m reduction in spillway height. Loss of open water vistas		Drama of waterfall reduced with 1 m reduction in spillway height. Reduced headpond area.		Significant negative effect on waterfall drama and loss of open water vistas								
	<i>Flood Risk and Safety</i>	High	Deterioration of the dam over time would increase risk of failure. Alternative is not compliant with the LRIA.		LRIA criteria met. Flood hazard associated with dam failure persists. Dam and headpond (deep water) present risk to staff and park visitors		LRIA criteria met. Flood hazard associated with dam failure persists. Dam and headpond (deep water) present risk to staff and park visitors		LRIA criteria met. Flood hazard associated with dam failure persists. Dam and headpond (deep water) present risk to staff and park visitors		LRIA criteria met. Flood hazard associated with dam breach eliminated. Some risk to staff/visitors associated with the waterfall.		LRIA criteria met. Flood hazard associated with dam failure reduced. Dam and headpond (deep water) present risk to staff and park visitors		Flood hazard associated with dam breach eliminated. Risk to staff/visitors similar to any watercourse								
	<i>Visitor Revenue</i>	Moderate	No change expected		No change expected		No change expected		No change expected		No change expected		No change expected		Potential for reduced visitation								
	<i>Capital Cost</i>	Moderate	No Cost		Moderate Cost		Moderate/High Cost		Moderate Cost		Moderate Cost		High Cost		Moderate/High Cost								
	<i>Major Maintenance Costs</i>	Low	No change		Future sediment removal, dam safety assessments, potential for structural repairs.		Future sediment removal, dam safety assessments, potential for structural repairs.		Future sediment removal, dam safety assessments, potential for structural repairs.		Need for sediment removal eliminated. Future safety inspections required.		Frequency/magnitude of sediment removal reduced. Future safety inspections required.		No significant capital maintenance costs expected.								
	<i>Village Tourism/ Economy</i>	Moderate	No change		No change		No significant change		No significant change		No significant change		No significant change		Potential reduction in visitors and associated business								
	<i>Local Community</i>	Moderate	No change		No change		No significant change		No significant change		No significant change		No significant change		Potential reduction in visitors and associated traffic, noise, etc								
Summary			<b>Screened.</b> Not compliant with the LRIA. Does not address structural/safety issues of the existing dam			<b>Short-listed.</b> Preferred from a Cultural perspective, not preferred from a Physical or Biological perspective.			<b>Screened.</b> Positive Socioeconomic effects. Negative Cultural effects. No positive Physical/Biological effects. Opportunity for combination with Alt D4H5			<b>Screened.</b> Negative Cultural effects. No significant positive Physical/Biological effects. Opportunity for combination with Alt D4H5			<b>Short-listed.</b> Preferred from a Physical/Biological perspective. Less preferred from a Cultural perspective.			<b>Short-listed.</b> Preferred from a Physical/Biological perspective. More preferred from a Cultural perspective. Less preferred from an Economic perspective.			<b>Screened.</b> Negative Cultural and Socioeconomic effects are not considered acceptable.		

LEGEND  Positive  Positive-Neutral  Neutral  Neutral-Negative  Negative

# Short List of Alternatives

- The following alternatives have been advanced to the short-list for further consideration
- Advantages and disadvantages for each alternative are presented below
- Visualizations or renderings of the short-listed alternatives have been prepared and are **presented on the following boards**

### LEGEND

	EXISTING HEADPOND AREA
	EXISTING TURF AREA
	EXISTING FOREST COMMUNITY
	EXISTING STRUCTURE
	EXISTING PATH/TRAIL

## Alternative D2H2: Rehabilitate the Dam & Headpond

Advantages	Disadvantages
- Pond depth increases: improved aesthetics	- High cost for ongoing dam & pond maintenance (inspection & dredging)
- No impact to cultural heritage (built or landscape)	- No improvements to natural stream function or natural heritage



## Alternative D4H5: Lower the spillway, backfill the headpond & construct a natural channel

Advantages	Disadvantages
- Flood risk reduced	- Reduced drama (height) of waterfall
- Natural stream function enhanced	- Impacts to built heritage
- Aquatic & riparian habitat improved	- Change to headpond aesthetic
- Headpond retained, in altered fashion	- High Cost



## Alternative D4H6: Lower the Spillway and Construct Channel and Offline Headpond

Advantages	Disadvantages
- Flood risk reduced	- Reduced drama (height) of waterfall
- Natural stream function enhanced	- Impacts to built heritage
- Aquatic & riparian habitat improved	- Change to headpond aesthetic
- Headpond retained, in altered fashion	- High Cost





**BrookMcIlroy**

**Option D2H2**  
Rehabilitate the Dam  
and Headpond



**BrookMcIlroy**

**Option D4H5**

Lower the Spillway, Backfill the  
Heapond and Construct Channel



**BrookMcIlroy**

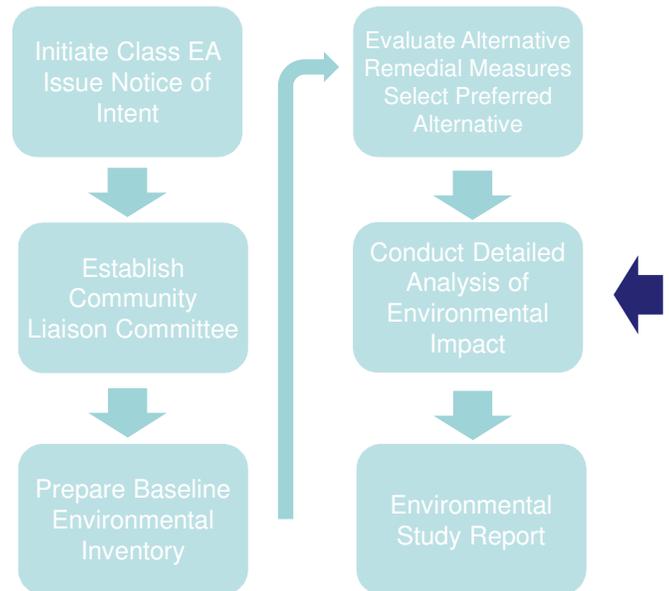
**Option D4H6**

Lower the Spillway and Construct  
Channel and Offline Headpond

# Next Steps and How to Submit Comments

## Next Steps

- Circulate partner agencies on *Technical Report #2 – Management Alternatives* (also available at [www.creditvalleyca.ca](http://www.creditvalleyca.ca))
- Collect and consider input from the public
- Select a preliminary *preferred alternative*
- Analyze and select *preferred method of implementation*
- Conduct *detailed analysis of environmental effects*
- Prepare final *Project File*
- Issue *Notice of Completion* (May 2016)



## How to Submit Comments



You can complete a comment form and submit it to the Study Team today. Or send your comments to either of the contacts provided below by:

- Mail
- Phone
- Fax
- e-mail

### Credit Valley Conservation Authority

Ms. Laura Rundle  
 Conservation Lands Planner  
 1255 Old Derry Road  
 Mississauga, Ontario, L5N 6R4  
 Tel: (905) 670.1615 ext.535  
 email: [lrundle@creditvalleyca.ca](mailto:lrundle@creditvalleyca.ca)

### Amec Foster Wheeler

#### Environment & Infrastructure

Mr. Ron Scheckenberger, M.Eng., P.Eng.  
 Project Manager  
 3215 North Service Road, P.O. Box 220  
 Burlington ON L7N 3G2  
 Tel: 905.335.2353  
 Toll Free: 1.866.751.2353  
 Email: [ron.scheckenberger@amecfw.com](mailto:ron.scheckenberger@amecfw.com)

**Please submit  
 comments no later  
 than  
 December 14, 2015**

# Thank you for your participation!

# Visitor Questionnaire & Comment Sheet

Public Information Centre No.2, December 1, 2015

## Belfountain Dam and Headpond Class Environmental Assessment

**PLEASE PRINT**

Name/Association: <sup>①</sup> big differences - no HP - no need for sluice gate.

E-mail: - 7m waterfall ? 1m less.

Number & Street: - 6m waterfall

Municipality: - no headpond any more -

Postal Code: - this option does get a little closer to NF (micro sale).

- visualization can change.

- design characteristics can change.

CVC is undertaking a Conservation Ontario Class Environmental Assessment (Class EA) to determine how best to manage the Belfountain Dam and Headpond in the future. A Class EA must follow a specific process summarized as follows:

1. Document the Baseline Inventory (background information) & identify the problem
2. Evaluate alternative solutions and select a preferred alternative
3. Conduct a detailed analysis of environmental impact and define mitigation opportunities

At this time, the Baseline Inventory (Step 1) and Development and Evaluation of the Alternatives (Step 2) has been completed. Public consultation is an integral component of a Class EA and public input is considered at every Step. This questionnaire has been prepared to solicit public input on the various management alternatives for the Belfountain Dam and Headpond.

② - 30m. waterfall would be wider. lower by 1m. evening discussion on dam + headpond. - what do we do w/ all that extra land? Concerns over picnic tables, etc. • If what would you envision that additional land to be used for? means more picnic tables. X - not driving factor.

**Visitor Questionnaire & Comment Sheet**

December 1, 2015

## Belfountain Dam &amp; Headpond Class Environmental Assessment

1. Based on the presentation and display boards, please rank the alternatives (1 to 7) in order of your preference in the table below. Place a '1' beside your most preferred, '7' beside your least preferred.

<u>Alternative</u>	<u>Ranking</u>
<i>D1H1: Do Nothing</i>	
<i>D2H2: Rehabilitate the dam and headpond</i>	
<i>D2H3: Rehabilitate the dam &amp; expand the tableland</i>	
<i>D2H4: Rehabilitate the dam &amp; convert headpond to wetlands</i>	
<i>D4H5: Lower the spillway, backfill headpond &amp; construct channel</i>	
<i>D4H6: Lower the spillway, construct channel &amp; offline pond</i>	
<i>D5H7: Decommission the dam &amp; restore to natural valley and channel</i>	

2. For the alternative you ranked as #1 above, please state some reasons why you consider that particular alternative to be most preferred.

---



---



---



---



---



---



---



---



---



---



---

**Visitor Questionnaire & Comment Sheet**  
Belfountain Dam & Headpond Class Environmental Assessment

December 1, 2015

- 3. For the alternative you ranked as #1, after viewing the concept plans and visualizations on the display boards, are there any design elements you would change or add?

---

---

---

---

---

---

---

---

- 4. Are there other alternatives not considered by the Study Team that you think should be considered? Why? (These should be specific to the dam and headpond only)

---

---

---

---

---

---

---

---

- 5. Sixteen (16) evaluation criteria were considered in the evaluation of the alternatives and presented in the evaluation matrix on the display boards. Is there anything you would suggest the Study Team change in the evaluation? (e.g. additional criteria, different scores or weighting)

---

---

---

---

---

---

---

---





## Public Consultation Session Summary

### Belfountain Conservation Dam and Headpond Class Environmental Assessment

December 2015

---

### Consultation Overview

Credit Valley Conservation (CVC) has committed to hosting public consultation sessions at key milestones during the planning process for the Belfountain Complex Management Plan and Class Environmental Assessment for the Belfountain Dam and Headpond (Class EA). Public consultation provides an opportunity to both inform interested parties about the project as well as consult on recommendations and proposals. The project's Stakeholder Advisory Committee and agency partners are also involved in providing input and feedback into the plan.

The first public consultation session for this project was held in December, 2014 to formally announce the project and seek initial ideas for the Complex and comments related to early proposals. The second round of consultation for this project was held in September and October, 2015 and focused on introducing the Class EA and presenting early design concepts for Belfountain Conservation Area. The third consultation session took place on December 1, 2015 and presented the short-list of management alternatives for the Class EA.

This summary focuses on the public consultation session that took place on Tuesday, December 1<sup>st</sup> 2015 and is organized into three main components:

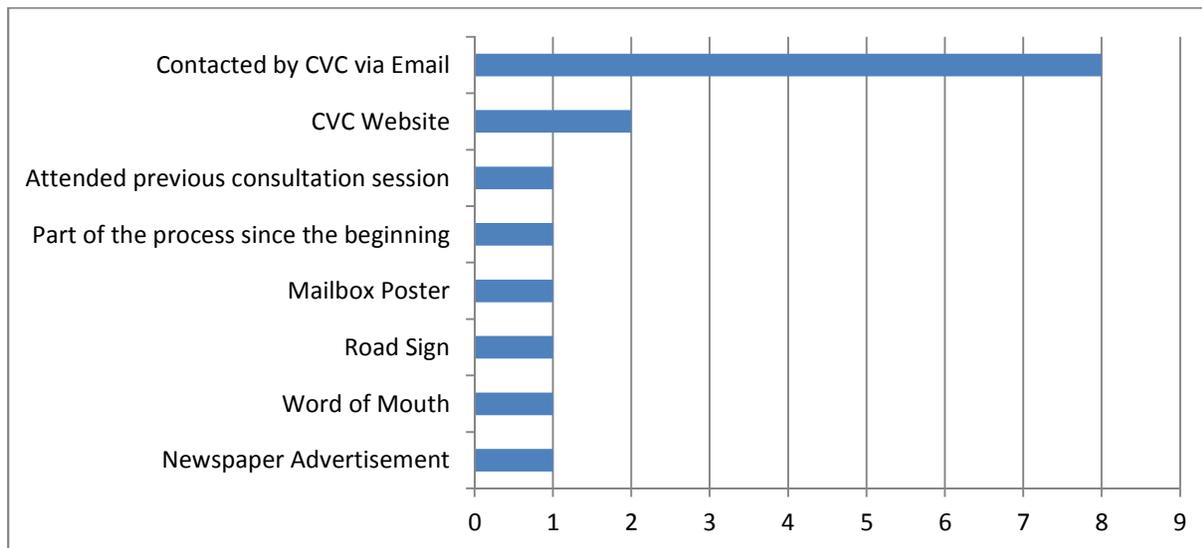
1. Overview of Public Meeting
2. Summary of Questions and Discussion
  - 2.1. Summary of Question and Answer Period at the Public Meeting (December 1, 2015)
  - 2.2. Summary of Questionnaire Responses and Results
3. Next Steps

The agenda for the public meeting held on December 1<sup>st</sup> is included in this report as Attachment A. The questionnaire is included as Attachment B.

This summary was put together by Credit Valley Conservation staff. It is not intended to provide a verbatim transcript; rather it reflects key feedback received. **If you have any suggested edits, please send them to Laura Rundle at [lrundle@creditvalleyca.ca](mailto:lrundle@creditvalleyca.ca) by Monday, January 4<sup>th</sup>, 2015**, after which point the summary will be finalized and posted on CVC's website.

### 1.0 Overview of Public Meeting

On Tuesday, December 1, 2015 approximately 25 people attended the public consultation session for Belfountain Dam and Headpond and Class EA. Twenty-five individuals signed-in at the event and the postal codes collected during registration indicate that the vast majority of individuals were from Belfountain, although a few attendees were from Caledon and Mississauga. Attendees were also asked how they learned of the consultation session:



**Figure 1: How Consultation Session Attendees Learned of the Event**

#### **Public Consultation Meeting Details**

Date: Tuesday, December 15<sup>th</sup>, 2015

Time: 6p.m. to 9p.m.

Presentation starts at: 6:30p.m.

Location: Caledon Ski Club, 17431 Mississauga Road Caledon, ON

The purpose of the meeting was to present the three (3) short listed alternatives for the Belfountain Dam and Headpond and the evaluation completed to determine these alternatives. The input received during the second round of public consultation (September and October 2015) was also briefly discussed.

The evening was separated into three main components:

- 1) PowerPoint presentation
- 2) Question & Answer period
- 3) Public review of the project posters and one-on-one or small group discussion with staff

The agenda for the public meeting is located in Attachment A. Each participant was provided with a questionnaire (Attachment B) to help focus how questions and comments were received.

Staff from Credit Valley Conservation and Amec-Foster Wheeler (the firm retained by CVC to undertake the Class EA) were available to discuss the study and answer questions. The materials that were discussed and presented during the public meeting are available on CVC's website:

<http://www.creditvalleyca.ca/enjoy-the-outdoors/conservation-areas/belfountain-conservation-area/belfountain-conservation-area-management-plan/consultation/public-information-session-december-1-2015/>

## 2.0 Summary of Questions and Discussion

This section contains an overview of the question and answer period during the public meeting on December 1, 2015 as well as written feedback received. **It is important to note, with the exception of section 2.1., that CVC's responses to the comments and input received are not included in this summary.** A disposition table identifying all comments and how they will be addressed, will be included in an upcoming report.

### 2.1. Summary of Question and Answer Period at the Public Meeting (Dec 1, 2015)

One of the three main components of the public meeting on December 1, 2015 was a question and answer period. Questions have been **bolded**; answers from staff are recorded in *italics*. Note that in some cases, similar questions have been grouped together.

**1. Who is on the Belfountain Traffic Committee?**

*The Belfountain Traffic Committee (West Caledon Visitor Traffic Management Committee) is comprised of land owners and managers in the area. They include the Town of Caledon, Region of Peel, Ontario Heritage Trust, Bruce Trail Conservancy, Niagara Escarpment Commission, and the Ontario Provincial Police. The plan is to have identified and start working toward the implementation of solutions in 2016.*

**2. Why has this project not triggered an assessment under the Canadian Environmental Assessment Act?**

*The CEAA only applies to certain types and scales of projects which are specifically referred to as Designated Physical Activities. The list is too long to reproduce here but can be found at [www.ceaa-acee.gc.ca](http://www.ceaa-acee.gc.ca). Certain dam projects are designated under CEAA, but only dams within federally designated migratory bird sanctuaries or wildlife areas, or dams that have a reservoir surface area greater than 1500 ha; Belfountain Dam does not meet these criteria. The Minister of the Environment can designate a project, however this is typically only done where adverse environmental effects are predicted, which is not the case for the Belfountain Dam and Headpond. The Ontario Environmental Assessment Act does apply to this project and the provincial process which is being undertaken is considered more detailed than the federal process and is directed to look at a broader range of potential solutions and alternatives.*

**3. Is there a Community Liaison Committee for this study? Can CVC accommodate representation from neighbours?**

*The Stakeholder Advisory Committee for this project also functions as the Community Liaison Committee. A variety of groups, agencies and the Belfountain community (Belfountain Community Organization) are represented on this Committee. There have been eight meetings to date, and the agenda, minutes and presentations can be found on CVC's website.*

**4. Does the advisory committee have the same mandate as the technical committee? (does their input count as much?)**

*The Stakeholder Advisory Committee and the Technical Steering Committee have different purposes and provide different types of information to the Class EA process. The Technical Steering*

*Committee is an internal Committee that provides technical expertise and opinion on a variety of subject matters. The Stakeholder Advisory Committee operates as a forum to provide advice, input and informed opinions that help to guide decision making. Comments and input from both committees are incorporated into the process.*

**5. Is there a local representative on the Belfountain Traffic Committee?**

*Yes, Councillor Shaughnessy and Councillor Beffort are both active on the Committee. There is not a member of the public on the Committee at this time; we are still laying the ground work before we can get the public actively involved.*

**5a. I am hoping that the public can be involved at the early stages, helping to make the decisions at the ground level**

*Yes, we are looking at different opportunities to incorporate public input. We can look at having a public representation on the Committee.*

**6. I have a cultural heritage interest in the project– there are 3 dams on the property (Belfountain, and the Stonecutter’s and concrete weir on the Willoughby Property) – why wasn’t the Belfountain Dam ever designated as a heritage structure?**

*CVC does not have the authority to designate the Belfountain Dam as a cultural structure through its own policies. While CVC has maintained the cultural features in Belfountain Conservation Area (cave, fountain, re-pointing stone work, etc.), designating the property has not been a priority.*

**7. Can you explain the Natural Heritage System (NHS) and which option would best support this system?**

*CVC does not have a preferred alternative for the Dam and Headpond at this time.*

*Note: CVC has identified a NHS for the Credit River Watershed. A NHS is a system of natural features, areas and linkages to intended to support connectivity and the function of natural processes. A NHS will support the strategic development of programs and tools to assist in the protection, management and enhancement of natural features in the Credit River Watershed at a broad scale. More information can be found on our website:*

*<http://www.creditvalleyca.ca/watershed-science/our-watershed/natural-heritage-system-strategy/>*

**8. What about the financial part: What is the budget? Where is the money coming from?**

*Funding is an important consideration for this project. While we have general numbers, we do not have a specific budget at this time – it largely depends on the preferred alternative and how the project will be implemented. It is still too early in the process to give specific numbers for funding. Funding will be supported through a number of partners and methods: CVC’s annual operating budget, support for our municipal partners, provincial support, and grants. Both capital and operating costs are being considered for the project.*

**9. From an ecological perspective, is there a particular issue that is a concern?**

*The aquatic environment and the critical role that the West Credit River plays in providing coldwater habitat, is the primary concern. The stream is warmer downstream of the pond then it would have been historically – this is an issue for Brook Trout, which require a coldwater environment. The dam also alters the natural sediment transport downstream of the dam, which is also important for fish habitat. The dam itself is also an important barrier, which keeps non-native, invasive species downstream of the dam, protecting upstream populations.*

**10. Is construction currently going on at Belfountain Conservation Area? Will the cave still be there?**

*Yes, construction is currently taking place on the terrace. This work will not impact the cave.*

- 11. What is the purpose of public input? It looks like you only selected neutral comments for the presentation (specifically regarding the visitor centre).**  
*All comments received for the management plan and Class EA will be addressed through the planning process. If you don't see your comments in the summary reports, please let us know. In regards to the presentation, we aimed to include a variety of the comments that were received.*
- 11a. I couldn't find the summary document from the last consultation session online...**  
*The summary document from the September 22 2015 meeting is located here:  
<http://www.creditvalleyca.ca/wp-content/uploads/2015/11/BelfountainPublicConsultationSummary-Fall2015.pdf>*
- 12. How many years has the dam been in existence, functioning how it does now?**  
*The existing dam was built by Charles Mack sometime between 1908 and 1914, with the intention that it look like a miniature Niagara Falls. Mack's dam was built on top of an existing dam structure, a remnant of the milling activities that used to take place onsite.*
- 12 a. If you are considering taking out the dam – how does that impact cultural heritage?**  
*Removing the dam completely has not been advanced to the short list of management alternatives based on cultural heritage objectives for the site. We are considering modifying the dam (e.g. lowering the spillway), however, which will have some impacts to the cultural heritage.*
- 12b. Hasn't the headpond been there as long as the dam? The cultural heritage of the headpond is important too.**  
*The significance of the headpond as a cultural feature has been noted, however it does have additional negative impacts to West Credit River associated with it. This has been accounted for in the evaluation of all alternatives.*
- 13. If we choose to rehabilitate the dam and headpond, how long would dredging the headpond actually last? 5 years, 10 years?**  
*The timelines and the amount of sediment that would need to be dredged, remains to be seen.*
- 13a. Once the dredging is done, then shouldn't the maintenance cost be lower?**  
*The headpond would still be considered an online pond, and would still accumulate sediment. It remains to be seen how often dredging would need to take place, and thus what the maintenance cost would be. The sediment currently in the pond has been there since at least 1986. If it were to be dredged out now, it would likely take a similar amount of time to accumulate, however we would likely look at having a more regular dredging cycle.*
- 13b. Didn't the headpond used to be dredged?**  
*No, however, decades ago CVC used to flush out the sediment by removing the stop logs. This is not acceptable under current standards.*
- 14. In the second alternative (D4H5) the option is to turn the pond back into a river, keep the dam, and fill in the area on both sides with more land – What is the purpose of the extra land?**  
*At this point, uses of additional land have not been determined. We are seeking feedback on this point as well - what do you want to see the land used for? We need to determine the best use of these two areas and how they will be integrated into the final management plan.*
- 15. The public is not voting on the alternatives, is that correct – ultimately it is CVC's choice?**  
*In short, yes, it is ultimately CVC's decision about which alternative is advanced. It is not a 'vote'- but public comment will be used to help determine the preferred option. The public is one stakeholder; we also have to consider our partners and the agencies responsible for the review and approval of the project. On the questionnaire we ask everyone to rank the listed alternatives – this is a good way for you to provide your feedback.*

- 16. I am concerned that we are being asked as lay-people to provide significant feedback (we don't have all the ecological, cultural and economic background). I feel like I am not educated enough to make an educated decision. I don't want to make a knee-jerk reaction.**  
*CVC's Team (both internally and through Amec Foster Wheeler) includes experts in all aspects of the project. CVC does not expect the public (lay-persons) to provide feedback on technical matters for which they are not experts. However 'visitor experience' is an aspect for which the public are the 'experts' and so public input on what CVC ultimately does with the dam and the headpond is important. There are reports available online (<http://www.creditvalleyca.ca/enjoy-the-outdoors/conservation-areas/belfountain-conservation-area/belfountain-conservation-area-management-plan/class-environmental-assessment-for-belfountain-dam-and-headpond-area/>), if you would like to research the project further. Staff are always available to answer questions and discuss the project. We are happy to set-up another public meeting if you think it would help.*
- 17. Does the headpond actually perform any function that ecologically benefits the stream? Is there any benefit to keeping the pond?**  
*From a fisheries and aquatic side, no, it has a negative impact. The headpond is shallow and provides limited habitat for White Sucker and Brook Trout. It would be better if it were deeper, but not nearly as good as if it were a natural channel. Options to remove or take the pond offline are preferable from a fisheries and aquatic perspective. From a terrestrial standpoint the pond does not provide significant habitat for wildlife. It is not being used for breeding, feeding, or overwintering and does not provide quality habitat for any species. It does not provide any advantage in its current form.*
- 18a. So Cultural Heritage would be the main benefit of the headpond? Could we allow swimming if it were dredged?**  
*Cultural heritage and visitor experience are the main benefits of the headpond. CVC would like to know what the headpond means to you individually and as a community. If it remains, what is its significance and what would you like to see?  
 Swimming and boating are recreational activities that have been previously permitted in the headpond, but there are concerns related to health and safety and additional infrastructure that may be required. We can explore these options further.*
- 19. It seems like the headpond is going to be a long-term nightmare.**  
*Ongoing maintenance of the headpond could be a financial and operational burden on CVC, however the details of the future management have not yet been determined.*
- 20. Can you explain the characteristics and differences of the second option (D4H5)?**  
*In this alternative the headpond has been removed, the dam has been lowered by about 1m and the sluice gate has been removed from the dam (there is no longer a need for this structure). The waterfall is currently about 7.5m high; it would be lowered to approximately 6.5m. By removing the sluice gate this option does get the dam a little bit closer to Mack's original structure (the sluice gate was added by CVC in 1965 for operational and maintenance purposes).*
- 21. Is natural heritage trumping everything else in this study (cultural heritage, tourism, visitation)?**  
*No, we have identified a variety of objectives for this study, which include:*
- *Maintain a Fisheries Barrier - Maintain a barrier between upstream Brook Trout and downstream non-native and invasive species.*
  - *Reduce/minimize risk to visitors, staff, affected property and downstream dams*
  - *Maintain or improve the visitor experience - Maintain the high quality visitor experience that the public expects when they visit Belfountain Conservation Area.*

- Conserve and enhance cultural heritage attributes - Maintain and improve the cultural heritage attributes that are representative of Belfountain Conservation Area's history as a rare example of an early 20th century park.
- Promote natural stream function - Maintain and improve the natural function of the West Credit River and its ecosystem.
- Strive for long-term sustainability including economic viability - Maintain or improve BCA's ability to function as an active conservation area.
- Conserve and enhance natural heritage attributes - Contribute to the form and function of the Study Area as well as nearby natural heritage features by maintaining or enhancing the cover of natural area.

We have attempted to develop alternatives that consider both natural and cultural heritage.

**22. I would like to know what your schedule is, and if there is a budget for the work at this point.**

*In terms of a schedule, we hope to file and receive approval for this project in the first half of 2016. The Conservation Ontario Class EA identifies a five (5) year timeline for implementation from the date of approval. We will try our best to minimize disruption to the community during the implementation phase of this, and all projects. While budget is a component of the evaluation matrix, we don't have final costs for the different alternatives. The cost of the project will not drive the preferred alternative – once we have a final vision for the area, we will develop a budget and be able to seek funding through grants, our partner agencies and from within our own budget.*

**23. How wide is the river in the second option (D4H5)?**

*The river is about 30m wide in this option. The dam has been lowered about 1m and the sluice gate has been removed; this would create a wider weir/waterfall as well.*

**24. What is the maintenance plan for now until the implementation of the preferred option?**

*CVC will continue to implement the recommendations of the Dam Safety Review for the Belfountain Dam (2007) while we wait to identify and implement a preferred alternative. For example, a steel gate was recently installed to support the existing stop logs in the dam. CVC won't be doing any restoration works on the pond- it will be operated from a maintenance perspective only until a preferred alternative is selected.*

**25. At what point in the process will we know the costs for each of these alternatives? If you have to choose which alternative is preferred – having an estimated cost is an important criteria.**

*Cost is an important criteria (it is part of the evaluation matrix), however it is by no means the only criteria. We will be able to share preliminary costs at the next public consultation session.*

**26. Why did you include an option to 'do nothing' (D1H1)?**

*As part of the environmental assessment process, we have to assess and evaluate the 'do nothing' option. From a safety perspective, we cannot select the 'do nothing' option for this project.*

## 2.2. Questionnaire Responses and Results

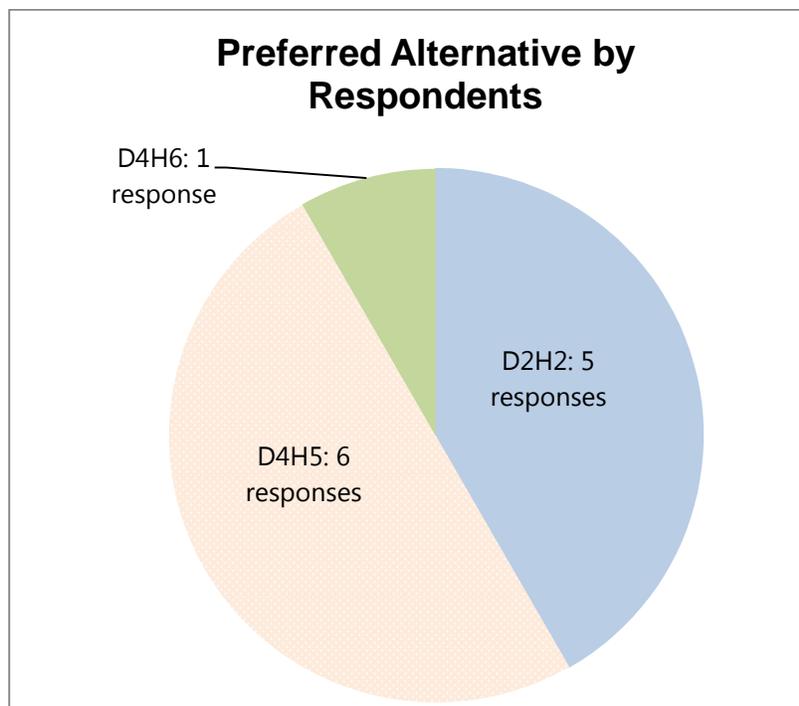
This section includes the comments and feedback received from completed questionnaires that were received at the conclusion of the public meeting or via mail or email after the meeting. In total, **twelve (12)** completed questionnaires were received. The raw responses have been included in the summary for

informational purposes only. CVC has not prepared comments for each individual response in this summary report; comments will be addressed in detail in a future report.

**1. Based on the presentation and display boards, please rank the alternatives (1 to 7) in order of your preference in the table below. Place a '1' beside your most preferred, '7' beside your least preferred.**

This question was not completed by the majority of respondents, however all respondents indicated their single preferred alternative.

Code	Description
D2H2	Rehabilitate the Dam and Headpond
D4H5	Lower the Spillway, Backfill Headpond and Construct Channel
D4H6	Lower the Spillway, Construct Channel & Offline Pond





**2. For the alternative you ranked as #1 above, please state some reasons why you consider that particular alternative to be most preferred.**

Alternative Selected	Reason(s)
D2H2	Minimal impact; greatest aesthetics
D2H2	Moved to the area over 23 years ago. The park borders our street "Pinnacle" and is basically the same as when we came here. The Park is a jewel, green, luscious, and in the evenings and mornings quiet. Visitors come to the park because it is a natural habitat and they can play games and BBQ their own food and be in a natural setting. This would be the most non-invasive procedure to keep its cultural value the same. Less initial cost. Wouldn't wait 50 years to dredge the pond though.
D4H5	Results in improvement ecologically and environmentally; maintain some, hopefully good appearance for the dam/waterfall so its still a lovely thing to look at; reduces temperature; reduces unsightly sediment.
D4H6	I am a fisher! (angler); It strikes a balance among the project's objectives.
D2H2	The headpond has been a key part of what makes Belfountain special. It is a beautiful part of the park and it should not be altered or eliminated. Also, it has potential to once again be used for human recreation such as swimming (see answer to question 3).
D2H2	Special Note: We moved to Belfountain in 1976. At that time we could swim in the dam pond and it was about 7 feet deep off the eastside walls. When CVC stopped taking the logs out of the dam the sediment started to fill in the pond. Prior to the stopping the removing of the dam logs, the logs were removed one by one to allow the water to drain out of the pond each fall and the winter. Cold, snows, and spring would actually clean the pond down with its rocky bottom and we could swim in the pond in the summer. The adjustable spillway was put in to allow trout 'ice' cold water which travels on the bottom of the pond in the original river bed. We need to repeat the log removal each fall after removing the silt from the dredging work.
D4H5	The headpond is of no significant value. Removing the headpond is the best option environmentally. It would eliminate the maintenance of the pond and be most economical in future preservation the area. It would be visually pleasing and much the same as the original park.
D4H5	Best environmental impact. Closer to original design re: heritage. Lower ongoing maintenance. Probably reasonable implementation - cost and expectation. Esthetically pleasing.

D2H2	To respect the Man Mack. To respect the original intent of the park as a recreational area. There is only one Mack Dam and there are many other area parks to practice the CVC's trade. Any other choice is a compromise of the OHA.
D4H5	<i>No Response</i>
D4H5	Retains the dam, though it is lowered - the dam is attractive and part of the cultural heritage. Returning the pond to a stream is in keeping with the natural heritage and prevents the accumulation of silt, bringing the river back to life, and is the most effective solution for maintaining fish and other wildlife habitat.
D4H5	<i>It's time to move away from the existing structure to allow for greater flexibility toward fisheries while maintaining a barrier and cultural attributes. Important to maintain separation from non-native species. Important to improve water temperature improvements for the river. Important to allow for natural movement of sediments and bedload downstream. My number 1 would meet safety concerns and all objectives. Cultural aspects would be retained.</i>

**3. For the alternative you ranked as #1, after viewing the concept plans and visualizations on the display boards, are there any design elements you would change or add?**

Alternative Selected	Additional/Changes to Design Elements
D2H2	N/A
D2H2	You could lower the dam by 1metre, which may help salmon to get up stream. Is there a way to have a sluice gate at bottom of dam, which could be opened up and silt could flow down river?
D4H5	Maybe interpretive signage; nice to create better riparian habitat; build habitat; nice place to sit, paint, read; can you keep it quiet instead of turn it into a noisy picnic area –instead [create] a quiet contemplative spot
D4H6	Is there an opportunity for a run of the river power generation that would (long-term) offset site operating costs?
D2H2	1) Dredge out the fluffy sediment from the pond bottom; deepen it 2) Rehabilitate the ladder/stairs that used to allow entry into the pond 3) possibly add a graded entry point (this would make a ladder unnecessary) 4) add safety barriers near the dam so swimmers can't get close to unsafe areas
D2H2	No, but better pond and park management is required.
D4H5	<i>No response</i>
D4H5	<i>No response</i>
D2H2	No

D4H5	No
D4H5	No
D4H5	Into any final design, provision to include a fishway for possible future addition. Important to allow downstream movement of brook trout. Rocks at base would either be moved or some cementation would be required to reduce the risk of injury.

**4. Are there other alternatives not considered by the Study Team that you think should be considered? Why? (These should be specific to the dam and headpond only)**

Alternative Selected	Additional Alternatives
D2H2	N/A
D2H2	<i>No response</i>
D4H5	Wildlife (non-fish), habitat downstream needs to be considered
D4H6	<i>No response</i>
D2H2	I have heard that in the 1970's, people used to swim in the pond. In my opinion, it is a mistake not to consider rehabilitating the pond in such a way as to once again manage it for human recreation. The trend over the last 25 years or so has been to replace natural swimming areas with pools, while turning the natural areas - which were once enjoyed by people - to non-human use (examples include High Park's Grenadier Pond and Brampton's Heart Lake). As someone who frequents natural areas precisely to be able to enjoy "water, the way Nature intended it", I find this trend misguided and worrying. I vote for Option 1, plus an enhancement to include an option for "use at your own risk" swimming as in the past.
D2H2	Yes - keep the park as it was originally designed by maintaining strict guidelines to keep the sediment out of the pond. Keep the park small! Note we can only fit so many cars and people into the park = stop cutting trees and creating space, more space for parking is a ridiculous. Keep Belfountain unique!
D4H5	<i>No response</i>
D4H5	<i>No response</i>
D2H2	No
D4H5	No
D4H5	No
D4H5	Not at this time



**5. Sixteen (16) evaluation criteria were considered in the evaluation of the alternatives and presented in the evaluation matrix on the display boards. Is there anything you would suggest the Study Team change in the evaluation? (e.g. additional criteria, different scores or weighting)**

Alternative Selected	Evaluation Matrix Comments
D2H2	N/A
D2H2	<i>No response</i>
D4H5	<i>No response</i>
D4H6	Inconsistency among visitor experience (high); visitor revenue (moderate); village tourism (moderate); local community should be high; inconsistency between capital cost (moderate) and operating cost (low)
D2H2	Please consider human enjoyment and recreation, not just ecology or animals benefits. Humans are also part of the natural environment. When we interact with a resource, we learn to care for it. If we are kept away from it, caring becomes harder.
D2H2	Why do you need to expand parking? And change our local village life?
D4H5	<i>No response</i>
D4H5	<i>No response</i>
D2H2	No
D4H5	The top ranking should be keeping it natural
D4H5	CVC's mandate is conservation. What should rank the highest is conserving the natural aspects of this property; what should be avoided is thinking of it as a tourist destination with excessive built-up areas, too many picnic tables, too large buildings, etc.
D4H5	<b>Not at this time</b>

**6. Please provide additional comments below.**

Comments
<i>No response</i>
If you change the headpond to wetlands, what happens to the river? Are you seriously taking the concerns and comments of local individuals into consideration?
There hasn't seem to have been any consideration of public traffic; I'm hopeful the area around the headpond does not get more picnic-style traffic. Great to have good trails and lovely views.
I feel the Stakeholder Advisory Committee should have a "seat at the management team table". If you do this, it may relieve concerns (mitigate them) that the community does not have a genuine role in decision-making. As now set-up, the community may influence decision making but it is still not

involved in it. Given the level of community concern, it is very appropriate to enable a higher level of involvement, even a joint or collaborative decision process.
Thank you for compiling the list of options. Please consider my suggestions for bringing back swimming to the headpond at Belfountain. It was at one time a part of the park's history; we should find ways to manage risks and keep good things available to people. We need more, not fewer, opportunities to intelligently enjoy the beauty of our parks and all they can offer us.
<i>No response</i>
<i>No response</i>
<i>No response</i>
If D2H2 were chosen is there additional funding available through any agencies (i.e. OHT or Ministry of Tourism Culture and Sport). Do you have volunteers working at the park i.e. high school credit? The Cox Property is an appendix to OHT and CVC plan - can the property be sold to help finance park rehabilitation? Presentation was good. The study is impressive.
<i>No response</i>
<i>No response</i>
Ultimately, what is more important preserving some cultural aspects or making needed environmental improvements?

### 3.0 Next Steps

CVC will be hosting a fourth public consultation session in the later winter or early spring of 2016. This meeting will likely include updates and proposed direction for both the Class EA and the Management Plan. Notices and advertisements will be distributed and posted once a date, time and location have been selected.



## Attachment A. Meeting Agenda

### Belfountain Dam & Headpond Class Environmental Assessment Public Information Centre

**Date:** December 1, 2015

**Time:** 6:00 pm – 9:00 pm

**Location:** Caledon Ski Club - 17431 Mississauga Rd, Caledon, ON L7K 0E9

#### Draft Agenda:

Time	Topic	Lead
6:00pm – 6:30pm	<b>Registration &amp; Welcome</b> <ul style="list-style-type: none"> <li>- Encourage attendees to provide postal code and contact information</li> <li>- Provide attendees with questionnaires</li> </ul>	CVC
6:30pm – 6:35pm	<b>Welcome and Thank-you</b>	CVC
6:35pm – 6:40pm	<b>Belfountain Complex</b> <ul style="list-style-type: none"> <li>- Agenda overview</li> <li>- Purpose for the undertakings</li> </ul>	CVC
6:40pm – 6:50pm	<b>Belfountain Management Plan</b> <ul style="list-style-type: none"> <li>- Review of comments received to date</li> <li>- Integration of comments – general directions</li> </ul>	CVC
6:50pm – 7:10pm	<b>Belfountain Dam and Headpond Class EA</b> <ul style="list-style-type: none"> <li>- Project Purpose and Overview</li> <li>- EA process</li> <li>- Project Objectives</li> <li>- Overview of alternatives</li> <li>- Evaluation matrix and process</li> </ul>	AMEC-FW
7:10pm – 7:15pm	<b>Thank you &amp; Next Steps</b> <ul style="list-style-type: none"> <li>- Encourage attendees to ask questions, review poster boards and provide comments</li> </ul>	CVC
7:15pm – 7:45pm	<b>Open Q&amp;A Period</b>	All
7:45pm – 9:00pm	Review of poster boards and opportunity to ask staff questions	All

#### Acronyms

**CVC:** Credit Valley Conservation

**AMEC-FW:** Amec Foster Wheeler (Consultant retained to undertake Class Environmental Assessment on the Belfountain Dam and Headpond)



## Attachment B: Questionnaire

### Visitor Questionnaire & Comment Sheet

Public Information Centre No.2, December 1, 2015  
Belfountain Dam and Headpond  
Class Environmental Assessment

#### PLEASE PRINT

Name/Association:

E-mail:

Number & Street:

Municipality:

Postal Code:

---

CVC is undertaking a Conservation Ontario Class Environmental Assessment (Class EA) to determine how best to manage the Belfountain Dam and Headpond in the future. A Class EA must follow a specific process summarized as follows:

1. Document the Baseline Inventory (background information) & identify the problem
2. Evaluate alternative solutions and select a preferred alternative
3. Conduct a detailed analysis of environmental impact and define mitigation opportunities

At this time, the Baseline Inventory (Step 1) and Development and Evaluation of the Alternatives (Step 2) has been completed. Public consultation is an integral component of a Class EA and public input is considered at every Step. This questionnaire has been prepared to solicit public input on the various management alternatives for the Belfountain Dam and Headpond.



1. Based on the presentation and display boards, please rank the alternatives (1 to 7) in order of your preference in the table below. Place a '1' beside your most preferred, '7' beside your least preferred.

Alternative	Ranking	
<i>D1H1: Do Nothing</i>		
<i>D2H2: Rehabilitate the dam and headpond</i>		
<i>D2H3: Rehabilitate the dam &amp; expand the tableland</i>		
<i>D2H4: Rehabilitate the dam &amp; convert headpond to wetlands</i>		
<i>D4H5: Lower the spillway, backfill headpond &amp; construct channel</i>		
<i>D4H6: Lower the spillway, construct channel &amp; offline pond</i>		
<i>D5H7: Decommission the dam &amp; restore to natural valley and channel</i>		

2. For the alternative you ranked as #1 above, please state some reasons why you consider that particular alternative to be most preferred.

*Add Text Here:*



3. For the alternative you ranked as #1, after viewing the concept plans and visualizations on the display boards, are there any design elements you would change or add?

*Add Text Here:*

4. Are there other alternatives not considered by the Study Team that you think should be considered? Why? (These should be specific to the dam and headpond only)

*Add Text Here:*



5. Sixteen (16) evaluation criteria were considered in the evaluation of the alternatives and presented in the evaluation matrix on the display boards. Is there anything you would suggest the Study Team change in the evaluation? (e.g. additional criteria, different scores or weighting)

*Add Text Here:*



## COMMENTS

Please use the following space for any questions you may have; the Study Team will provide a response in the near future. You can also use this space to provide general comments on today's public meeting or the overall study.

*Add Text Here:*

**Please return completed questionnaires to any member of the Study Team during the meeting or to the following contacts, after the meeting:**

**Credit Valley Conservation Authority**

Ms. Laura Rundle  
Conservation Lands Planner  
1255 Old Derry Road  
Mississauga, Ontario, L5N 6R4  
Tel: (905) 670.1615 ext.535  
email: lrundle@creditvalleyca.ca

**Amec Foster Wheeler**

**Environment & Infrastructure**

Mr. Ron Scheckenberger, M.Eng., P.Eng.  
Project Manager  
3215 North Service Road, P.O. Box 220  
Burlington ON L7N 3G2  
Tel: 905.335.2353  
Toll Free: 1.866.751.2353  
Email: ron.scheckenberger@amecfw.com



**PIC #3**



Belfountain Conservation Area

## ***Dam & Headpond Class Environmental Assessment***

Public Consultation  
May 12, 2016

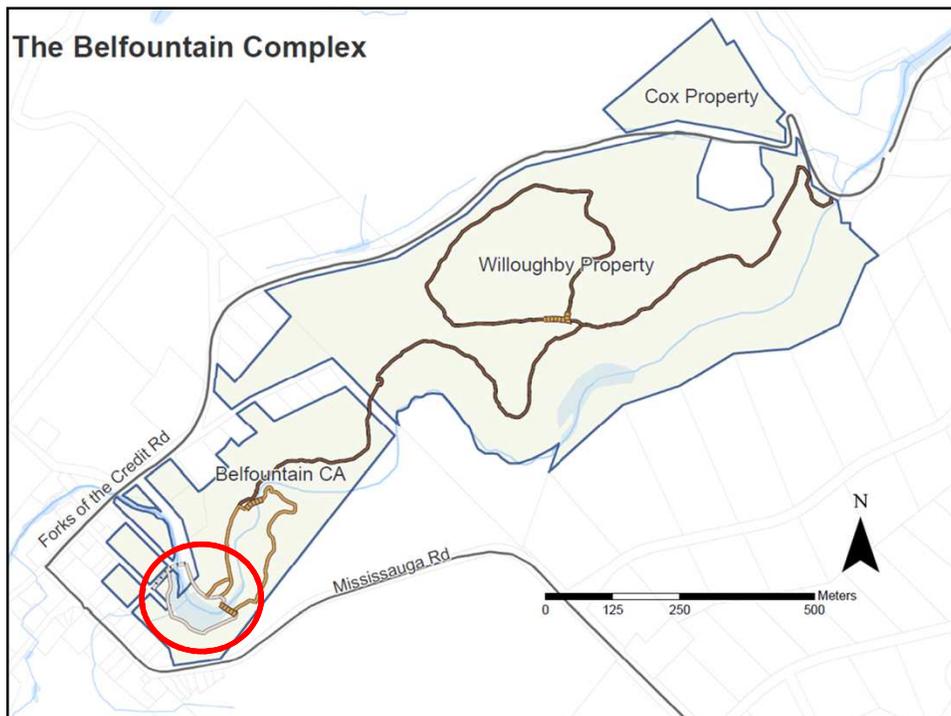
### **Discussion Outline**

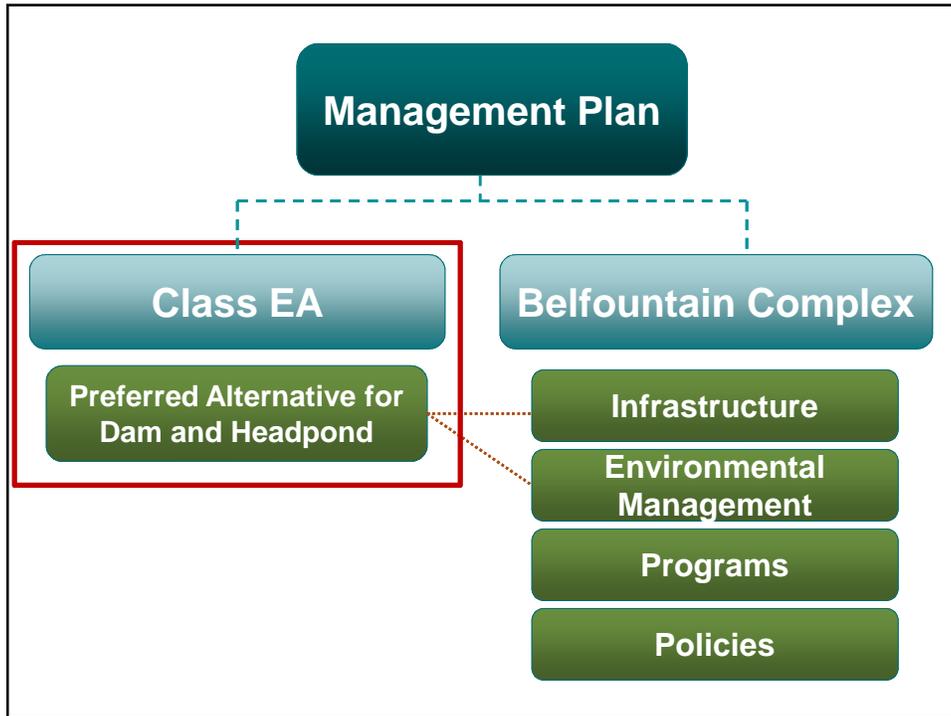
1. Project Overview
2. Class Environmental Assessment
  - Process Update
  - Preferred Alternative
  - Key Comments and Input
  - Next Steps



## Purpose of Today's Discussion

- Share Information:
  - Class EA Process and Preferred Alternative
- Ask Questions:
  - Clarification on project or decision-making process





## Consultation Summary

- December 2014: Introduced Class EA
- September 2015: Objectives, Baseline Information
  - Fall 2015: 4 days of one-on-one discussion in Belfountain CA
- December 2015: Presented Alternatives
- May 2016: Present Preferred Alternative

## Belfountain Dam & Headpond Class EA – Process Update



### Study Need, Purpose & Approach

- The **need** for the Class EA study is two fold:
  - Belfountain Dam does not meet all of the current provincial standards for safety
  - CVC must plan for the future management of Belfountain Conservation Area and the Belfountain Complex
- The **purpose** of this study is to determine how to manage the Belfountain **Dam and Headpond** in the future

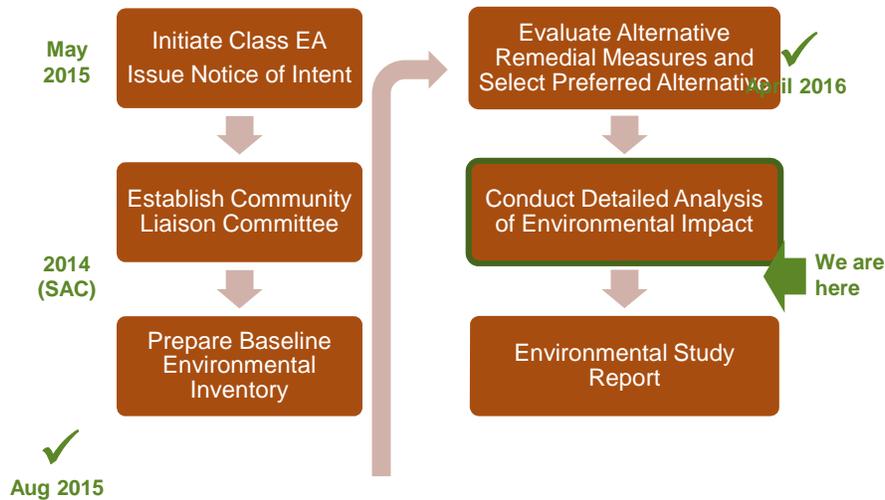


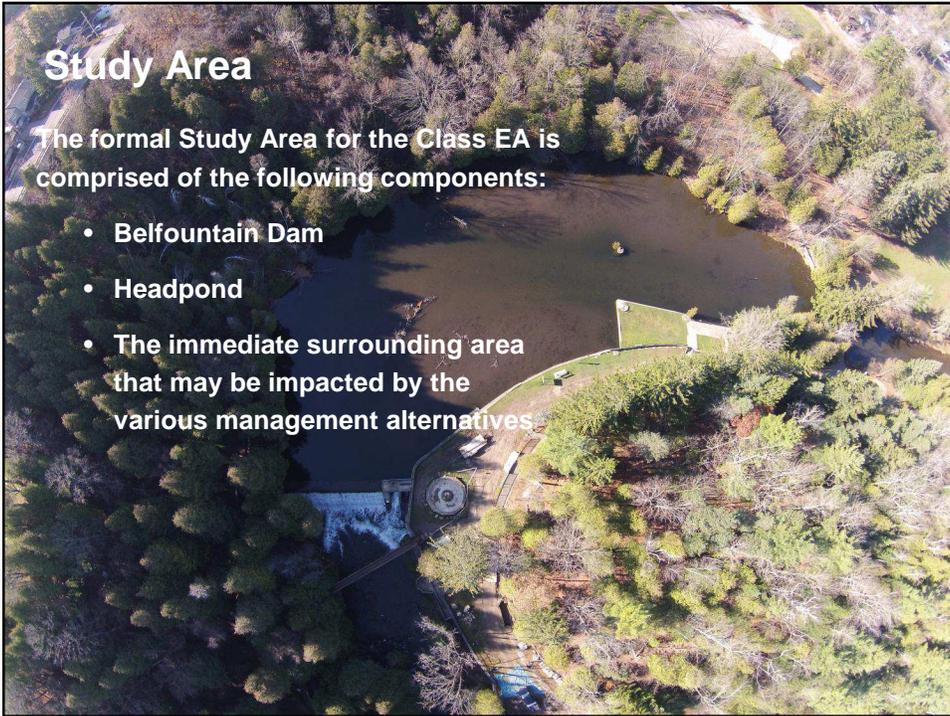
## Study Approach

- The study **approach**: Conservation Ontario's Class Environmental Assessment for Remedial Flood and Erosion Control Projects
- The process provides a project planning and design framework for proponents (Conservation Authorities like CVC) to ensure they meet the requirements of the Provincial *Environmental Assessment Act*
- Consultation with all stakeholders including the public and agency partners at all stages



## Class EA Process





## Preferred Alternative

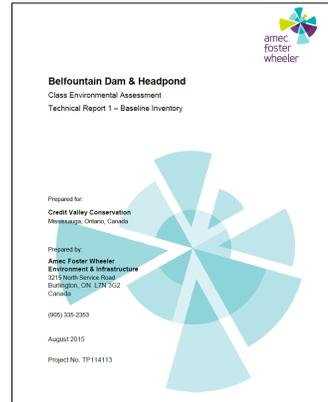


## Objectives

- 1) **Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species**
- 2) **Conserve and enhance cultural heritage attributes**
- 3) **Reduce/minimize risk to visitors, staff and affected property**
- 4) **Conserve and enhance natural heritage attributes**
- 5) **Promote natural stream function**
- 6) **Maintain or improve the visitor experience**
- 7) **Strive for long-term sustainability including economic viability**

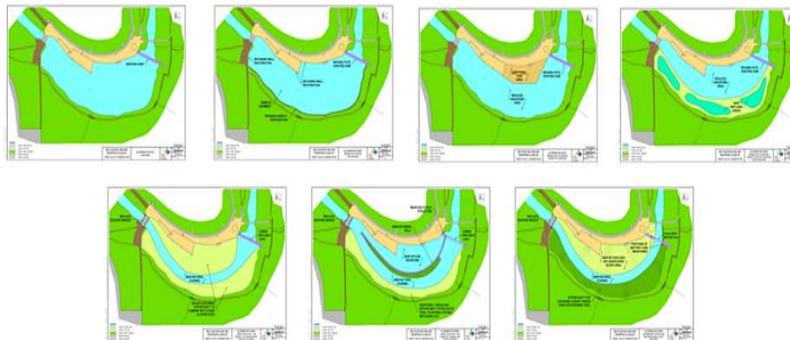
## Baseline Inventory

- Nine (9) technical studies for the Baseline Inventory Report were completed
  - Hydrology and hydraulics
  - Structural engineering
  - Geotechnical engineering
  - Stream morphology & sediment
  - Aquatic ecology
  - Terrestrial ecology
  - Cultural & built heritage
  - Archaeology
  - Financial analysis



## Long List of Alternatives

- All viable options for the dam and headpond have been considered
- Seven (7) alternatives for the dam and headpond were developed



Environment	Screening Criteria	Factor Significance	Alternative Evaluation									
			D2H1: Do Nothing		D2H2: Rehabilitate the dam & expand the headpond		D2H3: Rehabilitate the dam & convert part of the headpond to wetlands		D4H5: Lower the spillway & backfill headpond & construct channel		D4H6: Lower the spillway, construct channel & offline pond	
Physical	Natural Stream Function	High	Stream function impaired by headpond	Stream function impaired by headpond	Stream function impaired by headpond	Stream function restored	Natural stream function restored	Natural stream function restored	Natural stream function restored	Natural stream function restored	Natural stream function restored	Natural stream function restored
	Watercourse Thermal Regime	High	Thermal impact of headpond unchanged	Thermal impact of headpond unchanged	Headpond area reduced. Thermal impact slightly reduced	Headpond area reduced. Thermal impact reduced	Thermal impact eliminated	Thermal impact significantly reduced	Thermal impact significantly reduced	Thermal impact significantly reduced	Thermal impact significantly reduced	Thermal impact significantly reduced
Biological	Maintenance of Fish Barrier	High	Barrier maintained for all fish species	Barrier maintained for all fish species	Barrier maintained for all fish species	Barrier maintained for all fish species	Barrier maintained for all fish species	Barrier maintained for all fish species	Barrier maintained for all fish species	Barrier maintained for all fish species	Barrier maintained for all fish species	Barrier maintained for all fish species
	Aquatic Habitat	High	No change	No significant benefit	No significant benefit	No significant benefit	Coldwater habitat restored	Coldwater habitat restored	Coldwater habitat restored	Coldwater habitat restored	Coldwater habitat restored	Coldwater habitat restored
Cultural	Riparian Habitat	Moderate	No change	No change	No change	Wetland habitat is considered positive improvement, though not native to area	Riparian habitat associated with natural channel introduced	Riparian habitat associated with natural channel introduced	Riparian habitat associated with natural channel introduced	Riparian habitat associated with natural channel introduced	Riparian habitat associated with natural channel introduced	Riparian habitat associated with natural channel introduced
	Terrrestrial Habitat	Low	No change	No change	No change	No change	Additional floodplain habitat	No significant change	Additional valley/riparian habitat	No significant change	Additional valley/riparian habitat	No significant change
Socioeconomic	Road Heritage Features	High	No change	Longevity of spillway improved by structural mitigation	Longevity of spillway improved by structural mitigation	Longevity of spillway improved by structural mitigation	Negative effect on spillway	Negative effect on spillway	Negative effect on spillway	Negative effect on spillway	Negative effect on spillway	Removal of majority of spillway
	Landscape Heritage Features	High	No change	Headpond character restored through sediment removal	Some change to heritage landscape	Some change to heritage landscape	Loss of headpond feature in heritage landscape	Some change to heritage landscape	Some change to heritage landscape	Some change to heritage landscape	Some change to heritage landscape	Loss of headpond feature in heritage landscape
Socioeconomic	Archaeological Resources	Low	No effect expected	No effect expected	No effect expected	No effect expected	No effect expected	No effect expected	No effect expected	No effect expected	No effect expected	No effect expected
	Visitor Experience	High	No change	Aesthetics of headpond improved	Reduced crowding in fountain area, negative effect on open water vistas	Increased opportunity for ecological interpretation, Negative effect on open water vistas	Drains of waterfalls reduced with 1 m reduction in spillway height. Loss of open water vistas	Drains of waterfalls reduced with 1 m reduction in spillway height. Reduced floodplain area	Drains of waterfalls reduced with 1 m reduction in spillway height. Reduced floodplain area	Drains of waterfalls reduced with 1 m reduction in spillway height. Reduced floodplain area	Drains of waterfalls reduced with 1 m reduction in spillway height. Reduced floodplain area	Significant negative effect on waterfalls, dams and loss of open water vistas
Socioeconomic	Flood Risk and Safety	High	Decommission of the dam over time would increase risk of failure. Alternative is not compliant with the LRIA.	LRIA criteria met. Flood hazard associated with dam failure persists. Dam and headpond (deep water) present risk to staff and park visitors.	LRIA criteria met. Flood hazard associated with dam failure persists. Dam and headpond (deep water) present risk to staff and park visitors.	LRIA criteria met. Flood hazard associated with dam failure persists. Dam and headpond (deep water) present risk to staff and park visitors.	LRIA criteria met. Flood hazard associated with dam failure persists. Dam and headpond (deep water) present risk to staff and park visitors.	LRIA criteria met. Flood hazard associated with dam failure persists. Dam and headpond (deep water) present risk to staff and park visitors.	LRIA criteria met. Flood hazard associated with dam failure persists. Dam and headpond (deep water) present risk to staff and park visitors.	LRIA criteria met. Flood hazard associated with dam failure persists. Dam and headpond (deep water) present risk to staff and park visitors.	LRIA criteria met. Flood hazard associated with dam failure persists. Dam and headpond (deep water) present risk to staff and park visitors.	Flood hazard associated with dam failure persists. Risk to staff/visitors similar to any watercourse.
	Visitor Revenue	Moderate	No change expected	No change expected	No change expected	No change expected	No change expected	No change expected	No change expected	No change expected	No change expected	Potential for reduced visitation
Socioeconomic	Capital Cost	Moderate	No Cost	Moderate Cost	Moderate/High Cost	Moderate Cost	Moderate Cost	Moderate Cost	Moderate Cost	High Cost	Moderate/High Cost	Moderate/High Cost
	Major Maintenance Costs	Low	No change	No effect expected	Future sediment removal, dam safety assessments, potential for structural repairs	Future sediment removal, dam safety assessments, potential for structural repairs	Future sediment removal, dam safety assessments, potential for structural repairs	Future sediment removal, dam safety assessments, potential for structural repairs	Future sediment removal, dam safety assessments, potential for structural repairs	Future sediment removal, dam safety assessments, potential for structural repairs	Future sediment removal, dam safety assessments, potential for structural repairs	No significant capital maintenance costs expected.
Socioeconomic	Willage Tourism Economy	Moderate	No change	No change	No significant change	No significant change	No significant change	No significant change	No significant change	No significant change	No significant change	Potential reduction in visitors and associated businesses
	Local Community	Moderate	No change	No change	No significant change	No significant change	No significant change	No significant change	No significant change	No significant change	No significant change	Potential reduction in visitors and associated traffic, noise, etc.
Summary			Screened. Not compliant with the LRIA. Does not address structural/safety issues of the existing dam	Short-listed. Preferred from a Cultural perspective, not preferred from a Physical/Biological perspective.	Screened. Positive Socioeconomic effects, negative Cultural effects. No significant positive Physical/Biological effects. Opportunity for combination with Alt D4H6	Screened. Negative Cultural effects, No significant positive Physical/Biological effects. Opportunity for combination with Alt D4H6	Preferred Alternative		Short-listed. Preferred from a Physical/Biological perspective. More preferred from a Cultural perspective. Less preferred from an Economic perspective.	Screened. Negative Cultural and Socioeconomic effects are not considered acceptable.		

## Short List of Alternatives

**D2H2: Rehabilitate the dam & headpond**

**D4H6: Lower the spillway & construct a natural channel & offline pond**

**D4H5: Lower the spillway, backfill the headpond & construct a natural channel**





## D2H2: Rehabilitate the Dam & Headpond

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>- Pond depth increases: improved aesthetics</li> <li>- No impact to cultural heritage (built or landscape)</li> </ul>	<ul style="list-style-type: none"> <li>- No improvements to natural heritage or natural stream function</li> <li>- High cost for ongoing dam &amp; pond maintenance (inspection &amp; dredging)</li> </ul>

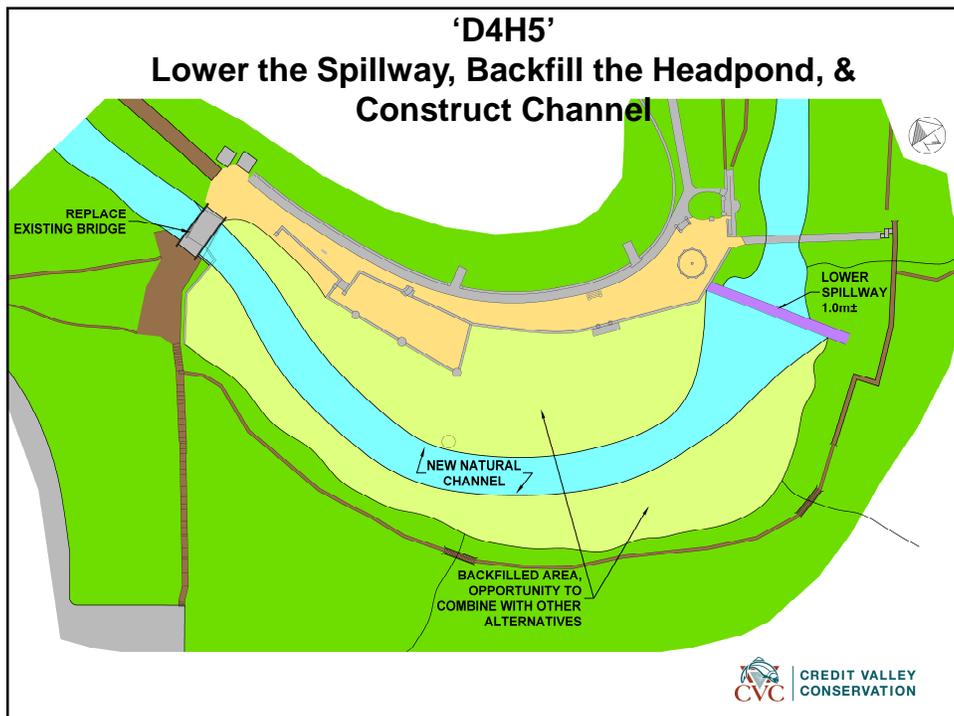
Estimated Cost: \$1.6 million



## D4H6: Lower the Spillway, Construct Channel & Offline Pond

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>- Flood risk reduced</li> <li>- Natural stream function enhanced</li> <li>- Aquatic &amp; riparian habitat improved</li> <li>- Headpond retained, in altered fashion</li> </ul>	<ul style="list-style-type: none"> <li>- Reduced drama (height) of waterfall</li> <li>- Impacts to built heritage</li> <li>- Change to headpond aesthetic</li> </ul>

Estimated Cost: \$2.7 million



## D4H5: Lower the Spillway, Backfill Headpond & Construct Natural Channel

Advantages	Disadvantages
<ul style="list-style-type: none"><li>- Flood risk reduced</li><li>- Natural stream function enhanced</li><li>- Aquatic &amp; riparian habitat improved</li><li>- Reclaimed land</li><li>- If sluiceway is removed, the dam appears similar to its original design</li></ul>	<ul style="list-style-type: none"><li>- Change in drama of waterfall (lower but wider)</li><li>- Impacts to built cultural heritage (reduction of dam height) and cultural landscape (elimination of pond)</li></ul>

Estimated Cost: \$1.75 million



## Selecting the Preferred Alternative

*The Preferred Alternative represents a reasonable compromise, that was derived amongst mixed values, and evaluated to support the greatest benefits.*

Alternatives were evaluated based on comments from:

- Agency Partners
- Public Information Centre
- Stakeholder Advisory Committee
- CVC's Technical Steering Committee



## Key Comments & Input



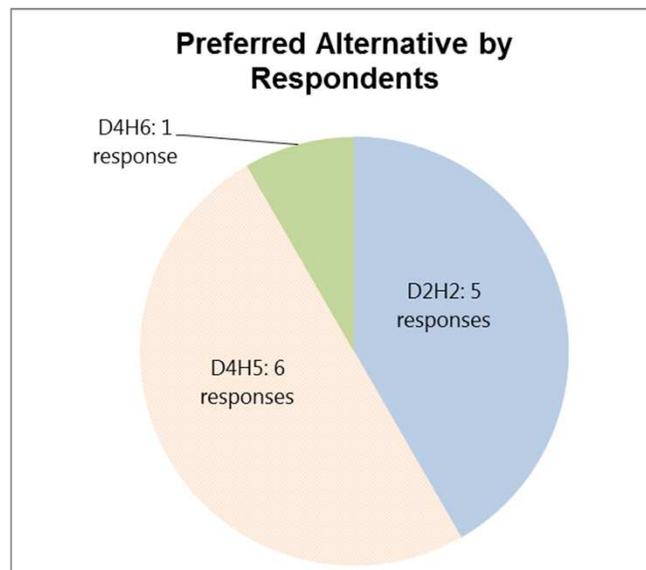
## Public Consultation Session #2

### *Objectives in Order of Importance to Public*

1. Promote natural stream function
2. Conserve and enhance natural heritage attributes
3. Maintain a fisheries barrier between upstream brook trout and downstream invasive and non-native species
4. Conserve and enhance cultural heritage attributes
5. Strive for long-term sustainability including economic viability
6. Reduce/minimize risk to visitors, staff and affected property
7. Maintain or improve the visitor experience



## Public Consultation Session #3



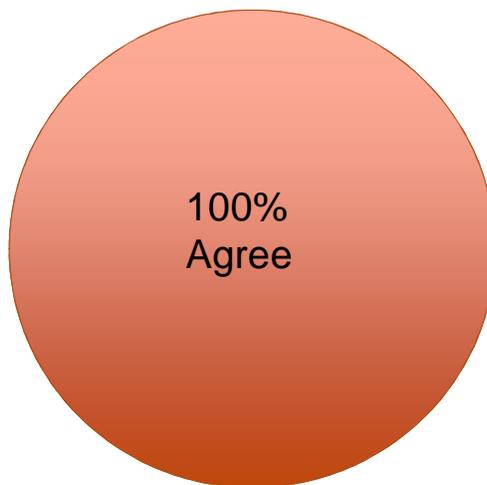
Total Responses = 12

## Public Comments & Feedback

- Respondents that selected D4H5 preferred it because it was the best option from an ecological perspective, required minimal maintenance and was esthetically pleasing
- Respondents that selected D2H2 preferred it because it had minimal impact to cultural heritage and because they had interest in using the pond for recreation purposes (e.g. swimming)
- Respondents that selected D4H6 (Lower the Spillway, Construct Channel & Offline Pond) noted that it best balanced the project objectives

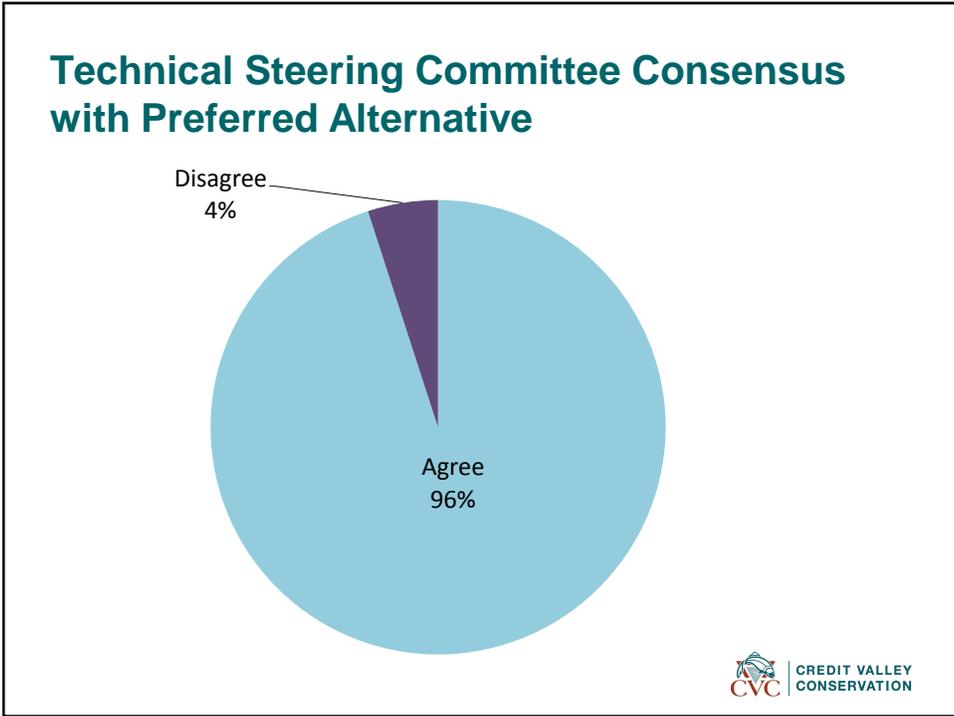


## Stakeholder Advisory Committee Consensus with Preferred Alternative



SAC Member	Focus Area
Heritage Caledon	Cultural Heritage
Izaak Walton	Fishing/Aquatic Habitat
Belfountain Heritage Society	Cultural Heritage
Belfountain Community Organization	Local Community
Trout Unlimited	Fishing/Aquatic Habitat





### Agency Comment Summary

Agency	Direction
CVC Board of Directors	- Approved the Preferred Alternative
Ministry of Tourism, Culture and Sport	- No concern over any of the short-listed alternatives
Heritage Caledon	- Support for the Preferred Alternative - Recommendations for mitigation measures, working with CVC on their continued efforts to protect cultural features
Ministry of Natural Resources & Forestry	- Concern over D4H6 – construction of additional structure (offline pond) - Concern over D2H2 – alternative does not improve natural environment - Support for the Preferred Alternative

## Agency Comment Summary Cont'd

Agency	Direction
Niagara Escarpment Commission	- Delegation to the Niagara Escarpment Commission in June 2016
Ministry of Environment and Climate Change	<ul style="list-style-type: none"> <li>- No concern over any of the short-listed alternatives</li> <li>- Sediment sampling not sufficient; additional sampling is required</li> </ul>
Ontario Heritage Trust	<ul style="list-style-type: none"> <li>- No concern over any of the short-listed alternatives</li> <li>- Requires additional information regarding mitigation of any downstream impacts during the implementation of the preferred alternative</li> </ul>



## Next Steps



## Implementation Options & Mitigation Examples

- Maintain cultural features and aspects
- Boardwalk around south edge
- Maintain visitor proximity to water (visual, walk beside it)
- Interpretation and Education



## Next Steps

Task	Completed
Collect, consider and respond to input	✓ (ongoing)
Analyze and select preferred method of implementation	✓
Detailed analysis of environmental effects	May - June
Draft Environmental Study Report	July
Final Project File	August
Issue Notice of Completion	2016



## Implementation

- Implementation must begin 5 years from approval
- \$1.75 million to design and construct
  - Municipal Partners (Region of Peel)
  - Province (Ministry of Natural Resources and Forestry)
  - Grants
  - CVC Operating Budget



## Belfountain Complex Management Plan

- Present materials for public review in June 2016



## Questions



Please review the **display boards**  
at the back of the room

**Project staff** are available to  
discuss the project further





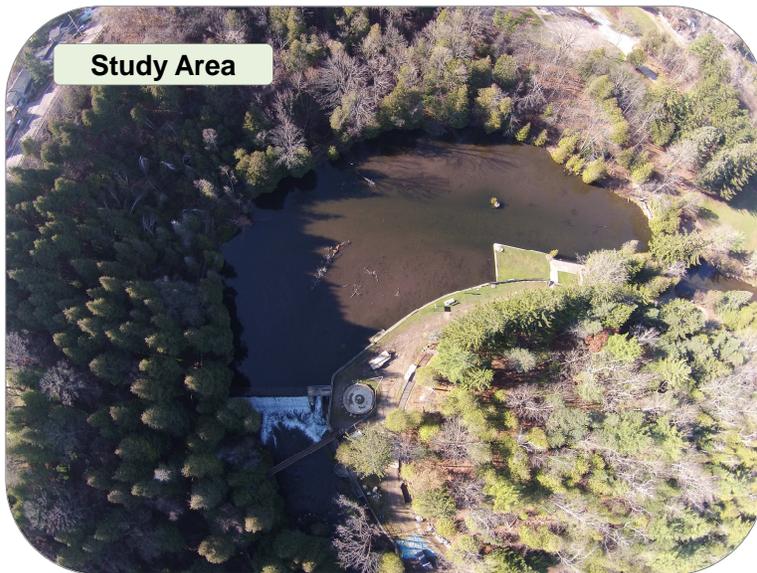
---

*Together, it's our nature to conserve  
and our future to shape.*

---

# Belfountain Dam and Headpond Class Environmental Assessment Public Consultation Session No.4

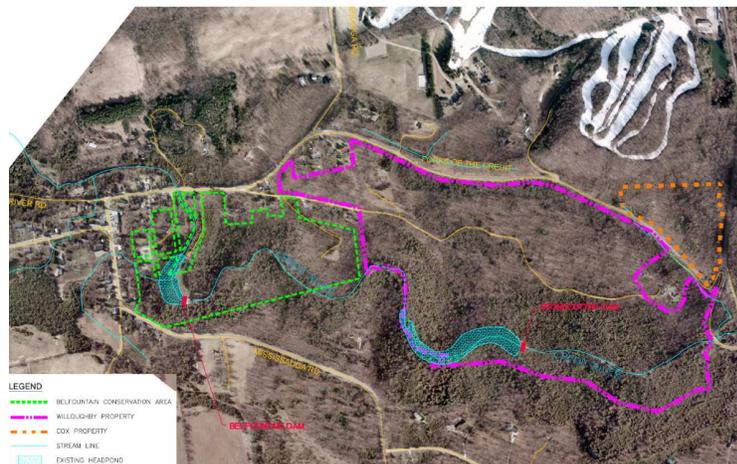
May 12, 2016



The formal Study Area for the Class EA is comprised of the following components:

- Belfountain Dam
- Headpond
- The immediate surrounding area that may be impacted by the various management alternatives

The *Class Environmental Assessment Study Area* is a sub-area within the Belfountain Complex and the outcomes will be incorporated into the *Belfountain Complex Management Plan*.



# Study Need & Purpose

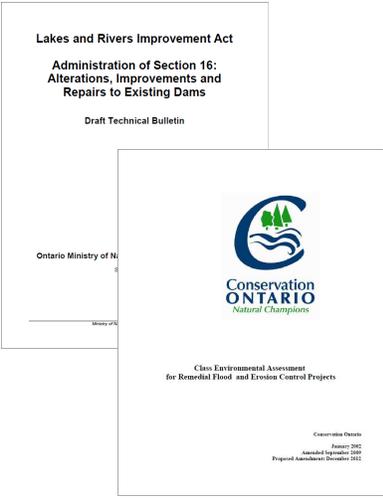
**CVC is a public body, and as such certain activities must be planned in accordance with the *Environmental Assessment Act*. Under the Act, CVC is required to undertake a *Conservation Ontario, Class Environmental Assessment for Remedial Flood and Erosion Control (Class EA)*.**

## Study Need

The need for this study was identified in a previous evaluation of the dam's safety which revealed that the *Belfountain Dam does not meet all of the current provincial standards for safety*.

Although the dam could simply be repaired, other management options are available that require additional study of several important factors including:

- Cultural heritage
- Natural heritage
- Conservation area visitors
- Economics
- And more



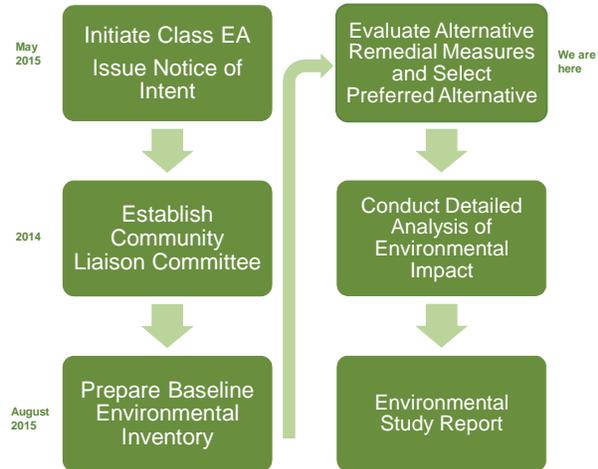
**The purpose of the Class EA is to determine the best solution for the future management of the Belfountain Dam and Headpond.**



# Study Approach & Objectives

## Study Approach

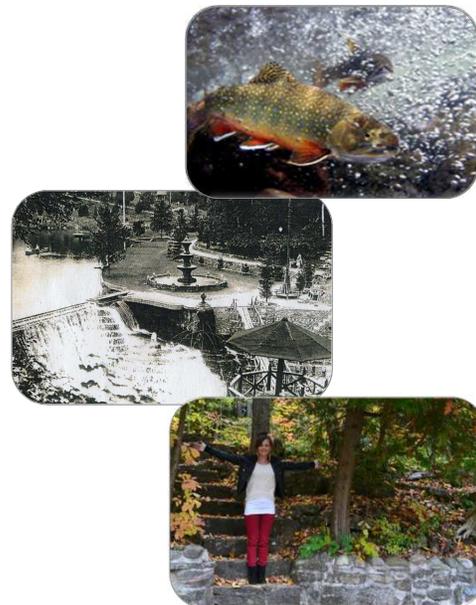
- **Study approach: Conservation Ontario's Class Environmental Assessment for Remedial Flood and Erosion Control Projects**
- This process provides a project planning and design framework for proponents (Conservation Authorities like CVC) to ensure they meet the requirements of the Provincial Environmental Assessment Act
- This process includes consultation with all stakeholders including the public and agency partners at all stages



## Study Objectives

CVC has established seven (7) objectives for this project:

- 1) Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species
- 2) Reduce/minimize risk to visitors, staff and affected property
- 3) Maintain or improve the visitor experience
- 4) Conserve and enhance cultural heritage attributes
- 5) Promote natural stream function
- 6) Strive for long-term sustainability including economic viability
- 7) Conserve and enhance natural heritage attributes



Credit Valley Conservation

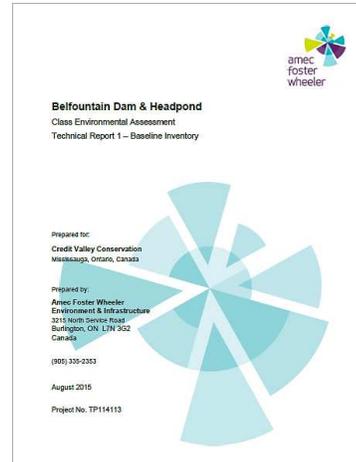
# Baseline Inventory

## Summary of existing conditions and background information

**Nine (9) component technical studies have been completed and have been summarized in Technical Report #1.**

This information was presented at PIC #2

- 1) Hydrology and Hydraulics
- 2) Structural Engineering
- 3) Geotechnical Engineering
- 4) Stream Morphology & Sediment
- 5) Aquatic Ecology
- 6) Terrestrial Ecology
- 7) Cultural & Built Heritage
- 8) Archaeology
- 9) Financial Analysis



## Examples of some of the work and observations made as part of the baseline inventory



Test pitting behind north retaining wall (geotechnical engineering)



Concrete deterioration (structural engineering)



Historic photo of Belfountain Dam (cultural heritage)



Brook trout (aquatic ecology)



Jefferson salamander (terrestrial ecology)



West Credit River (Stream morphology)



Credit Valley Conservation

# Long List of Alternatives

All viable options for managing the dam and headpond are considered. Alternatives for the dam and headpond have been developed somewhat independently and compatible combinations have been advanced for evaluation.

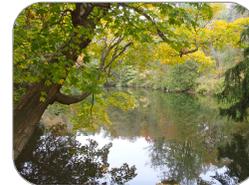
## Dam Alternatives

- D1. Do Nothing
- D2. Rehabilitate the dam
- D3. Replace the dam
- D4. Lower the spillway
- D5. Decommission the dam



## Headpond Alternatives

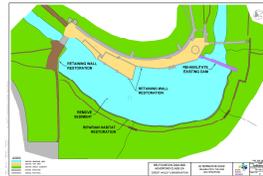
- H1. Do Nothing
- H2. Rehabilitate the headpond
- H3. Expand tableland into the headpond
- H4. Convert part of headpond to wetlands
- H5. Backfill headpond & construct channel
- H6. Construct channel & offline pond
- H7. Restore natural valley and channel



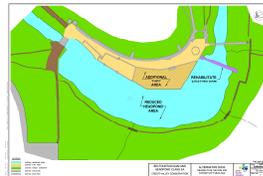
## Seven (7) alternatives for the dam and headpond were developed:



Do Nothing



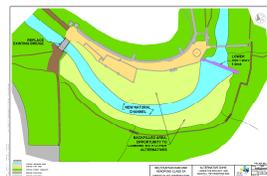
D2H2: Rehabilitate the Dam & Headpond



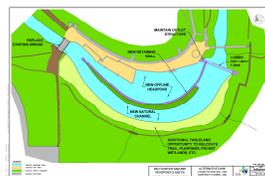
D2H3: Rehabilitate the Dam and Expand the Tableland



D2H4: Rehabilitate the Dam and Convert Portion of Headpond to Wetland Area



D4H5: Lower the Spillway, Backfill the Headpond & Construct a Natural Channel



D4H6: Lower the Spillway and Construct Channel and Offline Headpond



D5H7: Restore Natural Valley & River



# Alternative Evaluation

- Sixteen (16) evaluation criteria have been developed under four (4) environments – these are summarized in the table below
- Each criteria is assigned a **significance factor** (high, moderate or low) to indicate its relative importance within the Study Area



Environment	Criteria	Significance	Description
Physical	Natural Stream Function	Moderate	The ability of the West Credit River to function as a natural stream-through the Study Area, with consideration to impacts on downstream reaches. Considerations include sediment transport, oxygenation, habitat, etc. The dam/headpond inhibit this function.
	Watercourse Thermal Regime	Moderate	The West Credit River is cold water fish habitat. The headpond allows for increased solar inputs which negatively effect water temperature both within the Study Area and downstream.
Biological	Maintain Fish Barrier	High	Maintain a barrier to upstream migration of non-native and invasive species for the purpose of protecting upstream brook trout populations.
	Aquatic & riparian habitat	Low	The quality and extent of habitat for brook trout and other aquatic species in the Study Area. Algae growth, sediment, and water temperature are current concerns.
	Terrestrial Habitat	Low	The quality and extent of habitat for terrestrial species within the Study Area. Jefferson Salamander, Small Brown Bat, other local significant species and the ANSI are of specific concern.
Cultural	Built Heritage Features	High	Built heritage features that may be impacted directly or indirectly by construction including the dam, retaining walls, fountain and other features.
	Landscape Heritage Features	High	Mack Park is a candidate heritage landscape and the priority would be to maintain/re-instate the character of the original landscape design.
	Archaeological /Resources	Low	The Study Area contains pre-contact Aboriginal and historic Euro-Canadian resources that must be protected from impact or mitigated where impact is unavoidable.
Socio economic	Visitor Experience	High	The BCA is considered to provide a unique combination of experiences specifically related to the dam: natural/ and anthropogenic vistas (river, waterfall and headpond) built heritage features and access to water. Protecting these experiences and providing new experiences is a priority.
	Flood Risk and Safety	High	The extent of potential flood damages to life, property, environment and heritage features (including dams) downstream. The presence of a dam increases flood risk. Safety considerations and liability associated with the presence/operation of the dam/headpond including safety of park visitors and-staff, are included in this criteria. This criteria considers the ability to meet the LRIA criteria.
	Visitor Revenue	Moderate	Revenue generated from park entrance fees
	Capital Cost	Moderate	Cost of construction associated with the alternative
	Capital Maintenance Cost	Low	Maintenance costs associated with capital improvements to the park infrastructure, also including the need for specialist dam safety inspections.
	Village Tourism/ Economy	Moderate	The dam/headpond are iconic to the region and a major draw for park visitors to the Belfountain village which supports the local and regional economy.
Local Community	Moderate	The dam/headpond are a major draw for park visitors. The local community is affected by the associated traffic, parking, noise, trash, etc.	



- Each alternative is then assigned a **score** for each criteria

- Positive
- Positive-Neutral
- Neutral
- Neutral-Negative
- Negative



- Where 'negative' effects are considered unacceptable, the alternative has been **screened**
- Otherwise the alternative has been **advanced to the short list**
- See the 'Summary' row in the evaluation matrix
- **The evaluation matrix is presented on the next board**

# Short List of Alternatives

Based on the evaluation matrix and comments received from the public, stakeholders, CVC staff and our agency partners in 2015, three (3) alternatives were “short listed” for further discussion and analysis.

Advantages and disadvantages of each alternative are identified below.

**LEGEND**

- EXISTING HEADPOND AREA
- EXISTING TURF AREA
- EXISTING FOREST COMMUNITY
- EXISTING STRUCTURE
- EXISTING PATH/TRAIL

## Alternative D2H2: Rehabilitate the Dam & Headpond

Under this alternative: The structural and safety issues associated with the dam would be addressed; the dam would continue to look much as it does today. The sediment in the headpond would be removed, the retaining walls would be restored and improvements to the natural south shoreline would be made.

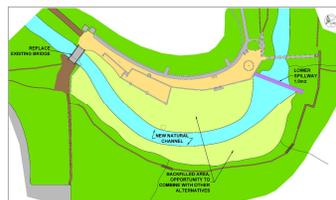
Advantages	Disadvantages
<ul style="list-style-type: none"> <li>- Pond depth increases: improved aesthetics</li> <li>- No impact to cultural heritage (built or landscape)</li> </ul>	<ul style="list-style-type: none"> <li>- High cost for ongoing dam &amp; pond maintenance (inspection &amp; dredging)</li> <li>- No improvements to natural stream function or natural heritage</li> </ul>
<b>Cost: Est. \$1.6 million</b>	



## Alternative D4H5: Lower the Spillway, Backfill the Headpond & Construct a Natural Channel

Under this alternative: The dam would be lowered by 1 m +/- to provide adequate grade for a natural channel. The headpond would be backfilled, capping the sediment in place, and a natural channel would be constructed. Additional open space would create additional opportunities.

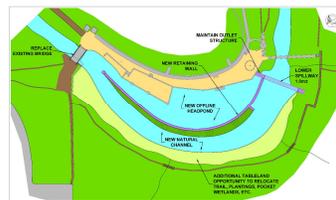
Advantages	Disadvantages
<ul style="list-style-type: none"> <li>- Flood risk reduced</li> <li>- Natural stream function enhanced</li> <li>- Aquatic &amp; riparian habitat improved</li> </ul>	<ul style="list-style-type: none"> <li>- Reduced drama (height) of waterfall</li> <li>- Impacts to built heritage</li> <li>- Change to headpond aesthetic</li> </ul>
<b>Cost: Est. \$1.75 million</b>	



## Alternative D4H6: Lower the Spillway and Construct Channel and Offline Headpond

Under this alternative: The dam spillway would be lowered by 1 m +/- to provide adequate grade for a natural channel. The headpond would be backfilled on the south side to accommodate a natural channel. A retaining wall would be extended from the existing sluice gate to create an offline pond.

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>- Flood risk reduced</li> <li>- Natural stream function enhanced</li> <li>- Aquatic &amp; riparian habitat improved</li> <li>- Headpond retained, in altered fashion</li> </ul>	<ul style="list-style-type: none"> <li>- Reduced drama (height) of waterfall</li> <li>- Impacts to built heritage</li> <li>- Change to headpond aesthetics</li> </ul>
<b>Cost: Est. \$2.7 million</b>	



# Comments Received

## Public Consultation Session No.2 (Sept 2015)

Attendees to the Public Consultation Session that took place in September, 2015 were asked to rank the project objectives in order of importance. Ecological objectives were ranked as most important:

1. Promote natural stream function
2. Conserve and enhance natural heritage attributes
3. Maintain a fisheries barrier between upstream Brook Trout and downstream invasive and non-native species
4. Conserve and enhance cultural heritage attributes
5. Strive for long-term sustainability including economic viability
6. Reduce/minimize risk to visitors, staff and affected property
7. Maintain or improve the visitor experience

Attendees were also asked what their vision was for the Belfountain Dam and Headpond.

Responses include:

- Naturalization
- Conservation of cultural features
- A healthy fishery and local environment
- Ensure public and visitor safety
- Economic sustainability

### Comment Themes:

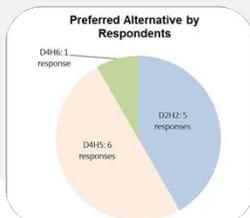
#### Survey Responses from December 2015

- Surveys responses were almost equally divided by respondents that preferred option D2H2 (Rehabilitate Dam and Headpond) and D4H5 (Lower the Spillway, Backfill Headpond & Construct Natural Channel)
- Respondents that selected D4H5 preferred it because it was the best option from an ecological perspective, required minimal maintenance, was esthetically pleasing
- Respondents that selected D2H2 preferred it because it had minimal impact to cultural heritage and cited interest in using the pond for recreation purposes
- Respondents that selected D4H6 (Lower the Spillway, Construct Channel & Offline Pond) noted that it best balanced the project objectives

## Public Consultation Session No.3 (Dec 2015)

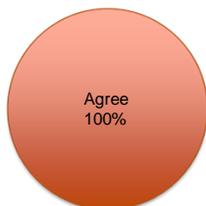
Attendees were asked to identify their preferred alternative:

Code	Description
D2H2	Rehabilitate the Dam and Headpond
D4H5	Lower the Spillway, Backfill Headpond & Construct Channel
D4H6	Lower the Spillway, Construct Channel & Offline Pond

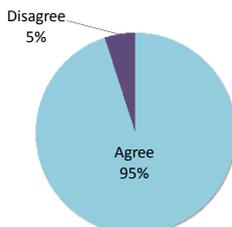


## Stakeholder Advisory Committee and Technical Steering Committee

The Stakeholder Advisory Committee and Technical Steering Committee were asked if they agreed with the preferred alternative. The graphs below indicate general consensus with the preferred alternative.



Stakeholder Advisory Committee



Technical Steering Committee



## Next Steps and How to Submit Comments

### Next Steps

- Collect and consider input from the public
- Analyze *preferred method of implementation*
- Conduct *detailed analysis of environmental effects*
- Prepare final *Project File*
- Issue *Notice of Completion* (July 2016)

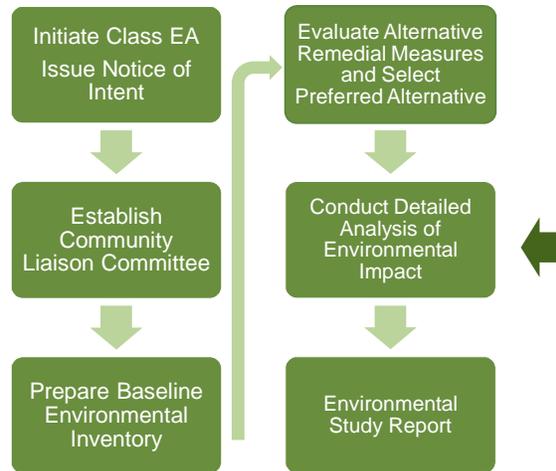
### How to Submit Comments



You can complete a comment form and submit it to the Study Team today. Or send your comments to either of the contacts provided below by:

- Mail
- Phone
- Fax
- E-mail

**Please submit comments no later than May 26, 2016**



#### Credit Valley Conservation Authority

Ms. Laura Rundle  
 Conservation Lands Planner  
 1255 Old Derry Road  
 Mississauga, Ontario, L5N 6R4  
 Tel: (905) 670.1615 ext.535  
 email: lrundle@creditvalleyca.ca

#### Amec Foster Wheeler

##### Environment & Infrastructure

Mr. Ron Scheckenberger, M.Eng., P.Eng.  
 Project Manager  
 3215 North Service Road, P.O. Box 220  
 Burlington ON L7N 3G2  
 Tel: 905.335.2353  
 Toll Free: 1.866.751.2353  
 Email: ron.scheckenberger@amecfw.com

**Thank you for your participation!**



**Credit Valley Conservation**

## Public Information Centre – Summary Notes

### Belfountain Conservation Area

### Belfountain Dam and Headpond Class Environmental Assessment

---

**Date:** Thursday May 12, 2016

**Time:** 7:00pm – 9:00pm

**Location:** Belfountain Public School – Gymnasium  
17247 Shaws Creek Rd, Belfountain, ON L7K 0E8

#### Public Consultation Goal:

- Present the selected Preferred Alternative for the Belfountain Dam and Headpond Class Environmental Assessment
- Hold facilitated Question & Answer session with members of the Public

#### Agenda:

Time	Topic
6:45pm – 7:15pm	Registration and Poster Review
7:15pm – 7:30pm	Meeting Instructions and Welcoming Address
7:30pm – 8:05pm	Presentation: Selecting the Preferred Alternative
8:05pm – 9:00pm	Open Question and Answer Period
9:00pm	Formal Meeting Agenda Close
9:00pm – 9:30pm	Poster Review and One-on-One Discussion with CVC staff

#### Consultation Summary:

Credit Valley Conservation (CVC) has committed to hosting public consultation sessions at key milestones during the planning process for the Belfountain Complex Management Plan and Class Environmental Assessment for the Belfountain Dam and Headpond (Class EA). Public consultation provides an opportunity to both inform interested parties about the project, as well as consult on recommendations and proposals. The project’s Stakeholder Advisory Committee and agency partners are also involved in providing input and feedback into the plan.

The session held on Thursday May 12<sup>th</sup> represents the fourth public consultation session for the Belfountain Complex Management Plan and Class Environmental Assessment. The focus of the meeting on May 12<sup>th</sup> was to present the selected Preferred Alternative for the Belfountain Dam and Headpond Class Environmental Assessment.

28 participants registered attendance at the session, plus one (1) media contact from the Caledon Citizen. Based on postal codes provided, meeting participants originated from within Caledon, with the vast majority being residents of Belfountain Hamlet.

Previous public consultation session information is outlined in the table below; further details regarding each session can be found on CVC's website at:

<http://www.creditvalleyca.ca/enjoy-the-outdoors/conservation-areas/belfountain-conservation-area/belfountain-conservation-area-management-plan/consultation/>

Consultation Session	Date	Focus Area	Description
1	December 3, 2014	Management Plan	<ul style="list-style-type: none"> <li>Formally announce launch of Management Planning Process.</li> <li>Present Guiding Statements and Concepts.</li> <li>Collect Feedback and Public Input on proposed directions.</li> <li>Feedback tools: Q&amp;A session; Project Ranking; Feedback Forms; Comment Cards</li> </ul>
2	September 22, 2015	Management Plan & Environmental Assessment	<ul style="list-style-type: none"> <li>Present early design concepts for Management Plan.</li> <li>Collect Feedback and Public Input on preliminary design works.</li> <li>Launch Environmental Assessment Process.</li> <li>Feedback tools: Q&amp;A session; Questionnaire; Comment Cards</li> </ul>
2b	September, October 2015	Management Plan & Environmental Assessment	<ul style="list-style-type: none"> <li>Informal sessions hosted at Belfountain Conservation Area.</li> <li>Management Plan and Class EA details shared with members of the public through one-on-one conversations.</li> <li>Feedback tools: Conversation Notes; Questionnaire</li> </ul>
3	December 1, 2015	Environmental Assessment	<ul style="list-style-type: none"> <li>Present short list of Alternatives under the Class EA.</li> <li>Collect Feedback and Public Input on short list alternatives.</li> <li>Feedback tools: Q&amp;A Session; Questionnaire</li> </ul>
4	May 12, 2016	Environmental Assessment	<ul style="list-style-type: none"> <li>Present Preferred Alternative for Class EA</li> <li>Feedback tools: Q&amp;A Session; Comment Cards</li> </ul>

The following summary was put together by Credit Valley Conservation staff. It is not intended to provide a verbatim transcript; rather it reflects the key conversation points held during the facilitated group discussion.

**Meeting Overview:**

The May 12<sup>th</sup> meeting agenda was split into 4 components:

- Poster Review
- Welcoming Address
- Formal Presentation: Selecting the Preferred Alternative
- Focussed Conversation – Facilitated Group Discussion

A series of nine (9) posters were displayed around the gymnasium, depicting the environmental assessment process and the process undertaken for evaluating alternatives. The poster materials will be made available to the public through CVC's website.

The Welcoming Address was presented by CVC's Chief Administrative Officer, Deborah Martin-Downs. The following points were highlighted during the welcoming address:

- The intent of tonight's meeting is to share with you the selected Preferred Alternative for the Belfountain Dam and Headpond Class Environmental Assessment.
- Input has been received from CVC's Technical Steering Committee, Stakeholder Advisory Committee, Agency Partners and Public input, through two prior EA consultation sessions, to lead us to this decision.
- In selecting the Preferred Alternative, we believe that the right choice is being made:
  - 96% consensus with CVC's Technical Steering Committee.
  - 100% consensus with the Stakeholder Advisory Committee.
- We have come a long way since the first needs for the Belfountain Dam and Headpond were brought forward in the early 2000's. Consensus was not achieved at the time, and ultimately decisions were deferred to the future. Today, we are proud of the collaborative process that has been built to develop and review options and we are optimistic about benefits that will be achieved by implementing the Preferred Alternative.
- We are confident that the alternative we are presenting today is the most beneficial for the environment, while also being respectful of cultural heritage values.
- Careful consideration has gone into the evaluation process to ensure that all feasible options were considered and that meaningful criteria were developed in order to establish the best alternative.
- Our work is not complete; now that we have a Preferred Alternative our staff and experts from AMEC will be establishing detailed designs for implementation.
- Thank you all for participating in our event tonight, and to all the members of the public, our stakeholder and agency partners for your contributions to this work.

Following the welcoming address, a formal presentation was given by Laura Rundle, Conservation Lands Planner at Credit Valley Conservation. The presentation highlighted how the preferred alternative was selected by reviewing the evaluation process. The presentation also highlighted how comments were integrated into the environmental assessment process. Comments were received from members of the public, stakeholders, agency partners and technical experts. Presentation slides will be made available to the public through CVC’s website.

Following the presentation Karyn Stock-MacDonald, a professional facilitator hired as a third party to moderate the discussion portion of the evening, organized the group to debrief on the presentation materials.

Meeting participants were asked to spend 20 minutes in small groups discussing a series of focussed conversation questions in order to share their insights and gather questions that they would like answered as a priority by CVC staff. In order to debrief on the meeting materials, meeting participants were asked to review the following five (5) discussion questions together:

1. What points or facts most stood out for you in the presentation?
2. What did you learn that you didn’t know before?
3. What will be some of the outcomes of pursuing this alternative?
4. What questions are you left with?
5. How would you like to stay informed and engaged going forward?

Following the small group discussions, participants were brought back together and each group was asked to select a speaker to highlight their key discussion points and pose any questions to CVC staff for clarification and consideration. The discussion rotated through the room until all participants were satisfied that their questions and points were addressed. Any outstanding items, or items not directly related to the Environmental Assessment process were deferred to the end of the evening, when CVC staff would be available for one-on-one discussion.

Highlights of the large group discussion are found in the next section.

**Group Discussion Summary:**

Questions posed to CVC staff were answered by the following technical leads:

Staff Name	Job Title	Area of Expertise
Deborah Martin-Downs	CVC, Chief Administrative Officer	<ul style="list-style-type: none"> <li>• CVC Corporate Strategy &amp; Political Liaison</li> <li>• Fisheries</li> </ul>
Eric Baldin	CVC, Manager, Land Planning	<ul style="list-style-type: none"> <li>• Management Planning &amp; System Planning</li> </ul>
Shawn Verge	CVC, Operations Manager	<ul style="list-style-type: none"> <li>• Conservation Areas Operations &amp; Programming</li> </ul>
Ron Scheckenberger	AMEC, Principle - Water Resources	<ul style="list-style-type: none"> <li>➤ Engineering Design &amp; Water Resource Expert</li> </ul>

### Questions Posed to CVC Staff:

Questions are ordered in groupings based on subject matter for readability; questions are not ordered based on the flow of conversation.

### Clarification on Preferred Alternative:

1. At this point, is the offline pond in or out of consideration?
  - The option to include an offline pond is no longer being considered.
  - The selected Preferred Alternative includes:
    - Lowering the Spillway
    - Backfilling the Headpond
    - Constructing a Channel

### Implementation:

2. How will you go about diverting water during construction?
  - The project's water management plan will be based on isolating work areas. Construction will take place incrementally, dealing with water, sediment and erosion control during every stage of work.
  - In the first step, water will be lowered to expose and dry the sediment. Sediment will then be removed, based on requirements from regulators (MOECC<sup>1</sup>).
3. When will the construction work begin?
  - 2018 is the earliest possible date to begin implementation.
  - The following steps need to be completed prior to breaking ground:
    - Environmental Assessment Approval (~2016)
    - Confirm Funding (through grants and partnerships ~ 2017)
    - Detailed Design (2016-2017)
  - After the project is approved, there is a 5 year window to begin implementation. CVC's intention is to have the project approved in 2016, meaning that works must begin no later than 2021.
4. Once you break ground, how long will the implementation work (i.e. construction) last?
  - We anticipate that construction work will carry-on over a 12 month period; however work will not be continuous over this period. Implementation works will need to be staged around the Fisheries Timing Windows, which will stretch +/- six (6) months of work out across the entire year.
  - Work will include all phases of the project from de-watering and sediment removal to replanting.
5. Given that the start date is at least a few years away, do you have any idea of how much costs will increase between now and then?
  - Based on recent trends for general construction, we can anticipate an increase of 2%-5% per year.
  - In these predictions, we cannot know if there will be a change to regulation that will dictate updates to the design of the implementation plan.

---

<sup>1</sup> Ministry of Environment and Climate Change

### New Land:

6. What is the new land that is being created going to be used for after the project is implemented?
  - A Public Consultation Session is being planned, likely in June, where ideas will be further shared and public input will be sought.
7. In regards to the new land, is there a reason why it is so large or can it be smaller?
  - The new channel width needs to reflect the geometry both upstream and downstream, as this has been established in nature and will continue to be the preferred or governing width. The balance of the land would then be available for repurposing, subject to establishing a preferred channel alignment.
8. In regards to the new land, could the area be established as a marsh vs. solid land?
  - There are three (3) forms that the land can take on, it all depends on how it is graded and treated:
    - Floodplain riparian zone
    - Wetland
    - Manicured

### Fishery

Note: Additional points were made post meeting by CVC Aquatic Biologist, these are posted in blue.

9. Would removing the sluice gate have an impact on trout?
  - The benefit of the bottom draw in the sluiceway from a temperature mitigation perspective is unknown.
  - The reduction in the size of the headpond and the subsequent reduction in warming should more than off-set any thermal benefits associated with the sluice-gate.
10. How will the Preferred Alternative prevent non-native or invasive fish species from moving upstream?
  - The dam will be lowered to a height of six (6) meters; fish cannot jump that high so the dam will naturally stop fish from moving upstream.
  - Maintaining a fish barrier was a criterion that was built into the Alternative evaluation.
  - MNRF (Ministry of Natural Resources and Forestry) currently stock Atlantic Salmon upstream of the dam.
11. Have you already segregated the fish species to know that they are not upstream, how do we know that they are already separated?
  - CVC conducts regular sampling of the river through our Integrated Watershed Monitoring Program.
  - CVC has not found Brown Trout (a non-native species) upstream of the dam; however there are some present in Hillsburgh and there are reports of them periodically moving downstream. We more regularly find Rainbow Trout (a non-native species) upstream of the dam, which are believed to be escapes from upstream pond stocking.

12. How do you sample fish in the river? MNRF began to remove and relocate the Brown Trout from this stretch of river; they should no longer be there.
- Maintaining the fish barrier remains an important tool in protecting the cold water fishery.
  - MNRF has been removing non-native species from the section downstream of the Belfountain dam. It would be impossible for all of them to be caught so there are still Brown Trout and Rainbow Trout downstream of the dam.
  - Brown Trout and Rainbow Trout are also present in the main Credit River around the Forks, and they can probably return or re-colonize on their own.
13. In regards to the fishery; I am under the impression that there is an effort to re-establish the Salmon populations in the Credit River through projects such as the fish ladder at the Norval Dam. It however seems that CVC does not want to see Salmon above the dam at Belfountain Conservation Area?
- CVC has seen no reports to indicate that Atlantic Salmon were historically able to access upstream of Belfountain. Furthermore, given concerns over declining Brook Trout populations in the Credit, CVC feels that maintaining Atlantic Salmon downstream of the dam is the best management option.
  - There is no intention to create a fish ladder at Belfountain Conservation Area.
  - CVC will continue to work under other avenues to re-introduce Atlantic Salmon downstream.
  - Atlantic Salmon were largely eradicated in the 1800's due to pioneering efforts (river damming and mills) and overfishing.

### **Sediment and Water Temperature**

**Note: Additional points made post meeting by CVC Aquatic Biologist are posted in blue.**

14. In regards to the increased sediment and water temperatures; there is a similar structure at Terra Cotta Conservation Area on Wolf Lake where CVC built a by-pass channel to divert the water. What facts and figures do you have to know that this is a successful endeavour and that a similar option would work at Belfountain Conservation Area?
- Restoration works at Terra Cotta Conservation Area are showing net positive benefits, as an example Brook Trout are being seen again.
  - A comparison of temperature data from before the bypass channel was built (2008) and after (2013) shows an average reduction in summer temperatures of 3.7°C.
15. Will a wider river and increased flows not cause there to be higher water temperatures and increased sediment?
- The new river will actually be substantially narrower than the current head pond. Water will move more efficiently through it rather than backing up; hence the proposed solution will decrease thermal enrichment and facilitate the movement of natural sediment.
  - Sediment transport in rivers is a natural process, however the dam has prevented this natural process from occurring by blocking sediment transport and collecting the sediment in the head pond.
  - In developing the best designs for implementation, we are determining the optimal channel design parameters including velocity, alignment and cross-section; while balancing the objective to minimize impacts to built heritage (i.e. the spillway height).

- The new channel needs to be built so that there is enough energy to sustainably move sediment downstream. Also, during high water periods, the floodplain will also act as a source to absorb and capture sediment.

16. In regards to sediment, how do you know that sediment will not continue to build? As an example, the Norval Dam doesn't seem to be much higher than six (6) meters and it has a good flow of water, but there is a large amount of sediment and it continues to grow.

- The headpond at Norval is simply a result of the dam being present and the slope is flat (0% grade). The design for the Belfountain Complex has a 0.5% grade and this, combined with the directed placement of substrates up to the top of the dam, will help to improve sediment transport.

### Site Management

17. In regards to property ownership, will the CVC make available the original agreement between Mack and CVC so that the community is aware of the original terms and restrictions of the agreement?

**Note: response was recorded post meeting in order to verify question details.**

- In 1959, the majority of the active day use area was purchased from William Roger. CVC did not purchase land directly from Charles Mack.
- After Charles Mack passed away in 1948, we presume that the property was left to his wife, Addie Mack. Through Addie Mack's will, it is understood that direction was given for the property to be sold.
- A declaration from CVC's lawyer certifies that CVC acquired the property free and clear from all encumbrances; with no title restrictions.
- As of May 19, 2016, CVC will be contracting a historian to conduct further research into the matter. The work will be tied to the Heritage Designation for Caledon, and particular attention will be paid to the period between Mack's acquisitions and CVC's ownership, with specific regard to any restrictive covenants.
- Further details related to the cultural heritage features of the Belfountain Complex can be found in the Background Report for the Management Plan: Section 3.0 Cultural Heritage. The Background report is available on CVC's website:

<http://www.creditvalleyca.ca/wp-content/uploads/2015/01/BCMPA-Draft.pdf>

18. In regards to site management in the past, how did the area get to the point where it is in such a need for repair? Do you believe that any management plan will be successful, because at this point the site is degraded and beyond repair? As an example, you are proposing this alternative as a solution to water quality issues, however all things in the park lead back to water quality (erosion, trampling, invasive species, high-use) how are you managing these elements together?

- The Preferred Alternative is only one piece of the management considerations for the Belfountain Complex, through the Management Plan additional policies and design options will be established to manage the Complex as a whole.

- The dam ended up in the state that it is today, because a decision was tabled in 2004 to hold decisions until a future date when the area could be reviewed through a Management Plan. The management plan was launched in 2014.
- Prior to Management Plan completion, CVC policy and programming has acted as the guide for site management.

19. Implementation of this Preferred Alternative is being presented as the first step in implementing updates for this Complex; will you continue to do this if the community does not want it?

- Managing the site is an issue that we are obligated to address; this includes undertaking the Environmental Assessment on the Belfountain Dam and Headpond.
- We are presenting the Preferred Alternative today for how we intend to move forward with our obligations to manage the dam. The alternative was selected based on a wide alternative evaluation, which included a number of stakeholders. We have heard that the selected alternative is a good solution. There has been no compelling reason brought forward to suggest that a change is needed.

**Comments Posed by Meeting Participants:**

General comments that were made during the meeting are noted below. The comments are not necessarily related to one another, they were posed during the course of the evening in response to the questions and discussion points that were taking place.

For readability in this document, comments are separated out into their own section as a response from CVC was not requested.

- In regards to the cold water fishery, it seems that the new land should have more trees to act as shading versus a marsh that will not shade the river. Large caliper trees also represent the cultural heritage of the area and give homage to the past.
- In terms of a review on our group discussion, we asked ourselves 'Is this the Right Thing to Do?' (*implement selected preferred alternative*). Our group's response was yes, we agree it is the best solution. Collectively however, we are concerned about what the new land is going to be used for. We are worried that it may be used to increase tourism.
- I have attended many meetings, and my concern is that the public is not being listened too. At the end of this process there is the worry that the CVC is just going to do what they want to do, regardless of the public input that has been received.
- I feel that CVC is listening to the public. I was not able to attend a previous session and they took the time to meet with me to make sure that I was updated with the latest details. You have to be willing to become involved in the process, they are willing to listen.

- I would like to congratulate CVC on making an excellent decision related to the Environmental Assessment. CVC needs to continue to work with the public before making decisions on the management plan; the public needs to come out to be involved in the management plan discussions.
- I have a very serious concern over land use changes. Belfountain needs to follow 'keep it small, keep it beautiful'. I worry that any plans will bring in too much development to the area.
- The last 20 years of property management have largely left the property alone; we need to make sure that these next steps are not only being done as a money maker.
- The term 'Iconic Destination' has been used in presenting the Management Plan. This term is a concern, because we do not want to see changes being made that make the area a large attraction park.

### **Providing Feedback:**

In addition to the Discussion period hosted during the public consultation, comment cards were available in the room for participants to leave their thoughts. No written responses were left by meeting participants during the May 12<sup>th</sup> session.

Members of the public are welcome to contact Credit Valley Conservation at any time to request further information or to leave feedback. Laura Rundle, *Conservation Lands Planner* is the primary contact for the Belfountain Dam and Headpond Environmental Assessment and the Belfountain Complex Management Plan. Laura can be contacted as follows:

Laura Rundle, *Conservation Lands Planner*  
Credit Valley Conservation  
1255 Old Derry Road, Mississauga, Ontario, L5N 6R4  
905-670-1615 x 535  
1-800-668-5557 x 535  
[lrundle@creditvalleyca.ca](mailto:lrundle@creditvalleyca.ca)

Further information regarding the Belfountain Dam and Headpond Environmental Assessment and the Belfountain Complex Management Plan can be found on CVC's website at:

<http://www.creditvalleyca.ca/enjoy-the-outdoors/conservation-areas/belfountain-conservation-area/belfountain-conservation-area-management-plan/>



# **Stakeholder Advisory Committee Meeting Minutes**

**Belfountain Complex Management Plan - Stakeholder Advisory Committee  
Meeting # 6: Notes**

**Date:** Thursday May 28th, 2015 **Time:** 6:00 – 8:15 **Location:** Terra Cotta Conservation Area

**Meeting Attendees:**

<b>Organization</b>	<b>Committee Member</b>
Belfountain Community Organization	Judy Mabee
Belfountain Heritage Society	Steve Goyeche
Headwaters Communities in Action	Dave Dyce
Town of Caledon	Sally Drummond
Trout Unlimited	Steve Copeland
Credit Valley Conservation	Eric Baldin
Credit Valley Conservation	Laura Rundle
Credit Valley Conservation – Meeting Administration	Kate Burgess

**Meeting Purpose:**

1. Learn about the Belfountain Dam and Headpond Class Environmental Assessment, its objectives and potential management alternatives
2. Share feedback, Q & A

**Agenda Items:**

<b>Topic</b>	<b>Discussion</b>	<b>Actions</b>
Introductions	<p><u>Stakeholder Advisory Committee Terms of Reference</u></p> <ul style="list-style-type: none"> <li>• Meeting agendas, minutes and presentations are now posted on CVC’s website in addition to Management Plan and Dam and Headpond Class Environmental Assessment (Class EA) documents               <ul style="list-style-type: none"> <li>○ Website: <a href="http://www.creditvalleyca.ca/enjoy-the-outdoors/conservation-areas/belfountain-conservation-area/belfountain-conservation-area-management-plan/consultation/stakeholder-advisory-committee/">http://www.creditvalleyca.ca/enjoy-the-outdoors/conservation-areas/belfountain-conservation-area/belfountain-conservation-area-management-plan/consultation/stakeholder-advisory-committee/</a></li> </ul> </li> </ul>	
Belfountain Complex Management Plan Update & Study Background	<p><u>Belfountain Complex Management Plan Update</u></p> <ul style="list-style-type: none"> <li>• Concept Plans and Preliminary Drawings: CVC has hired consultant Brook McIlroy (BM) to prepare three (3) concept plans for each project area as well as major infrastructure projects. Comments received to date have been consolidated and forwarded to BM for</li> </ul>	Next meeting is scheduled for Thursday, August 6 <sup>th</sup>

	<p>consideration in designs.</p> <ul style="list-style-type: none"> <li>● Upcoming Dates: <ul style="list-style-type: none"> <li>○ June/July: Draft concepts</li> <li>○ July/August: Strategic Directions: Phase II with finalized goals, objectives and introduction to concept plans</li> <li>○ August: Share concept plans with SAC and gather feedback. <b>Next meeting is scheduled for Thursday August 6<sup>th</sup>.</b></li> <li>○ September: Public Consultation for Management Plan and Dam &amp; Headpond Class EA</li> </ul> </li> </ul> <p><u>Belfountain Dam and Headpond Class EA Study Background</u></p> <ul style="list-style-type: none"> <li>● Previous management plans identified headpond as an area that required mitigation (1969, 1978)</li> <li>● CVC worked with a consultant to complete a Headpond Study which followed a Class EA process (2001). The preferred alternative was not supported by CVC and the project was to be postponed until a management plan was completed (2003).</li> <li>● A Dam Safety Review identified need for Class EA (2013).</li> <li>● CVC staff worked to identify key objectives for the dam and headpond (2014).</li> <li>● CVC hired consultant AMEC Foster Wheeler to lead Class EA study (2015). Their staff and/or sub-consultants will be on site throughout the year undertaking works associated with the study e.g. geotechnical survey.</li> </ul>	
<p>Study Purpose, Process and Approach</p>	<p><u>Purpose</u></p> <ul style="list-style-type: none"> <li>● Need for study was identified in a Dam Safety Review when it was determined that the Belfountain Dam does not meet all current provincial standards for safety under the Lakes and Rivers Improvement Act.</li> <li>● CVC being a public body is required to undertake a Conservation Ontario, Class EA for Remedial Flood and Erosion Control which establishes a planning and approval process.</li> </ul> <p><u>Process</u></p> <ul style="list-style-type: none"> <li>● Characterization of study area</li> <li>● Consultation with public and agency partners;</li> <li>● Evaluation of preferred alternatives</li> <li>● Determination of potential impacts of proposed alternative;</li> <li>● Identification of measures and actions to mitigate possible negative impacts;</li> <li>● Timelines:</li> </ul>	

	<ul style="list-style-type: none"> <li>○ May 2015: Notice of Intention</li> <li>○ May 28, 2015: SAC Workshop</li> <li>○ September 2015: Public Information Centre No. 1</li> <li>○ November 2015: Public Information Centre No. 2</li> <li>○ May 2016: Review of Final Report</li> </ul> <p><u>Approach</u></p> <ul style="list-style-type: none"> <li>● Technical Studies</li> <li>● Relevant Legislation and Roles of Agencies</li> </ul>	
Study Objectives	<p><u>Study Objectives</u></p> <ul style="list-style-type: none"> <li>● CVC held an internal workshop with staff to develop consensus on objectives to guide study and future management of Dam and Headpond (2014)</li> <li>● Objectives must address key issues and be measurable</li> <li>● CVC provided an overview of the seven (7) objectives; <ol style="list-style-type: none"> <li>1. Maintain a barrier between upstream Brook Trout and downstream non-native and invasive species</li> <li>2. Reduce/minimize risk to visitors, staff and affected property</li> <li>3. Conserve and enhance cultural heritage attributes</li> <li>4. Promote natural stream function</li> <li>5. Strive for long-term sustainability including economic viability</li> <li>6. Conserve and enhance natural heritage attributes</li> <li>7. Maintain or improve visitor experience</li> </ol> </li> </ul>	
Possible Management Alternatives	<p><u>Management Alternatives</u></p> <ul style="list-style-type: none"> <li>● Alternatives will be characterized by the study team considering; <ul style="list-style-type: none"> <li>○ How it would function</li> <li>○ Impacts/benefits to natural environment</li> <li>○ Impacts/benefits to social environment</li> <li>○ Capital and operating cost</li> </ul> </li> <li>● All possible Alternatives will be evaluated (scored) based on criteria that will measure its ability to meet study objectives. Evaluation matrix will be provided to SAC for feedback.</li> <li>● Some alternatives have sub-options as there may be multiple ways to achieve the alternative</li> <li>● Feedback</li> <li>● <u>Belfountain Dam</u>: All management alternatives will be evaluated in this study however; seven (7) key possible alternatives identified for dam include; <ol style="list-style-type: none"> <li>1. Do nothing</li> </ol> </li> </ul>	

	<ol style="list-style-type: none"> <li>2. Repair to improve safety</li> <li>3. Restore Dam to 1908 condition</li> <li>4. Lower/modify crest of slope</li> <li>5. Re-build (as is 2015 configuration)</li> <li>6. Rebuild off-line (move/shift location)</li> <li>7. Remove/decommission</li> </ol> <ul style="list-style-type: none"> <li>• <u>Headpond</u>: All management alternatives will be evaluated in this study however; five (5) key alternatives have been identified for the headpond; <ol style="list-style-type: none"> <li>1. Do nothing</li> <li>2. Dredge sediment</li> <li>3. Restore natural channel through headpond in combination with <ol style="list-style-type: none"> <li>a. Offline pond; or</li> <li>b. Wetland or other natural area; or</li> <li>c. Conversion to land and additional recreation space</li> </ol> </li> </ol> </li> </ul>	
Discussion	<p><u>SAC Objectives Workshop Questions &amp; Discussion</u></p> <ol style="list-style-type: none"> <li>1. Are there any questions as to why the study is necessary? <ul style="list-style-type: none"> <li>• None</li> </ul> </li> <li>2. Are there any questions as to why the study needs to follow the Class EA approach? <ul style="list-style-type: none"> <li>• None</li> </ul> </li> <li>3. Does everyone understand the various opportunities available to the SAC and public to provide input? <ul style="list-style-type: none"> <li>• Yes</li> </ul> </li> <li>4. Does anyone have any information that could be valuable to the component technical studies? <ul style="list-style-type: none"> <li>• Headpond restoration and dam enhancements were undertaken in the 1980's, adding a bottom draw feature to the existing dam. This positively impacted the downstream water temperature (by an estimated 6C) and reduced sedimentation in the headpond. At this time, the river also took its natural course through the headpond.</li> <li>• It was noted that several mills were located in the near vicinity, including within BCA.</li> </ul> </li> <li>5. Does anyone have questions about the many provincial and federal agencies that will participate in and review the study? <ul style="list-style-type: none"> <li>• Q: Why is Niagara Escarpment Commission (NEC) not listed? A: CVC is working with NEC to determine what role they will have in this study.</li> </ul> </li> </ol>	<p><b>CVC</b> to explore 1980's works on the dam further, and determine if any images from this project exist.</p>

6. Are there any other problems associated with the Dam and Headpond you would like to identify?

- None

7. Which objectives do you think are most important?

- Objective 1: Maintain a fish barrier
  - Though I am supportive of the Atlantic Salmon reintroduction program, I also want to see the partition maintained. Brook Trout are in decline and need protection. If a fish ladder is needed to assist with select species transportation, we could support it.
- Objective 2: Reduce/minimize risk to visitors, staff, and affected property
  - Minimizing risk is an important consideration
- Objective 3: Conserve and enhance cultural heritage attributes
  - Cultural heritage features in park are important and visitors need an opportunity to appreciate them.
  - The dam itself is not visually appealing. If the dam requires work, consider how to enhance this cultural heritage feature to make it more esthetically pleasing. E.g. when considering options for the dam, consider how the control component of the structure (right side) can be better integrated into the landscape.
  - Removal of pond would alter Cultural Heritage Landscape, completely change what we have, good bad or ugly. If you retain half the features, it may lessen impact.
- Objective 4: Promote natural stream function.
  - Health of river is very important. In stream temperatures, natural stream function, and natural heritage features of the Niagara Escarpment should be preserved. That said, the pond is a draw for visitors and balance between naturalizing stream/pond and maintaining an aesthetically pleasing water feature will be difficult. Creative solutions are required to meet all of these objectives.
  - Native species within river need support throughout their lifecycle. River must be in the best condition it can be to support the health of species that are there.
  - Naturalization should be considered to provide more tree canopy and shade
- Objective 5: Strive for long-term sustainability including economic viability

- Belfountain CA is special and unique...if cost is an issue, consider raising tariffs instead of not being able to afford to do what you need to do. I prefer higher fees to an inferior solution.
- Objective 7: Maintain or improve visitor experience
  - Maintaining waterfall feature is important, and is a draw for visitors (sight and sound)
  - Consider providing better access to experience natural and cultural heritage features but in a manner that does not negatively impact the features themselves. E.g. new lakeside trail in Orangeville with bridges and boardwalks over water. The pond loop trail is an opportunity to do this with elevated boardwalk and lookouts which prevents impacting the features and landscape.
  - Integration with the local community, looking at recreational opportunities that may currently be lacking. E.g. Palgrave pond provides skating/pond hockey opportunities in winter.
  - If we were to incorporate a fish ladder, a public viewing area/platform presents a unique educational opportunity.
  - Some of the more visitor experience enhancements for the dam and headpond are more likely to be addressed through the management plan rather than the EA, but is a consideration when looking at options.
  - Visitor experience is not the most important thing...highest priority is natural heritage and if there are opportunities that will not be at a cost to species, I support it. I don't want the public at risk.
  - Biggest issue is getting a balance between naturalizing so the river and ponds are attractive to people. Walking in for first time, pond is a nice feature that draws people.
  - We talked about a lot of projects in the park to enhance visitor experience, perhaps you want to consider adding to the dam EA objectives to add enhancements from a visitor experience perspective. Opportunity to go above and beyond,

8. Does anyone have any other objectives that could be considered (specific to the dam/headpond)?

- Sediment transfers and in stream temperatures are main concerns
- Objectives look great. Looking at Palgrave pond, community wanted to maintain feature,

ice skating in winter...interesting to look at how they designed that. I understand they designed it to be a bypass pond which maintains pond feature, bridge on hwy 50 there is some fish viewing area by the fish ladder, very unique and educational. What were their objectives? What were their lessons learned? Are there any other factors that should be considered in measuring the objectives?

9. Are there any other alternatives that should be considered for the dam or headpond?
  - Maintain waterfall is not an objective and is an important for visitor experience. The EA will look at all possible alternatives; some may not meet any of our objectives. Keeping the dam in tact will be evaluated.
10. Are there any questions about the process of evaluating the alternatives?
  - Difficult to prioritize between objectives.

#### General Discussion

How are criteria and objectives prioritized?

- Health and safety is always an upmost priority however; as an example, we may have to give a little on visitor satisfaction in order to gain more ecologically.

Objective 1 can be controversial. Should this objective be discussed?

- CVC has determined these to be their objectives. There are several ideas on types of barriers, there are a few sub-options

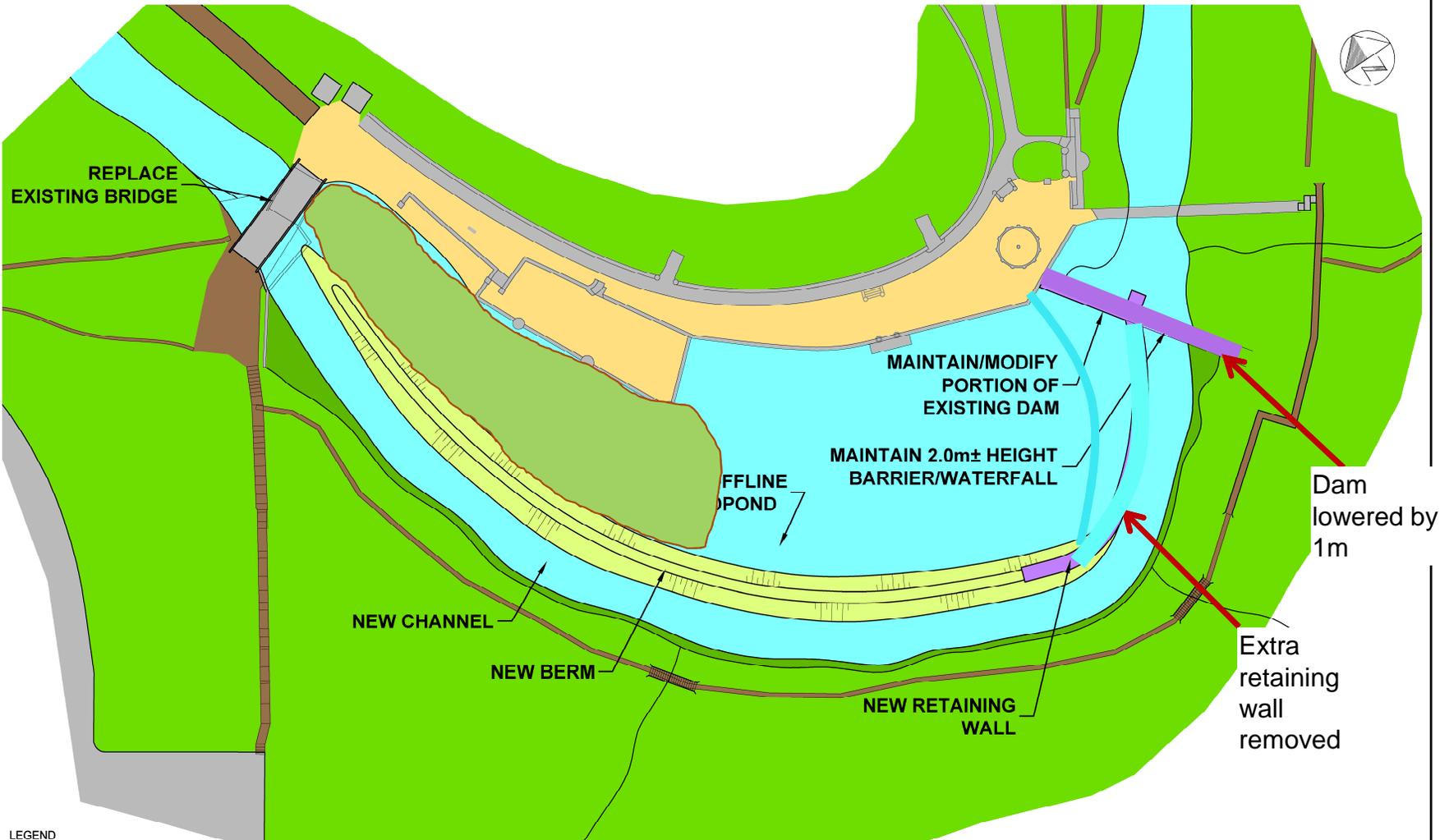
Is the sediment in the headpond contaminated?

- A previous study deemed it safe for park use (2003), however we are in the process of resampling to determine if any parameters have changed.

There is potential to make the dam a more attractive structure and enhance cultural heritage experience, some options may include:

- Situate control function away from the dam or have it better integrated into landscape.
- Enhance access to the waterfall with boardwalk with lookouts.
- Consider feasibility of building a water ram, takes water upstream. No electricity, strictly mechanical.
- Consider adding a non-operational water wheel to highlight the history of the dam and saw mill

	<ul style="list-style-type: none"> <li>• If a fish ladder is a preferred alternative, there is an opportunity to build a viewing area</li> </ul> <p>What was the dam's pre-1908 condition? What is the difference between pre-1908 condition and after Mack's improvements?</p> <ul style="list-style-type: none"> <li>• It is not confirmed, but it is believed that the pre-1908 dam was lower.</li> </ul> <p>At what point does EA become integrated with management plan?</p> <ul style="list-style-type: none"> <li>• Anticipate preferred alternative by November and will integrate into concept plans</li> <li>• EA objectives are aligned with the management plan objectives.</li> </ul> <p>What is the potential to locate where the old mills or other cultural heritage features?</p> <ul style="list-style-type: none"> <li>• Any areas that are identified as having moderate to high archaeological potential will be investigated further. A Cultural Heritage Background Study noted that potential may be impaired as a lot of cottages and modern interventions were created by Charles Mach.</li> </ul>	
<p>Next Steps</p>	<ol style="list-style-type: none"> <li>1. Concept Plans and Preliminary Drawings: CVC expects draft concept plans in June/July.</li> <li>2. Strategic Directions Report: Phase II with finalized goals, objectives and introduction to concept plans is expected in July/August.</li> <li>3. Public Consultation: CVC and AMEC Foster Wheeler will host a public consultation on both the management plan and the dam and headpond EA in September.</li> <li>4. Next Meeting: The next meeting is tentatively scheduled for Thursday August 6<sup>th</sup>. CVC will confirm the date and location for our next meeting in the coming weeks.</li> </ol>	<p><b>CVC</b> to send notification for next SAC meeting, tentatively scheduled for <b>Thursday August 6th.</b></p>



Plotted By: rick@arborico.com  
 Date Plotted: 2015-10-19 10:53:10 AM  
 Path: P:\Work\TP114113\Headpond\_2015-10\_19a.dwg (Rev) (Fig 1) - Alternative D6H7.dwg

Source: 2015-10-19  
 Date: 2015-10-19

LEGEND	
	EXISTING HEADPOND AREA
	EXISTING TURF AREA
	EXISTING FOREST COMMUNITY
	EXISTING STRUCTURE
	EXISTING PATH/TRAIL

**BELFOUNTAIN DAM AND HEADPOND CLASS EA**  
 CREDIT VALLEY CONSERVATION

**ALTERNATIVE D6H7:**  
 NEW OFFLINE DAM AND PARALLEL HEADPOND AND CHANNEL



SCALE VALID ONLY FOR 24"x36" VERSION	
Scale	1:250
	0 25 50 100
Consultant File No.	TP114113
Figure No.	11

**Belfountain Complex Management Plan - Stakeholder Advisory Committee  
Meeting # 7: Notes**

**Date:** Thursday September 3rd, 2015 **Time:** 6:00 p.m. – 8:30 p.m. **Location:** Terra Cotta Conservation Area

**Meeting Attendees:**

Organization	Committee Member
Belfountain Community Organization	Ian McCallum
Belfountain Heritage Society	Steve Goyeche
Town of Caledon, Heritage Caledon	Barbara MacKenzie
Credit Valley Conservation	Mark Thompson
Credit Valley Conservation	Laura Rundle
Credit Valley Conservation	Joana Marques
Credit Valley Conservation – Meeting Administration	Kate Burgess

**Meeting Purpose:**

1. Review of Belfountain Dam and Headpond Class EA – Baseline Inventory Report
2. Review Belfountain Conservation Area Draft Concept Plans
3. Discussion on providing feedback and input

**Agenda Items:**

Topic	Discussion	Actions
Belfountain Dam and Headpond Class EA	<p>We are currently very early in the Study process. Work to date has included data gathering for Baseline Inventory Report and developing study objectives.</p> <ul style="list-style-type: none"> <li>• AMEC Foster Wheeler, consultant hired to lead Study, has completed the Baseline Inventory Report which will be sent to SAC members and posted on CVC’s website. Key findings include: <ul style="list-style-type: none"> <li>○ <u>Sediment</u>: estimated sediment volume is 2500m<sup>3</sup> comprised of intermittent layers of silt, fine sand and organic matter. Sediment quality does not pose implications for disposal or remediation and does not pose threat to downstream transport</li> <li>○ <u>Stream Morphology</u>: Change in geology at Dam (bedrock to shale). Downstream</li> </ul> </li> </ul>	<p><b>CVC</b> to circulate copies of the EA Baseline Inventory Report and Cultural Heritage Evaluation to SAC Members.</p>

	<p>characteristics are a result of both the dam and geology. Channel widening is major geomorphic process. Headpond associated with accumulation of sediment and overwidening of upstream section. Lack of fine sediments located downstream could be attributed to high velocity flows (absence of dam may not improve downstream sediment quality)</p> <ul style="list-style-type: none"> <li>○ <u>Ecology</u>: High quality woodland and valleyland environments with several Species at Risk (terrestrial and aquatic) in the area (measures need to be taken if any construction is required). Pond has limited value to wildlife and is warming the water throughout the reach</li> <li>○ <u>Dam Structural Analysis</u>: Overall, dam structure is generally in good condition but does not meet current safety factors – mitigation will be required if the dam remains. North retaining wall is unstable during flood or flood-earthquake conditions and will require mitigation if dam remains</li> <li>● AMEC Foster Wheeler has also completed the Cultural Heritage Evaluation Report which will be sent to SAC members and posted on CVC’s website. Key findings include: <ul style="list-style-type: none"> <li>○ Importance of Dam and Headpond</li> <li>○ Mack Park &amp; Willoughby Industrial Heritage Site are registered archaeological sites</li> <li>○ New interventions must be visually and physically compatible</li> <li>○ Thorough documentation is required for any alterations to features</li> </ul> </li> </ul>	
<p>Belfountain Complex Management Plan Strategic Directions Stage 2</p>	<p>We are currently in the Strategic Directions phase of the Management Plan. The Stage 1 report (completed in December 2014) outlined the draft vision, goals, objectives, and strategic directions for the Belfountain Complex. We are currently finalizing the Stage 2 report which discusses comments received on the ideas presented in the Stage 1 report, highlights major themes and presents draft concept plan options.</p> <p><u>Major Themes</u></p> <ul style="list-style-type: none"> <li>● <u>Parking &amp; Traffic</u>: Traffic congestion during the fall colours season, parking within the community and walking to BCA, connectivity between the Hamlet and BCA</li> <li>● <u>CA Capacity</u>: Exploring programs to promote weekday/off-peak visitation, operational policies that limit picnic reservation sizes and require reservations for larger groups; event size/season/duration will be limited, promote other conservation areas, ongoing environmental and property monitoring.</li> <li>● <u>Working with our Partners</u>: Working with the Region and Town to address traffic</li> </ul>	<p><b>CVC</b> is finalizing the draft Strategic Directions: Stage 2 Report and will circulate to SAC Members</p>

	<p>congestion issues with several solutions are possible (parking, signage, travel routes, etc.). Short-term (2015) will focus on data collection related to local tourism. Long-term will develop plans and strategies cohesively (Tourism, Active Transportation, etc.)</p> <ul style="list-style-type: none"> <li>• <u>Aesthetics</u>: Gardens, signage, interpretive methods, ancillary features (benches, picnic tables, rest areas)</li> </ul>	
<p>Belfountain Complex Management Plan Concept Plans</p>	<ul style="list-style-type: none"> <li>• Brook McIlroy, consultant hired to create concept plans, has reviewed comments received to date with respect to the first public consultation, Technical Steering Committee and SAC and prepared draft concept plans and architectural sketches for each of the project areas outlined in the Strategic Directions: Stage 1 Report</li> <li>• Feedback on these draft concept plans will guide development of final concept plans which will be presented later in the 2015.</li> </ul>	<p><b>CVC</b> to circulate a survey to SAC Members to gather feedback on draft concept plans.</p>
<p>Discussion &amp; Comments</p>	<p><u>EA</u></p> <p><u>Themes: Congestion</u></p> <ul style="list-style-type: none"> <li>• Congestion trends within the Hamlet have changed over time. 5 years ago, congestion was a problem during fall colours whereas now congestion is a problem on all nice weekends through summer/fall.</li> <li>• Emergency planning within Conservation Area and Hamlet should be considered as parking along roadways and traffic can impede emergency services</li> <li>• Growth in urban centres (e.g. Brampton) and new development planned for Belfountain has/will change demands on Belfountain Conservation Area</li> <li>• Reservations should be considered for all events (picnic, buses) and park admission to limit park capacity. It would be helpful to calculate how many people are coming/going on a daily basis understanding this is difficult with multiple entrances to property (Bruce Trail, Vehicle, Pedestrian, Pinnacle Street).</li> <li>• Concern over degradation of environment caused by current visitor capacity in Belfountain Conservation Area. Concept plans attempt to address concerns with significant restoration, improved visitor flow and better delineation of walkways to prevent trampling. Ongoing environmental monitoring will continue through CVC's Lands Monitoring Program.</li> </ul> <p><u>Concept Plans (General)</u></p> <ul style="list-style-type: none"> <li>• Ensure design materials (e.g. building facades) are keeping with Mack's Park, more rustic</li> </ul>	

than modern

- Consider use of dry stone masonry technique to maintain character of stone walls. This technique is unique and common in this area of Caledon
- Ideas are generally supported by SAC aside from the use of day-use space for picnics. CVC noted picnic reservations make up a large portion of revenues.

Forecourt (Combination of Project Areas 1 and 3)

- Proposed Accessible Drop-off area is beneficial for visitors needing to drop off people/items for their events/picnics
- Providing visitors with a designated access to the Credit River is a good idea, for kids especially, but caution must be taken for visitor safety e.g. if adding stepping stones in river, may be a slip hazard when wet
- Continued use of picnic areas for picnicking should not be a component of tourism. Consider discontinuing picnics at BCA and add more themed events e.g. Art in the Park. Large group events can be directed to other parks e.g. Island Lake CA and Terra Cotta CA.

Visitors Centre and Hillside Garden (Combination of Project Areas 1 and 2)

- Concept plans do not provide a significant increase in parking capacity. At present there are 45 parking spaces. Concept plan options range from 59-68 parking spaces which may accommodate existing and new uses e.g. visitors centre
- Some concept plans consider a bus only exit onto Pinnacle Street which will likely not be well received by residents of Pinnacle Street. The Consultant looked at best use of space, function and traffic flow. This idea has not been explored by CVC.
- The Accessible Trail from the Visitor's Centre to the lower level is a good idea but not sure this feature will integrate well in the Escarpment environment. Preference is to provide accessible access via Accessible Drop-off presented in Forecourt concepts.

Bridgehead and Portico (Project Area 4)

- Accessible washrooms and seating in this location is a good idea and are currently lacking at BCA.

	<p><u>Heritage Gardens (Project Area 5)</u></p> <ul style="list-style-type: none"> <li>• Mack’s Park is one part of the cultural history in this area. McCurdy’s Mills once located on site and the Credit Rivers milling history could also be an interesting story to interpret.</li> <li>• Consider integrating a mill structure with water play feature (water shoot)</li> <li>• Consider an Invasive Species demonstration garden that shows different species recognizing maintenance of this garden would be required to contain species.</li> <li>• Knot garden or maze garden could be a fun activity for families/children</li> <li>• Belfountain Heritage Society is planning walking tours within the Hamlet and having BCA as a stop on the tour would be beneficial.</li> <li>• Previous SAC comments recommended a trail over a channelized berm and perhaps adding a mill or fish ladder near the dam. Presenting the draft concept plan for this area at the public consultation may cause confusion as designs will be impacted by the EA preferred alternative.</li> </ul>	
<p>Questions and Answers throughout meeting</p>	<p><u>Dam and Headpond EA</u></p> <p>Q: Has sediment ever been removed from the headpond?  A: Yes. Periodically, CVC has removed silt. The exact date and when this last occurred is not known.</p> <p>Q: Is water quality considered in your objectives?  A: Yes. Water quality is considered under the “Promote natural stream function” objective. Improvements (cooling) to the water temperature is a main consideration.</p> <p>Q: Are aesthetics part of the criteria in evaluating and selecting a preferred alternative for the EA?  A: Yes. Aesthetics, though not a specific criteria, will be considered under the Visitor Experience objective. BCA features will be visually consistent and will honour the built cultural heritage.</p> <p><u>Management Plan</u></p> <p>Q: Is a traffic study planned for this area?  A: CVC is working in partnership with the Region of Peel, Town of Caledon and Ontario Heritage Trust to study traffic and congestion within the West Caledon area that includes both Belfountain</p>	

and the Badlands. The Region of Peel has collected commuter traffic data in the past and will be collecting additional traffic data this fall that includes weekend and holiday counts. The Town of Caledon will also be undertaking a survey of visitors to this area this fall.

Q: How is park capacity determined?

A: Currently, the parking lot limits park capacity though walk-ins are still welcome. The park capacity exceeds those that can enter via parking on site. CVC determine capacity by the number of individuals on the property at one time, not over the course of a single day.

Q: Do you know how many people visit the park daily?

A: CVC records how many people visit Belfountain Conservation Area each day; we are working to create an annual average to include in the Stage II Report. Currently, we are able to estimate monthly averages using a combination of gate house receipts and data from our trail counters.

Q: Do weddings currently take place at BCA?

A: Yes. Currently wedding ceremonies and wedding pictures take place under an Events Permit that stipulates the permit requirements e.g. maximum attendance. On average we have between 5 – 7 weddings per year.

Q: Where is the septic proposed to be relocated?

A: Options are being explored and may include being situated within the proposed Visitor's Centre. There is also a small piece of land northeast of the current location.

Q: Is CVC mandated to make sites and facilities accessible?

A: The visitor centre will be accessible. Though CVC is not mandated to make our conservation area trails accessible, Ontario's *Accessibility for Ontarians with Disabilities Act* requires that new infrastructure (including) consider accessibility wherever possible.

Q: Has CVC established a budget for implementing the concept plans and EA preferred alternative?

A: The consultants working on the concept plans have provided some very preliminary estimates but we have not gotten to the detailed design stage. That will take place after a final concept plan is determined.

	<p>Q: What is the long-term schedule for implementation of the concept plans?  A: CVC has not yet determined an implementation schedule which will accompany the final management plan. This will be influenced by identifying opportunities for funding (grants, revenues, etc). Implementation will likely take place over several (2 – 5) years.</p> <p>Q: What is the “water play area” noted in Heritage Gardens Option 2?  A: This idea stems from this area’s original use as a boathouse and swimming pool and “reactivating” this space to honour its heritage. This feature could include flagstone with jets that shoot water.</p>	
<p>Future Meeting and Next Steps</p>	<p><b>Public Consultation</b></p> <ul style="list-style-type: none"> <li>• CVC is hosting a Public Information Centre on the on Tuesday September 26<sup>th</sup>, at the Caledon Ski Club from 6:30 – 9:00 p.m. Information will be presented on the Dam and Headpond EA and Draft Concept Plans for Belfountain Conservation Area.</li> </ul> <p><b>Concept Plan Evaluation</b></p> <ul style="list-style-type: none"> <li>• CVC will send SAC Members a survey questionnaire to evaluate and seek feedback on the Draft Concept Plans</li> </ul> <p><b>November Meeting</b></p> <ul style="list-style-type: none"> <li>• Discussion on comments received on Draft Concept Plans for management plan</li> <li>• Presentation of Alternatives Evaluation and Preferred Alternative for dam and headpond</li> </ul>	<p>Next meeting is tentatively scheduled for <b>Thursday, November 5<sup>th</sup>.</b></p>

**Belfountain Complex Management Plan - Stakeholder Advisory Committee  
Meeting # 8: Notes**

**Date:** Thursday November 5<sup>th</sup>, 2015 **Time:** 6:30 p.m. – 9:00 p.m. **Location:** Belfountain Public School

**Meeting Attendees:**

Organization	Committee Member
Belfountain Community Organization	Ian McCallum
Belfountain Community Organization	Judy Mabee
Belfountain Heritage Society	Steve Goyeche
Credit Valley Conservation	Shawn Verge
Headwaters Community In Action	Dave Dyce
Isaac Walton Fly Fishing Club	Bob Kuehnbaum (on behalf of Don Arthurs)
Ministry of Natural Resources and Forestry	Mark Heaton
Ministry of Natural Resources and Forestry	Susan Cooper
Niagara Escarpment Commission	Lisa Grbinicek
Ontario Federation of Anglers and Hunters	Chris Robinson
Region of Peel	Gino Dela Cruz
Town of Caledon	Sally Drummond
Trout Unlimited	Brian Greck
Trout Unlimited	Mike Warrian
Credit Valley Conservation	Eric Baldin
Credit Valley Conservation	Laura Rundle
Credit Valley Conservation – Meeting Administration	Kate Burgess

**Meeting Purpose:**

1. Belfountain Complex Management Plan Update
2. Review of Belfountain Dam and Headpond Class Environmental Assessment Alternatives Evaluation

**Handouts:**

1. Class EA Technical Report 2 – Management Alternatives (sent via email in advance of meeting)
2. Alternatives Visuals
3. Updated Table 5.3: Objective Screening

**Agenda Items:**

*Please note that responses to questions/comments are highlighted in blue italics.*

Topic	Discussion	Actions
<p>Belfountain Complex Management Plan Update</p>	<p><u>Public Consultation #2</u></p> <ul style="list-style-type: none"> <li>Public Consultation held Tuesday September 22<sup>nd</sup>, Caledon Ski Club where approximately 46 individuals registered. Information presented on feedback received to date, draft concept plans for four key project areas and an overview of the Belfountain Dam and Headpond Class Environmental Assessment (Class EA)</li> <li>On site consultation at Belfountain Conservation Area September 26, 27 and October 2,3. Approximately 70 conversations and 20 email addresses collected.</li> <li>14 completed questionnaires were submitted. Key themes presented.</li> <li>Report summarizing consultations and feedback is available on CVC's website.</li> </ul>	<p><b>CVC</b> to post Consultation Report on CVC's website November 17<sup>th</sup>, 2015.</p>
<p>Belfountain Dam and Headpond Class Environmental Assessment</p>	<p><u>General</u></p> <ul style="list-style-type: none"> <li>MNRF staff indicated that previous dam inspections indicated there was water breaching around the south contact point from weir that hasn't been represented in either the Technical Report 1 – Baseline Inventory or Technical Report 2 – Management Alternatives. <i>A leak around the right abutment was reported in previous dam safety reports, however it was confirmed that it did not impact the stability of the dam.</i></li> <li>Technical Report 2 – Management Alternatives does not explain impacts and benefits downstream with each alternative. It was noted that the cold water springs that feed into the headpond mask the true thermal impacts which will be realized downstream.</li> <li>It was discussed that the key driver of this Class Environmental Assessment is that it is a flood and erosion control project (Conservation Ontario Class EA), not a habitat improvement project. What distinguishes the Conservation Ontario Class EA (Remedial Flood and Erosion Control) from a MNRF Class EA (Resource Stewardship and Facility Development) is the impetus for the project.</li> </ul>	

*To help clarify this discussion, an excerpt from the CO Class EA has been included below. Section 3.3 of the CO Class EA states:*

*Conservation Authorities recognize that it is important to ensure that the planning and design of remedial flood and erosion control projects reflect a concern for ecosystems. This requires that emphasis be placed not only on the prevention and mitigation of environmental impacts but also on environmental enhancement. The following principles endeavour to promote these goals. They shall be applied when implementing the planning and design process for remedial flood and erosion control projects.*

- *Remedial project design shall strive to re-establish, maintain or enhance the natural function (both biological and physical) and appearance of the watercourse or shoreline and associated features (floodplain, valley, wetlands, beaches etc.) while recognizing and preserving existing cultural and archaeological features of significance in the project's study area.*

*CVC's objectives for the project align with the spirit of this planning process.*

- *Need common ground on dimensions of dam – MNRF's interpretation is that it is 7.5 meters high dam to riverbed (report states 4.85m).*

*The actual dam is 4.85 m high, of which 4.65 m is visible above bedrock on the downstream side (0.2 m is embedded). On the downstream side, the native bedrock scarp adds additional drop in the centre of the channel, and a 'cascade' on the banks that eventually reaches the same drop. The estimated height of the overall waterfall is about 2 m +/-, putting the total 'waterfall' height 6 to 7 m. From an engineering perspective the dam is 4.85 m; the waterfall is higher.*

*It's good that this was brought up; the public is likely more interested in the waterfall height (drama of waterfall), rather than the dam itself.*

#### Study Objectives

- **Objective #1: Maintain a Fisheries Barrier needs further clarification. Is the intention to deter movement of downstream species upstream, deter movement of upstream downstream or both?**

*The intention of this objective is to deter the movement of downstream species upstream. Measures to deter the movement of upstream species downstream will not be considered.*

- Objective #1: There was some discussion on what constitutes a “barrier”. If the dam were to be decommissioned (full), a barrier may still remain given height differential between underlying bedrock and riverbed at the base of the dam. *If the dam is completely removed, the bedrock waterfall may be 2 to 2.5 m in height. It will have continuous ‘cascades’, however, that could permit the passage of larger fish. A detailed survey and barrier assessment would be required to confirm.*
- Discussion on how CVC intends to resolve the issue of competing objectives as Alternatives Evaluation is very subjective. Ultimately, CVC may have to prioritize objectives.
- Atlantic Salmon passage is not a concern to the fish organizations present as they would like a partition in place to protect Brook Trout. If you enable passage of Atlantic Salmon, you may enable passage of Rainbow Trout though likely in low numbers. The barrier needs to be a minimum of 2 metres with no plunge pool to jump up from.
- Fish ladders are expensive to operate and can be controversial. They have been installed in several areas where they were intended to facilitate movement of native fish species but now also end up permitting non-native species movement as well.
- The large open water vista is what makes the headpond culturally significant, as well as contact with water. Reduction in open water e.g. maintaining an offline pond is a significant visual impact and a small offline pond will not pay homage to its cultural heritage. Maintaining some kind of contact with water is still possible and could be incorporated into the Alternatives and Management Plan concepts.

#### Alternatives Evaluation

- There was some confusion on how each alternative was scored and why total scores did not add up. CVC clarified that each criteria score was multiplied by a numeric value based on Factor Significance. The Factor Significance considers not only the value of the resource the criteria represents, but also how the potential for impact and impact mitigation varies across the alternatives

identified (see Section 5.0 in Technical Report 2 – Management Alternatives).

- The group discussed the idea of incorporating quantitative analysis where possible to determine measurable benefits/impacts of each alternative. It was acknowledged that it is difficult to determine which alternative will best meet objectives and how each alternative will impact screening criteria (e.g. How will each alternative impact *Watercourse Thermal Regime* in headpond and downstream?) Hard numbers are required to measure and understand the true benefits and true impacts of each alternative.

*CVC discussed this conversation with Amec Foster Wheeler, regarding what is standard for the Class EA process in terms of modelling potential impacts (positive and negative): Providing hard data would require detailed monitoring and modelling for each alternative would be difficult and expensive. It's unlikely that this data would change the selection of the preferred alternative.*

- There was some concern that there isn't equal representation of Screening Criteria and Factor Significance related to study objectives e.g. 5 natural heritage (2 high, 1 moderate, 2 lower) vs 3 cultural heritage (2 high, 1 lower).

*In the matrix, there are 6 physical/biological criteria versus 5 cultural/social criteria. There are also 4 economic criteria. The 2 final criteria (Village Tourism, Local Community) have negligible influence on the 'scores'. Note that all natural heritage criteria are correlated, while cultural/social/economic are not.*

- There was some concern that the evaluation is too subjective and can be easily manipulated to achieve a desired outcome.

*Noted. Subjectivity is unavoidable given some criteria are not directly measurable, or measuring them is out of scope (Several of CVC's objectives are qualitative and subjective (visitor experience, for instance)). The matrix is designed to be as objective as possible. If a specific 'score' or 'significance' is considered unfair, we can review. This is why we are readily seeking comments and feedback.*

- The inclusion of cost in the Screening Criteria was meant to show financial impact of each alternative. Cost is not the only (or most important) criteria to selecting the preferred alternative. It may mean that we have to be creative

when it comes to implementing that alternative. Capital cost and ongoing operating and maintenance cost are separate criteria.

### Alternatives

#### *D2H2: Rehabilitate Dam and Headpond*

- It was noted that "rehabilitate" should be clearly defined.
- It was noted that rehabilitating the dam to meet LRIA standards will be a significant impact and may not be supported by the MNRF. Further discussion on the feasibility of this alternative is required. Anchoring may be needed horizontally in addition to anchoring vertically into bedrock.  
*Comment is noted, however anchoring horizontally has not be reported or identified in previous studies on the dam.*
- Ongoing maintenance of headpond may not be financially sustainable if dredging is needed every 3-5 years. It is currently unknown how quickly the headpond would fill up with sediment but this would be determined in a maintenance plan
- Concern related to impacts on aquatic environment was noted - ongoing dredging as a deeper pond will result in a bigger reservoir of warm water.

#### *D2H3: Rehabilitate Dam and Expand Tableland*

- There was some discussion on what the tableland would be used for e.g. additional lawn area though no plans have been determined at this point.

#### *D2H4: Rehabilitate Dam and Convert Portion of Headpond to Wetland*

- Is maintaining a wetland sustainable long-term as they can trap sediment?  
*Maintenance plan for both wetland and structural elements will be required. It is noted that a portion of the current headpond could be considered wetland where emergent vegetation is present.*
- In terms of wetland, a marsh may be more appropriate vs swamp.

#### *D4H5: Lower the Spillway and Backfill Headpond and Construct Channel*

- MNRF noted the dam may need to be lowered more than a metre given gradient upstream to facilitate movement of coarse material in addition to water. *Amec noted that lowering the dam 1 m is would reduce the impacts to cultural heritage (a weir would be maintained and the 1960's sluice gate would be removed) and still maintains a desirable flow of water. Preliminary gradient is approximately .5% and would support the movement of fine sediments.*
- It was thought that the dam must remain to maintain a fisheries barrier however; MNRF noted there may be sufficient elevation change between bedrock to the riverbed to maintain a barrier. *If the dam is completely removed, the bedrock waterfall may be 2 to 2.5 m in height. It will have continuous 'cascades', however, that could permit the passage of larger fish. A detailed survey and barrier assessment would be required to confirm.*
- Reduction in headpond is a significant visual impact and a small offline pond will not pay homage to its cultural heritage. Maintaining some kind of contact with water is still possible and should be incorporated.

*D5H6:Decommission Dam and Restore Natural Valley and River*

- There was some discussion on what constitutes dam "decommissioning", full and partial. If the stop logs are removed but dam remains, is the dam considered to be decommissioned? *If the structure retains water during a flood, it is a dam (within reason). With stop logs removed, flood levels would be much lower, but still higher than if the spillway was removed (would require MNRF consultation).*
- Reduction in pond width so water is moving faster will help with sediment transport.
- Concern that removal of both the headpond and dam will effectively remove the site's cultural heritage attributes. The removal of the headpond may be supported for ecological reasons however; retaining a cascading waterfall feature is important. There is potential to retain dam abutments and interpret history of these features to try to mitigate lost cultural heritage, however all of the original features would be lost.

*D6H7: New Offline Dam and Parallel Headpond and Channel*

- This alternative will likely be the most challenging from a permitting and design perspective.
- Alternative preserves the headpond and creates a channel to mitigate ecological impacts. Concern that perceived high cost and design constraints may hinder this alternative's feasibility.
- In this alternative, consideration is given to retain the portion of the dam that contains the original structure rather than the 1984 modification.
- There was a question regarding why the channel is a hardened structure vs an earth filled berm.  
*Given the confined valley setting, earth grading would consume too much space and a hardened structure (retaining wall) would most likely have to be used.*
- Potential to explore experiential elements such as maintaining a trail on the berm (if health and safety is manageable) was a preference

A potential new alternative was developed and discussed.

*Amec's engineers took a look at the sketch; it appears to be feasible. They have incorporated the concept into a new alternative, which will be presented to the public. The original concept may be introduced in the next phase of the study as further evaluation is necessary.*

New Alternative: D5H7 (Attempt at sketch included as Appendix A). Amec have included some of the concepts in an additional alternative, which will be present to the public (Appendix B).

Key points included:

- The west end of the headpond is filled in; river is channelized about 2/3 the length of the headpond
- New retaining wall in (D6H7) is removed (berm remains); this would create a back water pond area (pond width is retained but length is shortened considerably)
- Spillway is lowered by 1m to support natural stream function

**CVC** to discuss this concept with Amec Foster Wheeler to determine feasibility.

Questions and  
Answers throughout  
meeting

Q: What are impacts to cultural heritage if headpond is reduced?

A: *The large open water vista is what makes it culturally significant, as well as contact with water. Reduction in open water e.g. maintaining an offline pond is a significant visual impact and a small offline pond will not pay homage to its cultural heritage. Maintaining some kind of contact with water is still possible and could be incorporated into the Alternatives and Management Plan concepts.*

Q: How would significant changes to the headpond be received by Belfountain residents and the public?

A: *Communicating the ecological impacts of maintaining a large on-line pond within a cold water system is a key message that may help to garner support of the public and Belfountain residents.*

Q: Are the studies conducted to date including for the Technical Report 1 – Baseline Inventory sufficient in order to assess alternatives? E.g. dam structural assessment, sediment quality, water temperature upstream vs downstream of dam?

A: *Many of these studies are summarized in the Baseline Inventory Report (and appendices). Additional information is contained in previous reports and studies. As a preferred alternative advances, a detailed analysis of environmental impacts will necessitate further studies.*

Q: Was the headpond drained during the investigations for the Technical Report 1 – Baseline Inventory?

A: *No. The headpond was not drained at that time, however studies were conducted on the dam, retaining walls and headpond. The last time the pond was drained was approximately 10 years ago.*

Q: What were the results of the sediment analysis?

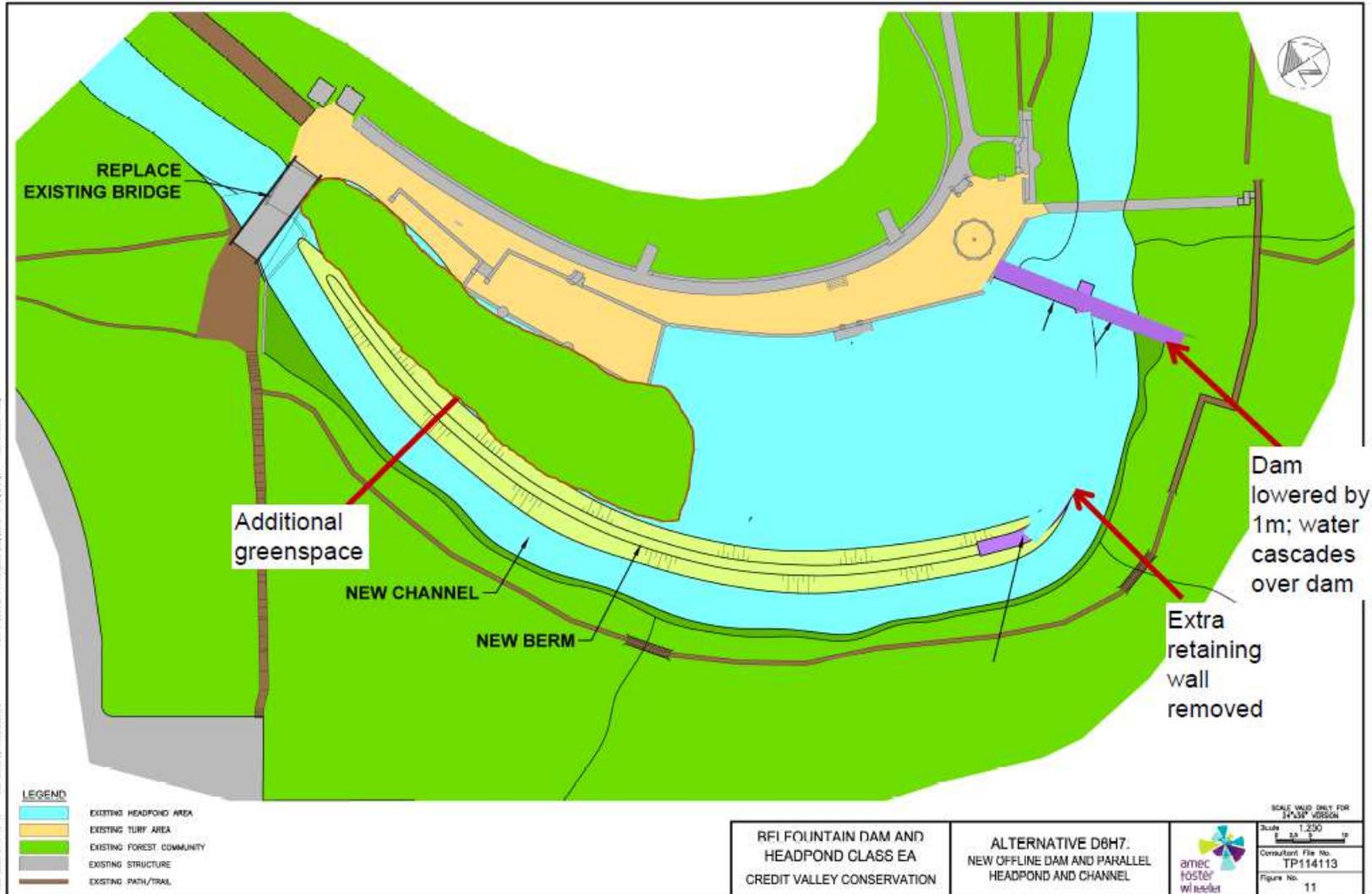
A: *Preliminary soil analysis indicates that contaminants are low, and are generally what would be expected (e.g. hydrocarbons (gasoline)). A more refined sediment analysis will need to be undertaken in the next phase in order to determine how to dispose of or repurpose the sediment.*

Q: How will each alternative impact ice jams e.g. if weir is narrowed?

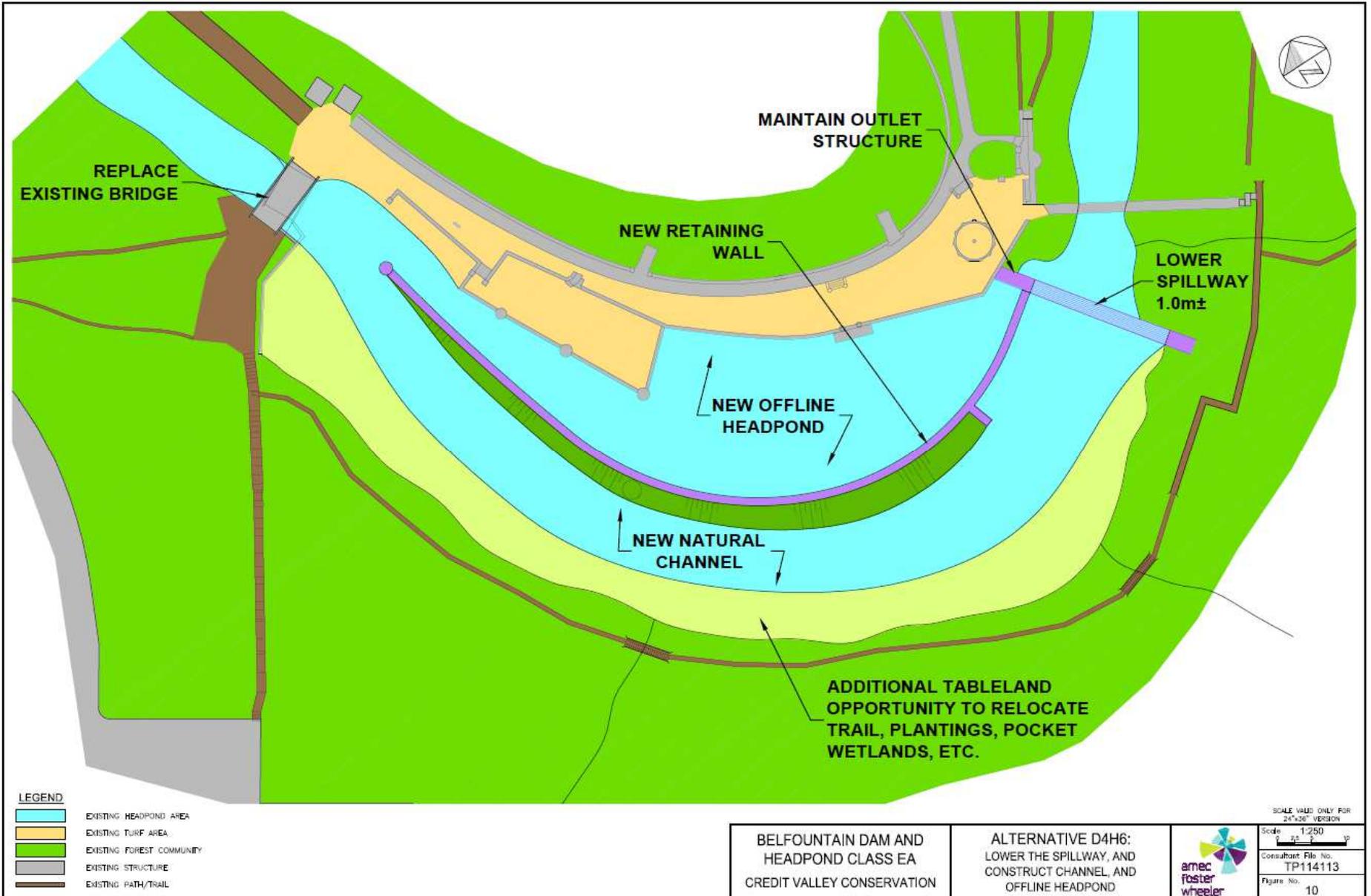
A: *Not sure at this time however; the next phase of the study will assess impacts of preferred alternative on all factors.*

<p>Future Meetings and Next Steps</p>	<p><b>Public Consultation</b></p> <ul style="list-style-type: none"> <li>• CVC is hosting a Public Information Centre on Tuesday December 1<sup>st</sup>, 2015, at the Caledon Ski Club from 6:00 – 9:00 p.m. Information will be presented on the short-list of Dam and Headpond EA alternatives with a brief update on the Belfountain Complex Management Plan.</li> </ul> <p><b>Strategic Directions Report: Stage II</b></p> <ul style="list-style-type: none"> <li>• CVC is finalizing the Strategic Directions Report: Stage II. CVC will circulate this report to SAC as well as post it on the website.</li> </ul> <p><b>Next SAC Meeting</b></p> <p>Tentatively set for Thursday February 4<sup>th</sup>, 2016. Discussion will focus on Strategic Directions Report: Stage III, which includes decisions on management recommendations, policies, and will discuss how comments received were integrated/addressed.</p>	<p><b>CVC</b> will circulate Strategic Directions Report: Stage II to SAC for comments.</p>
---------------------------------------	---	---

# Appendix A



# Appendix B





## **Appendix 'B'**

# **Photographic Reconnaissance**

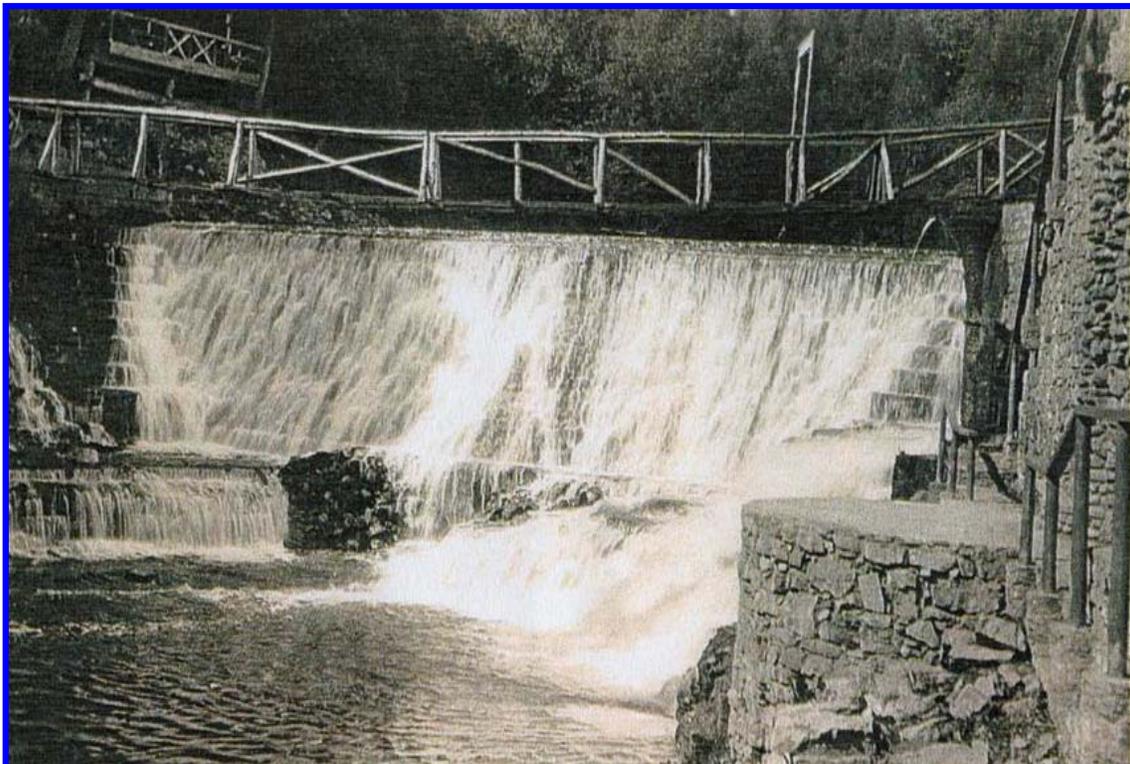
**BELFOUNTAIN DAM & HEADPOND  
APPENDIX B**

**Belfountain Dam Looking Upstream from the Credit River**



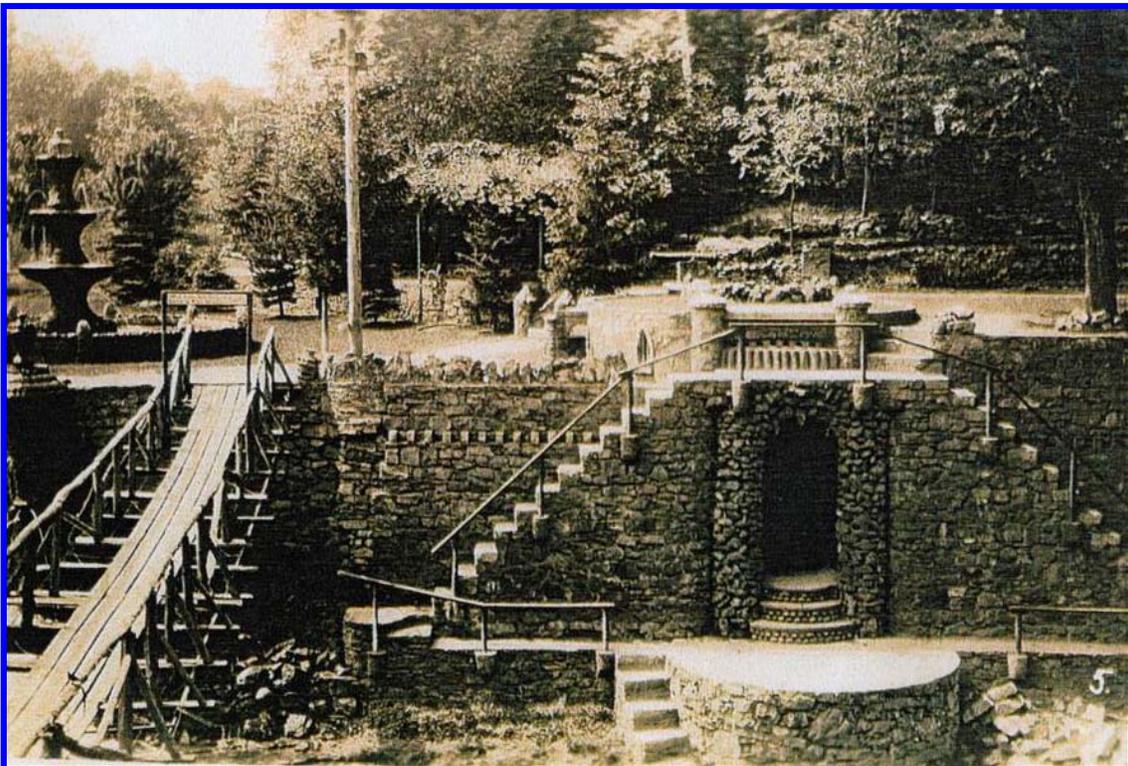
**BELFOUNTAIN DAM & HEADPOND  
APPENDIX B**

**Belfountain Dam Looking Upstream from north bank**



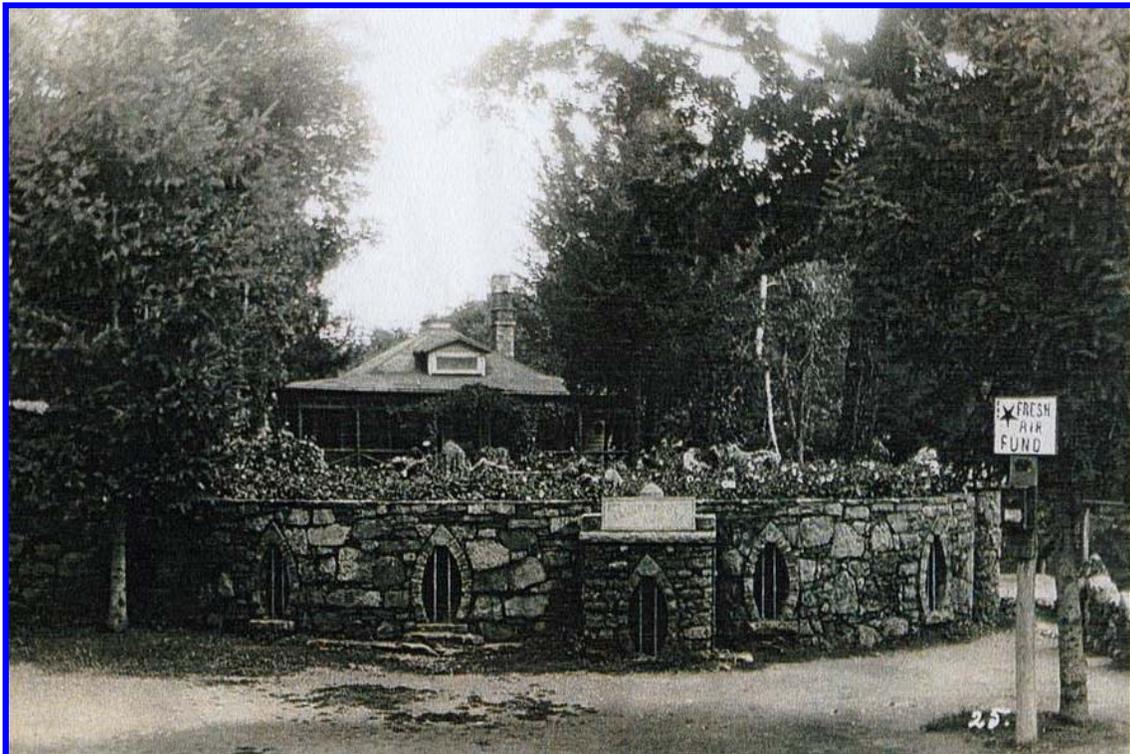
**BELFONTAIN DAM & HEADPOND  
APPENDIX B**

**North retaining wall and entrance to cave**



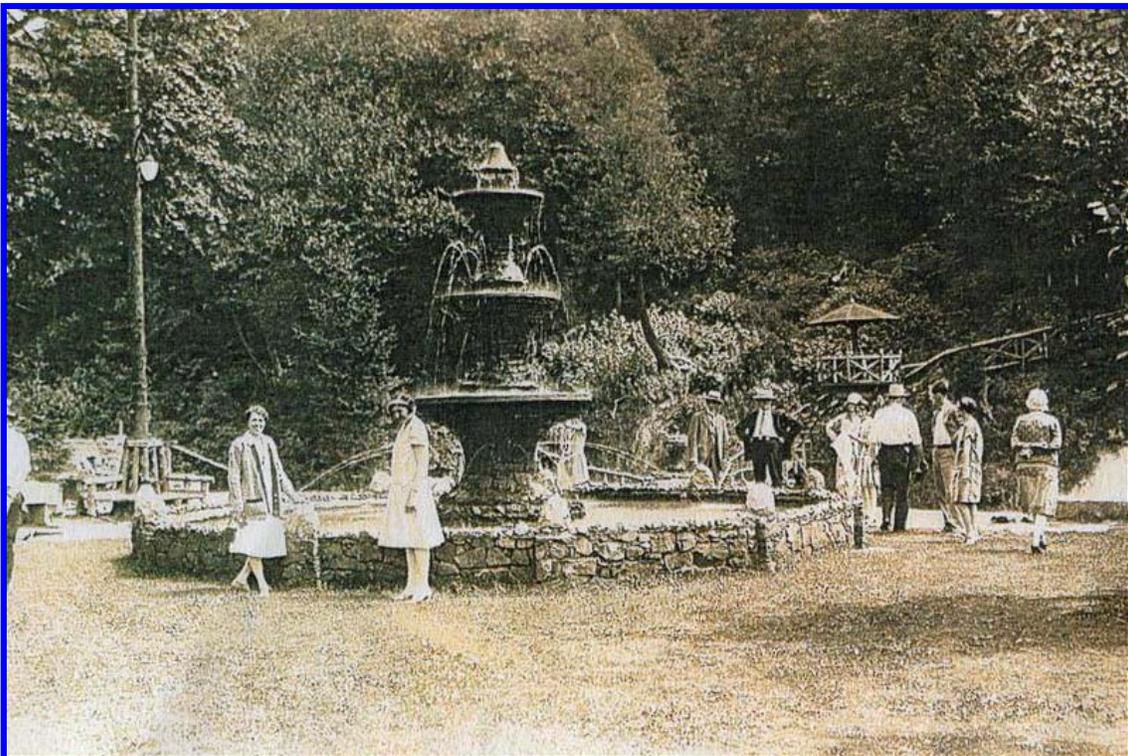
BELFOUNTAIN DAM & HEADPOND  
APPENDIX B

Yellowstone Cave and garden



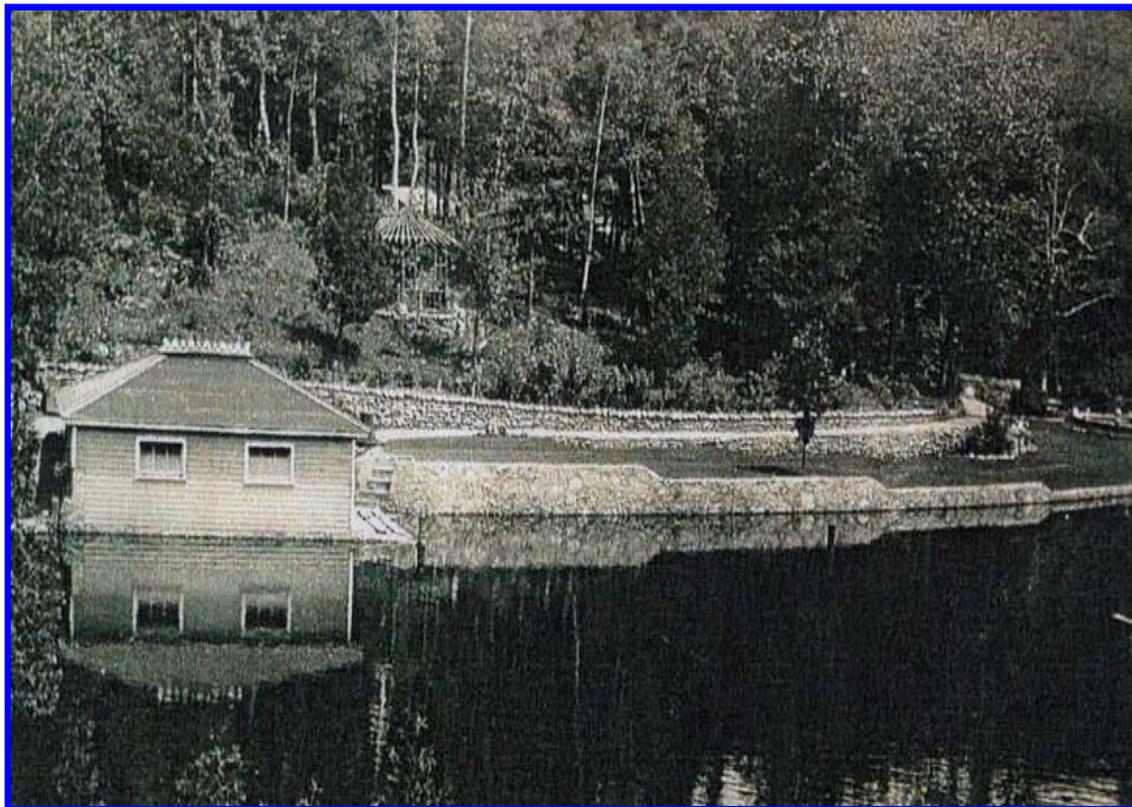
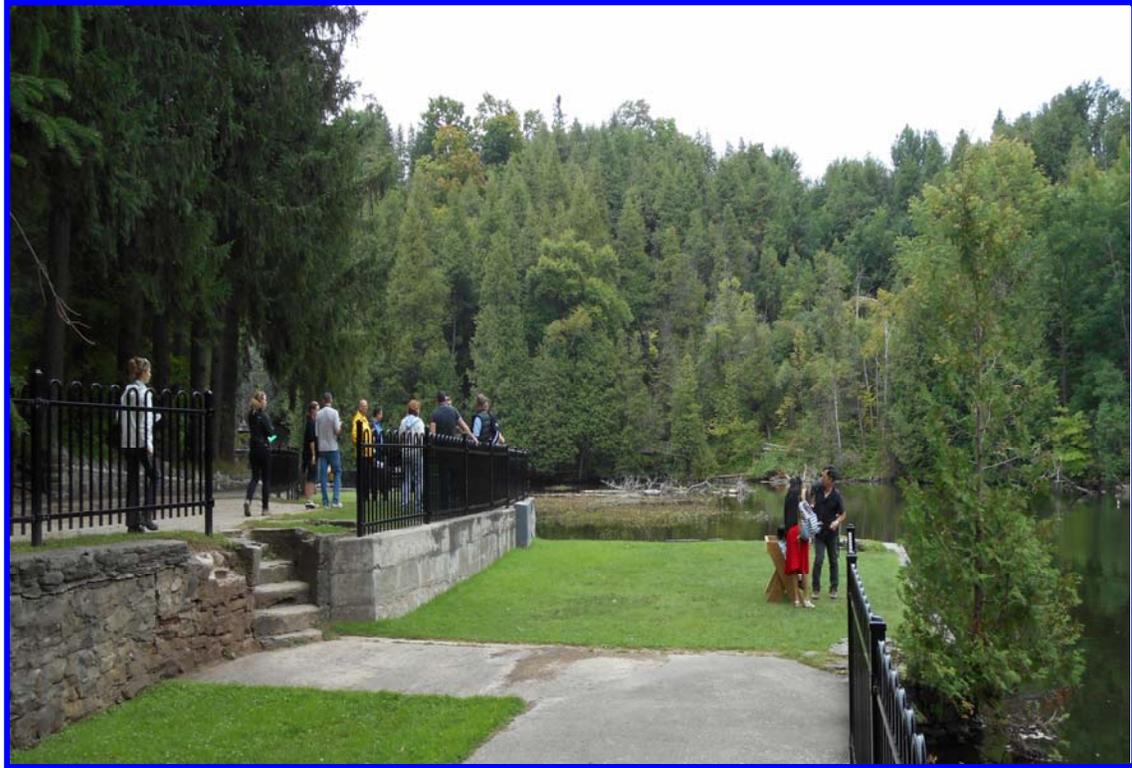
**BELFOUNTAIN DAM & HEADPOND  
APPENDIX B**

**Belfountain**



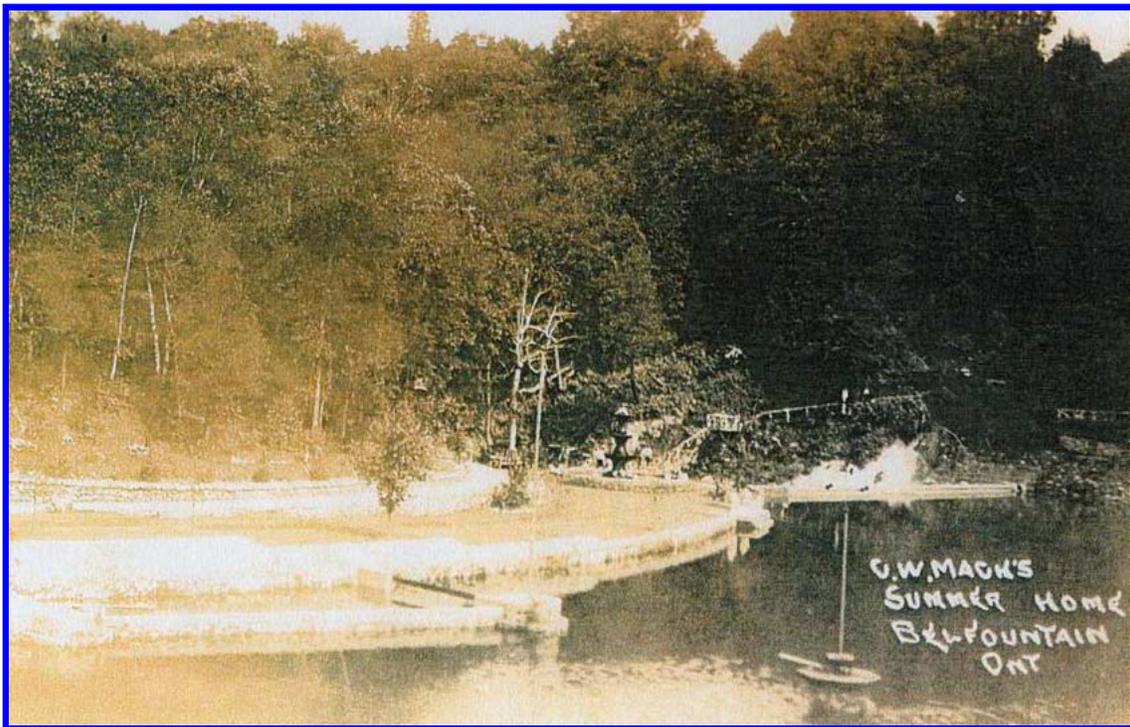
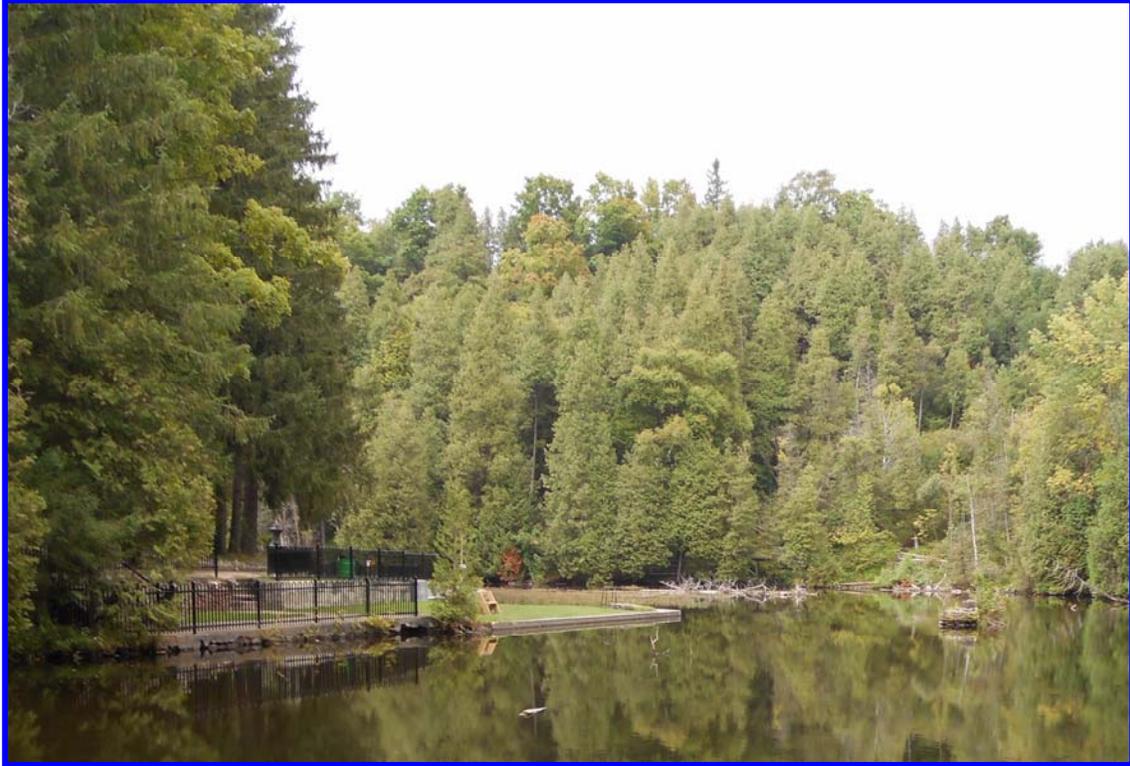
**BELFOUNTAIN DAM & HEADPOND  
APPENDIX B**

**North terrace area**



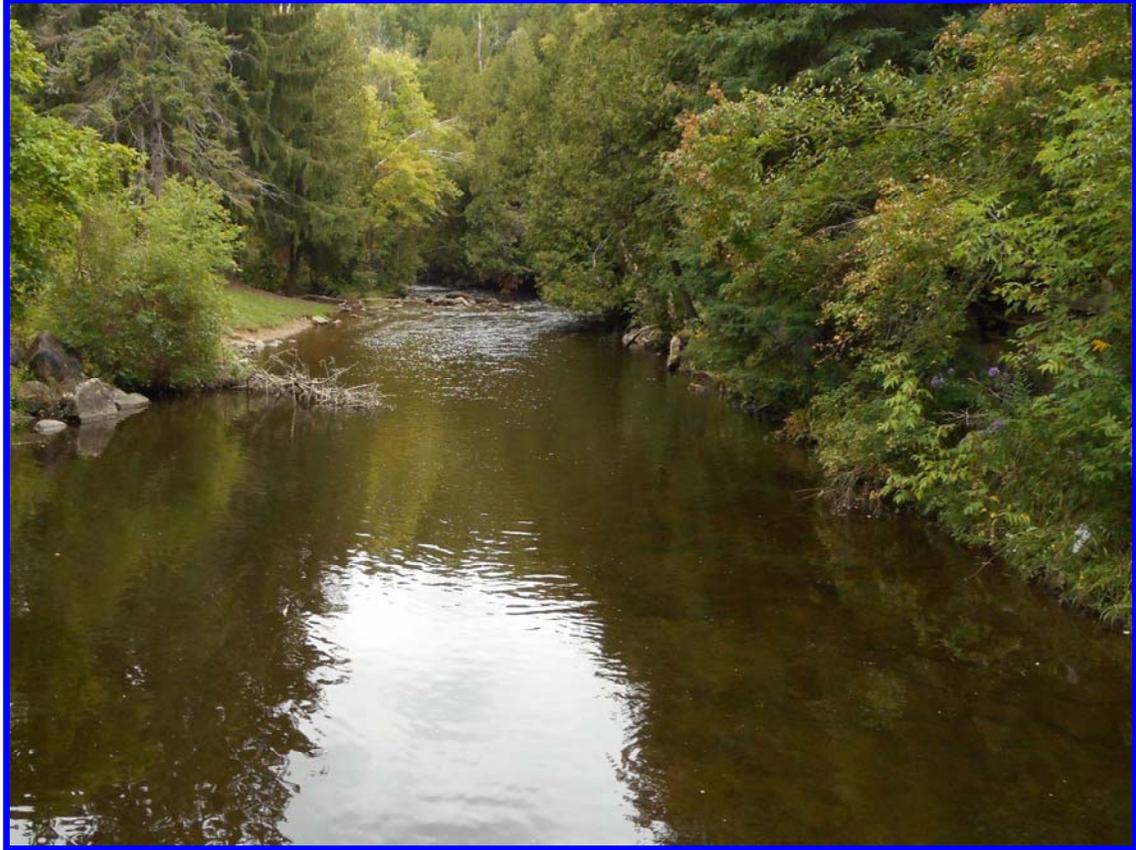
**BELFOUNTAIN DAM & HEADPOND  
APPENDIX B**

Headpond and north retaining walls looking downstream



**BELFOUNTAIN DAM & HEADPOND  
APPENDIX B**

**West Credit River looking upstream, upstream of the headpond**

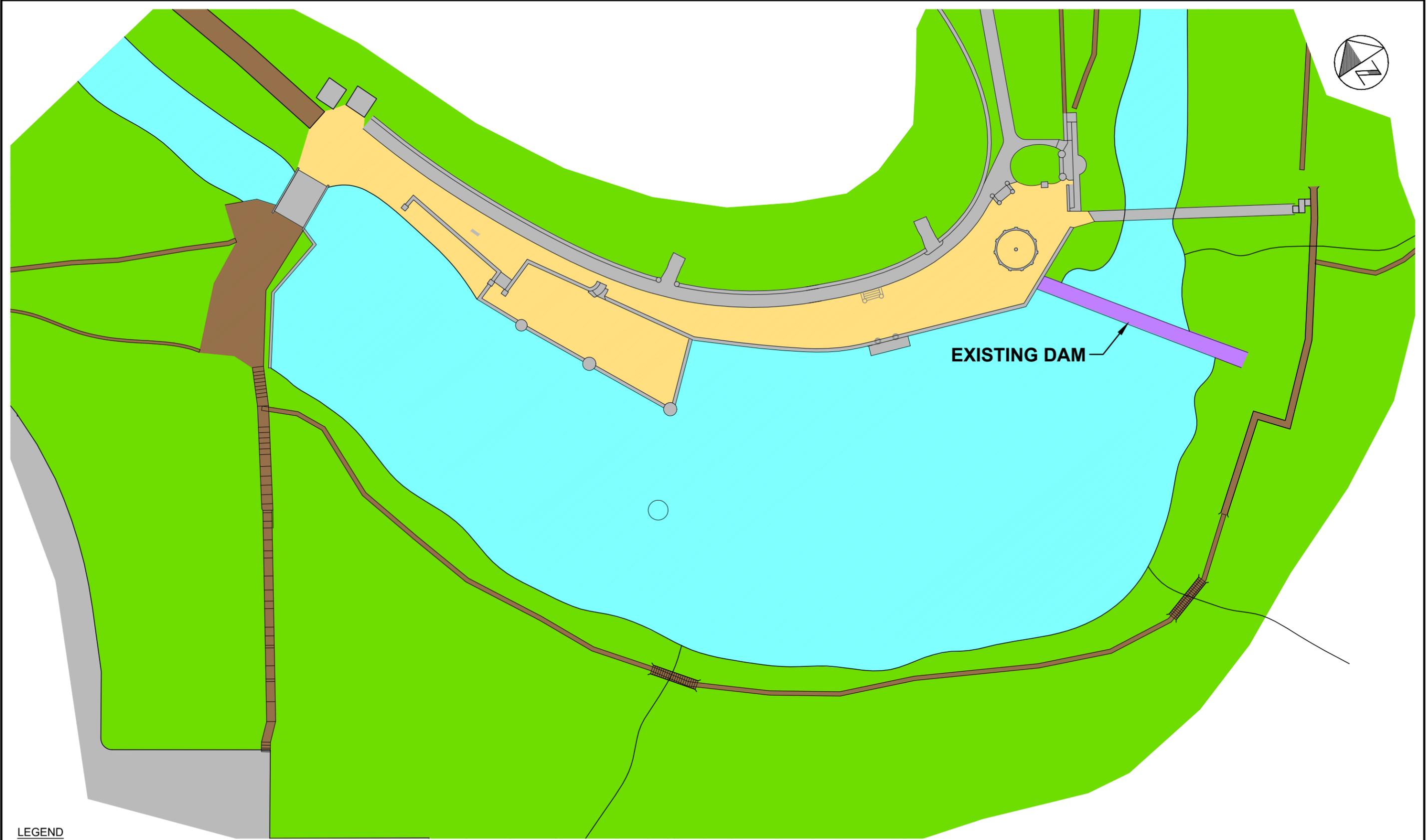




## **Appendix 'C'**

### **Alternatives**

Plotted By: richard.bartolo  
Last Saved By: richard.bartolo  
2015-10-19  
2015-10-19  
Path: P:\Work\TP114113\water\dwg\2015-10 (Rpt)\Fig5 - AlternativeD1H1.dwg



**LEGEND**

-  EXISTING HEADPOND AREA
-  EXISTING TURF AREA
-  EXISTING FOREST COMMUNITY
-  EXISTING STRUCTURE
-  EXISTING PATH/TRAIL

BELFOUNTAIN DAM AND  
HEADPOND CLASS EA  
CREDIT VALLEY CONSERVATION

ALTERNATIVE D1H1:  
DO NOTHING

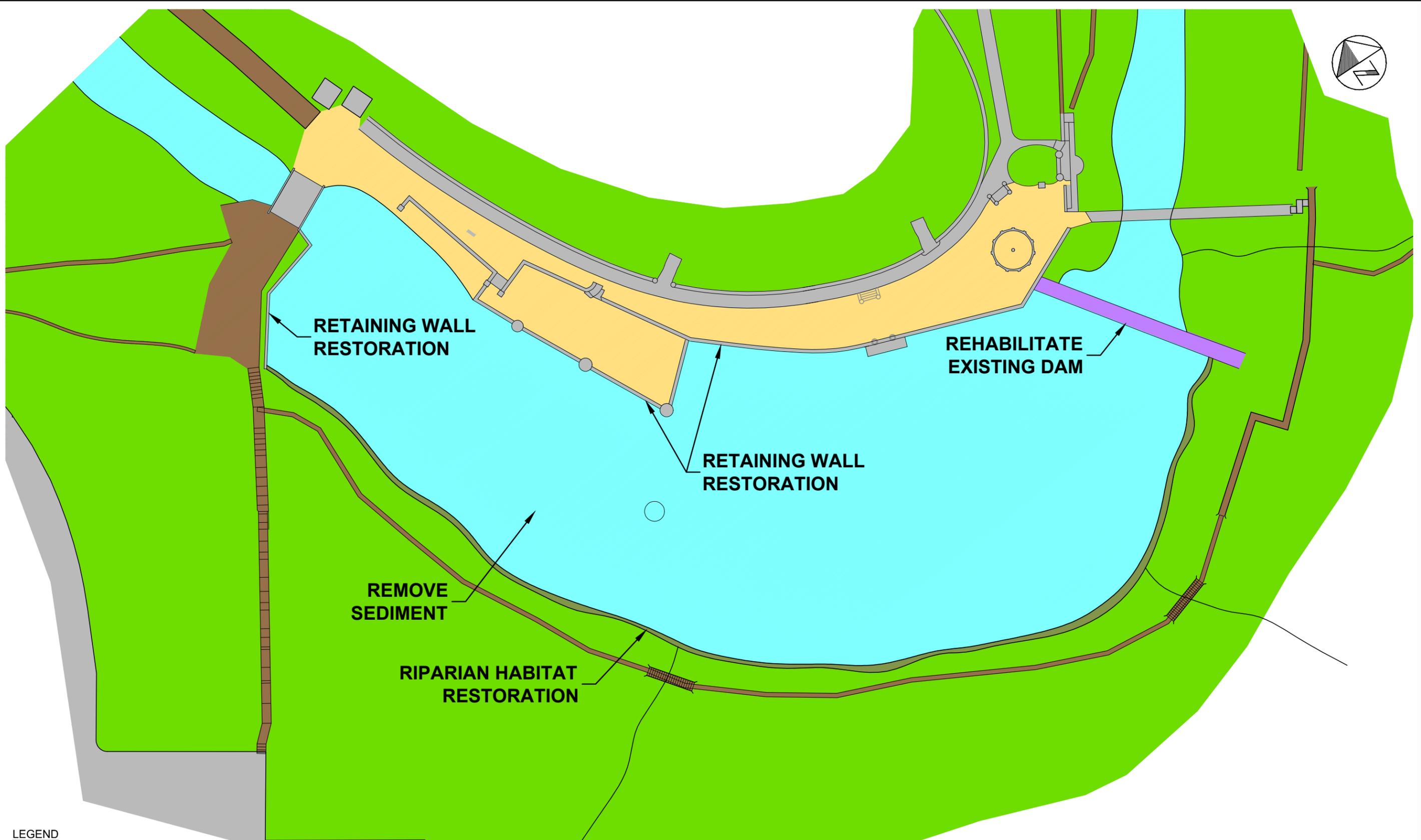


SCALE VALID ONLY FOR  
24"x36" VERSION

Scale 1:250  
0 2.5 5 10

Consultant File No.  
TP114113

Figure No.  
5



Path: P:\Work\TP114113\water\dwg\2015-10 (Rpt)\Fig6 - AlternativeD2H2.dwg

Plotted By: richard.bartolo  
Last Saved By: richard.bartolo  
2015-10-19  
Last Saved: 2015-10-19

**LEGEND**

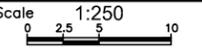
- EXISTING HEADPOND AREA
- EXISTING TURF AREA
- EXISTING FOREST COMMUNITY
- EXISTING STRUCTURE
- EXISTING PATH/TRAIL

BELFOUNTAIN DAM AND  
HEADPOND CLASS EA  
CREDIT VALLEY CONSERVATION

ALTERNATIVE D2H2:  
REHABILITATE THE DAM  
AND HEADPOND



SCALE VALID ONLY FOR 24"x36" VERSION

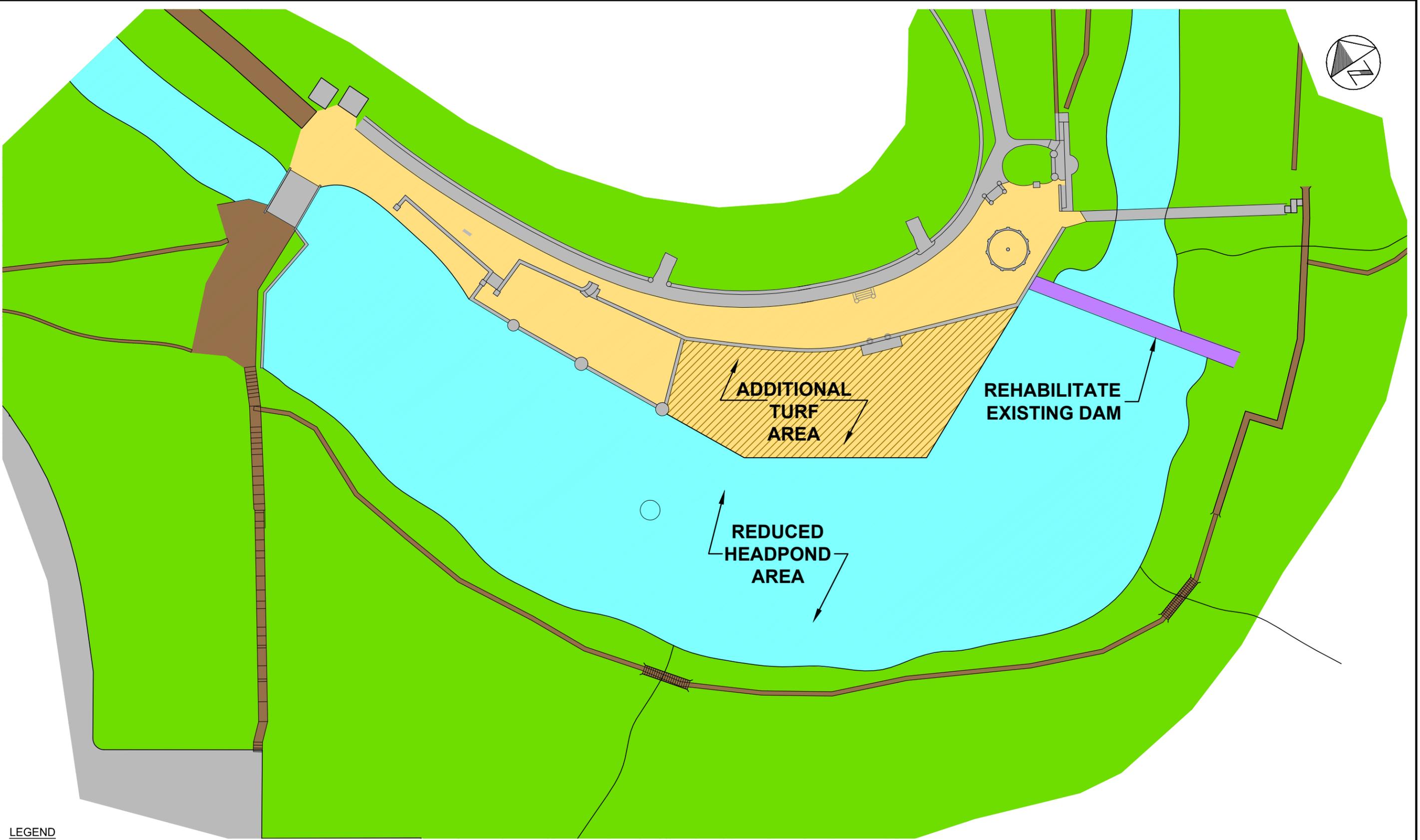


Consultant File No. TP114113

Figure No. 6

Path: P:\Work\TP114113\water\dwg\2015-10 (Rpt)\Fig7 - AlternativeD2H3.dwg

Plotted By: richard.bartolo  
Last Saved By: richard.bartolo  
2015-10-19  
Last Saved: 2015-10-19

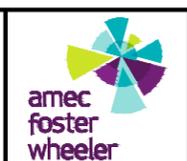


**LEGEND**

- EXISTING HEADPOND AREA
- EXISTING TURF AREA
- EXISTING FOREST COMMUNITY
- EXISTING STRUCTURE
- EXISTING PATH/TRAIL

**BELFOUNTAIN DAM AND  
HEADPOND CLASS EA**  
CREDIT VALLEY CONSERVATION

**ALTERNATIVE D2H3:  
REHABILITATE THE DAM AND  
EXPAND THE TABLELAND**



SCALE VALID ONLY FOR  
24"x36" VERSION

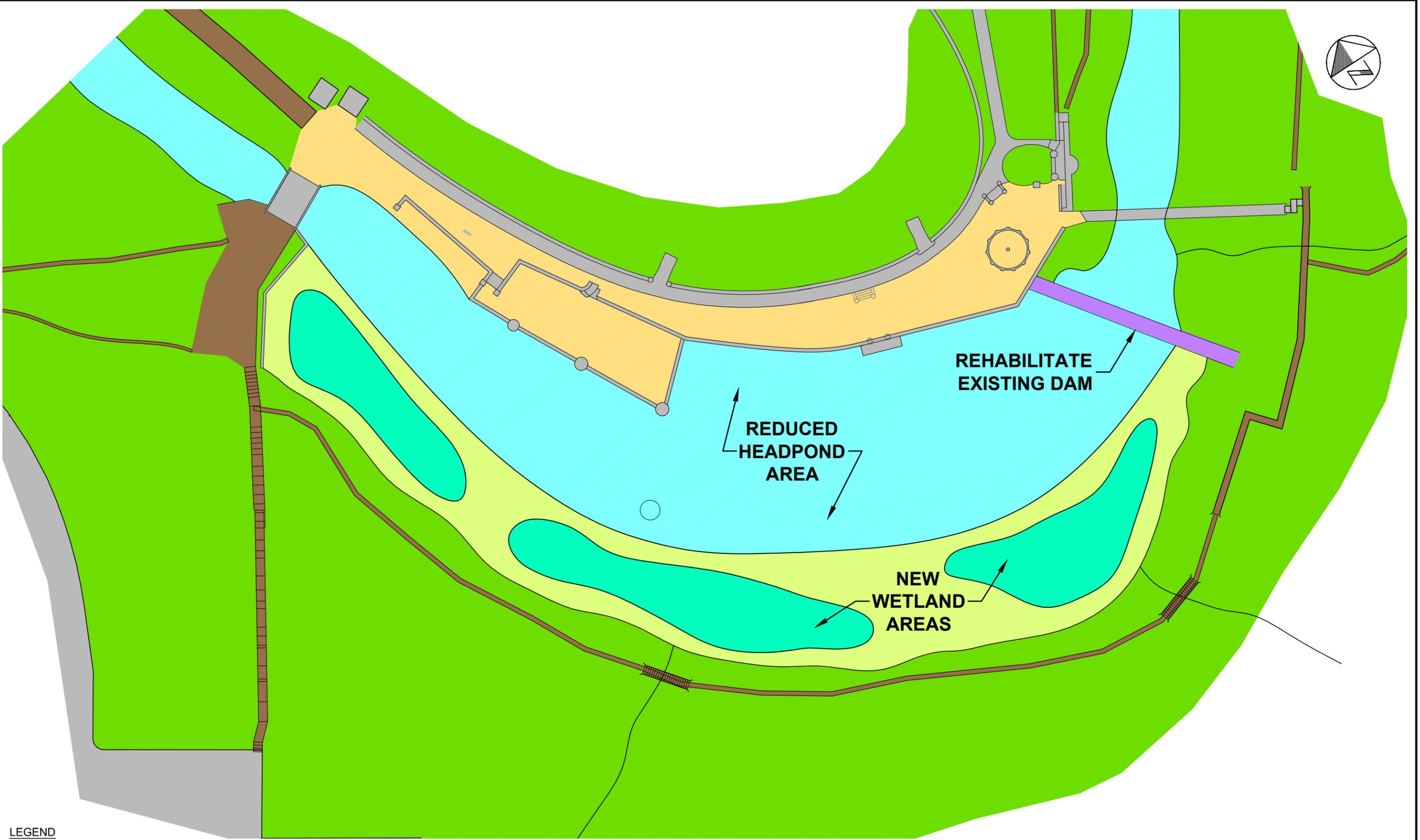
Scale 1:250  
0 2.5 5 10

Consultant File No.  
TP114113

Figure No.  
7

Path: P:\Work\TP114113\water\dwg\2015-10 (Rpt)\Fig8 - AlternativeD2H4.dwg

Plotted By: richard.bartolo  
Last Saved By: richard.bartolo  
2015-10-19  
Last Saved: 2015-10-19



**LEGEND**

- EXISTING HEADPOND AREA
- EXISTING TURF AREA
- EXISTING FOREST COMMUNITY
- EXISTING STRUCTURE
- EXISTING PATH/TRAIL

BELFOUNTAIN DAM AND  
HEADPOND CLASS EA  
CREDIT VALLEY CONSERVATION

ALTERNATIVE D2H4:  
REHABILITATE THE DAM AND  
CONVERT PORTION OF HEADPOND  
TO WETLAND AREAS



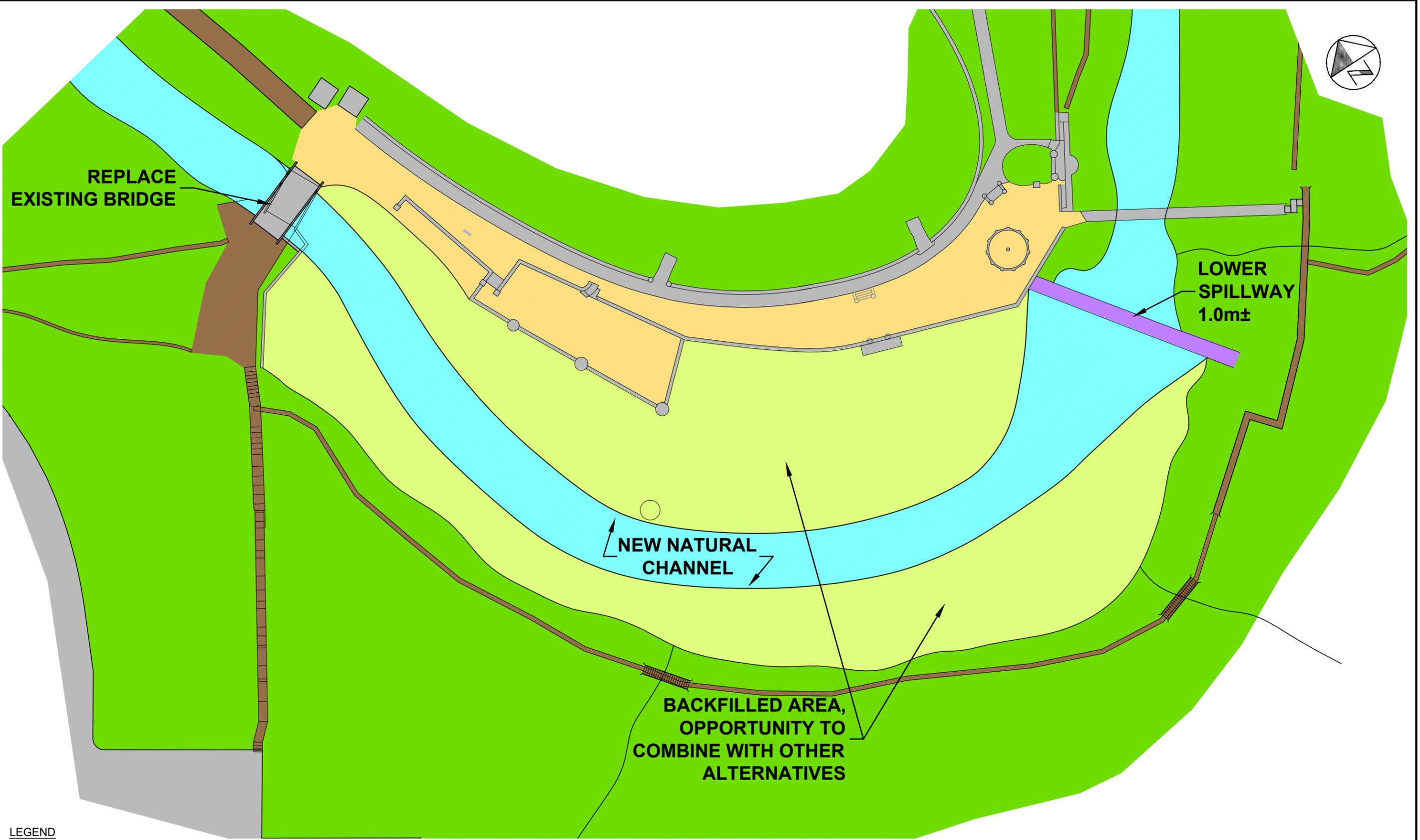
SCALE VALID ONLY FOR  
24"x36" VERSION

Scale 1:250  
0 2.5 5 10

Consultant File No.  
TP114113

Figure No.  
8

Plotted: 2015-11-12  
Last Saved: 2015-11-12  
Path: P:\Work\TP114113\water\dwg\2015-10 (Rpt)\Fig9 - AlternativeD4H5.dwg  
Plotted By: richard.bartolo  
Last Saved By: richard.bartolo



**LEGEND**

	EXISTING HEADPOND AREA
	EXISTING TURF AREA
	EXISTING FOREST COMMUNITY
	EXISTING STRUCTURE
	EXISTING PATH/TRAIL

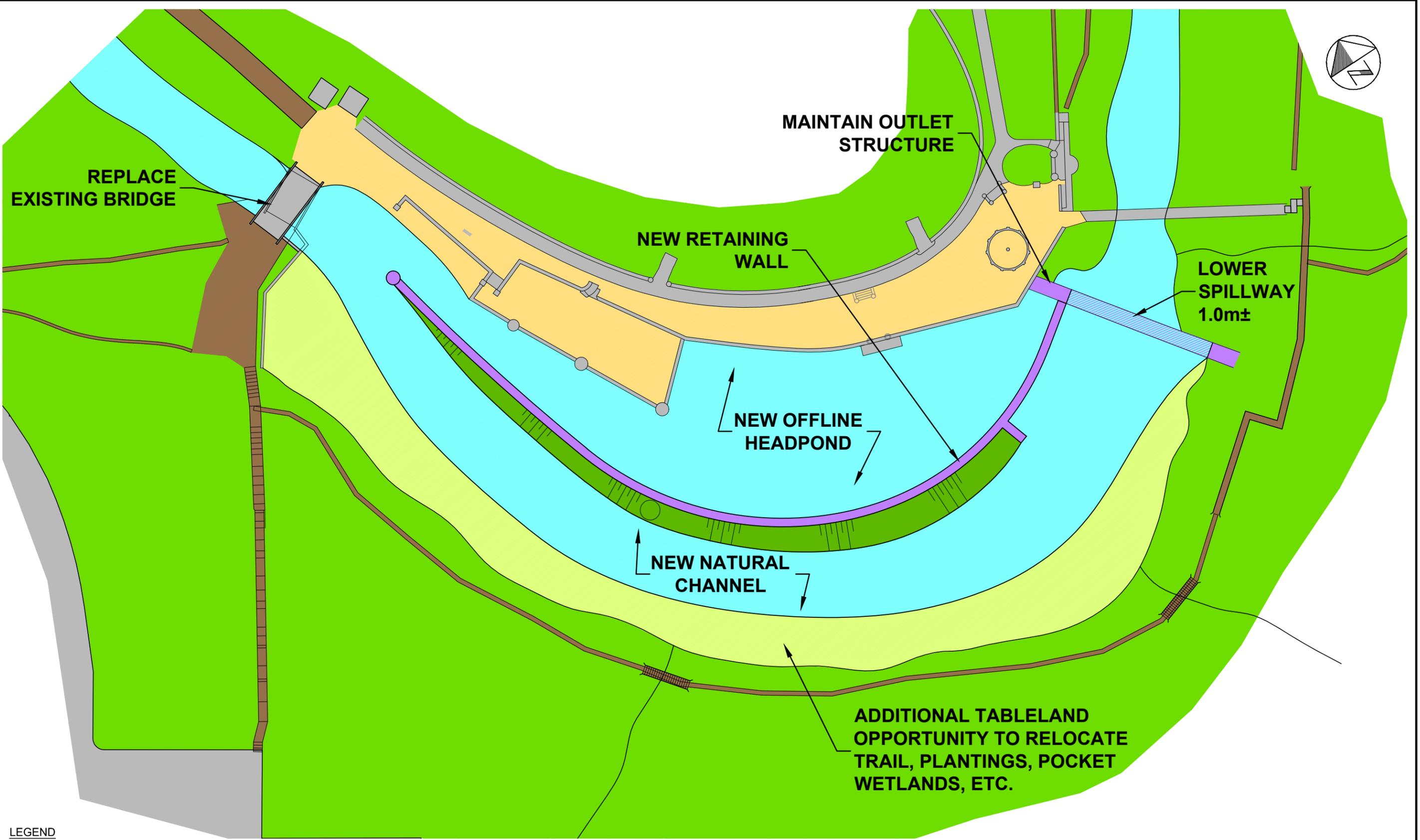
BELFOUNTAIN DAM AND  
HEADPOND CLASS EA  
CREDIT VALLEY CONSERVATION

ALTERNATIVE D4H5:  
LOWER THE SPILLWAY AND  
BACKFILL THE HEADPOND AND  
CONSTRUCT CHANNEL



SCALE VALID ONLY FOR  
24"x36" VERSION

Scale	1:250
	
Consultant File No.	TP114113
Figure No.	9



**LEGEND**

	EXISTING HEADPOND AREA
	EXISTING TURF AREA
	EXISTING FOREST COMMUNITY
	EXISTING STRUCTURE
	EXISTING PATH/TRAIL

Plotted By: richard.bartolo  
 Last Saved By: richard.bartolo  
 Path: P:\Work\TP114113\water\dwg\2015-10 (Rpt)\Fig10 - AlternativeD4H6.dwg  
 2015-11-12  
 Last Saved: 2015-11-12

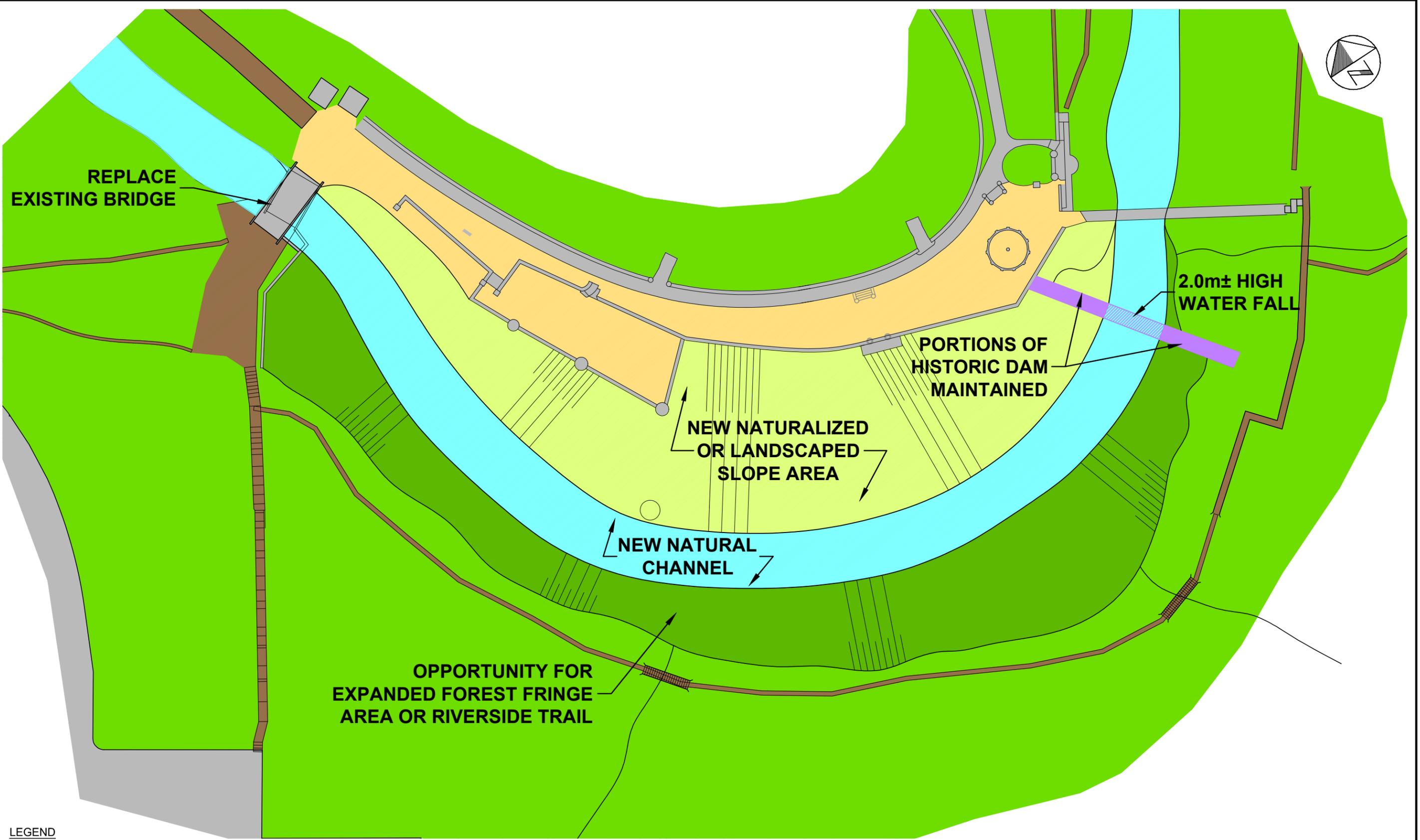
**BELFOUNTAIN DAM AND HEADPOND CLASS EA**  
 CREDIT VALLEY CONSERVATION

**ALTERNATIVE D4H6:**  
 LOWER THE SPILLWAY, AND CONSTRUCT CHANNEL, AND OFFLINE HEADPOND



SCALE VALID ONLY FOR 24"x36" VERSION

Scale	1:250
Consultant File No.	TP114113
Figure No.	10



Path: P:\Work\TP114113\water\dwg\2015-10 (Rpt)\Fig11 - AlternativeD5H7.dwg

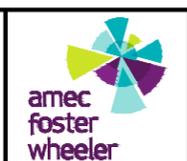
Plotted By: richard.bartolo  
Last Saved By: richard.bartolo  
2015-12-01  
2015-11-12

**LEGEND**

	EXISTING HEADPOND AREA
	EXISTING TURF AREA
	EXISTING FOREST COMMUNITY
	EXISTING STRUCTURE
	EXISTING PATH/TRAIL

BELFOUNTAIN DAM AND  
HEADPOND CLASS EA  
CREDIT VALLEY CONSERVATION

ALTERNATIVE D5H7:  
DECOMMISSION THE DAM AND  
RESTORE NATURAL VALLEY  
AND RIVER



SCALE VALID ONLY FOR  
24"x36" VERSION

Scale 1:250  
0 2.5 5 10

Consultant File No.  
TP114113

Figure No.  
11



## **Appendix 'D'**

# **Implementation Options**

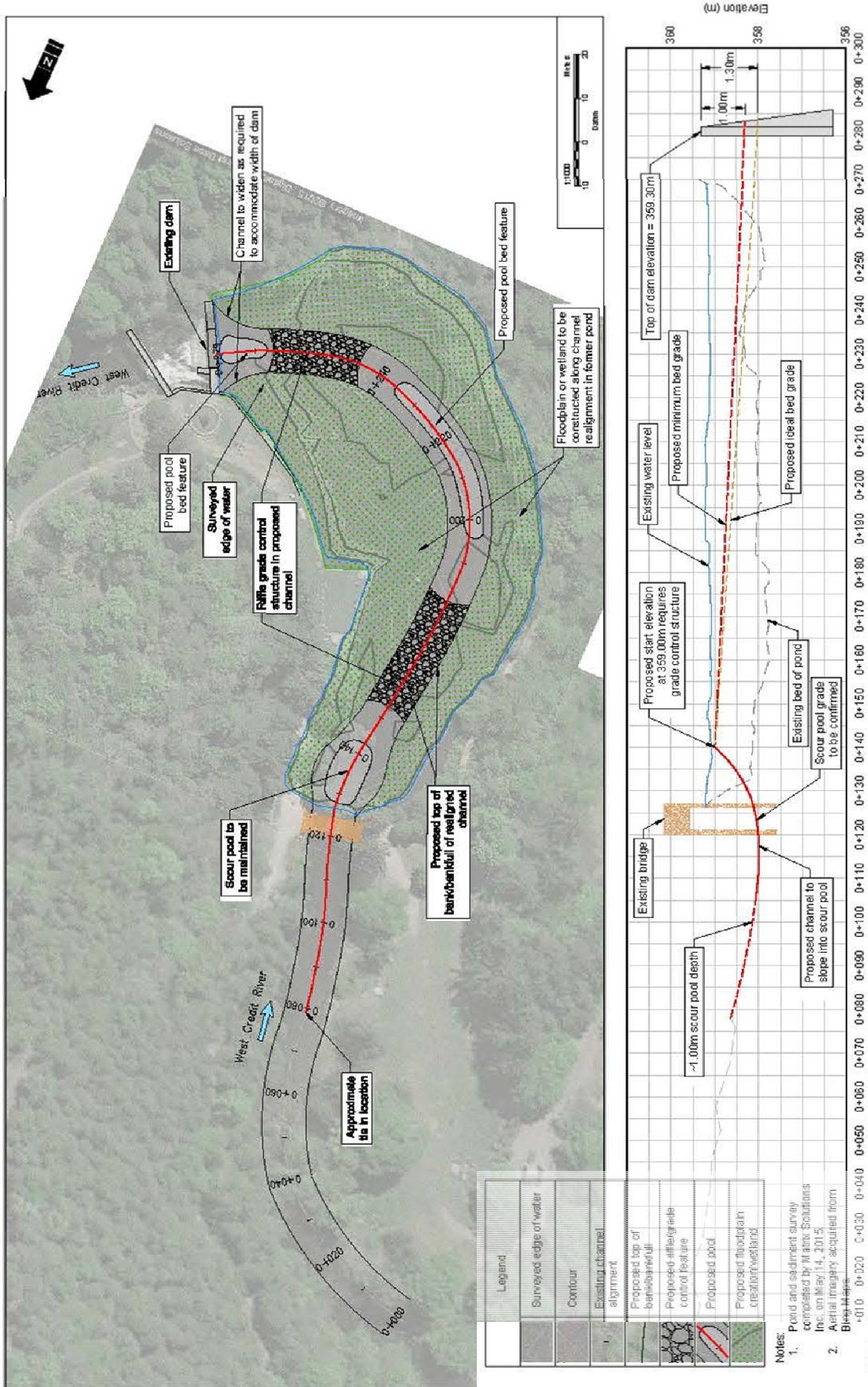


Figure D1: Spillway Geometry Options (Credit: Parish Aquatic Services)

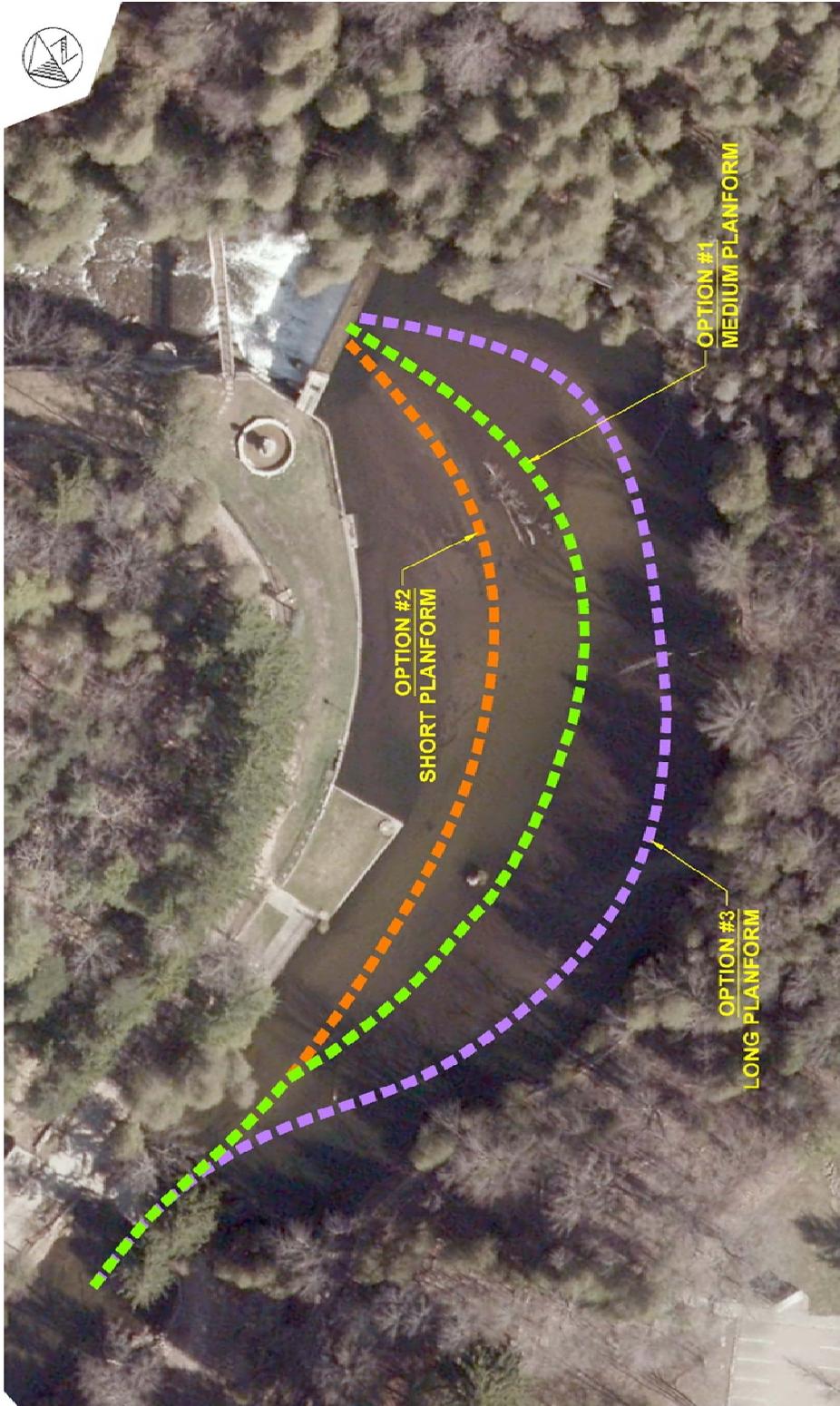


Figure D2: Natural Channel Alignment Options

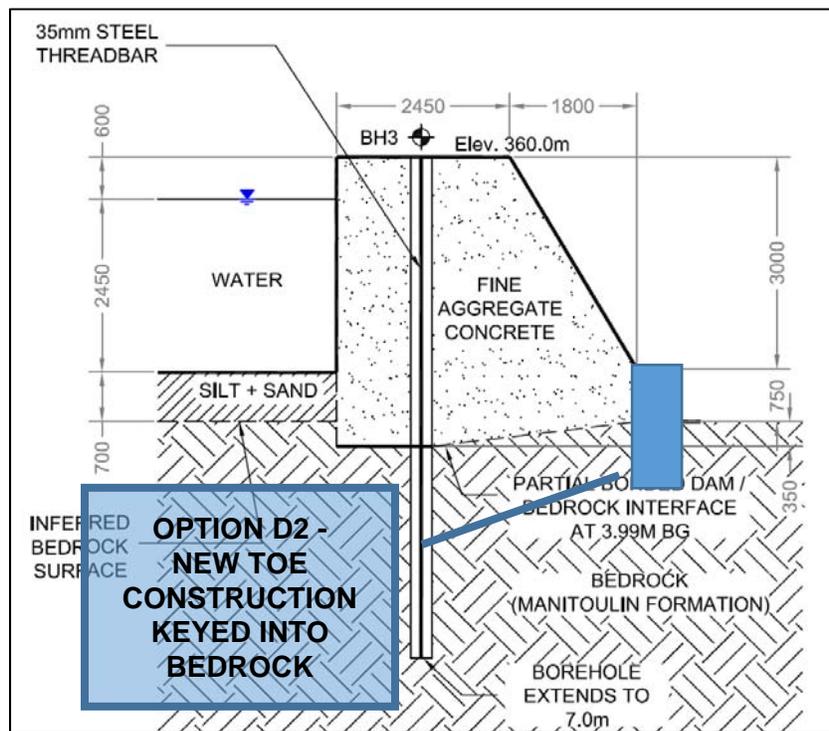
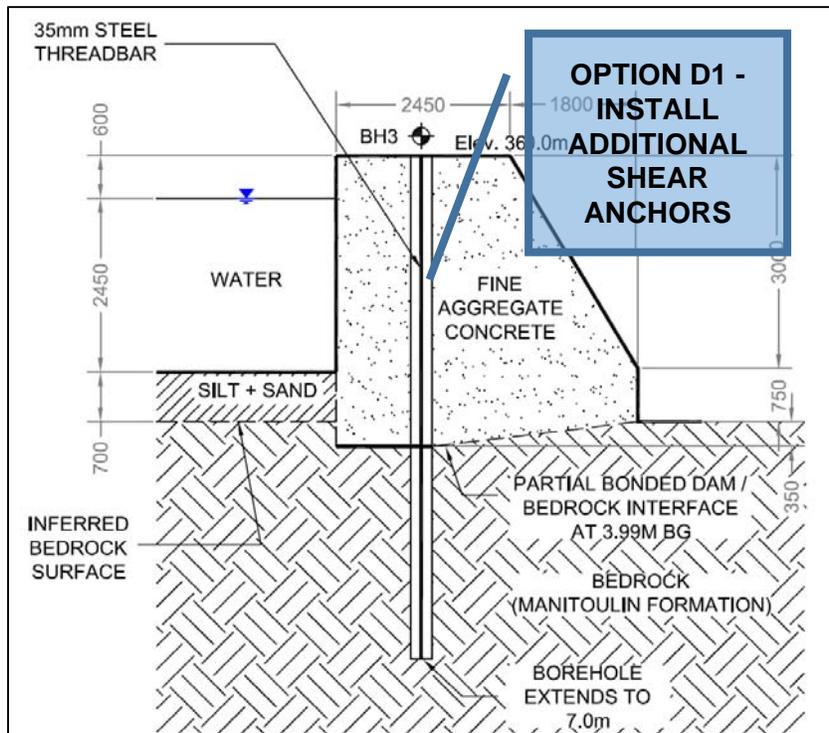


Figure D3: Spillway Structural Mitigation Options (Terraprobe, 2013)

**OPTION D2 –  
REDUCE TOP OF  
SLUICWAY TO  
SPILLWAY CREST**



**Figure D4: Sluiceway Configuration Options (Terraprobe, 2013)**



*Option E1: Recreational Use*

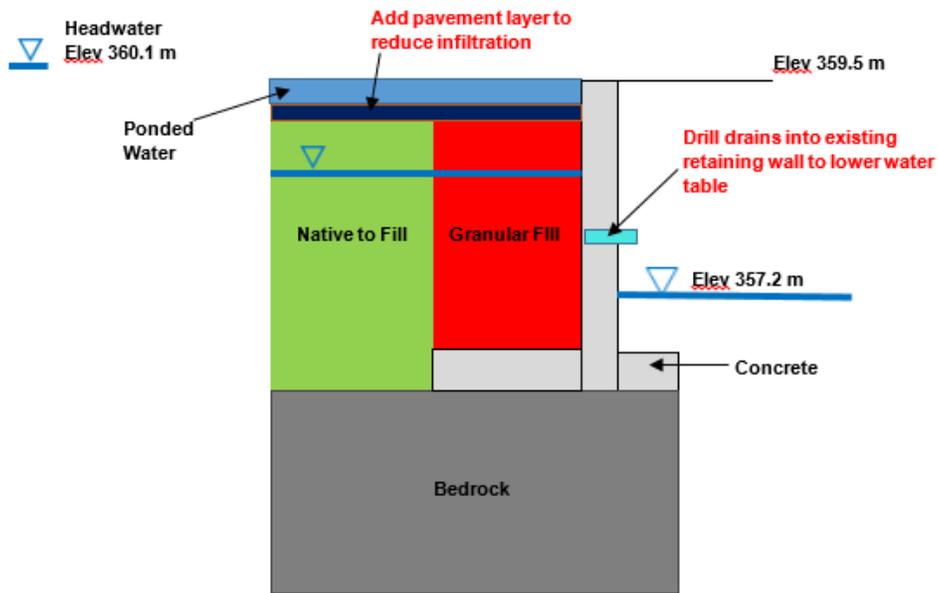


*Option E2: Floodplain rehabilitation*

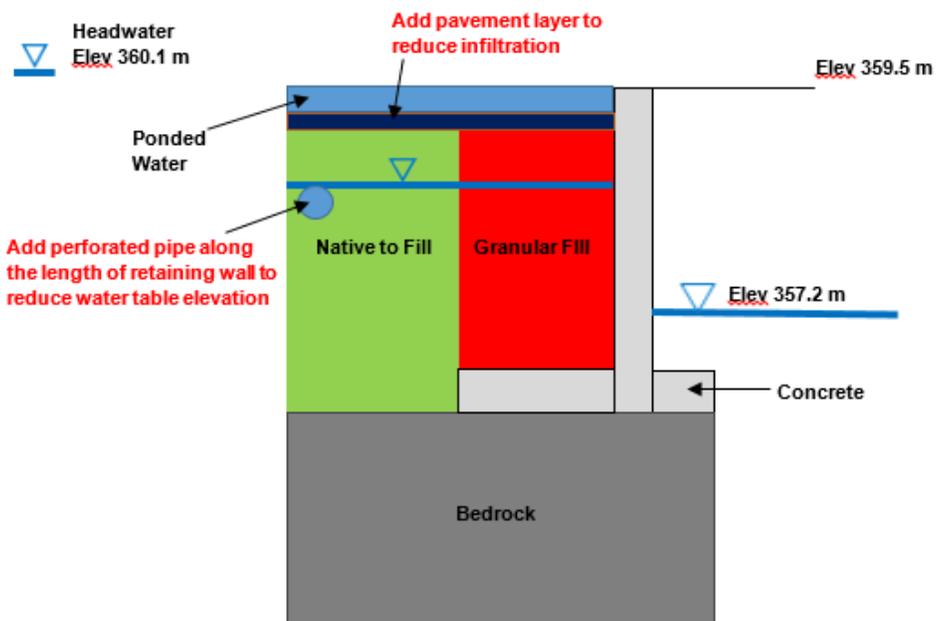


*Option E3: Wetland rehabilitation*

**Figure D5: Repurposed Headpond Area Options**

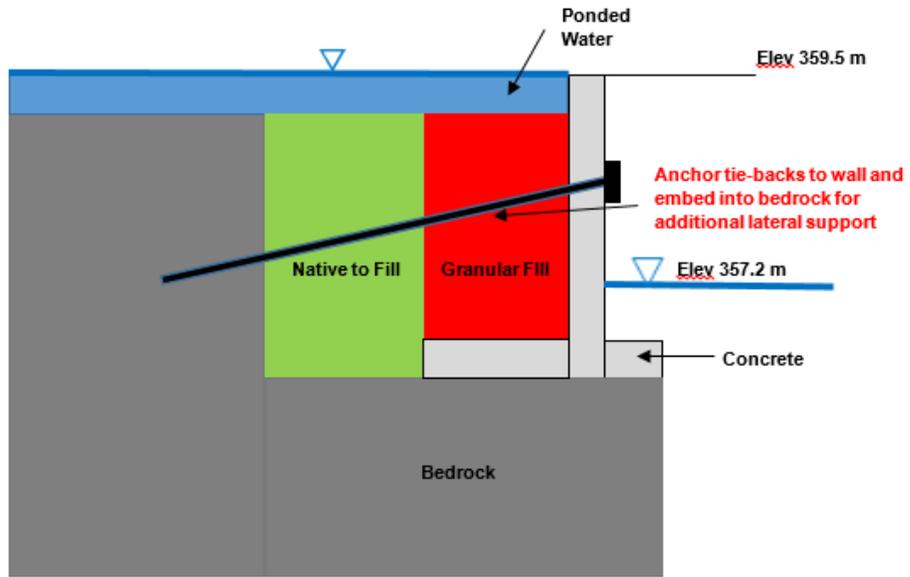


Option G1: Wall drains & surface pavement



Option G2: Perforated pipe & surface pavement

Figure D6: North Retaining Wall Mitigation Options



Option G3: Tie-backs

Figure D6 cont'd: North Retaining Wall Mitigation Options

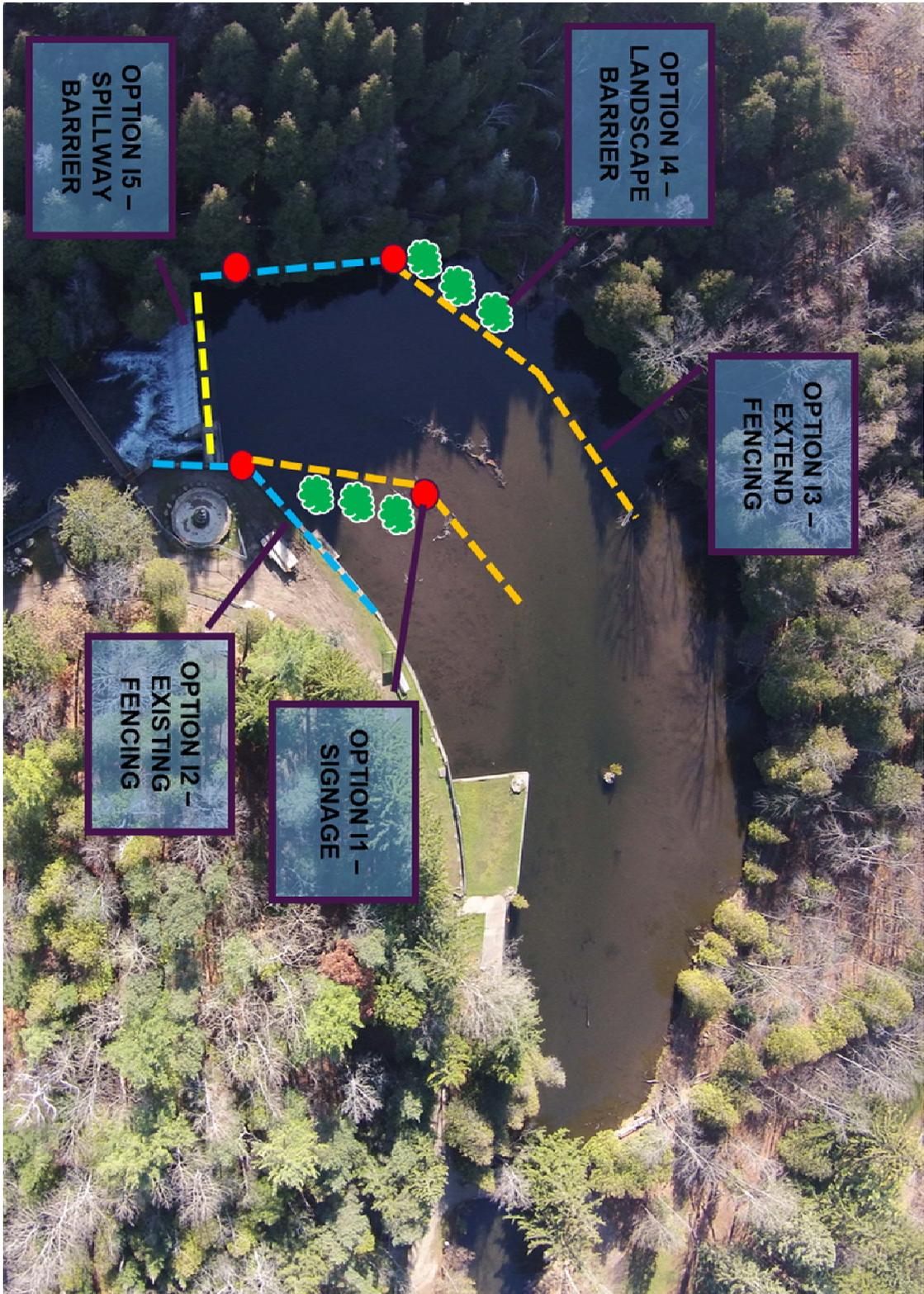


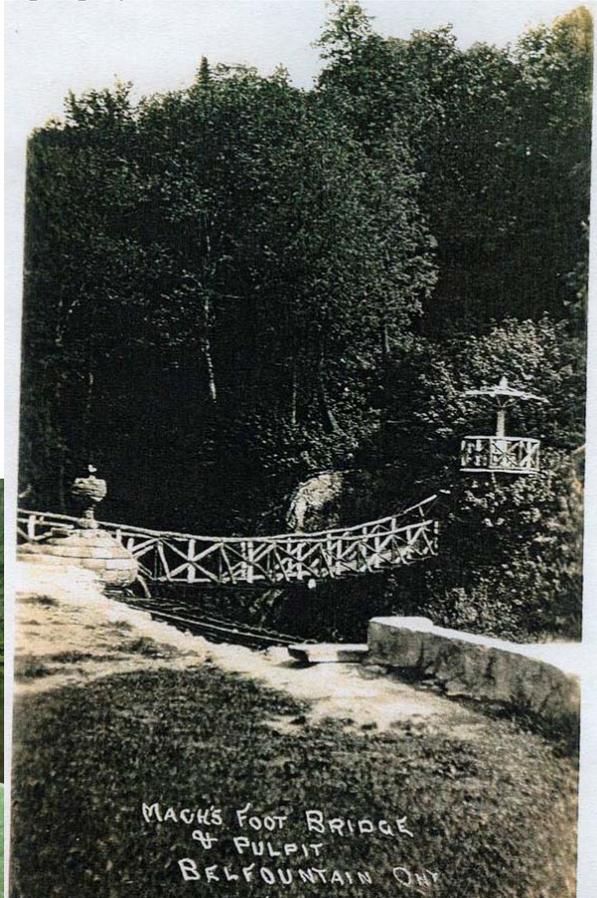
Figure D7: Safety Features



Option J1: Interpretive Signage (Credit 1dea Inc.)



Option J2: Renovate Mack Poo



Option J3: Mack Pulpit

Figure D8: Supplementary Heritage Mitigation



## **Appendix 'E'**

### **Preliminary Design**

**Belfountain Dam and Headpond Class EA**  
**Preferred Alternative D4H5: Lower the spillway & backfill headpond & construct channel**  
**Preliminary Cost Estimate**

ITEM NO.	ITEM	UNIT	EST. QTY.	UNIT PRICE	TOTAL
<b>General</b>					
1	Mobilization	LS	1	\$30,000	\$30,000
2	Construction Access	LS	1	\$20,000	\$20,000
3	Dewatering & Erosion & Sediment Controls	LS	1	\$100,000	\$100,000
<b>Subtotal General</b>					<b>\$150,000</b>
<b>Dam Works</b>					
4	Concrete removals	m <sup>3</sup>	80	\$1,000	\$80,000
5	New concrete	m <sup>3</sup>	42	\$1,500	\$63,000
6	Cobble surface finish	m <sup>2</sup>	30	\$1,000	\$30,000
7	Install shear anchors	EA	12	\$10,000	\$120,000
8	Rehabilitate south abutment	LS	1	\$20,000	\$20,000
9	Rehabilitation work (concrete, south abutment & north retaining wall toe erosion)	LS	1	\$50,000	\$50,000
10	Public safety signage, fencing, etc.	LS	1	\$5,000	\$5,000
<b>Subtotal Dam</b>					<b>\$368,000</b>
<b>North Retaining Wall Mitigation</b>					
11	Impervious membrane	m <sup>2</sup>	50	\$100	\$5,000
12	Wall drains	EA	14	\$500	\$7,000
13	Excavation and restoration	LS	1	\$5,000	\$5,000
<b>Subtotal North Retaining Wall</b>					<b>\$17,000</b>
<b>Headpond/Channel</b>					
14	Sediment removal and disposal	m <sup>3</sup>	2000	\$50	\$100,000
15	Fill borrow	m <sup>3</sup>	5000	\$10	\$50,000
16	Riffle stone	tonne	900	\$70	\$63,000
17	Lunker bank treatment	EA	8	\$500	\$4,000
18	Vegetated stone bank treatment	tonne	1000	\$80	\$80,000
19	Vegetated block bank treatment	m <sup>2</sup>	450	\$10	\$4,500
20	French drain	m	190	\$20	\$3,800
21	Coir cloth bank treatment	m	65	\$50	\$3,250
22	Topsoil	m <sup>3</sup>	600	\$30	\$18,000
23	Floodplain planting and seeding	m <sup>2</sup>	2500	\$20	\$50,000
<b>Subtotal Headpond/Channel</b>					<b>\$376,550</b>
<b>Other Structural</b>					
24	Rehabilitation of existing north terrace retaining walls	m	90	\$500	\$45,000
25	Raise existing pool terrace retaining walls	m	40	\$500	\$20,000
26	Headpond pedestrian bridge (18 m span)	LS	1	\$120,000	\$120,000
27	Proposed boardwalk	m <sup>2</sup>	390	\$600	\$234,000
<b>Subtotal Headpond/Channel</b>					<b>\$419,000</b>
<b>Subtotal</b>					<b>\$1,330,550</b>
28	Engineering, Environmental, Landscaping Design (10%)				\$133,055
29	Contingency (25%)				\$332,638
30	HST (13%)				\$233,512
<b>Total</b>					<b>\$2,029,754</b>

**ITEM NO. ASSUMPTIONS**

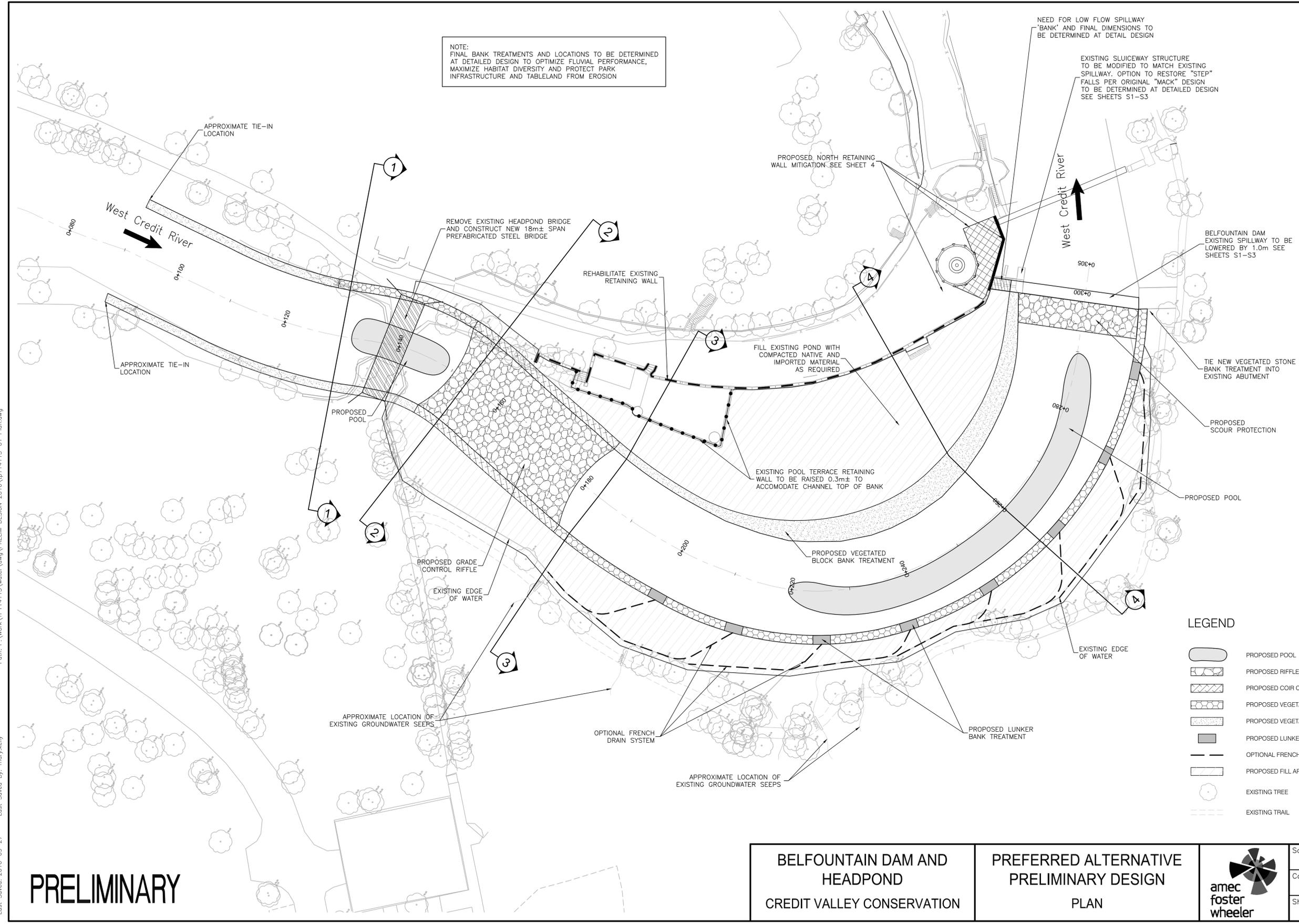
- 1 Allowance
- 2 Allowance
- 3 Allowance
- 4-6 Measured quantity
- 7 Unit cost of achors installed as part of investigation by Terraprobe (2013).
- 8 Allowance. Work is completed while headpond is dewatered, if necessary
- 9 Allowance
- 10 Allowance
- 11-13 Measured quantity
- 14 Disposal as clean fill. Higher than average unit cost considering logistical issues (remove site; limited access/staging area may allow only 1 truck on site at once) and material issues (possible need to mix with other bulk source to achieve engineering/environmental requirements). Assume majority of unconsolidated sediment (2500m3) is removed only.
- 15 Based on cut/fill balance (assumes consolidated sediment is reused as fill; unconsolidated is removed from the site)
- 16-23 Measured quantity
- 24 Allowance for concrete rehabilitation, and localized replacement where deterioration is advanced.
- 25 Allowance for new concrete, rehabilitation, and localized replacement where deterioration is advanced.
- 26 Prefabricated steel span plus abutments. Pedestrian and small vehicle loads only.
- 27 155 m long x 2.5 m wide



NOTE:  
FINAL BANK TREATMENTS AND LOCATIONS TO BE DETERMINED AT DETAILED DESIGN TO OPTIMIZE FLUVIAL PERFORMANCE, MAXIMIZE HABITAT DIVERSITY AND PROTECT PARK INFRASTRUCTURE AND TABLELAND FROM EROSION

NEED FOR LOW FLOW SPILLWAY "BANK" AND FINAL DIMENSIONS TO BE DETERMINED AT DETAIL DESIGN

EXISTING SLUICeway STRUCTURE TO BE MODIFIED TO MATCH EXISTING SPILLWAY. OPTION TO RESTORE "STEP" FALLS PER ORIGINAL "MACK" DESIGN TO BE DETERMINED AT DETAILED DESIGN SEE SHEETS S1-S3



- LEGEND**
- PROPOSED POOL
  - PROPOSED RIFFLE
  - PROPOSED COIR CLOTH BANK TREATMENT
  - PROPOSED VEGETATED STONE BANK TREATMENT
  - PROPOSED VEGETATED BLOCK BANK TREATMENT
  - PROPOSED LUNKER BANK TREATMENT
  - OPTIONAL FRENCH DRAIN SYSTEM
  - PROPOSED FILL AREA
  - EXISTING TREE
  - EXISTING TRAIL

SCALE VALID ONLY FOR 24"x36" VERSION

**PRELIMINARY**

**BELFOUNTAIN DAM AND HEADPOND**  
CREDIT VALLEY CONSERVATION

**PREFERRED ALTERNATIVE**  
**PRELIMINARY DESIGN**  
PLAN

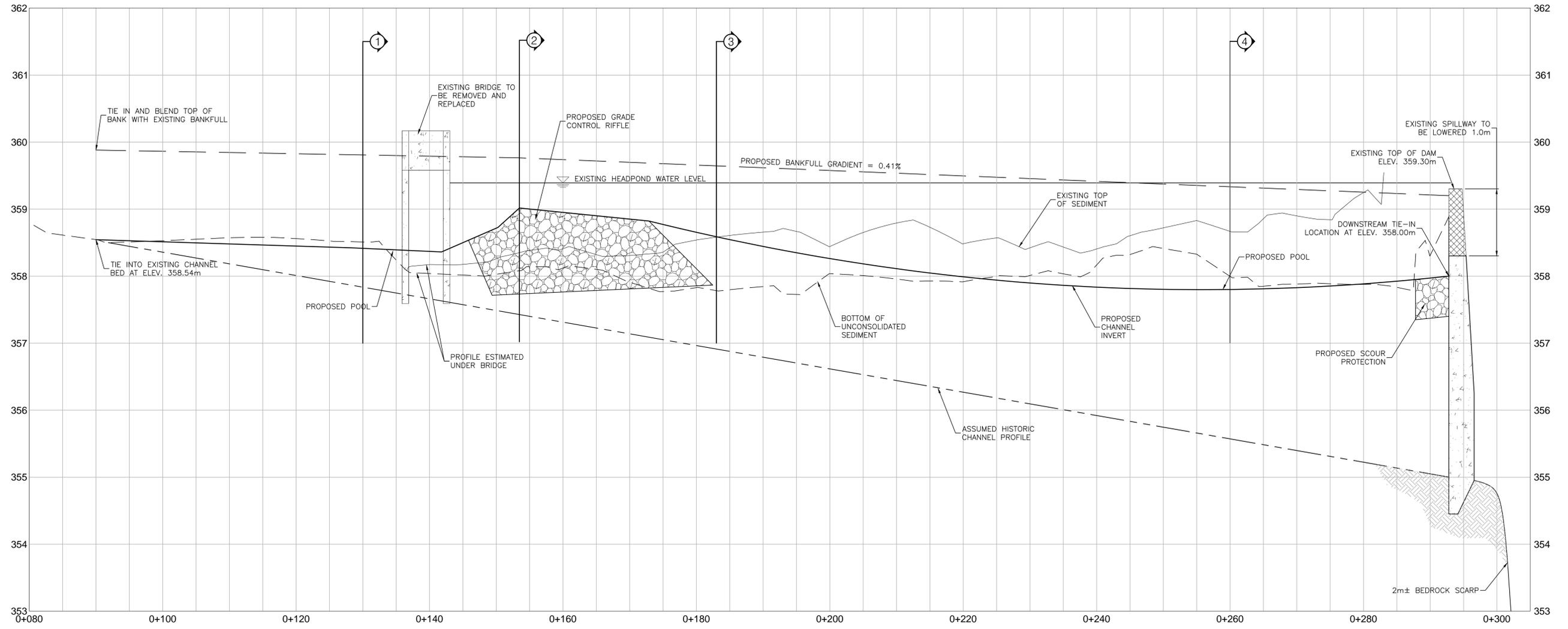


Scale 1:300  
Consultant File No. TP114113  
Sheet No. 1

Plotted: 2016-09-29  
 Last Saved: 2016-09-27  
 Path: P:\Work\TP114113\water.dwg\PRELIM DESIGN 2016\tp114113-01 Plan.dwg  
 Plotted By: mary,kelly  
 Last Saved By: mary,kelly

Path: P:\Work\TP114113\water\dwg\PRELIM DESIGN 2016\tp114113-02 Profile.dwg

Plotted By: mary,kelly  
Last Saved By: mary,kelly  
2016-09-29  
2016-09-27



POND PROFILE  
SCALE HOR=1:300 VERT=1:150

**PRELIMINARY**

BELFOUNTAIN DAM AND  
HEADPOND  
CREDIT VALLEY CONSERVATION

PREFERRED ALTERNATIVE  
PRELIMINARY DESIGN  
CHANNEL PROFILE



SCALE VALID ONLY FOR  
24"x36" VERSION

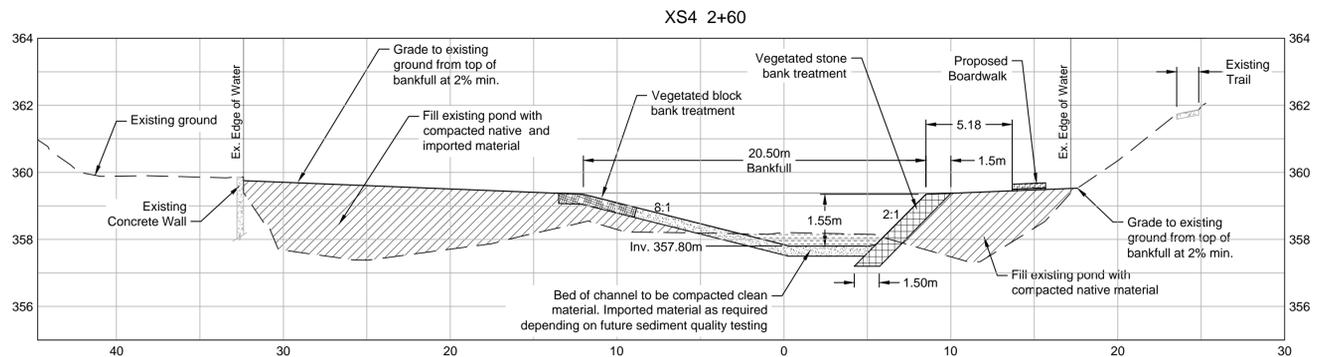
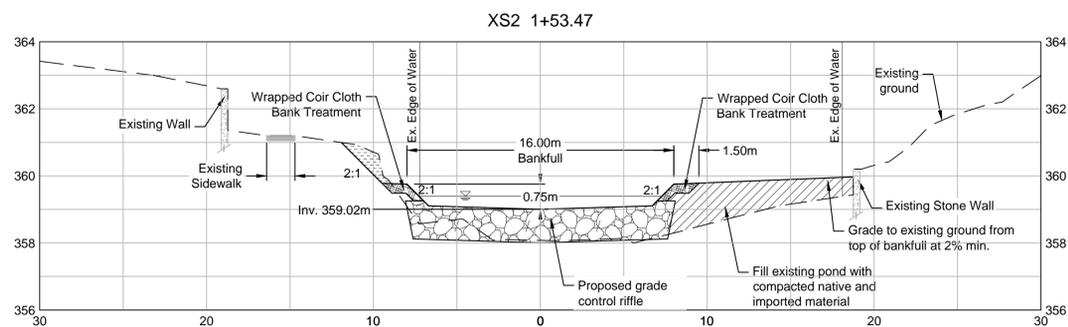
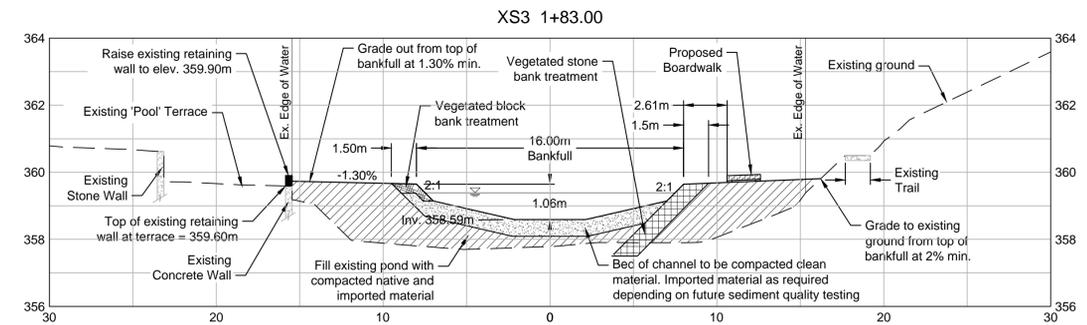
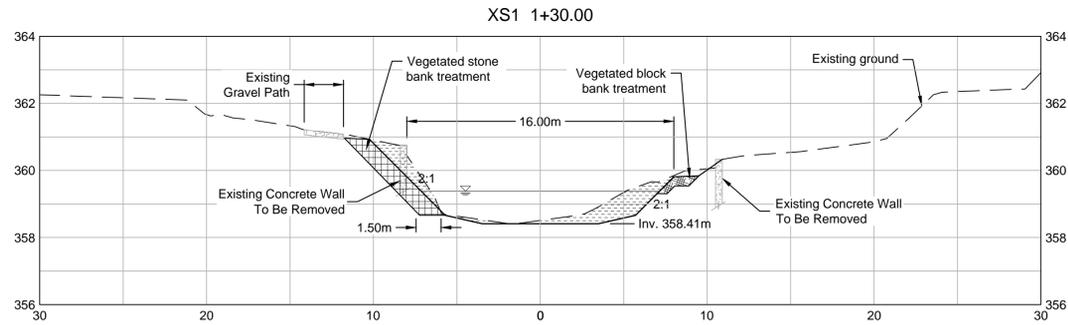
Scale  
Hor=1:300 Vert=1:150

Consultant File No.  
TP114113

Sheet No.  
2

Path: F:\Work\TP114113\water\dwg\PRELIM DESIGN 2016\p114113-03 Sections.dwg

Plotted By: mary,kelly  
Last Saved By: mary,kelly



BELFOUNTAIN DAM AND HEADPOND  
CREDIT VALLEY CONSERVATION

PREFERRED ALTERNATIVE  
PRELIMINARY DESIGN  
CHANNEL SECTIONS

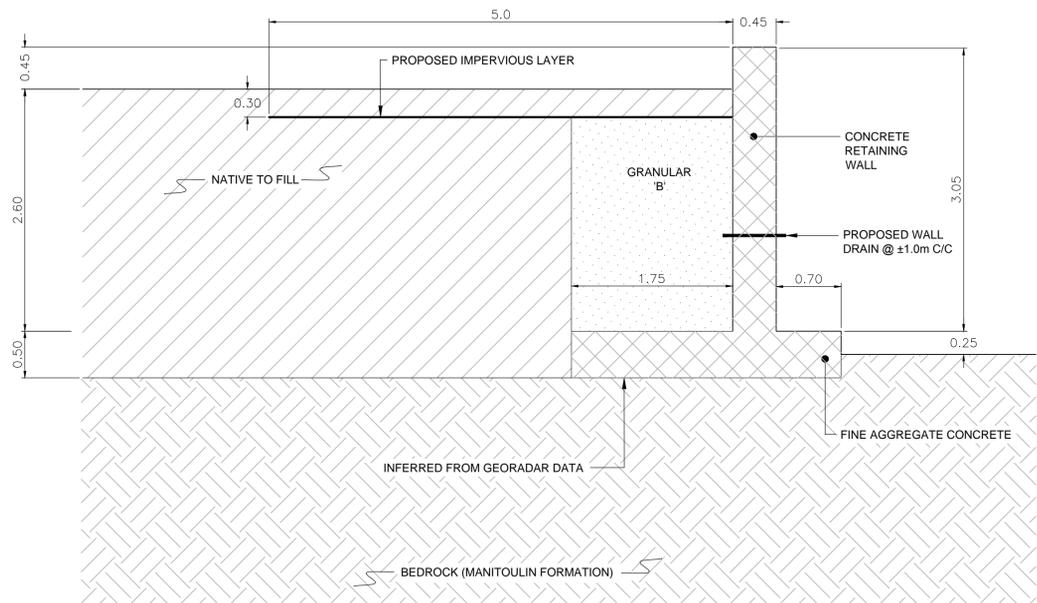


SCALE VALID ONLY FOR 24"x36" VERSION

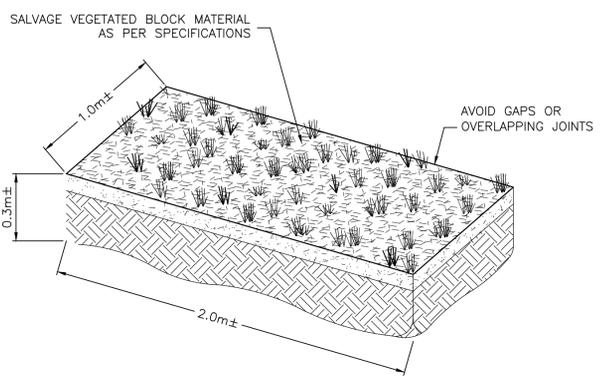
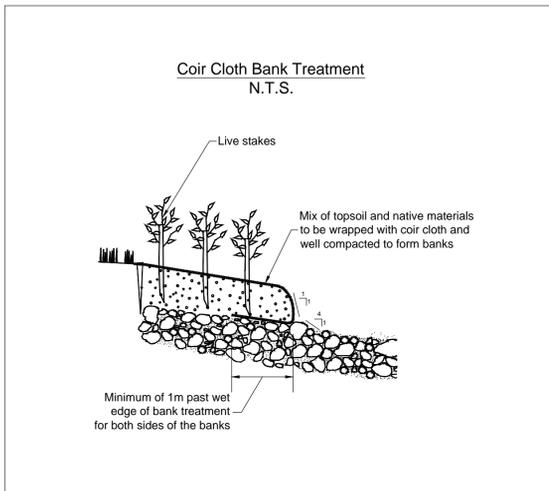
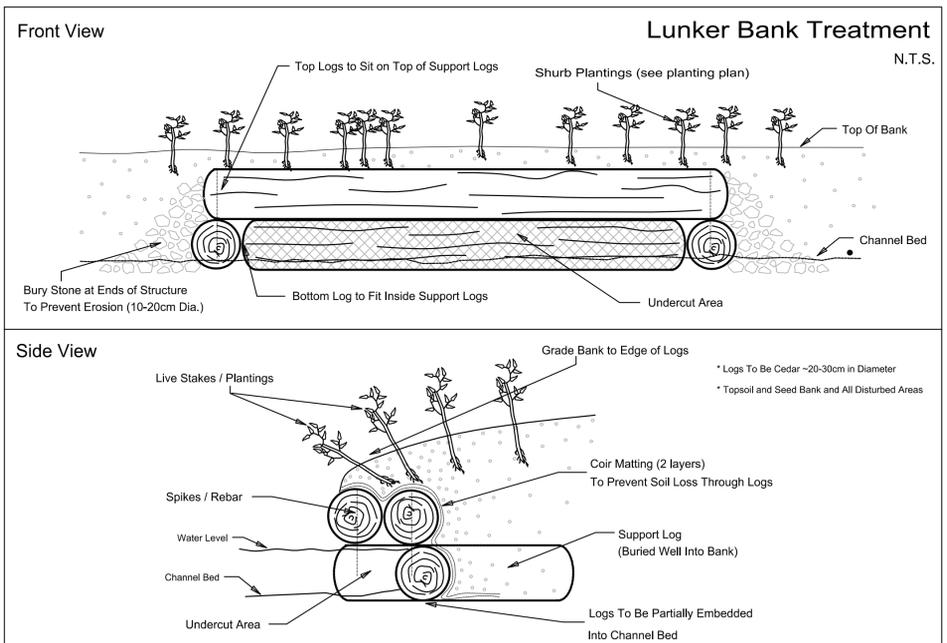
Scale  
H=1:200 V=1:100

Consultant File No.  
TP114113

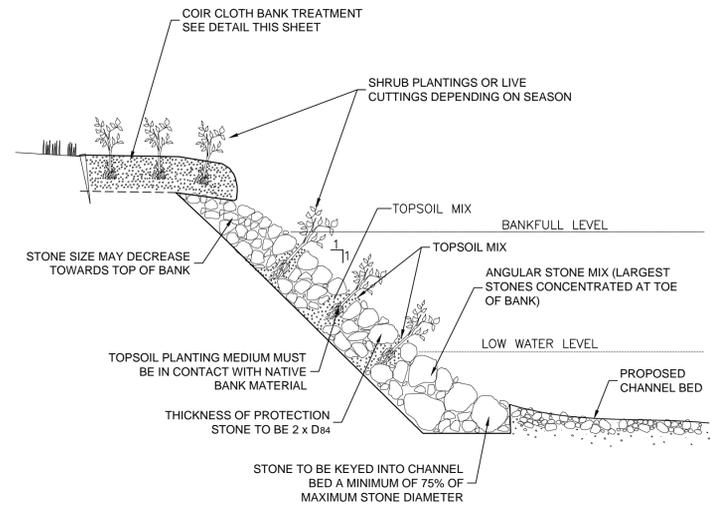
Figure No.  
3



NORTH RETAINING WALL  
DETAIL



VEGETATED BLOCK DETAIL  
N.T.S.



VEGETATED ANGULAR  
STONE DETAIL  
N.T.S.

Plotted: 2016-09-29 2016-09-27  
 Last Saved: 2016-09-27  
 Path: P:\Work\TP114113\water\dwg\PRELIM DESIGN 2016\tp114113-04\_Details.dwg  
 maryl,mary,kelly

BELFOUNTAIN DAM AND  
HEADPOND  
CREDIT VALLEY CONSERVATION

PREFERRED ALTERNATIVE  
PRELIMINARY DESIGN  
DETAILS

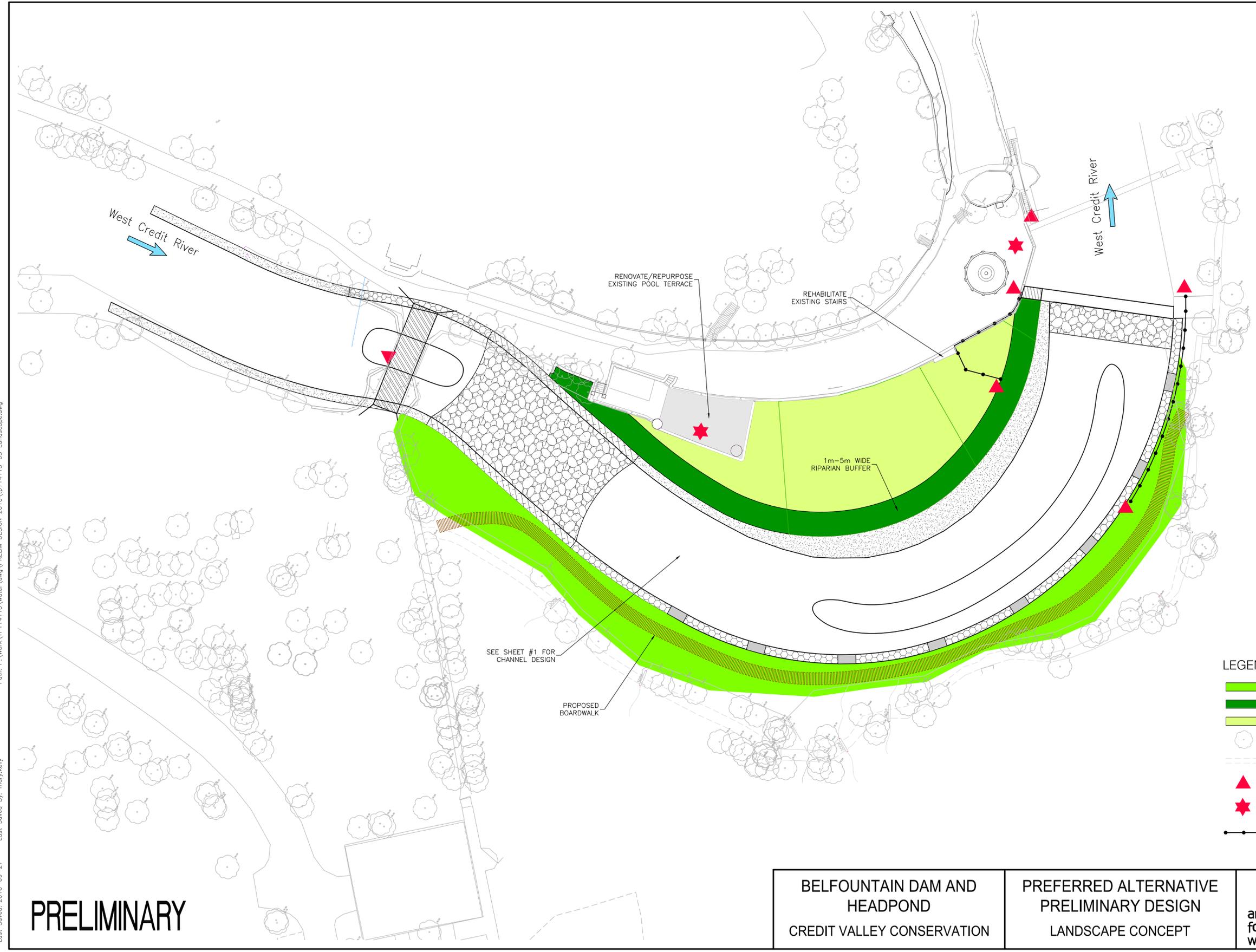
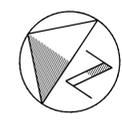


SCALE VALID ONLY FOR  
24"x36" VERSION

Scale  
NOT TO SCALE

Consultant File No.  
TP114113

Figure No.  
4



Path: P:\Work\TP114113\water\dwg\PRELIM DESIGN 2016\tp114113-05 Landscape.dwg

Plotted By: mary,kelly  
Last Saved By: mary,kelly  
2016-09-29  
2016-09-27

**PRELIMINARY**

SEE SHEET #1 FOR CHANNEL DESIGN

PROPOSED BOARDWALK

RENOVATE/REPURPOSE EXISTING POOL TERRACE

REHABILITATE EXISTING STAIRS

1m-5m WIDE RIPARIAN BUFFER

**LEGEND**

-  PROPOSED NATURALIZED FLOODPLAIN AREA
-  PROPOSED RIPARIAN BUFFER
-  PROPOSED RECREATIONAL GREENSPACE
-  EXISTING TREE
-  EXISTING TRAIL
-  HAZARD WARNING SIGNAGE
-  CULTURAL HERITAGE INTERPRETIVE SIGNAGE
-  PROPOSED FENCE

SCALE VALID ONLY FOR 24"x36" VERSION

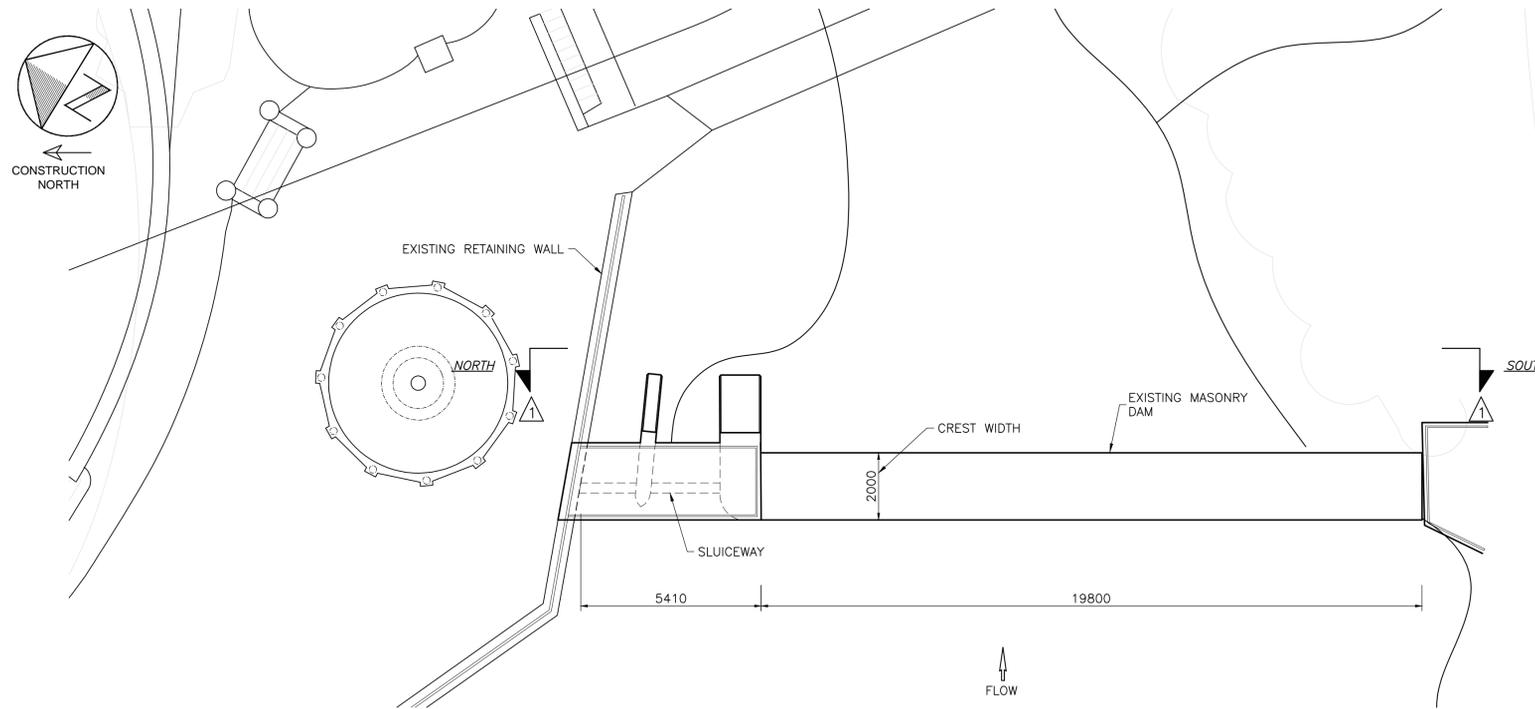
Scale 1:300  
0 2.5 5 10

**BELFOUNTAIN DAM AND HEADPOND**  
CREDIT VALLEY CONSERVATION

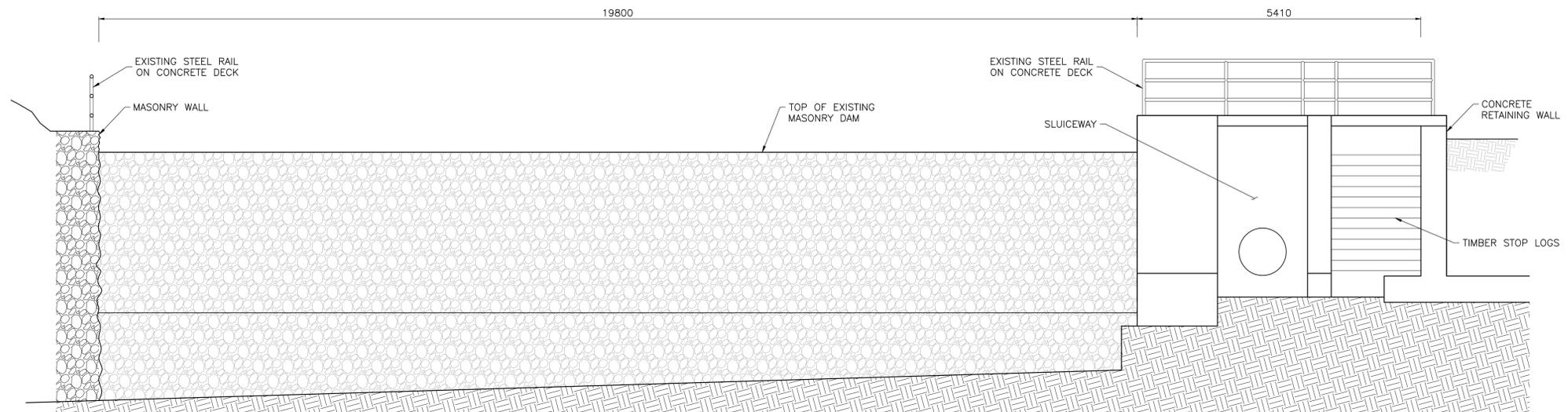
**PREFERRED ALTERNATIVE PRELIMINARY DESIGN**  
LANDSCAPE CONCEPT



Consultant File No. TP114113  
Sheet No. 5



**PLAN**  
SCALE 1:100



**EXISTING DAM EAST ELEVATION**  
SCALE 1:50

Plotted By: mariusz.eizenbart  
 Last Saved By: mariusz.eizenbart  
 Path: P:\Work\TP114113\st\dwg\Contract\TP114113-S1.dwg  
 2016-06-24  
 Last Saved: 2016-06-24

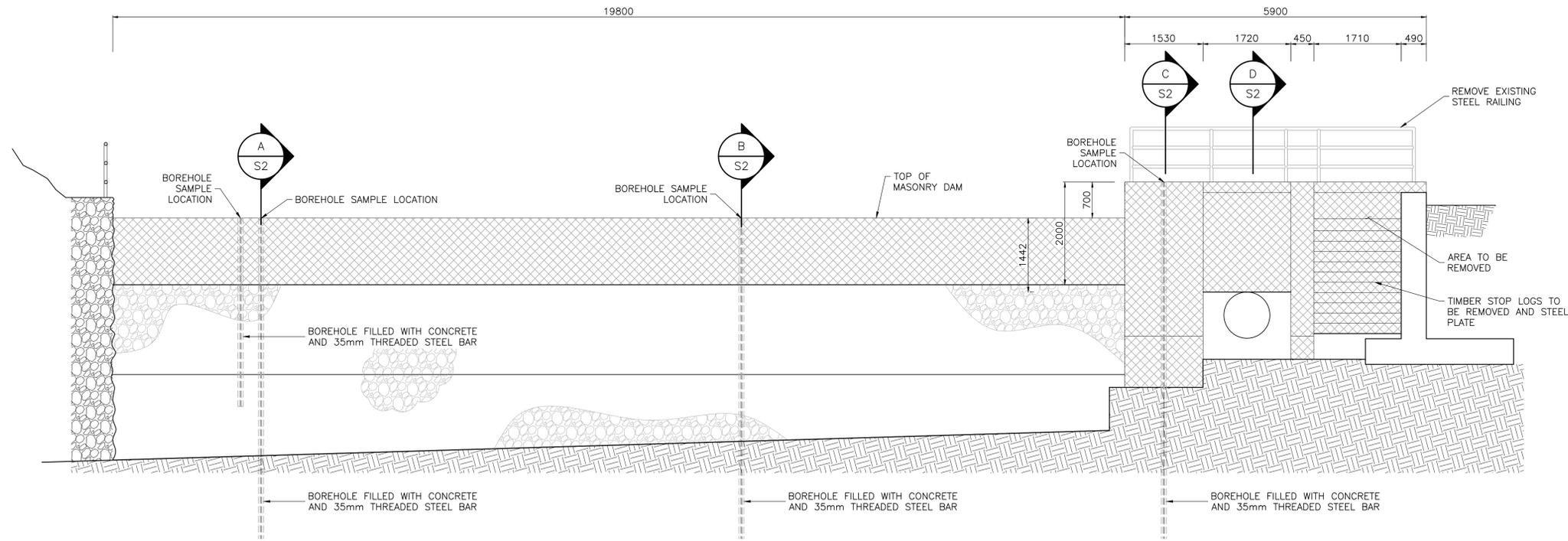
**PRELIMINARY**

**BELFOUNTAIN DAM AND  
HEADPOND  
CREDIT VALLEY CONSERVATION**

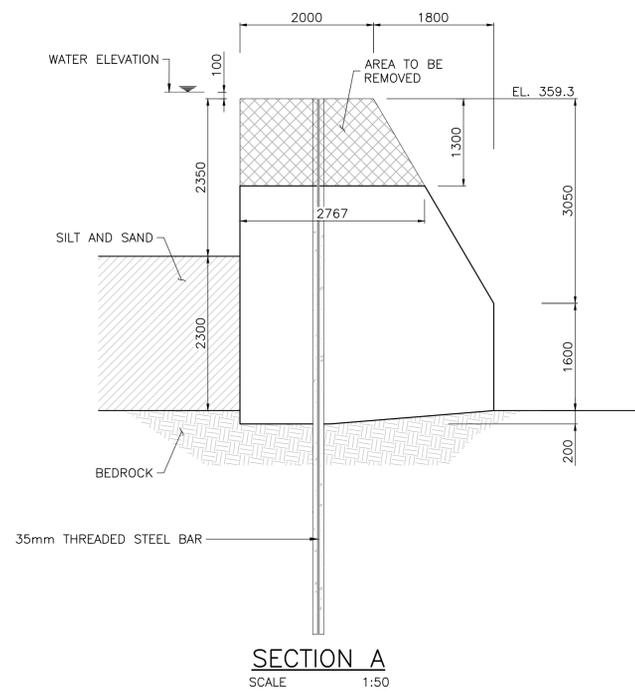
**PREFERRED ALTERNATIVE  
PRELIMINARY DESIGN  
DAM GENERAL ARRANGEMENT**



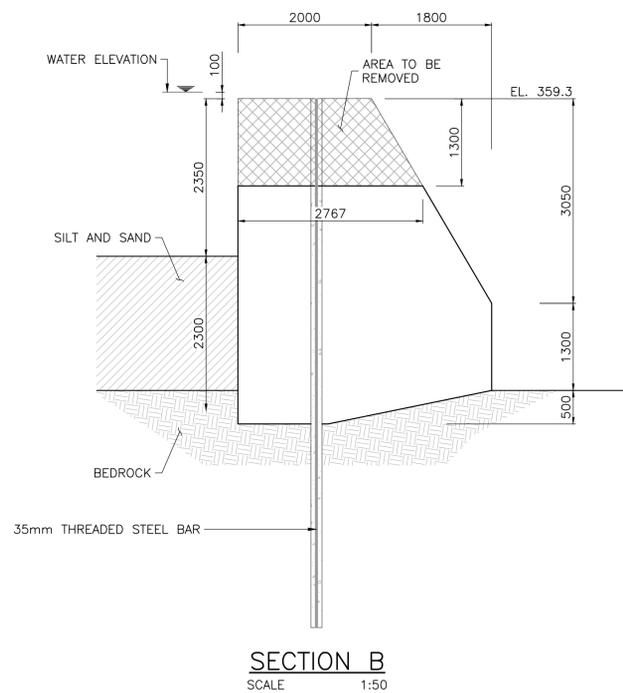
Contract No.  
 Consultant File No.  
**TP114113**  
 Drawing No.  
 SHEET **S1** OF **S3**



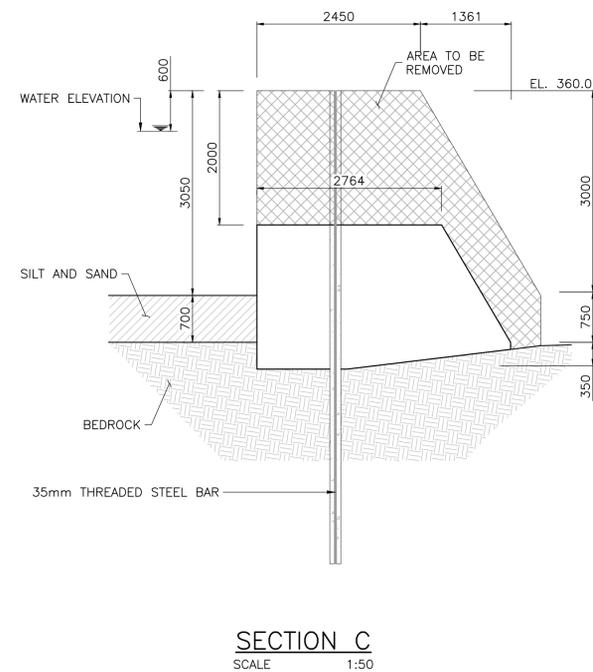
**DAM REMOVAL ELEVATION**  
SCALE 1:50



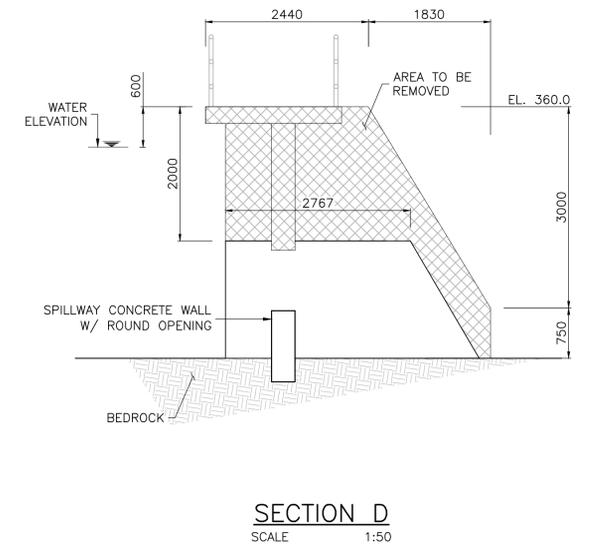
**SECTION A**  
SCALE 1:50



**SECTION B**  
SCALE 1:50



**SECTION C**  
SCALE 1:50



**SECTION D**  
SCALE 1:50

**PRELIMINARY**

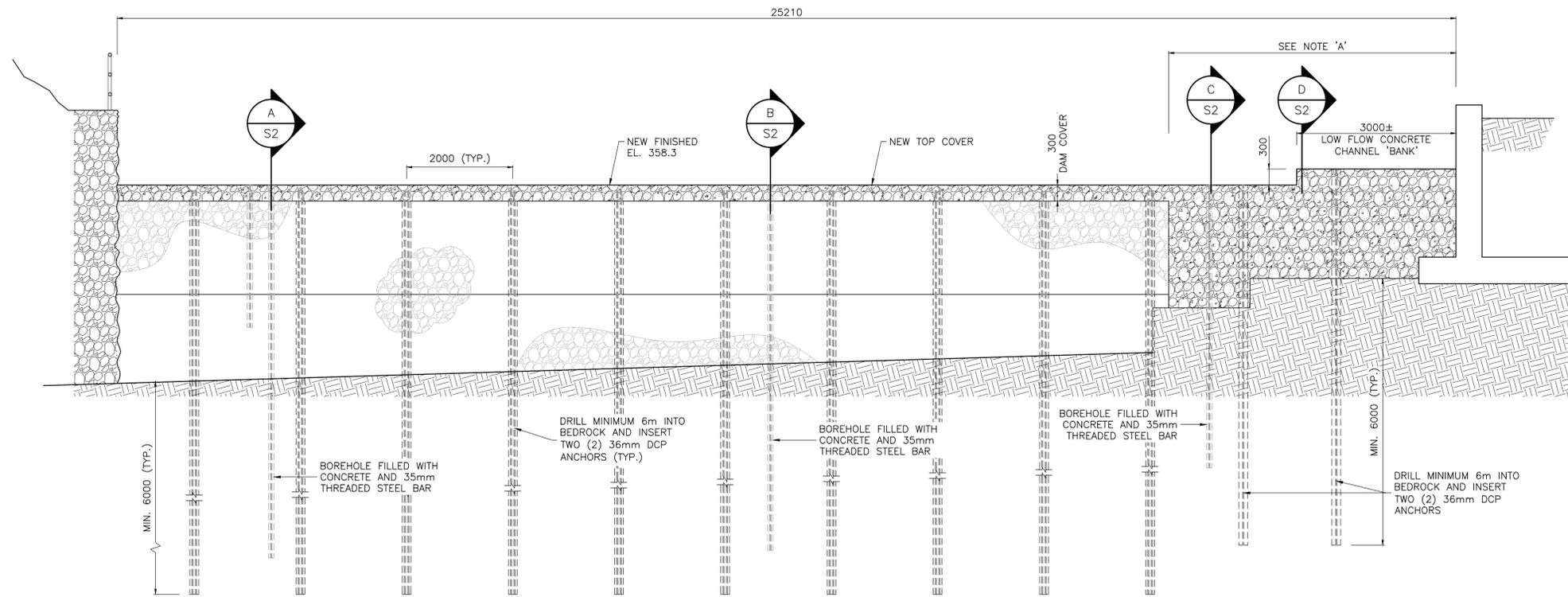
**BELFOUNTAIN DAM AND  
HEADPOND  
CREDIT VALLEY CONSERVATION**

**PREFERRED ALTERNATIVE  
PRELIMINARY DESIGN  
DAM REMOVAL DETAILS**



Contract No.  
Consultant File No.  
**TP114113**  
Drawing No.  
SHEET **S2** OF **S3**

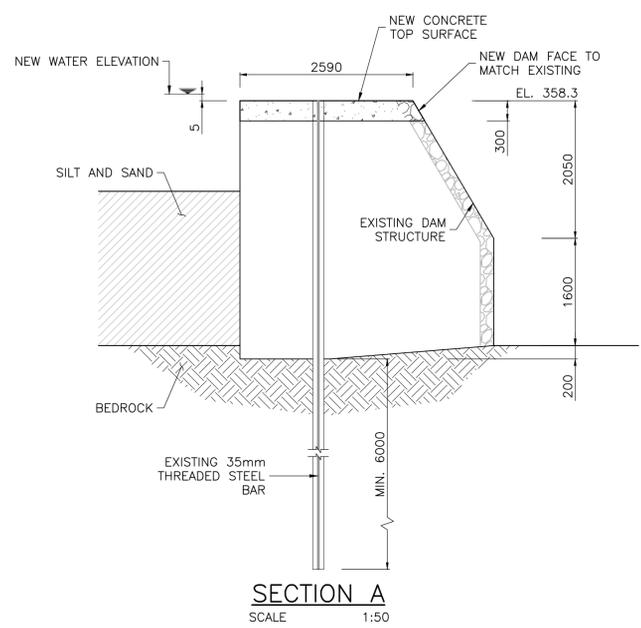
Plotted: 2016-06-24  
Last Saved: 2016-06-24  
Path: P:\Work\TP114113\st\dwg\Contract\TP114113-S2.dwg  
Plotted By: mariusz.izenbart  
Last Saved By: mariusz.izenbart



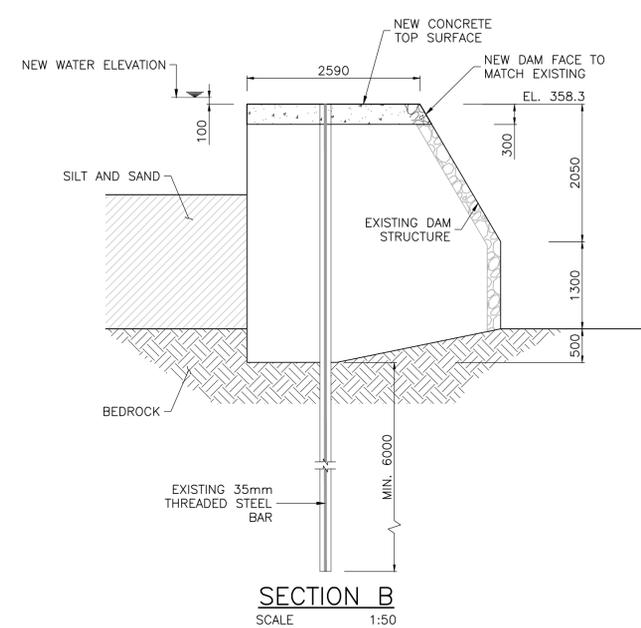
NOTE 'A': OPTION TO REINSTATE 'STEP' FALLS PER ORIGINAL 'MARK' DESIGN TO BE DETERMINED AT DETAILED DESIGN

**DAM REMOVAL ELEVATION**  
SCALE 1:50

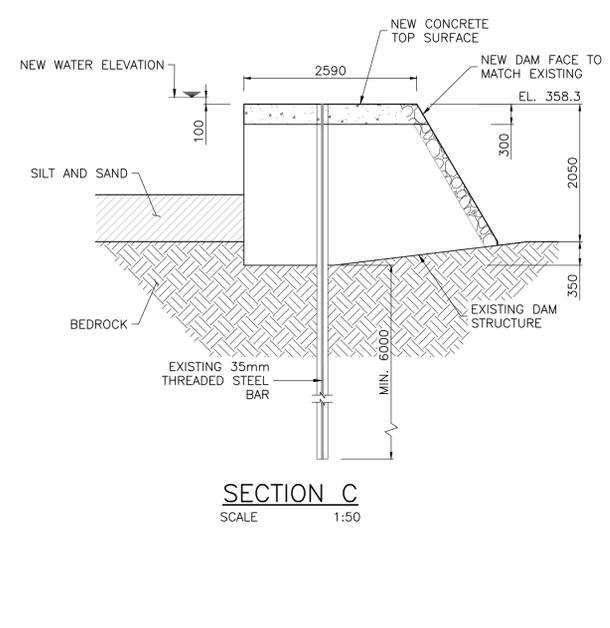
- LEGEND:**
- NEW CONCRETE
  - NEW DAM STONE FINISH
  - BEDROCK
  - EXISTING DAM STONE FINISH



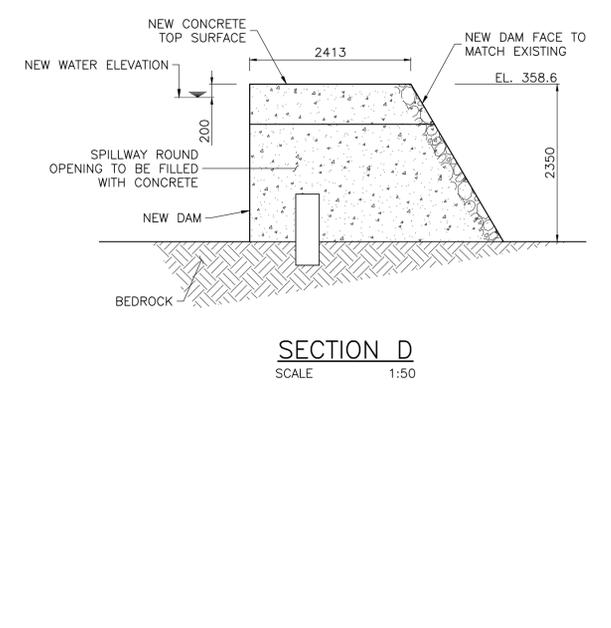
**SECTION A**  
SCALE 1:50



**SECTION B**  
SCALE 1:50



**SECTION C**  
SCALE 1:50



**SECTION D**  
SCALE 1:50

**PRELIMINARY**

**BELFOUNTAIN DAM AND HEADPOND**  
CREDIT VALLEY CONSERVATION

**PREFERRED ALTERNATIVE**  
**PRELIMINARY DESIGN**  
DAM REHABILITATION DETAILS



Contract No.  
Consultant File No. TP114113  
Drawing No. SHEET S3 OF S3

Plotted By: mariusz.eizenbart  
 Last Saved By: mariusz.eizenbart  
 Path: P:\Work\TP114113\st\dwg\Contract\TP114113-S3.dwg  
 2016-06-24  
 Last Saved: 2016-06-24