

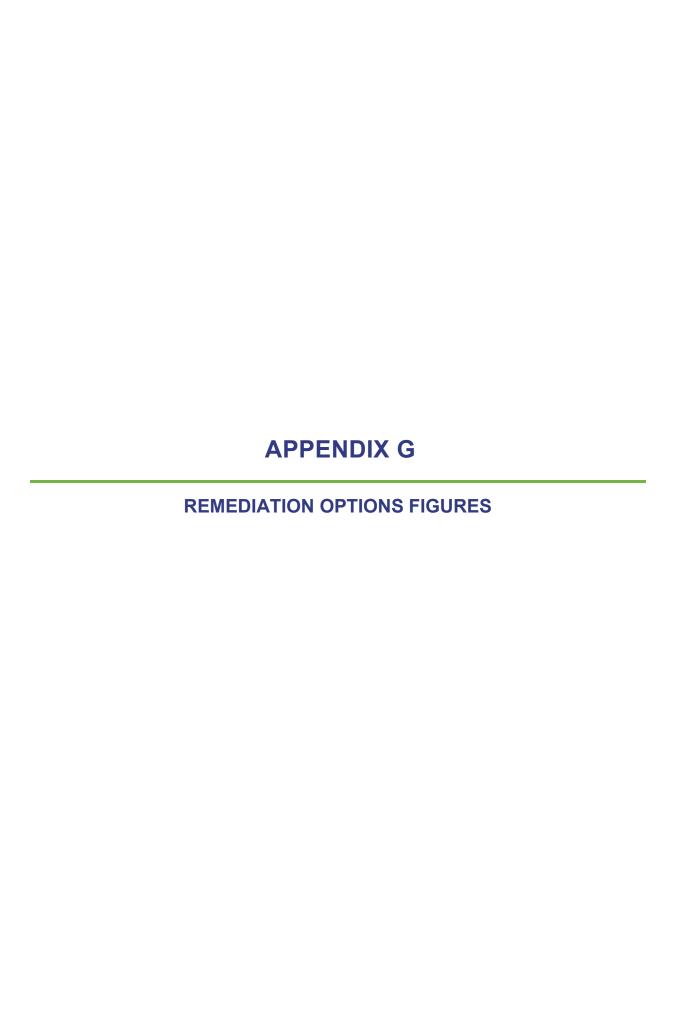
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CLERK - ADMINISTRATOR

EXISTING SITE PLAN 4383-S1



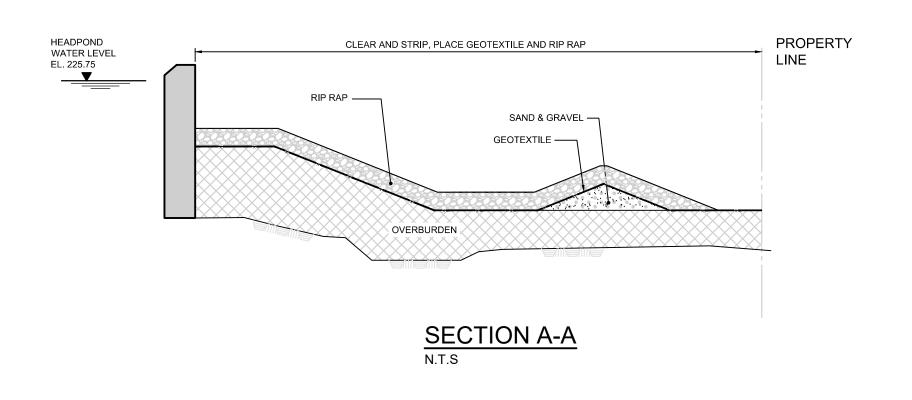
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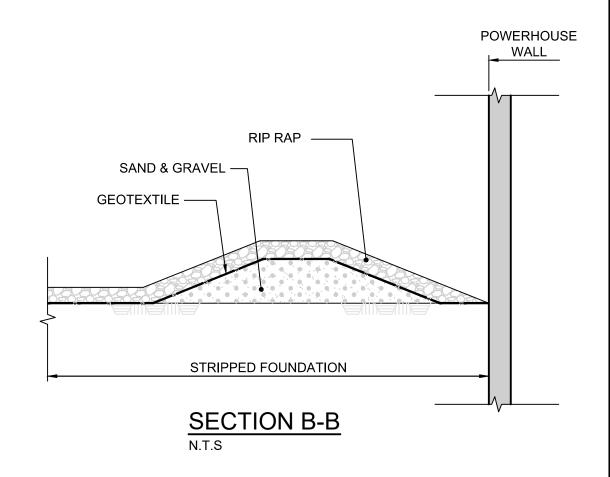
Α	2019-08-13	MA	ISSUED DRAFT FOR CLIENT REVIEW	
No.	DATE	BY	ISSUES / REVISIONS	



NON-OVERFLOW DAM SECTION
OPTION N1
UPGRADED DOWNSTREAM FILL
WITH TOE BERM - PLAN

CLIENT:	DRAWN BY:	CHECKED BY:	DES	IGNED BY:
TOWNSHIP OF	K. KORTEKAAS	E. GILES	G.	LIANG
MUSKOKA LAKES	APPROVED BY:	SCALE:	DATE:	
PROJECT:	G. LIANG	AS NOTED	2019-08-07	
BURGESS DAM 1		7.0		
	DRAWING No.			REVISION No.
DAM SAFETY ASSESSMENT	19-1493-C-01			Α





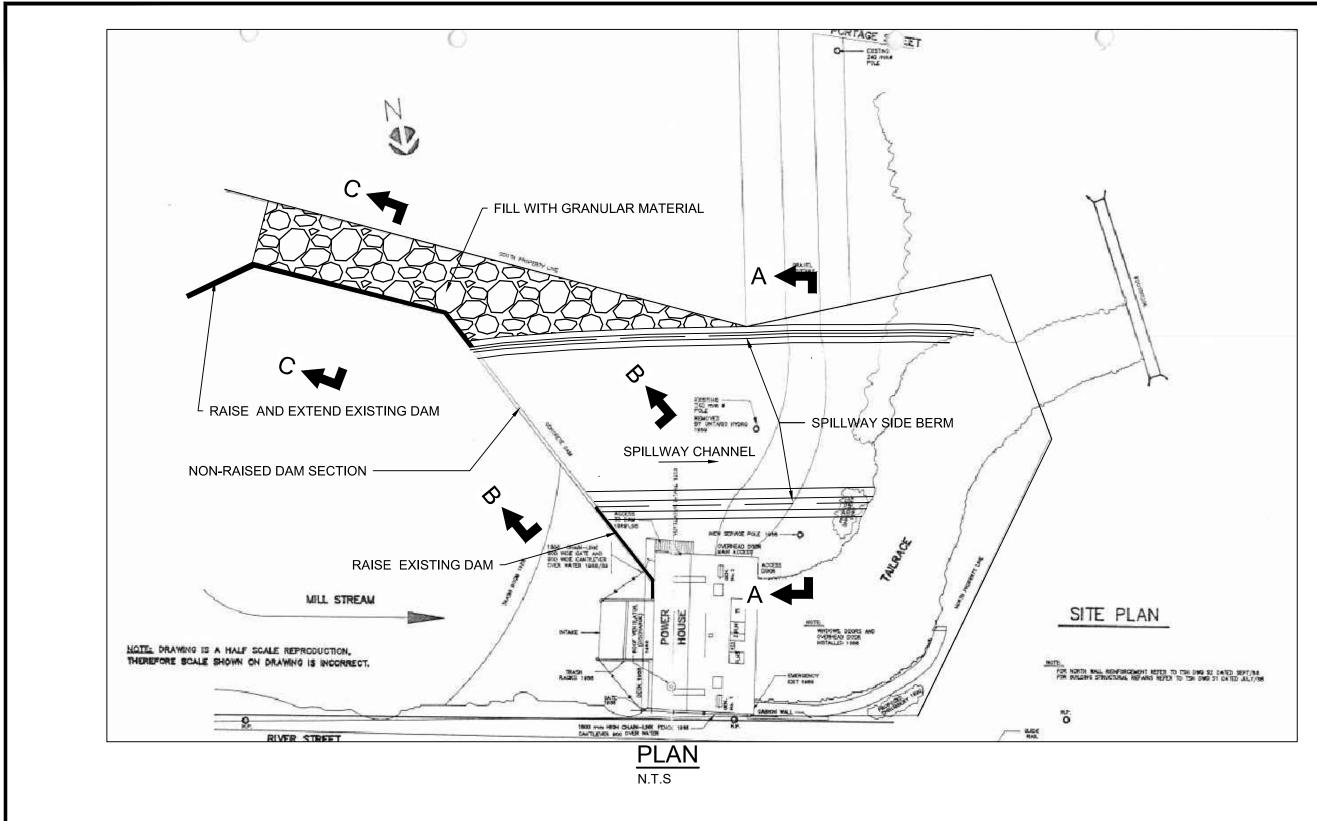
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No. DATE BY ISSUES / REVISIONS



NON-OVERFLOW DAM SECTION
OPTION N1
UPGRADED DOWNSTREAM FILL
WITH TOE BERM - SECTIONS

CLIENT:	DRAWN BY:	CHECKED BY:	DESIGNED BY:
TOWNSHIP OF	K. KORTEKAAS	E. GILES	G. LIANG
MUIO/(O)/A I AI/EO			
MUSKOKA LAKES	APPROVED BY:	SCALE:	DATE:
PROJECT:	G. LIANG	AS NOTED	2019-08-07
BURGESS DAM 1			
DURGESS DAWLI	DRAWING No.		REVISION No.
DAM SAFETY ASSESSMENT	19-1493-C-02		A



A 2019-08-13 MA ISSUED DRAFT FOR CLIENT REVIEW

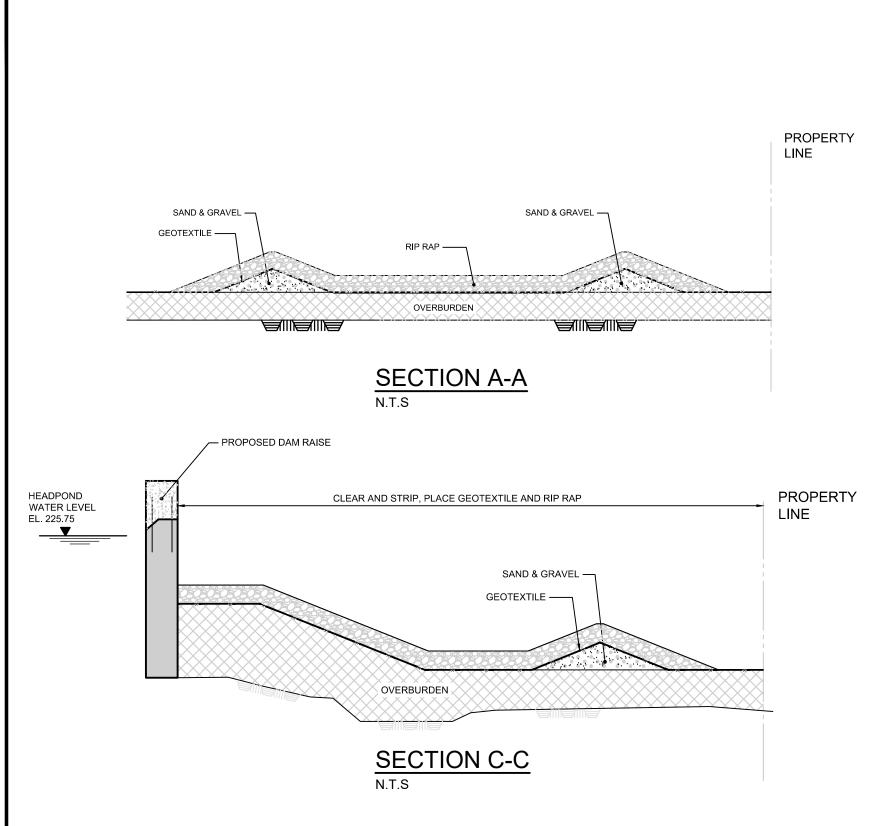
No. DATE BY ISSUES / REVISIONS



NON-OVERFLOW DAM SECTION
OPTION N2
UPGRADED DOWNSTREAM FILL
WITH SPILLWAY -PLAN

CLIENT:	DRAWN BY:	CHECKED BY:	DESIGNED BY:
TOWNSHIP OF	K. KORTEKAAS	E. GILES	G. LIANG
MUIOLOUA LALVEO			
MUSKOKA LAKES	APPROVED BY:	SCALE:	DATE:
PROJECT:	G. LIANG	AS NOTED	2019-08-07
BURGESS DAM 1			
DUNGESS DAIN I	DRAWING No.		REVISION No.
DAM SAFETY ASSESSMENT	19-1493-C-04	A	

ala Dam Safety Review∖_DRAWINGS∖191493-C-04 through C-05.dv



HEADPOND
WATER LEVEL
EL. 225.75

RIP RAP

GEOTEXTILE

SPILLWAY GRADE TO BE VERIFIED BY DETAILED SURVEY

SAND & GRAVEL FILL

SECTION B-B

N.T.S

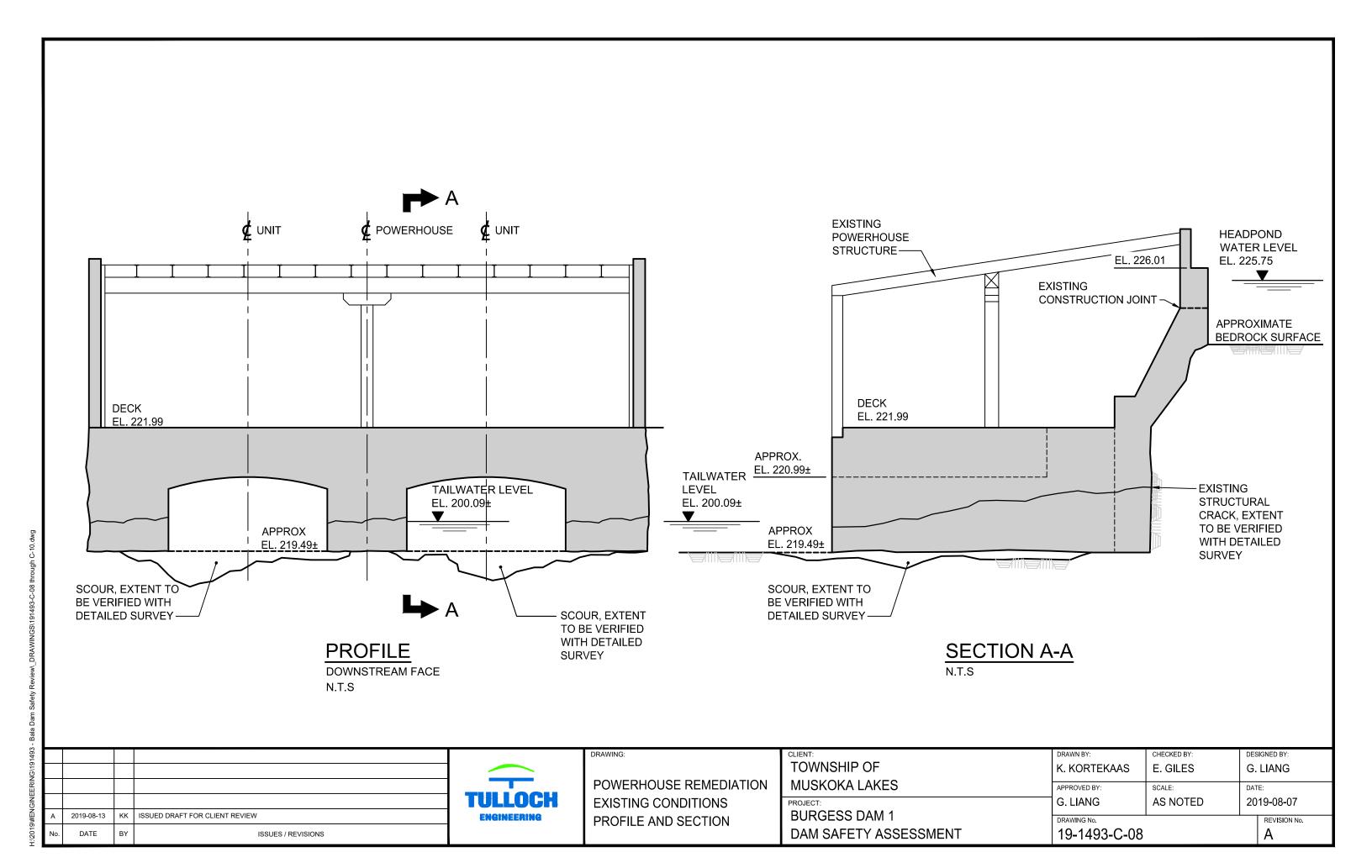
A 2019-08-13 KK ISSUED DRAFT FOR CLIENT REVIEW

No. DATE BY ISSUES / REVISIONS



NON-OVERFLOW DAM SECTION
OPTION N2
UPGRADED DOWNSTREAM FILL
WITH SPILLWAY - SECTIONS

CLIENT:	DRAWN BY:	CHECKED BY:	DES	IGNED BY:
TOWNSHIP OF	K. KORTEKAAS	E. GILES	G.	LIANG
MUSKOKA LAKES	APPROVED BY:	SCALE:	DATI	E:
PROJECT:	G. LIANG	AS NOTED	20	19-08-07
BURGESS DAM 1	DRAWING No.			REVISION No.
DAM SAFETY ASSESSMENT	19-1493-C-05		A	



SECTION A-A

N.T.S

Α	2019-08-13	KK	ISSUED DRAFT FOR CLIENT REVIEW
No.	DATE	BY	ISSUES / REVISIONS



POWERHOUSE REMEDIATION
OPTION P1
POWERHOUSE REMOVAL
SECTION

CLIENT:	DRAWN BY:	CHECKED BY:	DES	SIGNED BY:
TOWNSHIP OF	K. KORTEKAAS	E. GILES	G.	LIANG
MUSKOKA LAKES	APPROVED BY:	SCALE:	DAT	E:
PROJECT:	G. LIANG	AS NOTED	20	19-08-07
BURGESS DAM 1	DRAWING No.		'	REVISION No.
DAM SAFETY ASSESSMENT	19-1493-C-10			Α

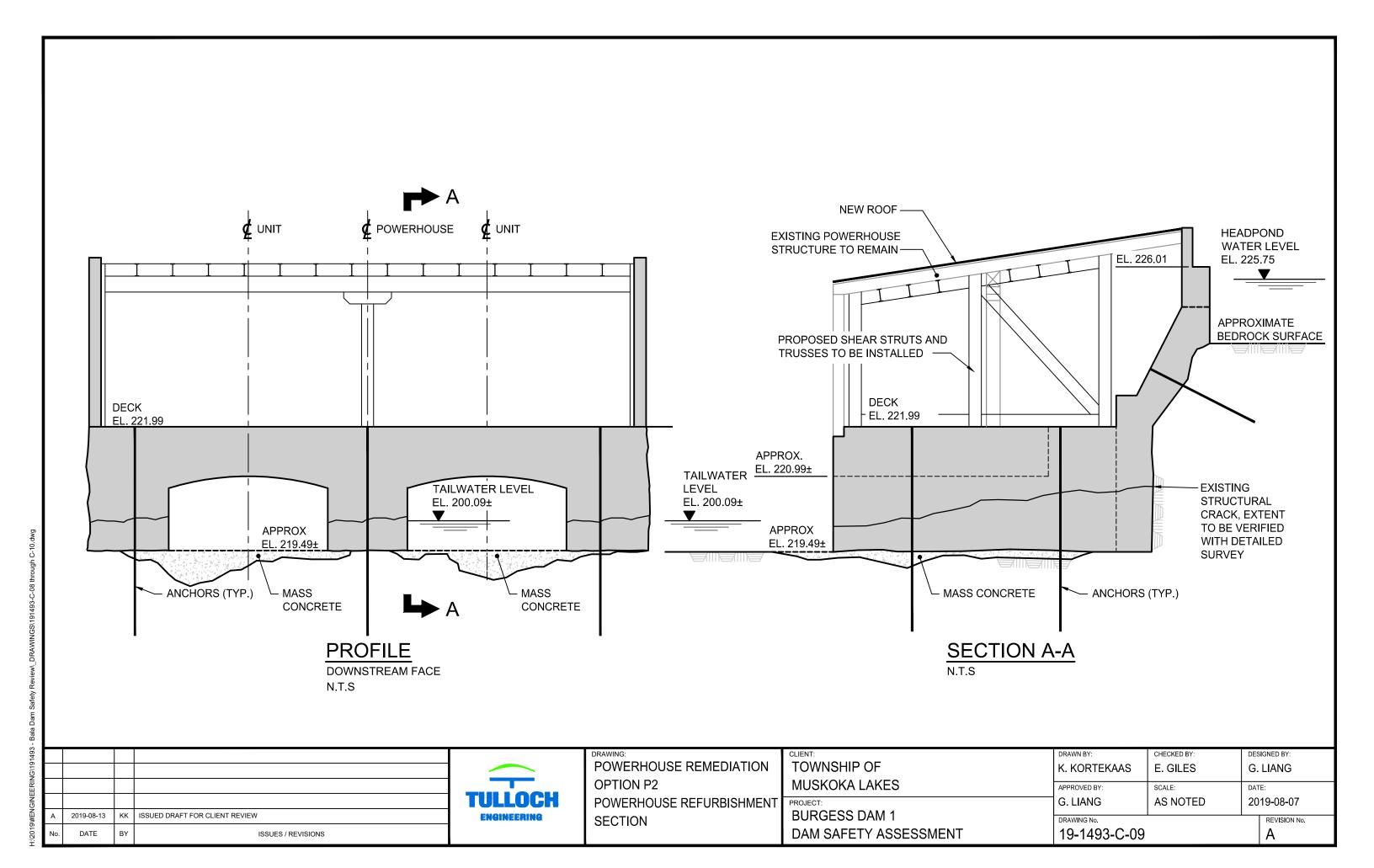




Table H-1: Burgess 1 Dam Repair Cost Estimate - Option N1: Downstream Rip Rap Placement and Toe Berm

Item	Description	Estimated	Unit	Unit Price	Total
item	Description	Quantity		(\$/Unit)	(\$)
1	Dam Rehabilitation				
1.1	Stripping	900	m2	\$15.00	\$13,500
1.2	Sand and Gravel	150	m3	\$50.00	\$7,500
1.3	Riprap/rockfill	330	m3	\$75.00	\$24,750
1.4	Geotextile	825	m2	\$7.00	\$5,775
1.5	Concrete (dam extension to the south end)	6	m3	\$1,000.00	\$6,000
1.6	Grouting existing dam cracks	40	LS	\$50,000.00	\$50,000
1.7	Anchor Φ25, 1m @ spacing 2m for dam raise	10	LS	\$5,000.00	\$5,000
2	Construction Access Road	1	LS	\$10,000.00	\$10,000
	Subtotal				\$122,525
Contingencie	es				
		40%			\$49,010
	Subtotal Contingencies Total Estimated Construction Cost				\$49,010 \$171,535

- Exclusions:
 -Third Party Construction Quality Assurance (CQA)
 Environmental, Engineering, Administration & Site Inspection
- Land acquisition
- Financing / IDC
- Owner's costs
- Bonding and Insurance

Table H-2: Burgess 1 Dam Repair Cost Estimate - Option N2: Partial Dam Raise and Emergency Spillway

Description	Estimated	Unit	Unit Price	Total
Description	Quantity		(\$/Unit)	(\$)
Dam Rehabilitation				
Stripping	1,500	m2	\$15.00	\$22,500
Sand and Gravel	550	m3	\$50.00	\$27,500
Riprap/rockfill	250	m3	\$75.00	\$18,750
Geotextile	675	m2	\$7.00	\$5,000
Concrete (dam extension to the south end and partial raise 0.5m)	14	m3	\$1,000.00	\$13,800
Grouting existing dam cracks	40	LS	\$50,000.00	\$50,000
Anchor Φ25, 1m @ spacing 2m for dam raise	35	LS	\$15,000.00	\$15,000
Construction Access Road	1	LS	\$10,000.00	\$10,000
Subtotal				162,550
es es				
Outros Out	40%			\$65,020
<u> </u>				\$65,020 \$227,570
	Stripping Sand and Gravel Riprap/rockfill Geotextile Concrete (dam extension to the south end and partial raise 0.5m) Grouting existing dam cracks Anchor Φ25, 1m @ spacing 2m for dam raise Construction Access Road Subtotal	Description Quantity Dam Rehabilitation 1,500 Stripping 1,500 Sand and Gravel 550 Riprap/rockfill 250 Geotextile 675 Concrete (dam extension to the south end and partial raise 0.5m) 14 Grouting existing dam cracks 40 Anchor Φ25, 1m @ spacing 2m for dam raise 35 Construction Access Road 1 Subtotal 1 Subtotal Subtotal Contingencies 40%	Description Quantity	Description Quantity (\$/Unit)

- Exclusions:
 -Third Party Construction Quality Assurance (CQA)
- Environmental, Engineering, Administration & Site Inspection
- Land acquisition
- Financing / IDC
- Owner's costs
- Bonding and Insurance

Table H-3: Burgess 1 Dam Repair Cost Estimate - Option P1: Demolish Powerhouse and Replace with New Dam

Item	Description –	Estimated	Unit	Unit Price	Total
item	Description	Quantit			(\$)
1	Powerhouse Removal				
1.1	D/s and u/s Coffer Dam	1,000	m2	\$500.00	\$500,000
1.2	Removal of Powerhouse/Decommisioning	1	L. S	\$150,000.00	\$150,000
1.3	Removal of the old dam concrete (dam section)	130	m3	\$1,000.00	\$130,000
2	Build New Dam Section				
2.1	New concrete dam section (ONLY, No powerhouse)	55	m3	\$10,000.00	\$550,000
3	Construction Access Road	1	LS	\$10,000.00	\$10,000
4	Right Bank Concrete Retaining wall				
4.1	Drill Drainage holes	1	LS	\$5,000.00	\$5,000
4.2	Excavate Drainage Ditch	1	LS	\$1,000.00	\$1,000
4.3	Granular Material lined Ditch	25	m3	\$50.00	\$1,250
	Subtotal				1,346,000
Contingend	ies				
		40%			\$538,400
	Subtotal Contingencies Total Estimated Construction Cost				\$538,400 \$1,884,400

Exclusions:

- -Third Party Construction Quality Assurance (CQA)
- Environmental, Engineering, Administration & Site Inspection
- Land acquisition Financing / IDC
- Owner's costs
- Bonding and Insurance

Table H-4: Burgess 1 Dam Repair Cost Estimate - Powerhouse Option P2: Powerhouse Refurbishment and Reinforcement

		T	_		August, 2013
Item	Description	Estimated	Unit	Unit Price	Total
iteiii	Description	Quantity		(\$/Unit)	(\$)
I	Powerhouse Retrofit				
1.1	Mass Concrete to fill the undermine area of the powerhouse foundation	30	m3	\$2,500.00	\$75,000
1.2	Foundation Grouting	36	LS	\$50,000.00	\$50,000
1.3	Anchorage the existing concrete slab to bedrock, Φ36mm, 8m long with 6m in rock	1	LS	\$50,000.00	\$50,000
1.4	New powerhouse roof	1	LS	\$100,000.00	\$100,000
1.5	Additional frame and column for powerhouse structure	1	LS	\$50,000.00	\$50,000
1.6	Dam Crack grouting repair	40	m2	\$1,000.00	\$40,000
2	Construction Access Road	1	LS	\$10,000.00	\$10,000
3	Right Bank Concrete Retaining wall				
3.1	Drill Drainage holes	1	LS	\$5,000.00	\$5,000
3.2	Excavate Drainage Ditch	1	LS	\$1,000.00	\$1,000
3.3	Granular Material lined Ditch	25	m3	\$50.00	\$1,250
	Subtotal				\$382,250
Contingend					4002,200
		40%			\$152,900
	Subtotal Contingencies				\$152,900
	Total Estimated Construction Cost				\$535,150

- Exclusions:
 -Third Party Construction Quality Assurance (CQA)
 Environmental, Engineering, Administration & Site Inspection
- Land acquisition
- Financing / IDC
- Owner's costs
- Bonding and Insurance

APPENDIX I NOTICE TO READER

NOTICE TO READER

This report has been prepared by TULLOCH Engineering Ltd. ('TULLOCH') for the sole and exclusive use of the Township of Muskoka Lakes. (the 'Client') to provide analysis with respect to the safety and preliminary remediation of the Burgess 1 Dam located in the Town of Bala, Ontario between Portage and River Street on Bala Bay, (The Site) This report pertains to the above referenced project and site, only, and shall not be used for any other purpose, or provided to, relied upon or used by any third party without the express written consent of TULLOCH.

If this report was prepared to support regulatory compliance, then the Client may authorize its use by the Regulatory Agency as an approved user provided this report is marked "Issued for Use" by TULLOCH, is stamped by a licenced Engineer, and is relevant to the specific project for which a review is being done.

TULLOCH has prepared this report with the degree of care, skill and diligence normally provided by engineers in the performance of comparable services for projects of similar nature subject to the time limits and physical constraints applicable to this work. No other warranty expressed or implied is made. This report contains opinions, conclusions and recommendations made by TULLOCH using professional judgment and reasonable care for the purpose of foundation engineering for the Development. Use of or reliance on this report by the Client is subject to the following conditions:

- a) the report being read in the context of and subject to the terms of the Engineering Services Agreement for the Work (see Proposal #19-0001-179), including any methodologies, procedures, techniques, assumptions and other relevant terms or conditions specified or agreed therein;
- b) the report being read in its entirety. TULLOCH is not responsible for the use of portions of the report without reference to the entire report;
- c) the conditions of the site may change over time or may have already changed due to natural forces or human intervention, and TULLOCH takes no responsibility for the impact that such changes may have on the accuracy or validity of the observations, conclusions and recommendations set out in this report;
- d) the report is based on information made available to TULLOCH by the Client or by certain third parties; and unless stated otherwise in the Engineering Services Agreement for the Work, TULLOCH has not verified the accuracy, completeness or validity of such information, makes no representation regarding its accuracy and hereby disclaims any liability in connection therewith.

APPENDIX C CHER and Archeology Reports

CULTURAL HERITAGE EVALUATION REPORT Burgess Dam 1 Safety Assessment Part Lot 14, Concession A, Medora Township, Township of Muskoka Lakes, District Municipality of Muskoka

Submitted to: Tulloch Engineering

Erik Giles 80 Main Street West Huntsville, Ontario P1H 1W9

Phone: 705 489 7851 e-mail: erik.giles@tulloch.ca

Prepared By:

Horizon Archaeology Inc. 220 Chippewa St. W. North Bay, ON P1B 6G2

Phone: (705) 474-9864 E-mail: slattery@vianet.ca

Date: June 15, 2020 Type of Report: Original

EXECUTIVE SUMMARY

Horizon Archaeology Inc. was contacted by Tulloch Engineering to conduct a Cultural Heritage Evaluation Report of the proposed rehabilitation of the Burgess Dam. This report describes the methodology and results of the Cultural Heritage Evaluation Report which took place on May 06, 2020. This assessment was undertaken in order to recover and assess the cultural heritage value or interest of the bridge within the project boundaries.

Horizon Archaeology Inc. was engaged by the proponent to undertake a Cultural Heritage Evaluation Report of the study area and was granted permission to carry out the assessment and site visit. This included a property inspection to observe the current conditions. Due to this assessment taking place during the Covid-19 pandemic, local sources such as libraries, archives and museums were not available for consultation. As such all research was conducted using online sources. Further information would not change the results of the Cultural Heritage Evaluation Report

The Burgess Dam, constructed in 1917, provided power to Bala, MacTier and Port Carling. The outside facade of the dam has not been altered, except for new windows. The inside has been altered to allow for modern safety standards as well as energy needs. One of the original William Hamilton turbines is located within the Burgess Dam, bu it is unknown if it is still functional.

As the Burgess Dam meets the criteria for being included in the register, it is recommended that the Burgess Dam be added to the Ontario Heritage Act Register. The structure's facade or shell should be preserved if possiblebut the interior has already been altered beyond any historic or cultural value. Additionally, the William Hamilton turbine should be preserved if possible, either in place or somewhere which might be able to use it.

TABLE OF CONTENTS

1.0	PROJECT CONTEXT	1
	1.1 Objectives	1
	1.2 Development Context	1
	1.3 Location	1
2.0	METHOD	1
3.0	HISTORICAL BACKGROUND	3
4.0	ANALYSIS	5
5.0	RECOMMENDATIONS	7
6.0	BIBLIOGRAPHIC SOURCES	8
7.0	MAPS	10
8.0	HISTORIC DOCUMENTS	12
9.0	FIGURES	14
APP	PENDIX	20

Cultural Heritage Evaluation Report of the Burgess Dam

Maps

1 2	Regional map showing the location of the Burgess Dam Location of the Burgess Dam within Bala	10 11
	Historic Documents	
1 2	Photograph of the Burgess Dam in 1917 Section of the 1831 Andrew Shirreff Map showing the Bala area	12 12
3	Segment of the 1869 Crown Lands Map	13
4	Segment of the 1879 map from the Historic Atlas of Muskoka	13
	Figures	
1	West facade of the Burgess Dam from River Road	14
2	West facade of the Burgess Dam from the south shore of the Mill Stream	14
3	Southern side of the Burgess Dam from Portage Road	15
4	East side of the Burgess Dam which abuts the hydro pond	15
5	North side of Burgess Dam	16
6	Roof of Burgess Dam	16
7	Interior of Burgess Dam, looking north	17
8	Interior of Burgess Dam, facing east	17
9	Interior of Burgess Dam, facing south	18
10	Interior of Burgess Dam, facing west	18
11	New windows in west facade	19
12	Original William Hamilton turbine	19

1.0 PROJECT CONTEXT

1.1 Objectives

The objective of the Cultural Heritage Evaluation Report (CHER) is to establish the cultural heritage value or interest of the property area. Any built heritage, cultural landscape or bridge can be subject to a CHER study.

1.2 Development Context

Under a contract awarded in Spring 2020, Horizon Archaeology Inc. carried out a Cultural Heritage Evaluation Report to determine the potential cultural heritage significance of the Burgess Dam Hydro-Electric Dam. Burgess Dam is located on Part Lot 14, Concession A, Township of Medora, now part of the Township of Muskoka Lakes, District Municipality of Muskoka . The project was conducted under contract to Tulloch Engineering as part of their Class Environmental Assessment Study.

Due to the Global Covid-19 pandemic some sources were not available. Due to the shut down of many places, the Archives of Ontario and the Bala Museum were unavailable as research aids. As such, more information may become available if and when the Covid-19 pandemic comes to an end. While more information is always invaluable, it would not change the outcome of the present study.

1.3 Location

The Burgess Dam Hydro-Electric Dam is located on Part Lot 14, Concession A, Township of Medora, now part of the Township of Muskoka Lakes, District Municipality of Muskoka.

2.0 METHODOLOGY

The present study was designed to examine individually, and as a whole, the heritage elements of the bridge and those of the surrounding landscape, as well as the relationship between the subject bridge and other structures in the region. Data collection was based on historical research and a field assessment of the study area. Background information was gathered from the local archives, the land registry and/or local history collections at the public library. Where possible, further information was obtained from the Ministry of Tourism, Culture and Sport. Historical research was followed by field investigations in which photographic documentation, site analysis and evaluations were carried out.

The identification of cultural heritage resources within the study area is based on the following definitions and concepts:

Heritage value:

• "the aesthetic, historic, scientific, cultural, social or spiritual importance or significance for past, present or future generations. The *heritage value* of a *historic place* is embodied in its character-defining materials, forms, location, spatial configurations, uses and cultural associations or meanings" (Standards and Guidelines for the Conservation of Historic Places in Canada 2003).

Cultural Heritage Landscape:

- "any geographical area that has been modified, influenced, or given special cultural meaning by people" (Parks Canada Guiding Principles and Operational Policies 1994)
- "a defined geographical area of heritage significance which has been modified by human activities and is valued by a community. A landscape involves a grouping(s) of individual heritage features such as structures, spaces, archaeological sites and natural elements, which together form a significant type of heritage form, distinctive from that of its constituent elements or parts. Examples may include but are not limited to, heritage conservation districts designated under the Ontario Heritage Act; and villages, parks, gardens, battlefields, mainstreets and neighbourhoods, cemeteries, trailways and industrial complexes of cultural heritage value" (Provincial Policy Statement 2005).

Built Heritage Feature:

• "one or more *significant* buildings, structures, monuments, installations or remains associated with architectural, cultural, social, political, economic or military history and identified as being important to a community. These resources may be identified through designation or heritage conservation easement under the Ontario Heritage Act, or listed by local, provincial or federal jurisdictions" (**Provincial Policy Statement** 2005).

This document is supported by the guidelines and policies provided by the following:

- the **Ontario Heritage Act** (R.S.O. 1990)
- the Ontario Planning Act (R.S.O. 1990) and the Provincial Policy Statement (Ministry of Municipal Affairs and Housing 2005)
- The Environmental Assessment Act (R.S.O. 1990)
- Ontario Heritage Bridge Guideline (Ministry of Transportation and Communications & Ministry of Culture, 1983, revised 1991)
- Ontario Heritage Bridge Guidelines for Provincially-Owned Bridges (Interim)
 Bridge Evaluation and Scoring Form (Ministry of Culture and Ministry of Transportation, 2008)
- Ministry of Transportation, Environmental Reference for Highway Design (2006)
- Environmental Guide for Built Heritage and Cultural Heritage Landscape (2007)

The Evaluation of Built Heritage and Cultural Landscapes

Criteria for the identification and evaluation of a cultural heritage site are subject to the following values. These values form the basis for assigning heritage significance to a site.

- association with an historic event or person
- architectural, artistic or cultural meaning
- context, siting, landmark status
- original materials and workmanship
- areas of natural or cultural landscapes

The generally accepted and approximate age for the preliminary identification of cultural heritage resources is forty years. However, this does not necessarily exclude resources less than forty years in age that demonstrate significant heritage value or design significance.

3.0 HISTORICAL RESEARCH

Due to the Global Covid-19 pandemic some sources were not available. Due to the shut down of many places, the Archives of Ontario and the Bala Museum were unavailable as research aids. As such, more information may become available if and when the Covid-19 pandemic comes to an end. As such research was done using sources available online or within the author's files. Further research would, however, not change the recommendations and findings of this study.

Various families of the Mnjikaning First Nations from Rama on Lake Couchiching, such as the Bigwin family, the Yellowhead family, the Menominee family, as well as members of the Muskoka band, and a number of families from Lake Rosseau lived and exploited resources in northern Muskoka in the 19th Century. The area was used for farming, trapping, trading, and red ochre was gathered from Paint Lake. Guides from Mnjikaning were in great demand for 19th and early 20th Century Euro-Canadian hunters, trappers, and tourists in Muskoka, owing to their familiarity with the area.

The Bigwin Family as part of their traditional seasonal rounds had a summer settlement and farmland at what is now Dorset and Bigwin Island on Lake of Bays southeast of the project area. Bigwin Island was also the site of a burial ground (ASI 1994b: 3-8, Table 1). They also had a sugar bush located in what is now Ridout Township (ASI 1994b: 11). The Yellowhead family exploited an area from Lake of Bays to Lake Muskoka, and had a settlement at Bracebridge (ASI 1994b: 8). The M'ngikaning family had a settlement around Paint Lake to the south of Lake of Bays which was also a source of red ochre (ASI 1994b: Figure 7).

Lake Rosseau families considered Brunel Township an important fall and winter hunting ground with two to three families living there during those seasons. They also utilised the

area north of Fairy and Peninsula Lakes to hunt beaver, however there were no permanent settlements, as these were located at Obagawanung / Port Carling (ASI 1994b: 3-8, 14 Table 1).

The Menominee family lived and exploited an area that was bordered on the east by Lake of Bays, Mary Lake on the west, and Lakes Vernon, Fairy and Peninsula on the north. Menominee had a farm on Menominee Lake to the southwest of Lake of Bays. There was also a small settlement on Menominee Point, on the southeast corner of Lake Vernon. The territory was abandoned by the early 1870's and the family joined the Muskoka Band on Parry Island (ASI 1994b: 3-7, Table 1, Figure 10).

Muskoka has been known for its holiday resorts, and cottage life almost from the beginning of Euro-Canadian settlement. The first resorts in Muskoka opened in the 1870's, focussing on Lakes Muskoka, Rosseau, and St. Joseph, and accessed via railway or steamship. Lack of access to northern Muskoka meant that the first resorts did not begin operation until nearly twenty years after, with the arrival of the railway. Deerhurst Resort on Lake of Bays, constructed in 1896 was the first large resort in northern Muskoka. While few new resorts were opened after World War I in southern Muskoka, a number of resorts on some smaller lakes north of Huntsville were built, focussed not on railways but rather on automobiles being used to access the resort properties (ASI 1994a: 107-8).

While early descriptions of the land available for settlement presented the conditions for farming in glowing terms, many early settlers abandoned their agricultural pursuits first for jobs in the lumber industry, then for employment in the growing tourist trade.

The Bala area was first explored in 1829 by Alexander Shirreff. Two years later he wrote a report about his expedition, in which he mentions a 16 to 20 foot high falls at the outlet of Muskoka Lake. In 1853 J.W. Bridgland surveyed the area and reported that the region was destitute of everything to make settlement desirable (ASI 2008: 11).

The baseline survey of Medora Township was completed in 1865 by surveyor S. James. The interior lots were laid out by Thomas Bryne four years later in 1869. It was also in 1869 that Medora Township received its name. It is believed to be named after Calcina Medora Buell, daughter of Norton Buell of Brockville and wife of Toronto lawyer Alexander Cameron. She was also the niece of Stephen Richards, the Commissioner of Crown Lands from 1867 to 1871. In the early 1870s Medora and Humphrey Township were joined for administrative purposes, and had a combined population of 582 inhabitants living in 120 dwellings, with two under construction (ASI 2008: 12).

The first settler to Bala was Thomas Burgess, who arrived in 1868. He had travelled by boat from Belle Ewart to Washago and then by stage coach or foot to Gravenhearst. He then took a boat to the Bala area and stopped at an abandoned lumber camp. He obtained a Crown Land Grant for 1000 acres (404.686 hectares) and settled on the land between

what is now known as Bala Bay and Lake Muskoka (MHBC 2014: 9). He constructed a sawmill at the rapids, now known as the Mill Stream. The settlement at Bala was first known as Musquosh Falls and then Muskoka. The post office opened in 1870, with Thomas Burgess acting as postmaster. He held that post until 1900 when he retired. In 1871 it was renamed Bala, after Bala Lake in Wales (ASI 2008: 16). In Welsh, the word Bala means 'the place of the river out flowing to a lake' (MHBC 2014:9). The first plan of subdivision for Bala was surveyed for Burgess in 1890 with the community developing around Lot 15, Concession A. In 1914 Bala was incorporated as a town with Dr. A.M. Burgess, son of Thomas Burgess, acting as the first mayor (ASI 2008: 16). In 1873 Bala contained 30 inhabitants, with a school, hotel, post office, general store, blacksmith shop, mill and three churches.

In 1902 Thomas Burgess died and the sawmill was taken over by his son, Thomas Burgess Junior. The sawmill closed in 1910 (Historica Research Limited 2009: 22). In 1916 Thomas Burgess' other son, Dr. Alexander Burgess, formed the Bala Electric Light and Power Company. The company purchased the mill stream and mill site and built the Burgess Dam in 1917 (ASI 2008: 17). When it was constructed the structure operated a small, 245 kilowatt generating station. The two turbines were horizontal shaft, Francis-type turbines built by William Hamilton and each rated as 160 horsepower (Historica Research Limited 2009: 23). The William Hamilton Company was incorporated in 1883 but existed as early as 1873. They were in business until approximately 1920. The company was based out of Peterborough and made parts for foundries, mills and engine parts (Jeff Joslin 2020).

In 1929 the generating station was acquired by Ontario Hydro at which time it served 99 customers. The station was retired in 1957 due to the high operating costs and repair needs. The building and dam were transferred to the Town of Bala in 1962 (ASI 2008: 18). The Township of Muskoka Lakes passed By-law #84-109 on September 24, 1984. This by-law designated the Burgess Dam as historically significant under the Ontario Heritage Act. This was due to its supplying of power to Port Carling, Bala and the MacTier area as well as it being situated on the original inlet race of the town's first sawmill which runs through the centre of the community. In 1986 the Township of Muskoka Lakes passed by-law #86-182 which repealed the by-law which designated the Burgess Dam as historically significant. This was due to the Burgess Dam being reestablished as an electric power producing facility, or the structure being moved should it be unable to be reused. In 1989 the generating station was purchased and restored by a corporation which sells its power back to Ontario Hydro.

4.0 ANALYSIS

The Burgess Dam Hydro-Electric Dam is located on Part Lot 14, Concession A, Township of Medora, now part of the Township of Muskoka Lakes, District Municipality of Muskoka. The dam structure is 14m in length, and 9m wide. It was constructed in 1917 and operated a small, 245 kilowatt generating station. The two turbines were

horizontal shaft, Francis-type turbines built by William Hamilton and each rated as 160 horsepower (Historica Research Limited 2009: 23).

The outside of the structure appears to not have changed since its construction in 1917 (**Figures 1-6, Image 1**). However, the interior has been updated (**Figures 7-11**), probably to bring it up to modern safety and energy standards. However, one of the original Francis-type turbines built by William Hamilton is still located within the structure, although it is unknown if it us functioning or simply sitting in place (**Figure 12**).

The evaluation criteria for determining cultural heritage value or interest is found in O.G. Regulation 9/06 and O.G. Regulation 10/06 of the Ontario Heritage Act (RSO 1990). Under O.G. Reg 9/06 the criteria for determining the cultural heritage value or interest lists three areas under which a heritage property/structure may be designated. These three areas are: design or physical value, historic or associative value, and contextual value. If the property meets any one of these criteria it may be entered into the heritage.

The Burgess Dam contains all three criteria required to be entered into the heritage register. It is one of three hydro electric dams which were constructed in Bala, and the last of which to be built. However, this was due to the sawmill still being in use by Thomas Burgess Jr until 1910. The other two dams, the North Dam and the South Dam both were constructed in the mid 1870s but have been replaced since their initial construction. They were both replaced in 1958. Despite the replacements, when completing their Heritage Impact Assessment, Historica Research Limited concluded that "The Bala Falls area extending from the park on the south shore of the Muskoka River to the park on the north side is a distinct cultural heritage landscape of water management, power generation, tourism, and transportation. An extension of this landscape includes the Mill Stream Channel" (Historica Reseach Limited 2008: 27). The Burgess Dam also appears on the Ontario Heritage Trust's Ontario Heritage Act Register, although a by-law removed it in 1986 as it was re-established as a functioning dam.

In terms of O.G. Regulation 9/06 of the Ontario Heritage Act, the Burgess dam contains design or physical value as research has not been able to find a hydro dam of a similar age and situation. This small family built dam is unlike the other two large scale dams nearby, which were government projects. As such it can be viewed as a unique and representative of a possible "cottage industry" of hydro dam building, similar to the construction of early mills in the New World. This property also contains historical value, as it was constructed on the site of the sawmill, owned by the first settler and founder of Bala, Thomas Burgess. Additionally, the Burgess Dam was constructed by his son Dr. A.M. Burgess, who was also the first mayor of the Town of Bala. Finally, the Burgess Dam has contextual value because it is important in maintaining and supporting the character of the area. It is located in the heart of Bala, on the Mill Stream, near to Highway 169. It is also historically linked to its surroundings. Being at the heart of the town, the Burgess Dam is located where Bala began.

Under O.G. Reg 10/06 a property can be deemed to have cultural heritage value if it meets one or more of the criteria listed. These criteria are:

- 1) The property represents or demonstrates a theme or pattern in Ontario's history,
- 2) The property yields, or has the potential to yield, information that contributes to an understanding of Ontario's history,
- 3) The property demonstrates an uncommon, rare or unique aspect of Ontario's cultural heritage,
- 4) The property is of aesthetic, visual or contextual importance to the province,
- 5) The property demonstrates a high degree of excellence or creative, technical or scientific achievement at a provincial level in a given period.
- 6) The property has a strong or special association with the entire province or with a community that is found in more than one part of the province. The association exists for historic, social, or cultural reasons or because of traditional use.
- 7) The property has a strong or special association with the life or work of a person, group or organization of importance to the province or with an event of importance to the province.
- 8) The property is located in unorganized territory and the Minister determines that there is a provincial interest in the protection of the property. O. Reg. 10/06, s. 1 (2).

The Burgess Dam demonstrates a unique aspect and theme of Ontario's cultural heritage, that of the electrification and harnessing of water power to produce electricity, in Ontario. When it was constructed it provided not only electricity to Bala, but also to MacTier and Port Carling. Once hydro was taken over by the government, the Burgess Dam still continued to operate and provide power to Muskoka until it was deemed too expensive to operate and repair. Additionally, the Burgess Dam is not only important to the community of Bala, as evidenced by it being selected to be part of the Ontario Heritage Trust's register, but to others in Muskoka, as it provided them with the means to have electricity as well.

5.0 RECOMMENDATIONS

The Burgess Dam, constructed in 1917, provided power to Bala, MacTier and Port Carling. The outside facade of the dam has not been altered, except for new windows. The inside has been altered to allow for modern safety standards as well as energy needs. One of the original William Hamilton turbines is located within the Burgess Dam, but it is unknown if it is still functional.

As the Burgess Dam meets the criteria for being included in the register, it is recommended that the Burgess Dam be added to the Ontario Heritage Act Register. The structure's facade or shell should be preserved if possible but the interior has already been altered beyond any historic or cultural value. Additionally, the William Hamilton turbine should be preserved if possible, preferrably in place or somewhere which might be share its history.

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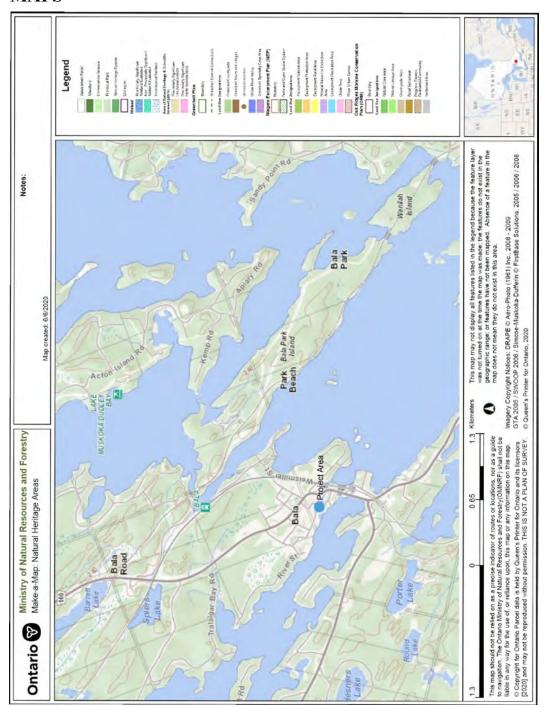
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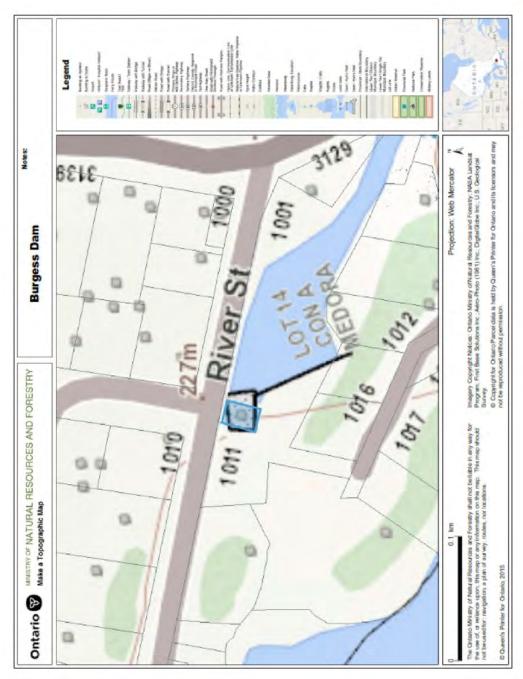
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7.0 MAPS



Map 1: Regional map showing the location of the Burgess Dam



Map 2: Location of Burgess Dam within Bala

8.0 HISTORIC DOCUMENTS



Image 1: Photograph of Burgess Dam from 1917



Image 2: Section of 1831 Andrew Shirreff Map showing the Bala area

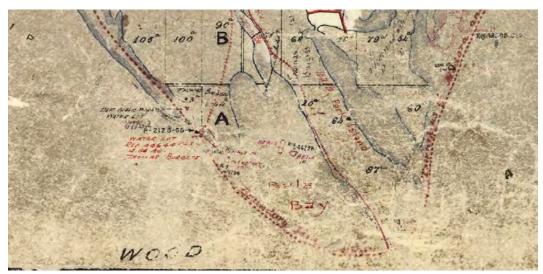


Image 3: Segment of 1869 Crown Lands Map



Image 4: Segment of 1879 Map from the Historic Atlas of Muskoka

9.0 FIGURES

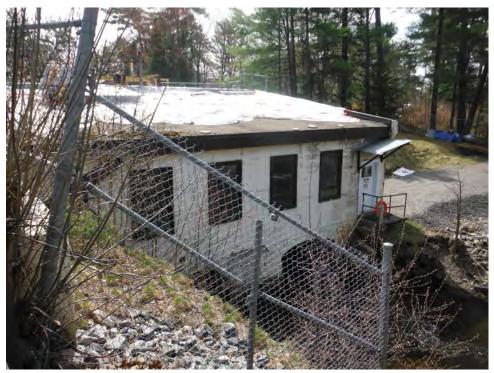


Figure 1: West facade of the Burgess Dam from River Road



Figure 2: West facade of the Burgess Dam from the south shore of the Mill Stream



Figure 3: Southern side of the Burgess Dam from Portage Road.



Figure 4: East side of the Burgess Dam which abuts the hydro pond.



Figure 5: North side of Burgess Dam



Figure 6: Roof of Burgess Dam



Figure 7: Interior of Burgess Dam, looking north.



Figure 8: Interior of Burgess Dam, facing east.



Figure 9: Interior of Burgess Dam, facing south



Figure 10: Interior of Burgess Dam, facing west



Figure 11: New windows on west facade.



Figure 12: Original William Hamilton turbine

Appendix: Rationale for CHER

Ontario Regulation 9/06			
Criterion	Yes/No/ Undetermined	Rationale	
1. The property has design value or	· physical value		
i. Is a rare, unique, representative or early example of a style, type expression, material or construction method	Yes	Small, privately constructed hydrodam	
ii. Displays a high degree of craftsmanship or artistic merit	Unknown	No other examples of a similar structure were found	
iii. Demonstrates a high degree of technical or scientific achievement	Unknown	No other examples of a similar structure were found	
2. The property has historical value	e or associative value		
i. Has direct associations with a theme, event, belief, person, activity organization or institution that is significant to a community	Yes	Association with the electrification of Ontario, and the founding family of Bala	
ii. Yields, or has the potential to yield, information that contributes to an understanding of a community or culture	Yes	Within the heart of Bala, on land owned by the first settler to Bala, and constructed by his son, the first mayor.	
iii. Demonstrates or reflects the work of ideas of an architect, artist, builder, designer or theorist who is significant to a community.	Unknown	No information was found regarding the construction of the Burgess Dam	
3. The property has contextual valu	e		

	Cultural Heritage Ev	valuation Report of the Burgess Dam
i. Is important in defining, maintaining or supporting the character of an area	Yes	located within the centre of Bala, constructed by the first mayor and son of the first settler
ii. Is physically, functionally, visually or historically linked to its surroundings.	Yes	Sits in same location as original saw mill, and is situated within the centre of Bala
iii. Is a landmark	Yes	The Burgess Dam was listed as a heritage structure in 1984, but this was repealed in 1986 so that the structure could be used again
Ontario Regulation 10/06		
1. The property represents or demonstrates a theme or pattern in Ontario's history	Yes	Represents the electrification of Ontario
2. The property yields, or has the potential to yield, information that contributes to an understanding of Ontario	Yes	Can add information regarding how hydro dams evolved in Ontario
3. The property demonstrates an uncommon, rare or unique aspect of Ontario's cultural heritage	Yes	The Burgess dam was a privately constructed dam, later bought by Ontario Hydro
4. The property is of aesthetic, visual or contextual importance to the province.	Unknown	It is unknown if the visuals are unique or important due to being unable to completed further research at the archives

5. The property demonstrates a high degree of excellence or creative, technical or scientific achievement at a provinical level in a given period.	Unknown	Further research could be completed once the Covid-19 pandemic is over
6. The property has a strong or special association with the entire province or with a community that is found in more than one part of the province. The association exists for historic, social or cultural reasons or because of traditional use.	Yes	Special association for several areas in Muskoka, where the Burgess Dam provided them with electricity
7. The property has a strong or special association with the life or work of a person, group or organization of importance to the province or with an event of importance to the province.	No	Not important to the province, but important at the local level. Owner was the first mayor and son of the first settler.
8. The property is located in an unorganized territory and the Minister determines that there is a provincial interest in the protection of the property.	No	Located within the District of Muskoka

Stage 1 Archaeological Assessment of Burgess Dam 1 Safety Assessment Part Lot 14, Concession A, Medora Township, Township of Muskoka Lakes, District Municipality of Muskoka P335-0088-2020

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Date: June 03, 2020 Type of Report: Original

Executive Summary

This report describes the methodology and results of the Stage 1 Archaeological Assessment of the Earl's Road Subdivision development, on Part Lot 17, Concession 3, Township of Chaffey, now part of the Town of Huntsville, District Municipality of Muskoka. This study was triggered by the Planning Act, and conducted under the Professional Archaeological Consulting License P-335 issued to Dayle A. Elder by the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) for the Province of Ontario.

Horizon Archaeology Inc was engaged by the proponent to undertake a Stage 1 Archaeological Assessment of the study area and was granted permission to carry out archaeological fieldwork by the proponent. The study area was subject to a Stage 1 site inspection on May 6th, 2020. As per Section 1.1.2 of the Standards and Guidelines for Consultant Archaeologist the mapping provided by the proponent represents the best available (MHSTCI 2011).

The Stage 1 Site Inspection found that the project area does not contain any archaeological potential. The Burgess Dam project area should be considered cleared of further archaeological concerns.

Table of Contents

Executive Summary	a
Table of Contents	i
List of Figures	ii
List of Maps	ii
Project Personnel	ii
1 Project Context	1
1.1 Introduction	1
1.2 Development Context	1
1.3 Historical Context	1
1.3.1 Heritage Documentation	1
1.3.2 Pre-Contact History	3
1.3.3 Post-Contact History	8
1.3.4 Study Area Specific Area	10
1.3.4.1 Maps	11
1.3.5 Summary of Historical Context	11
1.4 Archaeological Context	12
1.4.1 Current Conditions	12
1.4.2 Physiography	12
1.4.3 Previous Archaeological Assessments	12
1.4.4 Registered Archaeological Sites	13
2. Field Methods	13
3. Analysis	14
3.1 Features Indicating Archaeological Potential	14
3.2 Conclusions	15
4. Recommendations	15
5. Advice on Compliance with Legislation	16
6. Bibliography	17
7. Images	22
8. Maps	27

Stage 1 Archaeological Assessment of Burgess Dam Safety	Assessment, Part Lot 14, Concession A	A, Township of Medora,
Township of Muskoka Lakes, District of Muskoka		

	List of Figures	
1	Segment of 1831 Map by Alexander Shirreff	22
2	Segment of 1869 Crown Lands Map	22
3	Segment of Map from the 1879 Historic Atlas of Muskoka	23
4	View of hydro dam pond from River Road, facing south	23
5	Driveway of Burgess Dam, facing north	24
6	Disturbed lawn area east of the driveway, facing south	24
7	Small disturbed area to the west of the driveway, facing west	25
8	Sloped triangular area west of the Burgess Dam, facing southwest	25
9	Burgess Dam, built 1917, facing southeast	26
	List of Maps	
Map 1:	: Project Location Map	27
Map 2:	: Map of Project Area	28
Map 3:	: Results of the Stage 1 Site Inspection	29
Map 4:	: Map showing the direction and location of photographs	30

Project Personnel

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Photographs: Victoria Brooks-Elder Report Preparation: Victoria Brooks-Elder

Dayle A. Elder

Maps: Proponent

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1.0 Project Context

1.1 Objectives

The objectives of a Stage 1 archaeological assessment, as outlined by the Standards and Guidelines for Consultant Archaeologists (2011), are as follows:

- 1) To provide information about the property's geography, history, previous archaeological fieldwork and current land conditions
- 2) To evaluate in detail the property's archaeological potential, which will support recommendations for Stage 2 survey for all or parts of the property
- 3) To recommend appropriate strategies for Stage 2 survey

1.2 Development Context

This report describes the methodology and results of the Stage 1 Archaeological Assessment of the Burgess Dam 1 Safety Assessment, on Part Lot 14, Concession A, Township of Medora, now part of the Township of Muskoka Lakes, District Municipality of Muskoka (**Maps 1 & 2**). This study was triggered by the Planning Act, and conducted under the Professional Archaeological Consulting License P-335 issued to Dayle A. Elder by the Ministry of Heritage, Sport, Tourism, Culture Industries (MHSTCI) for the Province of Ontario.

Horizon Archaeology Inc was engaged by the proponent to undertake a Stage 1 Archaeological Assessment of the study area and was granted permission to carry out archaeological fieldwork by the proponent. The study area was subject to a Stage 1 site inspection on May 6th, 2020. As per Section 1.1.2 of the Standards and Guidelines for Consultant Archaeologist the mapping provided by the proponent represents the best available (MHSTCI 2011).

All records, documentation, field notes and photographs related to the conduct and findings of the these investigations are held at the office of the licensee with copies at the Horizon Archaeology Inc office in North Bay until such time that they can be transferred to an agency or institution approved by the Ontario Ministry of Heritage, Sport, Tourism, Culture Industries on behalf of the government and citizens of Ontario. The documentary record generated in the field comprises of one page of field notes, GPS points, and 34 digital photographs.

1.3 Historical Context

1.3.1 Heritage Documentation

The Official Plan for the District of Muskoka, Section G- Traditions of Muskoka, deals with archaeological and heritage resources within the municipality (District of Muskoka 2019). As stated in Section G2, the plan's objectives include:

- a) Preserving and building upon the cultural heritage and traditions of Muskoka.
- b) Conserving protected heritage properties, cultural heritage landscapes and archaeological resources;
- c) Conserving and mitigating impacts to all **significant** (emphasis theirs) cultural heritage resources, when undertaking public works;
- d) Respecting the heritage resources recognized or designated by Federal and Provincial agencies; and,
- e) Respecting the heritage designations and other heritage conservation efforts by the Area Municipalities.

Section G4 deals with archaeological resources, both on land and marine, the Archaeological Master Plan, and First Nations Consultation and collaboration. Section G4.1- Context: states that a) The District of Muskoka recognizes that there are archaeological resources of pre-contact and early historic habitation as well as areas of archaeological potential within the District that may be adversely affected by future development.

b) Development and site alteration shall not be permitted on lands containing archaeological resources unless significant archaeological resources have been conserved.

Section G4.2 Master Plan of Archaeological Resources states that the municipality will consider updating the 1994 Master Plan of Archaeological Resources. This would involve First Nation communities and other stakeholders, and deal with the locations of "significant or potentially significant archaeological resources", and protocols for their protection and management (District Municipality of Muskoka 2019: 69-71).

Section G4.3- Implementation indicates that an archaeological assessment will be required when major developments are proposed in areas identified as being "moderate, high, very high, or specific archaeological potential." If an assessment recovers archaeological resources, preservation his the municipality's preferred means of mitigation of development impacts; excavation being permitted only when it has been demonstrated that preservation is not possible. Mitigation plans, either excavation or preservation must be approved by the District Municipality as well as the Area Municipality (District Municipality of Muskoka 2019: 70)

In order to preserve archaeological sites, the Area Municipalities are encouraged to enact zoning or community planning permits that would under the Planning Act prevent development of land that not only contains archaeological sites, but merely has the potential to do so . Area Municipalities are also encouraged to acquire archaeological sites as part of condition of development (District Municipality of Muskoka 2019: 70).

The Township of Muskoka Lakes Official Plan Section B Waterfront: 5.35-45 contains the municipality's requirements for archaeological assessments and site preservation as well as heritage structures and landscapes. Much of this section deals with built heritage, and the two parts dealing with archaeology defer to the District Municipality of Muskoka's Archaeological

Master Plan (Township of Muskoka Lakes 2013: 17-18)

1.3.2 Pre-Contact Period

Palaeo-Indian sites date 10,000 to 5,000 B.C., and inhabited a tundra like environment as the glaciers retreated northward. In such an environment, fruits, nuts and other sources of food harvested from trees or other plants are rare, and it is thought that the Palaeo-Inidans subsisted largely by hunting, trapping and fishing (Ellis 2013: 36). Palaeo-Indian sites are most often located on relic beach ridges associated with glacial lakeshores (Stork 1984). They have also been located at ancient river crossings, places where modern caribou hunters often assemble as the animals my slow and file through a narrow area making them easier to hunt (Ellis 2013: 36). The predominance of sites being located on ancient strandlines may be more indicative of the survey methodology employed to find them rather than an actual preference for site situation on the part of the Palaeo-Indian peoples of Ontario, as a number of sites have been recovered away from ancient shorelines (Ellis & Deller 1990: 50)

Most Palaeo-Indian sites are small, indicating campsites that were inhabited briefly as its occupants followed the seasonal routes and cycles of their prey. Larger sites seem to be associated with animal migration routes, primarily at river crossing as mentioned above (Ellis 2013: 35-6).

Large, fluted spear points define an Early Palaeo-Indian site. While one of the earliest artefacts in North America, they are also one of the most technologically advanced stone tools on the continent (Ellis 2013: 37-8). Other artefacts encountered include hammerstones, and large choppers, knives / cutting tools, lunate bifaces, and piece esquillée's, possibly employed as wedges for wood or bone working, unifacial triangular end scrapers, beaked scrapers, spokeshaves, burins or gravers (Ellis & Deller 1990: 43, 47-9).

Late Palaeo-Indian points do not exhibit the same fluting that is present on Earlier assemblages. Two point types are found on Late Palaeo-Indian sites, one group having a concave base with either rounded or pointed ears, and the other group comprising lanceoloate forms (Ellis 1990: 57-8). Most of the lithic tool kit continues from the Early Palaeo-Indian Period, however there a few new forms or tools that appeared, including: drills, and small thumbnail or fan shaped end scrapers replace the unifacial triangular end scraper (Ellis & Deller 1990: 59).

The toolstone recovered from Palaeo-Indian sites in Ontario has been sourced to have been quarried from sites up to 200 km away. The tool stone was likely at least roughed out at the quarry site and carried to the site on seasonal routes. Other sources originated further afield from sources in Ohio or Michigan, and were likely obtained through trade (Ellis & Deller 1990: 43).

The Archaic peoples were still nomadic hunter-gatherers, however the greater range of tools has

caused some to hypothesise that this indicated a shift from exploiting large-game over a large area to a more extensive, localised range (Ellis et al 1990: 67). This could also be a factor of preservation of perishable materials, which is also a factor from the earlier Palaeo-Indian period.. There is also evidence, through presence of imported / exotic cherts, that great distances were still covered during seasonal rounds (Ellis et al 1990: 78).

In southern Ontario, the Archaic is subdivided into Early, Middle, and Late periods, which in turn are further subdivided into horizons based upon point types (Ellis et al 1990). In northern Ontario, there is no such subdivision and the entire period is known as the Shield Archaic (Wright 1972, Hamilton 2013). Areas around the north shore of the Great Lakes, and along the southern border between northwestern Ontario and Minnesota could possibly have been part of the Middle Archaic "Laurentian Archaic" group found in southern Ontario (Hamilton 2013, Ellis et al 1990).

The Archaic period also witnessed the rise of the "Old Copper" culture centred around Lake Superior. "Old Copper" culture is a name given to the people from this area who exploited the available copper veins or outcroppings, and not a distinct Archaic group separate from others based upon material culture, settlement patterns etc. Copper artefacts from this area have been recovered from sites in Southern Ontario, west to into Saskatchewan, and south of Lake Michigan into Illinios (Hamilton 2013: 89). Copper artefacts include spear points, knives, chisels, and celts (Dawson 1966). Most of these artefacts have been found by collectors or out of context and their role in society is open for debate.

A major change in the Archaic tool-kit from that of the Palaeo-Indian period is the appearance of smaller, notched points that replace the large lanceolate forms. This has been thought to indicate a technological advance; the adoption of the spear-thrower, or *atl atl*. Other artefacts typical of the Archaic period include those associated with wood-working such as axes, gouges and adzes (Ellis et al 1990: 65). These woodworking tools have been thought to indicate that the dug-out canoe was introduced during this period.

Archaic houses are rare, however the Davidson Site (AhHk-54) along the Ausable River inland from Lake Huron has revealed a number of features that have been identified as pit-houses, dating to the Late Archaic, predating 3000 BP based upon dates from carbonised remains found in flood deposits above the floor (Ellis et al 2010).

The house was circular, approximately 5 metres in diametre, had a sloping entrance, interior hearth, posts, and a bench surrounding the edges of the structure, and likely possessed a soil or sod roof. It was hypothesised that this structure was a cold weather domicile, owing to the greater insulating properties of pit-houses (Ellis et al 2010: 10). The labour involved in construction of such a house is also believed to indicate a more-or-less sedentary lifestyle, those occupying it relying on stored foodstuffs (Ellis et al 2010: 10).

Burials from southern Ontario date to the Late Archaic, and have been divided into two complexes, the Haldimand and Glacial Kame. While it has been hypothesised that the Haldimand Complex groups interred their dead in what could be the first cemeteries in the province, it is fairly certain that the Glacial Kame culture had deliberate cemeteries to bury their deceased, possibly in an annual ritual or celebration (Ellis et al 1990: 116-8). Haldimand Complex burials included projectile points, chert bifaces, red ochre, copper artefacts including beads and awls, and beaver incisor grave goods (Ellis et al 1990: 116). Glacial Kame burials were composed both of inhumations as well as cremations. Grave goods were rather elaborate, and included bannerstones, bird stones, stone pipes, copper artefacts including adzes, awls and beads, bear maxilla masks, exotic sea shells, and gorgets (Ellis et al 1990: 116-8).

In southern Ontario the Woodland, like the Archaic period, has been subdivided into three phases, Early, Middle and Late, dating between ca. 1000-900 BC to and AD 1650-1700. This period is marked by the introduction of pottery. The Late Woodland period begins ca. AD800 with the widespread adoption of agriculture.

The Early Woodland people still maintained seasonal routes similar to those from the preceding period. The adoption of pottery seem to indicate an increasing exploitation of plant resources (Williamson 2013: 48). These seasonal rounds were likely focussed around watersheds with families living separately in autumn and winter, coming together in the spring and summer to exploit seasonal resources such as fish spawning. While these larger groups had their own territories, they were not isolated and did not isolate themselves.

Across most of southern Ontario, Quebec and western New York State the people of the Early Woodland shared a similar culture known as "Meadowood". Common artefacts from this time period include: Vinette 1 ceramics, distinctive side-notched "Meadowood" projectile points, and the "Meadowood Cache Blades", trapezoidal gorgets, and bar and expanded bodied pop-eyed birdstones. Also common on Meadowood sites are drills and scrapers made from Meadowood preforms, other gorget types, pendants, copper beads and awls, and fire making kits of iron pyrite. These artefacts are believed to have developed from the preceding Glacial Kame culture of the Late Archaic (Spence et al 1990: 128-9). This could be indicative of the extension or continuance of the Archaic period type lifeways into the Early Woodland in the region like has been hypothesised for other regions of northern Ontario.

Most of what is known about the Meadowood culture stems from cemeteries, domestic sites often yield little in the way of house plans, often only hearths and pits are recovered. People were buried in individual graves, often coated with imported red ochre with varying quantities and types of grave goods. Long-distance trade items recovered from both cemetery and domestic sites are numerous, but also less so compared to the preceding period (Spence et al 1990: 136).

The Early Woodland Middlesex Complex indicates increasing influence from Adena and

Hopewell Complexes in the mid-west United States, what is now Ohio and Indiana. These include both finished artefacts and raw material that originate in this area. Burial mounds also appear on the Ontario landscape, and are also believed to be a result of influence or increasing contact from this region (Spence et al 1990: 138-42).

The Middle Woodland period in southern Ontario has revealed three separate complexes or cultures: the Couture in the southwest, the Saugeen in the northwestern portion of southwestern Ontario, and Point Peninsula in the central and eastern parts of southern Ontario. Owing to the still nomadic nature of these groups, 'borders' are not clearly defined, and within these groups there is still variability. There is also the possibility that there exist other complexes that owing to the lack of research that have so far been classified as belonging to Point Peninsula and Saugeen especially (Spence et al 1990: 143-8).

Common Middle Woodland artefacts include psuedo-scallop shell followed by dentate stamp decorated ceramics, and Vinette 2 ware. Other artefacts recovered from Middle Woodland sites include bone and antler harpoons, antler combs with incised decorations, antler hafted beaver incisors, bone fish hooks, and a wide variety of projectile point forms (Spence et al 1990: 158). The construction of burial mounds continued into the Middle Woodland period.

Settlement patterns indicate a gathering of family groups between the spring and autumn at or near river mouths to fish, then to harvest wild rice, hunt deer and gather nuts. In the winter, the groups would disperse and travel inland to each families' winter camping territory (Spence et al 1990: 164).

In northern Ontario, the Woodland period has been divided into 2 periods, known as Initial and Terminal Woodland. The Initial Woodland period coincides with the Middle Woodland of southern Ontario. Laurel Tradition artefacts define the Initial Woodland period in northern Ontario. Early and Late manifestations of this tradition have been identified, the early phase dating between 200 BC and 500 AD, and the late 500 to 1000 AD. The Laurel Tradition occupies nearly all of the northern parts of the province, save for the very far north, and as far south in Ontario as Lake Nipissing and the French River. The Laurel Tradition spans north and eastern Manitoba, and a small part of Saskatchewan in the west, and extends into northern Quebec to the east, and into northern Minnesota and Wisconsin. Initial Woodland sites are often located along river banks or on the shores of lakes.

Burial mounds were constructed in the Middle/Initial Woodland period throughout. The best known and most researched group is the Manitou Mounds near Rainy River. The mounds were constructed of relatively clean fill or sod over top of wooden cribbing or scaffold that contained the initial burials (Dawson 1981: 34, Wright 1986: 63-4). Remains of birch bark baskets have been recovered from the mound fill (Dawson 1981: 34, Wright 1986: 34). Subsequent burials, either primary inhumations or secondary burials, interred alone or in a mass burial have been

recovered from the mound, and at its base (Wright 1986: 63). Some of the burials were coated with powdered red ochre, and grave goods included such items as lithic bifaces, ceramics, and exotic imports such as a monitor pipe, and an Ohio pipestone sucking tube (Dawson 1981:34, Wright 1986:64). Closer to the project area, a burial ground containing artefacts from the Meadowood Complex was excavated near Kilarney on the north shore of Lake Huron (ASI 1994: 8).

Laurel ceramics were produced from either a single lump of clay or by coil manufacture, grit tempered, a smoothed exterior, rims relatively straight with the lip either flattened or rounded (Wright 1967, Wilford Laboratory of Archaeology 2012). There are a variety of decorative techniques utilised on these vessels including a variety of incised, stamped, punctated, embossed, and cord-wrapped stick decorations (Wright 1967, Wilford Laboratory of Archaeology 2012).

Early in the Laurel sequence, projectile points continue to resemble the notched points of the Archaic period (Dawson 1981:3). These are later superceded by stemmed points (Dawson 1980: 55). Side scrapers dominate scraper types in the early phases, and end scrapers assume prominence in the later phases (Dawson 1980: 33). Other typical tools include stone biface blades, abraders, pottery decorating tools, and net sinkers, copper beads, awls, barbs, fragments, nuggets, pendants, projectile points, chisels, and bone awls, needles, knives which are usually manufactured from beaver incisors, pottery decorating tools, and beads (Wright 1967: 152, Dawson 1980:33, 1981: 34).

The Late Woodland period in southern Ontario saw the widespread adoption of agriculture and increasing sendentarisation. This period has numerous cultural and temporal subdivisions within it: commencing ca. AD 600 with the Princess Point complex, and culminating with the Huron, Neutral, Petun, Odawa and other groups encountered by explorers, missionaries and traders.

Settlement size increases in southern Ontario, especially in the later Late Woodland period, with people living in large palisaded villages in locations that may have been chosen with defence at least partly in mind. Ossuary burials become common, where the dead were communally interred in pits along with grave goods.

The Late (Terminal) Woodland in Northern Ontario is composed of numerous ceramic assemblages; Blackduck, Selkirtk Composite, and the Sandy Lake /Psinomani Complex. The last two assemblages are restricted to areas of northwestern Ontario, and unlikely to be recovered in the study region. Blackduck, out of all the northern Ontario Terminal Woodland groups is the most likely to be found in Muskoka.

Blackduck ceramics are globular, and are more rounded than the other Late Woodland ceramics from northern Ontario, with a more constricted neck, and often have out-flaring rims. They are produced by the paddle and anvil technique, and tempered with grit. Decoration is usually limited

to the interior and exterior of the rim, and the exterior neck. Decorative techniques include cord-wrapped stick stamping, "comb" stamping, punctuations of various kinds, and vertical brushing on the exterior rim surface. Distinctive of early Blackduck vessels is bossed decoration, a motif that appeared late in the Laurel sequence (Wilford Laboratory of Archaeology 2010, Wright 1967). Pottery of typical Blackduck manufacture but with Laurel design motifs have been recovered, and these have been dated to very early in the sequence, as early as 700 AD (Dawson 1982:32).

Non-ceramic artefacts considered typical of the Blackduck people include: clay pipes, stone oval and lunate chipped knives; side scrapers; trapezoidal, oval, and thumbnail end scrapers; tubular-shaped drills; steatite pipes; bone awls and needles; unilaterally barbed harpoon; spatulas antler flakers; beaver incisor knives; bear canine ornaments; and native copper fishhooks, gorges, and beads (Gibbon & Anfinson 2008).

Woodland period archaeology in the surrounding regions indicates that rather than be viewed as being part of a large homogeneous "Northern Ontario", it would appear that the Late Woodland occupants of areas such as Muskoka, Haliburton, and Parry Sound Districts had a material culture more related to those from Southern Ontario. Pottery recovered from the Late Woodland Curtin Site (BfGp-2) in Haliburton could be classified as "Iroquoianesque", with more traits connecting it to the Iroquoian Benson Site in Victoria County. Similar pottery displaying both Algonkian and Iroquoian traits was also recovered in the District of Muskoka, near the eastern shore of Georgian Bay at the mouth of the Severn River (Elder 2016). Even further north, Huronlike pottery seems to replace local Blackduck ceramics in the Lake Abitibi region.

1.3.3 Post-Contact

Various families of the Mnjikaning First Nations from Rama on Lake Couchiching, such as the Bigwin family, the Yellowhead family, the Menominee family, as well as members of the Muskoka band, and a number of families from Lake Rosseau lived and exploited resources in northern Muskoka in the 19th Century. The area was used for farming, trapping, trading, and red ochre was gathered from Paint Lake. Guides from Mnjikaning were in great demand for 19th and early 20th Century Euro-Canadian hunters, trappers, and tourists in Muskoka, owing to their familiarity with the area.

The Bigwin Family as part of their traditional seasonal rounds had a summer settlement and farmland at what is now Dorset and Bigwin Island on Lake of Bays southeast of the project area. Bigwin Island was also the site of a burial ground (ASI 1994b: 3-8, Table 1). They also had a sugar bush located in what is now Ridout Township (ASI 1994b: 11). The Yellowhead family exploited an area from Lake of Bays to Lake Muskoka, and had a settlement at Bracebridge (ASI 1994b: 8). The M'ngikaning family had a settlement around Paint Lake to the south of Lake of Bays which was also a source of red ochre (ASI 1994b: Figure 7).

Lake Rosseau families considered Brunel Township an important fall and winter hunting ground with 2 to 3 families living there during those seasons. They also utilised the area north of Fairy and Peninsula Lakes to hunt beaver, however there were no permanent settlements, as these were located at Obagawanung / Port Carling (ASI 1994b: 3-8, 14 Table 1).

The Menominee family lived and exploited an area that was bordered on the east by Lake of Bays, Mary Lake on the west, and Lakes Vernon, Fairy and Peninsula on the north. Menominee had a farm on Menominee Lake to the southwest of Lake of Bays. There was also a small settlement on Menominee Point, on the southeast corner of Lake Vernon. The territory was abandoned by the early 1870's and the family joined the Muskoka Band on Parry Island (ASI 1994b: 3-7, Table 1, Figure 10).

The first "settler" around Huntsville is believed to be William Cann, of Orillia. He hunted and trapped every winter from 1860 until 1869. He constructed a log cabin on the banks of the Vernon River. Upon survey of Chaffey Township, Cann had land on both sides of the River and constructed the area's first hotel. Financial difficulties caused him to sell his hotel to Thomas Birtch, and all the land he had acquired in the township. His holdings on the east side of the River were sold to Captain George Hunt for \$50.00 in 1869. While Cann was the first settler, and the first business owner in town, and loaned the Municipal Council \$300.00 interest free until the first taxes came in, it is George Hunt that the town of Huntsville is named after (Rice 1964:6-7).

Hunt pushed for the extension of both roads and rail to Chaffey Township, and was responsible for the laying out of the town's main street. Hunt was the Superintendent of Construction for the Colonization Road through the area. The town of Huntsville began to grow mostly on the western lands formerly owned by Cann, not on the land to the east belonging to Hunt, as he banned the sale of liquor on the lots he was offering for sale. Hunt was responsible for the construction of the first church in the town in 1872, built on land he donated, and the first school, and attracting a doctor to the new town as well (Rice 1964: 8-9).

While northern Muskoka was opened for settlement in 1869, and the Muskoka Colonization Road had reached Huntsville in 1870, large-scale growth did not occur until the arrival of the railroad in the late 1880's. The early roads were often impassable, and between 1873 and 1876, the Brunel locks were constructed to facilitate travel to the northern Muskoka Lakes, and by the next year, navigation was possible from Port Sydney to the west end of Lake Vernon. Other improvements were made to the transportation system in northern Muskoka, such as a canal to Peninsula Lake in 1888, and the Portage Railway, built between 1903 and 1904 which replaced stage coach service to Lake of Bays from Peninsula Lake near Huntsville (ASI 1994a: 96-105).

With the opening of land and water access to northern Muskoka, numerous saw mills were shortly in operation in the area. The arrival of the railway in 1886, caused an increase in size and scale of the lumber industry in the region. By 1900, however, timber stocks had been depleted,

and the industry switched to hardwood processing, as well as hemlock harvesting for tanneries in Bracebridge, but even these could not prevent a steep decline, and most mills had closed by the beginning of World War I (ASI 1994a: 91-6).

Muskoka has been known for its holiday resorts, and cottage life almost from the beginning of Euro-Canadian settlement. The first resorts in Muskoka opened in the 1870's, focussing on Lakes Muskoka, Rosseau, and St. Joseph, and accessed via railway or steamship. Lack of access to northern Muskoka meant that the first resorts did not begin operation until nearly twenty years after, with the arrival of the railway. Deerhurst Resort on Lake of Bays, constructed in 1896 was the first large resort in northern Muskoka. While few new resorts were opened after World War I in southern Muskoka, a number of resorts on some smaller lakes north of Huntsville were built, focussed not on railways but rather on automobiles being used to access the resort properties (ASI 1994a: 107-8).

While early descriptions of the land available for settlement presented the conditions for farming in glowing terms, many early settlers abandoned their agricultural pursuits first for jobs in the lumber industry, then for employment in the growing tourist trade.

1.3.4 Study Area Specific History

The Bala area was first explored in 1829 by Alexander Shirreff. Two years later he wrote a report about his expedition, in which he mentions a 16 to 20 foot high falls at the outlet of Muskoka Lake. In 1853 J.W. Bridgland surveyed the area and reported that the region was destitute of everything to make settlement desirable (ASI 2008: 11).

The baseline survey of Medora Township was completed in 1865 by surveyor S. James. The interior lots were laid out by Thomas Bryne four years later in 1869. It was also in 1869 that Medora Township received its name. It is believed to be named after Calcina Medora Buell, daughter of Norton Buell of Brockville and wife of Toronto lawyer Alexander Cameron. She was also the niece of Stephen Richards, the Commissioner of Crown Lands from 1867 to 1871. In the early 1870s Medora and Humphrey Township were joined for administrative purposes, and had a combined population of 582 inhabitants living in 120 dwellings, with two under construction (ASI 2008: 12).

The first settler to Bala was Thomas Burgess, who arrived in 1868. He had travelled by boat from Belle Ewart to Washago and then by stage coach or foot to Gravenhearst. He then took a boat to the Bala area and stopped at an abandoned lumber camp. He obtained a Crown Land Grant for 1000 acres (404.686 hectares) and settled on the land between what is now known as Bala By and Lake Muskoka (MHBC 2014: 9). He constructed a sawmill at the rapids on the Musquash River, also known as the Mill Stream. The settlement at Bala was first known as Musquosh Falls and then Muskoka. The post office opened in 1870, with Thomas Burgess acting

as postmaster. He held that post until 1900 when he retired. In 1871 it was renamed Bala, after Bala Lake in Wales (ASI 2008: 16). In Welsh, the word Bala means 'the place of the river out flowing to a lake' (MHBC 2014:9). The first plan of subdivision for Bala was surveyed for Burgess in 1890 with the community developing around Lot 15, Concession A. In 1914 Bala was incorporated as a town with Dr. A.M. Burgess, son of Thomas Burgess, acting as the first mayor (ASI 2008: 16). In 1873 Bala contained 30 inhabitants, with a school, hotel, post office, general store, blacksmith shop, mill and three churches.

In 1902 Thomas Burgess died and the sawmill was taken over by his son, Thomas Burgess Junior. The sawmill closed in 1910 (Historica Research Limited 2009: 22). In 1916 Thomas Burgess' other son, Dr. Alexander Burgess, formed the Bala Electric Light and Power Company. The company purchased the mill stream and mill site and built the Burgess Dam in 1917 (ASI 2008: 17). When it was constructed the structure operated a small, 245 kilowatt generating station. The two turbines were horizontal shaft, Francis-type turbines built by William Hamilton and each rated as 160 horsepower (Historica Research Limited 2009: 23). In 1929 the generating station was acquired by Ontario Hydro at which time it served 99 customers. The station was retired in 1957 due to the high operating costs and repair needs. The building and dam were transferred to the Town of Bala in 1962 (ASI 2008: 18). In 1989 the generating station was purchased and restored by a corporation which sells its power back to Ontario Hydro.

1.3.4.1 Maps

Early Maps do not depict Muskoka or the project area in any great detail. Alexander Sherrif's map of 1831 shows Lake Muskoka with the notation "Good Land" neat to the project area. The 1869 Crown Land Map of Medora Township does not show any settlement in the area which would become Bala. The Muskoka Atlas Map of 1879 shows Bala Post Office on the map, but no details of the village (**Figures 1-3**).

1.3.5 Summary of Historical Context

Northern Muskoka was surveyed and opened for settlement in 1869. The first settler to Bala was Thomas Burgess who arrived in the area in 1868. He built a saw mill on the Musquosh River, now known at the Mill Stream. This saw mill was located where the present Burgess Dam stands today. Thomas Burgess died in 1902 and his mill remained in operation until 1910. In 1916 his son established the Bala Electric Light and Power Company and in 1917 he constructed the hydro-electric generating station where the mill used to be.

1.4 Archaeological Context

1.4.1 Current Conditions

The project area is located on Part Lot 14, Concession A, Township of Medora, now part of the Township of Muskoka Lakes, District of Muskoka (**Map 1 and 2**). It is bounded to the west by a private residence and the Moon River, to the north by River Road, to the east by Highway 169 and a private business, and to the south by Portage Road, and several private homes which front on to Portage Road. The project area is approximately 100m north-south at its longest and 55m east-west at its widest. Approximately 70% of the project area consists of the hydro dam, which is filled with water (**Map 3**). The remaining 30% of the project area consists of 15% disturbed and 15% steeply sloped.

This hydro dam, known as the Burgess Dam, was once part of the Musquosh River, which became known as the Mill Stream when Thomas Burgess built his sawmill in the later 19th Century (ASI 2008: 16). The pond flows into the Burgess Dam and down into the Moon River. The remaining section consists of the Burgess Dam, a driveway with two small broken up lawn areas to the driveway's east and west as well as steeply sloped triangular lawn area on the east side of the river (**Figures 4-9**). The broken up lawn area is approximately 10m by 5m on the east side of the driveway and approximately 5m by 5m on the west side of the driveway. The driveway is approximately 41m long and 6m wide. The steeply sloped triangular lawn area is approximately 20m at it's widest and longest.

1.4.2 Physiography

The project area is part of the Georgian Bay Fringe Physiographic Region (Putnam and Chapman 1984: 214). This region extends along the east shore of Georgian Bay and is characterized by shallow soil with rock knob outcroppings and ridges. The thin till cover was removed from the rock outcrops by wave action associated with glacial Lake Algonquin. The vegetation found in the area is a mix of red oak, maple, birch, ash, white pine, red pine, hemlock and other conifers. Soils are a Montaggle sandy loam (Hoffman et al 1964).

1.4.3 Previous Archaeological Assessments

Archaeological Services Incorporated developed an archaeological master plan in 1994 for the District Municipality of Muskoka and the Wahta Mohawks (1994a, b, & c). The master plan was a three volume work, the first dealing with background research, the second involved First Nations' traditional land use and discussions of the archaeological survey that tested the hypotheses formed in the first volume. The third volume was a conservation management guide that will not be dealt with in this report.

Apart from archaeological data the first volume also gives an accounting of the geology, physiography, flora, and fauna of Muskoka, which are invaluable when attempting to discern the

probability of archaeological sites being present in any particular local. Archaeological sites known up to the time of writing are also discussed. Built and "Intangible" heritage is also discussed in the first volume. No potential mapping was provided for the project area.

The second volume contains information on historical Ojibway and Mohawk land-use in the district. Of particular interest in the discussion about the Muskoka and Rama bands and their exploitation of their lands in around the project area,. The two groups discussed in the master plan initially lived around Matchedash, but split after the abandonment of their settlement at Coldwater. The two groups would use the Severn and Muskoka Rivers for travel into the interior to sites on Lake Muskoka, Lake Rosseau, Lake St. Joseph, Lake of Bays etc.

The archaeological survey conducted to test hypothesises generated in the first volume visually inspected the area around Huntsville, Fairy and Peninsula Lakes from the water but did not conduct any test-pitting or surface survey to recover any artefacts. Figure 28 of the master plan shows the route taken for the visual inspection.

The lakes were described as being surrounded by "high, wooded, bedrock hills, the exceptions being the north shore of Fairy Lake and the Canal. Fairy and Peninsula Lakes were classified as possessing moderate to high potential: "in addition to serving as major transportation corridors, the major lake chains would have provided all of the resources necessary to sustain year-round occupation." The visual inspection caused them to conclude "not surprisingly, the highest archaeological potential exists in those areas where land development is heaviest, since these have been the prime settlement locations for millennia. (ASI 1994b: 65)."

No archaeological assessments have taken place within 50m of the project area.

1.4.4 Registered Archaeological Sites

A request of the MHSTCI data base showed that there were two archaeological sites with 2km of the project area. The first site is the Whitehead Site (BgGv-1) which is a pre-contact site found in 1975 by L. Jackson. The site consisted of a lithic scatter, which included one white quartz uniface blade, one scraper, and one white quartz flake.

The second site is the Jewitt Site (BgGv-5) which is a Middle Archaic site found by R. Williamson in 1993. The site consisted of a single Brewton Side Notched projectile point.

2.0 Field Methods

Stage 1 assessment included a site inspection, with no ground being disturbed, nor collection of archaeological resources if any were encountered. Aside from the review of the available literature to discern archaeological potential and previous historic land use, the assessment hoped

to determine the areas which may have been too badly disturbed to still potential contain cultural values. This information was used to determine what survey strategies would be appropriate for a Stage 2 assessment, should it be required.

An optional property inspection took place on May 8, 2020. In keeping with Section 1.2.2 of the Standards and Guidelines for Consultant Archaeologists (MHSTCI 2011) the property inspection was completed when weather conditions permitted good visibility of land features. Inspection did not take place when weather conditions could reduce the chances of observing features of archaeological potential. The high for May 8 was 15 degrees Celsius and the sky was sunny with cloudy periods.

In keeping with Section 1.2 *Property Inspection* of the Standards and Guidelines for Consultant Archaeologists (MHSTCI 2011) the entire property was systematic inspected, due to the small size of the project area. The site consists of a pond, a relic Mill Pond, which belonged to the first Thomas Burgess and was reused by his son in 1917 when the Burgess Dam was first built (**Figure 4**). There is a thin amount of property around the pond, less than 5m wide. The eastern part of the project area consists of a small open space, approximately 15m by 20m with the 1917 hydro electric generating station located on the northeast corner. This 15m by 20m area is undulating, and has been broken up, presumably by work being done in and around the Burgess Dam and the driveway being installed (**Figures 5-7**). There is a small triangular section of project area is located to the north of the 1917 Burgess Dam, and is steeply sloped (**Figure 8**).

Although located on the Mill Stream the project area does not contain any archaeological potential. The Burgess Dam (**Figure 9**) has been updated by its present owner, and River Road to the east of the project area has been built up against the structure. Historic research shows that the pond which feeds the hydro station was built by Thomas Burgess and reused for the hydro station by his sons in 1917. As such the property around the pond, which is less than 5m in width, has been disturbed by the construction of the pond. Additionally, the open area to the south of the Burgess Dam building, which is approximately 15m by 15m is undulating and show evidence of being disturbed by recent human activity. In keeping with Section 1.2.3 *Features indicating that archaeological potential has been removed* in the Standards and Guidelines for Consultant Archaeologists (MHSTCI 2011), archaeological potential has been removed due to building footprints and sewage and infrastructure development

3.0 Analysis and Recommendations

3.1 Features Indicating Archaeological Potential

A number of factors are employed in determining archaeological potential. Criteria for precontact archaeological potential is focussed on physiographic variables that include distance from the nearest source of water; the nature of that source; distinguishing features in the landscape

(e.g., ridges, knolls, eskers, wetlands); the types of soils found within the area of the assessment and resource availability. Also considered are known archaeological sites within or the vicinity of the study area.

Land registry records, assessment rolls, census, historic maps and aerial photographs as well as a property inspection all assist in determining historical archaeological potential. Additionally, the proximity of historic transportation corridors such as roads, rail and water courses also affect the historic archaeological potential.

3.2 Conclusions

The Stage 1 assessment of the Burgess Dam found that there are no areas of archaeological potential. The majority of the project area is taken up with the hydro electric dam pond, approximately 85%. The remaining parts include a driveway with two sections of lawn on either side of it. The driveway is gravel, and is disturbed. The areas to the north and south of the driveway are broken up, with pipes running under them. They show sings of disturbance. The final piece of lawn is to the east of the river, and north of the hydro dam. This is a triangular lawn, and is steeply sloped, and does not require further archaeological assessment. The conclusion that the study area does not require further assessment is based on *Section 1.3.2 Features Indicating that archaeological potential has been removed ('disturbed')* in the Standards and Guidelines for Consultant Archaeologists (MHSTCI 2011)

4.0 Recommendations

Based upon the background research and the results of the property inspection, it is recommended that the Burgess Dam project area be cleared of further archaeological concerns.

5.0 Advice on Compliance with Legislation

This report is filed with the Ministry of Tourism, Culture, and Sport as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c. 0.18. The report is reviewed to ensure that is complies with the standards and guidelines that are issued by the Ministry, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matter relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism and Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Section 48 and 69 of the Ontario Heritage Act for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such a time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the Ontario Heritage Act.

Should previously unknown or deeply buried archaeological resources by uncovered during development, they may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. The Proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologists to carry out archaeological fieldwork, in compliance with Section 48 (1) of the Ontario Heritage Act.

The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48 (1) of the Ontario Heritage Act and may not be altered, or have artifacts removed from them, except by a person holding an archaeological license.

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7.0 Images



Figure 1: Segment of 1831 Map by Alexander Shirreff

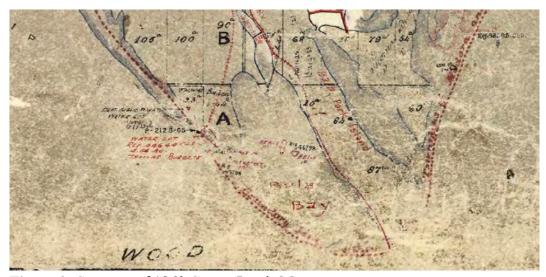


Figure 2: Segment of 1869 Crown Lands Map

Stage 1 Archaeological Assessment of Burgess Dam Safety Assessment, Part Lot 14, Concession A, Township of Medora, Township of Muskoka Lakes, District of Muskoka



Figure 3: Segment of Map from the 1879 Historic Atlas of Muskoka



Figure 4: View of hydro dam pond from River Road, facing south.

Stage 1 Archaeological Assessment of Burgess Dam Safety Assessment, Part Lot 14, Concession A, Township of Medora, Township of Muskoka Lakes, District of Muskoka



Figure 5: Driveway of Burgess Dam, facing north.



Figure 6: Disturbed lawn area east of the driveway, facing south.

Stage 1 Archaeological Assessment of Burgess Dam Safety Assessment, Part Lot 14, Concession A, Township of Medora, Township of Muskoka Lakes, District of Muskoka



Figure 7: Small disturbed area to the west of the driveway, facing west.



Figure 8: Sloped triangular area west of the Burgess Dam, facing southwest

Stage 1 Archaeological Assessment of Burgess Dam Safety Assessment, Part Lot 14, Concession A, Township of Medora, Township of Muskoka Lakes, District of Muskoka

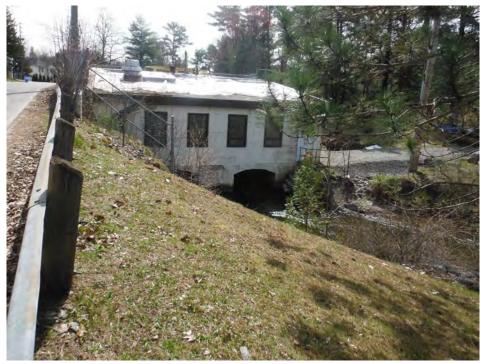
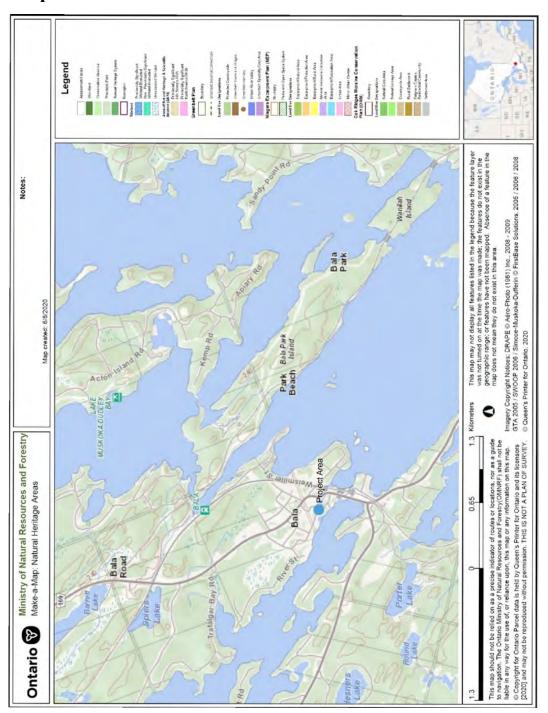


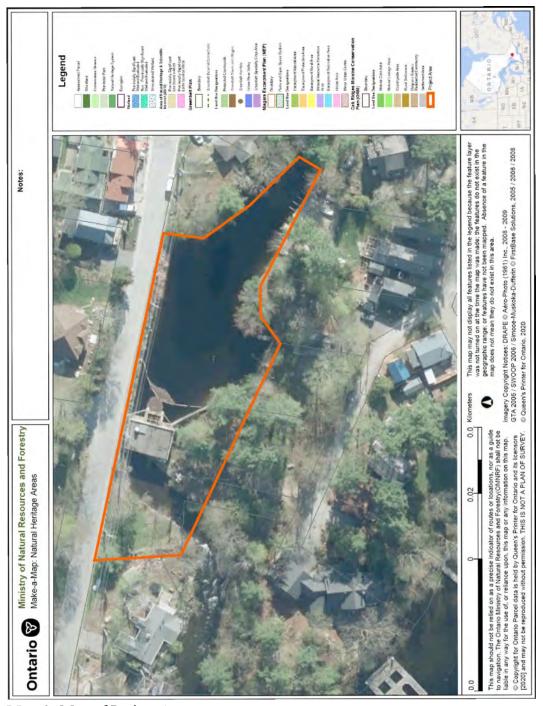
Figure 9: Burgess Dam, built in 1917, facing southeast.

8.0 Maps

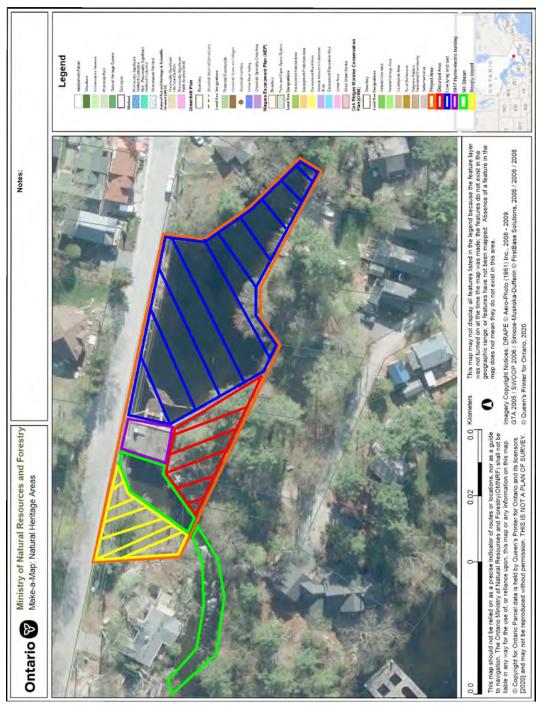


Map 1: Project Location Map

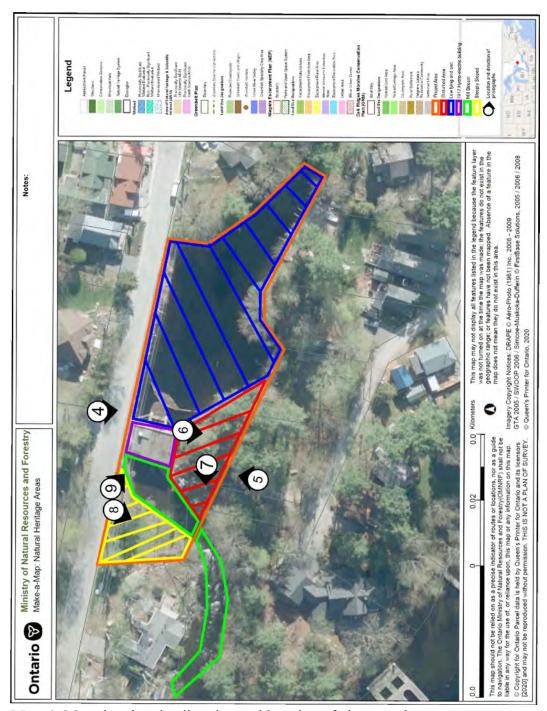
Stage 1 Archaeological Assessment of Burgess Dam Safety Assessment, Part Lot 14, Concession A, Township of Medora, Township of Muskoka Lakes, District of Muskoka



Map 2: Map of Project Area



Map 3: Results of the Stage 1 Site Inspection



Map 4: Map showing the direction and location of photographs

APPENDIX D Environmental Impact Assessment



Burgess Dam Safety Assessment Existing Conditions and Impact Assessment

Township of Muskoka Lakes, Bala, ON. Project # 201051

29 July 2020

Version 1.0











Contents

1.	Background	1
1.1	General	1
1.2	Study Area and Project Description	1
1.3	Scope	1
2.	Natural Heritage Desktop Review	3
2.1	Sources Reviewed	3
2.2	Land Use	3
2.3	Ecodistrict and Ecoregion	3
2.4	Protected Areas	3
2.5	Species at Risk	5
2.6	Significant Wildlife Habitat (SWH)	7
2.7	Migratory Birds	8
2.8	Fisheries and Fish Management Objectives	8
3.	Field Investigation Methods	9
3.1	Terrestrial Habitat Assessment	9
3.2	Aquatic Habitat Assessment	10
4.	Field Investigation Results	10
4.1	Terrestrial Habitat	10
4.2	Aquatic Habitat	13
5.	Alternative Work Options with Impact Assessment	15
5.1	Alternative Work	15
5	1.1 Option N1 – Downstream Rip Rap Placement and Toe Berm	15
5	1.2 Option N2 – Partial Dam Raise and Emergency Spillway	16
5	1.3 Option P1 – Demolish Powerhouse and Replace with New Dam	16
5	1.4 Option P2 – Powerhouse Refurbishment and Reinforcement	17
5	1.5 River Street Concrete Retaining Wall	17
5.2	Impact Assessment and Mitigation	18
6. 7.	Summary Closing	22 23



TABLE OF FIGURES

-igure 1 Study Area	2
TABLE OF TABLES	
Table 1 - Records and resources searched during the Natural Heritage Desktop Review	4
Fable 2 – Species at Risk with Potential to Occur in the Study Area	6
Fable 3 – Impact Assessment and Mitigations for Construction Options	18

APPENDICES

Appendix A – Proposed Alternative Solutions

Appendix B – Natural Heritage Review and Communication with Regulators

Appendix C – Project Staff



29 July 2020

The Township of Muskoka Lakes 1 Bailey Street P.O. Box 129 Port Carling, ON P0B 1J0

Re: Existing Conditions and Impact Assessment (EC/EIA) for the Burgess Dam Rehabilitation / Replacement EA, Township of Muskoka Lakes, Ontario; Tulloch Project # 191493

1. BACKGROUND

1.1 General

Tulloch Environmental, a division of Tulloch Engineering Inc. (Tulloch), was retained by the Township of Muskoka Lakes to complete an Existing Conditions and Environmental Impact Assessment (EC/EIA) in support of the Municipal Class EA for the Burgess Dam and Generating Station rehabilitation / replacement in Bala, ON (henceforth the Site). This report outlines the results of a Natural Heritage Desktop Review and field studies performed at the Site. It also provides assessment of impacts anticipated by the alternative solutions outlined in the Municipal Class EA. Avoidance and mitigations strategies to alleviate the anticipated impacts for each solution are provided.

1.2 Study Area and Project Description

The existing structure (henceforth referred to as Burgess Dam) is an approximately 59 m long and 3 m high concrete dam (Figure 1). The powerhouse is approximately 9m x 14m including the turbine, generator and associated equipment. A retaining wall 16m in length connects the north wall of the powerhouse and supports River St. immediately North of the powerhouse. The Burgess Dam runs across the north channel of the outlet from Lake Muskoka to the Moon River in Bala, Ontario; UTM (NAD83) 17T 609163 4985226.

1.3 Scope

The Township has identified a need to complete an Environmental Impact Assessment to determine the best option for the Burgess Dam repair and or/ replacement. To assess the existing conditions and potential impacts of the proposed alternative solutions (Appendix A), Tulloch has performed a Natural Heritage Desktop Review of the site and surrounding area as well as an on-site field assessment. The Natural Heritage Desktop Review included areas within 1000 m of the proposed solution footprint. The Study Area for on-site assessments was defined as areas within 120 m of the proposed solution footprints. The information collected was used to identify impacts and appropriate mitigation measures for the proposed design alternatives.



Burgess Dam Rehabilitation/Replacement **Environmental Impact Assessment**

Site Investigations

Legend

Site (Approx.)

Study Area (120m)

Figure 1

PROJECT: 191493

DATE: 23/06/2020 SCALE: 1:1,500







2. NATURAL HERITAGE DESKTOP REVIEW

2.1 Sources Reviewed

The Natural Heritage Desktop Review was conducted to determine which natural heritage features exist, or have the potential to exist, within 1000 m of the Site. Records and resources searched as part of the background review are listed in Table 1. Communications with regulatory authorities are provided in Appendix B.

2.2 Land Use

The existing structure is currently located on private land and is surrounded by privately owned land.

2.3 Ecodistrict and Ecoregion

This Site is located in Ecodistrict 5E-7 of Ecoregion 5E (the Georgian Bay Ecoregion). The Georgian Bay Ecoregion is characterized by a cool-temperate and humid climate with a mean annual temperature range of 2.8 to 6.2°C (MNR 2009). This Ecoregion is situated on the southern edge of the Precambrian shield. It is typically underlain with gneissic bedrock as well as deposits of ground moraine till and glaciofluvial materials. This Ecoregion is part of the Great Lakes Watershed. Land cover is predominantly mixed forest, deciduous forest, and coniferous forest of the Great Lakes – St. Lawrence Forest Region (MNR 2009).

2.4 Protected Areas

Protected areas included federal, provincial, and municipal parks as well as Conservation Reserves, Enhanced Management Areas (EMAs), Provincially Significant Wetlands (PSWs) and Areas of Natural and Scientific Interest (ANSI). A review of data provided by Land Information Ontario (LIO) in conjunction with communications with the Ministry of Natural Resources and Forestry (MNRF) have identified no protected areas within 1000 m of the project site.



Table 1 - Records and resources searched during the Natural Heritage Desktop Review.

Record Source		Records Requested and/or Reviewed
Ministry of Natural Resources and Forestry (MNRF) Parry Sound District	Date of Request: 03 February 2020 Date of Data Receipt: 12 February 2020	Jeremy Rouse Management Biologist Existing environmental values information, including any sensitivities and environmental
Natural Heritage Information Centre (NHIC)	Accessed: 28 January 2020	constraints. Natural Heritage Mapping Tool queried for records of provincially tracked species (e.g. SAR and rare species), ANSI and other protected areas in vicinity to the Site.
MNRF Species at Risk in Ontario (SARO) List	Accessed: 28 January 2020	Determine SAR within range and their status.
MNRF Fish ON-line	Accessed: 28 January 2020	Reviewed known fish species present in Lake Muskoka and Moon River.
DFO Species at Risk Mapping Tool	Accessed: 28 January 2020	Query for records of SAR fish or critical habitat in vicinity to the Site.
Atlas of the Breeding Birds of Ontario (Ontario Nature; ABBO)	Accessed: 28 January 2020	Determine migratory birds, including SAR within block #s: 17PK08
Bat Conservation International	Accessed: 28 January 2020	Reviewed SAR bat ranges associate with the Site and surrounding area.
eBird.org Cornell Lab of Ornithology	Accessed: 28 January 2020	Query for records of selected SAR bird species in vicinity to the Site.
iNaturalist – Herps of Ontario Project	Accessed: 28 January 2020	Reviewed recorded reptile and amphibian sightings in the area.
Ontario Butterfly Atlas Online (Toronto Entomologists' Association; OBAO)	Accessed: 28 January 2020	Query for records of SAR butterflies in vicinity to the Site.
Land Information Ontario (LIO)	Accessed: 30 January 2020	Accessed GIS spatial data regarding known significant habitats including:



2.5 Species at Risk

Species at Risk (SAR) include species identified federally under the *Committee on the Status of Endangered Wildlife in Canada* (COSEWIC) and provincially under the *Committee on the Status of Species at Risk in Ontario* (COSSARO). Species and their habitat listed as Endangered or Threatened are regulated federally under the *Canadian Species at Risk Act* (SARA S.C. 2002 c.29) and provincially under the *Ontario Endangered Species Act* (ESA S.O. 2007 c.6). In some instances, species listed as Special Concern may also receive habitat protection under the *2014 Provincial Policy Statement* (PPS; MMAH 2014); see Section *2.6 Significant Wildlife Habitat*.

The NHIC identified records of Massasauga Rattlesnake (*Sistrurus catenatus*; Threatened), the Rusty-Patched Bumblebee (*Bombus affinis*; Endangered), Blanding's Turtle (*Emydoidea blandingii*; Threatened) and Eastern Wood-pewee (*Contopus virens*; Special Concern) within 1000m of the Site. A restricted species was also identified. The MNRF has requested that the name of this species is not released, however, the impact assessment and respective mitigations have accounted for the possible presence of this species on the Site.

ABBO Records indicated that ten (10) species have been observed within the 10 x 10km atlas block associated with the site:

- Barn Swallow (Hirundo rustica; Threatened)
- Bobolink (*Dolichonyx oryzivorus*; Threatened)
- Canada Warbler (Cardellina Canadensis; Special Concern)
- Chimney Swift (*Chaetura pelagica*; Threatened)
- Common Nighthawk (*Chordeiles minor*; Special Concern)
- Eastern Meadowlark (Sturnella magna; Threatened)
- Eastern Wood-pewee (Special Concern)
- Golden-winged Warbler (Vermivora chrysoptera; Special Concern)
- Olive-sided Flycatcher (*Contopus cooperi*; Special Concern)
- Wood Thrush (*Hylocichla mustelina*; Special Concern).

Queries of Cornell Lab's eBird atlas identified records of the following 13 SAR birds:

- Bald Eagle (Haliaeetus leucocephalus; Special Concern; records within 7km)
- Bank Swallow (*Ripari riparia*; Threatened; records within 4km)
- Barn Swallow (records at the Site)
- Canada Warbler (records within 1km)
- Chimney Swift (records at the Site)
- Eastern Whip-poor-will (Antrostomus vociferous; Threatened; records within 1km)
- Eastern Wood-pewee (records within 1km)
- Evening Grosbeak (Coccothraustes vespertinus; Special Concern; records within 1km)
- Golden-winged Warbler (records within 100m)
- Olive-sided Flycatcher (records within 8km)
- Red-headed Woodpecker (*Melanerpes erythrocephalus*; Special Concern; records within 11km)
- Rusty Blackbird (Euphagus carolinus; Special Concern; records within 5km)
- Wood Thrush (records within 4.5km)



The ORAA indicated that Blanding's Turtle, Massasauga Rattlesnake, Snapping Turtle (*Chelydra serpentine*; Special Concern), Five-lined Skink (*Plestiodon fasciatus*; Endangered) and the restricted species identified in the NHIC records is associated with the Site (Block 17PK08).

BCI indicated that three (3) Endangered bat species have ranges which include the Site:

- Little Brown Bat (Myotis lucifugus)
- Northern Long-eared Bat (Myotis septentrionalis)
- Eastern Small-footed Bat (Myotis leibii)

The Butterfly Atlas of Ontario identified that Monarch Butterfly (*Danaus plexippus*; Special Concern) is associated with the Site.

A review of iNaturalist for citizen science records, the Royal Ontario Museum Collections, the Canadian National Collection of Insects, Arachnids and Nematodes and University Collections from McMaster University returned no records of SAR species at the Site, or in areas within 1000m of the Site

Table 2 – Species at Risk with Potential to Occur in the Study Area.

Source	Species	Scientific Name	SARA	ESA
eBird.org	Bald Eagle	Haliaeetus leucocephalus	_	SPC
eBird.org	Bank Swallow	Ripari riparia	THR	THR
ABBO (Record) / eBird.org	Barn Swallow	Hirundo rustica	-	THR
MNRF / ORAA	Blanding's Turtle	Emydoidea blandingii	THR	THR
ABBO (Record)	Bobolink	Dolichonyx oryzivorus	-	THR
ABBO (Record) / eBird.org	Canada Warbler	Cardellina canadensis	THR	SPC
ABBO (Range) / eBird.org	Chimney Swift	Chaetura pelagica	THR	THR
ABBO (Record)	Common Nighthawk	Chordeiles minor	THR	SPC
ABBO (Record)	Eastern Meadowlark	Sturnella magna	-	THR
BCI (Range)	Eastern Small-footed Bat	Myotis leibii	END	END
eBird.org	Eastern Whip-poor-will	Antrostomus vociferous	THR	THR
ABBO (Record) / MNRF / eBird.org	Eastern Wood-pewee	Contopus virens	SPC	SPC
eBird.org	Evening Grosbeak	Coccothraustes vespertinus	SPC	SPC
ORAA	Five-lined Skink	Plestiodon fasciatus	END	END
ABBO (Range) / eBirg.org	Golden-winged Warbler	Vermivora chrysoptera	THR	SPC
BCI (Range)	Little Brown Bat	Myotis lucifugus	END	END
MNRF / ORAA	Massasauga Rattlesnake	Sistrurus catenatus	THR	THR



Source	Species	Scientific Name	SARA	ESA
OBAO	Monarch Butterfly	Danaus plexippus	SPC	SPC
BCI (Range)	Northern Long-eared Bat	Myotis septentrionalis	END	END
ABBO (Record) / eBird.org	Olive-sided Flycatcher	Contopus cooperi	THR	SPC
eBirg.org	Red-headed Woodpecker	Melanerpes erythrocephalus	THR	SPC
eBird.org	Rusty Blackbird	Euphagus carolinus	SPC	SPC
MNRF	Rusty-patched Bumblebee	Bombus affinis	END	END
ORAA (Record)	Snapping Turtle	Chelydra serpentine	SPC	SPC
ABBO (Record) / ebird.org	Wood Thrush	Hylocichla mustelina	-	SPC

^{*}ABBO = Atlas of the Breeding Bird of Ontario; BCI = Bat Conservation International; MNRF = MNRF Species at Risk by Area Web Application; OBAO = Ontario Butterfly Atlas Online; ORAA = Ontario Reptile and Amphibian Atlas.

2.6 Significant Wildlife Habitat (SWH)

Significant Wildlife Habitat (SWH) is defined in the Significant Wildlife Habitat Technical Guide (OMNR 2000) as natural heritage areas that are "ecologically important in terms of features, functions, representation and amount and contributing to the quality and diversity of an identifiable geographic area or Natural Heritage System". Development within and adjacent SHW is only permissible provided no negative impacts to the feature or its ecological functions. Habitat may be considered SWH according to four broad categories:

- Seasonal concentration areas (i.e., winter deer yards, colonial bird nesting sites, reptile hibernacula);
- Rare vegetation communities or specialized habitat for wildlife (i.e., alvars, rare forest types, moose aquatic feeding areas, amphibian woodland breeding ponds, turtle nesting habitat);
- Habitat of species of conservation concern (i.e., species identified as special concern federally or provincially, and species listed as rare or historical in Ontario based on records kept by the NHIC (i.e. S1- Critically Imperiled, S2- Imperiled, S3- Vulnerable and SH -Historic ranks); These ranks are not legal designations but are assigned in a manner to set protection priorities); and,
- Animal movement corridors (i.e., naturally vegetated corridors or man-made features such as power transmission and pipeline corridors that provide animal movement from one habitat to another).

No records of SWH or candidate SWH were found within 1000 m of the existing structure. Records of five locally rare species were identified by the NHIC:

^{**}END = Endangered; THR = Threatened; SC = Special Concern

^{***}SARA = Species at Risk Act (Federal); ESA = Endangered Species Act (Provincial)



- Redtop Panicgrass (*Panicum rigidulum*)
- Cyrano Darner (Nasiaeschna pentacantha)
- Giant Lacewing (Polystoechotes punctatus)
- Ridged Yellow Flax (Linum striatum)
- Sand Panicgrass (*Dichanthelium spretum*)

2.7 Migratory Birds

The *Migratory Birds Convention Act* (MBCA S.C. 1994, C.22) and the Ontario Fish and Wildlife Conservation Act (FWCA S.O. 1997, C.41) prohibits the disturbance and destruction of most birds, their nests and eggs. Environment and Climate Change Canada has developed a number of tools, including the general nesting calendars (http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=4F39A78F-1) and avoidance guidelines (http://ec.gc.ca/paom-itmb/default.asp?lang=En&n=AB36A082-1) to support compliance with the Act.

The General Nesting Period for this site (Nesting Zone C3) is considered by Environment Canada to be from 08 April to 28 August in forested habitats, 12 April to 28 August in open areas, and 08 April to 16 August in wetlands.

2.8 Fisheries and Fish Management Objectives

The Burgess Dam runs across the north channel of the outlet from Lake Muskoka to the Moon River. Lake Muskoka has a surface area of 12,040 ha, and a maximum depth of 73 m. There is intense urban shoreline development with residential and commercial properties. The water level in Lake Muskoka is controlled by MNRF-owned and operated dams in Bala. The flows and levels are governed by the Muskoka River Water Management Plan. The lake supports a large diversity of sport fish including Brook Trout (*Salvelinus fontinalis*), Lake Trout (*Salvelinus namaycush*), Lake Whitefish (*Coregonus clupeaformis*), Cisco (*Coregonus artedi*), Northern Pike (*Esox lucius*), Burbot (*Lota lota*), Smallmouth Bass (*Micropterus dolomieu*), Largemouth Bass (*Micropterus salmoides*), Walleye (*Sander vitreus*), Pumpkinseed (*Lepomis gibbosus*), Black Crappie (*Pomoxis nigromaculatus*) and Yellow Perch (*Perca flavescens*). Current stocking initiatives include annual Lake Trout stocking to supplement populations. A disjunct population of Margined Madtoms (*Noturus insignis*) are present in Lake Muskoka. Margined Madtoms are considered rare in Ontario.

The MNRF refers to the section of the Moon River between the outlet of Lake Muskoka to the Swift Rapids downstream as the Bala Reach. This section of the Moon River is "lake-like" and has a surface area of 307 ha. The water levels are regulated by the Ontario Power Generation owned and operated dams at Swift Rapids Generating Station and Moon River Control Dam. This section of the Moon River supports Northern Pike, Smallmouth Bass, Largemouth Bass, Black Crappie, Walleye, Brown Bullhead (*Ameiurus nebulosus*), Emerald Shiner (*Notropis atherinoides*), Hornyhead Chub (*Nocomis biguttatus*), Logperch (*Percina caprodes*), Longnose Dace (*Rhinichthys cataractae*), Pumpkinseed, Rock Bass (*Ambloplites rupestris*), White Sucker (*Catostomus commersonii*), Yellow Perch and Rainbow Smelt (*Osmerus mordax*). Efforts to



successfully re-establish the Walleye population in the Bala Reach began in the early 2000s and included stocking and habitat enhancement. Night-lighting and egg collection was completed in May 2008 by Hatch Energy, where they identified adult Walleye and Walleye eggs downstream of the Burgess Dam (Hatch 2009).

The MNRF has identified that there is a known Walleye spawning area from the Burgess Falls downstream towards the main Bala Falls. Smelt and suckers may also be expected to spawn in the area. A map of the identified Walleye spawning area is shown in Appendix B. The MNRF stated that work which may require plant shutdown should be scheduled to avoid the spring spawning period (01 April to 01 June). Lake Muskoka is a cold-water system, and the Moon River is warmwater. This prohibits work below the natural high-water mark from October 1 through July 15 (of the following year).

Any work below the high-water mark must be assessed for whether it needs to be submitted to DFO for review. If the development has a potential to result in the death of fish or the harmful alteration, disruption, or destruction of fish habitat the project may require an Authorization under the Fisheries Act. To determine whether the proposed development is required to be submitted to DFO and assistance in submitting a project request for review to DFO see: https://www.dfo-mpo.gc.ca/pnw-ppe/reviews-revues/request-review-demande-d-examen-001-eng.html. Assistance by a qualified Fisheries Scientist is recommended for DFO permitting support.

3. FIELD INVESTIGATION METHODS

The Study Area (Figure 1) was investigated using general reconnaissance methods performed on foot. Aerial imagery of the Study Area was evaluated prior to field assessments to identify priority areas. Survey effort varied across the Study Area depending on the potential for an area to possess Natural Heritage features, as well as the topography and homogeneity of the site.

3.1 Terrestrial Habitat Assessment

The Study Area was walked by Kelly Major, Terrestrial Ecologist and Certified Environmental Professional on 06 May 2020. Mr. Major's qualifications are provided in Appendix C.

Existing terrestrial conditions were established throughout the Study Area through the description of the plant community structure, composition, and condition. Terrestrial habitat was assessed for suitability to support Natural Heritage features, including Species at Risk, Significant Wildlife Habitat and Significant Wetlands. Emphasis was placed on assessing site suitability for species identified within the Natural Heritage Desktop Review, but the site assessment was not limited to these species.

Any habitat found to be suitable for nesting by Barn Swallow (which includes porous vertical surfaces secluded from the rain) was searched with a flashlight for evidence of current or historical nesting. Evidence of Barn Swallow nesting includes the presence of intact nests, remnant nesting scars, whitewash and adults foraging in vicinity. This habitat was also search for evidence of



nesting by migratory bird species with similar nesting habits as Barn Swallow (e.g. Eastern Phoebe; *Sayornis phoebe*). Tall trees on (and overhanging) the Site were search for evidence of raptor stick nests.

Several restrictions applied to the terrestrial habitat assessment, specifically (1) unless otherwise stated, all observations were visual assessments of the site exterior (2) areas were not assesses that could not be seen from the exterior, (3) only the subject facility and public lands within 120m were assessed; no assessments were performed on adjacent private lands

3.2 Aquatic Habitat Assessment

Moon River and Lake Muskoka were investigated to determine the potential to provide fish habitat. Emphasis was placed on habitat potential to support important or critical habitat to the known (or likely) fish community upstream and downstream of the crossing. The area of investigation focused on the existing structure and the Study Area upstream and downstream. Areas downstream were searched for evidence of recent nesting or spawning activity. A MNRF License to Collect Fish for Scientific Purposes (License No.1095458) was received, however, no fish sampling occurred during the on-site field assessment.

4. FIELD INVESTIGATION RESULTS

Field Assessments were performed on 06 May 2020 by Bill Tibble (Senior Aquatic Ecologist) and Kelly Major (Terrestrial Ecologist). The qualifications of site investigators can be found in Appendix C. Field photographs are provided below.

4.1 Terrestrial Habitat

Both the north and south sides of the Site are cleared and dominated by manicured domestic grasses (lawn) and disturbance tolerant forbs such as Common Plantain (*Plantago major*), Common Dandelion (*Taraxacum officinale*), Wild Strawberry (*Fragaria vesca*), Common Mullein (*Verbascum thapsus*) and Common Burdock (*Arctium minus*); see Photos A to D. This area is also fringed by scattered shrubs, including Honeysuckle (*Lonicera* sp.), Common Blackberry (*Rubus allegheniensis*), Pin Cherry (*Prunus pensylvanica*), Showy Mountain Ash (*Sorbus decora*) and Red Elderberry (*Sambucus racemosa*). Several large White Pines (*Pinus strobus*) are located in the southeast corner of the site and low Red Maple (*Acer rubrum*) saplings were observed along the south shore.

The Site is bordered on the south and northwest by residential properties, and to the north by the River Street road embankment. These properties support a mix of native and ornamental tree and shrub species. Residential lands south of the site include semi-naturalized woodlot fragments dominated by White Pine, Eastern Hemlock (*Tsuga canadensis*), Red Maple, White Birch (*Betula papyrifera*) and Eastern White Cedar (*Thuja occidentalis*).



Habitat suitable for nesting by Barn Swallow and certain migratory bird species exists at the dam outlets (Photo E) and under decking at the powerhouse man-door entrance (Photo F). This habitat was searched and no evidence of active or past nesting was found. There was no Barn Swallow or migratory bird nesting on the outside of powerhouse and dam structure at the time of the field investigation.

Woody vegetation (trees and shrubs) scattered around the Site and surrounding Study Area all have the potential to support nesting by migratory bird species. No active bird nests were observed on the Site but thorough searches were not performed and several migratory bird species were observed in within the Study Area, including: Black-capped Chickadee (*Poecile atricapillus*), Palm Warbler (*Setophaga palmarum*) and American Robin (*Turdus migratorius*). No evidence of raptor nesting was found in trees on / overhanging the Site.

The powerhouse could support day roosting by bats, including up to three Endangered bat species: Little Brown Bat, Eastern Small-footed Bat and Northern Long-eared Bat (taxa). Males and non-gravid females of many bat species, including the endangered *Myotis* species, will make use of vertical surfaces sheltered from the sun and rain, crevices on built structures (e.g. cracks in masonry, eves, gaps in facia) as well as uninhabited building interiors for transient daytime roosting. No evidence of bat occupation (e.g. adult bats, holes / cracks discoloured by grease and urine, feces) was observed from the outside of the facility, however the facility interior was not searched.

No other candidate terrestrial SAR or SWH habitat was observed within the Study Area.





Photo A – Dam structure and south bank including access road and staging area as seen from the north bank.



Photo B – South side of the Study Area including dam access road and staging area.



Photo C – Dam structure and north bank including River Street (left of frame).



Photo D – Open habitat south of River Street and west of the dam structure.



Photo E – Dam outlets were searched for nesting by bird species, including Barn Swallow.



Photo F – The undersides of decking on site was searched for nesting by bird species.



4.2 Aquatic Habitat

Directly downstream of the dam outlet there is a plunge pool (Photo G). Old gabion baskets line the right downstream bank immediately downstream of the dam (Photo H) which were slightly unstable. Further downstream the right downstream bank is stabilized with an installed boulder wall, transitioning to a boulder bank which was likely historically placed for bank protection. The left downstream bank immediately downstream of the dam is stabilized with a boulder wall. Gravel extends from the wall into the channel. Undermining was identified on the left downstream bank, and the bank eventually becomes exposed boulders with debris scattered throughout the gradually sloping banks. The habitat downstream transitions from cobble riffles (Photo I) and runs (Photo J), to shallow bedrock cascades. The watercourse widens into the Bala Reach and flows downstream to the Moon River. Spawning habitat for Walleye and Sucker species was identified from the base of the dam downstream until the substrate transitions from cobble to bedrock. While completing the site assessment, staff observed White Sucker spawning in the gravel and cobble habitat 5-10m downstream of the dam.

The watercourse upstream of the dam is dominated by deep pool habitat (Photo K), with the highest flow evident along the right downstream bank. Substrate upstream of the dam is predominately sand, silt, gravel and detritus (Photo L). Directly upstream of the powerhouse the right upstream bank is undercut and slightly unstable. A floating barrier is in the watercourse upstream of the powerhouse. A culvert enters the watercourse from under River Road on the right downstream bank upstream of the powerhouse. The right downstream bank upstream of the dam is composed of cobbles and boulders. The MNRF has indicated that upstream of the dam provides spawning habitat for Margined Madtom. Madtoms prefer structure for spawning, including large boulders and sunken logs. The water level was deep, and in-water structure was difficult to identify.





Photo G - Directly downstream of the dam



Photo I - Boulder cascade downstream of the dam



Photo K - Deep pool habitat upstream of the dam



Photo H – Gabion baskets and placed boulders on the right downstream bank downstream of the dam



Photo J – Run habitat and cobble / gravel bed directly downstream of the dam



Photo L – Water levels and substrate abutting the concrete dam face upstream



5. ALTERNATIVE WORK OPTIONS WITH IMPACT ASSESSMENT

The Burgess Dam is an approximately 59m long and 3m high concrete dam. A retaining wall 16m in length runs along the North wall of the powerhouse and supports River St. in Bala, ON. The Township has identified the need to complete the rehabilitation / replacement of Burgess Dam. The following summarizes the observations from the Tulloch Engineering Dam Safety Review Report (Tulloch 2019).

- The powerhouse section of the dam is in poor overall condition from both a structural and dam safety perspective and will require remediation due to the presence of failed or failing structural members and a large transverse crack through the floor slab of the dam. Furthermore, significant washout of the downstream fill from another future flooding event has the potential to cause the structure to fail.
- The facility has no spill capacity as upstream water level control is provided by the Bala North and Bala South dams. It can be determined that the Burgess Dam does not have sufficient freeboard nor was the existing facility designed to handle inflow design flood in its current state
- Repair or mitigation measures must be developed for both the non-overflow dam section and powerhouse dam section to improve the FOS to meet the minimum acceptable criteria.
- The Embankment along River Street downstream of the Site is very steep and appears to be eroding at the toe where there are newer gabion baskets placed on a historic boulder/stone wall. There is a concern for slope failure of the embankment due to the erosion / scour caused by water flows during power generation activity.

A Municipal Class EA was initiated and assesses the impacts of alternative solutions for the rehabilitation / replacement (Appendix A). All impacts and mitigation measures herein are separated according to the alternative solution identified.

5.1 Alternative Work

The proposed design alternatives are outlined in detail in the Tulloch Engineering Dam Safety Review Report (Tulloch 2019). A summary of the key considerations for each design alternative are provided below.

5.1.1 Option N1 – Downstream Rip Rap Placement and Toe Berm

Reinstate the fill of the existing dam by replacing rockfill / riprap over a non-woven geotextile for erosion protection downstream of the existing dam site. Fill should be replaced in washout section and then covered with a geotextile. The addition of riprap will provide added erosion protection in the event of overtopping to avoid excessive washout of fill similar to the 2019 flooding event. In order to collect overflow water during flooding events a toe-berm could be constructed along the downstream property line to channel water down to the *in-situ* river channel. A similar berm would



be constructed along the south wall of the powerhouse to keep flows away from the building foundation.

- Downstream clear and strip organics
- Reinstate washed-out sections of downstream fill
- Place non-woven geotextiles and rip rap; grade back toward the tailrace for erosion protection
- Build toe berms along the existing property line and the south wall of the powerhouse to manage and divert the overflow toward the river
- Extend the existing dam to the south end to accommodate toe berm and flow management
- Grouting or concrete patching the cracks in existing dam to limit leakage

5.1.2 Option N2 – Partial Dam Raise and Emergency Spillway

Partially raise sections of the non-overflow area of the dam and install an emergency spillway to control overflow during flooding events. The spillway invert could be kept at the current dam crest elevation and the remainder of the dam would subsequently be raised 0.5m to meet the minimum freeboard criteria during the operation of the spillway during a flood event.

- Downstream clear and strip organics as required
- Partially raise dam 0.5m for the dam section about 20m in length south of the proposed spillway invert and 6m in length north of the invert
- Build an emergency spillway channel with rip rap placed a minimum of 500 mm thick over non-woven geotextile with a total approximate width of about 18m through the middle of non-overflow section of the dam
- The spillway will be angled such that water is directed towards the existing tailrace and away from River Street embankment
- Re-instate the fill south of the spillway that has been washed away during the flooding and tie into the spillway
- Extend the existing dam abutment south to accommodate a higher elevation (about 8m in length)
- Grouting or concrete patching the cracks in the existing dam to limit the leakage

Options for the Powerhouse Dam Section (P)

5.1.3 Option P1 – Demolish Powerhouse and Replace with New Dam

Demolish the existing powerhouse dam section and build a new concrete dam section upstream of the existing powerhouse

- Installation of upstream and downstream cofferdam
- Removal of the old dam section and powerhouse structure
- Construction of a new concrete gravity dam (2.5m high) on excavated bedrock for water retention
- Removal of cofferdams



5.1.4 Option P2 – Powerhouse Refurbishment and Reinforcement

Structural reinforcement of the existing building as well as to remediate and reinforce the dam section and foundation of the powerhouse.

- Fill scour areas in foundation with mass pour concrete
- Grout the cracks developing in concrete piers
- Reinforce the powerhouse structure with 9 rock anchors
- Repair / Replace the roof
- Add shear struts and additional structural bracing in the powerhouse building
- Grouting or concrete patching the cracks in the existing dam to limit the leakage
- Extend the existing tailrace pipes for the turbines units downstream to keep them a safer distance away from the powerhouse to avoid scour and undermining of the foundation

5.1.5 River Street Concrete Retaining Wall

- Install a drainage ditch upstream of the retaining wall to divert the surficial run-off water from River Street
- Drill drainage holes and install drainage pipes along the base of the existing concrete retaining wall.



5.2 Impact Assessment and Mitigation

Table 3 – Impact Assessment and Mitigations for Construction Options

Options	Consists Of	Potential Impacts (in the absence of Mitigation)	Mitigations
Options for Non-Overflow Dan	n Section		
Re-Instate Downstream Fill and Add Erosion Protection Option N1	 Downstream veg removal Strip top organic soil Replace DS fill materials Regrade fill materials and build a toe berm to divert flow to river Add rock/riprap for erosion protection Grouting or patching of cracks in existing dam Concrete slab at powerhouse repaired and anchored 	 Harm to migratory birds. Removal of woody vegetation, if performed while migratory birds are nesting, could result in harm to active migratory bird nests, eggs and young. Change in fish habitat. Placement of rip-rap below the high-water mark will alter fish habitat. Harm to fish. Development may result in increase of erosion or sediment transport, or the introduction of deleterious substances to the River. Construction may result in direct mortality to fish or their eggs or offspring. Future sediment transport. The placement of riprap may result in future transport of sediment into the River. If flood events occur, accumulated materials caught in the rip-rap slope will be resuspended and transported downstream to the River. This potential impact cannot be eliminated through mitigation efforts. 	 during the General Nesting Period: avoid clearing from 12 April to 28 August. Alternatively, inspect woody vegetation immediately prior to removal and retain any tree or shrub that is supporting an active migratory bird nest. Minimize the clearing of vegetation. Clear only what is necessary to accomplice the undertaking. Incorporate existing vegetation into the final plan where possible. Regreen devegetated areas where feasible. Avoid changes to fish habitat. Retain in-water and riparian vegetation as much as possible. Avoid placing material below the high-water mark if possible. All work below the high-water mark must be submitted to DFO for review.
Dam Crest Raise and Spillway Construction Option N2	 Downstream veg removal Strip top organic soil Partially raise dam crest on north and south dam sections Install emergency spillway (geomembrane rockfill channel) Replace DS fill materials Regrade middle dam section DS and add rock/riprap for erosion protection Grouting or concrete patch cracks in existing dam Concrete slab at powerhouse repaired and anchored 	 Harm to migratory birds. Removal of woody vegetation, if performed while migratory birds are nesting, could result in harm to active migratory bird nests, eggs and young. Change in sensitive fish habitat. Diverting overflow downstream may result in alteration to sensitive fish habitat required for critical life functions. Change in fish habitat. Placement of rip-rap below the high-water mark will alter fish habitat. Harm to fish. Development may result in increase of erosion or sediment transport, or the introduction of deleterious substances to the River. Construction may result in direct mortality to fish or their eggs or offspring. 	 during the General Nesting Period: avoid clearing from 12 April to 28 August. Alternatively, inspect woody vegetation immediately prior to removal and retain any tree or shrub that is supporting an active migratory bird nest. Minimize the clearing of vegetation. Clear only what is necessary to accomplice the undertaking. Incorporate existing vegetation into the final plan where possible. Regreen devegetated areas where feasible. Direct spillway to non-sensitive habitat. Direct the outlet of the spillway downstream of the cobble / gravel spawning bed. The outlet should be located at the bedrock cascade as to prevent scour and resuspension of soft sediment.





Options for Powerhouse Dam Section		 the high-water mark if possible. All work below the high-water mark must be submitted to DFO for review. Erosion and Sediment Control. ESC measures should be implemented prior to construction to prevent entry of sediment into the waterbody. All banks should be stabilized following construction. Control deleterious substances. Waste materials should be stabilized. Construction materials and equipment should arrive on site clean. Filling and storage of fluids should be >30m from the watercourse. Minimize in-water work. MNRF in-water timing windows must be followed. All in-water work must be isolated from the watercourse and a fish salvage must be completed.
Demolish Powerhouse and Replace with New Dam Option P1 Installation of upstream and downstream cofferdam Removal of the old dam section and powerhouse structure Construction of a new concrete gravity dam (2.5m high) on excavated bedrock for water retention Removal of cofferdams	 Harm to Barn Swallow or migratory birds. No evidence of Barn Swallow or migratory bird nesting was found on the powerhouse, but habitat is suitable. Should nesting occur in the future, demolition of the powerhouse could result in harm to active nests, eggs and young. Harm to bats. Bats could day-roost within the existing powerhouse. If present, demolition of the structure could harm endangered species. Change in fish habitat. Excavation and placement of fill below the high-water mark will alter fish habitat. Change in sensitive fish habitat. Potential changes in sensitive fish habitat both upstream and downstream which are required for critical life functions. Harm to fish. Development may result in increase of erosion or sediment transport, or the introduction of deleterious substances to the River. Construction may result in direct mortality to fish or their eggs or offspring. In-water work. The replacement of the dam and powerhouse will result in extensive time spent working below the high-water mark. Fish habitat will be isolated. This impact cannot be eliminated. Changes in flow. Complete isolation of the dam and powerhouse for removal may result in long- or short-term changes to flow downstream. 	nesting was found on the existing powerhouse, but habitat is suitable. Inspect the structure again immediately prior to undertaking the work. Endangered Species Act registration is required if Barn Swallow nests are found on the powerhouse and if any activity is to be undertaken that will harm the nests or harm / harass Barn Swallows. A Barn Swallow Mitigation Plan would need to be prepared by a qualified person in support of registration under this Act. • Avoid active migratory bird nests. No evidence of migratory bird nesting was found on the existing powerhouse, but habitat is suitable. Avoid demolition during the General Nesting Period: from April 12 to August 28. Alternatively, inspect the exterior and interior of the existing powerhouse prior to demolition and only proceed if active migratory bird nests are not present. The proponent may choose to inspect the interior of the powerhouse prior to April 12 for evidence of past nesting. If nesting has occurred in the past, the proponent can exclude migratory birds from re-entering the structure. • Avoid roosting bats. Avoid demolition while bats are active: from April 15 to September 30. Alternatively, inspect the powerhouse interior prior to demolition and proceed only if bats are absent. The proponent may choose to inspect the interior of the powerhouse prior to April 15 for evidence of past bat roosting. If roosting has occurred in the past, the proponent can exclude bats from re-entering the structure.





	Fill scour groze in foundation with mass nour concrete	A Harm to Barn Swallow or migratory birds. No	•	Erosion and Sediment Control. ESC measures should be implemented prior to construction to prevent entry of sediment into the waterbody. Cofferdams used should result in complete isolation of the in-water work area. All banks should be stabilized following construction. Control flow. Use by-pass pumps to control water discharge from upstream around the isolated area. Use DFO approved fish screens at inlet and outlet of pipes. Ensure areas of discharge are stable, and that discharging will not result in scouring. Control deleterious substances. Waste materials should be stabilized. Construction materials and equipment should arrive on site clean. Filling and storage of fluids should be >30m from the watercourse. Minimize in-water work. MNRF in-water timing windows must be followed. All in-water work must be isolated from the watercourse and a fish salvage must be completed. Reduce inwater work as much as possible.
Powerhouse Refurbishment and Reinforcement Option P2	 Fill scour areas in foundation with mass pour concrete Grout the cracks developing in concrete piers Reinforce the powerhouse structure with 9 rock anchors Repair / Replace the roof Add shear struts and additional structural bracing in the powerhouse building Grouting or concrete patching the cracks in the existing dam to limit the leakage Extend the existing tailrace pipes for the turbines units downstream to keep them a safer distance away from the powerhouse to avoid scour and undermining of the foundation 	 Harm to Barn Swallow or migratory birds. No evidence of Barn Swallow or migratory bird nesting was found on the powerhouse, but habitat is suitable. Should nesting occur in the future, maintenance and upgrades to the powerhouse could result in harm to active nests, eggs and young. Harm to bats. Bats could day-roost within the existing powerhouse. If present, renovations within the structure could harm endangered species. Change in fish habitat. Excavation and placement of fill below the high-water mark will alter fish habitat. Harm to fish. Development may result in increase of erosion or sediment transport, or the introduction of deleterious substances to the River. Construction may result in direct mortality to fish or their eggs or offspring. In-water work. The replacement of the dam and powerhouse will result in work below the high-water mark. This impact cannot be eliminated; however, refurbishment will result in a shorter duration of inwater impacts compared to full replacement (Option P1). Changes in flow. Complete isolation of the dam and powerhouse for removal may result in long or short term changes to flow downstream. 		Avoid Barn Swallow and nests. No evidence of Barn Swallow nesting was found on the existing powerhouse, but habitat is suitable. Inspect the structure again immediately prior to undertaking the work. Endangered Species Act registration is required if Barn Swallow nests are found on the powerhouse and if any activity is to be undertaken that will harm the nests or harm / harass Barn Swallows. A Barn Swallow Mitigation Plan would need to be prepared by a qualified person in support of registration under this Act. Avoid active migratory bird nests. No evidence of migratory bird nesting was found on the existing powerhouse, but habitat is suitable. Avoid maintenance and upgrades during the General Nesting Period: from April 12 to August 28. Alternatively, inspect the exterior and interior of the existing powerhouse prior to maintenance and upgrades and only proceed if active migratory bird nests are not present. The proponent may choose to inspect the interior of the powerhouse prior to April 12 for evidence of past nesting. If nesting has occurred in the past, the proponent can exclude migratory birds from re-entering the structure. Avoid roosting bats. Avoid renovations while bats are active: from April 15 to September 30. Alternatively, inspect the powerhouse interior prior to renovations and proceed only if bats are absent. The proponent may choose to inspect the interior of the powerhouse prior to April 15 for evidence of past bat roosting. If roosting has occurred in the past, the proponent can exclude bats from re-entering the structure. Avoid changes to fish habitat. Retain in-water and riparian vegetation as much as possible. Reinstate in-water cover after construction is complete. All work below the high-water mark must be submitted to DFO for review.





River Street Concrete Retaining	ng Wall		 Erosion and Sediment Control. ESC measures should be implemented prior to construction to prevent entry of sediment into the waterbody. Cofferdams used should result in complete isolation of the in-water work area. All banks should be stabilized following construction. Control flow. Use by-pass pumps to control water discharge from upstream around the isolated area. Use DFO approved fish screens at inlet and outlet of pipes. Ensure areas of discharge are stable, and that discharging will not result in scouring. Control deleterious substances. Waste materials should be stabilized. Construction materials and equipment should arrive on site clean. Filling and storage of fluids should be >30m from the watercourse. Minimize in-water work. MNRF in-water timing windows must be followed. All in-water work must be isolated from the watercourse and a fish salvage must be completed. Reduce inwater work as much as possible.
Drainage ditch and holes	 Install a drainage ditch upstream of the retaining wall to divert the surficial run-off water from River Street Drill drainage holes and install drainage pipes along the base of the existing concrete retaining wall. 	 Harm to migratory birds. Removal of woody vegetation, if performed while migratory birds are nesting, could result in harm to active migratory bird nests, eggs and young. Harm to fish. Development may result in increase of erosion or sediment transport, or the introduction of deleterious substances to the River. Construction may result in direct mortality to fish or their eggs or offspring 	 Avoid active migratory bird nests. Avoid clearing vegetation during the General Nesting Period: avoid clearing from 12 April to 28 August. Alternatively, inspect woody vegetation immediately prior to removal and retain any tree or shrub that is supporting an active migratory bird nest. Minimize the clearing of vegetation. Clear only what is necessary to accomplice the undertaking. Incorporate existing vegetation into the final plan where possible. Regreen devegetated areas where feasible. Control deleterious substances. Waste materials should be stabilized. Construction materials and equipment should arrive on site clean. Filling and storage of fluids should be >30m from the watercourse. Erosion and Sediment Control. ESC measures should be implemented prior to construction to prevent entry of sediment into the waterbody. All banks should be stabilized following construction.



6. SUMMARY

The potential impacts of each design alternative and mitigation strategies which should be adopted to control these impacts are presented in Table 3.

The potential impacts of each construction option, and mitigation strategies which should be adopted to control these impacts are presented in Table 3. Both options for the non-overflow dam section require the removal of woody vegetation, which could result in harm to migratory birds. To minimize these impacts, it is advised that clearing of vegetation be kept to a minimum, and that vegetation should only be cleared outside of the General Nesting Period. Both, re-instating downstream fill for erosion protection, and constructing a spillway, may result in changes to fish habitat. Impacts should be controlled through minimizing in-water work, implementing proper isolation techniques and ESC measures, controlling deleterious substances, and abiding by all DFO and MNRF guidelines and permitting requirements. The option of re-instating the downstream fill may result in future transport of sediment, as flood events could resuspend debris and sediment which has settled in the rip-rap over time. The spillway construction option should be designed as to not discharge to sensitive fish habitat. Any discharge should be directed downstream towards the bedrock cascade, preventing scouring, suspension of soft substrate and changes to spawning habitat in the cobble / gravel beds directly downstream of the dam.

Replacing or refurbishing the dam and powerhouse both could result in impacts to nesting birds, specifically Barn Swallow, and roosting bats. Although there was no evidence of roosting bats, or migratory bird nests on the structure during the field assessment, all active bird nests and roosting bats should be avoided. Work should be avoided during the General Nesting Period or while bats are active (April 15 to September 30). In-water work is required for both powerhouse / dam section options. The replacement of the dam and powerhouse is likely to result in a longer in-water work construction time than the refurbishment option. Longer in-water work times increases the chance of sediment transfer downstream and impacts to fish. The excavation required for the dam replacement is also more likely to result in changes to sensitive fish spawning habitat upstream and downstream of the dam. Both the refurbishment and replacement options must be submitted to DFO for approval, and in-water work must be isolated, fish must be salvaged, and MNRF inwater timing guidelines should be followed.

The construction proposed on the River St. retaining wall is not likely to result in impacts to fish and fish habitat. If work is being completed within 30m of the River, erosion and sediment control measures should be used to control any sediment from entering the River. If any clearing is required, it should occur outside of the General Nesting Period.



7. CLOSING

Tulloch Environmental, a division of Tulloch Engineering Inc. (Tulloch), was retained by The Township of Muskoka Lakes to complete an Existing Conditions and Environmental Impact Assessment (EC/EIA) in support of the Municipal Class EA for the Burgess Dam and Generating Station rehabilitation / replacement in Bala, ON. This report outlines the results of a Natural Heritage Desktop Review, field investigations on the Site and an assessment of anticipated environmental impacts. It also provides mitigation strategies to avoid or minimize project impacts.

We the undersigned are pleased to provide this report as a record of our services and findings. If you have any questions or if we can be of further assistance in this matter, please do not hesitate to contact us.

Sincerely,

Tulloch ENVIRONMENTAL

Report Prepared By:

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Report Reviewed By:

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Environmental Team Lead



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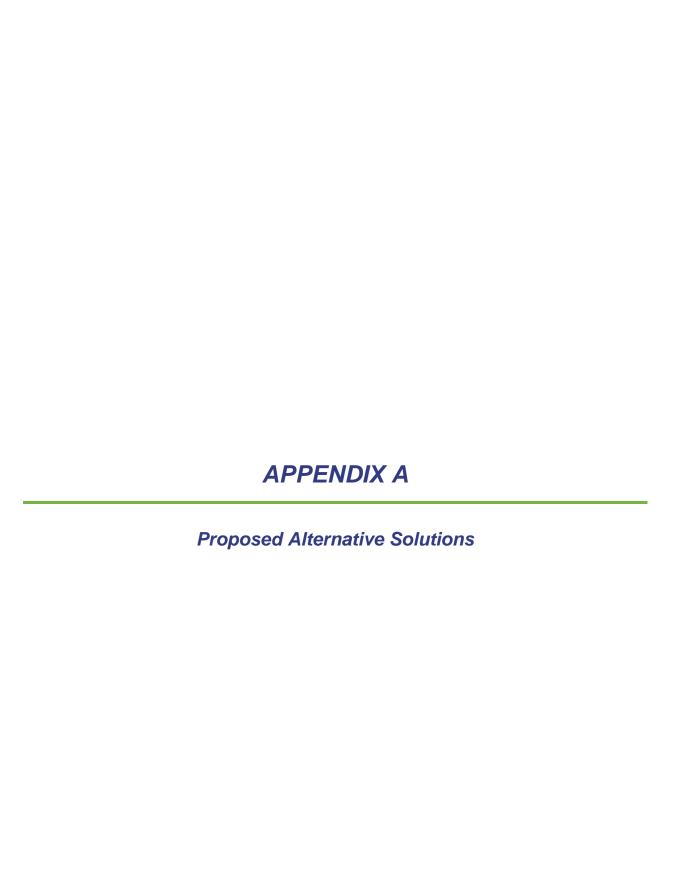
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APPENDIX B

Natural Heritage Review and Communications with Regulators



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WWW.Tulloch.ca

03 February 2020

Karine Beriault | Management Biologist 7 Bay St, Parry Sound, ON, P2A 1S4 Tel: 705-773-4240

Dear Karine Beriault,

Re: Natural Heritage Background Information Request: A Class Environmental Assessment on Burgess Dam for the Township of Muskoka Lakes, Bala, Ontario, Canada.

Tulloch Environmental, a division of Tulloch Engineering Inc. (Tulloch), has been retained by the Corporation of the Township of Muskoka Lakes to conduct a review of Natural Heritage Background Information available for an existing Dam across the north channel of the outlet from Lake Muskoka into the Moon River in Bala, Ontario. This review is in support of the proposed rehabilitation and/or replacement of the Burgess 1 Dam and Generating Station.

The focus of this review is located at an existing Dam, which can be accessed from River Street and Portage Street in the Village of Bala, ON. The facility consists of a 59m long concrete dam approximately 3m in height. A 16m long retaining wall connects to the north wall of the powerhouse and runs along River St. UTM Coordinates (NAD83) for the site are: 17T 609163 4985226. A map of the project location is provided in the attachments. The scope of this review includes the site and areas within 1000m.

Tulloch has reviewed information obtained from Land Information Ontario (LIO) regarding land uses and natural heritage features known (or believed) to occur within 1000m of the site. These data included sites of domestic, recreational, commercial and industrial land uses as well as known environmental sensitives (e.g. Significant Wildlife Habitat, nesting sites, fish spawning sites) and areas of enhanced protection (e.g. parks, conservation reserves, ANSI). A series of maps indicating LIO findings are provided in the attachments.

Tulloch has also reviewed natural heritage information provided by the Ministry of Natural Resources and Forestry via the Natural Heritage Information Centre (NHIC) Make-a-map, Crown Land Use Atlas and Fish ON-Line web applications. This information was supplemented with records obtained from authoritative atlases, including; the Atlas of the Breeding Birds of Ontario, Bat Conservation International and the Ontario Reptiles and Amphibians Atlas. A summary of notable information is provided below:

- Four (4) NHIC records of Species at risk were returned within 1000m of the study area.
 - Massasauga Great Lakes / St. Lawrence population (Threatened)
 - Rusty-patched Bumble Bee (Endangered)
 - o Blanding's Turtle (Threatened)
 - Eastern Wood-pewee (Special Concern)



- Five (5) NHIC records of locally rare species were returned within 1000m of the study area
 - o Redtop Panicgrass
 - o Cyrano Darner
 - Giant Lacewing
 - Ridged Yellow Flax
 - Sand Panicgrass
- Records of restricted species were returned within 1000m of the study area.
- Ten (10) ABBO records of species at Risk were returned within 1000m of the study area.
 - o Barn Swallow (OBBA 1985 & 2005)
 - o Bobolink (OBBA 1985)
 - o Canada Warbler (OBBA 1985 & 2005)
 - o Chimney Swift (OBBA 1985 & 2005)
 - o Common Nighthawk (OBBA 1985 & 2005)
 - o Eastern Meadowlark (OBBA 1985)
 - o Eastern Wood-pewee (OBBA 1985 & 2005)
 - o Golden-winged Warbler (OBBA 1985)
 - o Olive-sided Flycatcher (OBBA 1985 & 2005)
 - o Wood Thrush (OBBA 1985 & 2005)
- One Natural Area, BALA was identified from NHIC records
- Environment and Climate Change Canada considers the General Nesting Periods for this area (Nesting Zone C3) to be 8 April to 28 August for Forests, 12 April to 28 August for open habitats and 8 April to 16 August for Wetlands.
- Lake Muskoka outlets to the Moon River through the Burgess Dam. The Moon River outlets to Georgian Bay approximately 40km downstream.
 - Lake Muskoka is 120.4 ha with a mean depth of 15m and a max depth of 66m. The
 thermal regime is unknown but is assumed to be cool-cold. Lake Trout stocking has
 occurred every year since 2013, and once in 2010. Known fish species in the lake
 include:
 - Black Crappie
 - Brown Bullhead
 - Burbot
 - Cisco
 - Lake Trout
 - Lake Whitefish
 - Largemouth Bass
 - Northern Pike
 - Pumpkinseed
 - Rainbow Smelt
 - Rock Bass

Burgess Dam 2



- Smallmouth Bass
- Walleve
- White Sucker
- Yellow Perch
- Moon River thermal regime is cool-water. Fishing is restricted at Freeman Twp. Lots 33, 34, 35, 36 in Concessions VIII, IX, and X. No fishing from Apr 1 Fri before the 3rd sat in May. Fish species are unknown; however, online fishing atlases suggest Muskie, Pike, Walleye and Bass are all present in the River.

Tulloch is requesting the following information and guidance from the OMNRF:

- A SAR list for the district.
- The identification of the Restricted Species (proof of medium sensitivity data training can be provided).
- Terrestrial data pertaining to the site and areas within 1000m, such as:
 - o Records of provincially tracked species associate with the planning areas.
 - Known Significant Wildlife Habitat and other areas of critical habitat associate with the planning areas.
 - The General Nesting Periods for the area (if different from that recommended by Environment and Climate Change Canada, above)
 - o Other terrestrial timing windows and restrictions
- Fishery data for water bodies adjacent to the project area including:
 - o Known fish community species
 - o Thermal regimes (if different than above)
 - Areas of known critical habitat (spawning, etc.)
 - o Aquatic species at risk (records, local knowledge)
 - o Barriers to passage
- OMNRF fishery management information:
 - o In-water work timing window
 - Areas of concern (e.g. known sources of sediment and erosion, sources of pollution)
 - o Fishery management objectives (e.g. rehabilitation or protection goals, etc.)
 - o Known commercial fishing licenses (i.e. commercial baitfish licenses) in the area
- Adjacent areas of protection not listed above (ANSI, Parks, Conservation Reserves, etc.)

Burgess Dam 3



If you have any questions or require additional information, please do not hesitate to contact the undersigned at (705) 522-6303.

Thank you for your time and assistance.

Sincerely,

Emelia Myles-Gonzalez

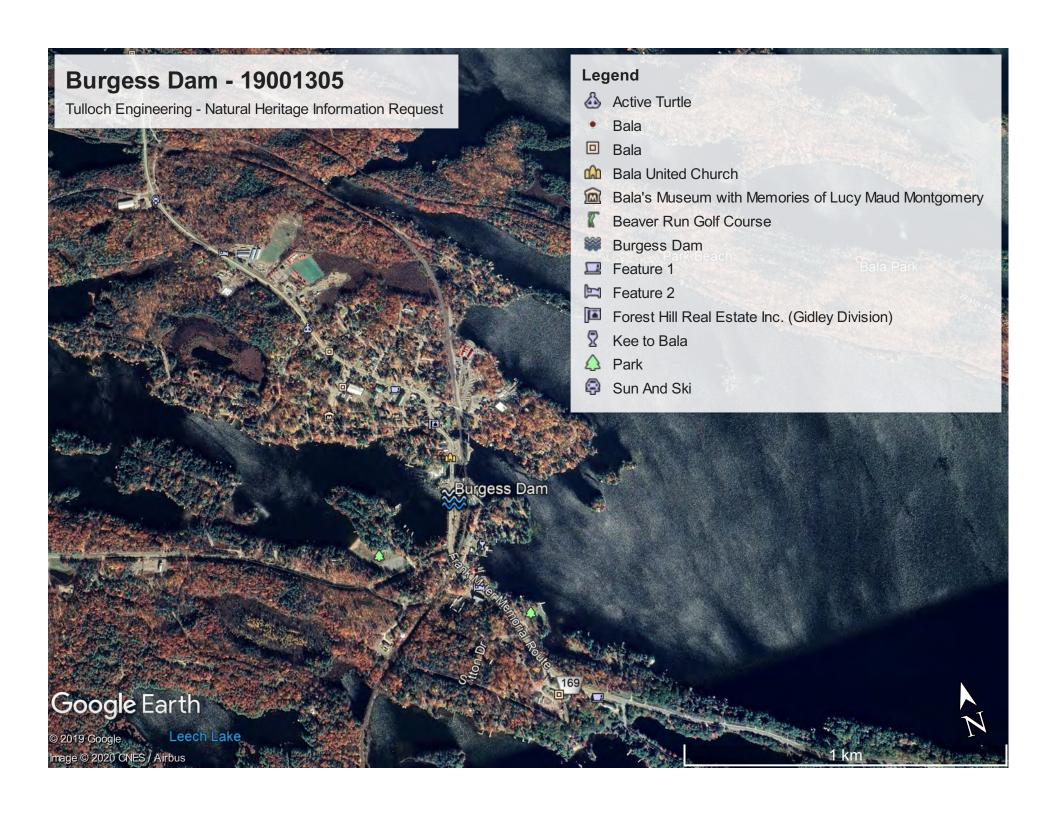
Aquatic Ecologist

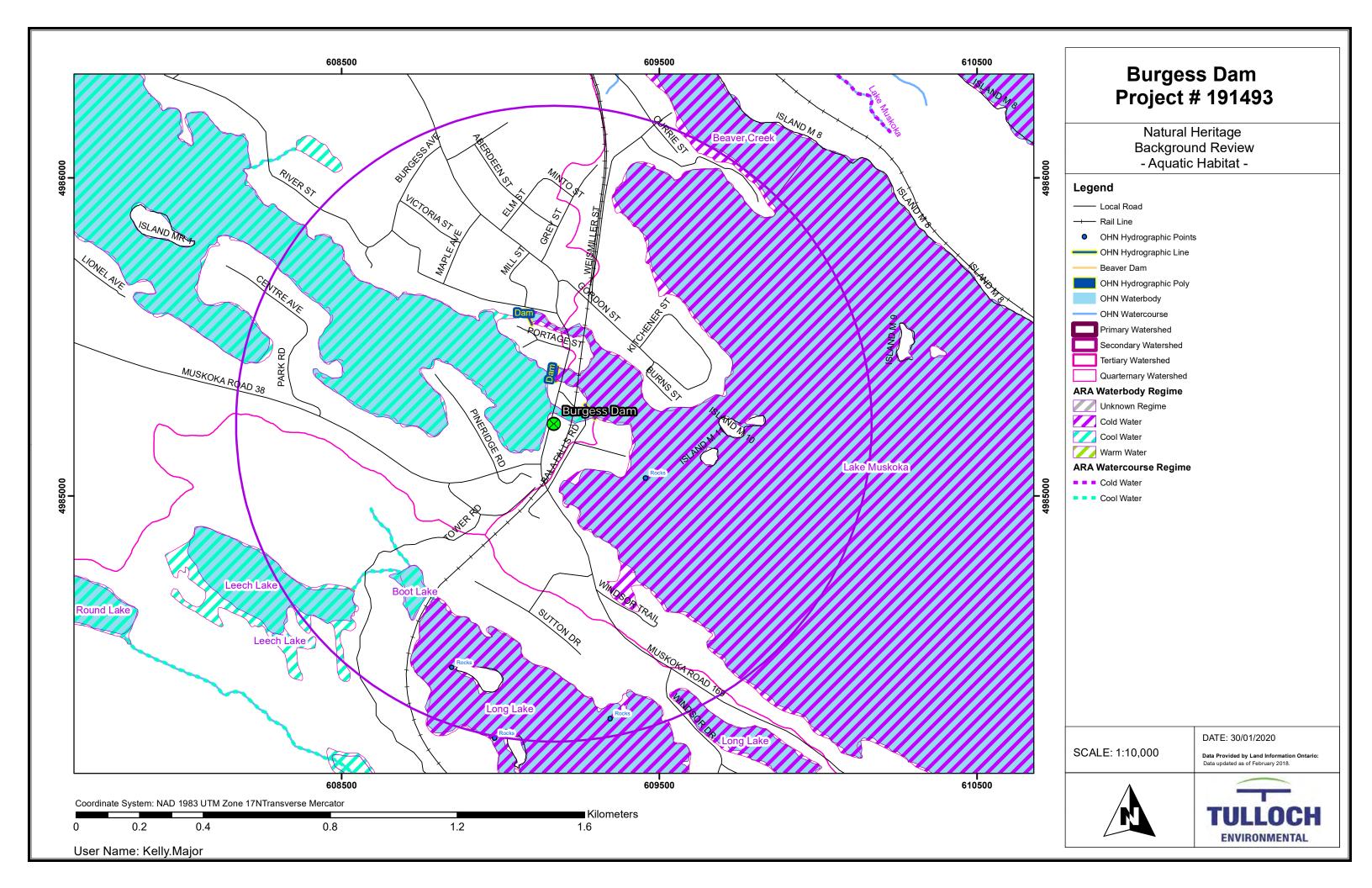
Tulloch Environmental, a division of Tulloch Engineering emelia.myles-gonzalez@tulloch.ca

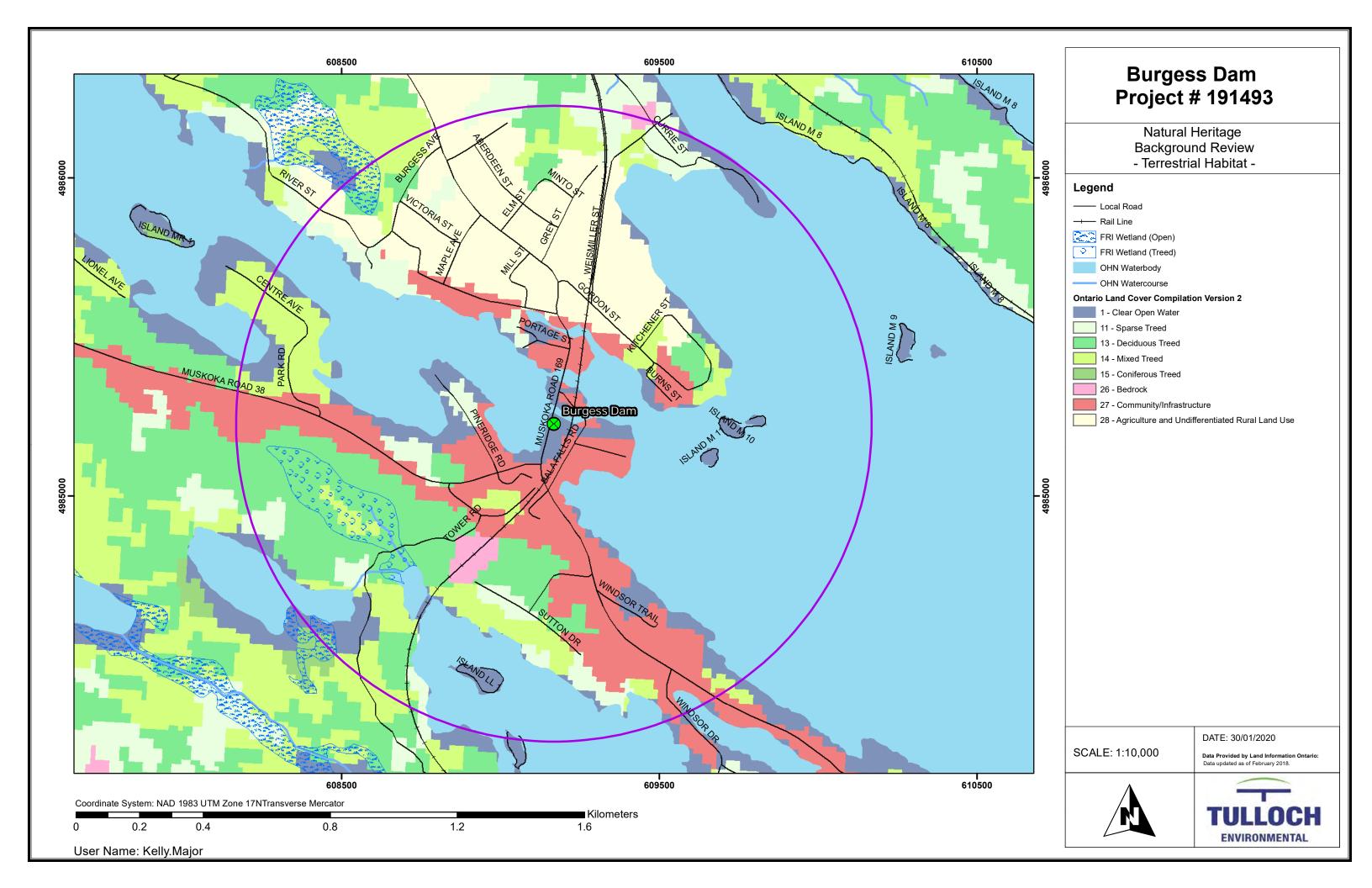
(705) 522-6303 x 624

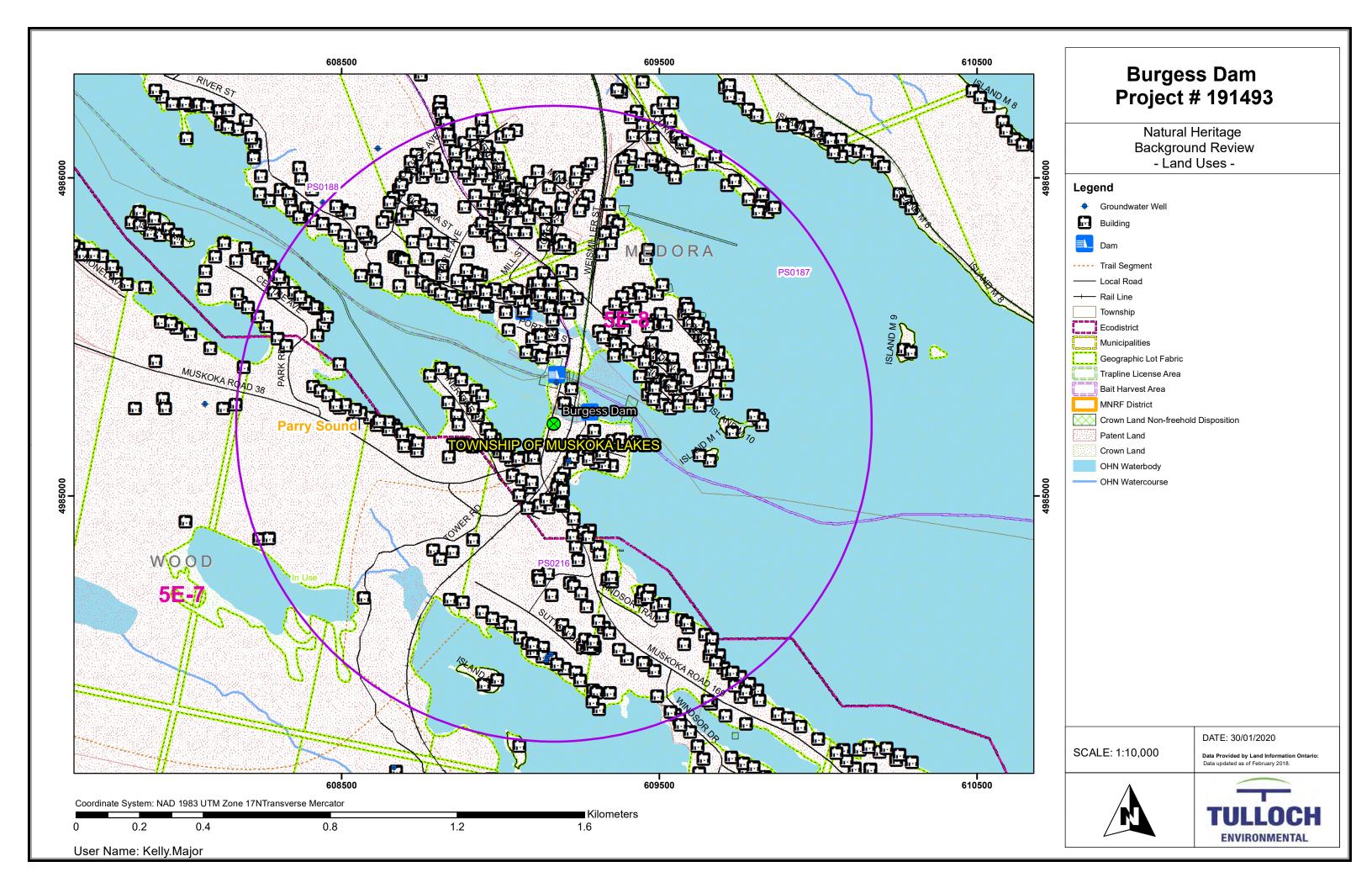
Burgess Dam 4

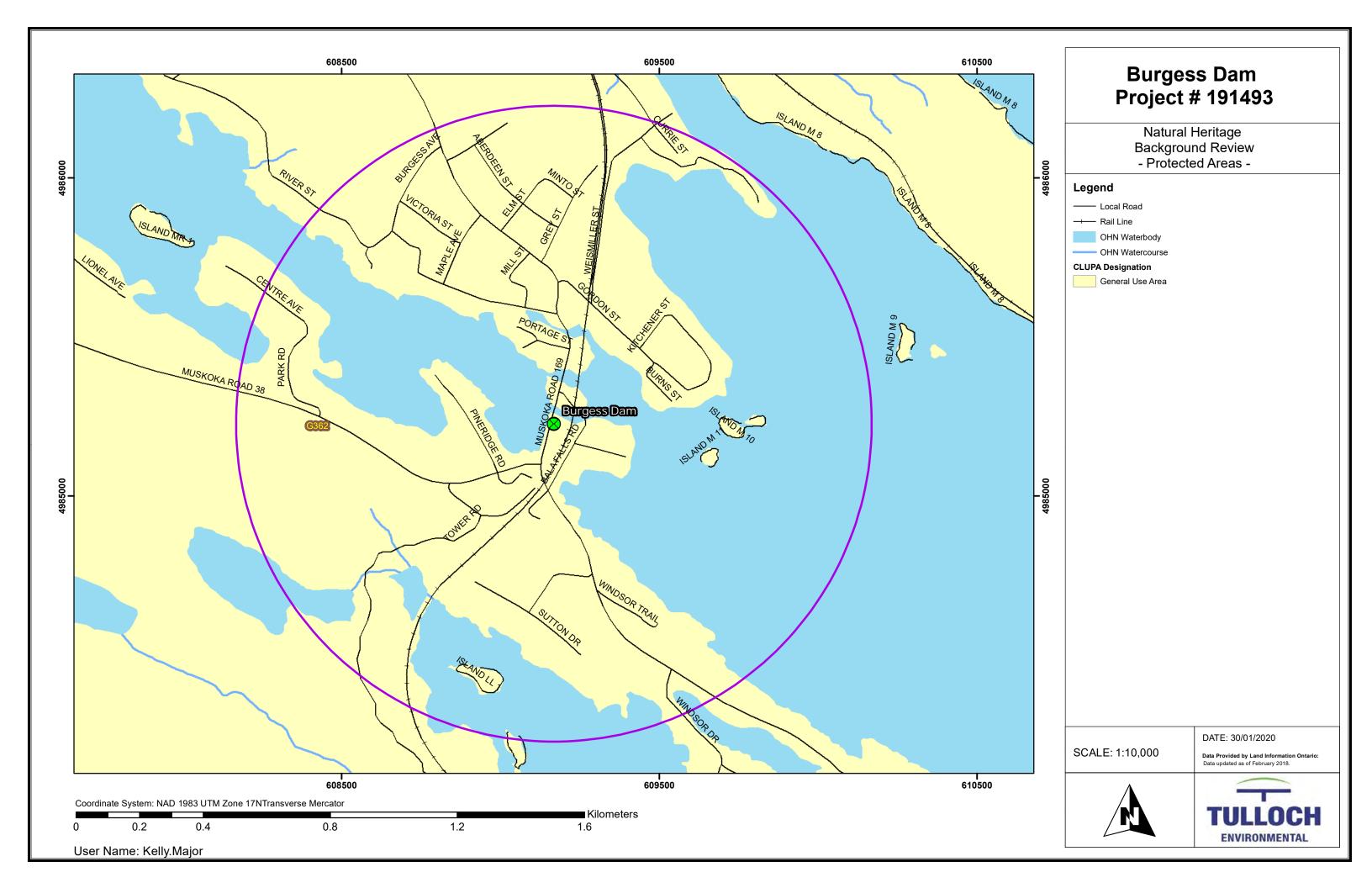


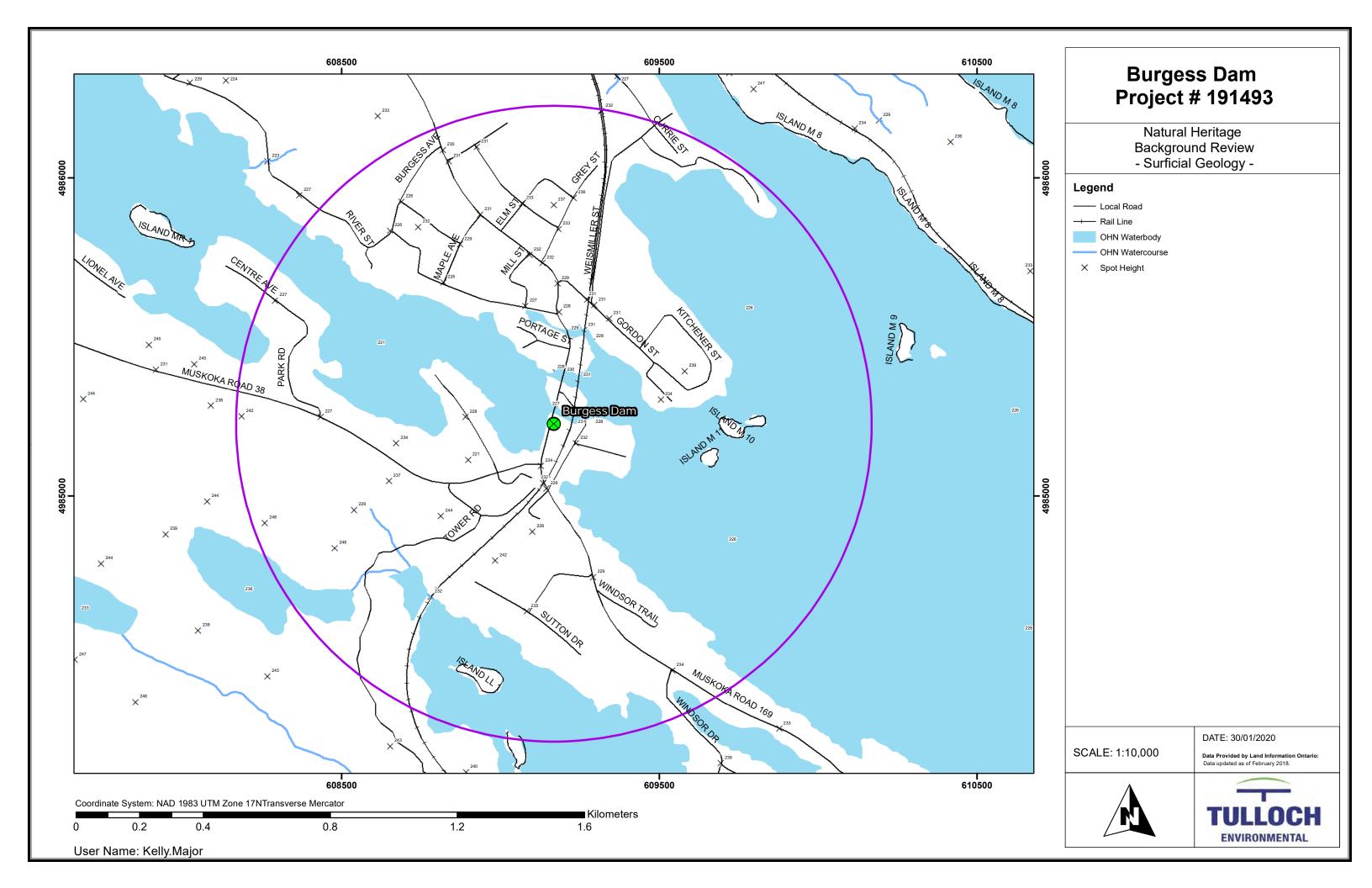












Emelia Myles-Gonzalez

From: Emelia Myles-Gonzalez

Sent: February 12, 2020 9:50 AM

To: NHI ParrySound (MNRF)

Subject: RE: Natural Heritage Information Request - Tulloch - Burgess Dam in Bala, ON

Thank you Jake.

I will review your information and let you know if I have any questions.

Regards,

Emelia Myles-Gonzalez

Aquatic Biologist



Tel: 705 522 6303 Cell: 613 985 6961

TULLOCH Engineering Inc 1942 Regent St, Sudbury, ON P3E 5V5

emelia.myles-gonzalez@TULLOCH.ca | TULLOCH.ca

From: NHI ParrySound (MNRF) < NHI.ParrySound@ontario.ca>

Sent: February 12, 2020 9:48 AM

To: Emelia Myles-Gonzalez <emelia.myles-gonzalez@tulloch.ca>

Subject: RE: Natural Heritage Information Request - Tulloch - Burgess Dam in Bala, ON

Hi Emelia.

Please see information below:

All SAR information is to be request from MOE.

The location of the Burgess dam is incorrectly marked on the maps.

You seem to be relying on fish online rather than direct LIO data which is more complete.

Lake Muskoka is ~12040 ha not 120.4 and is considered coldwater.

Lake Muskoka fact sheet is attached – is somewhat out of date but may have some useful info.

Bala Reach. Fact sheet attached and data is in LIO (ARA summary), not fish online.

There is a walleye spawning area - mapped as an area that includes the Burgess tailrace all the way over to the main Bala Falls. Other typical species that spawn in that type of habitat can be expected as well, such as smelt and suckers. The Burgess plant has normally run as a run-of river plant and there has not been any flow requirements in the water management plan. Work that requires plant

shutdown (shutting off of flow through the dam/plant) should be scheduled to avoid the spring spawning period (April 1 – June 1). Same recommendation applies for work in water.

There is also a potential spawning area mapped on the upstream, Lake Muskoka, side between Burgess and North Bala dam. It must have been mapped based on habitat as it does not seem to be a great location.

Margined madtom may be present as they do occur in Lake Muskoka and they like that rocky kind of habitat that is in the tailrace.

The EA documents for the Bala Falls project which may have some material of interest are on the Swift River web site (balafalls.ca).

If there are any other questions please give me a call.

Jake Rouse

Jeremy Rouse
Management Biologist
Parry Sound District
Ministry of Natural Resources and Forestry

Office: 705-773-4205



From: Emelia Myles-Gonzalez <emelia.myles-gonzalez@tulloch.ca>

Sent: Monday, February 3, 2020 2:33 PM

To: NHI ParrySound (MNRF) < NHI.ParrySound@ontario.ca >

Subject: Natural Heritage Information Request - Tulloch - Burgess Dam in Bala, ON

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hello,

On behalf of Tulloch Environmental, a branch of Tulloch Engineering, I am seeking any Natural Heritage Information you may have for the proposed rehabilitation of the Burgess Dam and Generating Station in Bala, Ontario. All information gathered from online resources is summarized in the attachment, as well as a site map and maps showing Aquatic Features, Terrestrial Features, Protected Areas and Land-use Features.

A list of the requested information is outlined in the letter attached above. We understand that MNRF does not provide information on SAR, but would appreciate any additional information on tracked or locally rare species. A restricted

species was retrieved in our background review. If you require proof of Sensitivity training for this information please let me know.

Thank you for any information you can provide. I look forward to hearing back from you,

Emelia Myles-Gonzalez

Aquatic Biologist



Tel: 705 522 6303 Cell: 613 985 6961

TULLOCH Engineering Inc 1942 Regent St, Sudbury, ON P3E 5V5

emelia.myles-gonzalez@TULLOCH.ca | TULLOCH.ca



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Lake Fact Sheet - Parry Sound District

Lake Muskoka

Location	
Official Name:Lake Muskoka	Local Names:
County/District:Muskoka	Geographic Twp:Muskoka
Municipality:Township of Muskoka Lakes	MNR Admin. Area: Bracebridge
Lat./Long:45.054 N -79.475 W	UTM (NAD83):17 620081 4990037
Topographic Map (1:50,000):31E03	Drainage Basin: Muskoka River

Physical Features		
Surface Area (ha):12,100	Maximum Depth (m):73	Mean Depth (m):18
Elevation (m asl):225	Perimeter (km):269	Island Shoreline (km): 209
Volume (10 ⁴ m ^{3:}):183,000	Watershed (km²):4,600 (excludes area of lake)	Water Clarity: 3.5 (varies across the lake)

Land Use and Development			
Crown Land (%):	0 Provincial Parks: Hardy Lake Provincial Park		
Shoreline Development:	Intense; urban, shoreline residential, commercial,		
Access:	Public launches: Bracebridge - George Road, Beaumont Drive; Gravenhurst – Muskoka Wharf; Bala; Milford Bay and others; private access through several marinas.		
Water Level Management:	Regulated; water level is controlled by MNR-owned and operated dams at Bala. Flows and levels are governed by the Muskoka River Water Management Plan.		

Major Fish Species:	brook trout (E), lake trout (S), lake whitefish (R), Cisco (R), rainbow smelt (I), northern
major r ion oposios.	
	pike, burbot, smallmouth bass (I?), largemouth bass (I?), walleye (I?),

Other Fish Species: longnose sucker, white sucker, lake chub, golden shiner, common shiner, blacknose

shiner, spottail shiner, spotfin shiner (I), bluntnose minnow, black bullhead (?), brown bullhead, margined madtom (I?), trout-perch, rock bass (I), pumpkinseed, black crappie (I 1989), yellow perch, lowa darter, logperch, cisco, Slimy Sculpin,

Spoonhead Sculpin

Fish Species

Lake Fact Sheet - Parry Sound District

Lake Muskoka

Other Species: spiny water flea (I 1989), freshwater jellyfish (I 2002)

Notes: E: extirpated, I: introduced – intentional or accidental, O: occasional, R: remnant, S: currently stocked, ?: status uncertain, 2009: year of first record or introduction if known, blank: presumed native

Fisheries Management

Designation for Lake Trout Management: designated; natural reproduction; not at development capacity

Fishing Regulation

Exceptions:

No lake-specific exceptions (2009);

Muskoka River; Bracebridge Falls and South Falls to Lake Muskoka: Fish sanctuary -

no fishing from Apr. 1 - June 15 (2009)

Current Stocking: Lake trout – supplemental, some natural reproduction occurs, stocked every year

with yearlings.

Historic Stocking (last year stocked):

brown trout (1933), smallmouth bass (1949), walleye (1989), rainbow trout (1983),

brook trout (1961), splake (1961)

Contaminants: Species tested: lake trout, northern pike, walleye, smallmouth bass, yellow perch,

rock bass, brown bullhead, rainbow smelt

Assessment: Completed Projects:

1988 contaminant sampling

1989 benthic invertebrate sampling

1989-94 zooplankton sampling

1990 critical habitat mapping

1990-91 vegetation mapping 1992-93 winter creel survey

1993 summer creel survey

1993-94 substrate mapping 1993-94 contaminant sampling

1993-95 small fish survey

1995 development mapping

1995 cisco study

1995-96 spring littoral index netting

1998 summer creel survey

1998 lake trout spawning observations

1998 contaminant sampling 1998-99 spring littoral index netting

2001 near shore community index netting

2003 Summer Profundal Index Netting (targets lake trout) (SPIN)

2005 SPIN

2002-06 Fall Walleye Index Netting

2007 Broad-scale Monitoring (BsM)- large mesh (generalized fish community

assessment

2008 BsM – small mesh 2010 BsM – large mesh

2014 Broad-scale Monitoring (large and small mesh netting)

Annual ice hut count

ontario.ca/mnr

Lake Fact Sheet – Parry Sound District Lake Muskoka

ontario.ca/mnr

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Parry Sound Area office: (705) 746-4201 Bracebridge Area office: (705) 645-8747

Lake Fact Sheet – Parry Sound District Lake Muskoka

Synopsis

Lake Muskoka is the largest inland lake in the District of Muskoka and MNR's Parry Sound District. It supports a large diverse sport fishery. The lake is highly developed and has been greatly perturbed by water management, contaminants, shoreline development and species introductions.

Lake trout were the primary native sport fish species. The population went into serious decline in the 1970's at least partly due to reproductive failure from DDT contamination. The population has not fully recovered; supplemental stocking still occurs. Lake whitefish and lake herring (cisco) populations have been severely depressed as well and are currently present in low numbers, but believed to be increasing. The walleye population crashed as well. Rehabilitation efforts including water level control, habitat improvement, harvest regulation and stocking have largely restored the population.

A disjunct population of margined madtom, a small, secretive member of the catfish family, occurs in Lake Muskoka. It is not known if the population is native or introduced. Margined madtoms are rare in Ontario and are listed as Data Deficient by the Committee on the Status of Species Endangered Wildlife in Canada (COSEWIC 2002).

Fish habitat features along the shoreline of Lake Muskoka have been mapped and provided to municipalities for use in municipal planning. Inquiries regarding the application of this information should be directed to the relevant municipality.

Lake Muskoka is a 'fixed' lake for the provincial Broad-scale Monitoring Program. Repeated sampling on a five year cycle is planned to monitor long-term trends in water quality, fish community and sport fish abundance in randomly selected lakes across the province.

2014 Broad-scale Monitoring

Lake Muskoka was sampled in 2014 as a "trend" lake for the Cycle 2 of the provincial Broad-scale monitoring program. Results will be reported through that program. Two species not previously documented were captured; Slimy Sculpin and Spoonhead Sculpin. Both species are thought to be native to the lake.

Updated: 2018

Refer to Lake Fact Sheet Interpretation document for explanation of content.

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Lake Fact Sheet – Parry Sound District

Bala Reach

Location	
Official Name:	Local Names:Bala Reach
County/District:Muskoka	Geographic Twp:Medora, Wood
Municipality:Township of Muskoka Lakes	MNR Admin. Area: Bracebridge
Lat./Long:	UTM (NAD83): 17 607002 4986580
Topographic Map (1:50,000):31E04	Drainage Basin: Moon River, Musquash River

Physical Features		
Surface Area (ha):307	Maximum Depth (m):	Mean Depth (m):
Elevation (m asl):225	Perimeter (km):	Island Shoreline (km):
Volume (10 ⁴ m ^{3:}):	Watershed (km²):4700 (excludes area of lake)	Water Clarity (m):

Land Use and Development				
Crown Land (%):10	Provincial Parks: None			
Shoreline Development:	High			
Access:				
	ulated; Ontario Power Generation owned and operated dams at Swift Rapids GeneratingStation and Moon River control dam			
	Water level is managed in accordance with the Muskoka River Water Management Plan			

Fish Species	
Major Fish Species:	Northern Pike, Smallmouth Bass, Largemouth Bass, Black Crappie (I 2004)), Walleye
	Brown Bullhead, Emerald Shiner, Hornyhead Chub (I), Logperch, Longnose DacePumpkinseed, Rock Bass, White Sucker, Yellow Perch, Rainbow Smelt (I 1980)
Other Species:	Spiny Water Flea

Notes: E: extirpated, I: introduced – intentional or accidental, O: occasional, R: remnant, S: currently stocked, ?: status uncertain, 2009: year of first record or introduction if known, blank: presumed native

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Lake Fact Sheet – Parry Sound District Bala Reach

Fisheries Management					
Fisheries Management Z	one:	15			
Designation for Lake Trou	ut Managei	ment: not designated			
Fishing Regulation Excep	otions	no lake-specific exceptions			
Current Stocking:	Current Stocking:				
Historic Stocking (last yea	Historic Stocking (last year stocked):Walleye (1943-1954, 1997-2000				
Contaminants (species te	ested):				
Assessment: Completed Projects:					
	1980 2004 2017	Fish Community Survey (trap net and gill net) ESTN Trap Net Survey MOE Contaminant Sampling			

Synopsis

Bala Reach is a lake-like section of the Moon River located between Bala and Swift Rapids. It has not had a complete inventory conducted but several fish community surveys have been done.

In the early 2000s, efforts were made by the local community, supported by MNRF, to rehabilitate the Walleye population. Like Lake Muskoka, upstream, the Walleye population had collapsed decades previously, probably due to a combination of water level fluctuations, introduced Rainbow Smelt and pesticide use. Habitat enhancement, stocking and possibly downstream movement of fish from the previously rehabilitated Lake Muskoka population resulted in successful re-establishment of a population and fishery.

Updated: 2018

Refer to Lake Fact Background Information document for explanation of content.

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APPENDIX C

Project Staff

PROJECT STAFF



Kelly Major, M.Sc. EP is a Terrestrial Ecologist at Tulloch Engineering. He has worked professionally throughout Ontario for seven years in consulting, government and academic sectors. His areas of specialization include Species at Risk, habitat assessment, wetland evaluation and biostatistics. As an academic, Kelly has acted as principal investigator for various studies in community ecology, plant invasion and silviculture. His research has been peer-reviewed and published. With the Ministry of Natural Resources and Forestry (MNRF), he surveyed wildlife biodiversity across the province and built statistical models forecasting forest succession for Boreal Ontario. As a consultant with Tulloch, Kelly leads Species at Risk surveys, wetland evaluations (Ontario Wetland Evaluation Systems) and terrestrial

habitat description (e.g. Ecological Land Classification). He performs impact assessments at sites of proposed development and prepares site specific mitigation strategies appropriate to the nature of the habitat alteration and the sensitivities present. He also serves as data analyst for Tulloch's environmental department; managing and mapping spatial data in ArcGIS and modeling quantitative data using univariate and multivariate statistical techniques.



Emelia Myles-Gonzalez, M.Sc. is an Aquatic Biologist for TULLOCH Engineering. She has extensive knowledge of aquatic habitats and ecosystems. She has worked as an aquatic biologist at Tulloch for 2 years, and previously worked in academic sectors. Emelia's focus is on aquatic habitat assessments, cause-effect monitoring, community composition assessments and environmental baseline and contaminant monitoring. Emelia has excellent oral and written communication skills, preparing reports, scientific papers, permit and grant applications, and presenting at numerous international conferences. She has experience collecting, organizing and reporting on data from water, soil and sediment quality measurements, habitat assessments, fisheries/macroinvertebrate collections environmental impact assessments. Emelia has played an

integral role in study design, sample collection, statistical analyses, interpretation and reporting on numerous projects. Emelia has acted as a principle investigator on projects involving the Department of Fisheries and Oceans and the Great Lakes Fisheries Commission.



Bill Tibble, M.Sc. is the Environmental Department Lead at Tulloch Engineering. He has worked professionally throughout Canada for 15 years as an Aquatic Biologist/Ecologist in the environmental consulting, government, and academic sectors. His areas of specialization include environmental effects monitoring, environmental assessment, environmental baseline studies, and aquatic habitat characterization. He has taken part in each stage of project development, including study design, data collections and interpretation, permitting, reporting and post-construction monitoring. Bill has acted as the principle investigator for various projects requiring liaising with regulators such as Fisheries and Oceans Canada and the Ministry of Natural Resources and has obtained the required advice,

authorizations and permits for numerous projects involving in-water work.





APPENDIX E

Burgess Turbine Assessment



SITE ASSESSMENT REPORT

RESULTS AND RECOMMENDATIONS

BURGESS 1 DAM





ATTENTION: Erik Giles, P.Eng

REVISION SUMMARY						
REVISION DATE PREPARED BY APPROVED BY						
A	2021-04-03	Ian Shea	Henk de Ridder			
В	2021-04-20	Ian Shea	Henk de Ridder			
С	2021-05-11	Ian Shea	Henk de Ridder			

TABLE OF CONTENTS

DIS	CLAIMER	3
REI	PORT SUMMARY	4
	INTRODUCTION	
	ASSESSMENT & OBSERVATIONS	
		_
3.	HISTORY OF BURGESS DAM FROM MARSH HYDROPOWER	.13

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REPORT SUMMARY

Introduction

Norcan Hydraulic Turbine Inc. was contracted by Tulloch Engineering with the Township of Muskoka Lakes to perform a site assessment at the Burgess 1 hydroelectric generating station, located in Bala, Ontario. The purpose of the site assessment was to identify the current condition and operational characteristics of the station's existing equipment and provide a recommendation for continued power generation, in consideration of Tulloch Engineering's concurrent Municipal Class Environmental Assessment Study. The assessment was completed on March 18, 2021 and the results have been summarized to reflect the purpose of the evaluation.

Building Condition

Previously, Tulloch completed a Dam Safety Review (DSR) in September of 2019, triggered by a flood event in the spring of 2019. The Burgess 1 facility was considered to be in "poor to fair safe condition". Based on the assessment observations, the previous evaluation is considered accurate. Access to the station is unobstructed and points of egress are adequately maintained. The building structure appears sound from the exterior, but the roof façade is unfinished and structural supports weave throughout the station footprint and existing hydroelectric equipment. The interior is typical of low-output generating stations of similar vintage, where consistent reinvestment has been redirected to maintain other aspects of the municipal budget. Concrete segments of the walls and floors are cracked, broken, oil soaked, and built up with grime and dirt. Minimal to no leakage through the concrete dam was observed and the underside of the roof was dry and free of debris. Structural additions and access platforms are rudimentary in construction but functional. Missing safety features surrounding platforms, exposed junction boxes, and electrical equipment should be a concern for immediate remedy. Currently, no site safety plan or enforcement was noted and the plant operation safety protocols were unknown. The plant operator's limits of responsibilities were unidentifiable and leads to the assumption that the plant operation is likely controlled remotely, off site. Integration of a Job Safety Analysis (JSA) program in the future would help identify and control all of the hazards and conditions related to the operations, duties, and environments of the hydroelectric power station.

Intake/Discharge Canal

The exterior upper mezzanine houses the intake head gate and trash rack system. The upstream channel is narrow and a vehicle overpass reduces the channel width substantially. The head gate appears to be in good condition while the visible sections of the trash racks appeared clear and maintained. No conclusions could be drawn regarding the condition of the intake pipe and stream base without the complete facility dewatered. There are two separate turbines with two separate draft tubes. The modified machine's draft tube was visible from the best access point but the OEM Francis machine's draft tube was not. The outlet of the draft tube of the modified turbine is obstructed by rocks from the nearby wall embankment. Localized excavation under the draft tube and surrounding discharge area is recommended to reduce flow restrictions and the wall should be repaired to prevent further erosion. Access into the discharge canal was not possible, so observations on the condition of the original draft tube could be made during the inspection.

Hydro-Mechanical Equipment

The life expectancy of the existing mechanical equipment is difficult to address considering access wasn't available to the interior of the hydraulic passage and turbine equipment. Both machines were not operational during the inspection so limited information surrounding current generation capacity and operational characteristics were obtainable. Generally, the original Francis turbine poses a greater risk for failure due to the vintage of the machine and a thorough mechanical inspection should be completed. It could be suggested that the Francis turbine has surpassed its manufacturer's life expectancy and has likely undergone repairs in the past to maintain generation capability. Other equipment owners have classified the operation of similar turbines as a "run-to-fail" mode, where an equipment failure could result in replacement costs that could be substantially covered by their insurance companies. Based on the results, an increased maintenance schedule or considerations to replace in-kind with new materials for continued generation could be required.

The retrofitted axial flow machine and equipment appeared to be in good condition but detailed information on the equipment capacity and efficiency are unavailable. The outer surfaces were in fair to good condition, by visual examination. If properly maintained since it's installation, and assuming sound engineering and design, the machines should be designed with a minimum 20-year lifespan on major components. With any machine, an operation and maintenance manual that defines the scheduled maintenance requirements, based on the type of equipment installed is normally included with the equipment. Further assessment would aid in developing more substantial conclusions but would require a more detailed inspection of the machine with the station safely dewatered. Once completed, a period of testing should be conducted to evaluate the existing machine's performances.

Further Inspection

There are two tiers of inspections that can be typically be done, on site and in shop. Depending on the type and size of the machine, on site inspections may not be appropriate for the scope of work. For example, inspecting the incline machine on site would result in a dependable assessment of the condition of the turbine, as a whole. Typical findings could include a buildup of debris, damage to the turbine (caused by debris, cavitation, or erosion due to a high particulate count (sand) in the river water quality analysis) and increased/asymmetrical bearing wear. Misalignment of the turbine is a major contributor to a reduced lifespan and should be the greatest concern when performing the inspection. Disassembly of the turbine assembly and inspecting internal components on site is typically not recommended but can be done. Removing the turbine from the station and performing a Condition Assessment in a controlled shop environment would allow all critical diameters, clearances, and fits of the full assembly to be evaluated, but wouldn't be recommended unless results from an initial inspection justified the increased attention. An on-site inspection could cost between \$30K-\$40K, under minimum assumptions and conditions. From an estimate of that magnitude, it is easy to infer the difficulty and risk of owning and operating a small hydro facility that doesn't produce a substantial amount of generation. A typical shop inspection would go into further detail and provide an opportunity to replace major components if necessary. The costs are dependent on the scope of work but would be assumed to be greater than the on-site inspection due to the removal, logistics, and installation costs associated with it.

Continued Operation and Generation

Many influences have significant merit in the construction, operation, and maintenance of a hydroelectric facility. Environmental factors, safety, financial, political, and among others, need to be addressed and weighted in any decision for a long-term investment. In consideration of the generation revenue alone, a modern replacement turbine and generator rated for the available energy could have a capital cost of between \$400,000 - \$600,000 before including civil costs of a new power station. Assuming the major electrical equipment is reusable (switchgear, transformer, protection relays, excitation system, control system, etc.), the modern replacement turbine would include a thrust bearing, HPU, brake assembly, and additional instrumentation for condition monitoring. Cost estimates for the remaining equipment for a 200kW machine could vary between \$80K-\$150K, depending on the level of technology and integration. Other costs related to condition monitoring, operation, and maintenance would be need to be included on an annual basis. Estimated costs for typical consumables (oil, brake pads, grease, spare instrumentation, filters, etc.) shouldn't exceed \$3K/year. Each 10-year milestone could involve replacing bearing pads, seals, HPU components, etc. that wouldn't necessarily carry a large material cost (around \$5K) but could vary between \$10K-\$20K to cover the replacement labour costs. Maintenance inspection costs will depend on the nature of the plant management. Often the equipment supplier will provide operator training in addition to the OEM warranty period. Outsourcing to a local mechanical outfit is an option but may carry a higher cost. If replacement was considered or required, a single turbine with a wide operating range would be ideal. A double regulated, axialflow Kaplan turbine would provide the most efficient generation over the largest operating range for low-head sites. This would likely require removal of most of the existing equipment, modifications to the civil structure's floor and excavation in the discharge canal. If repairs to the dam structure were required, replacing the turbine at the same time would be the most cost-effective.

In consideration of the information available from the Muskoka River Water Management Plan, the average available head of 5.25 meters and the maximum available discharge rate of 4.0 m³/s should produce nearly 185 kilowatts under ideal conditions, using a modern turbine design arrangement and high efficiency generator. Maximum potential generation could reach as high as 210 kilowatts under maximum head levels and discharge rates. Increased generation capacities would require a greater pond elevation and/or increased discharge rates, which would require further study on any upstream channel restrictions and surrounding public properties. At a modest \$0.08/kW, operating at the upper bound normal operating limit (NOL El. 225.75 masl) and an average annual flow of 2.62 m³/s, the average annual revenue could be upwards of \$90,000. Considering a 20% annual reinvestment schedule for operation and maintenance, a ten-year return on investment of the capital cost of the turbine equipment could be achievable. Under the assumption that the major equipment will be designed for a 50-year life expectancy, replacing the existing station with a modern hydroelectric generating solution could be considered favourable. Additional estimates and schedules would need to be measured to develop a sound conclusion, based on further due diligence. No information surrounding the current generation production or revenue was available for review and providing a valuation on the existing equipment is outside the scope of this report. With the available energy and a sufficient power purchase agreement, reinvesting into the generating station could remain an economical decision for the Township. Ultimately, the generation potential is dependent on the Ministry of Natural Resources (MNR), as the discharge allowances must satisfy watershed requirements and maintain the lake levels for local residents and the large tourism industry during the summer season.

1. INTRODUCTION

The Township of Muskoka Lakes owns and operates, under contract, the Burgess 1 Dam located in Bala, Ontario. It was constructed between 1917 and 1922 and was purchased by the Ontario Power Commission in 1929 who operated the dam until 1957. The Township purchased the dam in 1963 and in recent years the Township has leased it to various companies who have operated it as an active hydroelectric generating station.

The Township has retained the services of Tulloch Engineering to conduct a Municipal Class Environmental Assessment Study for the rehabilitation or replacement of the Burgess 1 Dam facility. The EA Study is currently ongoing, and has completed the first public consultation on September 9, 2020, which included a public survey on the interest of the future of the generating station.

The facility is located on Lake Muskoka adjacent to the MNR controlled Bala North and Bala South dams, and provides a flow of 0.5 to 4 m3/s into the Bala Reach. The facility is advised (by MNR) when there is sufficient water to operate, and when it must shut down (typically when both Bala North and Bala South dams are closed and water levels on Lake Muskoka are falling below the NOZ). The facility will cease operations within 24 hrs of the notification by MNR to shut down. The upper and lower limits are typically within the normal operating zone (NOZ) of Lake Muskoka, but these are not a compliance zone for the facility. As outflow from Lake Muskoka increases, flow is sequentially allocated to Burgess GS, then Bala South and lastly Bala North dam. Under declining flows, the priority of flow sequence is reversed.

Burgess Generating Station				
Component	Operating Characteristics	Present Plan	Proposed Plan	Comments
Spring Water Upper NOZ (m) Lower NOZ (m) TOL (m) Peak Date*		225.75 224.6 – 225.28	225.75 224.6 - 225.28	Operating range is the same as that of Lake Muskoka. No change is proposed. Facility will
Summer Water Level (June 1 to Sept 15)	Upper NOZ (m) Lower NOZ (m) TOL (m) TOL Change WL Direction	225.75 - 225.52 225.28	225.75 - 225.52 225.28	shut down at MNR's request if insufficient flow is available in the system.
Fall Water Level (Sept 16 to Nov 30)	Upper NOZ (m) Lower NOZ (m) TOL (m) TOL Change (m) WL Direction	225.52 - 225.61 225.28 - 225.12	225.52 - 225.61 225.28 - 225.12	
Winter Water Level (Dec 1 to March 15)	Upper NOZ (m) Lower NOZ (m) TOL (m) TOL Change (m) WL Direction	225.61 - 225.1 225.12 - 224.6	225.61 - 225.1 225.12 - 224.6	
Downstream River Reach and Lake Outflow Characteristics	Planned flow release Median Wkly Flow - Summer - Winter Minimum Daily Flow (7-d average) Maximum Daily Flow (50-yr average) 702 (2-yr mm) 7010 (10-yr min)	4.0 m ³ /s annual average (for power) 4.0 m ³ /s 4.0 m ³ /s 2.23 m ³ /s 4.0 m ⁴ /s	4.0 m ³ /s annual average (for power) 4.0 m ³ /s 4.0 m ³ /s 4.0 m ³ /s 6.0 m ³ /s 0 m ³ /s	Consistent spring, summer, fall and winter flow when Lake Muskoka water levels are within the desired levels. During low flow periods, Burgess GS will be shut down (as per MNR's request) to allow MNR to assume control of Lake Muskoka levels and outflows.

Figure 1: Burgess 1 Dam – Water Levels

Norcan Hydraulic Turbine Inc. was approached by Tulloch Engineering to perform a site visit at the Burgess 1 Dam generating station, located in Bala, Ontario. The purpose of the site visit was to conduct a generalized site assessment, which included identifying the existing hydromechanical and hydroelectrical equipment installed in the generating station, making qualitative observations surrounding the hydro system, and develop a recommendation based on the available information and the results of the assessment.

2. ASSESSMENT & OBSERVATIONS

Access to the station is unobstructed and provides ample space for laydown and mobile crane access. The upstream channel surrounds neighbouring public properties and narrows substantially at a vehicle overpass. The headgate is fabricated in steel and appears to be in good condition and trashrack system appeared clean and maintained.



Figure 2: Burgess 1 Dam – Generating Station Access





Figure 3: Upstream Channel and Intake Headgate System

The roof is partially unfinished and covered in construction polypropylene sheets to maintain the moisture barrier. Snow loads and heavy rainfalls could have significant impact on the structure if not properly maintained and inspected on a regular basis.



Figure 4: Unfinished Roof Surface

The station had originally installed two horizontal, Francis turbines inside a pressure case. Each turbine shaft was coupled to a high-speed generator by a large belt driven system on the end of the shaft.



Figure 5: Original Turbine Equipment (Right-Hand Side)

A recent modification to the machine on the left-hand side (looking upstream) was completed where a new turbine has been retrofitted to one side of the pressure case. Limited information is available, but the turbine appears to be an inclined propeller turbine operating with the original belt driven generator



Figure 6: Recent Machine Modification (Left-Hand Side)

The generators and electrical system are assumed to be original and in fair condition, but should be cleaned to remove dirt and debris. Since the units were not in operation, no further observations could be made.





Figure 7: Generator Nameplate and Electrical Cabinet

The draft tube and discharge area were not accessible, other than visually from near the bay door entrance to the station. The outlet of the draft tube of the modified turbine is obstructed by rocks from the nearby wall embankment. No visible observations were able to be made on the other machine's draft tube, which is assumed to be vertically conical in design.

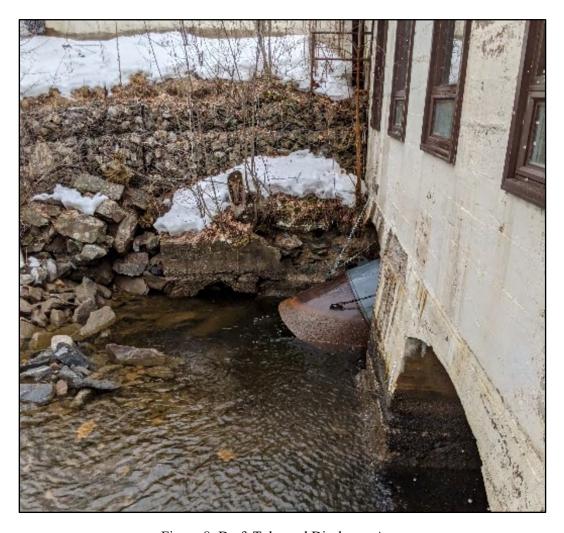


Figure 8: Draft Tube and Discharge Area

Improvements to the station's general cleanliness and organization would be beneficial. Dirt and grime are prevalent throughout the station and coat much of the stationary equipment. Sections of the concrete in the floor and walls have been cracked and broken or appear oil-stained and should be maintained consistently.

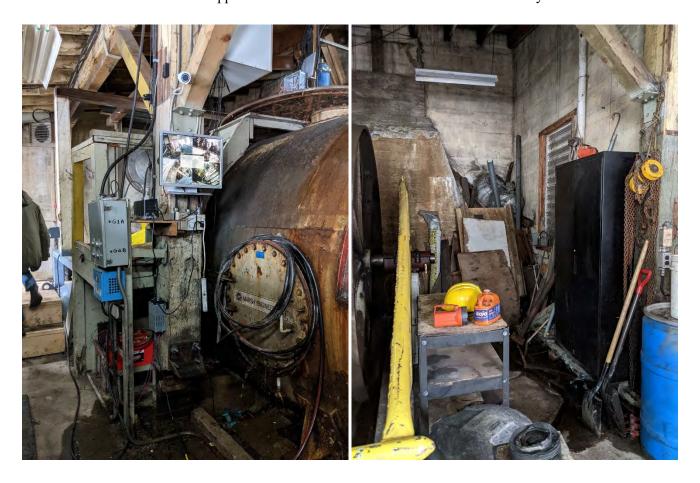


Figure 9: Station Cleanliness and Concrete Degradation/Oil Saturation

3. HISTORY OF BURGESS DAM FROM MARSH HYDROPOWER

Historical observations were uncovered by an original operator from Marsh Hydropower. The original plant was leased by Marsh Hydropower and brought on line in June 1989 and was listed with Ontario Hydro as Bala G.S. The existing Francis runners were 35" William Hamilton running at 180 rpm and geared up to 900 RPM. Efficiency estimates are based on condition of existing equipment and losses due to belt driven generator.

Based on data available at that time:

Head of plant per dwg.: 16 feet (4.87 M) Flow per MNR: 150 cfs (4.25M/ cu sec) 9.81 * 4.87 * 4.25* 80% = 162 Kilowatts

In review of the outputs on avg. KW output for plant for each month was as follows:

January	120	February	74	March	41
April	96	May	139	June	146
July	143	August	143	September	142
October	120	November	124	December	124

Reference Maintenance/Failures from Historical Information

- Existing runners were coated with Belzona due to poor condition of castings
- Unit near door had a major failure before going on line due to anchor bolts coming out of floor
- Found that there was a secondary pour of concrete over original floor due to existing floor was in poor shape and oil saturated.
- Flywheel, elbow and shaft damaged and either replaced or repaired
- Forebay was drag lined and two dump truck loads of stumps, logs were pulled out
- Review at that time regarding dam safety Marsh Hydropower was told that no excavation on dam face permitted as may comprise powerhouse dam structure.
- Was recommended to monitor amount of leakage through dam structure.

APPENDIX F

PIC Results and Responses



ENGINEERING



MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT BURGESS 1 DAM

20-1051

April 2020



Hello and welcome to the Public Consultation Presentation regarding the Municipal Class Environmental Assessment of the Burgess 1 Dam located in Bala, Ontario. Given the recent public health initiatives with respect to the COVID-19 Pandemic including physical distancing and the elimination of large gatherings, this presentation has been put together in lieu of an open house style event where members of the public have the opportunity to learn about the project and provide feedback and input to the planning process. This presentation seeks to educate the public about the proposed rehabilitation and/or replacement of the Burgess 1 Dam.

Introduction – Project Location

 The Township of Muskoka Lakes (TML) has retained TULLOCH Engineering to conduct a Municipal Class Environmental Assessment (EA) for the Burgess 1 Dam located in Bala, Ontario.







The Township of Muskoka Lakes has retained TULLOCH to conduct a Municipal Class Environment Assessment for the rehabilitation/replacement of the Burgess 1 Dam located in Bala, Ontario. Pictured to the right is the location of the Burgess 1 dam facility. The dam is currently a small active hydroelectric generating station located west of Highway 169 between Portage and River Streets. The Burgess 1 Dam is owned by the Township. The hydroelectric facility is operated by a contracted third party. The dam is located north of the North Bala Falls Dam and is not associated with that facility. In conjunction with the North and South Bala Falls Dams, the Burgess 1 dam acts as a water control structure between Lake Muskoka located upstream of the dam and the Moon River located downstream of the dam. This places the Burgess 1 Dam at a critical point along the Muskoka River Watershed. More history on the Burgess 1 Dam as well as the purpose of the project will be described later in the presentation.

Introduction – Presenter/Purpose

- Presenter Erik Giles, P.Eng.
 - 7 years of practice, graduate from Queen's University Class of 2012
 - Experience with dam projects including Dam Safety Review and Inspections, design and construction of dam facilities large and small

Purpose

- Approximate Run Time 30 min
- Create a transparent and open environment where the public is informed and feedback is welcomed at planning stage of study process.







My name is Erik Giles, I am a professional engineer who currently works for TULLOCH engineering based out of the Huntsville, Ontario office. I graduated in 2012 with a civil engineering degree from Queen's university. Since graduation I have worked in the engineering consulting field for over 7 years including projects that have spanned across Canada. I have been involved with the design and construction of multiple dams. I have also conducted a number of dam safety inspections and was a member of the team responsible for the Dam Safety Review conducted for this dam in the summer of 2019. In addition TULLOCH engineering has had extensive experience in local projects including public consultation for various municipal infrastructure projects including bridges, roads, underground infrastructure and dams.

This presentation has an anticipated running time of approximately 30 minutes and will cover a variety of topics including the EA process, the history of the project as well as proposed alternative solutions. The purpose of this presentation is to inform members of the public of the project and to create an open and transparent environment where feedback is welcomed and incorporated into the decision making process at an early stage in the planning for the Burgess 1 Dam project. The Township of Muskoka Lakes invites you to get involved and wants to ensure that your voice is heard. At the end of this presentation I will discuss ways in which you can get involved with the study and provide feedback.

Presentation Goals



EXPLAIN ENVIRONMENTAL ASSESSMENT (EA) PROCESS



HISTORY OF PROJECT SITE



EXPLANATION OF PROBLEM STATEMENT



WALKTHROUGH OF PROPOSED ALTERNATIVE SOLUTIONS



REQUEST FOR FEEDBACK/INPUT AND QUESTIONS





Provided on this slide are the goals I hope to achieve during this presentation. The first objective is to show and explain how a Municipal Class Environmental Assessment works and what the process of the study entails. This will include an introduction to the process as well I will walk you through the steps of the process and explain the purpose of the procedure. After we have discussed the EA process I will then give a brief overview of the history of the Burgess 1 Dam which will help give you context for the current state of the dam and the need for action. The next objective of the presentation is to explain the problem statement as it pertains to the EA and also provide a brief overview of the current state of Burgess 1 dam as well as the events of the spring of 2019 and the findings of the Dam Safety Review conducted in the summer of 2019. The presentation will then provide a walkthrough of the proposed alternative solutions to the problem statement. The alternative solutions will be discussed in turn and the advantages and disadvantages of each will be provided. Finally, a request for feedback and input will be made. I will explain how you can get involved in the study and where you can direct your questions, comments and provide us with valuable feedback to aide in the decision making process.

What Is a Class Environmental Assessment?

Municipal Engineers Association

- Municipal Class Environmental Assessments
- Process for municipally owned projects such as roads, wastewater, bridges etc..
- First implemented in 1987, A process designed to meet requirements of the Environmental Assessment Act for municipalities who wish to conduct projects





When we discuss a Municipal Class Environmental Assessment what that is referring to is a process that was created by the Municipal Engineers Association on behalf of Ontario municipalities, originally implemented in 1987 to aide municipalities in meeting their legal obligations under the Environmental Assessment Act for the implementation of new projects as they pertain to municipally owned infrastructure. As previously mentioned the process is aimed at municipally owned infrastructure. The Class Environmental Assessments are designed to envelope a number of different projects that can follow the same process to fulfill obligations and that can be tailored to fit each project. The EA process is an active process that has been updated over time and a corner stone of the project and can have a chance for feedback and input into the selection of a preferred solution prior to implementation of the project.

What is an Environmental Assessment?



A planning procedure/tool that looks at potential impacts caused by the project and how to mitigate them

Communities
Environment/wildlife
Economic
Culture/Heritage
Public Safety



Allows for consultation of regulating bodies and the community for input into planning and design solutions

Members of the community
Regulatory bodies such as MNR, MECP, MTO



Standardized procedure that is repeatable and meets regulatory requirements that is tailored to individual projects





An Environmental Assessment is a planning tool and a standardized procedure that allows Municipalities to meet their legal obligations but also is a proven decision making tool that can guide and help municipalities reach the best possible solution for a project. An Environmental Assessment, or EA for short, looks at a given project very broadly and by environmental I mean this in a very general sense of the word as in how will this project impact the environment within which it exists. Some examples of impact include, impacts to local communities, wildlife, economic impacts including costs and potential negative or positive impacts to local economies, Cultural or heritage impacts to the study if the project is deemed to be significant to the heritage of the area, public safety and much more.

As I had previously mentioned a hallmark of the EA process is public consultation. This includes both members of the public and concerned citizens but also regulatory bodies who are consulted and notified in order to have input into the project as well. Government bodies such as the MECP, MNR and MTO as well as other important groups such as first nations communities and community groups like for example the Muskoka Watershed Council are all notified and their feedback is requested should they have any concerns. Typically open houses or Public Information Centres are also held for local members of the community to be consulted. The purpose of this presentation is to be in place of a community gathering.

Finally the EA process is a standardized procedure that has been commonly accepted by regulators to help guide municipalities through the implementation of their various projects. The EA process meets regulatory requirements and follows a standardized set of

guidelines. However, as each project is different and has different needs and impacts so to is each EA therefore it is very important to identify needs and concerns of the community to make sure that these impacts and concerns are being captured as part of the study.

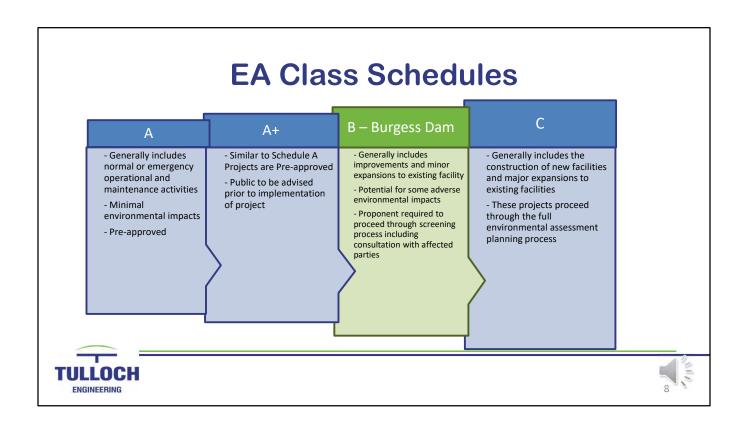
Municipal Class EA Schedules

- Municipal Class EAs are divided into four standard schedules
 - Schedules listed from A C
 - As schedule letter increases the potential environmental impact increases
 - Each schedule requires different levels of depth and detail within the Class EA procedure
 - A schedule is Selected for each project based on the anticipated environmental impact





The first step to a Municipal Class EA is to identify the Schedule of the project. And, one of the last steps is to confirm that the appropriate schedule was selected at the outset. The Schedule of the process identifies the level of impact that is anticipated for a given project and also the level of detail and number of steps that are required to fulfill the EA process. The schedules range from A – C and as the letter increases the depth and detail required within the EA process also increases.



On this slide is a general list of the different schedules for a Municipal Class EA and helps show the justification for the selection of Burgess Dam. As you can see the general impacts of a project increase from Schedule A up to Schedule C.

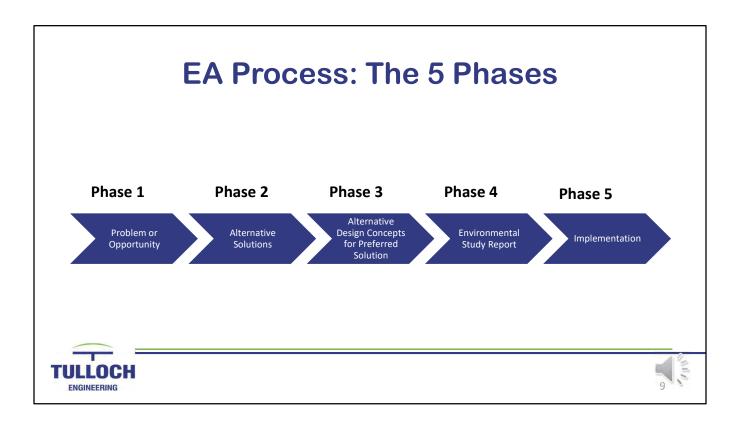
Schedule A/A+ projects are typically pre-approved and do not require going through a formal public consultation process under the EA; these are typically for projects where the environmental impacts are minimal or for emergency situations. These projects typically involve maintenance or operation activities. For example resurfacing an existing road may qualify as a Schedule A/A+ Project. The main difference between Schedule A and A+ is that although it is pre-approved the public is to be advised prior to implementation of the project, this may come in the form of an advertisement or mail out, discussion at a council meeting or approval of a municipal budget.

A Schedule B project is meant for projects that have an increased amount of environmental impacts but do not typically entail new construction works. For, example they are typically for rehabilitations or retrofits or potentially minor expansions to existing facilities. There is a potential for some adverse impacts, more than a Schedule A but less than a Schedule C. A project deemed as a Schedule B is required to proceed through the EA process including consultation with affected parties. An example of a Scheduled B process might be rehabilitation or expansion of a small municipal bridge from 1 to 2 lanes.

Finally a Schedule C EA is thought to have the greatest and/or most environmental impacts for the implementation of the project. These are typically new build projects or major

expansions to existing facilities. They require that the proponent proceed through the full EA planning process. An example would be the construction of a new road or bridge or wastewater sewage treatment plant where one has not previously existed.

The Burgess 1 Dam project has been determined to fit under the Schedule B umbrella. This project is largely viewed as a rehabilitation or replacement of existing infrastructure and therefore while some potential does exist for adverse environmental impacts the project does not warrant major expansion or creation of new facilities over a different or greater footprint that the existing facility currently occupies.



Broadly speaking the MEA Class EA is broken up into 5 main phases. Which are depicted in the order in which they should be conducted throughout the course of the study.

Phase 1 – Is the problem or opportunity statement which demonstrates a problem or need for which the project will fulfill

Phase 2 - Is the drafting of a range of alternative solutions which can address the problem statement, these typically form a spectrum of solutions from minimal to maximum effort and impact

Phase 3- Is the creation of alternative design concepts for a selected preferred solution from the alternative solution.

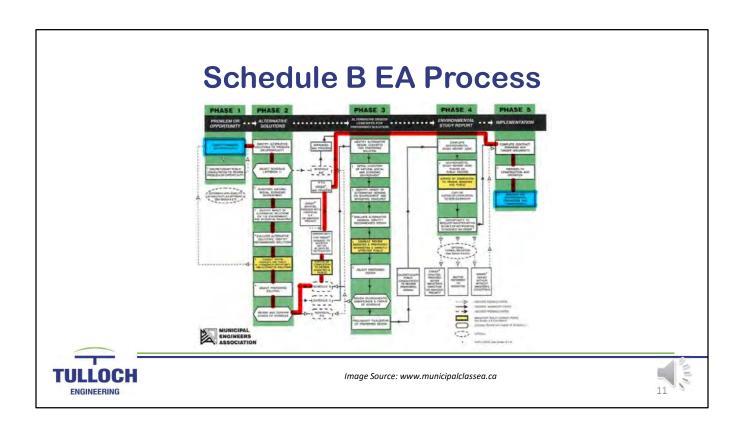
Phase 4 – Is the creation of an Environmental Study Report which details the impacts and mitigation efforts required for the implementation of the project

Phase 5 – The implementation of the project which includes tendering and actually conducting the work

Please note that Phase 3 and 4 are typically only applicable to Schedule C projects.

	PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5
BASIC PROCESS (See Exhibit A.2 for detailed flow chart)	PROBLEM OR OPPORTUNITY	ALTERNATIVE	ALTERNATIVE DESIGN CONCEPTS FOR PREFERRED SOLUTION	ENVIRONMENTAL STUDY REPORT	→ IMPLEMENTATION
Consultation Requirements	Optional	Mandatory	Mandatory	Mandatory	Optional
SCHEDULE A/A* PROJECTS(1)	✓ ^(a)				✓
SCHEDULE B PROJECTS"	*	1			~
SCHEDULE C PROJECTS(1)	✓	✓	✓	✓	✓
MASTER PLANS ⁽¹⁾ (See Section A.2.7)	✓	(As a minimum Master Plans address	✓ ⁽²⁾	✓ ⁽²⁾	✓ ⁽²⁾

As you can see here the Schedule B EA process typically follows an abbreviated version of the full Class EA process. A schedule B project requires that the proponent follow the steps through Phase 1, 2 and 5 and it also requires public consultation at a minimum of 2 times during the study at the beginning and completion of the study but prior to implementation of the work. As you can see here the obligations of a Schedule B Municipal Class EA are highlighted. Again the purpose of this process is to create a transparent dialogue where a solution to the problem statement can be achieved that is best suited and tailored to the individual project and the community it impacts.



This schematic provides a more detailed break down of the Class EA, as you can see I have highlighted the beginning and end point in blue and if you follow the red line you will see the path that is to be followed for the Burgess 1 Dam project. The yellow boxes indicate when public consultation is required. For a Schedule B project, consultation is required at the beginning of a study or what is referred to as a Notice of Project which is what this presentation is for, and also a second consultation at the end of the study, or the Notice of Completion.

After the public, stakeholders and applicable regulating bodies has been consulted at the outset of the study and the alternative solutions have been presented, feedback will be taken and questions will be answered. With the input received in mind a preferred solution will be identified to move towards implementation. Once this solution has been selected a report and project file will be made publicly available and a notice of study completion will be issued. At this time members of the public, stakeholders as well as regulating bodies may have up to 30 days to review the document and make any further and/or additional comments with respect to the project. If all comments have been addressed the project can proceed to Phase 5 or implementation.

Implementation of the project will include completion of contract and tender drawings which will then lead to proceeding with construction. Finally during construction monitoring will continue to ensure that the commitments and/or provisions of the study are being followed during the implementation process.

Burgess 1 Dam – History









Now that I have explained the EA process I would like to give you some background information on the Burgess 1 Dam. My goal is to provide context of the site to help understand the problem statement and also the need to provide a solution for the facility. Pictured to the left is a view of the burgess dam taken upstream of the facility with the metal sluicegates in the centre of the frame. The picture on the right is a view downstream of the facility of the powerhouse where the turbines are located for the facility. The photos taken from this next section of the report were taken during the Dam Safety Review in the summer of 2019.

Burgess 1 Dam – History

Located north of the North Bala Falls Dam

Constructed between 1917 and 1922 Purchased by Ontario Hydro Commission in 1929 and operated until 1957

Purchased by Township in 1963

Partially refurbished in 1988

Burgess 1 Dam is leased to various companies on 10-year leases and is currently leased to KRIS Renewable Power Ltd.

Partial upgrades to the facility were conducted by KRIS including addition of new sluicegates and a new turbine on the north inlet of the dam

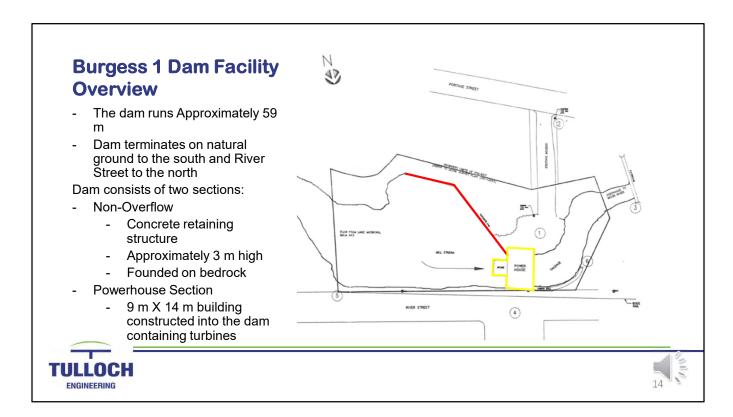






The Burgess 1 Dam is located north of the North Bala Falls Dam and is located between Portage an River Streets. Originally it was built by JW and AM Burgess between 1917 and 1922. After being in operation for approximately 7 years it was purchased by Ontario Hydro in 1929 who operated the dam until 1957 at which point it was sold to the Township of Muskoka lakes who are the current owners of the dam. The dam was initially used upon its sale, however, eventually it was largely kept in a care and maintenance state and was not actively generating power for many years.

New life was brought to Burgess when it was leased by the Township to Marsh Power on a 10 year lease in 1988, at which point the dam was partially refurbished including retrofitting to the powerhouse and also the turbine equipment. Marsh operated the dam and actively generated power until 1999. After the 10 year period the dam was then leased to Algonquin Power who operated the facility until 2011. Since this time the lease has been under the current managers KRIS Renewable Power Ltd. During Kris' tenure the facility received another partial upgrade including the addition of the new metal sluicegates pictured in the previous slide as well as the replacement of one of the turbines on the north inlet of the dam.



Pictured here is a general site plan of the Burgess dam. Please note to help orient yourself River Street is on the bottom and Portage is on the top. The dam runs approximately 59 meters from end to end. The south abutment of the dam terminates into natural ground whereas the north abutment of the dam terminates into the River Street embankment and also attaches to a concrete retaining wall that extends downstream of the facility along the south side of River Street.

Generally the dam consists of two major sections, a non-overflow section which constitutes the majority of the length of the dam, and the powerhouse section that is built into the northern section of the dam.

The non-overflow section of the dam consists of a rectangular concrete retaining structure founded directly on shallow bedrock. The structure is approximately 3.0m high along the length of the dam until it deepens at the powerhouse section. The Powerhouse section consists of an approximately 9 m X 14 m concrete building consisting of two turbines that is built directly into the dam. The east wall of the powerhouse is also the final section of the Burgess dam and also consists of a concrete retaining structure founded on shallow bedrock. The powerhouse has a timber structure roof and has also seen structural retrofitting over the years including the addition of steel bracing.

Water flowing through the dam exits out of two main sections on the north and south end of the powerhouse structure which form the tailrace of the dam. Water exits out towards the west into a small creek that opens below the North Bala Falls dam and eventually out

to the Moon River.

Burgess 1 Dam – Spring 2019 Event

- Flooding event of spring 2019 caused overtopping of the dam
- Emergency actions were taken and flooding event was mitigated
- This event triggered a Dam Safety Review for the Burgess Dam Facility

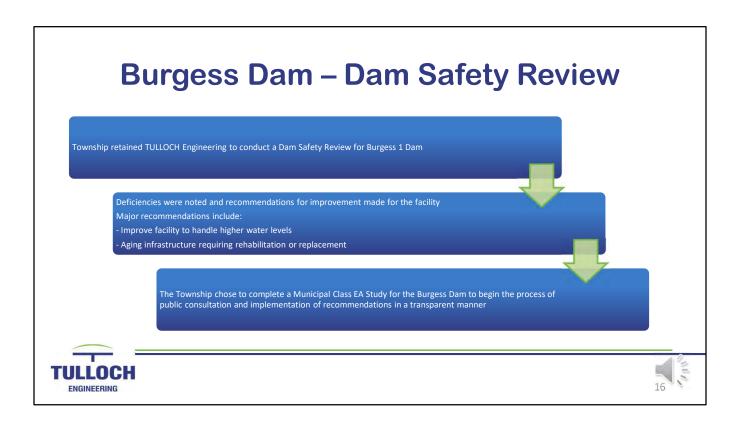






I'd like to now take some time to discuss the events of Spring 2019. As perhaps many of you may recall there was historic flooding along the Muskoka watershed last year. The flooding was largely attributed to a large snow accumulation accompanied with a rapid melt due to a sudden temperature increase and heavy rains during the spring melt. These conditions along with the cascading nature of the Muskoka Watershed led to very high water levels and flooding that was experienced throughout the region. As a consequence of this flooding Burgess 1 Dam experienced an overtopping event. Based on descriptions from eye witnesses water levels were approximately 0.3 – 0.4m above the current crest of the dam and caused considerable washout of the property as pictured to the right.

Emergency measures and trenches were excavated to help run water around the dam which ultimately helped temporarily mitigate the situation. However this event showed that the Burgess Dam does not have the capacity to handle high water flow situations. Given the seriousness of the event the Township retained TULLOCH to complete a Dam Safety Review on the facility to assess its current condition and evaluate the risks posed to the structure in the event of future flooding.



The Dam Safety Review was conducted by TULLOCH in the summer of 2019 and was a comprehensive evaluation of the dam's performance as well as a general review of its stability and safety for the general public. The Dam Safety review included an site inspection, document review and also a hydrotechnical and geotechnical analysis to assess the current state of the dam with respect to modern safety guidelines.

The conclusion reached by the Dam Safety Review brought forth a number of recommendations for improvements to be made for the facility. In general the facility was found to be in fair condition given its age, but also near or at the end of its design life in its present state. Given the overtopping event during the flooding of 2019, which roughly corresponded with the water level associated with the Design Flood of the Bala Falls Dams, the facility is currently unable to handle flood water levels and there is a risk of a loss of water control in an overtopping event in the future which could also threaten the stability of the dam.

Furthermore the aging infrastructure associated with both the non-overflow and powerhouse section of the dam have reached a point where rehabilitation or replacement is required to extend the useful life of the facility as well as to increase the stability and safety of the facility to modern design standards.

Given the recommendations of the Dam Safety Review the Township of Muskoka lakes began the EA process to address the issues raised in the review and to implement the project in a transparent and open manner.

Phase 1– Problem Statement

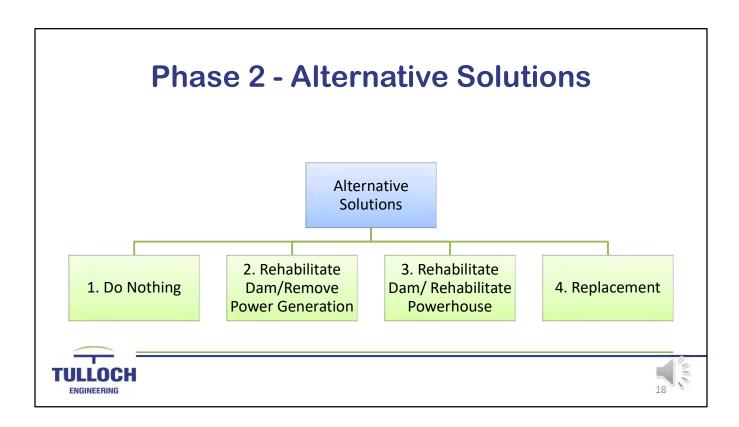
In the spring of 2019, the Burgess 1 Dam experienced an overtopping event caused by flooding of the Muskoka watershed upstream of the facility that put the dam at risk. A Dam Safety Review conducted in the summer of 2019 determined safety concerns with respect to dam stability and capacity to withstand a similar event. Failure of the Burgess 1 Dam would result in significant loss of water control upstream affecting Lake Muskoka and its residents, furthermore, failure of the dam could result in property damage and risk to public safety downstream of the facility along the Moon River. The Township of Muskoka Lakes is considering replacement or rehabilitation of the Burgess 1 Dam.





Following the EA process the first Phase of the project has identified the problem statement you see above which outlines the need for rehab or replacement of the Burgess one dam. The problem statement has been outlined as...

In the spring of 2019, the Burgess 1 Dam experienced an overtopping event caused by flooding of the Muskoka watershed upstream of the facility that put the dam at risk. A Dam Safety Review conducted in the summer of 2019 determined safety concerns with respect to dam stability and capacity to withstand a similar event. Failure of the Burgess 1 Dam would result in significant loss of water control upstream affecting Lake Muskoka and its residents, furthermore, failure of the dam could result in property damage and risk to public safety downstream of the facility along the Moon River. The Township of Muskoka Lakes is considering replacement or rehabilitation of the Burgess 1 Dam.



A number of alternative planning solutions have been identified and will be presented in turn. Currently there are four alternative planning solutions that are being considered for the Burgess 1 Dam project. The goal is, with your feedback, to select a preferred solution from this group of alternatives to move forward towards implementation. The alternative solutions were drafted based on a spectrum from least to greatest amount of environmental impact. As such, each alternative solution has advantages and disadvantages. Each alternative solution will be presented in the following slides giving an overview of the intent of each solution as well as potential advantages and disadvantages of implementation.

Alternative #1 – Do Nothing

- Leave the dam in as-is condition
- Critical safety issues with respect to the dam and powerhouse would NOT be addressed
- Maintain structure in similar fashion as previous





Alternative Solution #1 involves leaving the facility in its current condition. This would involve doing-nothing and NOT addressing any significant or critical safety issues at the facility that may pose a risk to public safety. Going further the dam facility would be maintained only on an as-needed basis similar to past actions.

Alternative #1 – Do Nothing

Pros:

- Least construction cost solution
- Requires no amount of work and planning

Cons:

- Burgess 1 Dam continues to be at risk of overtopping in another flood event
- Burgess 1 Dam continues to be at risk of failure as the dam and powerhouse continue to deteriorate
- Extreme public safety risk, and financial and environmental cost associated with dam failure
- Increased cost of maintenance in future





Generally, the advantages and disadvantages for this alternative are fairly clear, with the least amount of impact environmentally this would also constitute the most economical solution requiring the least amount of initial investment by making minimal repairs to the facility. This solution would also require the least amount of work and planning and would likely be the fastest to implement.

However, there are significant disadvantages and risks associated with the do-nothing approach. First and foremost, this solution does not address any of the underlying problems with the facility with respect to stability and hydraulic capacity. The facility would continue to be at risk of overtopping in another flood event which could also potentially lead to failure of the facility. By not addressing the deficiencies of the dam now, the risk of failure would likely increase as the facility continues to deteriorate. If the dam were to fail, there would be an extreme risk to public safety as well as ahigh financial and environmental cost. Finally, as the structure continues to age by not making necessary upgrades now there would be higher maintenance costs moving forward

Alternative #1 – Do Nothing

 Given the extreme safety risk and costs associated with the "Do-Nothing" alternative, this option is eliminated and will not be considered any further.

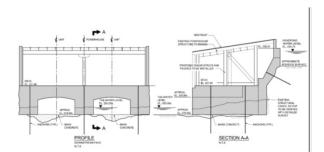




Having discussed the Do-Nothing approach, in the interest of public safety with respect to the stability and lack of flooding capacity for the Burgess 1 Dam, this option will be eliminated and not discussed further.

Alternative #2 – Rehabilitate Dam/Remove Power Generation

- Repair deficiencies outlined in DSR for dam structure
- Remove power generation equipment and decommission the facility to the extent possible while maintaining dam integrity
- Rehabilitate the dam including critical structural components of the powerhouse
 - Address structural issues
 - Address dam stability issues
 - Address undermining issues
- Buttress/reinforce existing concrete dam
- Dam would enter care and maintenance state







The second alternative planning solution that has been identified involves rehabilitating the dam and removing the power generation equipment and decommissioning the powerhouse facility to the maximum extent possible. Given that the powerhouse section of the dam was identified as requiring the most effort to retrofit and rehabilitate it may be considered preferable to decommission and remove the power generation system altogether. The powerhouse structure is an integral part of the dam and cannot be removed in it's entirety. Detailed engineering evaluation is required to assess the extent of powerhouse that could be removed while maintaining overall dam integrity and safety.

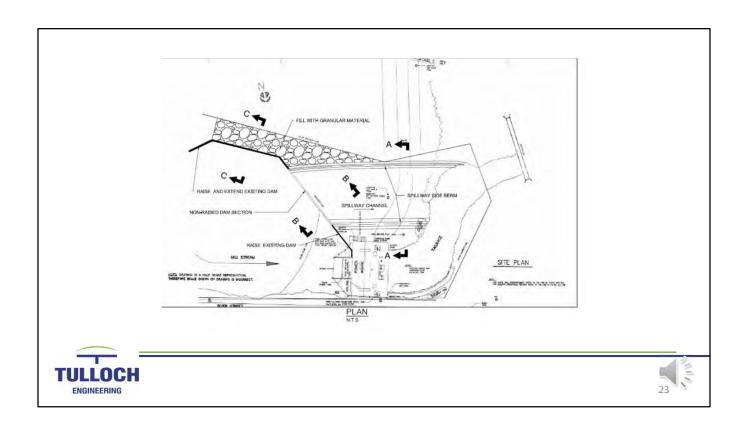
Rehabilitation of the dam could take the form of repairing structural deficiencies that were identified in the DSR by increasing downstream ballast to prevent rotational sliding failure mechanisms, it could also involve raising the crest elevation of the dam to allow the facility to handle higher water flows without overtopping. In addition to stabilizing and raising the dam, the existing fills could be upgraded, as the sand and gravel fill was identified to be susceptible to erosion and or scour during the overtopping event of the spring of 2019. Upgrading to a more robust rockfill could allow for better protection against emergency overflow. Another potential option for the rehabilitation of the dam would be the construction of a spillway which would allow water during an overtopping event to be channeled in a controllable way.

Rehabilitation of the powerhouse could take many forms however key issues would need to be addressed including, structural, dam stability and any undermining issues that may have been caused by active generation over the operational life of the facility. This could

potentially involve adding stabilizing anchor bolts to the section, grouting or filling any undermining that has been observed beneath the powerhouse, bracing or replacing the existing roof. Adding additional structural bracing to the facility as required to address any structural issues. Pictured to the right on this slide is a conceptual design of what may be considered for rehabilitation of the powerhouse section of the Burgess 1 Dam.

Removal of the power generation capability would involve decommissioning and removal of all equipment. The existing powerhouse structure would be made safe, rehabilitated or otherwise reinforced, since all or part of the structure is an integral part of the overall dam.

Once rehabilitation has been completed the dam would enter a care and maintenance state and would solely act as a passive water control structure.



A conceptual mock up of this potential solution is presented in the slide above which was taken from the 2019 DSR. Here you can see what the addition of a partial dam raise in addition to the construction of a spillway and upgraded fill might look like over the existing site plan of the Burgess 1 Dam facility. Please note this is a conceptual mock up only and subject to change based on public consultation and further design analysis.

Alternative #2 – Rehabilitate Dam/Remove Power Generation

Pros

- Increase capacity of dam to handle higher volume flows and flood water levels
- Eliminate risk of active hydro generation
- Address stability issues with dam
- Reduced care and maintenance costs

Cons

- Increased construction cost
- Loss of revenue from elimination of power generation
- Potentially difficult construction with decommissioning of the powerhouse





Advantages of the rehab/remove alternative are largely that the risks currently associated with the dam would be mitigated. The dam could be rehabilitated such that it can handle higher flows in the event of flooding and with the powerhouse being decommissioned would also reduce risks associated with active hydrogeneration such as fast moving water at the head waters and tailrace of the facility. Rehabilitation of the facility and decommissioning of the powerhouse would also address stability issues of the facilities current state. Addressing these issues would also help reduce maintenance costs into the future.

Disadvantages of this solution include an increased up front capital investment to rehabilitate the dam and decommission the powerhouse over the "Do-Nothing" option. Additionally, there is likely to be difficult construction and possibly temporary works to stabilize and then remove the powerhouse which may increase environmental impacts during the decommissioning of the facility. With the removal of the power generation equipment, the revenue to the Township would be eliminated.

Alternative #3 - Rehabilitate Dam/Rehabilitate Powerhouse

- Rehabilitate the dam similar to Solution #2
- Continued hydroelectric generation operation
- Significant upgrades to the power generation equipment may be required





Alternative solution number three is similar to the previous alternative solution with one key difference, instead of decommissioning the powerhouse this solution would be to rehabilitate the powerhouse structure and power generation equipment and leave it intact. It is deemed a requirement that all or a portion of the powerhouse must remain to ensure integrity of the Burgess 1 Dam facility. Therefore there are a number of possibilities of rehabilitation for the powerhouse. This alternative solution would rehabilitate the non-overflow section of the dam as per the previous solution including the potential addition of a spillway or increasing the ability of the downstream fill to resist erosion.

Rehabilitation of the powerhouse would include similar actions to Alternative Solution #2, however there would be added consideration to ensure the stability and safety of the dam to continue to be operational as a power generating facility. This may include additional scour and/or erosion protection measures for the powerhouse as well as the tailrace of the facility. Added public safety measures would also likely be required to ensure members of the public are aware of the operation of the facility that meet modern standards such as updated and increased signage/warning equipment.

Based on the age of the infrastructure it is likely that significant retrofitting to the existing power generation equipment may also need to be conducted to allow for continued safe and efficient power generation. With the rehabilitation of the dam and powerhouse, the operational life of the dam would be extended well into the future and revenue would continue from the power generation.

Alternative #3 - Rehabilitate Dam/Rehabilitate Powerhouse

Pros

- Address safety issues with Dam and Powerhouse section
- Allow for continued operation of Burgess 1 Dam as a source of revenue
- Leave current footprint of dam intact
- Potential to create aesthetically more pleasing powerhouse structure

Cons

- Increased cost on Alternative #2
- Higher maintenance and operating costs
- Potentially increased risk to public safety maintaining operational facility (i.e. faster moving water downstream of tailrace)





The advantages and disadvantages as they pertain to the non-overflow section for this alternative solution would be similar to the rehab/remove generation alternative solution. When it comes to the powerhouse, however, there are some additional benefits and draw backs that should be considered. With respect to advantages, again similar to the previous solution the rehabilitation of the powerhouse would address safety issues that have been raised with respect to stability of the facility as well as structural concerns. Furthermore, the rehabilitation of the structure could allow it to continue to operate and also may be a good time to upgrade some of the turbine facilities which are aging. This could maintain and possibly improve an income stream for the Township to help offset the rehabilitation costs of the structure. Rehabilitation of the powerhouse would allow the dam to exist generally within the same footprint and would therefore have overall lower environmental impacts. During the rehabilitation there is also the potential to create a more aesthetically pleasing structure which could better represent the historic context in which it was created.

Disadvantages to this alternative solution would be higher construction costs than alternative #2, the powerhouse would require extensive rehabilitation which will come with an associated capital investment. Higher maintenance costs would also be associated with rehabilitation to ensure that the rehabilitation efforts last and the structure continues to be safe. If the structure were to continue to be operational it would also require costs to continue to function such as labour associated with running the generating station. If the facility were to continue to operate there would also exist higher risk to public safety as the facility would need to be properly operated and there are hazards that are associated with an active generating station such as faster moving water and variable flow rates depending

on the status of the facility. These risks would largely be similar to current conditions of the facility which is in operation.

Alternative #4 - Replacement

- Replace facility on current footprint
- Construct new dam that meets modern design codes
- New dam may or may not have power generating facility
- Construction of temporary works to facilitate replacement of dam





The final proposed alternative planning solution involves the complete replacement of the facility. This would likely involve the construction of an entirely new dam that may or may not take the form of a power generating facility. The dam replacement could take the form of multiple different designs including an earth fill or concrete water control structure. Alternatively replacement could also involve construction of a new power station or water control dam if it is desired. The new facility would be designed to modern standards with the goal of mitigating risks that exist with the current facility. Replacement of the dam would require temporary works such as sheet piling or cofferdams to allow for construction of a new facility. Generally for this solution the replacement dam would be constructed over the same footprint as the original requiring extensive temporary facilities.

Alternative #4 - Replacement

Pros

- Completely new facility
- Reduced maintenance costs
- Potentially increased hydro electric generation revenue

Cons

- Significant cost/most expensive option
- Most involved construction
- Likely greatest environmental impact/footprint (i.e. temporary construction works to allow for replacement of facility)





As with the previous solutions here is an overview of the advantages and disadvantages of the replacement option. Generally the obvious advantage would the that a rebuilt new facility would address all of the issues with the current facility and from the previously mentioned problem statement. A new facility in whichever form it would take would meet modern design codes, and have reduced maintenance costs.

There are however disadvantages with this alternative solution and they include the following: Replacement of the dam would involve the largest upfront capital investment and would constitute the most expensive option in this presentation. Furthermore, the replacement of the Burgess 1 Dam likely has the greatest environmental impact with the most involved construction. Replacement of the dam facility would require temporary works that would extend the footprint of the works during construction.

Consultation

- Based on what you have heard the Township invites consultation from you.
- Below this presentation is a digital form where you can provide your input into the project.
- Please feel free to leave any comments, questions or concerns you may have.
- Your input is IMPORTANT and will help shape the decision making to select the preferred solution for this project.





Having heard the Problem Statement and proposed Alternative Planning Solutions for the Burgess 1 Dam project we would now like to invite you to share your opinions and comments. Below this presentation you will find a digital form where you can type in any feedback you may have. Feel free to ask questions, leave comments and/or any concerns you may have with respect to the project. We would also like to invite you to select which one of the alternative planning solutions you would prefer. I would like to emphasize that the Township values your input and that it is important to help us shape the decision making process to select the preferred solution that will be implemented for the project. Please take some time to consider how you would like to see this project move forward.

Next Steps



PUBLIC FEEDBACK WILL BE GATHERED AND QUESTIONS WILL BE ANSWERED



WITH YOUR HELP A PREFERRED SOLUTION WILL BE SELECTED



AT THE END OF THE STUDY A
NOTICE OF COMPLETION WILL
BE ISSUED TO REGULATING
BODIES AND THE PUBLIC

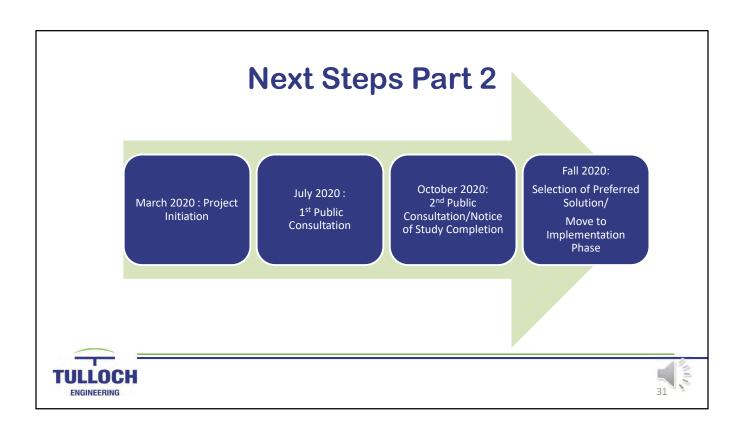


THE STUDY WILL BE MADE AVAILABLE FOR REVIEW AND ADDITIONAL COMMENT





This slide is designed to give a look ahead to the coming weeks and the next steps of the study. The Township will be following the Municipal Class EA process that was outlined earlier in the presentation and as you will recall this presentation is the first of two public consultations as part of the study. After this presentation your feedback will be gathered and questions will be answered. With your feedback and with guidance from the Township as well any concerns or requirements from regulating bodies will be addressed and a preferred solution from the alternative solutions outlined above will be selected. Once the preferred solution is selected the EA study will be posted and made publicly available. At that time a notice of study completion will be issued and members of the public and stakeholders as well as regulating bodies will have 30 days to express further comments, concerns and ask any other questions they may have.



On this slide please see a projected schedule for the progress of the Environmental Assessment for the Burgess Dam. The project was initiated in the spring of 2020 and we are currently at the phase of the 1st public consultation. We anticipate the majority of the study will be completed in October of 2020 and will be hosting a second public consultation either virtually or in person depending on public health guidelines at that time. Finally, later in the Fall of 2020 with your input a preferred solution will be selected and the Project will move towards Implementation.

Thank You!

- Stay tuned in September for a 2nd Public Information Centre or similar presentation will be made available to discuss the preferred alternative and the results of the EA Study.
- Stay tuned to your local news sources as well as the Township of Muskoka Lakes website for future updates.





Once again, a second public information centre will be held to discuss the results of the EA and the preferred alternative, where again public feedback will be welcomed. Further information will be provided as the study progresses. Please stay tuned to your local news sources as well as the Township of Muskoka Lakes website for future updates with respect to the progress of the EA Study.

On behalf of TULLOCH Engineering and the Township of Muskoka Lakes I would like to thank you for taking the time to listen to this presentation. Finally, I would like to invite your input as your feedback is critical to the EA process and ensuring that a preferred alternative can be selected in an open and transparent manner.

What is the potential revenue for the municipality that could be generated by the Burgess Dam and how long is the return on investment?

The current rate for selling renewable hydro power back to the grid is approximately ¢8 / kW-hr. The Burgess Dam is estimated to be capable of generating an annual range of 680,000 kW-hrs (conservative) to 1,190,000 kW-hrs (optimistic), yielding a yearly revenue range of \$54,300 to \$95,300.

top of the page

If the power generation option is pursued, where would the revenue go?

This is a decision that would be made by Township Council as part of the budget process and is not within the scope of this MEA Class Environmental Assessment Study.

top of the page

Will the Burgess Dam continue to be under the Township's ownership with options for lease? Or can the dam be sold?

The options for ownership will be a future decision for Township Council and would be a decision to be made following the completion of this MEA Class Environmental Assessment. Options could include Township ownership with a lease for the dam's operation or sale of the dam.

top of the page

How does the existing powerhouse work in conjunction with the rehabilitated dam?

The existing powerhouse is currently an integral structural component of the Burgess Dam and will continue to be after rehabilitation. Currently the proposal for continued power generation would be rehabilitation of the powerhouse section which would be upgraded but left in place in its current location.

top of the page

What impact will the Burgess Dam have on the local launch ramps?

Currently, water levels upstream and downstream of the Burgess Dam are not anticipated to be impacted regardless of the form of rehabilitation.

top of the page

Is there enough flow to operate both the Bala Dams and the Burgess Dam?

The Bala North and South dams control the water levels of Lake Muskoka in accordance with the Muskoka River Water Management Plan (MRWMP) that has been in place since 2006. The MRWMP supersedes the Hackner-Holden agreement that was put into place in 1940. The Burgess Dam is able to operate while Lake Muskoka water levels are within

the normal operating zone. Given the relatively small allotment of water given to Burgess in comparison to the amount of water available in the Muskoka River at the Bala reach, the water draw from Burgess is considered relatively small and the operation of the South and North dams should not affect its ability to operate.

top of the page

Did the current tenant undertake their proposed turbine replacement as was proposed?

The current tenant replaced one of the two existing Francis turbines with a new Kaplan turbine circa 2012. The new Kaplan turbine was manufactured by CSC Energie Inc.

top of the page

Does this dam impact the water level of the upstream or downstream water bodies?

The flows through the Burgess Dam are restricted to 4 m3/s and has little or no bearing on the water levels in Lake Muskoka or the Moon River. The Bala North and South dams control the water levels of Lake Muskoka in accordance with the Muskoka River Water Management Plan (MRWMP).

top of the page

Will locks be incorporated into the design to allow boat passage through the Burgess Dam?

The addition of locks is not being considered at this time but the feedback will be provided to Council upon completion of the EA study.

top of the page

What are potential costs associated with the alternative solution involving continued power generation vs. power generation removal and how might this affect the return on investment for the Burgess 1 Dam?

Although specific costs at this point in the planning phase are not known, it is estimated that there would be a considerable increase in price for rehabilitation and continued power generation at the Burgess 1 Dam facility, this would involve partial replacement or rehabilitation of the existing turbines and increased upgrades to the tail race of the facility to mitigate risks associated with erosion and undermining of the facility. Furthermore, increased maintenance would be required to continue to run the facility and it would also likely require part- or full-time supervision to ensure it is being run safely and efficiently. Specific costs are not currently available at this early phase of the project as the preferred solution has not yet been selected, however, it can be expected that a higher maintenance and supervision cost through the service life of the facility will

be associated with continued power generation that will increase the time period for return on investment.

top of the page

I am having a difficult time selecting a preferred alternative solution. Can I get specific financial information regarding the alternative solutions?

The purpose of a Municipal Class Environmental Assessment Study is largely a planning tool to help guide municipalities and the public find helpful solutions to problems and/or projects, with a focus on public engagement. Therefore, the aim of this study is not to necessarily poll the public on specific solutions that should be chosen but to gather input and feedback to the municipality to help shape a beneficial solution for everyone. At this early planning phase specific details with regards to cost estimates of rehabilitation, specific return on investments and revenues are not known and will be developed as the project moves through the design process. At this point the Township is welcoming feedback and input from members of the public for general concerns and comment to help guide the overall direction of the project, at this point your selection does not need to dictate a specific permanent solution but instead your feedback and selection of a general preference of alternative solution is welcomed to help move the project forward together.

top of the page

Will upgrades to the facility help with over topping of the dam?

Rehabilitation or replacement of the Burgess 1 Dam will include mitigation measures to reduce the risk of another over topping event such as what happened in the spring of 2019.

top of the page

Is the Township considering a Public/Private Partnership for the rehabilitation of the Burgess 1 Dam facility?

The way in which the preferred solution is implemented will ultimately be a decision made by the Township Council during the implementation phase of the project and is not considered within the scope of this Municipal Class Environmental Assessment Study.

top of the page

Can the initial Dam Safety Review of the Burgess 1 Dam be provided to the public?

Yes, this document has been made publicly available and is posted on the Engage Muskoka Lakes website under the EA page for the Burgess 1 Dam, please follow the provided link to go directly to the Dam Safety Review report. (Link to report)

top of the page

Can changes be made to the upstream river conditions of the Muskoka River to Benefit Burgess 1 Dam?

Changes and modifications to the upstream environment of the river are considered outside the scope of the Study, furthermore changes made with respect to the bridges such as the one located on Highway 169 are outside the authority of the Township of Muskoka Lakes.

top of the page

Can water flow capacity be increased at Burgess?

Under the Muskoka River Water Management Plan which includes the Burgess 1 Generating station, Burgess is allotted a maximum water flow of 4 m3/s for power generation, changing this value is outside the scope of the Study. For further details on the Water Management Plan please visit Muskoka Water Web at www.muskokawaterweb.ca where the plan is publicly available for review.

Project Report

07 May 2020 - 14 September 2020

Engage Muskoka Lakes

Burgess 1 Dam Environmental Assessment Study





Aware Participants	260	Engaged Participants		29	
Aware Actions Performed	Participants			Unverified	ed Anonymous
Visited a Project or Tool Page	260		. rogiotorou	00	7
Informed Participants	64	Contributed on Forums	0	0	0
Informed Actions Performed	Participants	Participated in Surveys	28	0	0
Viewed a video	0	Contributed to Newsfeeds	0	0	0
Viewed a photo	0	Participated in Quick Polls	0	0	0
Downloaded a document	0	Posted on Guestbooks	0	0	0
Visited the Key Dates page	0	Contributed to Stories	0	0	0
Visited an FAQ list Page	18	Asked Questions	5	0	0
Visited Instagram Page	0	Placed Pins on Places	0	0	0
Visited Multiple Project Pages	38	Contributed to Ideas	0	0	0
Contributed to a tool (engaged)	29				

ENGAGEMENT TOOLS SUMMARY



Tool Type	Engagement Tool Name	Tool Status	Visitors	Contributors		
	Engagomont 1001 Namo			Registered	Unverified	Anonymous
Qanda	Questions?	Draft	27	5	0	0
Survey Tool	Survey	Archived	56	26	0	0
Survey Tool	Survey - Old	Draft	2	2	0	θ

testing

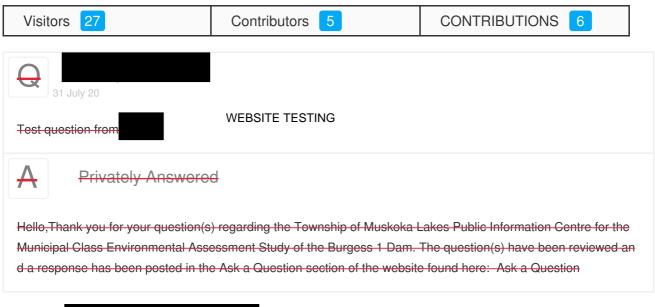
INFORMATION WIDGET SUMMARY



Widget Type	Engagement Tool Name	Visitors	Views/Downloads
Faqs	faqs	18	21
Video	Video Burgess 1 Dam Environmental Assessment Study Presentation		0

QANDA

Questions?





What will be the impact of this on the launch ramp both during and after construction?



Privately Answered

Hello,Thank you for your question(s) regarding the Township of Muskoka Lakes Public Information Centre for the Municipal Class Environmental Assessment Study of the Burgess 1 Dam. The question(s) have been reviewed an d a response has been posted in the Ask a Question section of the website found here: Ask a QuestionThank yo u again for your interest.

QANDA

Questions?



What happened to the people who took over control of the Burgess Dam a few years back? Why did they not und ertae a rehabilitation of the dam? Did they put in new turbines as was proposed?



Privately Answered

Hello,Thank you for your question(s) regarding the Township of Muskoka Lakes Public Information Centre for the Municipal Class Environmental Assessment Study of the Burgess 1 Dam. The question(s) have been reviewed an d a response has been posted in the Ask a Question section of the website found here: Ask a QuestionThank yo u again for your interest.



The presentation makes no mention of the new Swift River Energy hydro facility. Now that it is open, what has the impact been on water flows? Is there enough water for TWO hydro stations to operate in Bala? It may have a major influence on deciding whether to keep the power generation at Burgess or not.



Privately Answered

Hello,Thank you for your question(s) regarding the Township of Muskoka Lakes Public Information Centre for the Municipal Class Environmental Assessment Study of the Burgess 1 Dam. The question(s) have been reviewed an d a response has been posted in the Ask a Question section of the website found here: Ask a QuestionThank yo u again for your interest.

QANDA

Questions?





Can there be an option to rebuild the dam and powerhouse as a lock? Boating access to and from the Moon Rive r would have tremendous benefits and improve real estate values, increasing township revenues.



Privately Answered

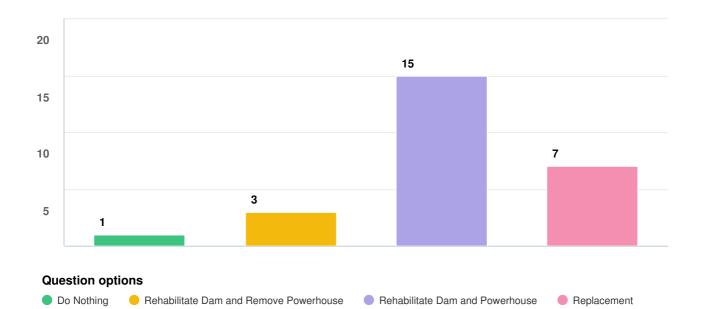
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ENGAGEMENT TOOL: SURVEY TOOL

Survey

Visitors 56	Contributors 26	CONTRIBUTIONS 26
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Which alternative solution do you prefer?



Mandatory Question (26 response(s))

Question type: Checkbox Question

Survey

SURVEY RESPONSE REPORT

07 May 2020 - 09 September 2020

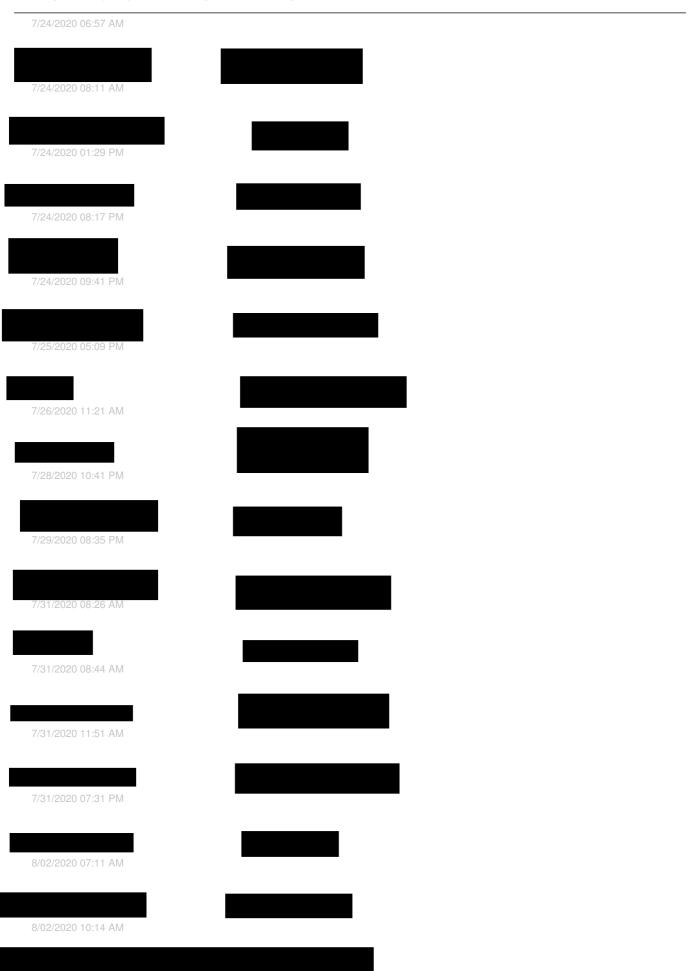
PROJECT NAME:

Burgess 1 Dam Environmental Assessment Study



SURVEY QUESTIONS

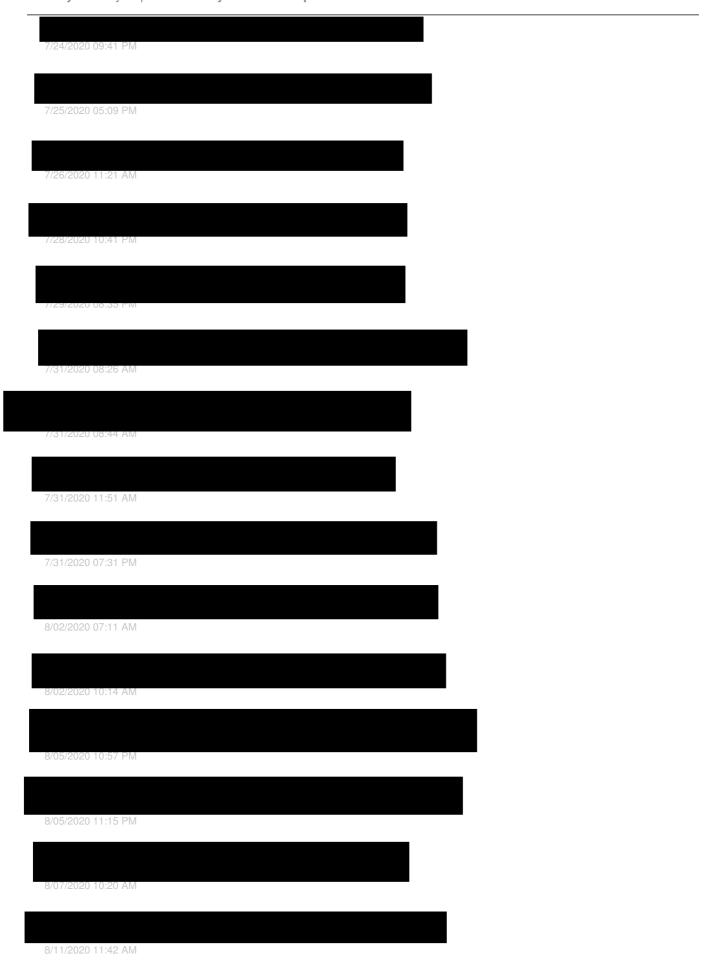
Q1 Full Name







7/24/2020 08:17 PM





8/27/2020 05:20 PM

9/08/2020 12:18 PM

9/08/2020 09:24 PM

Optional question (25 response(s), 1 skipped)

Question type: Number Question



Question options

1

5

Do Nothing
 Rehabilitate Dam and Remove Powerhouse
 Rehabilitate Dam and Powerhouse
 Replacement

3

Mandatory Question (26 response(s)) Question type: Checkbox Question

Q6 Comments

7/24/2020 06:57 AM

What is missing in this is information on how much power and revenue the existing dam generates, how much power/revenue would be created in each option, estimated cost to undertake the alternatives, where the power generated goes (does Bala benefit directly), how does this power generating station work in conjunction with the new dam. Would the dam continue to be owned by the township and leased out or could it be sold? The greatest impact from this dam would be felt by those on the Moon River, especially if it fails and yet the emphasis (wording) seems more concerned with those on Lake Muskoka. It is a comprehensive presentation, clearly outlining initial options but does not provide sufficient information for residents to have good input. NOTE that in order to complete the survey i had to cast a vote BUT I am having to do so with incomplete data which is not correct. Therefore my vote should not be counted or considered accurate. I would appreciate answers to the questions raised above. Thank you.

Please replant and landscape for future generations. I have lived in Bala all my life and always swam at the falls. I am not able to access the water with new Hydro Dam it would have been nice if they had considered that as part of the design. Also the new building totally blocks the sunset when you come around bend from Purkes place. Please put a lot more consideration on landscape.. Hire a good landscape architect.. like a really good one. Deal

7/24/2020 08:11 AM

7/24/2020 01:29 PM 7/24/2020 08:17 PM 7/24/2020 09:41 PM

7/31/2020 08:26 AM

7/31/2020 08:44 AM

7/31/2020 11:51 AM



with this new dam and problems with the most recent hydro installation

What impact will this have on the launch ramp?

Nothing was said about profit to the township. I'd like to know what an average annual profit is for the Township and where the hydro goes?

I would like to know what is the revenue now and what could it be with up to date equipment. What would be the payback time to refurbish the site and make it safe to operate.

A spillway is not needed as the constriction of Burgess Creek under Muskoka Road 169 is so great that it would be useless and the spill capacity of the Bala north and south falls is far greater. I suggest the replacement powerhouse have slightly higher capacity, such as 6 m³/s, and be made as small and low as possible. The station should have publically-accessible emergency off buttons in case someone gets caught in the intake trash rack. The design should allow more of the site to be publically accessible rather then fenced-off.

It's time to replace with the most green solution that also generates income for the municipality.

Surprising that the presentation does not mention the impact of the new Swift River hydro station. Need to better understand impact of that new facility but I suspect it is drawing more water than people might like. Removing the Burgess Powerhouse and assigning its volume to Swift River instead might be helpful. Burgess Dam would then typically have almost no flow except in spring.

Clean power derived from this dam will always be welcome in the future. The rehabilitation of the dam will have a more moderate environmental impact than a tear down and new build. It will also be less expensive.

The replacement of the powerhouse would only make sense if the costs are able to be recovered within a reasonable amount of time through the leasing to energy companies. The rebuilding of the damn should also increase the height of the dam to prevent future overtopping of the dam.

Include locks for boats to travel to Lake Muskoka.

I would like to add another option: build a system of locks to provide small craft access between Lake Muskoka and the Moon River.

Hydro generation is a very efficient form of power generation. Provided that fish migration is not hugely impacted, I am supportive of the use of Dams for power generation. The falls in Bala are a perfect location for power



8/05/2020 10·57 PM



8/07/2020 10:20 AM



8/15/2020 08:45 AM



8/24/2020 09:42 PM



generation. The falls project will produce fewer greenhouse gasses than many other power generating alternatives which is primarily why I support it.

Should we consider a P3 project for this? I assume the future power projection would be used to offset the cost of the construction.

Being a rate payer in Muskoka Lakes township I am in support of fiscal responsibility and doing what makes sense. As a seasonal resident on the Millstream itself I will not accept the cutting off of the flow through the Burgess facility. Over the years I have witnessed brief periods (several days) where flow was interrupted and the waters were allowed to stagnate into a putrid cesspool. There is much debris that makes its way into the Millstream and a lack of flow would have an extremely negative impact on the residents that dwell along its shores. As well it would be a blight on the town to have a stagnant pond in its heart. Please keep the water and the information flowing.

We are concerned the dam will function with flood control. In 2019 we realized the threat to our properties when the dam overflowed during the April flood. It washed out Portage Street where we reside.

It is almost impossible to pick a solution without consideration of the costs involved. Although I prefer the 3rd option, if a rate of return is based on the numbers you provided in the Q & A section ore correct it would be hard to invest in the generation aspect of the project.

Need more info to decide! No mention of approximate costs of alternatives. No forecast of revenue for the two proposed generation solutions. Not appropriate to be asking for opinions without disseminating important information...

I have selected this option due to the following concerns: -Cost to rehabilitate powerhouse while the township has so many other upcoming infrastructure costs we will incur. Unreliable return on investment. -Water velocity (not water levels) both above the dam where people swim and below where the only boat launch for the Moon River is located. A slow flow of water is necessary. Should the powerhouse be sold then the township will lose control over what a new operator would do to generate profitable power. -Both River St, and in particular Portage St, are very narrow road ways causing concerns if / how large construction trucks and equipment could access the site. And there is also the issue of roadways being blocked.

My main concern is that a flow is maintained through the mill stream.

Great part of Community history. Please Rehabilitate both.

We want the Mill Stream to be constantly moving. We don't want a swamp filled with breeding mosquitoes. Thank you!

8/27/2020 05:20 PM

9/08/2020 12:18 PN

I live beside the existing dam and also own the property south of dam where the retaining wall abuts. I support the continued power generation and flow of water through the Mill stream.

We are proposing the alternative solution: Number 3. Rehabilitation of the Dam and Power and rehabilitate Powerhouse. Few points that we need to be address and talk: a. The situation with the generating equipment - I really don't understand this point, but it sounds like your are suggesting the full replacement - this likely isn't required and somewhat misleading to the public; b. You are suggesting that having the generating station there creates a more dangerous situation than if was removed - I don't think anyone in that town believes that current operations of this station are dangerous, especially since we are talking about only 4 cms through the plant; c. We have a power contract, and they are no longer available. These are value assets. If you shut down for a portion of that contract for construction there is a significant loss of revenues. The dam can be rehabilitated while the plant continues to run and anchors can be installed through the powerhouse, but keeping the existing powerhouse until the contract expires should be a goal here; d. We believe there is a great possibility to realize a low budget rehabilitation of the dam and powerhouse and include a weir that will concentrate the excess of water along the dam to avoid overtopping water on a flood event. Generally it could be done one of two things to fix the above, reinforce the structure at the current height so that it can handle overtopping, or reinforce it and raise the height so it doesn't overtop anymore but can handle the extra head; e. By allowing it to overtop and creating a spillway channel, we will essentially lose our access road unless the spillway channel is done in concrete; f. The presentation doesn't seem to address the signed lease betwee the Township; I would like to receive the stability study of the dam, structure and powerhouse of the Burgess 1 Dam for our own review. This could help to find a low cost realization of the work the Township wants to realize. If you have other study made for the purpose of the Burgess 1 Dam it will be appreciate to received it?

Hi again Erik, and thank you for the call and opportunity to comment on the Burgess Dam. I have spent most of my life looking at the waterway and know it as well as anyone. My attachment to the millstream could even be described as "intimate". I am not afraid to say that, we live next to the waterway, sit by and swim in it daily. Don't get me wrong, we do stay far enough away from the plant itself. The video presentation of the Burgess Dam Environment Assessment process was informative and had a lot of good information, laying out the options. I believe that the options need to include several additional considerations. First and foremost, no matter what, the water needs to flow, and the structure needs to be cleaned daily. The amount of debris that accumulates is evident from the picture shown of the control gates in the video presentation. And as long as the current does not get too strong, we are ok with it. Additionally the lake bed under the highway



0/00/2020 00.241 1

bridge should be looked at to allow an additional volume of water to reach the Dam. The highway bridge does choke the flow of water. We know the history, and the flow that has been there for a long time. I have a picture from Frank Micklethwaite's photography around 1900 shows it first as a sawmill, prior to the hydro dam being built by JW and Anne Burgess and around 1917. We did have input into the lease agreement with Marsh Hydro power in 1988 and a refurbishing that occurred at that time. Prior to this the facility was in need of repair, and the water did not flow well enough to keep the waterway clean. It is also worth noting that the Burgess Dam has priority over the North Bala Falls dam when it comes to the water. During the summer months or dry season, there may not be enough water to go around, so please keep the water flowing, and do not give any water rights away. We enjoy everything about the millstream, The waterway is shared by many that enjoy the flow and scenery. It is really one of the best kept swimming places there is. It also allows boating access to and from Bala Bay. We do notice whenever there is an electrical storm how quickly the mill stream plugs up. Any solution that eliminates or lessens the flow through the millstream is not acceptable. While the waterway is the lesser of the three routes for water to flow through Bala, the flow is needed, and when the water does not flow, it quickly becomes stagnant. The waterway also includes three important bridges that effect the character and operation of the waterway. The bridge over road 169 does restrict the amount of flow to the plant, the water is shallow, it is narrow and some rocks could be removed. The bridge above is also narrow, and the sidewalks do not allow two people to pass easily, when the bridge is due for replacement it should upgraded sidewalks widened like the bridge at the North Bala Falls. Option 1, is to do nothing, however, this option is still worth considering. The dam is operating, the water flowing. I am of the opinion, that the risk of another overflow event such as the one that happened in 2019, is minimal. There will likely be flood events that will happen again, however, I am of the opinion that another overflow could be prevented simply by diverting the water elseware. There will more flooding, but it is no longer as likely that Bala Bay will flood, nor will the millstream, please consider the following. During the 2019 flooding, the North Bala Falls Hydro Facility had not been completed. Given the new capacity of the North Bala Falls Hydro Plant, the amount of water that can now flow through Bala has been greatly increased, so the amount of water that needs to flow can now flow, and the risk of an overflow are now gone. Unless the choke points coming into Bala Bay are changed, the amount in and the amount out should be manageable. Any study to predict another flood overflow will need to include the volume of water that can flow through the new now operating North Bala Falls. The real issue on future flods is with the Moon River basin. The moon river chutes need to be studied with the possibility of a spillway there. There was talk of doing this, I am not sure if you are involved or are aware of anything happening. So I do not agree that there is an extreme risk to Public Safety, due to the risk of an another overflow. Also, it would be relatively easy to install a coffer dam if needed, to lower the flow to the millstream, and or the re routeing of the water down River Street as was done in 2019, so there is no real risk if the dam needed relief during another flooding event. Of course if the dam needed an upgrade to the retaining wall and or a spillway added, we would not be opposed to this. Further on the safety side, when the plant is running, in addition to the warning signs, I have often thought that there should be some way to turn off the plant if there were to be an emergency that required it. Having warning signs and or a phone number for some to call is great, but by the time anyone got there, it may be to late, so the continued operation of the plant should have an emergency shut off that can be operated by anyone, same for the North Bala Falls dam or any other plant. It amazes me that the operation of the plant does not require this as a safety feature. Option 2, Rehabilitate the Dam Only, and remove Power Generating Equipment, Decommission and remove part of the plant. We understand that Powerhouse cannot be removed completely. A care and maintenance state is not really possible as there is really no way to avoid the regular cleaning needed. So I do believe that option 2 and a decommission of the powerhouse slowing the flow would not be beneficial to the area unless there is a continued need to make it flow. Having someone come to clean the intake gates on a regular basis, and having a return on the investment, through hydro generation, is beneficial. Unless there will be some way to ensure the flow, and a regular cleaning, I am not sure about this option. If the power house is taken out, and there is still flow that can be adjusted with the water levels then this could work, it would be safer. Option 3, Rehabilitate the Dam and Powerhouse Continue to operate, update the signage, and warning systems to address the safety issues. I take it this may include new equipment in the power house that may be more efficient. As long as the flow does not get too strong, additional revenue could be obtained. The safety concern over an overflow event is important but also not as large of a safety concern given the choke points available upstream. The millstream flow can easily be stopped with a coffer dam at either the 169 Bridge or the footbridge to the Town Dock at the start of the water way. There is a far greater risk that a train will leave the tracks on one of the bridges that are above the water ways. And while this risk is outside the area of study it is a larger concern and would have a far greater impact should it ever happen. Option 4 is a complete rebuild with Higher safety risks, faster water, a higher construction cost. This option should only be used once the numbers are known. Given the location of the millstream, and the character of the area, there is an opportunity to make a large improvement with a larger investment, so this should not be ruled out, and I would like further opportunity for input should this route be taken. There is an opportunity here to make improvement. Lastly given the current pandemic and restrictions that in place, this new method of input is still questionable and subject to challenge, the recent Local Planning Appeal Tribunal regarding the Resort Commercial use at 3063 Muskoka Road 169 is an example. I do look forward to meeting with or talking with you again sometime soon.

Optional question (25 response(s), 1 skipped)

Question type: Essay Question

APPENDIX G

Public Correspondence



80 Main St. W. Huntsville, ON P1H 1W9 T. 705 789.7851 F. 705 789.7891 TF. 877 535.0558 huntsville@tulloch.ca

www.TULLOCH.ca

20-1051 March 9, 2020

[Contact Organization]
[Contact Address]
[City, Province]
[Postal Code]

Dear Sir/ Madam:

Re: Notification of Study

The Township of Muskoka Lakes

Burgess 1 Dam

Class Environmental Assessment Study

In February of 2020, the Township of Muskoka Lakes initiated a Class Environmental Assessment (EA) Study for the improvement of the Burgess 1 Dam located in Bala, Ontario. The study will be carried out in accordance with the requirements for a Schedule 'B' project under the *Municipal Class Environmental Assessment* document.

The Burgess 1 Dam was originally constructed in 1917 and consists of an approximately 59 m long concrete dam founded on bedrock with a maximum height of 3 meters. A powerhouse has been built into the northern section of the dam which is currently in operation. In the spring of 2019, the Burgess 1 Dam experienced an overtopping event caused by flooding of the Muskoka watershed upstream of the facility that put the dam at risk. A Dam Safety Review (DSR) conducted in the summer of 2019 determined safety concerns with respect to dam stability and capacity to withstand a similar event. Failure of the Burgess 1 Dam would result in significant loss of water control upstream affecting Lake Muskoka and its residents, furthermore, failure of the dam could result in property damage and risk to public safety downstream of the facility along the Moon River. The Township of Muskoka Lakes (The Township) is considering replacement or rehabilitation of the Burgess 1 Dam.

The EA process for this project will involve identifying the project need and developing and analyzing alternatives leading to the development of a preferred solution for the project. Following the selection of the preferred solution and subject to available funding, a preliminary design will be developed followed by detailed design, tendering and finally construction. As part of the project it is anticipated that there may be impacts to various stakeholders and aspects of the projects including local residents, existing utilities, waterbodies upstream and downstream of the facility and possible heritage impacts given the age of the structure.

A notice of project / public information centre was advertised locally to reflect the contents of this letter to notify the general public. Upon completion of this study a Project File will be available for



public review and comment. A notice of study completion will be published at that time and sent to the parties on the project mailing list.

There is an opportunity at any time during the EA process for interested parties or agencies to provide comments. Any comments received pertaining to the study will be collected under the *Environmental Assessment Act* and, with the exception of personal information, will become part of the public record.

Please contact one of the following team members to receive further information, or to be removed from our project mailing list:

The Township of Muskoka Lakes 1 Bailey Street, P.O. Box 129 Port Carling, Ontario, P0B 1J0

Tel: 705-765-9156 Fax: 705-765-3156 Chris Stilwell, P.Eng.
Project Manager
TULLOCH Engineering Inc.
80 Main St. West
Huntsville, Ontario, P1H 1W9

Tel: 705 – 789 – 7851 Fax: 705 – 789 – 7891

Yours truly,

Chris Stilwell, P.Eng.
Project Manager
TULLOCH Engineering Inc.

Encl: Project Location plan

Cc: Project File

Twp. Muskoka Lakes, K. Becking



80 Main St. W. Huntsville, ON P1H 1W9 T. 705 789.7851 F. 705 789.7891 TF. 877 535.0558 huntsville@tulloch.ca

www.TULLOCH.ca

20-1051 July 21, 2020

Dear Sir/ Madam:

Re: Notification of Study

The Township of Muskoka Lakes

Burgess 1 Dam

Class Environmental Assessment Study

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A notice of project / public information centre advertisement is enclosed. It will direct you to a website set up with a presentation to give further information on the project, EA study process and also solicit feedback.

There is an opportunity at any time during the EA process for interested parties or agencies to provide comments. Any comments received pertaining to the study will be collected under the *Environmental Assessment Act* and, with the exception of personal information, will become part of the public record.



Please contact one of the following team members to receive further information, or to be removed from our project mailing list:

Erik Giles, P.Eng.
Project Manager
TULLOCH Engineering Inc.
80 Main St. West
Huntsville, Ontario, P1H 1W9
Tel: 705 – 789 – 7851

Tel: 705 – 789 – 7851 burgess.ea@tulloch.ca Tim Sopkowe, C.E.T.
Public Works Technician
Township of Muskoka Lakes
P.O. Box 129, 1 Bailey Street
Port Carling, ON P0B 1J0
Tel: 705-765-3156 ext 251
tsopkowe@muskokalakes.ca

Yours truly,

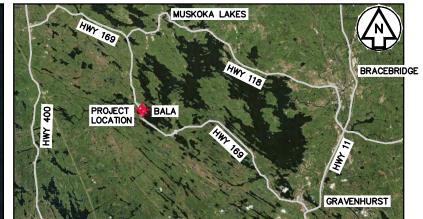
Erik Giles, P.Eng. Project Manager

TULLOCH Engineering Inc.

Encl: Public Information Centre Ad

Cc: Project File

Twp. Muskoka Lakes, K. Becking, T. Sopkowe



PROJECT LOCATION

PLAN - BALA, ONTARIO

A 2019-08-13 KK ISSUED DRAFT FOR CLIENT REVIEW

No. DATE BY ISSUES / REVISIONS



PROJECT LOCATION KEY PLAN

DRAWING:

CHECKED BY: DESIGNED BY: TOWNSHIP OF E. GILES K. KORTEKAAS G. LIANG MUSKOKA LAKES APPROVED BY: SCALE: DATE: G. LIANG AS NOTED 2019-08-07 **BURGESS DAM 1** DRAWING No. REVISION No. 19-1493-C-00 DAM SAFETY ASSESSMENT Α

Dam Safety Review\ DRAWINGS\191493-C-00.dwg



WASAUKSING

P.O. Box 250
PARRY SOUND, ONTARIO
P2A 2X4

PHONE: (705) 746-2531 FAX: (705) 746-5984

CHIEF
Warren Tabobondung

CHIEF COUNCILLORBrent Tabobandung

COUNCILLORS
Craig Brown
Joel King
Chance Pedoniqotte-King

Chris Stilwell, P. Eng.
Project Manager
TULLOCH Engineering Inc.
80 Main St. West
Huntsville, ON P1H 1W9

huntsville@tulloch.ca

April 9, 2021

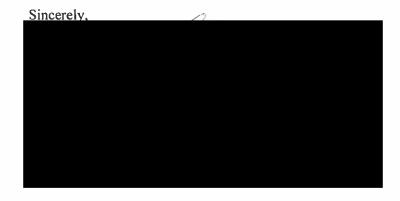
Dear Mr. Stilwell,

RE: Notification of Study, The Township of Muskoka Lakes, Burgess 1 Dam Class Environmental Assessment Study

Please accept this letter as confirmation that Wasauksing First Nation has received correspondence dated February 2, 2021 in regards to the above Notification of Study for the Burgess I Dam. Wasauksing First Nation and our citizens rely upon, and shall continue to rely upon, the health of the natural environment within our Wasauksing-Anishinaabe Territory for the wellbeing and survival of all and are recognized stewards of the land and waters as stated in our Wasauksing First Nation External Consultation and Accommodation Protocol, 2016.

Thank you for continuing to inform us of the ongoing work and we wish to continue to be involved throughout future processes. This letter does not constitute Wasauksing First Nation's consent or agreement to the above Study. Should there be any negative residual effects or any impacts to our Aboriginal and/or Treaty Rights and lands or resources within our Wasauksing-Anishinaabe Territory, Wasauksing First Nation reserves the right to seek accommodation and mitigation measures from the Township of Muskoka Lakes and TULLOCH Engineering Inc.

Thank you for extending invitation for engagement to Wasauksing First Nation. Should you have any questions or concerns, please do not hesitate to contact me by email at ccc@wasauksing.ca or via telephone (705) 746-2531 ext. 2260.



Ministry of Heritage, Sport, Tourism, and Culture Industries

Programs and Services Branch 401 Bay Street, Suite 1700 Toronto, ON M7A 0A7 Tel: 416.314.7147

Ministère des Industries du Patrimoine, du Sport, du Tourisme et de la Culture

Direction des programmes et des services 401, rue Bay, Bureau 1700 Toronto, ON M7A 0A7 Tél: 416.314.7147



April 6, 2020

EMAIL ONLY

Chris Stilwell, P. Eng. Project Manager Tulloch Engineering Inc. 80 Main Street West Huntsville, ON P1H 1W9 chris.stilwell@tulloch.ca

MHSTCI File : 0012150

Proponent: The Township of Muskoka Lakes

Subject : Notice of Study Commencement – Municipal Class EA

Project : Burgess 1 Dam Rehabilitation

Location : Bala, The Township of Muskoka Lakes

Dear Chris Stilwell:

Thank you for providing the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) with the Notice of Study Commencement for the above-referenced project. MHSTCI's interest in this Environmental Assessment (EA) project relates to its mandate of conserving Ontario's cultural heritage, which includes:

- Archaeological resources, including land and marine;
- Built heritage resources, including bridges and monuments; and,
- Cultural heritage landscapes.

Under the EA process, the proponent is required to determine a project's potential impact on cultural heritage resources.

Project Summary

In February of 2020, the Township of Muskoka Lakes initiated a Class Environmental Assessment (EA) Study for the improvement of the Burgess 1 Dam located in Bala, Ontario. The study will be carried out in accordance with the requirements for schedule 'B' project under the Municipal Class Environmental Assessment document.

Identifying Cultural Heritage Resources

While some cultural heritage resources may have already been formally identified, others may be identified through screening and evaluation. Indigenous communities may have knowledge that can contribute to the identification of cultural heritage resources, and we suggest that any engagement with Indigenous communities includes a discussion about known or potential cultural heritage resources that are of value to these communities. Municipal Heritage Committees, historical societies and other local heritage organizations may also have knowledge that contributes to the identification of cultural heritage resources.

Archaeological Resources

This EA project may impact archaeological resources and should be screened using the MHSTCI Criteria for Evaluating Archaeological Potential and Criteria for Evaluating Marine Archaeological Potential to determine if an archaeological assessment is needed. MHSTCI archaeological sites data are available at archaeology@ontario.ca. If the EA project area exhibits archaeological potential, then an archaeological assessment (AA) should be undertaken by an archaeologist licenced under the OHA, who is responsible for submitting the report directly to MHSTCI for review.

Built Heritage and Cultural Heritage Landscapes

The MHSTCI <u>Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes</u> should be completed to help determine whether this EA project may impact cultural heritage resources. If potential or known heritage resources exist, MHSTCI recommends that a Heritage Impact Assessment (HIA), prepared by a qualified consultant, should be completed to assess potential project impacts. Our Ministry's <u>Info Sheet #5: Heritage Impact Assessments and Conservation Plans</u> outlines the scope of HIAs. Please send the HIA to MHSTCI for review, and make it available to local organizations or individuals who have expressed interest in review.

Environmental Assessment Reporting

All technical cultural heritage studies and their recommendations are to be addressed and incorporated into EA projects. Please advise MHSTCI whether any technical cultural heritage studies will be completed for this EA project, and provide them to MHSTCI before issuing a Notice of Completion or commencing any work on the site. If screening has identified no known or potential cultural heritage resources, or no impacts to these resources, please include the completed checklists and supporting documentation in the EA report or file.

Thank you for consulting MHSTCI on this project and please continue to do so throughout the EA process. If you have any questions or require clarification, do not hesitate to contact me.

Sincerely,



It is the sole responsibility of proponents to ensure that any information and documentation submitted as part of their EA report or file is accurate. MHSTCI makes no representation or warranty as to the completeness, accuracy or quality of the any checklists, reports or supporting documentation submitted as part of the EA process, and in no way shall MHSTCI be liable for any harm, damages, costs, expenses, losses, claims or actions that may result if any checklists, reports or supporting documents are discovered to be inaccurate, incomplete, misleading or fraudulent.

Please notify MHSTCI if archaeological resources are impacted by EA project work. All activities impacting archaeological resources must cease immediately, and a licensed archaeologist is required to carry out an archaeological assessment in accordance with the *Ontario Heritage Act* and the *Standards and Guidelines for Consultant Archaeologists*.

If human remains are encountered, all activities must cease immediately and the local police as well as the Registrar, Burials of the Ministry of Government and Consumer Services (416-326-8800) must be contacted. In situations where human remains are associated with archaeological resources, MHSTCI should also be notified to ensure that the site is not subject to unlicensed alterations which would be a contravention of the *Ontario Heritage Act*.

Erik Giles

From:
Sent:
To:
Cc:
Subject:

Good Morning

Please be advised that the Canadian Navigable Waters Act will apply to this project. You may submit you application through our <u>external submission site.</u>

Regards

Inspection Officer Navigation Protection Program, TransportCanada Ontario Region 100 Front Street South Sarnia, Ontario, N7T 2M4

nppont-ppnont@tc.gc.ca / Tel: 519-383-1863 / TTY: 1-888-675-6863

Agent Inspection
Programme de la pretoection de la navigation, Transports Canada
Region de l'Ontario
100 rue Front S
Sarnia, Ontario, N7T7R1

nppont-ppnont@tc.gc.ca / Tel: 519-383-1863 / ATS: 1-888-675-6863



Subject: 20-1051 - Burgess Dam EA - Mail Out

Good Morning,

A Schedule B Class Environmental Assessment Study for the rehabilitation or replacement of the Burgess 1 Dam located in Bala, Ontario has been initiated by the Township of Muskoka Lakes. Please find attached a letter regarding the notification of study as well as a site plan for the project. Please review at your convenience.

Regards,



Tell: 905 481 1678 x 906

TULLOCH Engineering Inc 1100 South Service Road, Suite 420 Stoney Creek, ON L8E 0C5 kelvin.cheung@TULLOCH.ca | TULLOCH.ca

Erik Giles

From:

Sent:

To: Cc:

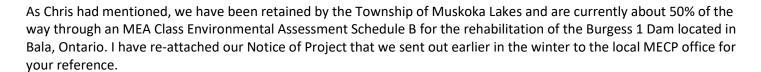
Subject:

RE: Class EA in Bala Attachments:

Consultation Mail Out Letter - MOE Barrie District Office.pdf; Site Plan for Mail Out

Letter.pdf

August 31, 2020 10:13 AM



We are aware that the burgess facility is currently a power generating station however its total capacity is \sim 160 kw with no intention of increasing capacity for the facility. Having spoken with the OWA this is below the threshold requirement of 500 kw and an increase of capacity below 25% that would trigger their class EA for the project.

Given the above, an MEA Class EA was selected as both the Township and TULLOCH are familiar with the process with the goal of engaging the public and meeting requirements for engagement and selection of a preferred solution under the Act. A Schedule B class EA was selected by the Township as this is largely seen as a rehabilitation project for the aging infrastructure associated with Burgess 1 Dam. The Dam is also owned by the Township.

Currently with the Township our alternative solutions are as follows:

- 1) Do nothing Continued minimal maintenance, no upgrades to facility
- 2) Rehabilitation of Dam/removal of power generation rehabilitate the dam and powerhouse structure to address safety deficiencies and decommission the powerhouse to the maximum extent possible with no future power generation planned
- 3) Rehabilitation of Dam/ Rehabilitation of Power similar to alternative solution 2 but with continued power generation, no increase of power generation is planned, however some retrofits may be conducted to upgrade facilities to continue safely generating power at the same level into the future
- 4) Replace Dam in current footprint.

We have conducted an initial virtual public consultation and public feedback has been largely in support of either alternative solution 2 or 3.

Ultimately we would like to make sure that the MECP and yourself are onboard with what we are doing. We realize that the MEA Class does not specifically cover dam infrastructure, however, as a main instrument for public consultation and as a planning tool we believe we are fulfilling our duties under the Act by following the MEA Class procedure for this project. The ultimate goal is to allow the Township of Muskoka Lakes to be able to choose the best Alternative solution to improve the safety of the Burgess 1 Dam to help increase the safety of the structure.

If you could let us know your thoughts on what we have done and if you are OK with us continuing to move forward with the MEA Class Schedule B EA Study that would be greatly appreciated.

If you have any questions regarding the project I would be happy to answer them to the best of my ability.

Thank you,





Tel: 705 789 7851 x438 Fax: 705 789 7891 Cell: 647 968 9894

TULLOCH Engineering Inc 80 Main St. West, Huntsville, ON P1H 1W9 erik.giles@TULLOCH.ca | TULLOCH.ca

Sent: August 31, 2020 9:28 AM

Subject: RE: Class EA in Bala

Hil

from my firm will contact you.





80 Main Street West Huntsville ON P1H 1W9

Tel: 705 789 7851 ext. 406 Fax: 705 789 7891 Cell: 705 787 8406

From: Dmytrenko, Matthew (MECP) < <u>Matthew.Dmytrenko@ontario.ca</u>>

Sent: August 31, 2020 9:13 AM

To: Chris Stilwell <chris.stilwell@tulloch.ca>

Cc: Liu, Chunmei (MECP) < chunmei.Liu@ontario.ca; Hyde, Chris (MECP) < chunmei.Liu@ontario.ca

<<u>cindy.hood@ontario.ca</u>> **Subject:** RE: Class EA in Bala

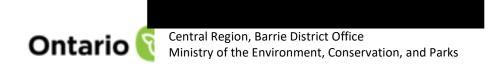
Caution! This message was sent from outside your organization.

I'm the Officer currently overseeing files in the Twp of Muskoka Lakes.

, cc'd, is our regional Planning and EA contact.

Please follow-up directly with me if you need any further information.

Sincerely,



Fror

Sent: Friday, August 28, 2020 08:24

To:

Cc:

Subject: FW: Class EA in Bala

Good morning

Please see attached for Bala.

Thanks,

From

Sent: August 27, 2020 4:32 PM

тd

Subject: FW: Class EA in Bala

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hey

Did you see this one?

Thanks,





80 Main Street West Huntsville ON P1H 1W9

Tel: 705 789 7851 ext. 406 Fax: 705 789 7891

Cell: 705 787 8406

From

Sent: August 19, 2020 1:25 PM

To: Cc:

Subject: Class EA in Bala

We're doing a Class EA in Bala and would like to speak to a district or regional EA coordinator / reviewer. Can you give us a contact for Bala area?

Thanks,





80 Main Street West Huntsville ON P1H 1W9

Tel: 705 789 7851 ext. 406 Fax: 705 789 7891 Cell: 705 787 8406 Ministry of the Environment. Conservation and Parks

Environmental Assessment Branch

1st Floor 135 St. Clair Avenue W Toronto ON M4V 1P5 Tel.: 416 314-8001 Fax.: 416 314-8452

February 1, 2021

Chris Stilwell, P.Eng. **Project Manager** Tulloch Engineering Inc. chris.stilwell@tulloch.ca BY EMAIL ONLY

Protection de la nature et des Parcs Direction des évaluations

environnementales

Ministère de l'Environnement, de la

Rez-de-chaussée 135, avenue St. Clair Ouest Toronto ON M4V 1P5 Tél.: 416 314-8001 Téléc.: 416 314-8452



Burgess 1 Dam Re:

> **Township of Muskoka Lakes** Schedule B Municipal Class Environmental Assessment **Notice of Study Commencement**

Dear Mr. Stilwell,

This letter is in response to the Notice of Commencement for the above noted project. The Ministry of the Environment, Conservation and Parks (MECP) acknowledges that the Township of Muskoka Lakes has indicated that the study is following the approved environmental planning process for a Schedule B project under the Municipal Engineers Association's Municipal Class Environmental Assessment (Class EA).

The attached "Areas of Interest" document provides guidance regarding the ministry's interests with respect to the Class EA process. Please identify the areas of interest which are applicable to the project and ensure they are addressed. Proponents who address all the applicable areas of interest can minimize potential delays to the project schedule.

The Crown has a legal duty to consult Aboriginal communities when it has knowledge, real or constructive, of the existence or potential existence of an Aboriginal or treaty right and contemplates conduct that may adversely impact that right. Before authorizing this project, the Crown must ensure that its duty to consult has been fulfilled, where such a duty is triggered. Although the duty to consult with Aboriginal peoples is a duty of the Crown, the Crown may delegate procedural aspects of this duty to project proponents while retaining oversight of the consultation process.

The proposed project may have the potential to affect Aboriginal or treaty rights protected under Section 35 of Canada's Constitution Act 1982. Where the Crown's duty to consult is triggered in relation to the proposed project, the MECP is delegating the procedural aspects of rightsbased consultation to the proponent through this letter. The Crown intends to rely on the delegated consultation process in discharging its duty to consult and maintains the right to participate in the consultation process as it sees fit.

Based on information provided to date and the Crown's preliminary assessment the proponent is required to consult with the following communities who have been identified as potentially affected by the proposed project:

- Wahta Mohawks:
- Moose Deer Point First Nation;
- Wasauksing First Nation;
- Shawanaga First Nation;
- Métis Nation of Ontario Lands, Resources and Consultation Office;
- Métis Nation of Ontario Region 7 Councillor, David Dusome; and

The following Williams Treaties Communities with a copy to the Williams Treaties Coordinator Karry Sandy Mckenzie:

- Chippewas of Georgina Island;
- Chippewas of Rama First Nation; and
- Beausoleil First Nation

Steps that the proponent may need to take in relation to Aboriginal consultation for the proposed project are outlined in the "Code of Practice for Consultation in Ontario's Environmental Assessment Process".

Additional information related to Ontario's *Environmental Assessment Act* is available online at: www.ontario.ca/environmentalassessments

Please also refer to the attached document "A Proponent's Introduction to the Delegation of Procedural Aspects of consultation with Aboriginal Communities" for further information.

The proponent must contact the Director of Environmental Assessment Branch under the following circumstances subsequent to initial discussions with the communities identified by MECP:

- Aboriginal or treaty rights impacts are identified to you by the communities;
- You have reason to believe that your proposed project may adversely affect an Aboriginal or treaty right;
- Consultation with Indigenous communities or other stakeholders has reached an impasse; or
- A Part II Order request is expected based on impacts to Aboriginal or treaty rights.

The MECP will then assess the extent of any Crown duty to consult for the circumstances and will consider whether additional steps should be taken, including what role you will be asked to play should additional steps and activities be required.

Once the report is finalized, the proponent must issue a Notice of Completion providing a minimum 30-day period during which documentation may be reviewed and comment and input can be submitted to the Proponent.

Please ensure that the Notice of Completion advises that outstanding concerns are to be directed to the proponent for a response, and that in the event there are outstanding concerns regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights, Part II Order requests on those matters should be addressed in writing to:

Minister Jeff Yurek Ministry of Environment, Conservation and Parks 777 Bay Street, 5th Floor Toronto ON M7A 2J3 minister.mecp@ontario.ca

and

Director, Environmental Assessment Branch Ministry of Environment, Conservation and Parks 135 St. Clair Ave. W, 1st Floor Toronto ON, M4V 1P5 EABDirector@ontario.ca

Please note the project cannot proceed until at least 30 days after the end of the public review period provided for in the Notice of Completion.

Further, the project may not proceed after this time if:

- a Part II Order request has been submitted to the ministry regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights; or
- the Director has issued a Notice of Proposed order regarding the project.

The public can request a higher level of assessment on a project if they are concerned about potential adverse impacts to constitutionally protected Aboriginal and treaty rights. In addition, the Minister may issue an order on his or her own initiative within a specified time period. The Director will issue a Notice of Proposed Order to the proponent if the Minister is considering an order for the project within 30 days after the conclusion of the comment period on the Notice of Completion. At this time, the Director may request additional information from the proponent.

Once the requested information has been received, the Minister will have 30 days to make a decision or impose conditions on your project.

A draft copy of the report should be sent to me prior to the filing of the final report, allowing a minimum of 30 days for the ministry's technical reviewers to provide comments.

Please also ensure a copy of the final notice is sent to the ministry's Central Region EA notification email account (eanotification.cregion@ontario.ca) after the draft report is finalized.

Should you or your project team members have any questions regarding the material above, please contact me a



Regional Environmental Assessment Coordinator

Attachments: Areas of Interest

A Proponent's Introduction to the Delegation of Procedural Aspects of consultation with Aboriginal Communities

AREAS OF INTEREST

It is suggested that you check off each applicable area after you have considered / addressed it.

□ Species at Risk

• The Ministry of the Environment, Conservation and Parks has now assumed responsibility of Ontario's Species at Risk program. For any questions related to subsequent permit requirements, please contact SAROntario@ontario.ca.

□ Planning and Policy

- Ontario has released "A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2019)" which replaces the "Growth Plan for the Greater Golden Horseshoe (2017)". More information, including the Plan, is found here: https://www.placestogrow.ca.
- Parts of the study area may be subject to the <u>A Place to Grow: Growth Plan for the Greater Golden Horseshoe</u> (2019), <u>Oak Ridges Moraine Conservation Plan</u> (2017), <u>Niagara Escarpment Plan</u> (2017), <u>Greenbelt Plan</u> (2017) or <u>Lake Simcoe Protection Plan</u> (2014). Applicable policies should be <u>referenced</u> in the report, and the proponent should <u>describe</u> how the proposed project adheres to the relevant policies in these plans.
- The <u>Provincial Policy Statement</u> (2020) contains policies that protect Ontario's natural heritage and water resources. Applicable policies should be referenced in the report, and the proponent should describe how the proposed project is consistent with these policies.

☐ Source Water Protection (all projects)

The *Clean Water Act*, 2006 (CWA) aims to protect existing and future sources of drinking water. To achieve this, several types of vulnerable areas have been delineated around surface water intakes and wellheads for every municipal residential drinking water system that is located in a source protection area. These vulnerable areas are known as a Wellhead Protection Areas (WHPAs) and surface water Intake Protection Zones (IPZs). Other vulnerable areas that have been delineated under the CWA include Highly Vulnerable Aquifers (HVAs), Significant Groundwater Recharge Areas (SGRAs), Event-based modelling areas (EBAs), and Issues Contributing Areas (ICAs). Source protection plans have been developed that include policies to address existing and future risks to sources of municipal drinking water within these vulnerable areas.

Projects that are subject to the Environmental Assessment Act that fall under a Class EA, or one of the Regulations, have the potential to impact sources of drinking water if they occur in designated vulnerable areas or in the vicinity of other at-risk drinking water systems (i.e. systems that are not municipal residential systems). MEA Class EA projects may include activities that, if located in a vulnerable area, could be a threat to sources of drinking water (i.e. have the potential to adversely affect the quality or quantity of drinking water sources) and the activity could therefore be subject to policies in a source protection plan. Where an activity poses a risk to drinking water, policies in the local source protection plan may impact how or where that activity is undertaken. Policies may prohibit certain activities, or they may require risk management measures for these activities. Municipal Official Plans, planning decisions, Class EA projects (where the project includes an activity that is a threat to drinking water) and prescribed instruments must conform with policies that address significant risks to drinking water and must have regard for policies that address moderate or low risks.

In October 2015, the MEA Parent Class EA document was amended to include reference to the

Clean Water Act (Section A.2.10.6) and indicates that proponents undertaking a Municipal Class EA project must identify early in their process whether a project is or could potentially be occurring with a vulnerable area. **Given this requirement, please include a section in the report on source water protection.**

- The proponent should identify the source protection area and should clearly document how the proximity of the project to sources of drinking water (municipal or other) and any delineated vulnerable areas was considered and assessed. Specifically, the report should discuss whether or not the project is located in a vulnerable area and provide applicable details about the area.
- o If located in a vulnerable area, proponents should document whether any project activities are prescribed drinking water threats and thus pose a risk to drinking water (this should be consulted on with the appropriate Source Protection Authority). Where an activity poses a risk to drinking water, the proponent must document and discuss in the report how the project adheres to or has regard to applicable policies in the local source protection plan. This section should then be used to inform and be reflected in other sections of the report, such as the identification of net positive/negative effects of alternatives, mitigation measures, evaluation of alternatives etc.
- While most source protection plans focused on including policies for significant drinking water
 threats in the WHPAs and IPZs it should be noted that even though source protection plan
 policies may not apply in HVAs, these are areas where aquifers are sensitive and at risk to
 impacts and within these areas, activities may impact the quality of sources of drinking water for
 systems other than municipal residential systems.
- In order to determine if this project is occurring within a vulnerable area, proponents can use this
 mapping tool: http://www.applications.ene.gov.on.ca/swp/en/index.php. The mapping tool will also
 provide a link to the appropriate source protection plan in order to identify what policies may be
 applicable in the vulnerable area.
- For further information on the maps or source protection plan policies which may relate to their project, proponents must contact the appropriate source protection authority.

More Information

For more information on the *Clean Water Act*, source protection areas and plans, including specific information on the vulnerable areas and drinking water threats, please refer to Conservation Ontario's website where you will also find links to the local source protection plan/assessment report.

A list of the prescribed drinking water threats can be found in section 1.1 of Ontario Regulation 287/07 made under the *Clean Water Act*. In addition to prescribed drinking water threats, some source protection plans may include policies to address additional "local" threat activities, as approved by the MECP.

□ Climate Change

Ontario is leading the fight against climate change through the <u>Climate Change Action Plan</u>. Recently released, the plan lays out the specific actions Ontario will take in the next five years to meet its 2020 greenhouse gas reduction targets and establishes the framework necessary to meet its long-term targets. As a commitment of the action plan, **the province has now finalized a guide**, "<u>Considering Climate Change in the Environmental Assessment Process</u>" (Guide).

The Guide is now a part of the Environmental Assessment program's Guides and Codes of Practice.

The Guide sets out the MECP's expectation for considering climate change in the preparation, execution and documentation of environmental assessment studies and processes. The guide provides examples, approaches, resources, and references to assist proponents with consideration of climate change in EA. **Proponents should review this Guide in detail.**

- The MECP expects proponents to:
 - 1. Take into account during the assessment of alternative solutions and alternative designs, the following:
 - a. the project's expected production of greenhouse gas emissions and impacts on carbon sinks (climate change mitigation); and
 - b. resilience or vulnerability of the undertaking to changing climatic conditions (climate change adaptation).
 - 2. Include a discrete section in the report detailing how climate change was considered in the EA.

How climate change is considered can be qualitative or quantitative in nature, and should be scaled to the project's level of environmental effect. In all instances, both a project's impacts on climate change (mitigation) and impacts of climate change on a project (adaptation) should be considered.

• The MECP has also prepared another guide to support provincial land use planning direction related to the completion of energy and emission plans. The "Community Emissions Reduction Planning: A Guide for Municipalities" document is designed to educate stakeholders on the municipal opportunities to reduce energy and greenhouse gas emissions, and to provide guidance on methods and techniques to incorporate consideration of energy and greenhouse gas emissions into municipal activities of all types. We encourage you to review the Guide for information.

☐ Air Quality, Dust and Noise

• If there are sensitive receptors in the surrounding area of this project, an air quality/odour impact assessment will be useful to evaluate alternatives, determine impacts and identify appropriate mitigation measures. The scope of the assessment can be determined based on the potential effects of the proposed alternatives, and typically includes source and receptor characterization and a quantification of local air quality impacts on the sensitive receptors and the environment in the study area. The assessment will compare to all applicable standards or guidelines for all contaminants of concern. Please contact this office for further consultation on the level of Air Quality Impact Assessment required for this project if not already advised.

• If a full Air Quality Impact Assessment is not required for the project, the report should still contain:

- A discussion of local air quality including existing activities/sources that significantly impact local air quality and how the project may impact existing conditions;
- A discussion of the nearby sensitive receptors and the project's potential air quality impacts on present and future sensitive receptors;
- A discussion of local air quality impacts that could arise from this project during both construction and operation; and
- A discussion of potential mitigation measures.
- As a common practice, "air quality" should be used an evaluation criterion for all road projects.

- Dust and noise control measures should be addressed and included in the construction plans to
 ensure that nearby residential and other sensitive land uses within the study area are not
 adversely affected during construction activities.
- The MECP recommends that non-chloride dust-suppressants be applied. For a comprehensive
 list of fugitive dust prevention and control measures that could be applied, refer to <u>Cheminfo</u>
 <u>Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition</u>
 <u>Activities.</u> report prepared for Environment Canada. March 2005.
- The report should consider the potential impacts of increased noise levels during the operation of the completed project. The proponent should explore all potential measures to mitigate significant noise impacts during the assessment of alternatives.

□ Ecosystem Protection and Restoration

- Any impacts to ecosystem form and function must be avoided where possible. The report should describe any proposed mitigation measures and how project planning will protect and enhance the local ecosystem.
- All natural heritage features should be identified and described in detail to assess potential impacts and to develop appropriate mitigation measures. The following sensitive environmental features may be located within or adjacent to the study area:
 - Areas of Natural and Scientific Interest (ANSIs)
 - Rare Species of flora or fauna

- Watercourses
- Wetlands
- Woodlots

We recommend consulting with the Ministry of Natural Resources and Forestry (MNRF), Fisheries and Oceans Canada (DFO) and your local conservation authority to determine if special measures or additional studies will be necessary to preserve and protect these sensitive features. In addition, you may consider the provisions of the Rouge Park Management Plan if applicable.

☐ Surface Water

- The report must include enough information to demonstrate that there will be no negative impacts
 on the natural features or ecological functions of any watercourses within the study area.
 Measures should be included in the planning and design process to ensure that any impacts to
 watercourses from construction or operational activities (e.g. spills, erosion, pollution) are
 mitigated as part of the proposed undertaking.
- Additional stormwater runoff from new pavement can impact receiving watercourses and flood conditions. Quality and quantity control measures to treat stormwater runoff should be considered for all new impervious areas and, where possible, existing surfaces. The ministry's Stormwater Management Planning and Design Manual (2003) should be referenced in the report and utilized when designing stormwater control methods. A Stormwater Management Plan should be prepared as part of the Class EA process that includes:
 - Strategies to address potential water quantity and erosion impacts related to stormwater draining into streams or other sensitive environmental features, and to ensure that adequate (enhanced) water quality is maintained
 - Watershed information, drainage conditions, and other relevant background information
 - Future drainage conditions, stormwater management options, information on erosion and

- sediment control during construction, and other details of the proposed works
- Information on maintenance and monitoring commitments.
- Ontario Regulation 60/08 under the Ontario Water Resources Act (OWRA) applies to the Lake Simcoe Basin, which encompasses Lake Simcoe and the lands from which surface water drains into Lake Simcoe. If the proposed sewage treatment plant is listed in Table 1 of the regulation, the report should describe how the proposed project and its mitigation measures are consistent with the requirements of this regulation and the OWRA.
- Any potential approval requirements for surface water taking or discharge should be identified in
 the report. A Permit to Take Water (PTTW) under the OWRA will be required for any water
 takings that exceed 50,000 L/day, except for certain water taking activities that have been
 prescribed by the Water Taking EASR Regulation O. Reg. 63/16. These prescribed watertaking activities require registration in the EASR instead of a PTTW. Please review the Water
 Taking User Guide for EASR for more information. Additionally, an Environmental Compliance
 Approval under the OWRA is required for municipal stormwater management works.

□ Groundwater

- The status of, and potential impacts to any well water supplies should be addressed. If the project involves groundwater takings or changes to drainage patterns, the quantity and quality of groundwater may be affected due to drawdown effects or the redirection of existing contamination flows. In addition, project activities may infringe on existing wells such that they must be reconstructed or sealed and abandoned. Appropriate information to define existing groundwater conditions should be included in the report.
- If the potential construction or decommissioning of water wells is identified as an issue, the report should refer to Ontario Regulation 903, Wells, under the OWRA.
- Potential impacts to groundwater-dependent natural features should be addressed. Any changes
 to groundwater flow or quality from groundwater taking may interfere with the ecological
 processes of streams, wetlands or other surficial features. In addition, discharging contaminated
 or high volumes of groundwater to these features may have direct impacts on their function. Any
 potential effects should be identified, and appropriate mitigation measures should be
 recommended. The level of detail required will be dependent on the significance of the potential
 impacts.
- Any potential approval requirements for groundwater taking or discharge should be identified in
 the report. A Permit to Take Water (PTTW) under the OWRA will be required for any water
 takings that exceed 50,000 L/day, with the exception of certain water taking activities that have
 been prescribed by the Water Taking EASR Regulation O. Reg. 63/16. These prescribed watertaking activities require registration in the EASR instead of a PTTW. Please review the Water
 Taking User Guide for EASR for more information.

□ Contaminated Soils

Since the removal or movement of soils may be required, appropriate tests to determine
contaminant levels from previous land uses or dumping should be undertaken. If the soils are
contaminated, you must determine how and where they are to be disposed of, consistent with
Part XV.1 of the Environmental Protection Act (EPA) and Ontario Regulation 153/04, Records of
Site Condition, which details the new requirements related to site assessment and clean up.
Please contact the appropriate MECP District Office for further consultation if contaminated sites
are present.

- Any current or historical waste disposal sites should be identified in the report. The status of these sites should be determined to confirm whether approval pursuant to Section 46 of the EPA may be required for land uses on former disposal sites.
- The location of any underground storage tanks should be investigated in the report. Measures should be identified to ensure the integrity of these tanks and to ensure an appropriate response in the event of a spill. The ministry's Spills Action Centre must be contacted in such an event.
- The report should identify any underground transmission lines in the study area. The owners should be consulted to avoid impacts to this infrastructure, including potential spills.

□ Excess Materials Management

- Activities involving the management of excess soil should be completed in accordance with the MECP's current guidance document titled "<u>Management of Excess Soil – A Guide for Best</u> Management Practices" (2014).
- All waste generated during construction must be disposed of in accordance with ministry requirements

Servicing and Facilities

- Any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste must have an Environmental Compliance Approval (ECA) before it can operate lawfully. Please consult with the Environmental Approvals Access and Service Integration Branch (EAASIB) to determine whether a new or amended ECA will be required for any proposed infrastructure.
- We recommend referring to the ministry's <u>environmental land use planning guides</u> to ensure that any potential land use conflicts are considered when planning for any infrastructure or facilities related to wastewater, pipelines, landfills or industrial uses.

Mitigation and Monitoring

- Contractors must be made aware of all environmental considerations so that all environmental standards and commitments for both construction and operation are met. Mitigation measures should be clearly referenced in the report and regularly monitored during the construction stage of the project. In addition, we encourage proponents to conduct post-construction monitoring to ensure all mitigation measures have been effective and are functioning properly.
- Design and construction reports and plans should be based on a best management approach that centres on the prevention of impacts, protection of the existing environment, and opportunities for rehabilitation and enhancement of any impacted areas.
- The proponent's construction and post-construction monitoring plans must be documented in the report, as outlined in Section A.2.5 and A.4.1 of the MEA Class EA parent document.

□ Consultation

• The report must demonstrate how the consultation provisions of the Class EA have been fulfilled, including documentation of all stakeholder consultation efforts undertaken during the planning

process. This includes a discussion in the SR that identifies concerns that were raised and <u>describes how they have been addressed by the proponent</u> throughout the planning process. The Class EA also directs proponents to include copies of comments submitted on the project by interested stakeholders, and the proponent's responses to these comments.

□ Class EA Process

- The report should provide clear and complete documentation of the planning process in order to allow for transparency in decision-making.
- If this project is a Master Plan: there are several different approaches that can be used to conduct a Master Plan, examples of which are outlined in Appendix 4 of the Class EA. The Master Plan should clearly indicate the selected approach for conducting the plan, by identifying whether the levels of assessment, consultation and documentation are sufficient to fulfill the requirements for Schedule B or C projects. Please note that any Schedule B or C projects identified in the plan would be subject to Part II Order Requests under the *Environmental Assessment Act*, although the plan itself would not be.
- The report must demonstrate how the consultation provisions of the Class EA have been fulfilled, including documentation of all stakeholder consultation efforts undertaken during the planning process. This includes a discussion in the report that identifies concerns that were raised and describes how they have been addressed by the proponent throughout the planning process. The Class EA also directs proponents to include copies of comments submitted on the project by interested stakeholders, and the proponent's responses to these comments.
- The Class EA requires the consideration of the effects of each alternative on all aspects of the environment. The report should include a level of detail (e.g. hydrogeological investigations, terrestrial and aquatic assessments) such that all potential impacts can be identified, and appropriate mitigation measures can be developed. Any supporting studies conducted during the Class EA process should be referenced and included as part of the report.
- Please include in the report a list of all subsequent permits or approvals that may be required for the implementation of the preferred alternative, including but not limited to, MECP's PTTW, EASR Registrations and ECAs, conservation authority permits, species at risk permits, and approvals under the *Impact Assessment Act*, 2019.
- Ministry guidelines and other information related to the issues above are available at http://www.ontario.ca/environment-and-energy/environment-and-energy. We encourage you to review all the available guides and to reference any relevant information in the report.

A PROPONENT'S INTRODUCTION TO THE DELEGATION OF PROCEDURAL ASPECTS OF CONSULTATION WITH ABORIGINAL COMMUNITIES

Definitions

The following definitions are specific to this document and may not apply in other contexts:

Aboriginal communities – the First Nation or Métis communities identified by the Crown for the purpose of consultation.

Consultation – the Crown's legal obligation to consult when the Crown has knowledge of an established or asserted Aboriginal or treaty right and contemplates conduct that might adversely impact that right. This is the type of consultation required pursuant to s. 35 of the *Constitution Act, 1982*. Note that this definition does not include consultation with Aboriginal communities for other reasons, such as regulatory requirements.

Crown – the Ontario Crown, acting through a particular ministry or ministries.

Procedural aspects of consultation – those portions of consultation related to the process of consultation, such as notifying an Aboriginal community about a project, providing information about the potential impacts of a project, responding to concerns raised by an Aboriginal community and proposing changes to the project to avoid negative impacts.

Proponent – the person or entity that wants to undertake a project and requires an Ontario Crown decision or approval for the project.

I. Purpose

The Crown has a legal duty to consult Aboriginal communities when it has knowledge of an existing or asserted Aboriginal or treaty right and contemplates conduct that may adversely impact that right. In outlining a framework for the duty to consult, the Supreme Court of Canada has stated that the Crown may delegate procedural aspects of consultation to third parties. This document provides general information about the Ontario Crown's approach to delegation of the procedural aspects of consultation to proponents.

This document is not intended to instruct a proponent about an individual project, and it does not constitute legal advice.

II. Why is it Necessary to Consult with Aboriginal Communities?

The objective of the modern law of Aboriginal and treaty rights is the *reconciliation* of Aboriginal peoples and non-Aboriginal peoples and their respective rights, claims and interests. Consultation is an important component of the reconciliation process.

The Crown has a legal duty to consult Aboriginal communities when it has knowledge of an existing or asserted Aboriginal or treaty right and contemplates conduct that might adversely impact that right. For example, the Crown's duty to consult is triggered when it considers issuing a permit, authorization or approval for a project which has the potential to adversely impact an Aboriginal right, such as the right to hunt, fish, or trap in a particular area.

The scope of consultation required in particular circumstances ranges across a spectrum depending on both the nature of the asserted or established right and the seriousness of the potential adverse impacts on that right.

Depending on the particular circumstances, the Crown may also need to take steps to accommodate the potentially impacted Aboriginal or treaty right. For example, the Crown may be required to avoid or minimize the potential adverse impacts of the project.

III. The Crown's Role and Responsibilities in the Delegated Consultation Process

The Crown has the responsibility for ensuring that the duty to consult, and accommodate where appropriate, is met. However, the Crown may delegate the procedural aspects of consultation to a proponent.

There are different ways in which the Crown may delegate the procedural aspects of consultation to a proponent, including through a letter, a memorandum of understanding, legislation, regulation, policy and codes of practice.

If the Crown decides to delegate procedural aspects of consultation, the Crown will generally:

- Ensure that the delegation of procedural aspects of consultation and the responsibilities of the proponent are clearly communicated to the proponent;
- Identify which Aboriginal communities must be consulted;
- Provide contact information for the Aboriginal communities;
- Revise, as necessary, the list of Aboriginal communities to be consulted as new information becomes available and is assessed by the Crown;
- Assess the scope of consultation owed to the Aboriginal communities;
- Maintain appropriate oversight of the actions taken by the proponent in fulfilling the procedural aspects of consultation;
- Assess the adequacy of consultation that is undertaken and any accommodation that may be required;
- Provide a contact within any responsible ministry in case issues arise that require direction from the Crown; and
- Participate in the consultation process as necessary and as determined by the Crown.

IV. The Proponent's Role and Responsibilities in the Delegated Consultation Process

Where aspects of the consultation process have been delegated to a proponent, the Crown, in meeting its duty to consult, will rely on the proponent's consultation activities and documentation of those activities. The consultation process informs the Crown's decision of whether or not to approve a proposed project or activity.

A proponent's role and responsibilities will vary depending on a variety of factors including the extent of consultation required in the circumstance and the procedural aspects of consultation the Crown has delegated to it. Proponents are often in a better position than the Crown to discuss a project and its potential impacts with Aboriginal communities and to determine ways to avoid or minimize the adverse impacts of a project.

A proponent can raise issues or questions with the Crown at any time during the consultation process. If issues or concerns arise during the consultation that cannot be addressed by the proponent, the proponent should contact the Crown.

a) What might a proponent be required to do in carrying out the procedural aspects of consultation?

Where the Crown delegates procedural aspects of consultation, it is often the proponent's responsibility to provide notice of the proposed project to the identified Aboriginal communities. The notice should indicate that the Crown has delegated the procedural aspects of consultation to the proponent and should include the following information:

- a description of the proposed project or activity;
- · mapping;
- proposed timelines;
- details regarding anticipated environmental and other impacts;
- details regarding opportunities to comment; and
- any changes to the proposed project that have been made for seasonal conditions or other factors, where relevant.

Proponents should provide enough information and time to allow Aboriginal communities to provide meaningful feedback regarding the potential impacts of the project. Depending on the nature of consultation required for a project, a proponent also may be required to:

- provide the Crown with copies of any consultation plans prepared and an opportunity to review and comment;
- ensure that any necessary follow-up discussions with Aboriginal communities take place in a timely manner, including to confirm receipt of information, share and update information and to address questions or concerns that may arise;
- as appropriate, discuss with Aboriginal communities potential mitigation measures and/or changes to the project in response to concerns raised by Aboriginal communities;
- use language that is accessible and not overly technical, and translate material into Aboriginal languages where requested or appropriate;
- bear the reasonable costs associated with the consultation process such as, but not limited to, meeting hall rental, meal costs, document translation(s), or to address technical & capacity issues:
- provide the Crown with all the details about potential impacts on established or asserted Aboriginal or treaty rights, how these concerns have been considered and addressed by the proponent and the Aboriginal communities and any steps taken to mitigate the potential impacts;
- provide the Crown with complete and accurate documentation from these meetings and communications; and
- notify the Crown immediately if an Aboriginal community not identified by the Crown approaches the proponent seeking consultation opportunities.

b) What documentation and reporting does the Crown need from the proponent?

Proponents should keep records of all communications with the Aboriginal communities involved in the consultation process and any information provided to these Aboriginal communities.

As the Crown is required to assess the adequacy of consultation, it needs documentation to satisfy itself that the proponent has fulfilled the procedural aspects of consultation delegated to it. The documentation required would typically include:

- the date of meetings, the agendas, any materials distributed, those in attendance and copies
 of any minutes prepared;
- the description of the proposed project that was shared at the meeting;
- any and all concerns or other feedback provided by the communities;

- any information that was shared by a community in relation to its asserted or established Aboriginal or treaty rights and any potential adverse impacts of the proposed activity, approval or disposition on such rights;
- any proposed project changes or mitigation measures that were discussed, and feedback from Aboriginal communities about the proposed changes and measures;
- any commitments made by the proponent in response to any concerns raised, and feedback from Aboriginal communities on those commitments;
- copies of correspondence to or from Aboriginal communities, and any materials distributed electronically or by mail;
- information regarding any financial assistance provided by the proponent to enable participation by Aboriginal communities in the consultation;
- periodic consultation progress reports or copies of meeting notes if requested by the Crown;
- a summary of how the delegated aspects of consultation were carried out and the results; and
- a summary of issues raised by the Aboriginal communities, how the issues were addressed and any outstanding issues.

In certain circumstances, the Crown may share and discuss the proponent's consultation record with an Aboriginal community to ensure that it is an accurate reflection of the consultation process.

c) Will the Crown require a proponent to provide information about its commercial arrangements with Aboriginal communities?

The Crown may require a proponent to share information about aspects of commercial arrangements between the proponent and Aboriginal communities where the arrangements:

- include elements that are directed at mitigating or otherwise addressing impacts of the project;
- include securing an Aboriginal community's support for the project; or
- may potentially affect the obligations of the Crown to the Aboriginal communities.

The proponent should make every reasonable effort to exempt the Crown from confidentiality provisions in commercial arrangements with Aboriginal communities to the extent necessary to allow this information to be shared with the Crown.

The Crown cannot guarantee that information shared with the Crown will remain confidential. Confidential commercial information should not be provided to the Crown as part of the consultation record if it is not relevant to the duty to consult or otherwise required to be submitted to the Crown as part of the regulatory process.

V. What are the Roles and Responsibilities of Aboriginal Communities' in the Consultation Process?

Like the Crown, Aboriginal communities are expected to engage in consultation in good faith. This includes:

- responding to the consultation notice;
- engaging in the proposed consultation process;
- providing relevant documentation;
- clearly articulating the potential impacts of the proposed project on Aboriginal or treaty rights;
 and
- discussing ways to mitigates any adverse impacts.

Some Aboriginal communities have developed tools, such as consultation protocols, policies or processes that provide guidance on how they would prefer to be consulted. Although not legally binding, proponents are encouraged to respect these community processes where it is reasonable to do so. Please note that there is no obligation for a proponent to pay a fee to an Aboriginal community in order to enter into a consultation process.

To ensure that the Crown is aware of existing community consultation protocols, proponents should contact the relevant Crown ministry when presented with a consultation protocol by an Aboriginal community or anyone purporting to be a representative of an Aboriginal community.

VI. What if More Than One Provincial Crown Ministry is Involved in Approving a Proponent's Project?

Depending on the project and the required permits or approvals, one or more ministries may delegate procedural aspects of the Crown's duty to consult to the proponent. The proponent may contact individual ministries for guidance related to the delegation of procedural aspects of consultation for ministry-specific permits/approvals required for the project in question. Proponents are encouraged to seek input from all involved Crown ministries sooner rather than later.

Jackson Mercer

From:

Sent: December 9, 2020 2:57 PM

To:

Cc: Burgess

Subject: Burgess Dam Municipal Class EA

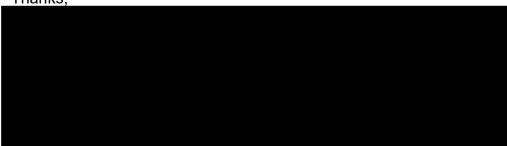
Caution! This message was sent from outside your organization.

Good afternoon,

I understand that the Township of Muskoka Lakes initiated a Municipal Class EA to replace or rehabilitate the Burgess Dam facility in Bala.

This is a friendly reminder that the Notice of Commencement and the completed Project Information Form must be emailed to our Central Region EA Notifications email address (eanotification.cregion@ontario.ca). I have included instructions for our Class EA notifications procedures below for your reference.





I would like to inform you of a new process related to providing Class EA notifications to the Ministry of the Environment, Conservation and Parks that is in effect as of <u>May 1, 2018</u>. The information is below. Please read carefully.

Please follow the new process and submit an electronic version of the Notice and completed Project Information Form to the Central Region email (eanotification.cregion@ontario.ca). All Notices of commencement and completion are to follow the new process. If you have any questions, please feel free to contact me. Please feel free to pass along this information to your colleagues. Thank you.

New Notification Procedure:

The Ministry of the Environment, Conservation and Parks becomes aware of streamlined environmental assessments (e.g., class environmental assessment projects, electricity projects and waste management projects) through notifications by project owners. Notifying the ministry is an important step in the streamlined environmental assessment processes. As part of the ministry's ongoing efforts to improve processes and ensure the ministry has an opportunity to provide input on projects undergoing streamlined environmental assessments, the ministry has established dedicated email accounts in each regional office. These accounts will be used to receive notices as required in your class environmental assessment process along with a new "Project Information Form". As of May 1, 2018, proponents must use this new process.

4 Step Process for Submitting Notices for Streamlined EAs

To submit your notice you need to do the following:

- 1. Download and complete the Project Information Form. (The Form can be found here under "Streamlined EAs". It is an excel spreadsheet with columns that need to be filled out by the proponent. The form has been developed for ease of use (i.e. drop down pick list for most fields). Instructions on filling out the form are contained in 2 tabs within the form itself).
- 2. Create an email. The subject line of your email must include in this order: project location, type of streamlined EA and project name

For example:

- York Region, MEA Class EA, Elgin Mills Rd East (Bayview to Woodbine)
- Durham Region, Electricity Screening Process, New Cogeneration Station
- City of Ottawa, Waste Management Screening Process, Landfill Expansion
- 3. Attach the completed Project Information Form (in excel format) and a copy of your project notice (in PDF format) to the email.
- 4. Send by email to the appropriate ministry regional office:

Central Region – <u>eanotification.cregion@ontario.ca</u>

Eastern Region – <u>eanotification.eregion@ontario.ca</u>

Northern Region – <u>eanotification.nregion@ontario.ca</u>

South West Region – eanotification.swregion@ontario.ca

West Central Region - eanotification.wcregion@ontario.ca

Notes:

- The hyperlink to the <u>MECP District Officer Locator</u> website, can be used to assist with determining what ministry region your project is located.
- The minimum requirement is to send project initiation and completion notices (and where applicable, Revised Notice of Completion, Notice of Filing of Addendum, Statement of Completion). All other notices (e.g. Notice of PIC/OH) can be sent to the Regional email address but not required.
- If your project is located in more than one ministry region, you need to submit your notices to all appropriate regions.

Erik Giles

From:

Sent:

August 18, 2020 4:59 PM

To:

Cc:

Subject:

RE: 20-1051 - Burgess Dam EA - Mail Out

Firstly, my apologies for not acknowledging your email/letter notification earlier.

I think my focus at the time was likely on spring freshet in the local watersheds and the global pandemic was also just unfolding.

We appreciate the notification of commencement of the study and look forward to working with Tulloch and the Township of Muskoka lakes as the options are considered and discussed.

Staff in our Ministry have met to discuss the notification and you are welcome to reach out to us with any questions you may have as the project unfolds.

While the preferred option and associated requirements for permitting and further consultation may not be known at this time, we encourage you to keep in mind the requirements of the Environmental Assessment Act for Waterpower projects, and the Lakes and Rivers Improvement Act with respect to permitting and Water Management Planning.

Regard,

Chris



Fror

Sent: March-13-20 11:01 AM

10:

7.5

Subject: 20-1051 - Burgess Dam EA - Mail Out

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good Morning,

A Schedule B Class Environmental Assessment Study for the rehabilitation or replacement of the Burgess 1 Dam located in Bala, Ontario has been initiated by the Township of Muskoka Lakes. Please find attached a letter regarding the notification of study as well as a site plan for the project. Please review at your convenience.

Regards,





Tell: 905 481 1678 x 906

TULLOCH Engineering Inc 1100 South Service Road, Suite 420 Stoney Creek, ON L8E 0C5 kelvin.cheung@TULLOCH.ca | TULLOCH.ca

Erik Giles

From:

Sent:

March 17, 2020 7:06 PM

To: Cc:

Subject: RE: 20-1051 - Burgess Dam EA - Mail Out



Your email was forwarded to me. The Ministry of Transportation's (MTO) only interest in this project would be related to upstream or downstream water levels and the potential impact on water crossings under provincial highways. MTO only needs to be further consulted if there will be impacts to water crossings/levels under provincial highways.

Thanks



From:

Sent: March-16-20 8:31 AM

To

Subject: FW: 20-1051 - Burgess Dam EA - Mail Out



For appropriate action please.



From:

Sent: Sunday, March 15, 2020 7:56 PM

To:

Cc:

Subject: FW: 20-1051 - Burgess Dam EA - Mail Out



Thank you for the e-mail and attachments. I am currently off on an assignment working on other Ministry priorities. Junaid Asghar is the acting Manager of Engineering while I am away. By copy of this e-mail I am forwarding the notice and site plan to Junaid for his action.

Thanks

From

Sent: March 13, 2020 11:11 AM

To:

Cc:

Subject: 20-1051 - Burgess Dam EA - Mail Out

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good Morning,

A Schedule B Class Environmental Assessment Study for the rehabilitation or replacement of the Burgess 1 Dam located in Bala, Ontario has been initiated by the Township of Muskoka Lakes. Please find attached a letter regarding the notification of study as well as a site plan for the project. Please review at your convenience.

Regards,



Tell: 905 481 1678 x 906

TULLOCH Engineering Inc 1100 South Service Road, Suite 420 Stoney Creek, ON L8E 0C5 kelvin.cheung@TULLOCH.ca | TULLOCH.ca



WASAUKSING FIRST NATION EXTERNAL CONSULTATION AND ACCOMMODATION PROTOCOL

OUR COMMUNITY MOVING FORWARD



WASAUKSING FIRST NATION | P.O. BOX 250 - PARRY SOUND, ONTARIO - P2A 2X4 | (705) 746-2531 WWW.WASAUKSING.CA



Dated for Reference: October 13, 2016 - COUNCIL APPROVED (BCR # 2016-0078)

Table of Contents

1.0	Preamble2			
2.0	Name and Adoption of this Protocol			
3.0	Abor	Aboriginal and Treaty Rights4		
4.0	Non-	Non-Derogation4		
5.0	Appl	Application5		
6.0	Triggers for the Duty to Consult			
7.0	Guiding Principles for Meaningful Consultation			
	7.1	Honour of the Crown	8	
	7.2	Meaningful Engagement	8	
	7.3	Reconciliation	8	
	7.4	Environmental Protection and Sustainable Development	8	
	7.5	Accommodation	8	
	7.6	Sharing in Impact Benefits	9	
	7.7	Capacity	9	
8.0	Free	, Prior and Informed Consent	10	
9.0	Notice of Consultation			
10.0	Time Constraints			
11.0	Responsibilities of Wasauksing First Nation			
12.0	Consultation and Accommodation Process			
13.0	Application for Crown/Treaty Lands Disposition14			
14.0	Consultation Status Readjustment			
15.0	Consultation Cost			
16.0	Confidentiality			
17.0	Dispute Resolution			
18.0	Community Consultation Coordinator			
19.0	Review and Amendment			
20.0	Glossary10			
21.0	Appendix A: Wasauksing-Anishinaabe Territory: The Robinson-Huron Treaty Area18			
22.0	Appendix B: Wasauksing First Nation Location Map19			
23.0	Appe	Appendix C: Wasauksing First Nation Consultation Matrix		

Wasauksing First Nation External Consultation and Accommodation Protocol



1.0 Preamble

Whereas: WASAUKSING FIRST NATION is a part of the Ojibway, Potawatomi and Odawa people who together comprise a historical affiliation known as the Three Fires Confederacy; and

Whereas: WASAUKSING FIRST NATION and our CITIZENS possess ABORIGINAL AND TREATY RIGHTS and interests over lands and RESOURCES within our WASAUKSING-ANISHINAABE TERRITORY as more particularly shown in Appendix "A" hereto; and

Whereas: Section 35 of the *Constitution Act, 1982* recognizes and affirms the existing ABORIGINAL AND TREATY RIGHTS of the Aboriginal peoples of Canada; and

Whereas: the Supreme Court of Canada, in the *Haida, Taku River* and *Mikisew* cases, established that Aboriginal peoples asserting ABORIGINAL AND TREATY RIGHTS must be consulted and accommodated prior to the occurrence of any DECISIONS, conducts and/or ACTIVITIES which may have an IMPACT on those rights and interests of the Aboriginal peoples; and

Whereas: WASAUKSING FIRST NATION is ready, willing and able to engage in consultation(s), and where deemed appropriate by WASAUKSING FIRST NATION, to be ACCOMMODATED with respect to, any and all, DECISIONS, conducts and/or ACTIVITIES that may have the potential to IMPACT our collective ABORIGINAL AND TREATY RIGHTS and our lands and RESOURCES within our WASAUKSING-ANISHINAABE TERRITORY; and

Whereas: the CROWN and private industry sector PROPONENTS seeking to make DECISIONS and to carry out conducts and/or ACTIVITIES within the WASAUKSING-ANISHINAABE TERRITORY, should only do so in accordance with this PROTOCOL and with the *free, prior and informed consent* of WASAUKSING FIRST NATION; and

Whereas: WASAUKSING FIRST NATION has a profound relationship with the land that is rooted in respect for the spiritual value of the Earth and the gifts of the Creator. It is within our Clan systems and our Seven Grandfather Teachings that we recognize and acknowledge our CITIZENS, including our Elders and our children, as knowledge-keepers whose voices warrant the same level of merit and respect as any other accredited sources of expertise.

2.0 Name and Adoption of this Protocol

- 2.1 This PROTOCOL shall be known as the *Wasauksing First Nation External Consultation and Accommodation Protocol*.
- 2.2 This PROTOCOL was adopted by the WASAUKSING FIRST NATION Council by way of WASAUKSING FIRST NATION Band Council Resolution # 2016-0078, dated November 10, 2016, and is in full force and in effect immediately.
- 2.3 This PROTOCOL applies to all lands and RESOURCES and all projects, DECISIONS or matters that may IMPACT the rights and/or interests of WASAUKSING FIRST NATION and/or our CITIZENS within our WASAUKSING-ANISHINAABE TERRITORY but does not limit or IMPACT the rights of WASAUKSING FIRST NATION in or to our RESERVE lands, or other lands held for the use and benefit of WASAUKSING FIRST NATION, including, but not limited to, those lands set out in Appendix "B" hereto.
- 2.4 Any reference to the rights and/or interests of WASAUKSING FIRST NATION herein shall be read and construed as meaning the "rights and/or interests of WASAUKSING FIRST NATION and/or our CITIZENS".



3.0 Aboriginal and Treaty Rights

3.1 For the purposes of the *Wasauksing First Nation External Consultation and Accommodation Protocol*, the term "ABORIGINAL AND TREATY RIGHTS" is used in a manner that is consistent with Section 35(1) of the *Constitution Act, 1982* which states:

"The existing ABORIGINAL AND TREATY RIGHTS of the aboriginal peoples of Canada are hereby recognized and affirmed".

- 3.2 This Wasauksing First Nation External Consultation and Accommodation Protocol, and all actions, ACTIVITIES, DECISIONS or authorizations made pursuant hereto are and shall be interpreted as being without prejudice to any claims, specific claims and/or outstanding land claims asserted by WASAUKSING FIRST NATION with respect to our lands and RESOURCES within our WASAUKSING-ANISHINAABE TERRITORY, including WASAUKSING FIRST NATION'S ABORIGINAL AND TREATY RIGHTS.
- 3.3 All consultations and ACCOMMODATIONS between WASAUKSING FIRST NATION and any municipality or private sector PROPONENT do not absolve the CROWN of its obligation and duty to consult with WASAUKSING FIRST NATION and/or ACCOMMODATE the rights and interests of WASAUKSING FIRST NATION in accordance with Section 35(1) of the *Constitution Act, 1982*.
- 3.4 Notwithstanding anything in this *Wasauksing First Nation External Consultation and Accommodation Protocol*, WASAUKSING FIRST NATION reserves the right to challenge by way of judicial review, application, action, or any other legal, administrative and/or other processes, any ACTIVITY which may potentially pose a threat to WASAUKSING FIRST NATION'S ABORIGINAL AND TREATY RIGHTS.

4.0 Non-Derogation

4.1 Nothing in this *Wasauksing First Nation External Consultation and Accommodation Protocol* or any actions, ACTIVITIES, DECISIONS or authorizations shall be construed so as to abrogate and/or derogate from the ABORIGINAL AND TREATY RIGHTS of WASAUKSING FIRST NATION.



5.0 Application

- 5.1 This Wasauksing First Nation External Consultation and Accommodation Protocol applies to the territory over which WASAUKSING FIRST NATION asserts our ABORIGINAL AND TREATY RIGHTS and interests, known as our WASAUKSING-ANISHINAABE TERRITORY, as more particularly defined in Appendix "A" hereto. WASAUKSING FIRST NATION reserves the right to define our WASAUKSING-ANISHINAABE TERRITORY from time to time based upon our traditional, spiritual, communal and historical uses of the land.
- 5.2 This Wasauksing First Nation External Consultation and Accommodation Protocol applies to:
 - (i) Any consultations engaged between WASAUKSING FIRST NATION and the CROWN DESIGNATE, which includes: the CROWN in right of Canada, the CROWN in right of Ontario and all of their Ministries, cabinets, committees, CROWN corporations, local governments (municipalities and regional districts), agencies, employees, representatives and contracted agents;
 - (ii) Any and all consultations proposed and/or being undertaken with any municipalities and townships within our WASAUKSING-ANISHINAABE TERRITORY; and
 - (iii) All CROWN and private sector PROPONENTS proposing to undertake any ACTIVITIES and/or DECISIONS that may potentially alter and affect the lands, RESOURCES, air and watersheds or any use, benefit or association of WASAUKSING FIRST NATION or our CITIZENS of our WASAUKSING-ANISHINAABE TERRITORY.
- 5.3 Impacts for Outside Projects WASAUKSING FIRST NATION relies on the health of the natural environment in our WASAUKSING-ANISHINAABE TERRITORY for our wellbeing and survival and are recognized stewards of the land and waters, including the upper waterways that may be outside of our WASAUKSING-ANISHINAABE TERRITORY. Therefore, to the extent that any proposed project(s) outside of our WASAUKSING-ANISHINAABE TERRITORY will IMPACT or may IMPACT any lands, rivers, waterways, flora or fauna within our WASAUKSING-ANISHINAABE TERRITORY, such projects will be subject to this PROTOCOL.

6.0 Triggers for the Duty to Consult

6.1 The duty to consult arises when: (a) the CROWN has KNOWLEDGE of any ACTIVITY, work, or undertaking or proposal for any ACTIVITY, work or undertaking within our WASAUKSING-ANISHINAABE TERRITORY or that may IMPACT our WASAUKSING-ANISHINAABE TERRITORY; (b) any DECISION, approval, permit or other governmental authorization or DECISION is requested with respect to any ACTIVITY, work or undertaking within our WASAUKSING-ANISHINAABE TERRITORY; or (c) any person, firm or corporation (the "PROPONENT") engages in, plans to engage in or proposes to engage in an ACTIVITY, work or undertaking that may IMPACT WASAUKSING FIRST NATION'S ABORIGINAL AND TREATY RIGHTS, regardless of CROWN KNOWLEDGE, real or CONSTRUCTIVE, of the existence of an ABORIGINAL OR TREATY

RIGHT. They include the undertaking of the following proposed ACTIVITIES, actions and/or DECISIONS, but are not limited to:

- Disposing of any right, title or interest in and to CROWN lands, whether in whole or in part, including any issuances of letters patent, grants of fee simple, land use permits, leases, licences and easements;
- (ii) Disposing of or dealing with any ABORIGINAL AND TREATY RIGHTS to Treaty lands, including permits and public land stewardship securements for wildlife conservation purposes;
- (iii) All land use planning, official five (5) year planning reviews and proposed amendments and/or DECISIONS pertaining to public land use policies by any governmental authority;
- (iv) Any proposed expansions and/or adjustments to municipal/township boundaries or roadways including proposed public access restriction/closures to: a) accessible public roads; b) accessible public land areas; and c) accessible public watersheds and waterways;
- (v) Any recorded mining stake claims, including CROWN sponsored, authorized or approved mapping and exploration activities;
- (vi) All forestry management and logging activities, hydroelectricity, solar and wind development projects, mineral or aggregate operations, mineral exploration, extraction, mining, petroleum resource exploration extractions - oil and shale gas drilling, processing, transportation (transmission or pipeline corridors) or storage;
- (vii) All new construction/reconstruction of roads, dams, water diversions, bridges or any other such infrastructure that may have the potential to IMPACT the environment, forests, flora, lakes, watersheds, waterways, fish, wildlife and air quality;
- (viii) Any PROPONENT ACTIVITY that causes disruptive vibrations and harmful noise pollution to WASAUKSING FIRST NATION CITIZENS, our natural environment and/or our wildlife;
- (ix) Any proposed ACTIVITY that may disturb and/or damage culturally significant sites such as: sacred ceremonial sites, burial grounds, any identified areas of traditional medicines/plants and food harvesting sites, such as sweetgrass, hemlock, berries, hunting and fishing, etc.;
- (x) Any PROPONENT ACTIVITY that may potentially pose serious health risks, physical injury risks and/or result in death to any WASAUKSING FIRST NATION CITIZEN;
- (xi) Any PROPONENT ACTIVITY that may potentially pose structural risks to any CITIZEN household, community infrastructures and business buildings within WASAUKSING FIRST NATION; and
- (xii) Any and all nuclear power and nuclear fuel waste management, including nuclear fuel waste transportation projects.

6.2 Any potential risk of adverse IMPACTS to the environment and any other potential health, safety and life-threatening risks that are a consequence of projects and/or ACTIVITIES carried out by any governmental, municipality or private sector PROPONENT will trigger the duty to consult with WASAUKSING FIRST NATION. It is the responsibility of the CROWN, municipality and private sector PROPONENTS to notify WASAUKSING FIRST NATION when it is aware, or ought to be aware, of any such IMPACTS.



7.0 Guiding Principles for Meaningful Consultation

- 7.1 **Honour of the Crown** The CROWN, in all its dealings with WASAUKSING FIRST NATION, must uphold the honour of the CROWN and undertake consultations in good faith. The Supreme Court of Canada, Council of the Haida Nation v. British Columbia in 2004 stated:
 - "The Government's duty to consult with Aboriginal Peoples and accommodate their interests is grounded in the honour of the CROWN".
- 7.2 Meaningful Engagement Meaningful engagement means that WASAUKSING FIRST NATION is placed in a position to make informed DECISIONS and understands the effects/IMPACTS of proposed projects, actions, ACTIVITIES and/or proposed POLICY amendments/DECISIONS that may have IMPACTS to WASAUKSING FIRST NATION'S ABORIGINAL AND TREATY RIGHTS and to ensure that those proposed projects, actions, ACTIVITIES and/or proposed POLICY amendments/DECISIONS addresses the needs, concerns and aspirations of WASAUKSING FIRST NATION. Any projects, ACTIVITIES, conduct or DECISIONS, existing or proposed, that have not been fully explained, reviewed and commented upon by WASAUKSING FIRST NATION and our CITIZENS prior to their commencement, shall be deemed to not have been the subject of "meaningful engagement" with WASAUKSING FIRST NATION.
- 7.3 **Reconciliation** Without derogating from WASAUKSING FIRST NATION'S ABORIGINAL AND TREATY RIGHTS when ACCOMMODATION is deemed impossible or inadequate, the principle of reconciliation, a reciprocal process between WASAUKSING FIRST NATION and the CROWN and/or a PROPONENT, which strives to reasonably balance both parties' intents and interests, shall govern and guide, any and all consultation and ACCOMMODATION ACTIVITIES with WASAUKSING FIRST NATION.
- 7.4 Environmental Protection and Sustainable Development WASAUKSING FIRST NATION and our CITIZENS rely upon, and shall continue to rely upon, the health of the natural environment for the wellbeing and survival of all. In fulfilling our environmental stewardship responsibilities, WASAUKSING FIRST NATION shall consider the sustainability of all projects, works, undertakings or developments and the sustainability of all NATURAL RESOURCES, lands, rivers, waterbeds, flora and fauna in light of any actual or proposed projects, works, undertakings or developments and shall require appropriate safeguards, MITIGATION or ACCOMMODATION to protect the future of our WASAUKSING-ANISHINAABE TERRITORY.
- 7.5 **Accommodation** Fulfilling the CROWN'S duty to WASAUKSING FIRST NATION, the CROWN shall ensure that the necessary steps are taken to address and ACCOMMODATE, where required, WASAUKSING FIRST NATION'S interests, views and concerns with respect to proposed projects/ACTIVITIES and/or DECISIONS that may have potential IMPACTS within our WASAUKSING-ANISHINAABE TERRITORY. It is strongly emphasized that MITIGATION is not considered ACCOMMODATION.

- 7.6 **Sharing in Impact Benefits** It is the overall presiding principle that WASAUKSING FIRST NATION is entitled to share in the economic wealth that may arise from proposed project developments, actions and/or ACTIVITIES by way of nation-to-nation negotiated IMPACT Benefit Agreements, Memorandums of Understanding and Resource Revenue Benefits Sharing Agreements with the CROWN and/or PROPONENT. WASAUKSING FIRST NATION is a recognized nation-to-nation government and has Aboriginal title through the signing of the *Robinson-Huron Treaty of 1850* and is further enshrined in Section 25 of the *Canadian Charter of Rights and Freedoms*.
- 7.7 **Capacity** In all cases where the need for independent research and technical services are identified, WASAUKSING FIRST NATION will submit a request for capacity funding to the CROWN and/or PROPONENT in order to effectively participate in a meaningful consultative process. As soon as the duty to consult is triggered, it is the expectation of WASAUKSING FIRST NATION that funding for capacity must be readily available for independent research, technical services and professional advice. Meaningful consultation cannot occur without these resources being available when requested. Non-compliance will be deemed to be in direct violation of this PROTOCOL.



8.0 Free, Prior and Informed Consent

- 8.1 All engagement/consultation matters and processes entered into with WASAUKSING FIRST NATION must adhere to the principle of *free, prior and informed consent* as recognized under the *United Nations Declaration on the Rights of Indigenous Peoples, March 2008*. Non-compliance to these principles will be deemed to be in direct violation of this PROTOCOL.
- 8.2 The principle of *free, prior and informed consent* is an ongoing consultative process throughout the life of any and all mutually-agreed upon development projects within our WASAUKSING-ANISHINAABE TERRITORY and applies to any and all contemplated POLICY amendments/DECISIONS. WASAUKSING FIRST NATION reserves the right to request regular updates on active projects taking place within our WASAUKSING-ANISHINAABE TERRITORY.
- 8.3 **Free** All consultations are to be free from coercion, force, manipulation, intimidation and pressure by all levels of government and/or by all private sector PROPONENTS.
- 8.4 **Prior** Before any work, action or DECISION is made that could affect WASAUKSING FIRST NATION'S ABORIGINAL AND TREATY RIGHTS, WASAUKSING FIRST NATION must be effectively engaged, consulted and ACCOMMODATED. Consideration must be given for respectful time requirements within our internal departmental and governmental processes. In instances where multiples of affected First Nation communities are involved, consideration of the time needed to consult with our sister First Nations within the region must be considered.
- 8.5 **Informed** WASAUKSING FIRST NATION must be properly advised of all the relevant facts, information and risks from any and all projects, ACTIVITIES and/or DECISIONS that will affect and/or have enduring IMPACTS in or on our WASAUKSING-ANISHINAABE TERRITORY.

In addition, WASAUKSING FIRST NATION maintains the right to have:

- (i) Access to independent information and advice apart from the CROWN and/or private sector PROPONENTS; and
- (ii) Access to experts, when required, for technical and legal advice.
- 8.6 Consent WASAUKSING FIRST NATION maintains the collective right to say "Yes" or "No" to any proposed projects that may cause irreversible environmental damage within our WASAUKSING-ANISHINAABE TERRITORY or where ACCOMMODATION is insufficient to protect WASAUKSING FIRST NATION'S ABORIGINAL AND TREATY RIGHTS. WASAUKSING FIRST NATION also maintains the right to say "Yes" or "No" at each and every stage of project development that affects our lands and RESOURCES and/or is within our WASAUKSING-ANISHINAABE TERRITORY. If harmful and/or not beneficial to WASAUKSING FIRST NATION'S CITIZENS, or our rights and interests and/or to the environment, WASAUKSING FIRST NATION maintains the right to deny and/or reject a proposed project and/or proposed ACTIVITY. If it is proven to be of benefit to WASAUKSING FIRST NATION'S CITIZENS and/or to the

environment, the project and/or proposed ACTIVITY may be granted consent to move forward.

9.0 Notice of Consultation

- 9.1 The CROWN and/or PROPONENT shall submit a written Request for Consultation addressed to the Chief of WASAUKSING FIRST NATION at the preliminary stages of project planning or at least six (6) months prior to the undertaking of any ACTIVITIES that may affect WASAUKSING FIRST NATION'S ABORIGINAL AND TREATY RIGHTS and/or our interests.
- 9.2 WASAUKSING FIRST NATION asserts that a written Notice of Consultation does not constitute meaningful consultation with WASAUKSING FIRST NATION. In order for meaningful consultation to take place by the CROWN and/or PROPONENT, it must occur at the community level.
- 9.3 The Request for Consultation shall provide all relevant information pertaining to the proposed project, ACTIVITY, undertaking and/or contemplated DECISION written in a language and form that is comprehensible to WASAUKSING FIRST NATION. It shall include, but is not limited to:
 - (i) The nature and scope of the project, geographical location in UTM, maps, etc.;
 - (ii) The duration and timelines of the proposed project and ACTIVITY;
 - (iii) All available resource materials environmental assessments, permit applications, background papers for official plan reviews, proposed amended policies and any other relevant documents;
 - (iv) The distance to, location and name of nearest waterbodies;
 - (v) All potential environmental IMPACTS from the proposed project, ACTIVITY, undertaking or DECISION;
 - (vi) A list of any MITIGATION or compensation measures intended to minimize, eliminate or make up for potential environmental IMPACTS;
 - (vii) Contact information names, addresses, phone numbers, email addresses and websites;
 - (viii) A commitment to continue to update and provide the foregoing information as and when available; and
 - (ix) An agreement to abide by this PROTOCOL.
- 9.4 In the event that a PROPONENT fails to provide a written Request for Consultation and WASAUKSING FIRST NATION becomes aware of a project, ACTIVITY, undertaking or proposed DECISION within our WASAUKSING-ANISHINAABE TERRITORY or that may affect our ABORIGINAL AND TREATY RIGHTS, WASAUKSING FIRST NATION will send the PROPONENT a written letter advising of their failure to do so and will set a reasonable timeframe for the PROPONENT to comply with Sections 9.0 9.3 of this PROTOCOL.

10.0 Time Constraints

- 10.1 There shall be no unreasonable time constraints imposed upon WASAUKSING FIRST NATION to fully respond to proposed moderate to extensive consultation projects, ACTIVITIES, undertakings or DECISIONS, as identified in the *Wasauksing First Nation Consultation Matrix*, attached as Appendix "C" hereto.
- 10.2 Time constraint demands of ninety (90) days or less are not considered an acceptable practice and will not be honoured by WASAUKSING FIRST NATION.

11.0 Responsibilities of Wasauksing First Nation

11.1 WASAUKSING FIRST NATION shall:

- (i) Provide a confirmation of receipt letter to the CROWN and/or PROPONENT indicating when the consultation request was received;
- (ii) Assess the nature and complexity for each proposed project, ACTIVITY, undertaking and/or DECISION, and its potential effect on WASAUKSING FIRST NATION'S ABORIGINAL AND TREATY RIGHTS, in a fair and consistent manner, as per the Wasauksing First Nation Consultation Matrix, and if unable to do so, shall request further information from the CROWN/PROPONENT in order to perform such assessment; and
- (iii) Operate and negotiate in good faith.



12.0 Consultation and Accommodation Process

- 12.1 All consultation processes shall require a Memorandum of Understanding (MOU) between WASAUKSING FIRST NATION and the PROPONENT, which details: (a) the PROPONENT'S acknowledgement and respect for WASAUKSING FIRST NATION'S ABORIGINAL AND TREATY RIGHTS; (b) a commitment to communicate and share information with WASAUKSING FIRST NATION; (c) when requested by WASAUKSING FIRST NATION. a commitment to meet with WASAUKSING FIRST NATION'S CITIZENS to explain the project, proposal or plan and hear and read any concerns exposed; (d) a commitment to negotiate proper ACCOMMODATION for WASAUKSING FIRST NATION and our CITIZENS where appropriate; (e) a commitment to abide by and follow the dispute resolution process as set out in Section 17.0 hereto; and (f) a commitment to report all archeological or historical discoveries immediately to WASAUKSING FIRST NATION and not undertake any further work within 500m of any such discovery without WASAUKSING FIRST NATION'S consent; and acknowledgement that all archeological items discovered shall be the property of WASAUKSING FIRST NATION and immediately delivered to WASAUKSING FIRST NATION.
- 12.2 The consultation and ACCOMMODATION process for proposed projects, ACTIVITIES and/or DECISIONS deemed to require moderate to extensive levels of consultation, as per the *Wasauksing First Nation Consultation Matrix*, will require:
 - (i) The CROWN and/or PROPONENT to be open to making revisions to the original proposal, plan, ACTIVITY, undertaking and/or DECISION based on the concerns or views expressed during WASAUKSING FIRST NATION'S internal consultation process with our CITIZENS;
 - (ii) All parties to enter into a mutually agreed upon MOU, an IMPACT Benefit Agreement, a Mutual Benefits Agreement, a Resource Revenue Benefit Sharing Agreement and/or a co-management agreement if the proposed ACTIVITY and/or DECISION is collectively agreed to proceed by WASAUKSING FIRST NATION;
 - (iii) Any DECISION as to whether or not ACCOMMODATION is necessary shall be decided collaboratively by the PROPONENT and WASAUKSING FIRST NATION, in the spirit of reconciliation; and
 - (iv) PROPONENTS must comply with all negotiated ACCOMMODATION agreements with WASAUKSING FIRST NATION.
- 12.3 If at any point during the consultation process, WASAUKSING FIRST NATION decides to cease consultation or oppose a proposed project, ACTIVITY, undertaking and/or DECISION, a letter stating our objection and outlining our justification(s) will be forwarded to the CROWN and/or PROPONENT.

13.0 Application for Crown/Treaty Lands Disposition

13.1 Approval or consent for disposition of CROWN land and/or shoreline reserves shall not be provided where outstanding land claims for such lands or any immediately adjacent lands are in existence.

14.0 Consultation Status Readjustment

14.1 WASAUKSING FIRST NATION maintains the right at any time to readjust the consultation level for a proposed project, ACTIVITY, undertaking and/or DECISION from light consultation to moderate consultation or extensive consultation, or vice versa, and will notify the CROWN and/or PROPONENT through a written Notice of Consultation Status Change.

15.0 Consultation Cost

- 15.1 Depending on the nature of a proposed project, ACTIVITY, undertaking and/or DECISION and the level of consultation required, WASAUKSING FIRST NATION may require funding from the CROWN and/or PROPONENT for expenses and services related to:
 - (i) Access to independent professional legal, technical and economic expertise;
 - (ii) Research activities and project analysis;
 - (iii) Information management and dissemination; and
 - (iv) Costs associated with attending and hosting consultation meetings and community information and consultation sessions, such as: per diems, rental of meeting room, hotel accommodations, food and beverages, travel, overhead, etc.

16.0 Confidentiality

- 16.1 WASAUKSING FIRST NATION'S collected cultural and land-use data is the sole property of the First Nation and any information shared by WASAUKSING FIRST NATION shall not grant or convey any rights in or to such information to any person, firm or corporation.
- 16.2 PROPONENTS requiring review of WASAUKSING FIRST NATION'S cultural and land-use data will be required to enter into a confidentiality agreement prior to such review with WASAUKSING FIRST NATION.



17.0 Dispute Resolution

- 17.1 The consultation process shall cease for the duration of a dispute resolution process.
- 17.2 In the event of a dispute held between the PROPONENT and WASAUKSING FIRST NATION, the following resolution steps shall be taken:
 - (i) One party and/or both parties shall provide a written notice of the existence of a dispute, including a brief and concise explanation of the circumstance(s) and/or reason(s) leading up to the dispute and address it to the Community Consultation Coordinator, who will forward copies of the dispute notice to senior representatives of the PROPONENT, WASAUKSING FIRST NATION Council, and the CROWN;
 - (ii) Both parties shall co-operate and negotiate in good faith to resolve the disputed matter to their mutual satisfaction;
 - (iii) In such cases where a dispute cannot be resolved to both parties' mutual satisfaction, the appointment of a mediator or a facilitator shall be called upon prior to any litigation.
 - (iv) If the mediation process fails or does not occur within ninety (90) days of the commencement of the dispute, either party may seek resolution through litigation.
- 17.3 The CROWN shall bear all the costs associated with the dispute resolution process.

17.4 Notwithstanding section 17.2, either party to the dispute may seek injunction relief in appropriate cases in the Ontario Superior Court of Justice or the Federal Court of Canada, as may be required.

18.0 Community Consultation Coordinator

18.1 The WASAUKSING FIRST NATION Community Consultation Coordinator shall be the point-of-contact person for all consultation and ACCOMMODATION matters.

19.0 Review and Amendment

- 19.1 WASAUKSING FIRST NATION'S Community Consultation Coordinator and our Lands and Resources Committee shall review this PROTOCOL on an annual basis, or as required. Any changes to the PROTOCOL will be recommended to Council for approval.
- 19.2 WASAUKSING FIRST NATION'S Community Consultation Coordinator and our Lands and Resources Committee may also create regulations regarding this PROTOCOL, which will be recommended to Council for approval.

20.0 Glossary

"ABORIGINAL AND TREATY RIGHTS" means practices, customs, and traditions that are integral to the distinctive culture of WASAUKSING FIRST NATION CITIZENS, as recognized and affirmed by Section 35(1) of the *Constitution Act*, 1982.

"ACCOMMODATION" means the process of adapting or adjusting to someone or something, a settlement or a compromise. The CROWN has an obligation to ACCOMMODATE, if required, the interests of those First Nation communities who may be potentially IMPACTED by a proposed DECISION and/or ACTIVITY.

"ACTIVITY" means any CROWN or PROPONENT action, including, but not limited to, any work, procedure, operation or other physical act, which may have an IMPACT on WASAUKSING FIRST NATION'S ABORIGINAL AND TREATY RIGHTS, our WASAUKSING-ANISHINAABE TERRITORY and/or our lands and RESOURCES.

"CONSTRUCTIVE KNOWLEDGE" means information that a person is assumed to have. For example, the CROWN is assumed to know all the Treaties it has entered into with First Nations and their contents.

"CROWN DESIGNATE" includes the CROWN in right of Canada or the CROWN in right of Ontario, their cabinets, committees, ministries, CROWN corporations, local governments (municipalities and regional districts), agencies, employees and contracted agents, representatives and delegates for the purpose of the duties of consultation and ACCOMMODATION.

"DECISION" means any CROWN DECISION or PROPONENT DECISION, including, but not limited to, any legislation, regulation, POLICY, procedure, plan, license, permit, amendment, approval, operation or other DECISION which may have an IMPACT on WASAUKSING FIRST NATION'S ABORIGINAL AND TREATY RIGHTS, our WASAUKSING-ANISHINAABE TERRITORY and/or our lands and RESOURCES.

"IMPACT" or "IMPACTS" means any effect(s) that any ACTIVITY and/or DECISION may cause within our WASAUKSING-ANISHINAABE TERRITORY or to WASAUKSING FIRST NATION'S ABORIGINAL AND TREATY RIGHTS and our lands and RESOURCES.

"MITIGATION" means the act of lessening the IMPACTS of environmental and ecosystem damage due to a project, action and/or ACTIVITY.

"NATURAL RESOURCES" or "RESOURCES" means any materials found in nature, on or under the land, including wildlife, timber, fresh water, or a mineral deposit, that is necessary or useful to humans and therefore has economic value.

"POLICY" means strategy, plan, rule, guiding principle, course of action, guidelines and procedure.

"PROPONENT" includes, but is not limited to, any individual, researcher, company, corporation, firm, municipality, regional district, industry, society, non-governmental organization or CROWN DESIGNATE that is proposing to undertake or is undertaking an ACTIVITY or DECISION as defined above.

"PROTOCOL" means this Wasauksing First Nation External Consultation and Accommodation Protocol.

"RESERVE" means the RESERVE of WASAUKSING FIRST NATION, being Parry Island Indian RESERVE #16, which is a RESERVE established and subsisting under the Indian Act R.S.C. 1985 c. 1-5 (See Appendix B: Wasauksing First Nation Location Map).

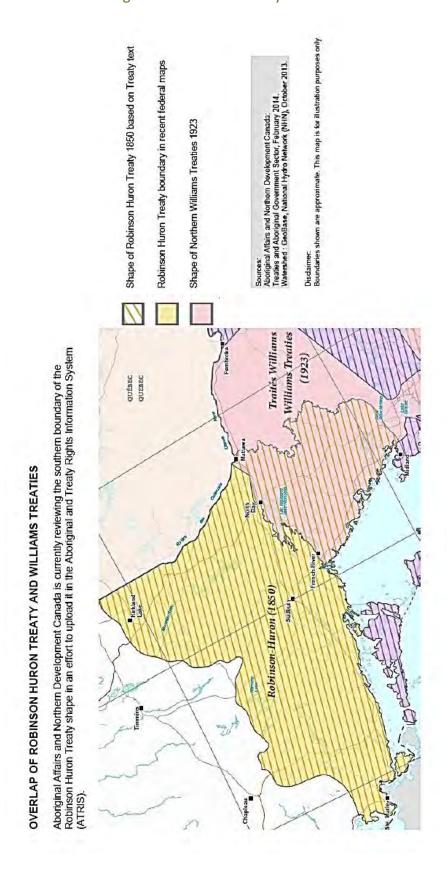
"RESIDUAL EFFECT" means the IMPACTS to the environment, lands, and RESOURCES during or after the completion of a proposed project, ACTIVITY and/or DECISION.

"WASAUKSING-ANISHINAABE TERRITORY" means the traditional territory of our WASAUKSING FIRST NATION CITIZENS, as described in Appendix "A" hereto, known as the Robinson-Huron Treaty Area.

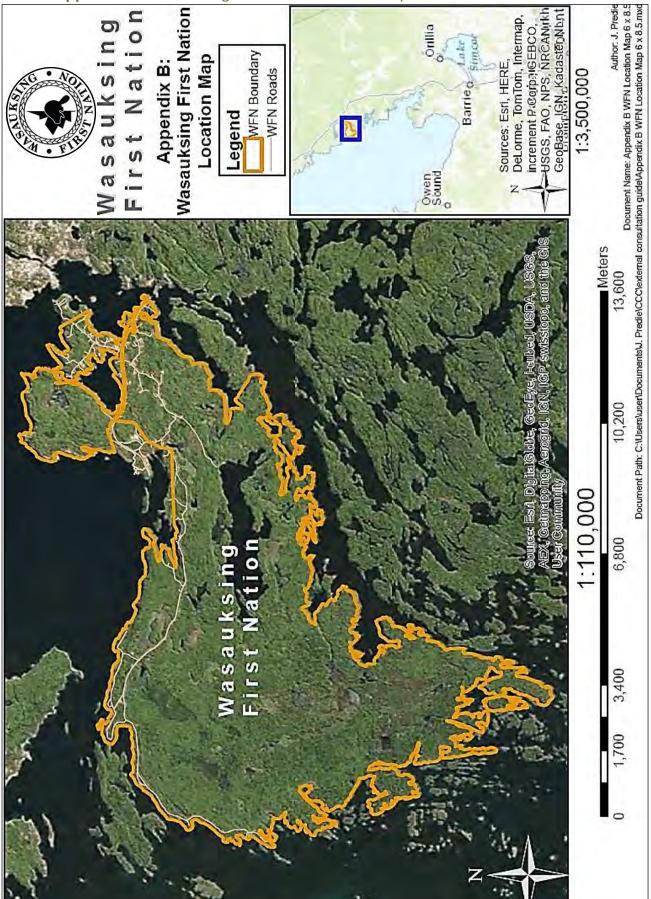
"WASAUKSING FIRST NATION" means WASAUKSING FIRST NATION and its CITIZENS.

"WASAUKSING FIRST NATION CITIZEN" means a person whose name appears on the WASAUKSING FIRST NATION Citizenship List, as managed by WASAUKSING FIRST NATION in accordance with Section 10 of the *Indian Act*.

21.0 Appendix A: Wasauksing-Anishinaabe Territory: The Robinson-Huron Treaty Area



22.0 Appendix B: Wasauksing First Nation Location Map



Although Depot Harbour and the CN Railway locations have not been included within the WFN Boundary, these lands are managed by WASAUKSING FIRST NATION as if they are RESERVE Lands.

23.0 Appendix C: Wasauksing First Nation Consultation Matrix

WFN Consultation Matrix Level 1: No Level 4: Extensive Level 4: Extensive Level 4: Extensive High Consultation Consultation Consultation Consultation **Residual Effects of Proposed** Level 1: No Level 3: Moderate Level 3: Moderate Level 4: Extensive Project/Decision Moderate Consultation Consultation Consultation Consultation Level 1: No Level 2: Liaht Level 3: Moderate Level 4: Extensive Minor Consultation Consultation Consultation Consultation Level 1; No Level 1: No Level 1: No Level 1: No None Consultation Consultation Consultation Consultation None Minor Moderate High

Aboriginal and Treaty Rights in the Project/Decision Area

Level 1: No Consultation:

• No RESIDUAL EFFECT of a proposed ACTIVITY/DECISION and/or no potential IMPACTS to our ABORIGINAL AND TREATY RIGHTS will not require community consultation.

Records of all such notices will be maintained by the CCC, and a summary can be provided to the community/CITIZEN upon request.

Level 2: Light Consultation:

 Minor RESIDUAL EFFECT(s) of a proposed ACTIVITY/DECISION and/or minor potential IMPACTS to our ABORIGINAL AND TREATY RIGHTS will require a light community consultation.

Consultation will consist of providing the community with a notice/update for the proposed ACTIVITY/DECISION via the Monthly Newsletter and WFN Website

Level 3: Moderate Consultation:

- Minor RESIDUAL EFFECT(s) of a proposed ACTIVITY and/or DECISION and moderate potential IMPACTS to our ABORIGINAL AND TREATY RIGHTS;
- Moderate RESIDUAL EFFECT(s) of a proposed ACTIVITY/DECISION and/or moderate potential IMPACTS to our ABORIGINAL AND TREATY RIGHTS; and
- Moderate RESIDUAL EFFECT(s) of a proposed ACTIVITY and/or DECISION and minor potential IMPACTS to our ABORIGINAL AND TREATY RIGHTS.

Consultation will include: a notice/update to the community via Community Newsletter and a community information session/meeting to receive comments and/or concerns from CITIZENS.

Level 4: Extensive Consultation:

- Minor RESIDUAL EFFECT(s) of a proposed ACTIVITY and/or DECISION and high potential IMPACTS to our ABORIGINAL AND TREATY RIGHTS;
- Moderate RESIDUAL EFFECT(s) of a proposed ACTIVITY and/or DECISION and high potential IMPACTS to our ABORIGINAL AND TREATY RIGHTS;
- High RESIDUAL EFFECT(s) of a proposed ACTIVITY and/or DECISION and moderate potential IMPACTS to our ABORIGINAL AND TREATY RIGHTS; and
- High RESIDUAL EFFECT(s) of a proposed ACTIVITY and/or DECISION and minor potential IMPACTS to our ABORIGINAL AND TREATY RIGHTS.

Consultation will include: a notice/update to the community via Community Newsletter and WFN Website, community information sessions to receive comments and/or concerns from CITIZENS, presentation(s) from CROWN DESIGNATE(S) and/or PROPONENT(S), including a community vote in the rare circumstances where a proposed project and/or DECISION may necessitate the need for a community vote, etc.







WASAUKSING FIRST NATION

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Parry Sound, ON P2A 2X4

P: (705) 746-2531

F: (705) 746-5984

W: www.wasauksing.ca

Jackson Mercer

From:

Subject:

Sent: August 4, 2020 6:25 PM

To:

Burgess 1 Dam EA , Bala ON

Hello

Please mail me a hard copy of presentation and comment card to;

Burgess

Thanks

Jackson Mercer

From:

Sent:	August 5, 2020 TT:35 AIVI
To:	Burgess
Subject:	Re: Burgess 1 Dam EA , Bala ON
Ok, thanks.	
No troubles at all	
Thanks	
On Wed, Aug 5, 2020 at 11:07	7 AM Burgess < <u>burgess.ea@tulloch.ca</u> > wrote:
Hello	
	her and mail it out to you. Out of curiosity did you have difficulty with the website? If like to report them to the Township so hopefully we can make it as accessible as possible.
Thanks,	



Tel: 705 789 7851 x438

Fax: 705 789 7891

TULLOCH Engineering Inc

80 Main St. West, Huntsville, ON P1H 1W9 erik.giles@TULLOCH.ca | TULLOCH.ca From: **Sent:** August 4, 2020 6:25 PM **To:** Burgess < burgess.ea@tulloch.ca > Subject: Burgess 1 Dam EA, Bala ON Hello Please mail me a hard copy of presentation and comment card to; Thanks Thanks, Thanks,