

Appendix E

Record of Correspondence with the MECP

Memorandum

To: Mark Badali, PMP, CET

Copies To: Rhonda Shannon, Hugh Geurts, John Ritchie, Mark Smith

From: Simon Glass, P.Eng.

Date: April 3, 2023

Reference: Meaford Waste Water Treatment Plant Expansion Class
 Environmental Assessment (EA) Update
 Proposed Effluent Limits- Revision
 Ainley File No. 121027

BACKGROUND

The Municipality of Meaford completed a Class EA for the expansion of the existing wastewater treatment Plant (WWTP). Based on correspondence from the Ministry to the Municipality in 2012 an amendment to the Class EA was required, particularly to address potentially affected Indigenous Nations.

Ainley Group had a virtual meeting with the Ministry of the Environment, Conservation and Parks (MECP) on Feb. 23, 2022, to discuss the effluent limits for the Meaford Wastewater Treatment Plant (WWTP), and to confirm that limits proposed in the 2007 Class EA remain acceptable to the MECP.

Following the meeting with the Ministry, Ainley provided with a “Effluent Criteria Memorandum”, dated March 2022 (refer to **Appendix A**). As per the memorandum, which was prepared according to the Ministry’s technical guidance, monthly average Total Phosphorous (TP) concentration limit and objective of 0.8 mg/L and 0.5 mg/L were proposed for the final effluent for new capacity of 5,000 m³/day. **Table 1** below shows the previously proposed final effluent criteria for plant capacity of 5,000 m³/day which were agreed upon with the Ministry.

**Table 1: Proposed Final Effluent Criteria (for New Capacity of 5,000 m³/day)
 March 2022 Memorandum**

Effluent Parameter	Monthly Average Concentration (milligrams per litre unless otherwise indicated)	Annual Average Loading (kilograms per day unless otherwise indicated)
CBOD ₅	15.0	75
Total Suspended Solids	15.0	75
Total Phosphorus	0.8	4.7
Total Ammonia Nitrogen		
Freezing Period*	3.0	15

Non-Freezing Period*	5.0	25
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pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times

*Note: Freezing Period: October 1 to May 14, Non-Freezing Period: May 15 to September 30

OBJECTIVE 1 – PHASED PHOSPHORUS LIMITS

Upon revisiting the projection population of year 2051, and subsequently the 30-year projected wastewater flow for the Municipality of Meaford, it was determined that average wastewater flow at the end of the study period is now projected to be 4,400 m³/day (ADF), approximately 12% lower than the previously proposed ADF of 5,000 m³/day. Therefore, this memorandum is seeking to propose new plant effluent limits for the Ministry's review.

The project team is interested in the potential for a phased effluent limit which will allow the Municipality to work towards a fully expanded plant in stages, without immediately triggering the effluent limit requirement of the fully expanded capacity of the plant. The structure of this approach would be intended to maintain or improve the annual average phosphorus loading of the plant at each stage.

The project team understands the position of the Ministry in trying to protect the Georgian Bay by limiting the effluent limits to the Bay and maintaining the chemical, physical, and biological integrity of the water. Also, it is recognized that the previous TP effluent limit of 0.8 mg/L agreed to with the Ministry resulted from the 2007 Assimilative Capacity Study. However, it should be noted that a TP limit of 0.8 mg/L and resulting objective of 0.5 mg/L would require addition of a tertiary treatment unit to the Meaford WWTP; this requirement imposes a significant cost burden on the Municipality. In addition, a TP limit of 1.0 mg/L was proposed in the 2007 ACS was developed on the basis of an ADF capacity of the WWTP of 6,000 m³/d, significantly higher than the proposed expansion capacity currently proposed. It is on this basis that the Municipality is requesting the MECP consider agreeing to a phased approach towards the phosphorus discharge limit which takes phosphorus loading into consideration as opposed to concentrations.

The Town of Meaford is a smaller municipality with an approximate population of 5,000 and limited revenue. A phased approach for phosphorus discharge limits will satisfy the mutually shared goal of environmental stewardship while also providing the Municipality the necessary time to generate capital reserves for tertiary expansion.

METHODOLOGY

To propose the effluent limits for Meaford WWTP, specifically TP limit, a logical and scientific approach is followed, considering:

- The previous approved studies: 2007 Assimilative Capacity Studies (ACS)
- Great Lakes Water Quality Agreement (2012)
- Historical effluent data
- The size of the municipality and budgetary limitation

As the previously approved effluent limits and objectives for BOD, TSS, and Nitrogen (Ammonia) are reachable through the existing treatment units in the plant, this memorandum focuses on the effluent limit for TP only.

To set up the baseline, the following clauses from the Great Lakes Water Quality Agreement (GLWQA) is considered:

PRINCIPLES AND APPROACHES – Clause L

“science-based management – implementing management decisions, policies and programs that are based on best available science, research and knowledge, as well as traditional ecological knowledge, when available.”

ANNEX 4 – NUTRIENTS – Clause C-1-a

“determine appropriate phosphorus loading allocations, apportioned by country, necessary to achieve Substance Objectives for phosphorus concentrations for each Great Lake”

ANNEX 4 – NUTRIENTS – Clause D-1-c

“programs to ensure that construction and operation of municipal wastewater treatment facilities that discharge one million liquid gallons or more per day achieve a maximum effluent concentration of 1.0 milligram per litre total phosphorus for plants in the basins of Lakes Superior, Michigan, and Huron, and of 0.5 milligram per litre total phosphorus for plants in the basins of Lakes Ontario and Erie”

PHOSPHORUS LIMIT CALCULATION (5-YEAR AVERAGES, PRO-RATED):

The 5-year average flow at the WWTP is 2,935 m³/d (75% of rated capacity of the plant (3,910 m³/day)) at the observed average discharge rate of phosphorus from 2016 to 2020 (1.66 mg/L), the average daily plant load of TP can be calculated as:

$$\text{Phosphorus Loading at 80\% Capacity} = 2,935 \frac{\text{m}^3}{\text{day}} \times 1.66 \frac{\text{mg}}{\text{L}} \times 10^{-3} = 4.87 \frac{\text{kg}}{\text{day}}$$

To maintain the TP loadings at the current discharge rate for the proposed flow rate of 4,400 m³/day, the proposed TP limit can be calculated as follow:

$$\text{Proposed Phosphorus Limit} = \frac{4.87 \frac{\text{kg}}{\text{day}}}{4,400 \frac{\text{m}^3}{\text{day}}} = 1.1 \frac{\text{mg}}{\text{L}}$$

PROPOSED EFFLUENT LIMITS

It is understood, through the Great Lakes Agreement that the maximum allowable limit for discharge phosphorus concentration is 1 mg/L and that the Ministry is not in a position to grant approval for new discharge limits in exceedance of this agreement. As such, any expansion of the WWTP will require improvement of the effluent phosphorus to 1 mg/L.

Table 2 documents the current and future effluent loading limits, and current conditions. In order to meet the requirements of the Great Lakes Agreement, an interim phosphorus limit of 1.0 mg/L is proposed which represents improvement on the existing conditions and results in an

annual average loading that is lower than the loading limit proposed in the 2007 ACS. The scientifically determined limits for phosphorus loading obtained through the ACS will be improved upon during the interim period at the 1.0 mg/L phosphorus limit. The limit for the interim phosphorus loading proposed represents an approximate 9% improvement on the overall loading proposed in the 2007 ACS and ESR for the 6,000 m³/d expansion.

Table 2: Existing and Proposed Interim Effluent Limits for New Capacity of 4,400 m³/day

Phase	Phosphorus Concentration	Effective Phosphorus Loading	Proposed/ Existing Phosphorus Loading Limit
Existing - 3910 m ³ /d	4 mg/L	15.64 kg/day	15.64 kg/day
Current Conditions ¹	1.66 mg/L	4.87 kg/day	15.64 kg/day
Expansion 1 - 4,400 m ³ /d	1.0 mg/L	4.4 kg/day	4.4 kg/day
Expansion 2 – 6,000 m ³ /d	0.8 mg/L	4.8 kg/day	4.8 kg/day

Table 3 shows the full listing of effluent limits proposed for the interim expansion, Table 4 shows the full listing of effluent limits determined for the 6,000 m³/d expansion from the 2007 ACS.

Table 3: Proposed Interim Effluent Limits for New Capacity of 4,400 m³/day

Effluent Parameter	Monthly Average Concentration (milligrams per litre unless otherwise indicated)	Annual Average Loading (kilograms per day unless otherwise indicated)
CBOD ₅	15.0	66
Total Suspended Solids	15.0	66
Total Phosphorus	1.0	4.4
Total Ammonia Nitrogen		
Freezing Period*	3.0	13.2
Non-Freezing Period*	5.0	22
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times		

*Note: Freezing Period: October 1 to May 14, Non-Freezing Period: May 15 to September 30

¹ Average discharge concentration of 1.66 mg/L phosphorus and average day flow of 2,935 m³/d

Table 4: ACS Effluent Limits for Future Capacity of 6,000 m³/day

Effluent Parameter	Monthly Average Concentration (milligrams per litre unless otherwise indicated)	Annual Average Loading (kilograms per day unless otherwise indicated)
CBOD ₅	15.0	90
Total Suspended Solids	15.0	90
Total Phosphorus	0.8	4.8
Total Ammonia Nitrogen		
Freezing Period*	3.0	18.0
Non-Freezing Period*	5.0	30.0

pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times

*Note: Freezing Period: October 1 to May 14, Non-Freezing Period: May 15 to September 30

CONCLUSION:

Although previously the Ministry agreed upon the TP effluent limit of 0.8 mg/L, it should be noted that this requirement imposes the addition of a tertiary treatment unit to the plant. While the Municipality is planning to have a tertiary treatment unit in the future, currently, it is not financially feasible.

Approving a slightly more relaxed effluent limit of 1.0 mg/L, would give confidence to the Municipality that effluent requirements can be met through chemical intervention in the short term for a maximum plant capacity of 4,400 m³/day. This will allow the Municipality to save toward adding a tertiary treatment for the full built out scenario with a maximum capacity of 6,000 m³/day.

This is also consistent with the GLWQA requirement for facilities with capacity of 3,785 m³/day or more to achieve a maximum effluent concentration of 1.0 mg/L TP for plants in the basins of Lake Huron.

Please advise if the proposed effluent limits and objectives are acceptable to the MECP and whether the Ministry believes this is a reasonable compromise the TP limit, based on a scientific approach and respecting existing legislative requirements. This approach will assist the Municipality in their efforts to gradually move toward the 0.8 mg/L TP limit.

OBJECTIVE 2 – PEAK FLOW MANAGEMENT

The Meaford wastewater collection system has significant peak wastewater flows resulting from inflow and infiltration (I&I). The 2007 ESR established that reduction of I&I and improvement of water conservation were components of the overall management of wastewater flow to the WWTP. The approach to reduce peak flows was reinforced by the Municipalities' 2015 Water and Wastewater Master Plan, in addition to a recommendation to construct equalization storage for peak flow management. The Municipality has pursued projects to reduce I&I in the intervening years, however peak wastewater flows remain excessive. The Municipality has documented peak day flows in excess of 5 times average daily flow (ADF) and peak instantaneous flows as high as 7.9 times ADF.

It is clear that operation of conventional secondary treatment processes are placed at risk during excessively high peak flow ratios due to the potential for wash-out of the biomass. Similarly, oversizing a secondary treatment process in order to manage excessive peak flows is problematic, causing operational challenges and potential for deposition in oversized channels. In addition, the cost to construct oversized treatment in order to manage peak flows could become cost prohibitive.

While the use of equalization storage has been recommended previously, the scale of storage needed to manage the excess flows the system experiences over multiple day spans may be impractical.

Understanding the history and challenges faced, we are seeking feedback from the Ministry on the potential for using a high-rate clarification system to manage peak flows. The intent of the high-rate clarification system would be to treat flows above the peak flow capacity of the plant (during peak flow/wet weather events only) and allow the effluent from high-rate clarification to bypass the secondary treatment process; disinfection would be maintained during by-pass events. It is understood that this approach is typically reserved for combined sewer systems following "F-5-5 Determination of treatment requirements for municipal and private combined" however, given the extent of extraneous flows in the Meaford collection system (5-7.9 times ADF) the wastewater is highly diluted during the peak flow periods.

We are proposing an overall solution which includes high-rate clarification for management of peak flows; we are seeking feedback from the Ministry on whether this solution will be acceptable before the alternative is explored further through the EA process.

Appendix A

Memorandum

To: Mark Badali, PMP, CET

Copies To: Rhonda Shannon, Hugh Geurts, John Ritchie, Mark Smith

From: Kamran Rahnama, P.Eng.

Date: April 1, 2022

Reference: Meaford Waste Water Treatment Plant Expansion Class
Environmental Assessment (EA) Update
Proposed Effluent Limits
Ainley File No. 121027

BACKGROUND

The Municipality of Meaford completed a Class EA for the expansion of the existing wastewater treatment facility. Based on correspondence from the Ministry to the Municipality in 2012 (**Attachment 1**), an amendment to the Class EA was required, particularly to address potentially affected Indigenous Nations.

Ainley Group had a virtual meeting with the Ministry of the Environment, Conservation and Parks (MECP) on Feb. 23, 2022, to discuss the effluent limits for the Meaford Wastewater Treatment Plant (WWTP), and to confirm that limits proposed in the 2007 Class EA remain acceptable to the MECP. The highlights of the plant and influent and effluent criteria as discussed in the meeting are:

- The plant is considered a cross between an Extended Aeration Activated Sludge (EAAS) and a Conventional Activated Sludge (CAS) process.
- The existing rated capacity per its ECA (#9036-AZFPV6 dated October 10, 2018) of the plant is 3,910 m³/day.
- The plant outfall extends 450 m from the shore into the lake with a 15 m long diffuser. The lake depth at the diffuser is measured at 3.3 m.
- **Table 1** and **Table 2** show the existing effluent limits and effluent objectives as cited in the plant's ECA:

Table 1: Effluent Limits and Loadings

Effluent Parameter	Monthly Average Concentration (milligrams per litre unless otherwise indicated)	Annual Average Loading (kilograms per day unless otherwise indicated)
CBOD ₅	20.0	78.2
Total Suspended Solids	20.0	78.2
Total Phosphorus	4.0	15.6
Total Ammonia Nitrogen (Oct 1 - May 14)	3.0	11.7
(May 15 - Sep 30)	5.0	19.6
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times		

Table 2: Effluent Objectives and Loadings

Effluent Parameter	Monthly Average Concentration (milligrams per litre unless otherwise indicated)	Annual Average Loading (kilograms per day unless otherwise indicated)
CBOD ₅	20.0	78.2
Total Suspended Solids	20.0	78.2
Total Phosphorus	4.0	15.6
Total Ammonia Nitrogen (Oct 1 - May 14)	3.0	11.7
(May 15 - Sep 30)	5.0	19.6
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times		

- **Table 3** summarizes the monthly average influent parameters from the annual performance reports of the plan.

Table 3: Monthly Average Influent Parameters

Year	Flow (m³/d)	CBOD₅ (mg/L)	TSS (mg/L)	Total Phosphorus (mg/L)	Ammonia Nitrogen (mg/L)
2016	2,204	189.68	166.18	3.01	25.61
2017	2,780	137.33	122.75	2.42	21.52
2018	3,146	156.92	156.00	3.07	21.98
2019	2,946	110.33	108.08	2.16	18.59

Year	Flow (m ³ /d)	CBOD ₅ (mg/L)	TSS (mg/L)	Total Phosphorus (mg/L)	Ammonia Nitrogen (mg/L)
2020	2,884	109.50	66.00	1.69	15.20
Average	2,797	128.52	113.21	2.36	19.32

- **Table 4** shows the monthly average effluent parameters from 2016 to 2020.

Table 4: Monthly Average Effluent Parameters

Year	CBOD ₅ (mg/L)	Total Suspended Solids (mg/L)	Total Phosphorus (mg/L)	Ammonia Nitrogen (mg/L)
2016	5.09	5.98	1.76	0.88
2017	5.84	6.78	1.54	0.89
2018	5.85	7.19	1.88	0.80
2019	4.36	7.84	1.66	0.46
2020	4.10	5.00	1.47	0.54
Average	5.05	6.56	1.66	0.71

- This Class Environmental Assessment update is proposing to increase the capacity of the plant to 5,000 m³/day for the projected growth to the year 2050.
- The MECP stated that total phosphorus (TP) will be the primary driver for the determination of updated effluent limits. The MECP noted that the current objective of 2.0 mg/L for the Meaford WWTP is not reflective of a modern plant.
- As it has been more than 10 years between notice of completion of the 2007 MCEA and commencement of construction, an amendment is required to proceed with any major upgrade in the plant (e.g., increasing the plant capacity).
- The MECP advised that a new assimilative capacity study (ACS) would not be needed if the Municipality would be able to stay within the existing TP loadings at the projected future flow of 5,000 m³/d. The previously completed ACS is provided (**Attachment 2**) The MECP stated that the Municipality can request TP loading limits based on theoretical loadings of the plant while operating at 80% capacity.

PHOSPHORUS LIMIT CALCULATION (5-YEAR AVERAGES, PRO-RATED):

Assuming 80% of rated capacity of the plant (3,128 m³/day) at the observed average discharge rate of phosphorus from 2016 to 2020 (1.66 mg/L), the average daily plant load of phosphorus can be calculated as:

$$\text{Phosphorus Loading at 80\% Capacity} = 3,128 \frac{\text{m}^3}{\text{day}} \times 1.66 \frac{\text{mg}}{\text{L}} \times 10^{-3} = 5.19 \frac{\text{kg}}{\text{day}}$$

To maintain the TP loadings that would exist at 80% plant capacity at the proposed flow rate of 5,000 m³/day, the proposed TP limit can be calculated as follow:

$$\text{Proposed Phosphorus Limit} = \frac{5.19 \frac{\text{kg}}{\text{day}}}{5,000 \frac{\text{m}^3}{\text{day}}} = 1.04 \frac{\text{mg}}{\text{L}}$$

PHOSPHORUS LIMIT CALCULATION (5-YEAR WORST CASE):

The year 2018 had the highest TP effluent concentration from the past 5-years. Using the 2018 average flow (3,146 m³/d) and average effluent loadings for phosphorus (1.88 mg/L), the highest average daily plant loading of phosphorus can be calculated as:

$$\text{2018 Phosphorus Loading} = 3,146 \frac{\text{m}^3}{\text{day}} \times 1.88 \frac{\text{mg}}{\text{L}} \times 10^{-3} = 5.91 \frac{\text{kg}}{\text{day}}$$

The TP limit required to maintain the TP loadings observed in 2018 at the proposed flow rate of 5,000 m³/day can be calculated as follow:

$$\text{Proposed Phosphorus Limit} = \frac{5.91 \frac{\text{kg}}{\text{day}}}{5,000 \frac{\text{m}^3}{\text{day}}} = 1.18 \frac{\text{mg}}{\text{L}}$$

PROPOSED EFFLUENT LIMITS

Reviewing the 2007 MCEA, the outcome of the meeting with the MECP team and email communications between Ainley and the MECP team, Ainley proposes effluent limits for the future flow rate of 5,000 m³/day in **Table 5**.

The proposed CBOD₅, TSS and ammonia limits are those accepted in the 2007 ESR. Following communication from the MECP (**Attachment 3**), it is understood that no proposed effluent limit for Phosphorus would be acceptable below previously agreed upon limits from the 2007 ESR. The 2007 ESR had an effluent concentration limit of 0.8 mg/L and a monthly average loading of 4.7 kg/d. The previously agreed upon limits represent an improvement on both the current 5-year worst cast and the pro-rated 5-year average.

Table 5: Proposed Effluent Limits for New Capacity of 5,000 m³/day

Effluent Parameter	Monthly Average Concentration (milligrams per litre unless otherwise indicated)	Monthly Average Loading (kilograms per day unless otherwise indicated)
CBOD ₅	15.0	75
Total Suspended Solids	15.0	75
Total Phosphorus	0.8	4.7
Total Ammonia Nitrogen		

Effluent Parameter	Monthly Average Concentration (milligrams per litre unless otherwise indicated)	Monthly Average Loading (kilograms per day unless otherwise indicated)
October 1 to May 14	3.0	15
May 15 to September 30	5.0	25

pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times

Please advise if the proposed effluent limits and objectives are acceptable to the MECP.

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Attachment 1

2012 MECP Letter

Ministry of the Environment

733 Exeter Road
London ON N6E 1L3
Tel.: 519 873-5000
Fax: 519 873-5020

Ministère de l'Environnement

733, rue Exeter
London ON N6E 1L3
Tél.: 519 873-5000
Télééc.: 519 873-5020



January 3, 2012

Rakesh Sharma
Genivar Consultants LP
Suite 101
1450, First Avenue West
Owen Sound, Ontario
N4K 6W2

Dear Mr. Sharma:

RE: Proposed Upgrading of the Meaford Wastewater Treatment Facility

This acknowledges receipt of your correspondence of November 15, 2011 to the ministry with respect to a potential expansion/upgrade of the Meaford Sewage Treatment Plant. From your correspondence and our discussion of December 22, ministry staff understands that the municipality wishes to expand plant capacity by approximately 20% to accommodate projected future growth (the plant is currently operating at 87% capacity).

Proposed modifications include substantial upgrades to the plant design in order to afford greater treatment of waste and improved final effluent (namely reductions in phosphorous). The ministry is supportive of this goal.

The proposed works are subject to the Environmental Assessment Act. In November 2007, the municipality completed an Environmental Assessment to increase the rated average daily capacity to 6,000 m³/day while retaining similar effluent criteria. Ministry staff notes that an Addendum to the existing 2007 Municipal Class Environmental Assessment ought to be completed for this proposed upgrading of the plant's capacity.

An important part of the Addendum process is the requirement for consultation with potentially affected Aboriginal and Métis communities. Our expectation is that all reasonable efforts will be undertaken to initiate meaningful and appropriate consultations. To assist, we believe the following communities are most likely to have interests in this project and should be contacted.

Jake Linklater, Case Manager
Saugeen Ojibway Nation Environmental Office
(519) 534-5507 jakelinklater@saugeenojibwaynation.ca

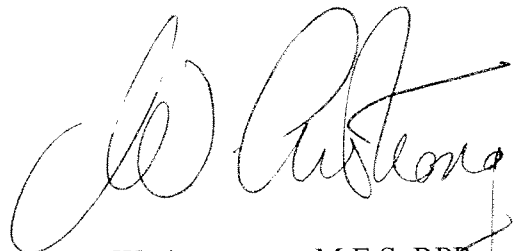
Ray Racicot, President
Great Lakes Métis Council
(519) 370-0435 rayr@greatlakesvoyageurs.com

It is the intent of ministry staff to proceed with our review process in tandem with the EA and its consultation processes.

Please note that any proposed future upgrade of the facility must also address the ability of the plant to improve upon combined sewer overflow (CSO) with respect to reducing the number of events where CSO's occur and the total volume discharged.

I trust the above provides you with sufficient information to proceed accordingly. If questions arise or if clarification is needed please contact the undersigned at (519) 873-5013 or via email at bill.armstrong@ontario.ca.

Yours truly,



W. Armstrong, M.E.S, RPP
Regional Environmental Planner
Southwestern Region

cc. H. Geurts
N. Champagne

Attachment 2

Latest Meaford WWTP Assimilative Capacity Study

Date: July 10, 2012
To: Rakesh Sharma, GENIVAR
Copies:
From: Michelle Albert and Emily Ghosh, GENIVAR
Project No.: OS-08-134-11-OS
Subject: Meaford WWTP Assimilative Capacity Study Update

1. Introduction

The Meaford Wastewater Treatment Plant (WWTP) was constructed in 1969 to service the Municipality of Meaford and to provide treatment for hauled wastes from neighbouring areas. In 2007, a Schedule C Class Environmental Assessment (EA) was completed to address long term wastewater treatment requirements for the Municipality. It was assumed at the time of the Environmental Assessment Environmental Study Report (ESR) that the Municipality's current population would double by 2026, thus doubling the hydraulic capacity of Meaford WWTP. In the ESR, the WWTP's effluent limits and required treatment upgrades were determined based on this assumption. However, since the WWTP is currently operating below its rated capacity and based on the approved developments in Meaford at this time, a 20% increase in population would more likely represent future growth and future capacity requirements.

The objective of this Technical Memorandum is to confirm whether the effluent limits recommended in the 2007 ESR are still suitable for the Meaford WWTP if only a 20% increase to the rated capacity, from 3,910 m³/d to 4,692 m³/d, is undertaken.

2. Wastewater Treatment Facility Description

2.1 Description of Facilities

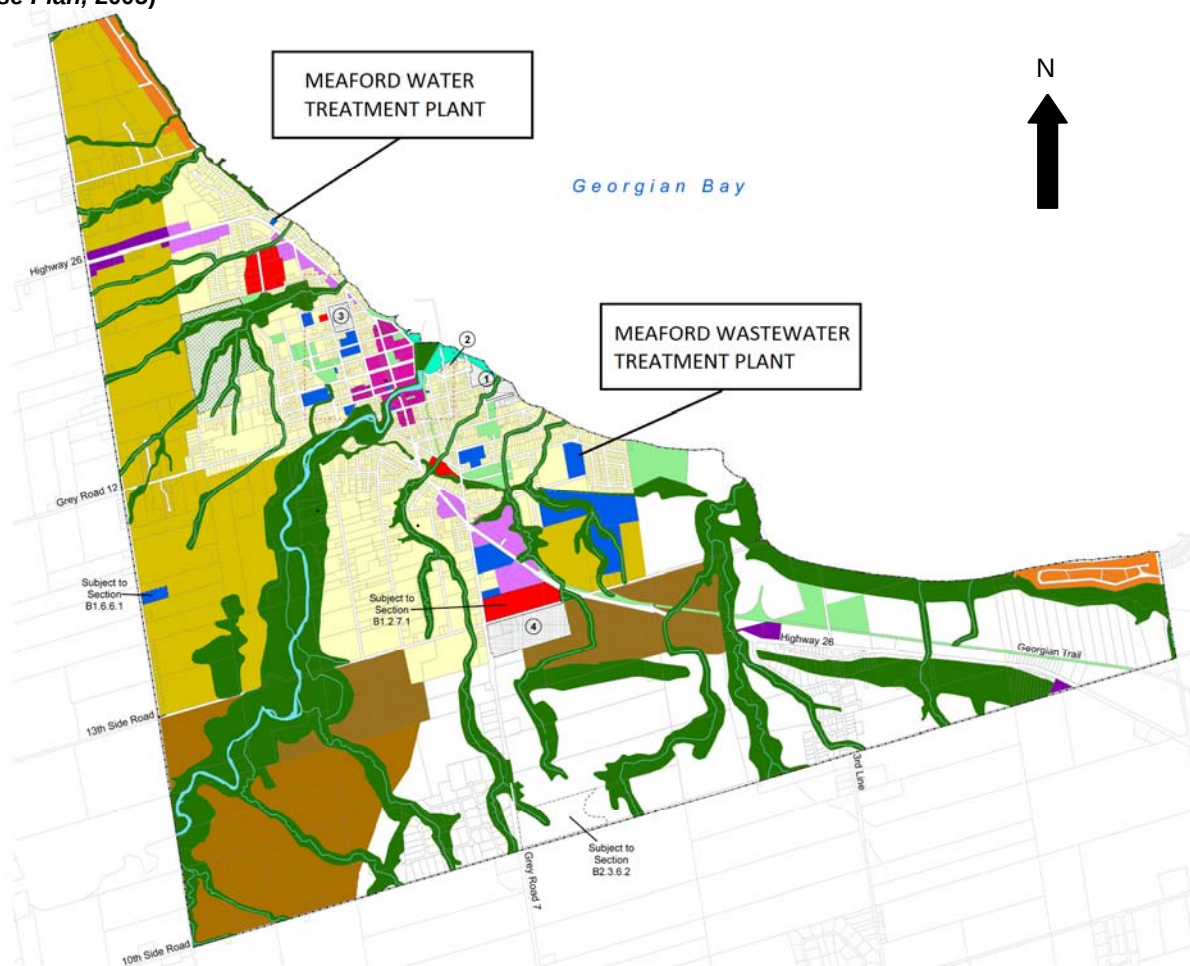
Meaford WWTP is located at 35 Grant Street in the Town of Meaford, as shown on Figure 2-1 on the following page. Meaford WWTP receives raw sewage from four pumping stations in the Meaford service area. The WWTP operates as an activated sludge plant with aerobic sludge stabilization and storage and Ultraviolet (UV) disinfection and is operated by the Ontario Clean Water Agency (OCWA). The key treatment processes and operations include:

- Raw wastewater pumping station
- Preliminary treatment (screening)
- Conventional Activated Sludge System (aeration tanks, secondary clarifiers)
- UV Disinfection System
- Outfall to Georgian Bay
- Aerobic Digestion with land disposal of biosolids

2.2 Wastewater Flows and Plant Treatment Capacity

The Meaford WWTP operates under Certificate of Approval #0440-6A4JXX issued by the Ministry of the Environment (MOE) on March 15, 2005. The current rated capacity of the plant is 3,910 m³/d, however based on OCWA's 2011 Performance Report, the plant's 2011 annual average daily flow was only 2,679.3 m³/d which is 68.5% of the design capacity. This was a 12% increase from flows recorded in 2010.

Figure 2-1 Location of Meaford WWTP (Source: *Municipality of Meaford Official Plan – Schedule A-1 Land Use Plan, 2005*)



In light of the current flows to the plant and approved subdivisions planned for the future, it has been estimated that future plant flows will increase by 20% above the current rated capacity of 3,910 m³/d to 4,692 m³/d.

In the 2007 ESR, the peaking factor was assumed to be 3.5. Also, based on the 2011 Performance Report, a maximum peak daily flow of 9,505 m³/d was recorded at the plant, which is 3.5 times the plant's annual average daily flow in 2011. Therefore, a peaking factor of 3.5 will also be used for this report.

2.3 Treated Water Effluent Quality as per the 2007 ESR

The current and earlier proposed effluent limit are summarized in Table 2-1.

Table 2-1 Current and Earlier Proposed Effluent Limits

Parameter	Current Effluent Limit (C of A at 3,910 m ³ /d) ^{Note 1}		Earlier Proposed Effluent Limit (2007 ESR at 6,000 m ³ /d) ^{Note 2}	
	mg/L	kg/d	mg/L	kg/d
CBOD ₅	20	78.2	15	90.0
TSS	20	78.2	15	90.0
Total Phosphorus	4	15.6	0.8	4.8
Total Ammonia non-freeze period ^{Note 3}	3	11.7	3	18.0

Parameter	Current Effluent Limit (C of A at 3,910 m ³ /d) ^{Note 1}		Earlier Proposed Effluent Limit (2007 ESR at 6,000 m ³ /d) ^{Note 2}	
	mg/L	kg/d	mg/L	kg/d
freeze period ^{Note 3}	5	19.6	5	30.0
pH	6.0 – 9.5		6.0 – 9.5	

^{Note 1} Certificate of Approval #0440-6A4JXX

^{Note 2} Municipality of Meaford Wastewater Treatment Municipal Class Environmental Assessment Environmental Study Report (EarthTech, November 2007) (Values in ESR are incorrect for 6,000 m³/d, updated values shown)

^{Note 3} Non-freeze period from May 15th to September 30th. Freeze Period from October 1st to May 14th.

3. Receiving Water Impact Assessment

The level of impact of wastewater plant effluent on the receiving waters is based on the ability of the receiving waters to assimilate substances. Assimilative capacity is defined as “the limit of a water body to transform and/or incorporate substances (e.g. nutrients) by the ecosystem, to the point that the water quality does not degrade below a predetermined level” (MOEE, 1994a). An assessment of the capacity of the receiving waters (Georgian Bay) to assimilate 5-day biochemical oxygen demand (BOD₅), effluent total suspended solids (TSS), total ammonia and total phosphorous (TP) is discussed in this section.

3.1 Provincial and Federal Guidelines used to Quantify Impacts to Receiving Waters

To quantify the impact of the Meaford WWTP discharges on Georgian Bay was evaluated based on Ministry of Environment Procedure B-1-5 “*Deriving Receiving Water Based Point Source Effluent Requirements for Ontario Waters*” (MOE 1994a) which includes water quality objectives (called the *Provincial Water Quality Objectives* or PWQOs) for various water quality parameters. Other important guidance and procedural documents utilized includes:

- Recreational Water Quality Guidelines and Aesthetics (CCME, 1998),
- Guidelines for Canadian Recreational Water Quality (Health Canada, 2009),
- Procedure F-5-1 “*Determination of Treatment Requirements for Municipal and Private Sewage Treatment Works Discharging to Surface Waters*”,
- “*Derivation of Effluent Criteria for Certificates of MOE*” (MOE, 1992),
- “*Guide for Applying for Approval of Municipal and Private Water and Sewage Works*” (MOE, 2000)
- Canadian Water Quality Guidelines for the Protection of Aquatic Life, Phosphorus: Canadian Guidance Framework for the Management of Freshwater Systems (CCME, 2004)

Both federal and provincial regulations were utilized in this assessment and therefore in the situation that a parameter had different federal and provincial criteria, the more stringent criteria were used.

3.2 Objectives of Receiving Water Assessment

The objectives of a receiving water assessment are:

1. to determine the effectiveness of the Meaford WWTP outfall and diffusers
2. to determine the representative background water quality and current velocities of Georgian Bay in the vicinity of the Meaford WWTP outfall;
3. to determine the representative effluent conditions;
4. to conduct an assessment of the assimilative capacity of the Georgian Bay receiving waters based on worst case conditions; and
5. to confirm the effluent limits for the Meaford WWTP

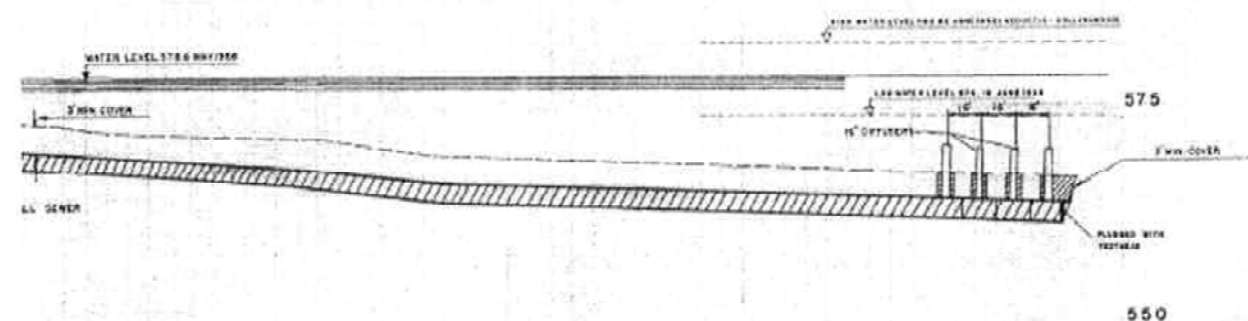
3.3 Previous Receiving Water Assessment at Higher Design Capacity (6,000 m³/day)

As part of the 2007 EA, a Technical Memorandum called the *Evaluation of Near field Water Quality at the Outfall of the Meaford WWTP Diffuser* by EarthTech was completed to address receiving water impacts for future flows of 6,000 m³/day. For this evaluation, data was gathered for the Meaford WWTP and Georgian Bay for integration into a CORMIX model to assess effluent impacts to the Bay. The background information gathered from the previous study and described in the following section will also be utilized for completing this tech memo. The results of the previous study will also be reviewed.

3.3.1 Meaford WWTP Outfall and Diffusers

The Meaford WWTP outfall consists of a 600 mm diameter concrete pipe and four (4) 450mm diffusers which discharges wastewater effluent into Georgian Bay. The outfall discharge point is located approximately 425 m from the shore and is approximately 3 km from the Meaford Water Treatment Plant Intake. As shown in Figure 3-1 below, the outfall pipe is buried below the lake bed with only the diffusers exposed above the lake bed surface. An underwater visual inspection completed by Watech Services in November 2006 as part of the 2007 EA Study found that the pipe was still under full cover and the diffusers were in good overall condition. However, the diffusers were covered in marine growth and zebra mussels and the caps were damaged or missing. Regular maintenance and removal of the remaining caps was recommended as part of the report.

Figure 3-1 Meaford WWTP Outfall and Diffuser Profile (Source: *Evaluation of Near field Water Quality at the Outfall of the Meaford WWTP Diffuser* by EarthTech, July 2007)



Other characteristics of the outfall, diffuser and ports are summarized in Table 3-1 below.

Table 3-1 Meaford WWTP Outfall and Diffuser Details (Source: *Evaluation of Near field Water Quality at the Outfall of the Meaford WWTP Diffuser* by EarthTech, July 2007)

Parameter	Value
Outfall Length	450 m
Diffuser Length	15 m
Number of Diffuser Ports	4
Port Diameter	400 mm
Port Distance to the shore	425 m
Port Vertical Angle	90°
Port Discharge Elevation	~0.9 m above lake bed
Lake Depth at Diffuser	3.3m in 2007, 3.7m long-term

Bathymetric data was also reviewed to establish circulation patterns near the outfall discharge ports. The bathymetry of Georgian Bay and local bathymetry near the outfall are shown on Figure 3-2 and Figure 3-3, respectively. As discussed in the 2007 Study and shown in the figures, it is likely that the receiving waters have an unstratified water column at the diffuser ports due to the shallow shelf in that area. Furthermore, the currents will mostly occur in the central part of the Bay, where the shelf is deeper.

Figure 3-2 Bathymetry of Lake Huron and Georgian Bay with Topography (Source: National Oceanic and Atmospheric Administration (NOAA), <http://www.ngdc.noaa.gov/mgg/greatlakes/huron.html>)
[Blue>130m; Green 70-130m; Yellow 40-70m; Red<40m]

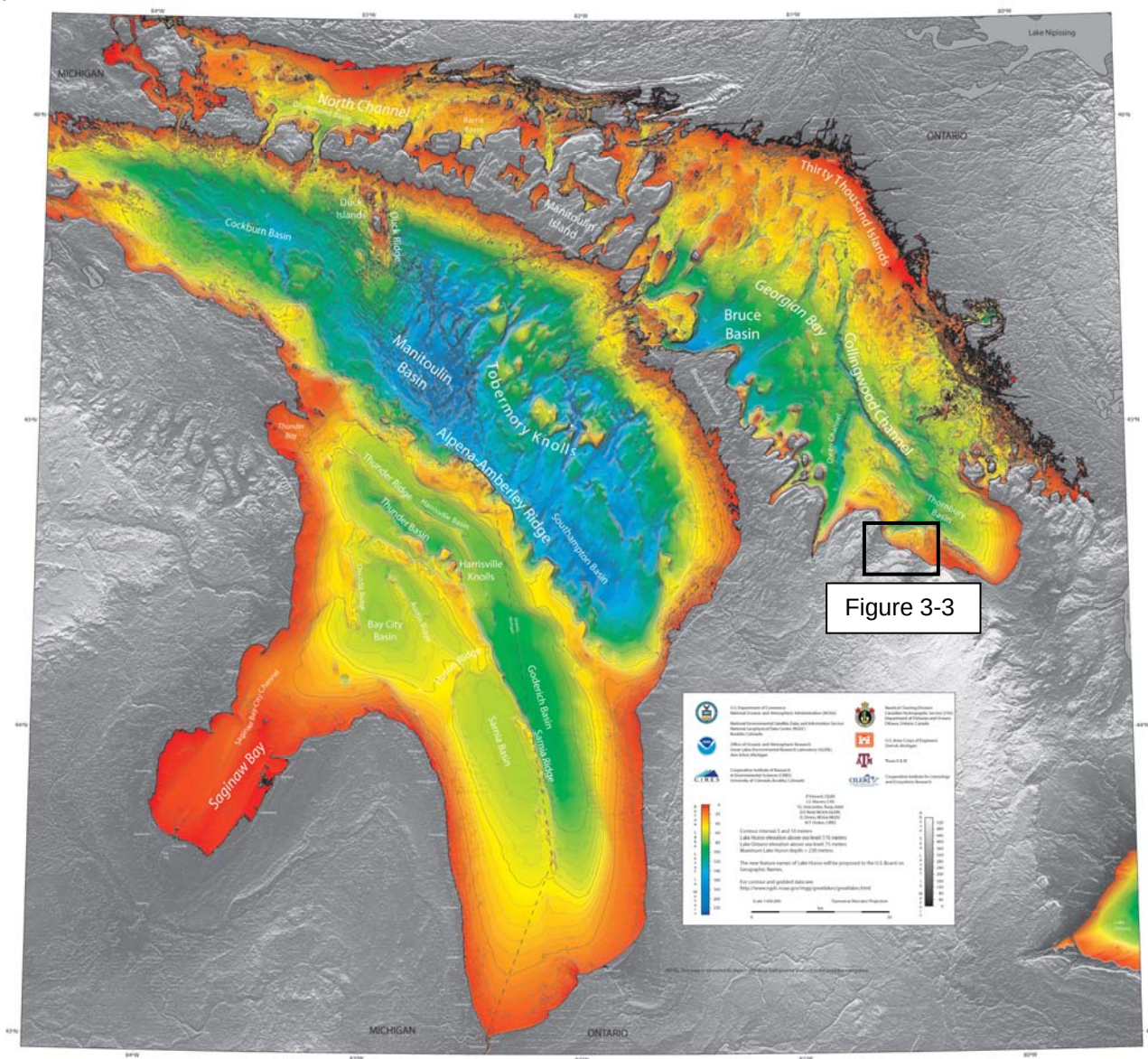
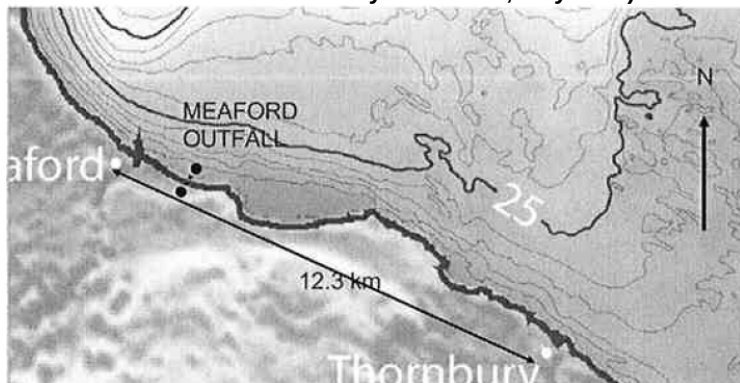


Figure 3-3

Figure 3-3 Bathymetry at Meaford WWTP Outfall (Source: *Evaluation of Near field Water Quality at the Outfall of the Meaford WWTP Diffuser* by EarthTech, July 2007)



3.3.2 Georgian Bay Background Water Quality and Current Conditions

The receiving water – Georgian Bay - ambient conditions and future effluent conditions were identified and used to simulate the impact on the receiving water by using LHOPS-POM and CORMIX modeling software. High background pollutant concentrations, pH levels and temperatures (75th percentile) in the receiving water body were determined in order to assess the suitability of wastewater effluent criteria under worst case conditions.

The ambient data that was reviewed included temperature, pH, and current velocities as summarized in Table 3-2. Ambient temperature values were provided by a 1974 study of Georgian Bay by E.A. Bennett (Department of Fisheries and Oceans) and ambient pH values by the Ministry of the Environment. The results from the LHOPS – POM model were used to estimate current velocities in the vicinity of the Meaford WWTP outlet. All of this data was then incorporated into CORMIX to conduct an assessment of the assimilative capacity of the Georgian Bay receiving waters for a wide range of ambient and effluent conditions.

Table 3-2 Georgian Bay Background Water Quality and Current Conditions

Parameter	Value	Source
Ambient Temperature	Min Temp = 0°C Max Temp = 19°C (August)	1974 study of Georgian Bay by E.A. Bennett (Department of Fisheries and Oceans)
Lake Temperature	Summer = 19 to 20°C Winter = 0 to 4°C Lake turn over = 4°C (occurs in November and April)	2007 ESR Assimilative Capacity Study
Lake pH	8.3	2007 Ministry of the Environment Email Correspondence
Current Velocities	Summer currents are long shore with maximum speed of 50 cm/s NNW to SSE or SSE to NNW. Winter currents have a maximum speed of 30 cm/s.	Baird Associates

3.3.3 Meaford WWTP Effluent Water Quality

The Meaford WWTP Effluent Water conditions are summarized in Table 3-3.

Table 3-3 Georgian Bay Background Water Quality and Current Conditions

Parameter	Value	Source
Effluent Temperature	Summer = 22.2°C Winter = 8 to 11°C Fall Lake Turnover = 13°C Spring Lake Turnover = 10°C	2007 ESR Assimilative Capacity Study
Effluent pH	6.4 to 8.0 (75% Percentile value = 7.6)	2006 Meaford WWTP Operations Data

3.3.4 Determination of Assimilative Capacity of Georgian Bay

Various water quality parameters were assessed under the worst case conditions using CORMIX modeling software. In order to use this software, it was first necessary to determine the dilution ratio at various distances from the outfall and the shore using CORMIX 2 software. The dilution ratios at 100m and 200m are provided in the following table.

Table 3-4 Dilution Ratios (Source: *Evaluation of Near field Water Quality at the Outfall of the Meaford WWTP Diffuser* by EarthTech, July 2007)

Parameter	Dilution Ratio
-----------	----------------

Table 3-4 Dilution Ratios (Source: *Evaluation of Near field Water Quality at the Outfall of the Meaford WWTP Diffuser* by EarthTech, July 2007)

Parameter	Dilution Ratio
100m from outfall	70:1 (median dilution) 35:1 (75 th percentile dilution)*
200m from shore (or half distance to the shore)	115:1 (median dilution) 70:1 (75 th percentile dilution)

*assumed that the dilution ratio will reduce to 18:1 under winter conditions due to ice cover.

All of the parameters were then entered into CORMIX to analyze various scenarios. The study concluded that the water quality objectives set by the MOE were met for all of the key parameters tested and that objectives were met within one half of the distance to shore or 200 m from the outfall. The parameters, their respective objectives and CORMIX modeling results are shown in Table 3-5.

Table 3-5 2007 ESR Modeling Results for 6,000 m³/d

Parameter	Objective	CORMIX Modeling Parameters / Results
Un-ionized ammonia	20 µg/L (PWQO at edge of near field for protection of aquatic life)	Parameter (for worst case scenario): - Max Summer month effluent temperatures - 75%-ile effluent pH - 75%-ile dilution - 75%-ile ambient pH and water temp. Result: - <4 µg/L at half distance to shore (Objective met)
Total Ammonia	500 µg/L (Great Lakes Water Quality Agreement (GLWQA) Objective at water supply intakes)	Result: - <300 µg/L at 100 m from outfall during winter period (Objective met)
<i>E.coli</i>	100 counts/100 mL (PWQO for Swimming at the Beach)	Result: - Highest in winter at 3 counts per 100 mL at half the distance to shore (Objective met)
Total Phosphorus	20 µg/L (Interim PWQO for the control of algae. Objective at the Regulated Mixing Zone; Typically half the distance from the diffuser to the shore)	Parameter: - Max Summer/Winter effluent temperatures - 75%-ile effluent pH - 75%-ile ambient pH and water temp. Result: - 7 µg/L in the summer (Objective met) - 14 µg/L in the winter (Objective met)

3.4 Evaluation of the Impact to Georgian Bay by the Newly Predicted Future Flow (4,692 m³/day)

Presented in Table 3-6 below, are the new proposed effluent criteria (concentrations and loadings), which can be discharged into Georgian Bay from the Meaford WWTP with no adverse environmental impacts on the Bay and/or shoreline. These criteria were based on those proposed in the *Evaluation of Near field Water Quality at the Outfall of the Meaford WWTP Diffuser* by EarthTech in 2007 for 6,000 m³/d because it is expected that the assimilative capacity model results will not worsen by lowering the effluent flows to 4,692 m³/d, but will actually improve.

The only exception is the total phosphorus (TP) limit which is proposed to be 1.0 mg/L. As per the Ministry of Environment Guideline F-8 "*Provision and Operation of Phosphorus Removal Facilities at Municipal, Institutional and Private Sewage Treatment Works*" (April 2004), it is required that the majority of municipal wastewater treatment plants in Ontario discharge TP concentrations of a maximum 1.0 mg/L in

their effluent. As shown in the table below, despite the increase in the TP concentration limit, the mass loadings are still lower than what was originally being proposed in the 2007 ESR. This is because the lower discharge volume (4,692 m³/d) has a lesser impact on the Bay and/or shoreline.

Similarly, the other effluent parameters mass loadings are reduced more than 20% from the previous effluent limits due to the lower flow rate. Since the assimilative capacity study completed in 2007 meets all MOE water quality requirements, it is expected that the proposed effluent criteria for 4,692 m³/d will also be within the lake's assimilative capacity limit and will satisfy the MOE water quality requirements.

Table 3-6 Effluent Limit Comparison

Parameter	Earlier Proposed Effluent Limit (2007 ESR at 6,000 m ³ /d) ^{Note 1}		Newly Proposed Effluent Limit (at 4,692 m ³ /d)		Difference in Mass Loadings	
	mg/L	kg/d	mg/L	kg/d	kg/d	%
CBOD ₅	15	90.0	15	70.4	-19.6	-28%
TSS	15	90.0	15	70.4	-19.6	-28%
Total Phosphorus	0.8	4.8	1.0	3.7	-1.1	-30%
Total Ammonia						
non-freeze period ^{Note 2}	3	18.0	3	14.8	-3.2	-22%
freeze period ^{Note 2}	5	30.0	5	23.5	-6.5	-28%
pH	6.0 – 9.5		6.0 – 9.5			

^{Note 1} Municipality of Meaford Wastewater Treatment Municipal Class Environmental Assessment Environmental Study Report (EarthTech, November 2007) (Values in ESR are incorrect for 6,000 m³/d, updated values shown)

^{Note 2} Non-freeze period from May 15th to September 30th. Freeze Period from October 1st to May 14th.

4. Conclusion

In conclusion, based on the findings of this Technical Memorandum which was developed using sound engineering principles, there should not be any adverse water quality impacts to the receiving waters by increasing the effluent flow from Meaford WWTP by 20% and following the effluent limits proposed in Table 3-6.

Attachment 3

MECP Communicaiton

From: [Shannon, Rhonda \(MECP\)](#)
To: [Simon Glass](#); [Preya Balgobin](#); [Kamran Rahnama](#); ccollier@meaford.ca; [Jessica Wiley](#)
Cc: [Geurts, Hugh \(MECP\)](#); [Badali, Mark \(MECP\)](#); [Ritchie, John \(MECP\)](#); [Smith, Mark \(MECP\)](#)
Subject: Meaford WWTP Class EA amendment - effluent limit discussion
Date: February 24, 2022 1:55:26 PM
Attachments: [image003.png](#)

Good afternoon all,

As discussed during the Teams meeting yesterday with Ainley Group consultants (Simon Glass, Preya Balgobin and Kamran Rahnama), I am forwarding a summary of the MECP Regional expectations for an effluent limit submission.

The Municipality will be responsible for determining how the Class EA process is to be followed. Please note that expanding a WWTP beyond its current rated capacity triggers a Schedule C Municipal Class EA. The MCEA process requires an addendum if 10 years have elapsed between Notice of Completion & commencement of construction, so the Municipality cannot proceed with implementing the preferred alternative from their 2007 Class EA. It is the proponent's decision on whether they can adequately address any changes to the environmental context of the project since 2007 through an addendum, or if the new proposed work would be more appropriately considered as a new undertaking and therefore require a new Class EA. Questions and correspondence on the Class EA process can be directed to Mark Badali, Environmental Resource Planner & EA Coordinator at mark.badali1@ontario.ca.

- We understand the plant is proposed to be upgraded to 5,000 m³/day for projected growth to the year 2050. Discharge is to Georgian Bay with an outlet 425 meters off shore and a depth of 3.3 meters.

Phosphorus limits:

- Phosphorus limits will be the primary driver for determination of effluent limits. The Ministry notes that the current objective of 2.0 mg/l for the Meaford WWTP is not reflective of a modern plant.
- A full assimilative analysis need not be undertaken if the Municipality can work within the existing loadings of phosphorus currently coming from the plant (design objective at full build out in 2050). The Municipality, if need be, can request loadings based on calculated (prorated) 80% capacity of the plants existing performance .
- **Of NOTE (not discussed at the meeting):** If the 2007 Class EA was completed and a "Notice of Completion" finalized the EA, the Ministry will likely be held to the stricter of the two possible TP limits (the 0.8 mg/l limit from the 2007 class EA or the number to be calculated from above). The Ministry is not in a position to relax a number that a proponent has previously already agreed to meet.

- The Municipality is to determine the existing loadings as described above and apply the more stricter of the two to their proposed limit.

Total Ammonia Nitrogen

- Current limits for the facility are 3mg/l in summer and 5 mg/l in winter and proposed in the 2007 EA process; these will likely be appropriate for open water. Objectives of summer 2 mg/l - summer and 4.0 mg/ l - winter should be applied.

First Nations Consultation.

- The Municipality will be responsible for undertaking First Nations consultation with respect to the proposed effluent limits.

I hope this is helpful - thank-you to all for your input.
Have a great weekend.

Regards,

Rhonda Shannon

Water Inspector, Owen Sound District Office

Ministry of the Environment, Conservation and Parks

t: 226.668.5873 e: Rhonda.shannon@ontario.ca



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Masoumeh Sharafi

From: Badali, Mark (MECP) <Mark.Badali1@ontario.ca>
Sent: Tuesday, April 25, 2023 4:44 PM
To: Simon Glass
Cc: Jatin Singh; tperejmybida@meaford.ca
Subject: RE: Meaford WWTP Class EA amendment - effluent limit discussion
Attachments: 2023-04-03_121027_MOE Proposed Effluent Criteria Memorandum.pdf

Hi Simon,

In response to the memorandum “*Meaford Waste Water Treatment Plant Expansion Class Environmental Assessment (EA) Update Proposed Effluent Limits – Revision*” prepared by Ainley and Associates, dated April 3, 2023 (attached), the ministry offers the following comments:

1. The attached document is asking for a pause on the originally proposed phosphorus limit of 0.8 mg/L. The proponent is asking for a limit of 1.0 mg/L total Phosphorus for the revised plant design from the 0.8 mg/L proposed in the memorandum dated April 1, 2022 (Appendix A of attached). The attached report notes the Municipality of Meaford currently does not have the financial resources to implement a tertiary component to the proposed plant design to meet the 0.8 mg/L limit. The report acknowledges that the Great Lakes Water Quality Agreement (GLWQA) Annex for Clause “D” targets a maximum concentration of 1.0 mg/L for direct discharge of sanitary wastewater to Lake Huron. The proponent proposes a two-phase/expansion approach where Expansion 1 addresses the immediate need for 4,400 m³/day that will be met with secondary treatment only (with Total Phosphorus of 1.0 mg/L)
2. Regardless of the phosphorus limit, the 400 meter offshore discharge will mean that 0.8 or 1.0 mg/L will have minimal impact on the mixing zone. Furthermore the Total Phosphorus Loading reductions from an upgraded plant over the existing plant will be substantial resulting in a net benefit to the Lake. If total phosphorus becomes a sticking point for proceeding with the new plant design and cause delay, the ministry is of the opinion that it is more important that the new plant be built as soon as possible. The proponent acknowledges that continued improvement in phosphorus (to 0.8 mg/L) will be addressed as Expansion 2 when the plant is upgraded to 6,000 m³/day (which is consistent with the 2007 Environmental Study Report).
3. The shallowness of the lake at the proposed discharge point (3.3 meters) does suggest the possibility that Cladophora algae may become established beyond the immediate port outlet. This is highly unlikely given lake currents and the proposed use of a port diffuser, but the ministry should request an algae inspection around the outlet to determine magnitude of algae growth. This inspection should be done within 3 years of the effluent release commencing.
4. In summary, the ministry does not foresee any substantial impact to the mixing zone by moving to a 1.0 mg/L Total Phosphorus limit for Phase/Expansion 1 of a two-phase approach. Furthermore, the development of a more modern plant will result in substantial reductions in phosphorus load to the lake over the current situation and that will result in the greatest net benefit.

Please do not hesitate to reach out to me if you have any technical questions, and I will coordinate with the surface water specialist supporting on the ministry’s review of this Class EA project.

Please note that I recommend the proponent attach all relevant records of consultation with the ministry in the final Class EA report appendices.

In addition, regarding Objective 2 Peak Flow Management discussed on page 6 of the attached memo, the ministry will await the proponent's provision of a technical memo outlining the proposed peak flow management solution in greater detail for review by the ministry's Permissions staff, as discussed in our pre-consultation meeting held April 5th, 2023.

Best regards,

Mark Badali ([he/him](#))

Regional Environmental Planner (REP) – Southwest Region

Project Review Unit | Environmental Assessment Branch

Ontario Ministry of the Environment, Conservation and Parks

Mark.Badali1@ontario.ca | (416) 457-2155

From: Badali, Mark (MECP)

Sent: March 17, 2023 1:26 PM

To: Simon Glass <simon.glass@ainleygroup.com>

Cc: Jatin Singh <jatin.singh@ainleygroup.com>; tperejmybida@meaford.ca

Subject: RE: Meaford WWTP Class EA amendment - effluent limit discussion

Hi Simon,

The ministry would be pleased to attend a follow-up consultation meeting to discuss requirements for effluent limits. Unfortunately due to staff capacity we are unable to make the proposed meeting times. MECP staff's current earliest availability is during the first week of April:

- Monday April 3 – 9:30am-12am
- Tuesday April 4 – 2-4pm
- Wednesday April 5 – 9:30-10:30am, 11am-12pm, 1:30-4pm
- Thursday April 6 – 9-10am, 11am-12pm, 1:30-3pm

If any of these dates/times work for your project team then please feel free to circulate a meeting invitation.

When you send out the meeting invitation please include the following MECP staff:

- Hugh Geurts, Surface Water Specialist, hugh.geurts@ontario.ca
- Rhonda Shannon, Water Inspector, rhonda.shannon@ontario.ca
- John Ritchie, Manager, Owen Sound District Office, john.s.ritchie@ontario.ca
- Mark Badali, Regional Environmental Planner, mark.badali1@ontario.ca

If there are any pertinent materials or information available that would be helpful for the ministry to review in order to prepare for this discussion, please provide them to me in advance of the meeting date.

Thank you,

Mark Badali ([he/him](#))

Regional Environmental Planner (REP) – Southwest Region

From: Simon Glass <simon.glass@ainleygroup.com>
Sent: March 13, 2023 1:53 PM
To: Badali, Mark (MECP) <Mark.Badali1@ontario.ca>
Cc: Jatin Singh <jatin.singh@ainleygroup.com>; tperejmybida@meaford.ca
Subject: RE: Meaford WWTP Class EA amendment - effluent limit discussion

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Hello Mark,

Hope all is well. We are hoping to have a follow up discussion around the Meaford WWTP EA upgrades to discuss the Ministry requirements around the effluent limits and options for the Municipality. Would you be available for a discussion in the coming weeks? We have provided a few alternative times that work for our team below.

Thursday March 23 – 3:30 – 4:30pm
Monday March 27 - 8:30am-12pm
Tuesday March 28 – 11am-4:30pm
Wednesday March 29 – 11am – 5:00

Regards,

Simon Glass, P.Eng
Project Engineer



Tel: (905) 452-5172 Ext. 220
Cell: (289) 654-2865
Email: simon.glass@ainleygroup.com

WWW.AINLEYGROUP.COM

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From: Badali, Mark (MECP) <Mark.Badali1@ontario.ca>
Sent: April 21, 2022 10:36 AM
To: Simon Glass <simon.glass@ainleygroup.com>
Cc: Preya Balgobin <preya.balgobin@ainleygroup.com>
Subject: RE: Meaford WWTP Class EA amendment - effluent limit discussion

Hi Simon,

I would be pleased to discuss ministry expectations for indigenous consultation with Ainley. For your reference I have reattached the “*Proponent’s Introduction to... Consultation...*” document that was provided previously with the ministry’s acknowledgement letter in response to the initial Notice of Commencement.

Here is my upcoming availability:

- Fri. Apr. 22, anytime before 3pm
- Mon. Apr 25, anytime except 11-11:30am
- Tues/Wed. Apr. 26-27, anytime

Please feel free to send me a virtual meeting invite if any of these times work.

Best regards,

Mark Badali ([he/him](#))

Regional Environmental Planner (REP) – Southwest Region

Project Review Unit | Environmental Assessment Branch

Ontario Ministry of the Environment, Conservation and Parks

Mark.Badali1@ontario.ca | (416) 457-2155

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From: Simon Glass <simon.glass@ainleygroup.com>

Sent: April 20, 2022 3:54 PM

To: Badali, Mark (MECP) <Mark.Badali1@ontario.ca>

Cc: Preya Balgobin <preya.balgobin@ainleygroup.com>

Subject: RE: Meaford WWTP Class EA amendment - effluent limit discussion

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Hi Mark,

Thank you for your response and (tentative) approval. Preya and I would like to discuss with you a bit more about timing and obligations surrounding indigenous consultation to ensure we have a proper understanding of the expectations and requirements under the new duty to consult atmosphere. Can we please arrange a meeting time to discuss?

Regards,

Simon Glass
Project Engineer



Tel: (905) 452-5172 Ext. 220

Cell: (289) 654-2865

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From: Badali, Mark (MECP) <Mark.Badali1@ontario.ca>

Sent: April 7, 2022 11:29 AM

To: Simon Glass <simon.glass@ainleygroup.com>

Cc: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>; Ritchie, John (MECP) <John.S.Ritchie@ontario.ca>; Smith, Mark (MECP) <mark.smith@ontario.ca>; Shannon, Rhonda (MECP) <Rhonda.Shannon@ontario.ca>; Preya Balgobin <preya.balgobin@ainleygroup.com>; Kamran Rahn timer <kamran.rahn timer@ainleygroup.com>; ccollier@meaford.ca; Jessica Wiley <jwiley@meaford.ca>

Subject: RE: Meaford WWTP Class EA amendment - effluent limit discussion

Good morning,

Thank you for providing the attached letter dated April 1, 2022 with respect to effluent criteria for the Meaford Wastewater Treatment Plant (WWTP) that are being proposed through the Addendum to the Meaford WWTP Expansion Municipal Class Environmental Assessment project. Please be advised that the proposed effluent limits presented in *Table 5* of this letter are acceptable to the MECP.

Furthermore, the ministry's expectation is that the WWTP will during normal operating conditions be able to achieve effluent objectives that will be established during the subsequent Environmental Compliance Approval process.

Please continue to engage with the Indigenous communities previously identified in the MECP's acknowledgement letter dated October 4, 2021 (attached, for reference) as appropriate with respect to these proposed effluent limits.

Please include a summary of this correspondence with the MECP regarding effluent criteria in the Addendum Report. The MECP recommends that the proponent attach all relevant records of consultation in the Report appendices.

As Rhonda mentioned in her last email, moving forward all correspondence related to the Class EA process, such as submission of a draft Addendum Report, should be directed to me. I will circulate internally for ministry review as appropriate. The final Notice of Filing of Addendum must also be sent to the Regional email (eanotification.swregion@ontario.ca).

Best regards,

Mark Badali ([he/him](#))

Regional Environmental Planner (REP) – Southwest Region

Project Review Unit | Environmental Assessment Branch

Ontario Ministry of the Environment, Conservation and Parks

Mark.Badali1@ontario.ca | (416) 457-2155

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From: Simon Glass <simon.glass@ainleygroup.com>

Sent: April 1, 2022 2:44 PM

To: Shannon, Rhonda (MECP) <Rhonda.Shannon@ontario.ca>; Preya Balgobin <preya.balgobin@ainleygroup.com>; Kamran Rahn timer <kamran.rahn timer@ainleygroup.com>; ccollier@meaford.ca; Jessica Wiley <jwiley@meaford.ca>
Cc: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>; Badali, Mark (MECP) <Mark.Badali1@ontario.ca>; Ritchie, John (MECP) <John.S.Ritchie@ontario.ca>; Smith, Mark (MECP) <Mark.Smith@ontario.ca>

Subject: RE: Meaford WWTP Class EA amendment - effluent limit discussion

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

Hello Rhonda,

Following our previous communication, please see our attached letter with respect to our proposed effluent criteria at the Meaford WWTP.

Regards,

Simon Glass
Project Engineer



Tel: (905) 452-5172 Ext. 220

Cell: (289) 654-2865

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From: Shannon, Rhonda (MECP) <Rhonda.Shannon@ontario.ca>

Sent: February 24, 2022 1:55 PM

To: Simon Glass <simon.glass@ainleygroup.com>; Preya Balgobin <preya.balgobin@ainleygroup.com>; Kamran Rahn timer <kamran.rahn timer@ainleygroup.com>; ccollier@meaford.ca; Jessica Wiley <jwiley@meaford.ca>

Cc: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>; Badali, Mark (MECP) <Mark.Badali1@ontario.ca>; Ritchie, John (MECP) <John.S.Ritchie@ontario.ca>; Smith, Mark (MECP) <mark.smith@ontario.ca>

Subject: Meaford WWTP Class EA amendment - effluent limit discussion

Good afternoon all,

As discussed during the Teams meeting yesterday with Ainley Group consultants (Simon Glass, Preya Balgobin and Kamran Rahn timer), I am forwarding a summary of the MECP Regional expectations for an effluent limit submission.

The Municipality will be responsible for determining how the Class EA process is to be followed. Please note that expanding a WWTP beyond its current rated capacity triggers a Schedule C Municipal Class EA. The MCEA process requires an addendum if 10 years have elapsed between Notice of Completion & commencement of construction, so the Municipality cannot proceed with implementing the preferred alternative from their 2007 Class EA. It is the proponent's decision on

whether they can adequately address any changes to the environmental context of the project since 2007 through an addendum, or if the new proposed work would be more appropriately considered as a new undertaking and therefore require a new Class EA. Questions and correspondence on the Class EA process can be directed to Mark Badali, Environmental Resource Planner & EA Coordinator at mark.badali1@ontario.ca.

- We understand the plant is proposed to be upgraded to 5,000 m³/day for projected growth to the year 2050. Discharge is to Georgian Bay with an outlet 425 meters off shore and a depth of 3.3 meters.

Phosphorus limits:

- Phosphorus limits will be the primary driver for determination of effluent limits. The Ministry notes that the current objective of 2.0 mg/l for the Meaford WWTP is not reflective of a modern plant.
- A full assimilative analysis need not be undertaken if the Municipality can work within the existing loadings of phosphorus currently coming from the plant (design objective at full build out in 2050). The Municipality, if need be, can request loadings based on calculated (prorated) 80% capacity of the plants existing performance .
- Of NOTE (not discussed at the meeting): If the 2007 Class EA was completed and a “Notice of Completion” finalized the EA, the Ministry will likely be held to the stricter of the two possible TP limits (the 0.8 mg/l limit from the 2007 class EA or the number to be calculated from above). The Ministry is not in a position to relax a number that a proponent has previously already agreed to meet.
- The Municipality is to determine the existing loadings as described above and apply the more stricter of the two to their proposed limit.

Total Ammonia Nitrogen

- Current limits for the facility are 3mg/l in summer and 5 mg/l in winter and proposed in the 2007 EA process; these will likely be appropriate for open water. Objectives of summer 2 mg/l - summer and 4.0 mg/ l - winter should be applied.

First Nations Consultation.

- The Municipality will be responsible for undertaking First Nations consultation with respect to the proposed effluent limits.

I hope this is helpful - thank-you to all for your input.
Have a great weekend.

Regards,
Rhonda Shannon
Water Inspector, Owen Sound District Office
Ministry of the Environment, Conservation and Parks
t: 226.668.5873 e: Rhonda.shannon@ontario.ca



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