

Memorandum to the Council of Corporation of the Municipality of Temagami

Subject: ECA Amendment for Inclusion of BIOFIXE Modules - Temagami North Lagoon

Memo No: 2025-M-034

Date: February 13, 2025

Attachment: Appendix A - OCWA Proposal for the ECA Amendment for the Temagami North Wastewater Treatment System

Prepared By: Laala Jahanshahloo - CAO/ Treasurer

Recommendation

BE IT RESOLVED THAT Council receives Memo 2025-M-034, as presented;

AND FURTHER BE IT RESOLVED THAT Council accepts OCWA’s proposal, as attached in Appendix A, which shall form part of this memo for the ECA Amendment Application for the Temagami North Wastewater Treatment System;

AND FURTHER BE IT RESOLVED THAT Council authorizes the Chief Administrative Officer to execute the necessary documents to proceed with the amendment application.

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Executive Summary

This report outlines the background and justification for approving an Environmental Compliance Approval (ECA) amendment to maintain regulatory compliance and ensure operational continuity at the Temagami North Lagoon.

Memo 2025-M-029 confirms that the ECOFIXE project has significantly enhanced wastewater treatment, demonstrating measurable reductions in total ammonia nitrogen (TAN), biochemical oxygen demand (BOD), and total suspended solids (TSS). These findings validate the system's effectiveness, reliability, and cost efficiency.

In accordance with Memo 2024-M-092 and Council Resolution #24-205, OCWA was engaged to complete the regulatory amendment process before the pilot project expires on December 31, 2024. The estimated cost of \$18,500 (excluding HST) applies solely to regulatory approval. No new technology costs are involved, as the amendment pertains only to regulatory compliance. The BIOFIXE modules were externally funded and have already been installed. The amendment cost is an operational budget item necessary to meet MECP standards.

Approval of this amendment is essential to prevent regulatory violations and aligns with the Municipality's long-term wastewater treatment strategy without requiring further infrastructure investments.

Background

- The Temagami North Wastewater Treatment System is a Class I facility treating up to 390 m³/day, with peak flows of 1,200 m³/day.
- Effluent is discharged into Net Lake, which flows into Cassels Lake, necessitating stringent water quality controls.
- Cold water conditions challenge ammonia removal, requiring advanced treatment solutions.
- The ECOFIXE pilot project began in July 2022, funded by Innovative Solutions Canada.

- Installation of three BIOFIXE modules and a 7.5 HP blower has improved contaminant removal, significantly reducing TAN, BOD, and TSS.
- Memo 2025-M-029 confirms the system’s effectiveness, necessitating an ECA amendment for continued operation.
- Without approval, operations cannot continue beyond December 31, 2024, risking non-compliance with MECP regulations.

Rationale for ECA Amendment

- Formalizing Long-Term Use:
 - The ECA amendment is required to maintain the enhanced wastewater treatment system beyond December 31, 2024.
 - Ensures regulatory compliance with MECP and prevents operational disruptions.
 - Sustains treatment efficiency and avoids compliance risks.
- Regulatory Compliance (MECP Requirement):
 - MECP mandates an amended ECA for continued system operation beyond December 31, 2024.
 - Failure to secure approval could result in compliance violations, penalties, and service interruptions.
- Environmental & Operational Benefits:
 - Significant reductions in TAN, BOD, and TSS confirm system effectiveness.
 - Improved treatment enhances environmental sustainability.
- Cost-Effective Solution
 - The one-time fee for the ECA amendment and the annual operational cost of \$8,000 are minimal compared to the cost of major system upgrades and remain a cost-effective solution for regulatory compliance and ongoing wastewater treatment.

- Securing the amendment now avoids costly compliance penalties in the future.

Process for Amending the ECA

OCWA will manage the amendment process, including:

- Preparing and submitting the ECA application to MECP.
- Ensuring all required supporting documents (Project Description Report, Site Maps, Engineering Drawings).
- Coordinating with MECP to secure approval as the pilot project expires on December 31, 2024.

Financial Overview

The total estimated cost for the amendment process is \$18,500 (excluding HST), allocated as follows:

- ECA application fee: \$2,000
- Engineering review and validation: \$3,500
- Preparation and submission of the amendment: \$4,000
- Engineering drawings and blower calculations (Professional Engineer stamped): \$8,000
- Project coordination: \$1,000

Regulatory Approval Costs Only - Not ECOFIXE Technology

It is essential to clarify that the \$18,500 cost is strictly for regulatory approval and not for purchasing or upgrading ECOFIXE technology.

- The BIOFIXE modules and blower system are already installed and operational under the approved pilot program since 2022.
- The technology was funded externally through the Innovative Solutions Canada program.

- The ECA amendment is a regulatory requirement mandated by MECP, ensuring compliance without requiring major capital investment.

Conclusion

The ECA amendment is essential for ensuring regulatory compliance, supporting environmental sustainability, and maintaining cost-effective wastewater treatment at the Temagami North Lagoon. Memo 2025-M-029 confirms the system's effectiveness, demonstrating measurable improvements in wastewater treatment efficiency. This amendment is necessary to maintain long-term compliance and prevent potential financial penalties. The funding request is in line with the approved budget under Council Resolution #506 and is designated solely for regulatory approval, with no allocation for technology purchases.

Environmental Compliance Approval (ECA) Amendment Application for the Temagami North Wastewater Treatment System

SUBMITTED BY

Ontario Clean Water Agency
2085 Hurontario Street, Suite 500
Mississauga, ON L5A 4G1

Date: January 17, 2025

January 17, 2025

Laala Jahanshahloo
CAO / TREAS
Corporation of the Municipality of Temagami
7 Lakeshore Drive, P.O. Box 220,
Temagami ON P0H 2 H0

Re: Proposal for the ECA amendment application for the Temagami North Wastewater Treatment System

Dear Laala,

On behalf of the Ontario Clean Water Agency (OCWA), we are pleased to submit our proposal to the Corporation of the Municipality of Temagami. As a provincial Crown Agency, OCWA provides a comprehensive range of reliable, cost-effective, and environmentally responsible water and wastewater operations, maintenance and engineering services to a large number of municipalities, Indigenous Communities, and industrial, commercial and institutional organizations in the Province of Ontario.

Should you have any questions or concerns, we would welcome the opportunity to clarify either by phone, writing or in person at your request. OCWA's contact for this proposal is:

Kerry Tuyen, P.Eng.

Direct: 905-301-1957

Email: ktuyen@ocwa.com

We would welcome the opportunity to clarify any questions or concerns that you may have.

Thank you for considering OCWA's services.

Sincerely,



Kerry Tuyen,

Director,

Innovation, Technology and Alternate Delivery (ITAD) Team

Cc

Bhavik Vyas, Project Engineer, ITAD team

Bryce Logan, Sr. Operations Manager

Eric Nielson, Regional Hub Manager

STATEMENT OF CONFIDENTIALITY

OCWA's Proposal to the Corporation of the Municipality of Temagami
for the ECA amendment application for the Temagami North
Wastewater Treatment System.

This document has been developed by the Ontario Clean Water Agency in response to the request of the Corporation of the Municipality of Temagami. Information has been provided for the express review of the Corporation and is not to be copied or submitted in any way or form to any person(s) or organization(s) without the written authorization of the President and CEO of the Ontario Clean Water Agency. All copyright and intellectual rights to the material provided remain in the ownership of the Ontario Clean Water Agency.



Our Vision

A trusted world leader in water.

Our Mission

To demonstrate service excellence through the delivery of safe, reliable, and cost-effective clean water.

Our Values

OCWA's values are focused on building trust with clients and other stakeholders.

Transparent

Open and honest communication of our business activities.

Respectful

Build sound relationships with our staff, clients and other stakeholders by embracing diversity, acting responsibly and doing what is right.

Understanding

Confidence in the knowledge and ability of our people to meet the challenges of the water and wastewater industry. Continuously learn current trends and innovative technologies and/or processes in our industry.

Safe

Deliver clean water services to protect our employees, the communities we service, and the environment

Teamwork

Work together, share our collective expertise and be innovative in delivering exceptional results and achieving our mission

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1 Project Understanding

The Temagami North wastewater treatment system is classified as a Class I facility, capable of handling up to 390 m³/day with a peak flow rate of 1200 m³/day. Sewage from the mobile trailer park is directed to a lift station, which then channels it into the main sewer line. Subsequently, sewage from the main sewer line and surrounding homes in the area collects at the pump station near the treatment plant, from where it is directed to the treatment lagoons.

The treatment lagoon consists of two parts:

1. Aerated lagoon (Cell #1): Holds around 4,105 m³, with a depth of 3.05 m and a surface area of 1,300 m². It's equipped with twelve fine bubble aeration units evenly distributing 148 m³/hr of air.
2. Another aerated lagoon (Cell #2): With a capacity of roughly 20,950 m³, a depth of about 1.5 m, and a surface area of 13,300 m². It features twenty-two fine bubble aeration units, providing 148 m³/hr of air mainly to the first half of the cell.

Additionally, there are three air blowers in a dedicated building, each with a capacity of 82 m³/hr at 62 kPa. Two operate at a time, while the third serves as backup. Ferric Sulphate is used for pH stabilization between Cell #1 and Cell #2. The lagoon discharges into Net Lake, then into Cassels Lake.

In April 2022, the Temagami North wastewater treatment facility obtained approval from the Ministry of Environmental Conservation and Parks (MECP) to conduct a two-year pilot study, aimed at showcasing the efficacy of BIOFIXE modules (provided by Technologies Ecofixe Inc) in ammonia and BOD removal within the first aerated lagoon. Consequently, three BIOFIXE modules were installed in July 2022, with continuous monitoring of the lagoon's performance through regular sampling of influent and effluent parameters such as BOD₅, TSS, TKN, NH₄₊, Nitrate, pH, D.O., and Temperature, as per the sampling and monitoring plan approved by the MECP.

Due to the favorable outcomes observed during the pilot study, particularly in improving the efficiency of ammonia and BOD removal, the Temagami council sanctioned the permanent retention of Ecofixe technology at the Temagami North Lagoon. Hence, an amendment to the facility's existing Environmental Compliance Approval (ECA) is required to retain the BIOFIXE modules permanently.

The objective of the current proposal is to outline the support services provided by OCWA's ITAD team to facilitate the completion of the ECA amendment process for the Temagami North wastewater treatment system.

2 Scope of Work

The Scope of Work (SOW) for this assignment encompasses the following tasks:

- Reviewing Background Information and performance of the Pilot Study to prepare the ECA amendment application
- Providing the following documents as required by the ECA amendment application:
 - Detailed Project and Process Description document for the pilot study

- Project summary document outlining the key aspects of the pilot study
- Preparation and submission of the ECA amendment application and coordination with the MECP regarding the application process and submission.
- Coordination with site contractors, the BIOFIXE technology provider, and the site owner to obtain the relevant engineering drawings and site plans applicable for the ECA amendment application.
- Submitting ECA amendment application and paying application submission fee (to be reimbursed by the Corporation of the Municipality of Temagami)

Note:

- As necessary for the ECA amendment application, all applicable engineering drawings, aeration calculations, and verification of the blower selection will be completed and stamped by an external licensed professional engineer from Tatham Engineering technology provider.
- The proposed ECA amendment application is not expected to require the submission of an Engineer’s report, as per the supporting documents requirement outlined on the MECP’s website for the ECA application. Consequently, the proposed scope of work does not include fees for developing the Engineer’s report.

3 Roles and Responsibilities

Table 1: Roles and Responsibilities for ROP, OCWA SP and OCWA ITAD

TEAM	ROLES/RESPONSIBILITIES
Municipality of Temagami	<ul style="list-style-type: none"> ● Project Sponsor/Client: will provide direction and council to the project team. ● Provide information regarding the site location including ownership, land use and site plans, as applicable. ● Budget approval.
On-site contractor (Tulloch)	<ul style="list-style-type: none"> ● Provide the supporting information as necessary regarding the onsite construction/modification required for the BIOFIXE modules and blower installation, as requested by OCWA’s ITAD team during the ECA amendment application.
Technologies Ecofixe Inc (BIOFIXE Technology provider) & Tatham Engineering	<ul style="list-style-type: none"> ● Responsible for providing the final performance report of the pilot study. ● Providing the necessary process information about the BIOFIXE technology, as requested by OCWA’s ITAD team during the ECA amendment application. ● Review information provided on the proposed aeration system for the proposed Ecofixe media units. ● Review the aeration calculations, blower selection and installation drawings. ● Provide comments and markups. ● Review revised calculations and drawings (1 iteration). ● Prepare a letter to MECP or OCWA confirming scope of review, with stamped engineering drawings and calculations

TEAM	ROLES/RESPONSIBILITIES
OCWA ITAD Team	<ul style="list-style-type: none"> • Review Background Information of the Pilot Study. • Review the Performance of the Pilot Study. • Produce a Detailed Project and Process Description document for the pilot study (Required to be submitted as a part of the ECA amendment process). • Compile a project summary document outlining the key aspects of the pilot study (Required to be submitted as a part of the ECA amendment process). • Prepare and submit an ECA amendment application on behalf of the Municipality of Temagami • Coordinate the project with site contractors, the BIOFIXE technology provider, and the site owner to obtain the relevant existing engineering drawings and site plans as required.

4 Project Team

OCWA will provide the necessary staff, resources, and expertise required to coordinate, conduct and complete the Scope of Work.

Brief descriptions of the key team members are provided below and detailed resumes for the project team members can be provided upon request.

Bhavik Vyas, P.Eng - Project Engineer, Innovation, Technology and Alternate Delivery

Bhavik is a Professional Engineer (P.Eng.) who has worked as a Process Engineer in Water and Wastewater Treatment Technologies with Aslan Technologies. He holds a Master’s Degree (M.Eng.) in Chemical Engineering from Ryerson University. With over seven years of engineering and technical problem-solving experience, Bhavik has supported R&D, Design Engineering, Process Development and Optimization, Quality Engineering, On-Site Troubleshooting, and Project Management in his Water and Wastewater Treatment Technologies work. He is experienced with major water and wastewater treatment systems, including Reverse Osmosis (RO), Ultrafiltration (UF), Nanofiltration (NF), Sequencing Batch Reactor (SBR), and Membrane Bioreactor (MBR).

Bhavik will lead the ECA amendment process and gather all the required documents, reports, etc., to be submitted with the ECA amendment application.

Kerry Tuyen, P.Eng - Director - Innovation, Technology and Alternative Delivery

Kerry is a Professional Engineer and has worked in various roles in both design & project execution of municipal wastewater systems across North America with Veolia WTS, formerly SUEZ WTS/ GE Water for 9 years. In the recent years, Kerry worked at EllisDon, a large general contractor, where she led the project management team in managing EllisDon’s Ontario P3 contracts. Kerry brings her background in wastewater treatment and working experience with alternative delivery methods in collaboration with various industries, technical experts, consultants, government agencies and the public.

Kerry will provide the support in terms of Quality assurance /Quality check of the ECA amendment application.

5 Schedule

OCWA ITAD is ready to start the project immediately upon approval. The full project is expected to take approximately 8 to 10 weeks to complete. OCWA ITAD has developed a high-level proposed schedule from the date of approval in Table 2.

Table 2: Proposed Schedule

TASK	SCHEDULE
Detailed Project and Process Description document	3 weeks
Project Summary document	1 week
Prepare and submit an ECA amendment application	2 weeks
All the required engineering drawings and aeration/blower calculation verifications (with an engineering stamp by the Professional Engineer)	4 weeks
Project coordination	On-going

6 Project Costs

In reviewing the above scope of work, OCWA proposes a total project budget of **\$18,500** excluding HST. This includes OCWA professional fees, disbursements and travel expenses. It is an upset limit which will not be exceeded without your written approval. Should additional services be required due to a change in the scope of work, we will advise you immediately.

A breakdown of the estimated budget by task is provided below.

Table 3: Budget Summary

TASK	BUDGET
ECA Amendment On-line Application Fee	\$2,000
Review all prepared engineering drawings, calculations and documents prepared by Ecofixe & Tatham Engineering that are required to submit with ECA Amendment application	\$3,500
Prepare and submit an ECA amendment application	\$4,000
All the required engineering drawings and aeration/blower calculation verifications (with an engineering stamp by the Professional Engineer)	\$8,000
Project coordination	\$1,000
Total (excluding HST)	\$18,500

We appreciate the opportunity to submit this Scope of Work/Budget and look forward to working with the Corporation of the Municipality of Temagami on this important assignment. Please do not hesitate to contact the undersigned should you have any questions regarding our proposal.

Sincerely,

Kerry Tuyen, Director, ITAD

CC

Bhavik Vyas, Project Engineer, ITAD
Bryce Logan, Sr. Operations Manager
Eric Nielson, Regional Hub Manager