

2017 Annual Compliance Report

**Operation & Maintenance
Of
Tara Wastewater System**

March 2018

13-028

**Prepared for:
Municipality of Arran-Elderslie
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Box 70
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1.0 INTRODUCTION

The Tara Sewage Works, in the Municipality of Arran-Elderslie, is comprised of a wastewater treatment plant and a sewage pumping station. The wastewater generated within Tara is collected in the sewer system and is pumped to the wastewater treatment plant by way of a 200 mm diameter forcemain. The wastewater treatment plant comprises of two (2) waste stabilization ponds equipped with season discharge provisions. The plant has influent and effluent structures and a 400 mm diameter outfall sewer to the Sauble River.

The Municipality of Arran-Elderslie has retained the services of GSS Engineering Consultants Ltd. to prepare the Annual Compliance Report for the Tara Sewage Works. The Ministry of Environment issued an Amended Certificate of Approval # 9456-659N92 dated January 18, 2005, for this facility which revoked and replaced the Certificate of Approval # 1-704-80-006 dated July 2, 1980. Refer to **Appendix A** for Certificate of Approval. The Certificate of Approval stipulated preparation of an annual report addressing the following items:

- Summary of all monitoring data and a comparison to the effluent limits.
- Summary of operational problems encountered and corrective actions taken.
- Summary of maintenance carried out.
- Summary of complaints received and steps taken to address the complaints.
- Summary of all by-pass, spill or abnormal discharge events.

During the reporting period of this Annual Report (January 1, 2017 to December 31, 2017), the Tara Sewage Works was operated by the Municipality of Arran-Elderslie operators namely Mark O’Leary, who has WWT II and WWC II License, Trevor Sweiger, who has WWT I License. Chris Legge, who has WWT I and WWC I License and Ted Knapp, who has WWT III and WWCII License. Scott McLeod of Arran-Elderslie was the back-up Overall Responsible Operator (ORO), whereas Rakesh Sharma, was the Overall Responsible Operator.

This report has been prepared based on the information provided by the Municipality of Arran-Elderslie.

2.0 DESCRIPTION OF FACILITIES

2.1 Wastewater Treatment Plant

The wastewater treatment plant comprises of two (2) waste stabilization ponds, each with an area of 3.95 Ha. The depth of the cells is approximately 1.5 m and are provided with influent and effluent structures and piping. A 200 mm diameter inlet forcemain carries sewage to the waste stabilization ponds. A 400 mm diameter outfall sewer discharges the treated effluent from the waste stabilization ponds to the Sauble River during the spring and fall discharge periods.

2.2 Sewage Pumping Station

The sewage pumping station is located north of Mill Street and is equipped with two (2) vertical, centrifugal, dry pit, non-clog pumps (one duty and one standby) each capable of pumping 27.4 L/s against a total dynamic head of 21.5 m. The discharge forcemain at the sewage pumping station has a 150 mm magnetic flow meter and an emergency bypass connection. Two (2) positive displacement diaphragm-type chemical metering pumps (one duty and one standby), each capable of pumping 40 L/h of Alum for phosphorous removal, provide alum dosing into the forcemain. An emergency overflow, which permits overflow to the Sauble River, is provided from a manhole located in the inlet sewer. A 50kW diesel generator to provide standby power is also installed at this facility.

3.0 SUMMARY OF WASTEWATER FLOW

A summary of the wastewater flows received at the wastewater treatment plant is provided in **Table 1**. As can be noted from **Table 1**, the average daily flow was 408.6 m³/day and the maximum daily flow was 1871.9 m³/day which occurred in February. The total annual flow was 148,838.5 m³. The design capacity of the treatment plant is 650 m³/day. The capacity utilization of the plant was 62.9% of the design capacity.

In April 2017, the flow meter was checked for calibration by Flowmetrix. The calibration check result was "Pass".

TABLE 1
 Summary of Wastewater Flows: 2017
 Tara Wastewater Treatment Plant
 Municipality of Arran-Elderslie

March, 2018

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Month	Total Flow (m ³)	Average Daily Flow (m ³ /day)	Maximum Daily Flow (m ³ /day)
January	15,346.0	495.0	726.2
February	14,537.5	519.2	1871.9
March	12,727.1	410.6	1,084.5
April	13,254.0	441.8	740.4
May	12,551.0	404.9	582.8
June	12,559.6	418.7	700.4
July	12,837.8	414.1	624.8
August	11,365.8	366.6	484.8
September	9,932.4	331.1	428
October	10,320.4	332.9	456.2
November	12,107.9	403.6	647.5
December	11,299.0	364.5	464.1
Total	148,838.5		
Average		408.6	
Maximum			1,871.9

4.0 SUMMARY OF RAW SEWAGE AND EFFLUENT MONITORING

The Certificate of Approval (C of A) requires that the raw sewage be tested for CBOD₅, Total Suspended Solids (TSS) and Total Phosphorous (TP) on a quarterly (once every three (3) months) basis. In 2017, raw sewage grab samples were collected in January, February, May, August, and November and tested for the above referenced parameters. **Table 2** shows the summary of raw sewage monitoring data.

The C of A also requires the testing of lagoon contents for CBOD₅, Total Suspended Solids and Total Phosphorous once, within one (1) week prior to each seasonal discharge. Spring discharge occurred from April 5th to May 8, 2017. Fall discharge occurred from November 2, 2017 to December 8, 2017. The lagoon contents were sampled and tested for CBOD₅, Total Suspended Solids and Total Phosphorous before and during the discharge period. **Table 3** shows the summary of the average of monthly monitoring data for Cell #1 and Cell #2 contents during and prior to discharge. The effluent limits were met during both the spring and fall discharge periods.

The volume discharged, in the spring of 2017, from the Lagoons was 68,168 m³ and 46,796 m³ in the fall. In 2017, a total of 114,964 m³ of treated effluent was discharged as compared to 148, 838.5 m³ of raw sewage received at the plant.

TABLE 2

Summary of Raw Sewage Monitoring Data: 2017

Tara Wastewater Treatment Plant

Municipality of Arran-Elderslie

March, 2018

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Month	CBOD	Total Suspended Solids	Total Phosphorous
	(mg/L)	(mg/L)	(mg/L)
January/February	164	222	5.16
May	120	156	4.7
August	254	296	6.61
November	228	1660	19.8
AVG.	192	584	9.07

TABLE 3

Summary of Effluent Discharge Monitoring - Spring and Fall 2017

Tara Wastewater Treatment Plant

Municipality of Arran-Elderslie

March, 2018

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Date	Cell #1			Cell # 2		
	CBOD (mg/L)	TSS (mg/L)	Total Phosphorous (mg/L)	CBOD (mg/L)	TSS (mg/L)	Total Phosphorous (mg/L)
MAR/APR	17	19.0	0.15	17	25	0.23
MAY	25	23.0	0.18	24	28	0.19
OCT	35	8	0.34	45	8	0.55
NOV	26	10	0.40	21	7	0.56
DEC	20	15	0.47	17	13	0.34
Average	25	15	0.31	25	16	0.37
CofA Objectives				25	30	0.8
Cof A Limits				30	40	1
Compliance with Effluent Limits				Y	Y	Y

Note: All monthly results are average of all samples collected in that month.

5.0 SUMMARY OF MAINTENANCE PROGRAM

January:

- * Pump shafts were greased. Oil was added to alum pumps.

February:

- * Annual maintenance of diesel generator was completed at 1195.3 hours.

March:

- * Perimeter fencing was checked at lagoon site.
- * Boards were manufactured and replaced in effluent structure on as needed basis.

April:

- * Spring discharge was commenced on April 5th.
- * Flowmetrix calibrated the flow meter at Mill Street Sewage Pumping Station.

May:

- * Spring discharge ended on May 8, 2017.

September:

- * MOECC completed inspection of the sewage works.
- * Exercised all valves on the sewage station and sewage forcemain.

October:

- * Contractor Liquiforce was on-site to undertake the lining of wet-well to maintain integrity of the concrete surfaces.
- * Air relief chamber was checked, and valve operated. Chamber continues to be normally dry.

November:

- * The fall discharge from Cell #1 was commenced on November 20th.
- * The fall discharge from Cell #2 was commenced on November 22nd.
- * Roof drains and flat roof were checked at Mill Street Pumping Station.
- * Sludge depths were measured in both lagoon ponds.
- * Cell #1 had a sludge depth of 150 to 200 mm.
- * Cell #2 had a sludge depth of 150 mm, uniformly.
- * Effluent discharge from Cell #1 was concluded on November 30th.

December:

- * Effluent discharge from Cell #2 was stopped on December 8, 2017.

6.0 SUMMARY OF COMPLAINTS RECEIVED

No Complaints were received in 2017 concerning the Tara Wastewater System.

7.0 ASSESSMENT OF SEPTAGE ACCEPTANCE

In January 2005, Henderson Paddon & Associates Ltd., produced a report entitled “Assessment of Wastewater Treatment Plants in the Municipality of Arran-Elderslie to Treat Septage”. This study concluded and recommended the following:

1. The Tara lagoons could accept 1.5 loads of septage at 13.6 m³ (3,000 1GAL) per load per week, from May 1 to October 31.
2. During the winter time, this rate should be reduced to one (1) load every two (2) weeks.
3. Improvements to the lagoon to facilitate receiving this septage should be important.
4. It must be recognized that the receipt of septage at the lagoons will increase the sludge accumulation rate in the lagoons.

No septage was accepted at the Tara Wastewater Treatment Plant in 2017.

8.0 MINISTRY OF THE ENVIRONMENT INSPECTION

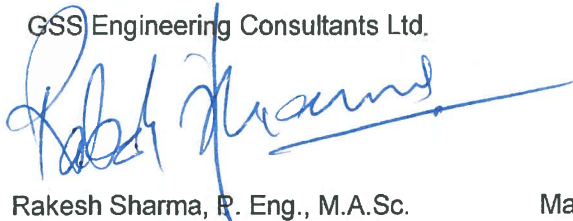
The Ministry of the Environment conducted an inspection of the Tara Sewage Lagoon System in September 2017. A copy of the report is included in **Appendix C**.

9.0 RECOMMENDATIONS

1. Sampling of raw sewage, lagoon contents and effluent during discharge to the stream should continue as required by the Certificate of Approval. Operator(s) should be careful while discharging the last portion of liquid from the lagoon. High velocity discharge should be avoided to prevent picking up of sludge solids from lagoon bottom.
2. A standard recording form for responding to complaints should be used for recording any complaints relating to the Tara Wastewater System.
3. The magnetic flow meter calibration should be done in April 2018.

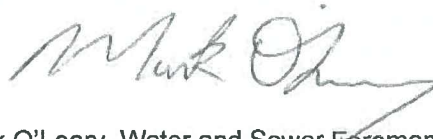
Respectfully submitted:

GSS Engineering Consultants Ltd.



Rakesh Sharma, P. Eng., M.A.Sc.
Class 4 License, WWC and WWT

Municipality of Arran-Elderslie



Mark O'Leary, Water and Sewer Foreman
Call 2 License, WWC and WWT

Appendix A
Certificate of Approval (Sewage)



Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDED CERTIFICATE OF APPROVAL
MUNICIPAL AND PRIVATE SEWAGE WORKS
NUMBER 9456-659N92

RECEIVED

JAN 24 2005

ARRAN - ELDERSLIE

The Corporation of the Municipality of Arran-Elderslie
P.O. Box 70, 1925 County Road 10
Chesley, Ontario
N0G 1L0

Site Location: Tara Sewage Lagoon
Lot Pt Lt 28, Concession 7
Arran-Elderslie Municipality, County of Bruce

You have applied in accordance with Section 53 of the Ontario Water Resources Act for approval of:

the municipal sewage treatment works at the above site location for the collection, transmission, treatment and disposal of domestic sewage with a *Rated Capacity* of 650 m³/d, consisting of the following:

Inlet Forcemain

- approx. 307 m of 200 mm dia. inlet forcemain on site from the property limits to the influent works of the waste stabilization pond;

Waste Stabilization Pond

- a 7.9 ha waste stabilization pond (approx. area at 1.5 m depth) constructed in two equal cells, complete with influent works, interconnecting structures and effluent works, and with phosphorus removal accomplished by injection of phosphorus removal chemical during pump operation at the sewage pumping station located in the Village of Tara;

Outfall Sewer

- approx. 183 m of 400 mm dia. outfall sewer on site and easements from the effluent works of the waste stabilization pond to the Sauble River;

Miscellaneous

- all other controls, electrical equipment, instrumentation, piping, pumps, valves and appurtenances essential for the proper operation of the aforementioned sewage works;

all in accordance with the following submitted supporting documents:

1. Final plans and specifications prepared by Henderson Paddon and Associates Limited.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

"Act" means the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, as amended;

"Average Daily Flow" means the cumulative total sewage flow to the sewage works during a calendar year divided by the number of days during which sewage was flowing to the sewage works that year;

"By-pass" means any discharge from the *Works* that does not undergo any treatment before it is discharged to the environment;

"CBOD5" means five day carbonaceous (nitrification inhibited) biochemical oxygen demand measured in an unfiltered sample;

"Certificate" means this entire certificate of approval document, issued in accordance with Section 53 of the *Act*, and includes any schedules;

"Daily Concentration" means the concentration of a contaminant in the effluent discharged over any single day, as measured by a composite or grab sample, whichever is required;

"Director" means any *Ministry* employee appointed by the Minister pursuant to section 5 of the *Act*;

"Discharge Season" means the Spring discharge period commencing after the liquid surface in the lagoon has become free of ice cover, terminating not later than May 14 or the Fall discharge period commencing not earlier than November 1 and terminating not later than December 15 in which discharge of effluent from the *Works* is permitted;

"District Manager" means the District Manager of the Barrie District Office of the Ministry;

"Ministry" means the Ontario Ministry of the Environment;

"Owner" means the Corporation of the Municipality of Arran-Elderslie and includes its successors and assignees;

"Rated Capacity" means the *Average Daily Flow* for which the *Works* are approved to handle;

"Regional Director" means the Regional Director of the Southwestern Region of the Ministry; and

"Seasonal Average Concentration" means the arithmetic mean of all *Daily Concentrations* of a contaminant in the effluent sampled or measured, or both, during a *Discharge Season*;

"Works" means the sewage works described in the *Owner's* application, this *Certificate* and in the supporting documentation referred to herein, to the extent approved by this *Certificate*.

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL PROVISIONS

- (1) The *Owner* shall ensure that any person authorized to carry out work on or operate any aspect of the *Works* is notified of this *Certificate* and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.
- (2) Except as otherwise provided by these Conditions, the *Owner* shall design, build, install, operate and maintain the *Works* in accordance with the description given in this *Certificate*, the application for approval of the works and the submitted supporting documents and plans and specifications as listed in this *Certificate*.
- (3) Where there is a conflict between a provision of any submitted document referred to in this *Certificate* and the Conditions of this *Certificate*, the Conditions in this *Certificate* shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.
- (4) Where there is a conflict between the listed submitted documents, and the application, the application shall take precedence unless it is clear that the purpose of the document was to amend the application.
- (5) The requirements of this *Certificate* are severable. If any requirement of this *Certificate*, or the application of any requirement of this *Certificate* to any circumstance, is held invalid or unenforceable, the application of such requirement to other circumstances and the remainder of this certificate shall not be affected thereby.

2. CHANGE OF OWNER

- (1) The *Owner* shall notify the *District Manager* and the *Director*, in writing, of any of the following changes within 30 days of the change occurring:
 - (a) change of *Owner*;
 - (b) change of address of the *Owner*;
 - (c) change of partners where the *Owner* is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c.B17 shall be included in the notification to the *District Manager*;
 - (d) change of name of the corporation where the *Owner* is or at any time becomes a corporation, and a copy of the most current information filed under the Corporations Informations Act, R.S.O. 1990, c. C39 shall be included in the notification to the *District Manager*;
- (2) In the event of any change in ownership of the *Works*, other than a change to a successor municipality, the *Owner* shall notify in writing the succeeding owner of the existence of this *Certificate*, and a copy of such notice shall be forwarded to the *District Manager* and the *Director*.

3. RECORD DRAWINGS

(1) A set of as-built drawings showing the works "as constructed" shall be kept up to date through revisions undertaken from time to time and a copy shall be retained at the *Works* for the operational life of the *Works*.

4. BY-PASSES

(1) Any *By-pass* of sewage from any portion of the *Works* is prohibited, except where:

(a) it is necessary to avoid loss of life, personal injury, danger to public health or severe property damage;

(b) the *District Manager* agrees that it is necessary for the purpose of carrying out essential maintenance and the *District Manager* has given prior written acknowledgment of the *by-pass*; or

(c) the *Regional Director* has given prior written acknowledgment of the *By-pass*.

(2) The *Owner* shall collect at least one (1) grab sample of the *By-pass* and have it analyzed for the parameters outlined in Condition 6 using the protocols in Condition 9.

(3) The *Owner* shall maintain a logbook of all *By-pass* events which shall include, at a minimum, the time, location, duration, quantity of *By-pass*, the authority for *By-pass* pursuant to subsection (1), and the reasons for the occurrence.

5. EFFLUENT OBJECTIVES

(1) The *Owner* shall use best efforts to design, construct and operate the *Works* with the objective that the concentrations of the materials named below as effluent parameters are not exceeded in the effluent from the *Works*.

Effluent Parameter	Average Concentration (milligrams per litre unless otherwise indicated)
Column 1	Column 2
<i>CBOD5</i>	25.0
Total Suspended Solids	30.0
Total Phosphorus	0.8

(2) The *Owner* shall use best efforts to:

(a) maintain the pH of the effluent from the *Works* within the range of 6.5 to 9.0, inclusive, at all times;

(b) operate the works within the *Rated Capacity* of the *Works*;

(c) ensure that the effluent from the *Works* is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film or sheen or foam or discolouration on the receiving waters.

(3) The *Owner* shall include in all reports submitted in accordance with Conditions 9 and 10 a summary of the efforts made and results achieved under this Condition.

6. EFFLUENT LIMITS

(1) The *Owner* shall operate and maintain the *Works* such that the concentrations of the materials named below as effluent parameters are not exceeded in the effluent from the *Works*.

Effluent Parameter	Average Concentration (milligrams per litre unless otherwise indicated)
Column 1	Column 2
<i>CBOD5</i>	30.0
Total Suspended Solids	40.0
Total Phosphorus	1.0

(2) For the purposes of determining compliance with and enforcing subsection (1):

(a) The *Seasonal Average Concentration* of a parameter named in Column 1 of subsection (1) shall not exceed the corresponding maximum concentration set out in Column 2 of subsection (1).

(3) Paragraph (a) of subsection (2) shall apply upon the issuance of this certificate.

7. OPERATION AND MAINTENANCE

(1) The *Owner* shall exercise due diligence in ensuring that, at all times, the *Works* and the related equipment and appurtenances used to achieve compliance with this *Certificate* are properly operated and maintained. Proper operation and maintenance shall include effective performance, adequate funding, adequate operator staffing and training, including training in all procedures and other requirements of this *Certificate* and the *Act* and regulations, adequate laboratory facilities, process controls and alarms and the use of process chemicals and other substances used in the *Works*.

(2) The *Owner* shall maintain an operations manual, that includes, but not necessarily limited to, the following information:

(a) operating procedures for routine operation of the *Works*;

(b) inspection programs, including frequency of inspection, for the *Works* and the methods or

tests employed to detect when maintenance is necessary;

(c) repair and maintenance programs, including the frequency of repair and maintenance for the *Works*;

(d) procedures for the inspection and calibration of monitoring equipment;

(e) a spill prevention control and countermeasures plan, consisting of contingency plans and procedures for dealing with equipment breakdowns, potential spills and any other abnormal situations, including notification of the *District Manager*; and

(f) procedures for receiving, responding and recording public complaints, including recording any followup actions taken.

(3) The *Owner* shall maintain the operations manual current and retain a copy at the location of the *Works* for the operational life of the *Works*. Upon request, the *Owner* shall make the manual available to *Ministry* staff.

(4) The *Owner* shall provide for the overall operation of the *Works* with an operator who holds a licence that is applicable to that type of facility and that is of the same class as or higher than the class of the facility in accordance with Ontario Regulation 129/04.

8. SPECIAL OPERATIONS - SEASONAL DISCHARGE

(1) The *Owner* shall operate the *Works* such that discharge is conducted on a semi-annual discharge basis with the effluent being discharged in the spring and the fall as follows:

spring: discharge commencing after the liquid surface in the lagoon has become free of ice cover, terminating not later than May 14, and

fall: discharge commencing not earlier than November 1 and terminating not later than December 15.

9. EFFLUENT MONITORING AND RECORDING

The *Owner* shall, upon commencement of operation of the *Works*, carry out the following monitoring program:

(1) All samples and measurements taken for the purposes of this *Certificate* are to be taken at a time and in a location characteristic of the quality and quantity of the effluent stream over the time period being monitored.

(2) For the purposes of this condition, the following definitions apply:

(a) Quarterly means once every three months;

(3) Samples shall be collected at the following sampling points, at the frequency specified, by means of the specified sample type and analyzed for each parameter listed and all results recorded:

Table 3 - Raw Sewage Monitoring	
Frequency	Quarterly
Sample Type	Grab
Parameters	CBOD5, Total Suspended Solids, Total Phosphorus

Table 4 - Lagoon Contents (within one week prior to each seasonal discharge)		
Parameters	Sample Type	Frequency
CBOD5	Grab	once
Total Suspended Solids	Grab	once
Total Phosphorus	Grab	once

Table 5 - Effluent Monitoring (beginning, during and at the end of each discharge season)		
Parameters	Sample Type	Frequency
CBOD5	Grab	2 times a week
Total Suspended Solids	Grab	2 times a week
Total Phosphorus	Grab	2 times a week

(4) The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following:

- * (a) the Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only), as amended from time to time by more recently published editions;
- * (b) the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" (January 1999), ISBN 0-7778-1880-9, as amended from time to time by more recently published editions;
- * (c) the publication "Standard Methods for the Examination of Water and Wastewater" (20th edition), as amended from time to time by more recently published editions;

(5) The measurement frequencies specified in subsection (2) in respect to any parameter are minimum requirements which may, after 6 months of monitoring in accordance with this Condition, be modified by the *District Manager* in writing from time to time.

(6) The *Owner* shall install and maintain (a) continuous flow measuring device(s), to measure the flowrate of the influent to the *Works* with an accuracy to within plus or minus 15 per cent (+/- 15%) of the actual flowrate for the entire design range of the flow measuring device, and record the flowrate at a

daily frequency.

(7) The *Owner* shall measure and record the flowrate and quantity of effluent from the *Works* during each *Discharge Season*.

10. REPORTING

(1) Ten (10) days prior to the date of a planned *By-pass* being conducted pursuant to Condition 4 and as soon as possible for an unplanned *By-pass*, the *Owner* shall notify the *District Manager* (in writing) of the pending start date, in addition to an assessment of the potential adverse effects on the environment and the duration of the *By-pass*.

(2) The *Owner* shall report to the *District Manager* or designate, any exceedence of any parameter specified in Condition 6 orally, as soon as reasonably possible, and in writing within seven (7) days of the exceedence.

(3) In addition to the obligations under Part X of the Environmental Protection Act, the *Owner* shall, within 10 working days of the occurrence of any reportable spill as defined in Ontario Regulation 675/98, bypass or loss of any product, by-product, intermediate product, oil, solvent, waste material or any other polluting substance into the environment, submit a full written report of the occurrence to the *District Manager* describing the cause and discovery of the spill or loss, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation.

(4) The *Owner* shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to *Ministry* staff.

(5) The *Owner* shall prepare, and submit to the *District Manager*, a performance report, on an annual basis, within ninety (90) days following the end of the period being reported upon. The first such report shall cover the first annual period following the commencement of operation of the *Works* and subsequent reports shall be submitted to cover successive annual periods following thereafter. The reports shall contain, but shall not be limited to, the following information:

(a) a summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Condition 6, including an overview of the success and adequacy of the *Works*;

(b) a description of any operating problems encountered and corrective actions taken;

(c) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the *Works*;

(d) a summary of any effluent quality assurance or control measures undertaken in the reporting period;

(e) a summary of the calibration and maintenance carried out on all effluent monitoring equipment; and

(f) a description of efforts made and results achieved in meeting the Effluent Objectives of Condition 5.

(g) a summary of any complaints received during the reporting period and any steps taken to address the complaints;

(h) a summary of all *By-pass*, spill or abnormal discharge events; and

(i) any other information the *District Manager* requires from time to time.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is imposed to ensure that the *Works* are built and operated in the manner in which they were described for review and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the *Certificate* and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review. The condition also advises the Owners their responsibility to notify any person they authorized to carry out work pursuant to this *Certificate* the existence of this *Certificate*.
2. Condition 2 is included to ensure that the *Ministry* records are kept accurate and current with respect to the approved works and to ensure that subsequent owners of the *Works* are made aware of the *Certificate* and continue to operate the *Works* in compliance with it.
3. Condition 3 is included to ensure that record drawings of the *Works* "as constructed" are maintained for future references.
4. Condition 4 is included to indicate that by-passes of untreated sewage to the receiving watercourse is prohibited, save in certain limited circumstances where the failure to *By-pass* could result in greater injury to the public interest than the *By-pass* itself where a *By-pass* will not violate the approved effluent requirements, or where the *By-pass* can be limited or otherwise mitigated by handling it in accordance with an approved contingency plan. The notification and documentation requirements allow the *Ministry* to take action in an informed manner and will ensure the *Owner* is aware of the extent and frequency of *By-pass* events.
5. Condition 5 is imposed to establish non-enforceable effluent quality objectives which the *Owner* is obligated to use best efforts to strive towards on an ongoing basis. These objectives are to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs and before the compliance limits of Condition 6 are exceeded.
6. Condition 6 is imposed to ensure that the effluent discharged from the *Works* to the Sauble River meets the *Ministry's* effluent quality requirements thus minimizing environmental impact on the receiver and to protect water quality, fish and other aquatic life in the receiving water body.
7. Condition 7 is included to require that the *Works* be properly operated, maintained, funded, staffed and equipped such that the environment is protected and deterioration, loss, injury or damage to any person

or property is prevented. As well, the inclusion of a comprehensive operations manual governing all significant areas of operation, maintenance and repair is prepared, implemented and kept up-to-date by the owner and made available to the *Ministry*. Such a manual is an integral part of the operation of the *Works*. Its compilation and use should assist the *Owner* in staff training, in proper plant operation and in identifying and planning for contingencies during possible abnormal conditions. The manual will also act as a benchmark for *Ministry* staff when reviewing the *Owner's* operation of the work.

8. Condition 8 is included to ensure that the treated effluent is discharged to the receiver during periods and at rates that minimizes the environmental impact on the receiver.
9. Condition 9 is included to enable the *Owner* to evaluate and demonstrate the performance of the *Works*, on a continual basis, so that the *Works* are properly operated and maintained at a level which is consistent with the design objectives and effluent limits specified in the *Certificate* and that the *Works* does not cause any impairment to the receiving watercourse.
10. Condition 10 is included to provide a performance record for future references, to ensure that the *Ministry* is made aware of problems as they arise, and to provide a compliance record for all the terms and conditions outlined in this *Certificate*, so that the *Ministry* can work with the *Owner* in resolving any problems in a timely manner.

This Certificate of Approval revokes and replaces Certificate(s) of Approval No. 1-704-80-006 issued on July 2, 1980.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., 12th Floor
P.O. Box 2382

AND

The Director
Section 53, *Ontario Water Resources Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A

Toronto, Ontario
M4P 1E4

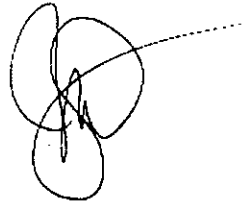
Toronto, Ontario
M4V 1L5

* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the

Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca

The above noted sewage works are approved under Section 53 of the Ontario Water Resources Act.

DATED AT TORONTO this 11th day of January, 2005



Mohamed Dhalla, P.Eng.
Director
Section 53, *Ontario Water Resources Act*

FL/
c: District Manager, MOE Owen Sound
Matt G. Prentice, Henderson Paddon & Associates Ltd.
Drinking Water, Wastewater and Watershed Section, MOE Standards Development Branch

Appendix B
Flow Meter Calibration

AS FOUND CERTIFICATION

PASS

CLIENT DETAIL

CUSTOMER Municipality of Arran-Elderslie
 CONTACT Mark O'leary
 Foreman Water & Wastewater
 C: 519-270-1929
 E: water@arran-elderslie.ca

EQUIPMENT DETAIL
 MODEL WaterMaster
 SENSOR SERIAL NUMBER 3K620000155000
 CONVERTER SERIAL NUMBER 3K220000229674
 SENSOR SIZE (DN) 150

PLANT ID Tara Sewage PS (Hill St.)
 METER ID Flow Meter
 FIT ID N/A
 CLIENT TAG N/A
 OTHER N/A
 GPS COORDINATES N44 28.646 W81 08.839

VER. BY - FM Joel Van Veller

Quality Management Standards Information -
 Reference equipment and instrumentation used to
 conduct this verification test is found in our AC-QMS
 document at the time this test was conducted.

VERIFICATION DATE April 24, 2017
 CAL. FREQUENCY Annual
 CAL. DUE DATE April, 2018

SENSOR INFORMATION

Q3 l/sec 175
 CALIBRATION ACCURACY OIML Class 2
 SENSOR CAL. ACCURACY % 135
 mm/sec 0
 ~ 11
 DATE OF MANUFACTURE Jan 07, 2014
 RUN HOURS d/h/m 957/19/35

TRANSMITTER INFORMATION

APPLICATION VERSION v01.05.00 12/07/12
 MSP VERSION 00.00.04
 DATE OF MANUFACTURE Jan 07, 2014
 RUN HOURS d/h/m 1068/5/46
 ALLOWABLE TOLERANCE % 5.0

CURRENT OUTPUT

OUTPUT TEST	4.00	20.00	READING	20.00	ERROR	%	PASS
4.0 mA	4.00	3.999	-0.02	PASS			
12.0 mA	12.00	11.981	-0.16	PASS			
20.0 mA	20.00	19.995	-0.02	PASS			

PULSE OUTPUT

OUTPUT TEST	READING	ERROR	PASS
	mA	%	FAIL
OUTPUT 1, Hz	100	N/A	N/A
OUTPUT 1, Hz	50	N/A	N/A
OUTPUT 2, Hz	100	N/A	N/A
OUTPUT 2, Hz	50	N/A	N/A

VERIFICATION HISTORY

OIML Accuracy Alarms 0

TOTALIZER INFORMATION

FORWARD 351310.37 m3
 REVERSE 0 m3
 NET 351497.99 m3

SENSOR DATA

COIL CURRENT 180 mA
 COIL INDUCTANCE 158.8 mH
 COIL SHIFT 0.2 %
 COIL/LOOP RESISTANCE 35.2 ohm

TRANSMITTER DATA

TX GAIN - ADJUSTMENT 0.1 %

VeriMASTER INFORMATION

VERSION 01.00.01
 LIMIT VERSION 01.00.01

CONFIGURATION SETTINGS

MAINS/FREQUENCY 60 Hz
 QMAX 100 l/sec
 PULSES/UNIT 30
 PULSES LIMIT FREQUENCY 1200 Hz
 SENSOR USER SPAN 100 %
 ZERO 0 mm/s
 USER FLOW CUTOFF 1 %
 HYSTERESIS 20 %
 METER MODE Forward Flow

COMMENTS

QUALITY MANAGEMENT STANDARDS INFO.

[QMS] INFORMATION	IDENT.	ID #
[REFERENCE] FTS	ABBWM	1
PROCESS METER	DMM	3

The information contained within this report was produced by "VeriMASTER - Flow Meter Verification Report". The AS LEFT information is the same as the AS FOUND information within this report. If changes have been made relative to the accuracy of the calibration, an AS LEFT certificate will be issued.

Appendix C
MOECC 2017 Inspection Report



Ministry of the Environment and Climate Change

WW TARA LAGOON

Inspection Report

Site Number:	110003237
Inspection Number:	1-G760K
Date of Inspection:	Sep 13, 2017
Inspected By:	Sorina Marinescu

OWNER INFORMATION:

Company Name: ARRAN-ELDERSLIE, MUNICIPALITY OF
Street Number: 1925 **Unit Identifier:**
Street Name: BRUCE ROAD 10
City: CHESLEY
Province: ON **Postal Code:** N0G 1L0

CONTACT INFORMATION

Type: Owner **Name:** Mark O'Leary
Phone: (519) 363-3039 **Fax:** (519) 363-2203
Email: water@arran-elderslie.ca
Title: Water/Sewer Foreman

INSPECTION DETAILS:

Site Name: WW TARA LAGOON
Site Address:
County/District: Arran-Elderslie
MOECC District/Area Office: Owen Sound Area Office
Health Unit: GREY BRUCE HEALTH UNIT
Conservation Authority: Grey Sauble Conservation Authority
MNR Office: Ministry of the Environment Owen Sound Area Office
Site Number: 110003237
Inspection Type: Announced
Inspection Number: 1-G760K
Date of Inspection: Sep 13, 2017
Date of Previous Inspection: Dec 15, 2011

COMPONENTS DESCRIPTION

INSPECTION SUMMARY:

Introduction

- **The primary focus of this inspection is to confirm compliance with Ministry of the Environment and Climate Change (MOECC) legislation as well as evaluating conformance with ministry policies and guidelines during the inspection period. This wastewater treatment and collection system is subject to the legislative requirements of the Ontario Water Resources Act (OWRA) and the Environmental Protection Act (EPA) and regulations made therein. This inspection has been conducted pursuant to Section 15 of the OWRA and Section 156 of the EPA. This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.**

On September 13, 2017 an inspection was conducted by Provincial Officer Sorina Marinescu at the Tara Lagoon Sewage System to assess compliance with the terms and conditions of the Environmental Compliance Approval issued for the treatment system, for the period between January 1, 2017 and the date of the inspection.

The Tara Lagoon Sewage System is a Class 1 Wastewater Treatment System, located in the Municipality of Arran-Elderslie (Concession 7, Lot 28). The Tara Lagoon Sewage System is owned and operated by The Municipality of Arran-Elderslie. The system operates under the Amended Environmental Compliance Approval (ECA) #9456-659N92, issued January 11, 2005, by the Ministry of the Environment and Climate Change (Ministry).

The Tara Lagoon Sewage System consists of 2 stabilization ponds (facultative lagoons) with seasonal discharge provisions (discharge into Sauble River), serving the community of Tara, Municipality of Arran-Elderslie and has a rated capacity of 650 m³/day. The Municipality of Arran-Elderslie is referred to as the Owner or the Municipality for the purposes of this inspection report.

Previous inspection by the Ministry at this facility was on December 15, 2011.

This September 13, 2017 wastewater inspection included: a physical inspection of the wastewater lagoons, pump station at 46 Mill Street, interview with Mr. Marc O'Leary, Water & Sewer Foreman, and a review of relevant documents from the period of January 1, 2017 to September 13, 2017 (herein referred to as the "inspection review period"). Prior to this inspection an assessment of the Tara Lagoon Sewer System's operational performance was undertaken by the Ministry, based on the information reported by the Municipality in the 2016 Annual Performance Report submitted to the Ministry.

This September 13, 2017 inspection did not include the inspection of the collection system.

Mr. O'Leary provided the manuals, logs, flow and monitoring data for the inspection review period.

Note: Environmental Compliance Approvals were formerly known as Certificates of Approval, prior to October 31, 2011.

Authorizing/Control Documents

- **The owner had a valid Environmental Compliance Approval for the sewage works.**

Amended Certificate of Approval #9456-659N92, issued January 11, 2005 is considered the main approval governing the use and operation of the Tara Lagoon Sewage System and will herein be referred to and referenced as the Environmental Compliance Approval or the ECA for the purposes of this inspection report.

Capacity Assessment

- **The annual average daily flow was not approaching the rated capacity of the sewage works**

Capacity Assessment

According to the ECA, the Tara Lagoon Sewage System is approved to treat an average daily flow of 650 cubic metres per day (m³/d). Based on the information contained in the 2016 Annual Performance Report, the Tara Lagoon Sewage System reportedly treated and Average Daily Flow of 357.2 m³/d during the 2016 operating year, representing approximately 55 % of the rated capacity. In 2016, the maximum daily flow was 1623.5 m³/day and occurred in March.

For the inspection review period the Tara Lagoon Sewage System reportedly treated an Average Daily Flow of 433.9m³/day, representing approximately 67% of the rated capacity.

The volume discharged in the spring of 2016 from the lagoons was 66,688 m³ and 53,865 m³ in the fall. In 2016, a total 120,553 m³ of treated effluent was discharged as compared to 130,634.7m³ raw sewage received at the plant.

- **Flow measuring devices were installed, calibrated and maintained in accordance with the requirements of the Environmental Compliance Approval.**

Condition 9(6) of the ECA, requires the Owner to install and maintain (a) continuous flow measuring device(s) to measure the flowrate of the influent to the works with an accuracy to within plus or minus 15% of the actual flowrate for the entire design range of the flow measuring device, and record the flowrate at a daily frequency. Condition 9 (7) also requires the Owner to measure and record the flowrate and quantity of effluent from the works during each Discharge Season. Discharge season is defined as Spring discharge- period commencing after the liquid surface in the lagoon has become free of ice cover, terminating no later than May 14 or the fall discharge period commencing no earlier than November 1 and terminating no later than December 15 in which discharge of effluent from Works is permitted.

An influent flow meter is located at the pumping station at 46 Mill Street and 3 effluent flow meters are installed at the lagoons location for measuring the effluent discharge from the lagoons. According to the 2016 annual report and records provided for the inspection review period calibration is completed annually by Flowmetrix Technical services Inc. Most recent records indicate calibration was completed April 24, 2017.

Records provided also indicate that the portable pH meter is calibrated prior to each use.

The calibration records confirm that the flow measuring devices are being calibrated/ verified for the entire design range of the flow measuring devices.

Treatment Processes

- **All monitoring equipment other than flow monitoring devices were installed, calibrated and maintained in accordance with any Environmental Compliance Approval.**

Condition 7 (1) of the ECA requires the Owner to exercise due diligence in ensuring that , at all times, the works, and related equipment and appurtenances used to achieve compliance with the terms and conditions of the ECA are properly operated and maintained. Condition 7(2)(d) of the ECA also requires the operations manual to include procedures for the inspection and calibration of monitoring equipment.

The Municipality has an Operation manual that includes procedures for calibration and maintenance of equipment.

- **The owner had ensured that all equipment/components associated with the works was installed in accordance with the Environmental Compliance Approval.**

The physical inspection of the Tara Lagoon Sewage system verified that, for the most part, all equipment appeared to have been installed and operating in accordance with the requirements of the ECA.

Treatment Processes

Effluent Quality and Quantity

- **The sewage works effluent sample results met the effluent objectives stated in the Environmental Compliance Approval.**

Condition 5 of the ECA establishes effluent quality objectives that the Municipality is obligated to use best efforts to meet on an ongoing basis. The objectives are to be used as a mechanism to promote continuous improvement in the operation of the works and to trigger corrective action proactively and voluntarily before environmental impairment occurs.

The ECA establishes the following effluent concentration objectives:

- CBOD5: 25.00 mg/L;
- TSS: 30.00 mg/L
- TP: 0.8 mg/L;
- Effluent pH: 6.5 – 9.0 (at all times);

Based on the information contained in the 2016 Annual Performance Report, the Tara Lagoon Sewage System reportedly met the effluent limits and objectives set out in the ECA, during the 2016 operating year. Records provided for this inspection indicate that the Tara lagoon Sewage System met the objectives for the Spring discharge that occurred between April 5 and May 8, as follows:

For March/April- CBOD5: 17mg/L; TSS: 25mg/L; TP: 0.23 mg/L; pH:7.19; E.coli: 125

For May- CBOD5:24mg/L; TSS: 28mg/L; TP: 0.19 mg/L; pH: 7.35; E.coli: 131

- **The sewage works effluent was discharged in accordance with Environmental Compliance Approval.**

As per 2016 annual report spring discharge occurred from March 28 to May 12 and fall discharge from November 2 to November 25. For the inspection review period the spring discharge occurred between April 5 and May 8, 2017. Based on this, the discharge period appears to be in accordance with the requirements of the ECA.

Monitoring Requirements

- **All sewage works effluent sampling requirements prescribed by the Environmental Compliance Approval were met.**

Condition 9 (3) of the ECA, requires the final effluent sampling and monitoring be completed as follows:

- Lagoon Contents- within one week prior to each seasonal discharge: one grab sample for CBOD5, TSS, Total Phosphorus;
- Effluent monitoring (beginning, during and at the end of each discharge season): two times a week grab samples for CBOD5, TSS, TP.

All samples and measurements taken for the purposes of the ECA are to be taken at a time and a location characteristic of the quality and quantity of the effluent stream over the time period being monitored.

Records reviewed and reports made indicate that the Municipality has ensured that the effluent monitoring was being conducted as prescribed. Records made available for the inspection review period indicate that sampling took place twice a week beginning March 7 to May 8 for the required parameters and E.coli, for cell 1 and cell2/effluent.

Results of all testing is tabulated on spreadsheets forming part of the record keeping system.

- **All sewage works influent (raw sewage) sampling requirements prescribed by the Environmental Compliance Approval were met.**

Condition 8 (3) of the ECA, requires the raw sewage influent sampling and monitoring be done quarterly for CBOD5, TSS and TP (grab) and "quarterly" is defined as once every three months.

Monitoring Requirements

Records reviewed and reports made would indicate that the Municipality has ensured that the influent monitoring was being conducted quarterly and had those samples analyzed externally by a licenced laboratory. Results of all testing is tabulated on spreadsheets forming part of the record keeping system.

Biosolids Management

- **The facility has a program in place to manage biosolids.**

There is no biosolids management program, however sludge level is monitored and is periodically removed from the lagoon as necessary. No sludge was removed or hauled for the inspection review period. It was indicated at the time of the inspection that it is not anticipated to have sludge removal this year and also that the Municipality is exploring the option of using "geotubes technology" for sludge removal.

Certification and Training

- **Only operators with the appropriate level of licence made adjustments to the wastewater treatment and collection system equipment.**

The Tara Lagoon Sewage System is a Class 1 Wastewater Treatment Plant, Certificate (#82) that was issued June 26, 1987.

Records reviewed and reports made indicate that the Municipality has ensured that all operators making adjustments to the process equipment possess the appropriate level of wastewater treatment certification. The Municipality has ensured that every operator employed in the facility holds a licence applicable to wastewater treatment, in accordance with the requirements of section 14(1) of Ontario Regulation 129/04.

- **All operators have the appropriate level of training and or experience for the wastewater treatment and collection facilities in accordance with the requirements of the Environmental Compliance Approval.**

Condition 7(4) of the ECA requires the Owner to provide for the overall operation of the Tara Lagoon Sewage System with an operator who holds a licence that is applicable to that type of facility and is at the same class as or higher than the class of the facility in accordance with Ontario Regulation 129/04.

Records reviewed and reports made indicate that the Municipality has ensured that operators possessing Class 1 Wastewater Certification are available to provide overall operation of the Tara Lagoon Sewage System.

- **The overall responsible operator had been designated for the wastewater treatment and collection works.**

Records reviewed and reports made indicate that the Municipality has ensured that at least one operator possessing Class 1 Wastewater Certification is available to serve as the overall responsible operator for the Tara Lagoon Sewage System. The Municipality has one Class 4 overall responsible operator. The Municipality provides training to the operators and records of the training were provided.

Logbooks

- **The logs and record keeping mechanisms for the sewage works complied with the record keeping requirements.**

A review of the Facility Logbook confirmed that entries were made, by the operator-in-charge, of all adjustments made to the treatment processes.

Operations Manuals

- **The operations and maintenance manuals met the requirements of the Environmental Compliance Approval.**

Operations Manuals

- The operations and maintenance manuals contained up-to-date plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.

Contingency/Emergency Planning

- For Lagoon Systems, the owner is conforming with the freeboard and berm conditions in the MOE Design Guidelines for Sewage Works.

The freeboard appeared to be in conformance with the Guidelines. The slope could not be assessed.

- Spill containment was provided for the process chemicals and/or standby power generator fuel.
- The owner had provided security measures for the facility.

Security measures at the Tara Lagoon Sewage System consist of locked gate and restrictive signage.

Other Inspection Findings

- The following issues were also noted during the inspection:

NON-COMPLIANCE WITH REGULATORY REQUIREMENTS AND ACTIONS REQUIRED

This section provides a summary of all non-compliance with regulatory requirements identified during the inspection period, as well as actions required to address these issues. Further details pertaining to these items can be found in the body of the inspection report.

Not Applicable

SUMMARY OF RECOMMENDATIONS AND BEST PRACTICE ISSUES

This section provides a summary of all recommendations and best practice issues identified during the inspection period. Details pertaining to these items can be found in the body of the inspection report. In the interest of continuous improvement in the interim, it is recommended that owners and operators develop an awareness of the following issues and consider measures to address them.

1 . The following issues were also noted during the inspection:

Recommendation:

It is recommended that the owner follows the reporting requirements for discharge season and that the averaging of samples is done separately for spring discharge season from fall discharge season.

SIGNATURES

Inspected By:

Sorina Marinescu

Signature: (Provincial Officer)

Reviewed & Approved By:

Jatinbhai Patel

Signature: (Supervisor)

Review & Approval Date:

Note: This inspection does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they apply or may apply to this facility. It is, and remains, the responsibility of the owner and/or operating authority to ensure compliance with all applicable legislative and regulatory requirements.