Township of North Glengarry
Alexandria Sewage Lagoon Treatment Facility
Municipal Class 'C' Environmental Assessment
Environmental Study Report – Appendices I-N

Prepared for:

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APPENDIX I

AERATED SUBMERGED ATTACHED GROWTH REACTOR (SAGR)

Nelson Environmental Inc

OPTAER™

WASTEWATER TREATMENT SYSTEM

Preliminary Proposal for:

Design, Supply, and Installation of

OPTAER Wastewater Treatment System

Alexandria, ON

April 27, 2016

NE reference: cd669.09

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1.0 Project Overview

An OPTAER Wastewater Treatment system is proposed for the community of Alexandria, ON. The proposed system upgrade would utilize the existing lagoon infrastructure and consist of the following processes and technologies:

- Continue to add Alum for primary TP removal at headworks.
- Upgrade aeration system in the existing aerated cell with OPTAER Partial Mix Aeration with floating laterals.
- Implement OPTAER Partial Mix Aeration with floating laterals in existing facultative cell A.
- Retain cells B and C as facultative; install a flow diversion baffle in cell C.
- Implement a multiple-cell aerated SAGR® (Horizontal Flow Submerged Attached Growth Reactor) for nitrification (ammonia removal), BOD, and TSS polishing following the existing lagoon system.
- Implement an opTPhos™ cloth disk filter system with integrated rapid and slow mix chemical conditioning tanks for Total Phosphorus (TP) removal.
- UV disinfection if required (by others).

2.0 System Design Parameters

Preliminary design loads and flows, as well as effluent requirements are summarized in the following table:

		Lagoon Influent	SAGR Influent	System Effluent Compliance (after Tertiary filters)	System Effluent Objective (after Tertiary filters)
Design Flow	m^3/day	6,500			
Max day peaking factor*	m3/day	19,500			
cBOD	mg/L	110	25	<10	<8
TSS	mg/L	100	25	<15	<10
TKN	mg/L	18	18		
TP	mg/L			<0.2	<0.1
TAN	mg/L	-	-	<2/4**	<1/2**

*peaking factor assumes that a lagoon effluent control structure will be in place to limit the peak day flow.
** summer/winter

Approximate cell sizes are shown in the following table:

Cell	Basin Type	Water depth (m)	Water Volume (m^3)	Retention time (design) (days)
Aeration	Aerated Partial Mix	3.0	21,950	3.4
A	Aerated Partial Mix	1.5	74,775	11.5
B	Facultative	1.5	75,883	11.7
C	Facultative	1.5	93,382	14.4
	SAGR	2.5		
			265,990	41.0

OPTAER Aeration design parameters are summarized in the following table:

Aeration Design Parameters - OPTAER Aeration System			
	Aeration (PM)	**A (PM)**	**Totals**
Alpha	0.60	0.60	
Beta	0.95	0.95	
Theta	1.024	1.024	
Site elevation (m)	76	76	
Min. Dissolved Oxygen (mg/l)	2.0	2.0	
# HT25 diffusers (Fine Bubble)	64	104	**168**
SCFM per diffuser	12	12	-
Total SCFM	**768**	**1248**	**2016**

SAGR aeration design parameters are summarized in the following table:

SAGR Aeration System	
	SAGR
Alpha	0.70
Beta	0.95
Theta	1.024
Site elevation (m)	76
Min. Dissolved Oxygen (mg/l)	3.0
Max SAGR Loading Rate (g BOD/m^2/day)	121.3
Max SAGR Loading Rate (lbs NH_3/1000 ft^2)	0.418
Total SCFM (design)	**1,620**

3.0 OPTAER Treatment Process

i. Partial Mix (PM) Cells

With aerated partial mix cells, the diffuser density is based upon oxygen demand. The OPTAER system does not rely on algae or natural surface aeration for providing oxygen to the wastewater.

The diffusers are suspended near the bottom of the cells. Through the rise of the bubbles and subsequent mixing, convection cells are created between the diffusers. Not only does the water rise with the bubbles, the solids settle out through the downward motion of the water between the diffusers where the circulation loop is completed. This combined with the slow rate of bubble rise contributes to the overall efficiency of the system. Because of low sludge production in the system, retention time is retained for long term BOD_5 removal.

When the solids reach the bottom of the lagoon, additional oxygen for biodegradation is provided through the diffusers near the cell bottom. This process results in minimal organic bottom sludge accumulation. Aerobic digestion takes place within the aerated cells at the sludge water interface.

ii. Submerged Attached Growth Reactor (SAGR)

The Submerged Attached Growth Reactor (SAGR) is a patented process designed to provide nitrification (ammonia removal) in cold to moderate climates. The SAGR is essentially a clean aggregate media bed with evenly distributed wastewater flow across the width of the cell, and a horizontal collection chamber at the end of the treatment zone.

Two SAGR cells are operated in parallel; piping allows any cell to be isolated and bypassed LINEAR aeration throughout the floor of the SAGR provides aerobic conditions that are required for nitrification.

The gravel bed is covered with a layer of peat or mulch to prevent freezing.

The following variables need to be considered during nitrification design:

- *Dissolved Oxygen Levels* - Nitrifying bacteria require aerobic conditions. A minimum dissolved oxygen concentration of 3 mg/L must be present for the process to fully occur.
- *BOD concentration* – Nitrifying bacteria require low BOD concentrations to be effective. Primary BOD removal occurs in the upstream lagoon system. The SAGR provides additional BOD polishing if necessary to reduce BOD concentrations below 25 mg/l.
- *Surface area* - Bacteria require a medium of some form to grow on. High surface area medium allows for higher-density nitrifying bacteria population.

- *Bacteria* - In order to convert ammonia (NH_3) to nitrite (NO_2^-) and ultimately nitrate (NO_3^-) (nitrification) sufficient quantities of two bacteria are required, *Nitrosomonas* and *Nitrobacter*.
- *Alkalinity* - The nitrification process reduces pH levels and consumes alkalinity. In order for nitrification to occur, 7.1 mg of alkalinity must be available for each mg/L of ammonia removed
- *Temperature* - Nitrification in a SAGR occurs at water temperatures as low as 0.5^{o}C. The long sludge age inherent in an attached growth system allows for full nitrification at temperatures where bacteria reproduction is greatly inhibited.
- *pH* - Nitrification is enhanced at higher pH levels. pH levels of 7.5 to 8.5 are ideal, although nitrifying bacteria can adapt outside of this range.

iii. Phosphorus Removal with Chemical Flocculation Process

In chemical total phosphorus (TP) removal, a metal salt such as aluminum sulfate (alum) or ferric chloride is brought into contact and reacts with soluble orthophosphates present in wastewater to form a precipitate. Adequate time and mixing is required to allow the precipitate to form into a settleable floc. The floc is subsequently removed by means of a solids separation technique such as settling/clarification or filtration.

The following variables need to be considered during design:

- Wastewater characteristics (TSS, BOD, alkalinity, pH, etc).
- The chemical feed point or points in the process.
- Dosing rate (mole ratio)
- Method of chemical addition and mixing/settling time after addition

Bench-scale testing with site specific effluent is recommended to determine initial dosing rates, optimize chemical usage, and maximize removal efficiency.

4.0 Treatment Process Equipment

i. Impermeable Floating Baffle

Impermeable flow diversion baffles are used to create multiple treatment cells in new or existing lagoons. A new baffle will be installed in cell C to improve treatment as well as minimize the potential for short circuiting.

ii. HT-25 Fine Bubble Membrane Diffusers (Aerated Partial Mix)

HT-25 fine bubble diffusers are used to provide oxygen to the wastewater. The diffusers consist of an HDPE air distribution body with individual tubular EPDM membranes extending outwards in a horizontal plane. This design prevents bubbles from coalescing, and results in an excellent oxygen transfer rate with minimal head loss.

The diffusers are suspended with a marine grade rope directly under the lateral, at a uniform depth. The rope is attached to the floating header for ease of diffuser retrieval. Each diffuser is attached to a small concrete weight, encased in HDPE pipe. Diffuser assemblies can be retrieved from a boat with no special equipment.

iii. OPTAER Header System (Aerated Cells)

Galvanized metal manifold/discharge piping is used to dissipate the heat produced by the blowers. Shallow buried HDPE header piping connects to the galvanized metal header, and supplies air to the aeration laterals. The header has flanged connections for each lateral as shown on the drawings.

The laterals connect to the shallow buried header, and float on the water surface. Each lateral is individually valved for ease of maintenance. With floating laterals, there are no concrete weights required to be in contact with the bottom of the lagoon. Laterals are secured against wind action with a stainless steel cable system. The cables are fastened to anchors in the lagoon berm using a self-adjusting lateral tensioning assembly. All header and lateral piping, joints, and fittings are thermally fused HDPE.

With the OPTAER aeration system, the cells do not have to be dewatered or taken out of service for system installation or maintenance. All maintenance can be performed from a boat with a 2-person crew.

All header, lateral, and feeder piping is designed to accommodate increased airflow for high pressure and volume cleaning without increasing header friction losses by more than 1 psi. This allows for management of additional organic load, improved diffuser maintenance and additional odor control.

iv. Submerged Attached Growth Reactor (SAGR) LINEAR Aeration System

LINEAR coarse bubble diffusers are used to provide oxygen to the wastewater. Diffuser lines are manufactured from LDPE (Low Density Polyethylene) with reinforced air releases along the tubing. The diffuser tubing is designed for direct burial in the SAGR bed.

The diffuser locations have been spaced according to the projected oxygen demand in the SAGR. The design diffuser distribution is critical to ensure that nitrification occurs.

In addition to providing oxygen for nitrification the proposed aeration system brings numerous other long-term performance benefits to this sub-surface flow system.

- Full aeration grid ensures that wastewater channeling cannot occur in the gravel layer (maximize retention time and media contact).
- Sludge digestion in gravel layer is enhanced due to aerobic conditions.
- Year-around odor free operation.

v. SAGR HDPE Header & Feeder System

High Density Polyethylene (HDPE) laterals run along the top on each side of the SAGR. The laterals are located in the top layer of insulating mulch. All HDPE piping connections and fittings are thermally fused to ensure maximum strength and durability. A shallow buried header connects blowers to the SAGR laterals.

HDPE service saddles are thermally fused to the lateral piping for each diffuser line. HDPE drop legs provide air to the individual diffuser lines.

All header and feeder piping is designed to accommodate increased airflow for high pressure and volume cleaning without increasing header friction losses by more than 1 psi. This allows for management of additional organic load, improved diffuser maintenance and additional odor control.

vi. Positive Displacement Blowers

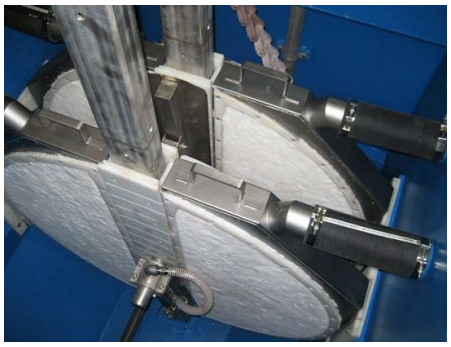
Positive displacement blowers are used to provide air supply for the OPTAER treatment system. Blowers are designed to provide the required airflow at normal system operating pressure, and have the capability of operating at the maximum required pressure intermittently for diffuser purging. The blowers are equipped with sound attenuating enclosures and are compatible with VFDs.

Blower requirements are summarized in the following table:

		Aerated Cell Blowers	SAGR Blowers	Cell A Blowers
Number of blowers total		1	3	2
Number of blowers on duty		1	2	1
Number of blowers on standby		0*	1	1
Motor nameplate horsepower	hp	40	50	50
Design airflow per blower	SCFM	768	810	1248
Normal operating pressure	psi	6.1	5.8	4.0
Maximum required pressure	psi	8.5	8.8	6.3
Actual Power Consumption (per blower)	bhp	32.9	34.0	38.8
Actual Sound level	dB(A)	72	73	75

*Standby provided by SAGR aeration blowers

vii. Disk Filters for Total Phosphorus Removal



Total phosphorus (TP) removal in wastewater is achieved by chemical precipitation with a metal salt (typical aluminum sulphate, or alum) and filtration or settling of the resulting floc. For effective floc formation, the system must provide adequate mixing and contact time between the wastewater and the injected alum. The resulting particles can then be removed by settling or filtration.

The opTPhos™ system integrates chemical dosing equipment, contact tanks, mixers, and filtration equipment into a complete drop-in phosphorus removal package.

The Cloth Disk Filter utilizes an outside-in flow pattern, and a stationary disk to minimize mechanical requirements of the system. The disk modules are designed for easy removal without the need to dewater the tank or take the system offline. All components of the system are constructed from corrosion resistant materials that have been designed for continuous operation.

Alum would be dosed into a rapid mix chamber ahead of the filter using a variable speed positive displacement pump regulated by overall system flow. This chamber would be intensively mixed to ensure good contact between the alum and the wastewater.

From the rapid mix chamber, the wastewater would pass to a 15 minute HRT slow mix chamber. Gentle mixing in the slow mix chamber allows the small floc to aggregate into larger particles. From this flocculation tank, the wastewater will enter the disk filter tank. As the water passes through the cloth material, it enters into the core of each disk module, and exits through filtrate lines located on the top of the disk. This line passes the filtrate to the filtrate collection trough.

During the normal filtration process, the entire filter is in a static mode. As the filter cloth collects solids on the outer surface, headloss across the media gradually increases to a set point elevation in the tank. At this point, the backwash cleaning system energizes in a set sequence of cleaning operations. Influent will continue to be processed during the backwash cleaning cycle, allowing for continuous filtration, 24 hours per day. Backwash from the filters would be directed to the head of the treatment plant.

The backwash cleaning system is controlled by a relay based operation system furnished with the filter equipment. The cleaning mechanism will not be in contact with the filter cloth. This eliminates any possibility of solids being forced into and through the cloth or unnecessary wear to the cloth. The filter cloth is removable and replaceable in the field.

5.0 Operation and Maintenance

The following table presents anticipated operation and maintenance costs for the OPTAER system:

				*Electrical Rate:	**0.08**	$/kW-h
		Motor Power		**Monthly**	**Unit**	**Annual**
	Quantity	**bhp**	**kW**	**cost**	**cost**	**Cost**
Aerated Cell Upgrade - Lagoon Blower	**1**					
Normal Operating Conditions	1	32.9	24.5	$1,433	-	$17,200
Filter Change (6 months)	**-**	-	-	-	$80	$160
Oil Change (12 months)	**-**	-	-	-	$70	$70
Belt Replacement (24 months)	**-**	-	-	-	$250	$125
Cell A - Aeration Blowers	**2**					
Normal Operating Conditions	1	38.8	28.9	$1,690	-	$20,285
Filter Change (6 months)	**-**	-	-	-	$80	$160
Oil Change (12 months)	**-**	-	-	-	$70	$70
Belt Replacement (24 months)	**-**	-	-	-	$250	$125
SAGR Blowers	**3**					
Normal Operating Conditions	2	34.0	25.4	$2,963	-	$35,550
Filters (6 months)	**-**	-	-	-	$80	$320
Oil (12 months)	**-**	-	-	-	$70	$140
Belts (24 months)	**-**	-	-	-	$250	$250
Diffuser Membrane Replacement	1344	-	-	-	$30	$8,064
Total Operation & Materials						$82,519
* Electrical rate estimated by Nelson Environmental Inc						

6.0 Budgetary Capital Cost

Budgetary Capital cost for the **OPTAER Wastewater Treatment System** is as follows:

Lagoon Aeration System

- NEI System Process Design (Ontario P. Eng. Stamped)
    - CAD Drawings (Ontario P. Eng. Stamped)
- Aeration lateral piping, feeder piping, diffusers, valves, and fittings as required
- Self-tensioning lateral assemblies
- HDPE shallow buried main header piping
- One (1) diversion flow floating baffle curtain with required connection hardware, cables, and anchors
- Two (2) 40hp positive displacement blower with full sound attenuating enclosure
- One (1) 50hp positive displacement blowers with full sound attenuating enclosures
- Blower control panel
- ***Aeration System installation /start-up /commissioning /training***
- Operation and maintenance manuals
- As-built Drawings

Submerged Attach Growth Reactor (SAGR)

- NEI System Process Design (Ontario P. Eng. Stamped)
    - CAD Drawings (Ontario P. Eng. Stamped)
- Shallow buried HDPE main air supply header piping
- Aeration lateral piping, feeder piping, diffusers, valves, and fittings as required
- SAGR Influent distribution and effluent collection piping
- Three (3) 50 hp positive displacement blowers with full sound attenuating enclosures
- Blower control panel
- ***SAGR Process equipment installation /start-up /commissioning /training***
- Operation and maintenance manuals
- As-built Drawings

opTPhos™ Disk Filter System (TP Removal)

- NEI System Process Design (Ontario P. Eng. Stamped)
    - CAD Drawings (Ontario P. Eng. Stamped)
- Cloth Disk Filter unit with integrated carbon steel tankage suitable for burial
- Integrated rapid and slow mix tanks
- Insulated cover panels
- Rapid mix and Slow mix mechanical mixers
- Stainless Frame and center tube assemblies and drive assemblies
- Cloth media and assemblies
- Backwash system assembly, including vacuum heads and pump
- Sludge removal system

- Control panel
- Chemical dosing system
- ***System start-up /commissioning /training***
- Operation and maintenance manuals
- As-built Drawings

Budgetary cost for the design, supply, and installation of the OPTAER process equipment*:

$3,740,000 CAD, plus applicable taxes, FOB Jobsite

All budgets are subject to final design review.
All budgetary prices include shipping to jobsite but do not include taxes.
Budget prices are valid for 90 days.

*See next page for exclusions:

Items Specifically Not Included:

- Material offloading and on-site storage
- Civil works including SAGR cells design and construction, cell liner, transport piping, inter-cell piping, discharge piping, manholes, valves, access roads to site, site roads and landscaping, etc.
- Trenching and backfill for shallow buried aeration headers
- Materials and construction required for the SAGR:
    - granular material
    - insulating wood chips or mulch
- Building to house blowers
- Filter installation (below ground or above ground in a building)
- All electrical work
- Restoration

7.0 Civil Works Required for OPTAER Implementation

The intent of this proposal is not to provide details regarding civil works required but rather to provide a general overview as to the anticipated scope of work. The following quantities are not included in the Nelson Environmental scope of work, but are provided below for cost estimation purposes.

- Construct new SAGR cells
- Construct inter-cell piping for lagoon/SAGR
- Construct discharge control structure after SAGR
- Materials and construction required specifically for the SAGR (estimated material quantities are shown in the following table):

Item Description	UOM	Quantity
Uniform Graded Clean Rock	m3	**20,320**
Insulating Wood Chips	m3	**2,410**
Non-Woven Geotextile (8oz)	m2	**18,080**
HDPE Liner (60mil)	m2	**10,410**
Wall Framing & Sheathing	m	**780**
Influent Flow Splitter Structure	ea	**2**
Piping, fittings, valves from splitter to SAGR	LS	**1**
Effluent Level Control MH	ea	**4**
Additional Civil Works (As Required)		
Common Excavation - Backfill	m3	**TBD**
New Berm Construction	m3	**TBD**
Piping from Lagoon to Splitter	LS	**TBD**
Piping from SAGR to discharge	LS	**TBD**

Any questions or comments can be directed to:

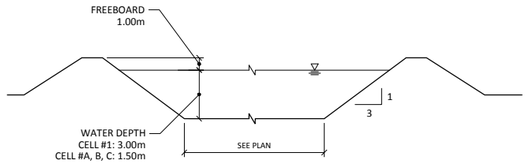
Nelson Environmental Inc.
5 Burks Way
Winnipeg, MB R2J 3R8
Tel: 204-949-7500
info@nelsonenvironmental.com

PLOT SIZE: 610mm x 914mm (24" x 36")

REDUCED SIZE PLOT - DO NOT SCALE

LOCATION PLAN

SCALE: N.T.S.



TYPICAL SECTION - AERATED CELLS

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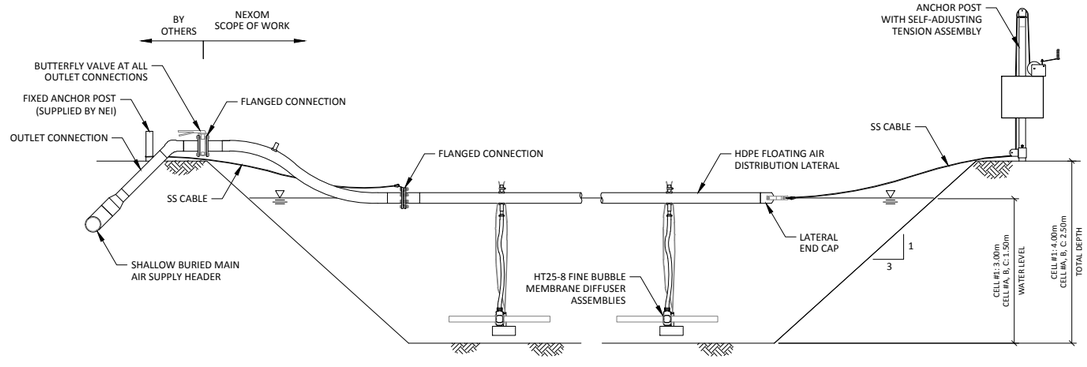

AERATED LAGOON SECTION

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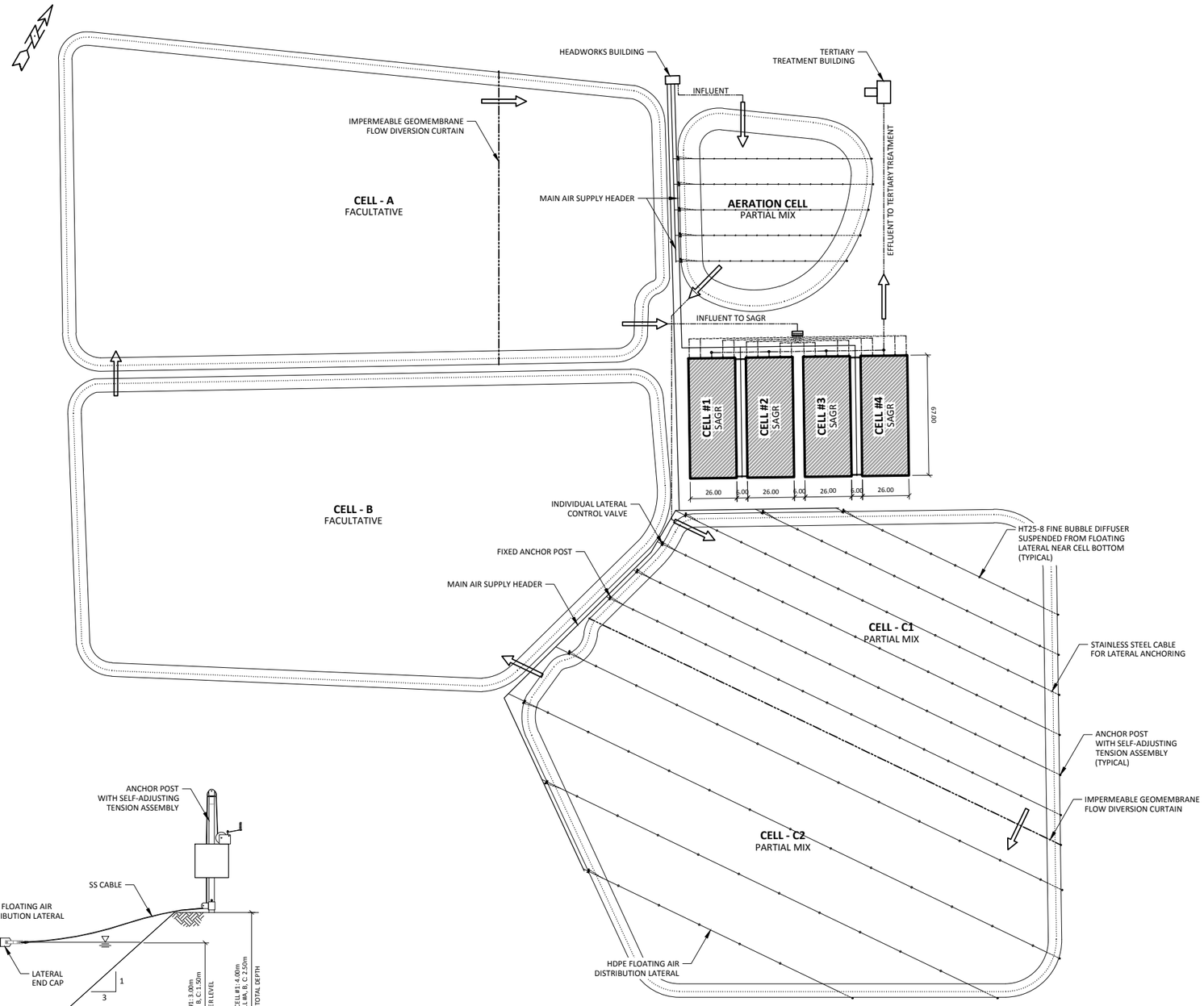

PROPOSED AERATION LAYOUT

SCALE: 1:1250

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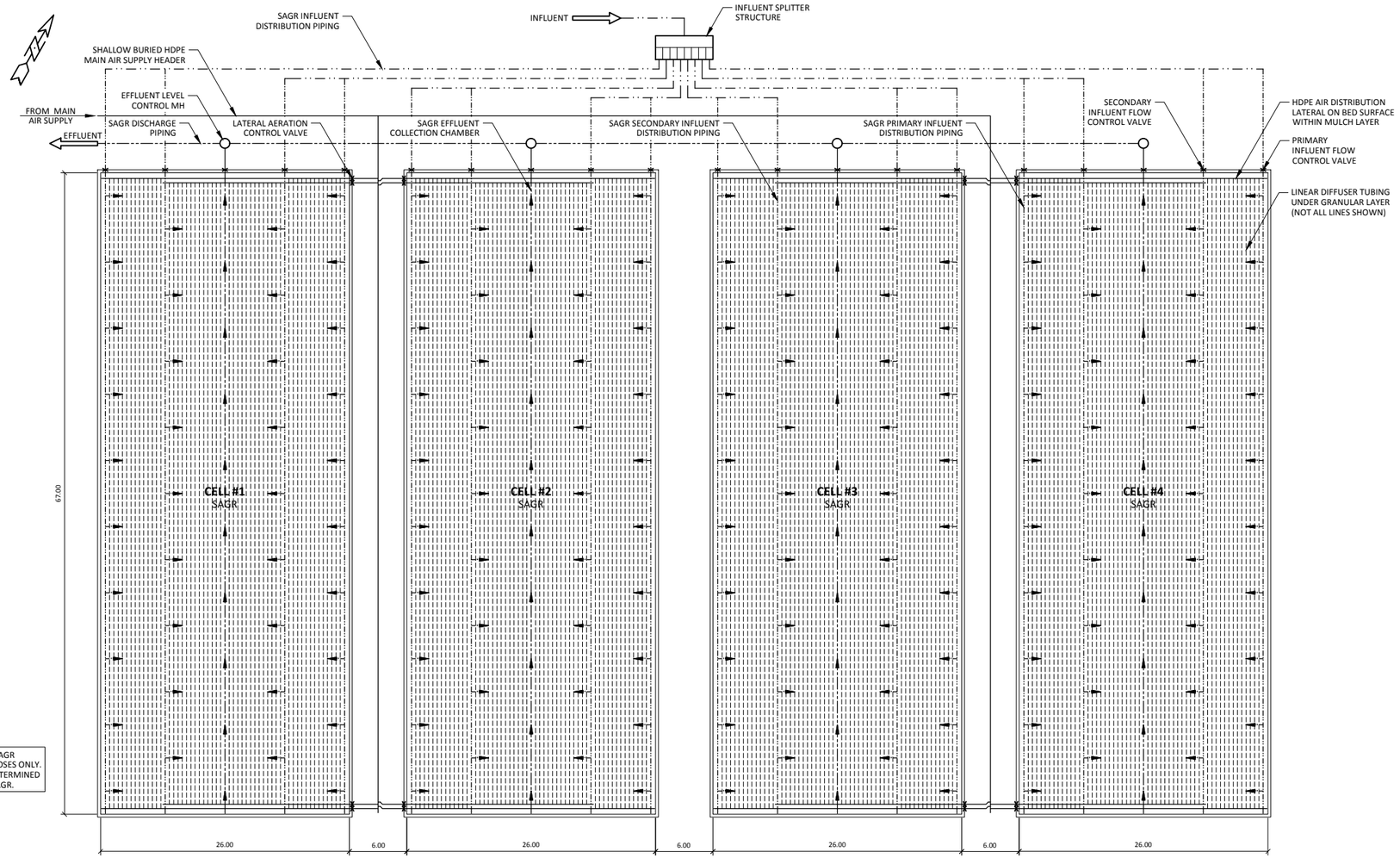
PROJECT:	**ALEXANDRIA, ON** PROPOSED WASTEWATER TREATMENT SYSTEM
TITLE:	OPTAER SYSTEM AERATION LAYOUT, TYPICAL SECTION, LOCATION PLAN
DRAWN BY: AM	APPROVED BY: MH
SCALE: AS NOTED	DRAWING NO. **NE01**
SHT. 1 of 4	REV. 0
DATE: 2017/01/16	FILE # CD669.10

PLOT SIZE: 610mm x 914mm (24" x 36")

REDUCED SIZE PLOT - DO NOT SCALE



INFLUENT/EFFLUENT PIPING TO SAGR SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. EXACT PIPING ROUTING TO BE DETERMINED BASED ON FINAL LOCATION OF SAGR.

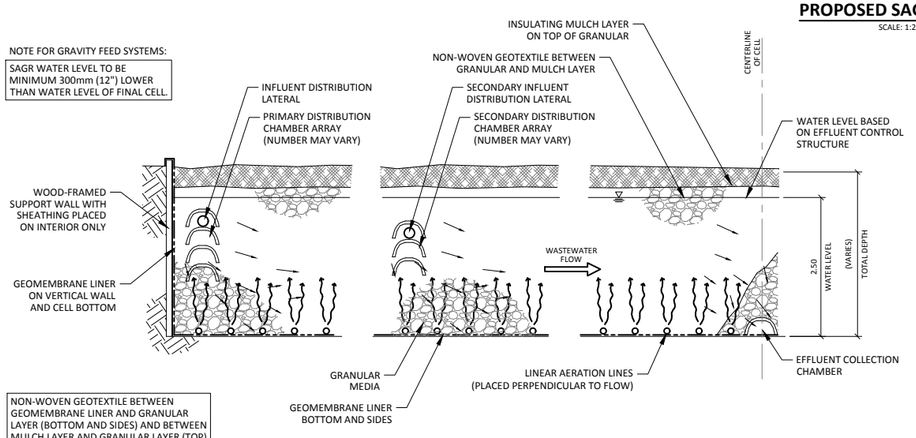
PROPOSED SAGR LAYOUT

SCALE: 1:250

SCALE: IMPERIAL

NOTE FOR GRAVITY FEED SYSTEMS:

SAGR WATER LEVEL TO BE MINIMUM 300mm (12") LOWER THAN WATER LEVEL OF FINAL CELL.



NON-WOVEN GEOTEXTILE BETWEEN GEOMEMBRANE LINER AND GRANULAR LAYER (BOTTOM AND SIDES) AND BETWEEN MULCH LAYER AND GRANULAR LAYER (TOP)

HORIZONTAL FLOW SAGR - SECTION

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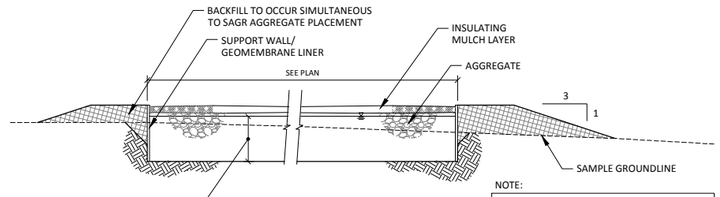

NOTE:

EXCAVATION DEPTH FROM EXISTING GROUND LEVEL SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FINAL EXCAVATION DEPTHS TO BE DETERMINED AFTER SITE SURVEY

TYPICAL SAGR CONSTRUCTION

SCALE: N.T.S.

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PROJECT: **ALEXANDRIA, ON**
PROPOSED WASTEWATER TREATMENT SYSTEM

TITLE: OPTAER SAGR SYSTEM
SAGR LAYOUT, TYPICAL SECTION

DRAWN BY:	APPROVED BY:	SCALE:	DRAWING NO.	SHT.	REV.
AM	MH	AS NOTED	NE02	2 of 4	0
DATE: 2017/01/16	FILE # CD669.10				

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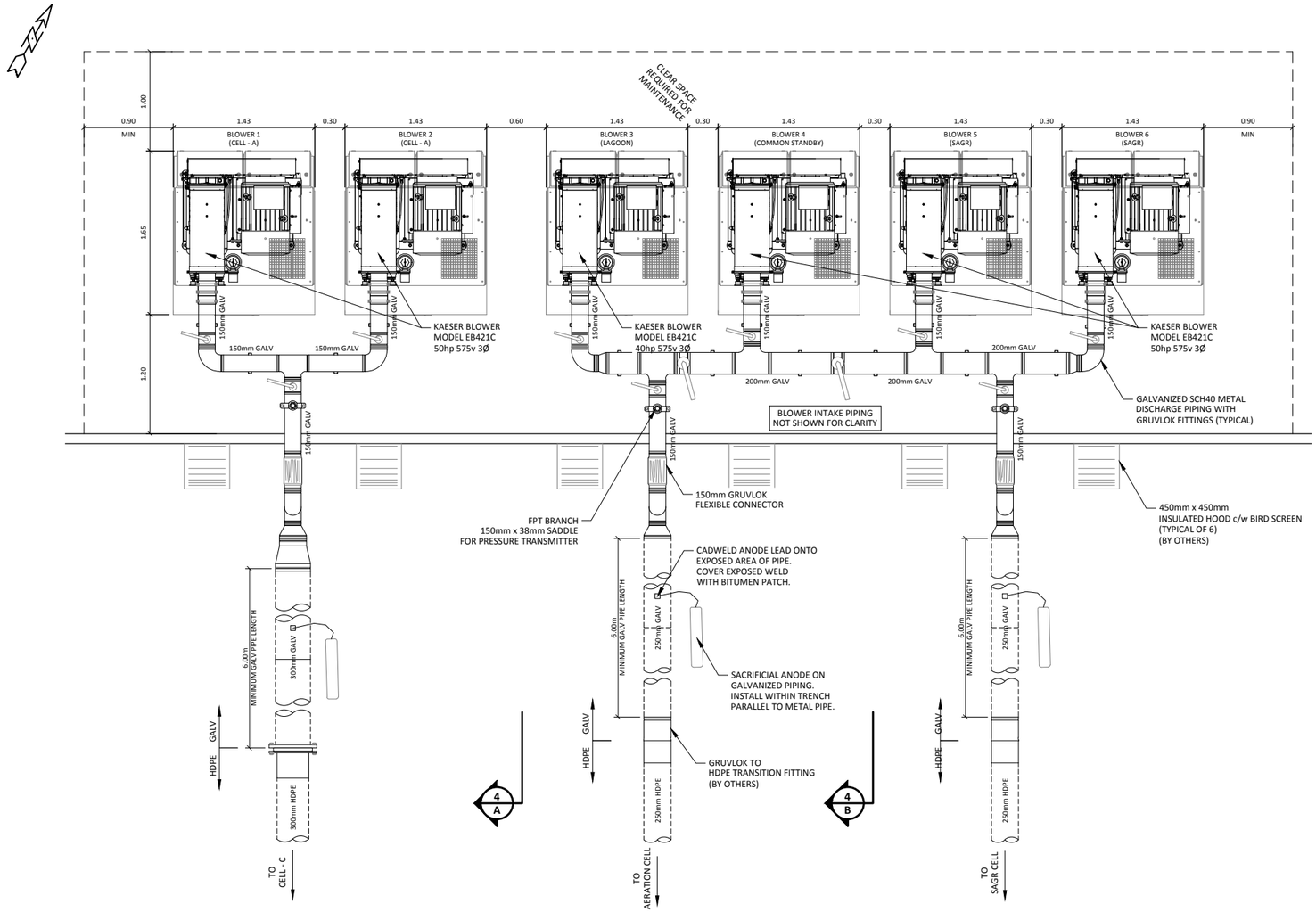

PROPOSED BLOWER LAYOUT - DISCHARGE PIPING

SCALE: 1:25

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PROJECT:	ALEXANDRIA, ON PROPOSED WASTEWATER TREATMENT SYSTEM
TITLE:	OPTAER SAGR SYSTEM BLOWER LAYOUT
DRAWN BY: AM	APPROVED BY: MH
SCALE: AS NOTED	DRAWING NO. NE03
SHT. 3 of 4	REV. 0
DATE: 2017/01/16	FILE # CD669.10

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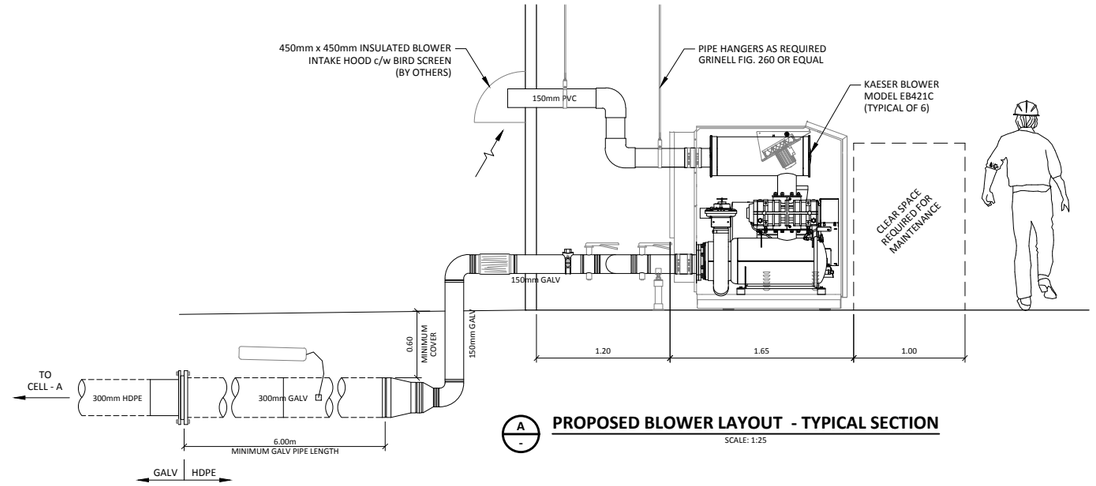

A
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PROPOSED BLOWER LAYOUT - TYPICAL SECTION

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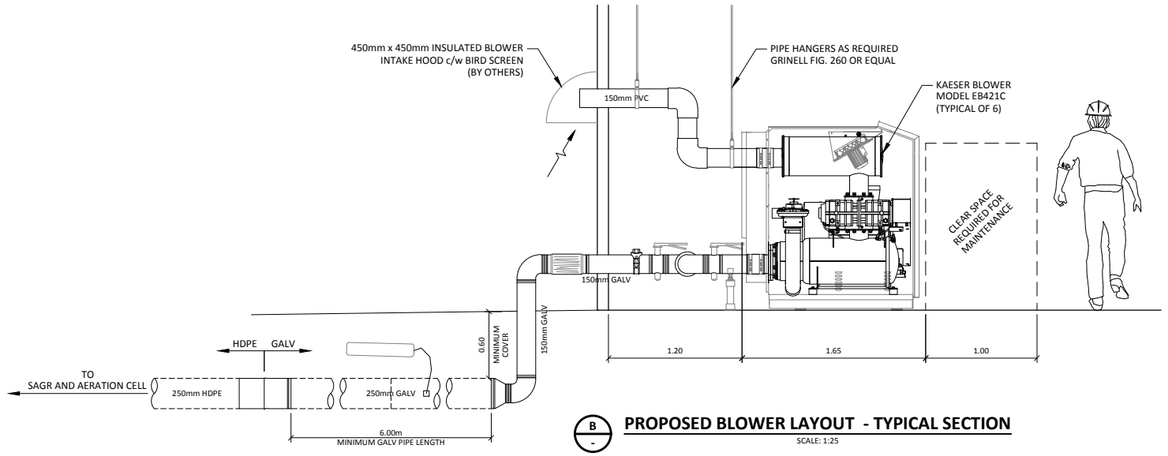

B
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PROPOSED BLOWER LAYOUT - TYPICAL SECTION

SCALE: 1:25

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PROJECT:	ALEXANDRIA, ON PROPOSED WASTEWATER TREATMENT SYSTEM
TITLE:	OPTAER SAGR SYSTEM BLOWER LAYOUT - TYPICAL SECTION
DRAWN BY: AM	APPROVED BY: MH
SCALE: AS NOTED	
DRAWING NO. NE04	
SHT. 4 of 4	REV. 0
DATE: 2017/01/16	FILE # CD669.10

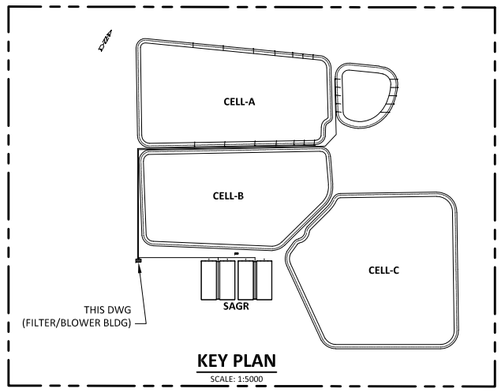
APPENDIX J
CLOTH FILTERS

PLOT SIZE: 610mm x 914mm (24" x 36")

REDUCED SIZE PLOT - DO NOT SCALE

NOTES:

1. ALL DIMENSIONS AND ELEVATIONS ARE IN METRES UNLESS NOTED OTHERWISE.



KEY PLAN
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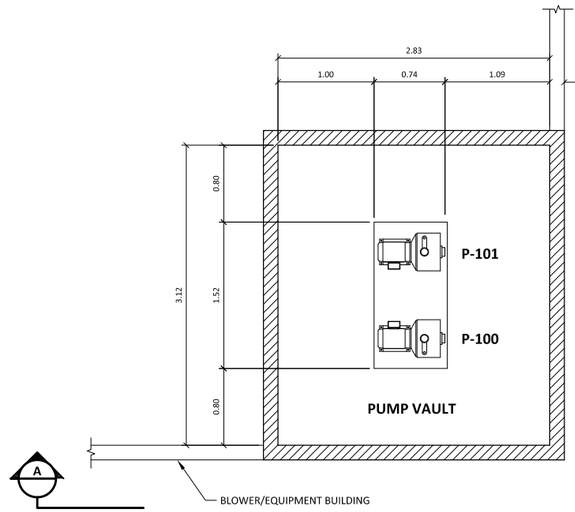
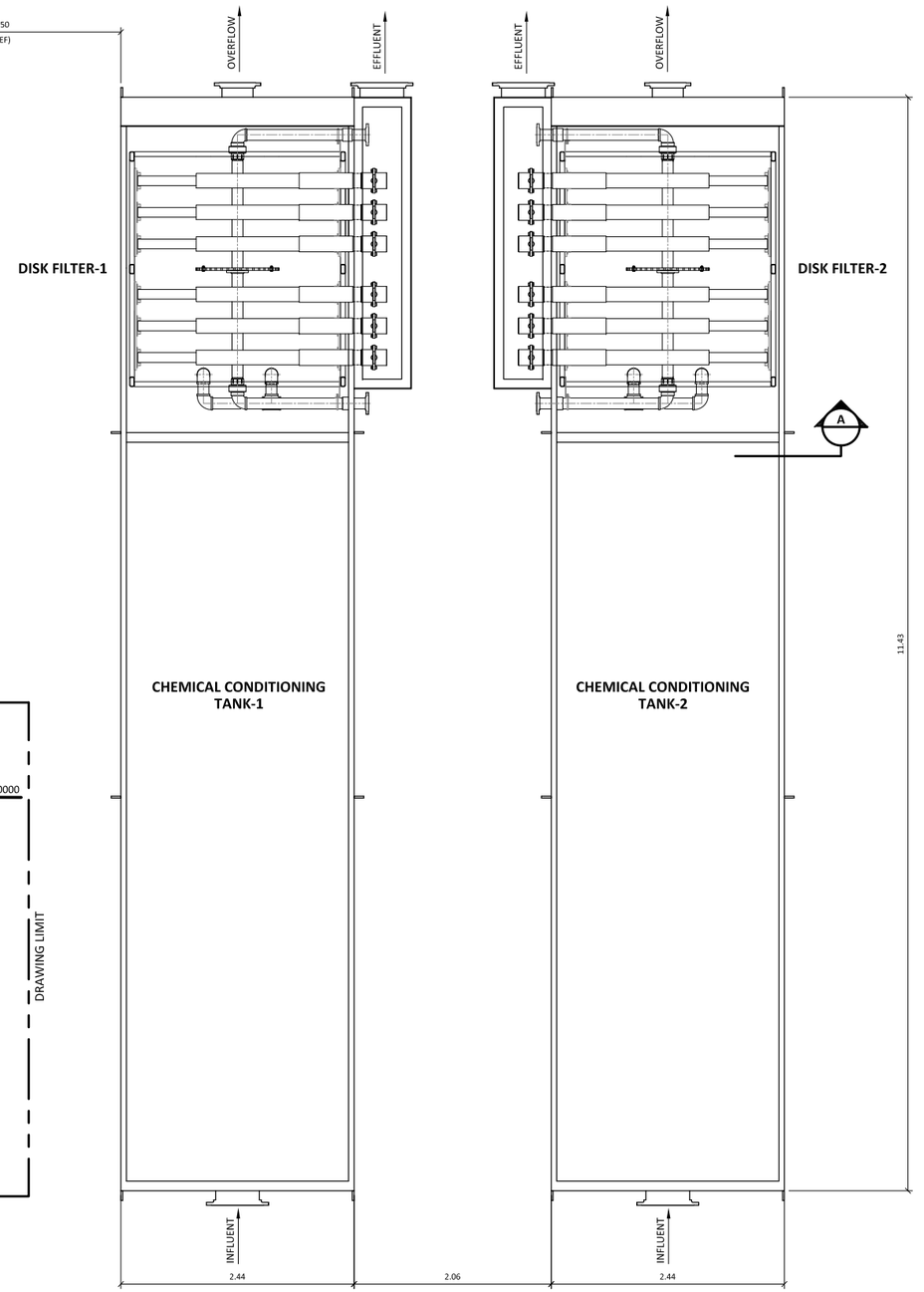
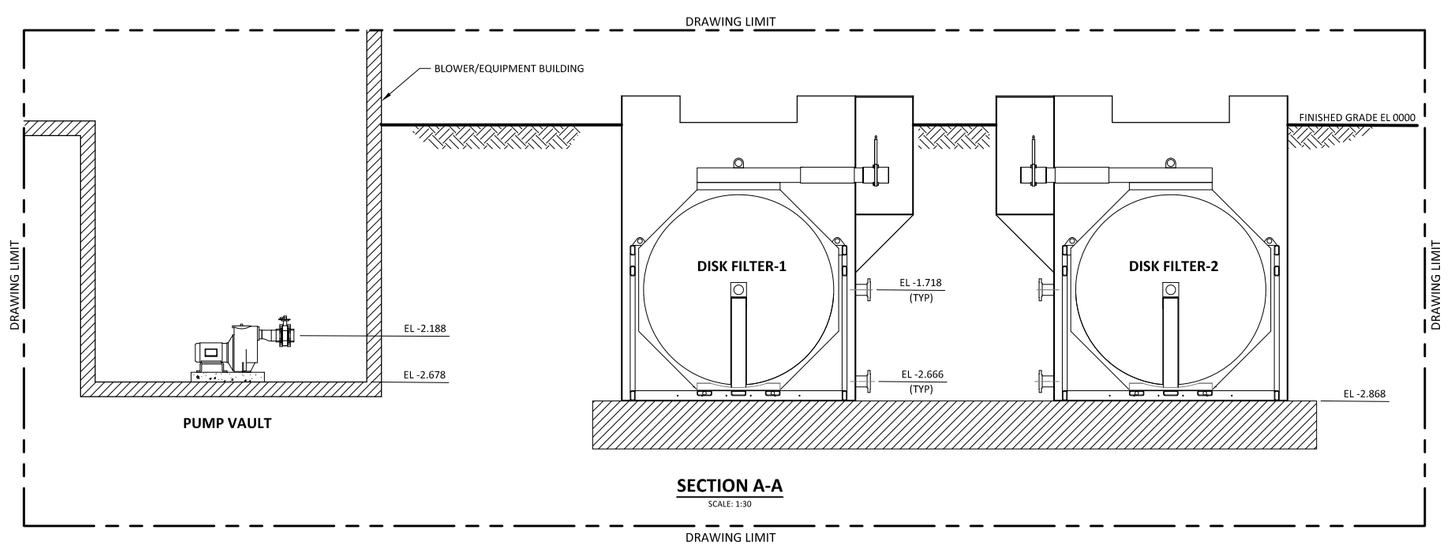




PLAN VIEW
SCALE: 1:30



SECTION A-A
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REV. #	DESC.	BY:	DATE:
0	FOR REVIEW	LE	2016/05/04

NELSON ENVIRONMENTAL INC.

5 BURKS WAY
WINNIPEG, MANITOBA
CANADA R2J 3R8

Ph: (204) 949-7500
Fax: (204) 237-0660
www.nelsonenvironmental.com

PROJECT: **ALEXANDRIA, ON**
PROPOSED WASTEWATER TREATMENT SYSTEM

TITLE: PROPOSED DISK FILTER (2) 6-60 LAYOUT
GENERAL ARRANGEMENT

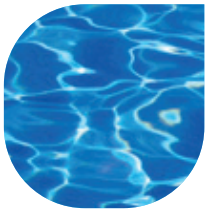
DRAWN BY:	APPROVED BY:	SCALE:	DRAWING NO.	SHT.	REV.
GVD	LE	1:30	NE05	5 of 5	0

DATE: 2016/05/04 FILE # CD669.09

APPENDIX K

DEEP-BED UP-FLOW CONTINUOUS BACKWASH FILTERS

Parkson™
Treating Water Right



DynaSand® EcoWash®

- Reduces reject (backwash)
- Reduces operation and maintenance costs
- Improves energy efficiency
- Improves filtrate quality

A Breakthrough in Filtration

Why this product has been developed

Throughout the past three decades, the DynaSand® continuous backwashing filter has been successfully applied to thousands of installations, providing optimum performance and filtrate quality while offering minimal operator attention and maintenance requirements. A perception in the industry is that continuous filters like the DynaSand® filter produce more total reject (backwash) than intermittent backwashing filters. Customers desire better quality to meet legislative and effluent requirements while minimizing total reject. The cost of reprocessing excess reject is a major concern as well. This product has been developed to:

- Reduce reject/ backwash rate
- Reduce operation and maintenance costs
- Improve energy efficiency
- Improve filtrate quality

How the EcoWash® works

The DynaSand® EcoWash® filter allows continuous operation while utilizing timed or programmable sand circulation and washing to reduce the volume of backwash water being produced. One factor that has made such an operation difficult in the past has been that continuous filters can suffer from a decrease in filtrate quality whenever the washing operation is restarted. The DynaSand® EcoWash® filter overcomes this phenomenon so that filtrate quality is stable and remains within guidelines, and on average EcoWash® produces better quality filtrate than the traditional continuous backwash method.

The DynaSand® EcoWash® filter uses a reliable sand movement detection that is tied to an alarm and monitored in the control room. Through modifications to the airlift design and operation, consistent sand movement is assured. When the system is not backwashing, the reject line is automatically closed, dramatically reducing reject water.

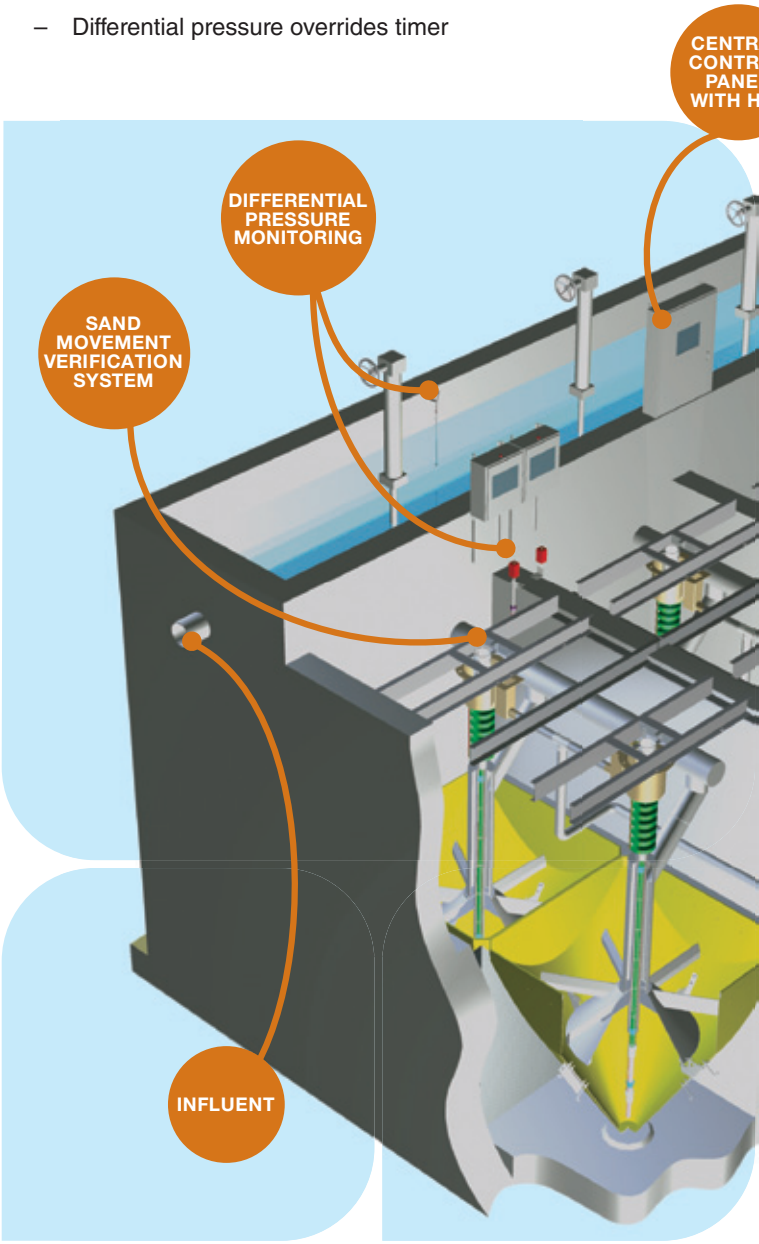
Backwashing is controlled by one of the two modes chosen by the operator. The frequency and length of time for the backwashing operation can be adjusted based on individual plant's influent conditions.

Differential Pressure Controlled Mode

- Inlet/outlet levels measured
- Airlift/reject starts at programmed point
- Operates until differential is reduced to either minimum point or for a set period of time
- Timer override to assure periodic sand washing

Timer Controlled Mode

- Operator programs timer
- Timer initiates sand washing
- Differential pressure overrides timer



Benefits

- Reduces reject water production by 60%-90%
- Savings from reduction in cost of reprocessing reject
- Reduces energy requirement by 60%-90%
- Increases airlift life
- Reduces maintenance on air compressor system
- Reduces pretreatment chemical usage
- Minimal maintenance and operator attention

Features

Sand Movement Verification System

- Programmed dual airburst and normal operation
- No sand movement alarm
- Remote monitoring ability

Reject Water Reduction Process Control

- Automatic reject control valve
- Programmed differential pressure control
- Programmed time control

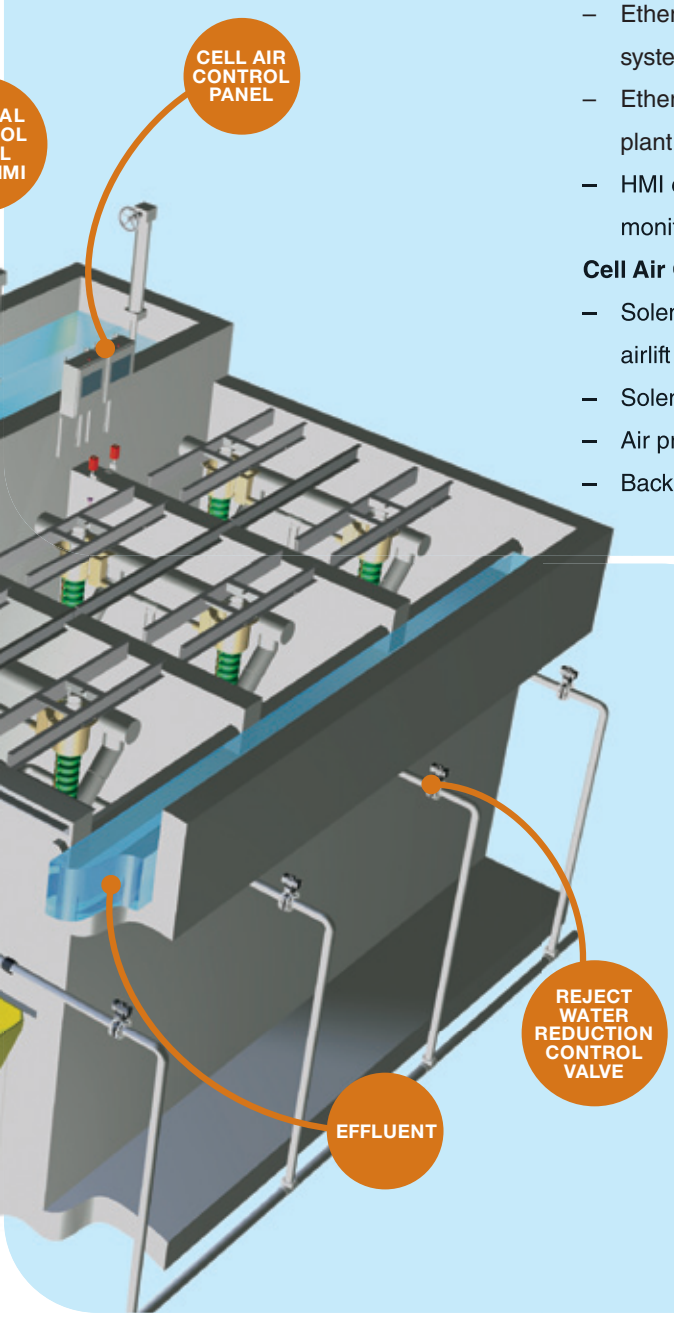
Central Control Panel

- PLC based electrical control panel equipped with a touch screen HMI
- Ethernet communication with plant SCADA system
- Ethernet TCP/IP to communicate with other plant PLCs over the network
- HMI equipped with data logger and remote monitoring capability

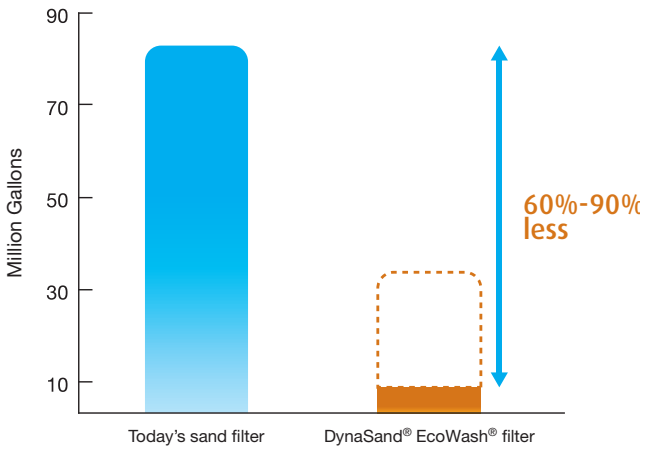
Cell Air Control Panel

- Solenoids to control dual airburst, and normal airlift operation
- Solenoid to control reject valve
- Air pressure regulator and pressure gauge
- Back pressure gauge and airflow meter

Sand Movement Verification System



Annual reject water production



16 filters (50 SqFt), 5.76 MGD facility, typical reject 10 gpm/filter

What does this mean to the end-user?

Most important to plant operations, The DynaSand® EcoWash® filter provides superior performance

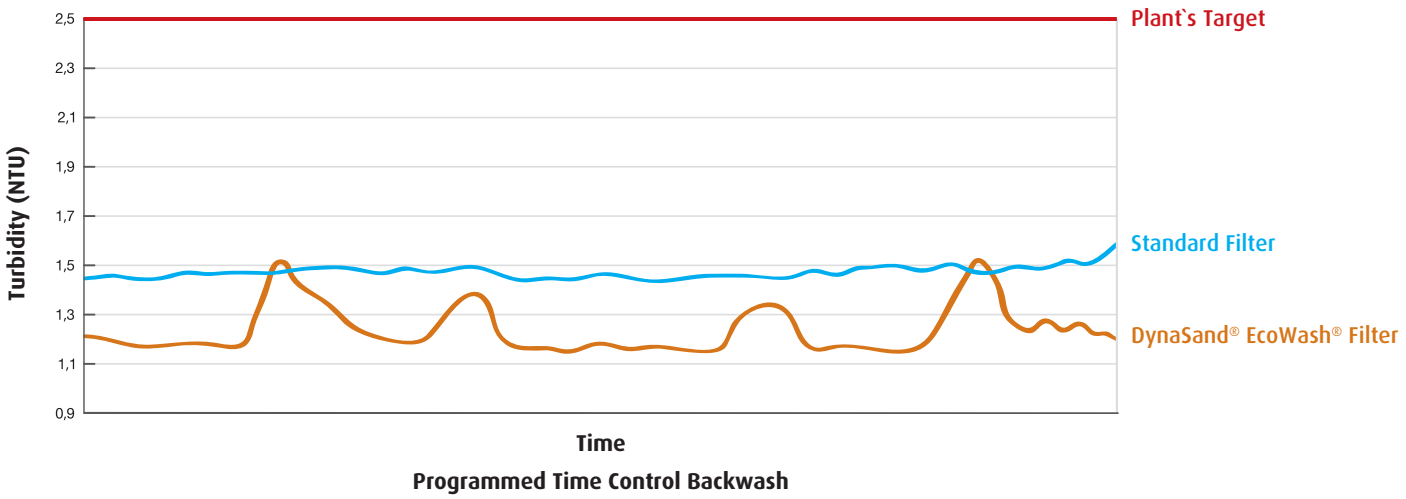
- Reduces operator and maintenance personnel attention
- No need to check sand movement during each shift
- The filter signals when a check is required
- Reduces the amount of reject (backwash) generated by 60-90%
- Significantly reduces capacity loss and the costs associated with reprocessing backwash water
- Energy requirement is 60-90% less than any continuous backwashing sand filter

City of Pompano Beach OASIS Reuse Water Utilities DynaSand® EcoWash® filter Full Scale Testing – Operating Parameters

	DynaSand® EcoWash® Filter Test Cell	Plant Filter's Standard Operation Cell
Flow Rate	3.5 gpm/SqFt	3.5 gpm/SqFt
Air Flow/Pressure	80 SCFH @ 8 psi	80 SCFH @ 8 psi
Typical Turbidity	1.29 NTU	1.50 NTU
Average Reject Flow	**1.8 gpm**/50 SqFt filter	**18.0 gpm**/50 SqFt filter
Annual Power Consumption	23,400 kWh*	234,000 kWh*
Annual Power Consumption Cost	$1,750**	$17,500**

*Based on plant's 75 HP Air Compressor
**Average Florida Industry Cost - $.075 per kWh

DynaSand® EcoWash® Filter Full Scale Testing Results



Parkson™ Treating Water Right

50 YEARS 2010

Fort Lauderdale
Chicago
Montreal
Mumbai

1.888.PARKSON
technology@parkson.com
www.parkson.com

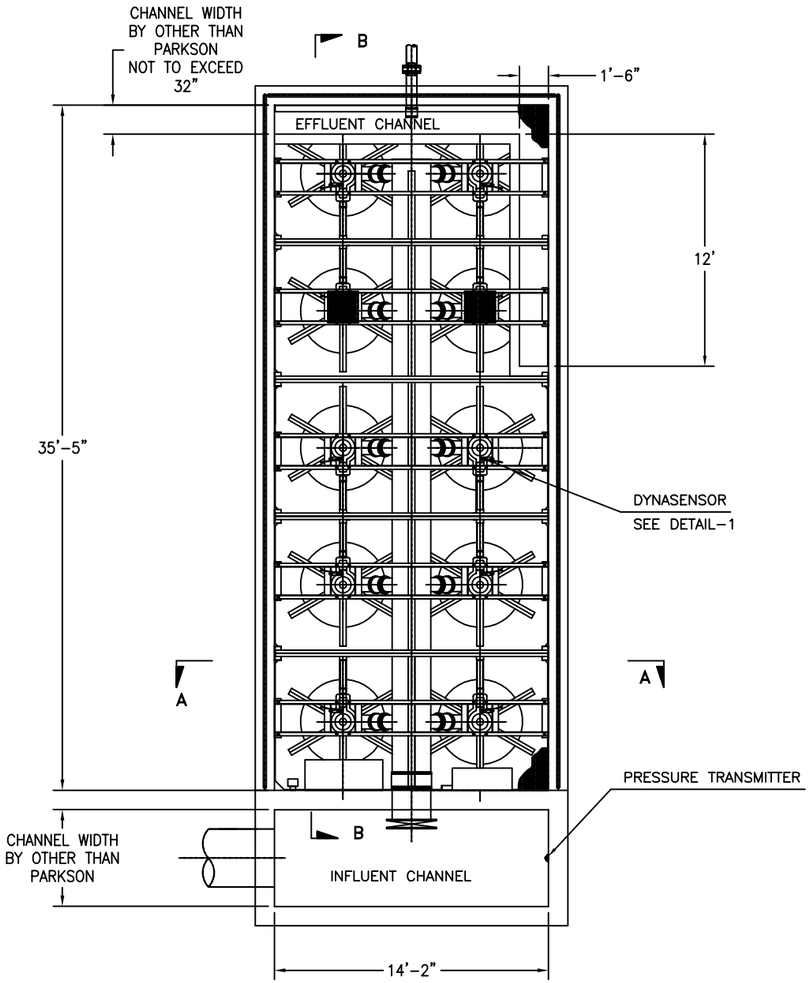
FILT-ECOW_032513

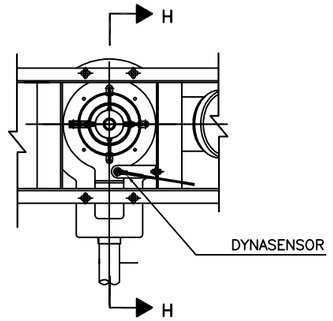
NOTES:

1. PRELIMINARY INFORMATION, NOT FOR CONSTRUCTION.
2. BOTTOM CONES MADE FROM FRP.
3. PLENUM AREA FILLED WITH CONCRETE.
4. VERIFY WALL THICKNESS.
5. ALL TOLERANCES ± 3/8 IN. UNLESS OTHERWISE NOTED.
6. ALL WALLS SHALL BE SMOOTH.
7. 8.125 Cu. Yd. OF CONCRETE FILL IS REQUIRED UNDER EACH CONE

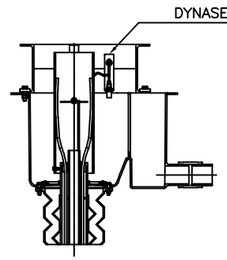
CONTROL PANEL NOTES:

1. ELECTRICAL REQUIREMENTS 120 VAC ,1PH ,60Hz
2. PNEUMATIC REQUIREMENTS:
   2.6 SCFM PER MODULE @ 35 PSIG





DETAIL No.1



SECTION H–H

REV	DESCRIPTION	DATE	BY

__PRELIMINARY __APPROVAL

X INFORMATION __CERTIFIED

THIS DRAWING IS LIMITED TO FUNCTIONAL DESIGN, GENERAL ARRANGEMENT AND CLEARANCE. NO RESPONSIBILITY IS ACCEPTED BY PARKSON CORPORATION FOR OTHER DIMENSIONS, QUANTITIES, OR COORDINATION WITH OTHER EQUIPMENT OR DRAWINGS EXCEPT AS STATED IN PURCHASE ORDER.

DRAWN BY	DATE
CHECKED BY	DATE
SCALE 1/8"=1'-0"	SIZE B

Parkson™

PROJECT NAME

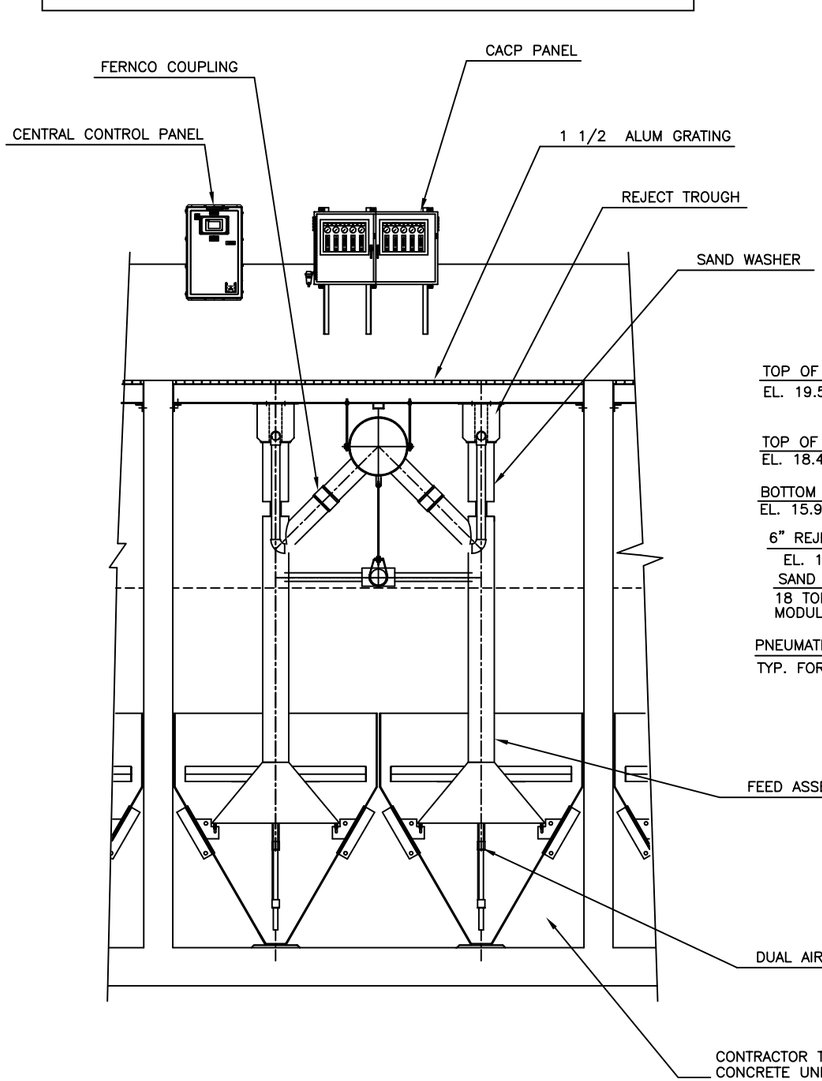
REFERENCE INFORMATION

TITLE
DYNASAND(R) CONTINOUS BACKWASH SAND FILTER
GENERAL ARRANGEMENT – ECOWASH
TEN (10) MODULES PER CELL

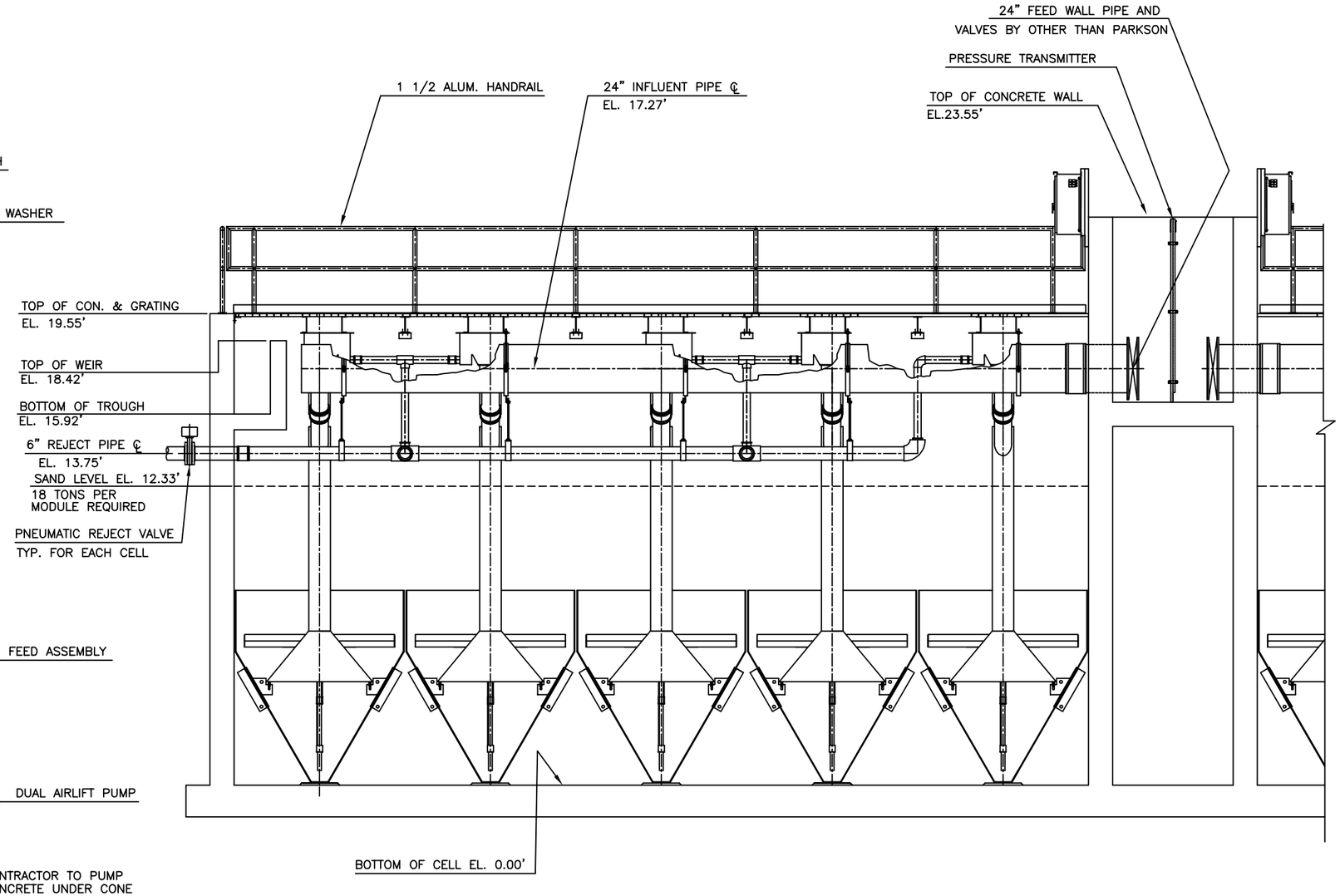
DRAWING NO
SALES
SHEET 1 OF 2

REV

LOADING CONDITIONS ON CONCRETE FLOOR PER CELL	
360.0	KIPS OF DRY SAND
15.0	KIPS OF FILTER INTERNALS
282.0	KIPS OF WATER
330.0	KIPS OF CONCRETE FILL
TOTAL:	987 KIPS OR 1974 #/SQ.FT.



SECTION A–A



SECTION B–B

REV	DESCRIPTION	DATE	BY

__PRELIMINARY __APPROVAL

X INFORMATION __CERTIFIED

THIS DRAWING IS LIMITED TO FUNCTIONAL DESIGN, GENERAL ARRANGEMENT AND CLEARANCE. NO RESPONSIBILITY IS ACCEPTED BY PARKSON CORPORATION FOR OTHER DIMENSIONS, QUANTITIES, OR COORDINATION WITH OTHER EQUIPMENT OR DRAWINGS EXCEPT AS STATED IN PURCHASE ORDER.

DRAWN BY	DATE
CHECKED BY	DATE
SCALE: 3/16"=1'-0"	SIZE: B

Parkson™

PROJECT NAME

REFERENCE INFORMATION

TITLE: DYNASAND(R) CONTINOUS BACKWASH SAND FILTER
DEEP BED ELEVATIONS – ECOWASH
TEN (10) MODULES PER CELL

DRAWING NO: SALES
SHEET 2 OF 2

REV

APPENDIX L

PHOSPHORUS ADSORPTION MEDIA SYSTEM

Blue Water Technologies, Inc.
10450 N. Airport Drive
Hayden, ID 83835-9742
www.bluewater-technologies.com

May 9, 2016

Lars Sterne
Amec Foster Wheeler Env. & Infrastructure
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Cambridge, ON N3H 4R7, Canada
Lars.sterne@ameccfw.com
(519) 650-7118

Dale Sanchez
dale@vectorprocess.com
(905) 979-8660

Subject: **160019-C1-2 ALEXANDRIA, ON PROPOSAL**
Budget Proposal

Dear Mr. Sterne:

Please find attached Blue Water's technical and economic proposal for your project. Blue Water provides a dynamic team approach with the resources and expertise required to address and satisfy all aspects of this project. Blue Water's scope of supply for this project encompasses: Design, Equipment, Commissioning, Startup and Warranty.

The proposed system will consist of a Blue PRO® sand filter system having design parameters per Section 1.1. This system is designed by Blue Water to effectively remove TSS and Phosphorous from clarified wastewater to levels that meet or exceed the required limits.

Notes: The peak design flow noted in the proposal indicates the highest flow the system will be able to handle. If a higher peak flow is expected, additional filters will be required. The proposed design is for the filter assemblies to be housed in concrete cells.

This proposal also includes Blue Water's patent pending automatic valve assembly, the RCS and SAM systems to help control the system and provide self-adjustments to the system. This is an optional component.

Thank you for your consideration on this project. Please contact me at your convenience if you have any questions or need additional information.

Sincerely,

Robin Schroeder
Business Development Manager
Cell: (225)620-2376
rschroeder@bluewater-technologies.com

Corporate
PH: (888) 710-2583
FAX: (208) 209-0396
Service #: (208)512-3477

Contents

1 BASIS OF DESIGN

1.1 Water Quality

Parameter	Influent[1]	Effluent[1]	Units
Average Daily Flow (ADF)	6,857	6,498	m^3/day
Peak Hour Flow (PHF)/Design Flow	20,220	19,500	m^3/day
Minimum Ambient Temperature	8		°C
Water Temperature	13 to 33		°C
pH	7.0 to 8		
Alkalinity	60 to 120		mg/L
Total Suspended Solids (TSS)[2]	< 20	< 10	mg/L
TP-P (mg/L)	< 2.0	< 0.10	mg/L
NRP (mg/L)	< 0.02	< 0.02	mg/L

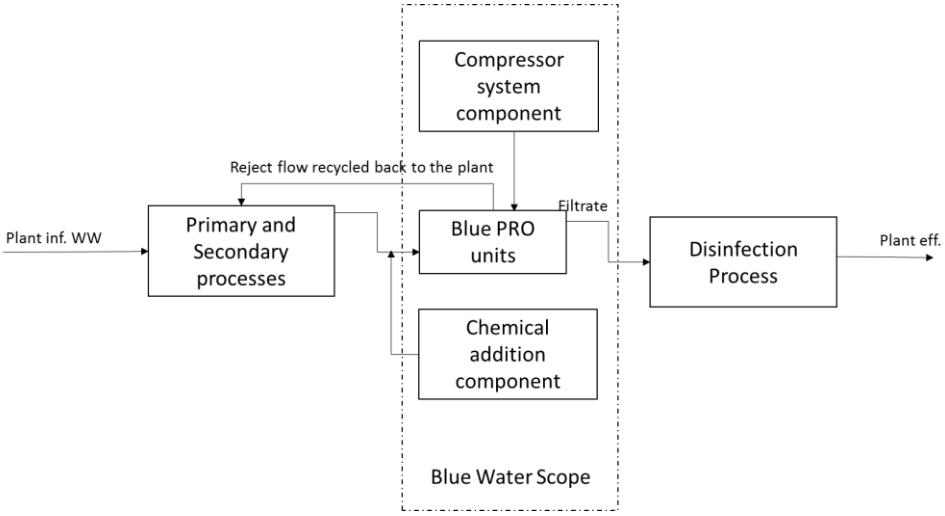
1. Monthly arithmetic average. Project performance will be assessed within design conditions.
2. Ferric consumes 3 mg alkalinity per mg of Fe added (approximately). The alkalinity envelope described in this table is required for performance guarantee.

2 PROCESS DESCRIPTION

2.1 Process Narrative

System will consist of three (3) cells each containing four (4) continuous backwash Centra flo® filters equipped with the Blue PRO® phosphorus removal system. The filters will be in housed in concrete cells. Only one pass will be required to meet the effluent requirements.

2.2 Process Diagram



Blue Water Technologies, Inc.
10450 N. Airport Drive
Hayden, ID 83835-9742
www.bluewater-technologies.com

3 EQUIPMENT DESCRIPTION AND NARRATIVE

3.1 Electrical Control Panel and PLC

3.1.1 Standard Blue Water control panel includes a Koyo touchscreen HMI with an Allen Bradley MicroLogix PLC for control of all system subunits and ancillary components.

3.1.2 KOYO HMI has an 8-inch touchscreen. Touchscreen is rated NEMA Type 4X for indoor use.

3.1.3 System control panel is powder coated steel meeting a NEMA Type 4 classification.

3.1.4 Power is 3Ø/240-575V/60Hz for the compressor and 1Ø/120V/60Hz for air panel, control panel, dryer and chemical dosing systems.

3.2 Centra-flo® Filters with the Blue PRO® Process

Model:	**CF64-80BG**	**Below Ground**	
Central Assembly:	FRP		
Number of Units:	3 Cells, 12 total filters		
Total Available Filter Area:	768 ft^2		
Media Depth:	60 in		
Loading Rate at ADF:	2.5 gpm/ft^2	(2 Cell Online,	1 in Standby)
Loading Rate at PHF:	4.8 gpm/ft^2	(3 Cell Online,	0 in Standby)
Reject/backwash per Online Cell:	44 gpm		

Design Notes:

- 1.2 m of hydraulic head is required for each treatment stage
- 1.5 m of head space above the units are required for removal and maintenance of the air lifts.
- A roof hatch may be necessary if filters are installed in a building for installation of filter media and for airlift maintenance. Winter protection is necessary in locations where freezing weather is possible such as a pole barn or other structure.

3.3 Optional: RCS™ Energy Minimization with SAM™ Media Monitoring

Sand Activity Monitoring sensors with required System Control Panel subcomponents

Design Notes:

- This patent-pending sand monitoring system utilizes an ultrasonic sensor to measure both the water height in each module washbox and the wave pattern generated by the airlift pumping sand. Sensor assemblies will mount to filter module washboxes.
- If either of the control conditions are outside of normal operating parameters, an algorithm to auto-correct will be sequenced. If the system cannot correct itself a system alarm is generated to notify the operator that the airlift is not functioning properly.
- Communication will be facilitated through the PLC in Blue Water's system control panel.

3.4 Filter Air Control Panels

3	NEMA Type 4 powder-coated steel air control panel(s) equipped with a manual shutoff valve, electric solenoid valves, and internal heaters. Each panel shall include: • 1 air regulator with pressure indication • 1 air filter, • 1 rotameter and pressure gauge per airlift • Other components necessary for operation of the filter's airlift

Design Notes:

- A signal from the System Control Panel will be received to operate the system.

3.5 Compressed Air System

2	Air compressors shall be single stage, oil flooded rotary screw type, air-cooled compressor utilizing an integrated variable speed drive control. • Discharge pressure of 110 PSIG. • 3Ø/240-575V/60Hz • Full Volt Starter, TEFC Motor
1	Air Receiver: 200 psig MAWP; includes enamel painted exterior, pressure relief valve kit, pressure gauge, electric auto drain.
1	Air particulate and coalescing filtration with internal auto drain.
1	Regenerative Tower Dryer (Desiccant).

3.6 Chemical Systems

3.6.1 Ferric Chemical Pump System Mounted on a Back-Panel Including the Following:

2	Blue-White Peristaltic Metering Pumps (1 duty pump plus 1 online spare) • Internal VFDs for pump control
1	Calibration column
1	Terminal box
1	Y Strainer
2	Pressure Relief Valve ½"
2	Pressure Gauge with Chemical Seal

4 SAFETY

Blue Water Technologies, Inc. promotes and maintains safe practices for equipment design and operation. All mechanical equipment and rotational features will be supplied with appropriate guards. Standard access covers feature safety interlocks. LOTO procedures shall be observed according to the more stringent of Blue Water's O&M manual or the Owners established Safety Policies. Blue Water's Commissioning and Training will include an overview of safe operational procedures in accordance with the O&M manual.

5 SCOPE OF SUPPLY

5.1 Blue Water Equipment Scope of Supply

5.1.1 Centra-flo® system configured for the Blue PRO® process.

Quantity	Description		
12	CF64-80BG first stage assemblies		
12	BG FRP Cone	1st Stage Cones	
12	FRP	1st Stage Wash Boxes	
3	FRP Weir		
1	Al Planking	BG Covers	
3	***Sets Filter Field Components***		Filter Cell Plumbing
		12	Filter Mounting Brackets
		12	Internal Brackets
		12	Washbox Brackets
		3	Cell Pipe Brackets
		3	Reject Pipe Brackets
12	Airlifts: HDPE, or Equivalent		
12	Washbox and Tortuous Path Kits		
206	Tons of Media		
1	Chemical System with 1 Duty Ferric Pump and 1 Online Spare. Back Panel Mounted		
1	UL 508A system control panel, NEMA Type 4 Powder-coated steel enclosure, Allen Bradley PLC, UPS for PLC, communication, and status indicators.		
1	Pneumatic System with 2 Rotary Screw Compressors, 1 Particulate Filter, 1 Desiccant Air Dryer, 1 Receiver.		
3	NEMA Type 4 Powder Coated Steel Air Control Panels		
3	Automatic Cell Isolation Butterfly Valves, 12-inch		
1	**RCS Monitoring and Control System.**		

Note: Optional Items are in **Bold** and priced separately

5.2 Documentation

5.2.1 Blue Water will supply one (1) electronic copy of the project submittal in English for review after receipt of a purchase order.

5.2.2 Blue Water will supply one (1) electronic copy of the Operations and Maintenance Manual with one (1) hard copy delivered with the equipment. All copies in English.

5.3 Commissioning and Startup

Services comprise up to a total of four (4) trips for commissioning, start-up, and training, including up to a total of fifteen (15) eight-hour days.

Additional time, if requested by the Owner, shall be invoiced at prevailing rates. Expenses associated with any additional field engineering will be invoiced at actual cost plus 10%.

5.4 Equipment Warranty

Equipment will be warranted against manufacturer's defects in accordance with Blue Water's standard warranty for twelve (12) months from start-up or eighteen (18) months from date of shipment, whichever comes first, when operated at stated conditions and according to the instructions in Blue Water's operations and maintenance manual.

5.5 Process Warranty

5.5.1 A process warranty can be provided after a bench test is completed by Blue Water to define the non-reactive phosphorus component.

6 SCOPE OF SUPPLY BY OTHERS

6.1.1 Preparation of structural engineering drawings for all concrete work. Concrete material and its placement.

6.1.2 Site preparation, unloading, placement and installation of equipment. Installation of all Blue Water supplied equipment.

6.1.3 Supply and installation of required plumbing to include drain, influent, effluent, reject piping, all associated valves, required pipe support, and appurtenances to and from the connection point on Blue Water supplied equipment.

6.1.4 Anchor bolts supplied by Contractor.

6.1.5 Buildings (if required) and building utilities and HVAC.

6.1.6 Supply and connection of electrical service to Blue Water supplied control panel. Supply, installation, and connection of interconnecting circuits between Blue Water supplied panels and auxiliary panels and/or instrumentation and/or motorized devices.

6.1.7 Supply and installation of interconnecting vent, drain, and airlines and their associated valves and appurtenances.

6.1.8 Reject disposal, handling and/or processing.

6.1.9 Ancillary tanks unless specified (chemical feed tanks, flow equalization tanks, etc.).

6.1.10 Weather protection including the supply and installation of insulation, heat tracing of any piping or tubing, etc. (if required).

6.1.11 Chemicals required for operation.

6.1.12 Filter influent flow signal (4-20 mA) to filter control panel.

7 PRICING AND COMMERCIAL DELIVERY

7.1 Blue Water Pricing

Equipment and Service Described in Section 5	**$808,172.68**
Optional Equipment: RCS control system	**$12,929.22**

7.2 Notes and Considerations

7.2.1 All pricing is in CAD.

7.2.2 Equipment is **F.O.B. Factory.**

7.2.3 The price does not include any import, sales, use, excise or similar taxes, fees, permits, etc.

7.3 Delivery

Submittal from accepted purchase order	4 to 6 weeks
Equipment from approved submittal and notice to proceed	14 to 18 weeks
Total:	18 to 24 weeks

7.4 Proposed Payment Terms

30% with order

35% (net 30 days) with approval of drawings and submittals

30% (net 30 days) with delivery of the equipment to the jobsite

5% with startup

7.5 Validity

This proposal is valid for a period of Sixty (60) days unless extended in writing by Blue Water.

8 LIFECYCLE COST ANALYSIS

8.1 Chemical Sludge Considerations

The Blue PRO® improvements should be accompanied with a whole-plant approach to chemical usage and design. The Blue PRO® system should be viewed as the primary phosphorus removal mechanism for the plant, and it enables an internal ferric recycle for maximum phosphorus uptake efficiency. All filter backwash water should be returned upstream to the front of the primary or secondary systems. Blue Water has several installations that represent good examples of the benefits of this configuration.

Sludge generated in the whole plant with the added Blue PRO® system is expected to remain nearly the same as currently observed. Returning the ferric-rich backwash will enable higher chemical conversion efficiencies and lowered chemical cost to the plant. Sludge accumulation rates in existing Blue PRO® installations have not increased following implementation of Blue PRO® systems. As a good example, Blue Water points to a regional Blue PRO® installation, the Westerly plant in Marlborough, Massachusetts. The reason there is little to no increase in sludge lies in the fact that the plant will be using chemicals more efficiently and will not use significantly more than it does today. Ferric can also enhance dewaterability of plant sludge.

9 TERMS AND CONDITIONS

I GENERAL: All references to Blue Water (or any derivative thereof) shall mean Blue Water Technologies, Inc. and all references to Buyer herein shall mean the customer named in a purchase order, quotation or proposal. All quotations from Blue Water shall be considered solicitations of offers. All purchase orders placed by Buyer shall be considered offers, which can only be accepted upon written notice thereof from Blue Water. Buyer shall either sign Blue Water's quotation, or in the alternative, issue a purchase order containing necessary information, such as site name, price schedule, type and quantity of product, requested delivery date and delivery instructions. Notwithstanding any terms or conditions that may be included in Buyer's purchase order form or other communications, Blue Water's acceptance is conditional upon Buyer's assent to the terms and conditions set forth herein. It is agreed that sales are made only on the terms and conditions herein and any other terms or conditions shall not become a part of the agreement unless expressly agreed to in writing by Blue Water. Blue Water's failure to object to any terms or conditions contained in Buyer's purchase order or other communication shall not be deemed to be acceptance of such terms or conditions. The terms and conditions set forth herein shall be deemed incorporated (as though set forth in full) into any agreement entered into between Blue Water and Buyer unless otherwise noted in writing. Blue Water reserves the right, without any increase in price, to modify the design and specifications of Blue Water products, provided that the modification does not adversely affect the original performance specifications as specified by Blue Water or as requested by Buyer. Shipments, deliveries and performance of work shall at all times be subject to the approval of Blue Water's Credit Department. Blue Water may at any time decline to make any shipment or delivery or perform any work except upon receipt of payment or security or upon terms and conditions satisfactory to Blue Water.

II PRICES, TERMS OF PAYMENT & TAXES: (a) PRICES: Unless expressly stated to be firm for a definite period, offers are subject to change without notice, and in all cases are subject to withdrawal at any time before acknowledgment by Buyer. Under no condition will a quotation from Blue Water remain in effect for longer than sixty (60) days unless otherwise agreed to in writing by Blue Water. If a price is stated in the quotation, it is based upon shipment of the quantities and quality requested by Buyer and on the basis of Blue Water's internal delivery schedule at the time of preparation of said quotation. (b) TERMS OF PAYMENT: Unless otherwise stated in a quotation, payments against invoices shall be due and payable thirty (30) days from the dated of shipment, regardless of the date upon which Buyer receives the invoice from Blue Water. If in Blue Water's opinion, Buyer's financial condition does not justify continuation of production or shipment on the terms of payment specified, Blue Water may, upon written notice to Buyer, cancel or suspend any outstanding order or part thereof, unless Buyer shall promptly pay for all goods delivered or shall make advance payments to Blue Water as it, at its option, shall determine. If Buyer delays shipment for any reason, date of readiness for shipment shall be deemed to be the date of shipment for payment purposes. If Buyer delays manufacture for any reason, a payment shall be made based on purchase price and percentage of completion, with the balance payable in accordance with the terms as stated. If payments are not made in conformance with the terms stated herein, the contract price shall, without prejudice to Blue Water's right to immediate payment, be increased by 1 ½ % per month on the unpaid balance, not to exceed the maximum amount permitted by law. If at any time in Blue Water's judgment Buyer may be or may become unable or unwilling to meet the terms specified herein, Blue Water may require satisfactory assurance or full or partial payment as a condition to commencing, or continuing manufacture, or in

advance of shipment. (c) TAXES: Except for the amount, if any, of tax stated in a Blue Water quotation, the prices set forth therein are exclusive of any amount for federal, state, local, excise, sales, use, property, or similar taxes or duties. Such prices also exclude permit, license, customs and similar fees levied upon shipment of Blue Water products.

III SHIPMENT: The anticipated shipment date set forth in the quotation is approximate and subject to change. Notwithstanding other limitations set forth by Blue Water, Blue Water shall not be liable for any delays in shipment which are caused by events beyond the control of Blue Water including, but not limited to, delays caused by inaccurate or incomplete data furnished by Buyer, changes or revisions in the work to be performed, tardy approval of shop drawings by Buyer, acts of Buyer or Buyer's agent, accidents, strikes, inability to obtain labor or materials, or delay in transportation. Blue Water shall have the right to extend the anticipated shipment date for up to ten (10) calendar days, for any reason, provided Blue Water shall give Buyer written notice of such delay at least seven (7) days prior to the scheduled shipping date. Equipment or parts will be crated for domestic truck shipment at Blue Water's expense, Blue Water assumes responsibility for loss of, or damage to the equipment until delivery to the Buyer, and the equipment shall thereafter be at the Buyer's sole risk. If a delay in delivery schedule is caused by the Buyer, the Buyer shall reimburse Blue Water upon demand by Blue Water for any costs incurred by Blue Water in connection with equipment storage, including steps taken to protect the products from the elements. Any delay in shipment requested or caused by Buyer or its agents will not affect the terms of payment as provided herein. Buyer shall be responsible for the payment of any additional cost of shipping occasioned by the delay.

IV TITLE & RISK OF LOSS: Blue Water's prices are F.O.B. Factory unless otherwise explicitly noted in the quotation and are exclusive of taxes, shipping and insurance. Title to all goods and risk of loss, deterioration or damage shall pass to Buyer upon equipment delivery; except that a security interest in the products or any replacement shall remain in Blue Water's name, regardless of mode of attachment to realty or other property, until the full purchase price has been fully paid in cash. Buyer agrees to do all acts necessary to perfect and maintain said security interest, and to protect Blue Water's interest by adequately insuring the products against loss or damage from any external cause with Blue Water named as insured or co-insured. Any claim by Buyer against Blue Water for shortage or damage occurring prior to delivery must be made in writing within ten (10) calendar days after receipt of shipment and accompanied by an original transportation bill signed by the carrier noting that carrier received goods from Blue Water in the condition claimed. Blue Water shall have the right to ship all goods at one time or in portions, within the time for shipping provided in such order, unless specifically requested in writing by the Buyer that these shipments be made in total. Any shipments returned to Blue Water as a result of Buyer's unexcused delay or failure to accept delivery will require Buyer to pay all additional costs incurred by Blue Water. Additionally, once Buyer has been notified that its order is available for shipment, if Buyer requests that the products not be shipped until a later date, the products will be stored at the Buyer's risk and expense until permission to ship to the jobsite is given by Buyer.

V ERECTION: Unless otherwise agreed in writing, products are assembled, installed and/or erected by and at the full expense of Buyer.

VI CANCELLATION & BREACH: Buyer agrees that Blue Water products are specially manufactured goods that are not suitable for sale to others in the ordinary course of business. Therefore, purchase orders placed with Blue Water cannot be canceled without recourse, nor shipments of goods made up, or in process, be deferred beyond the original shipment dates specified, except with Blue Water's written consent and upon terms which shall indemnify Blue Water against all loss. In the event of cancellation or the substantial breach of the agreement between Buyer and Blue Water, including without limitation, failing to make payment when due, Buyer agrees that Blue Water will suffer serious and substantial damage which will be difficult, if not impossible, to measure, both at the time of entering the agreement and as of the time of such cancellation or breach. Therefore, the parties agree that upon such cancellation or breach, the Buyer shall pay to Blue Water the sums set forth below which Blue Water and Buyer do hereby agree shall constitute agreed and liquidated damages in such event:

a. If cancellation or breach shall occur after the acceptance of the purchase order but prior to mailing of general arrangement drawings by Blue Water to Buyer, liquidated damages shall be 10% of the selling price.

b. If cancellation or breach shall occur within thirty (30) days from the mailing of general arrangement drawings by Blue Water to Buyer, the liquidated damages shall be 30% of the selling price.

c. If the cancellation or breach occurs after thirty (30) days from the mailing of general arrangement drawings by Blue Water to Buyer, but prior to notification that the order is ready for shipment, the liquidated damages shall be the total of 30% of the selling price plus the expenses incurred, cost of material, and reasonable value of the work expended to fill the respective order by Blue Water's engineers and other employees, agents and representatives after the mailing of general arrangement drawings by Blue Water to Buyer. All sums will be determined at the sole reasonable discretion of Blue Water provided, however, that the total liquidated damages under this provision shall not exceed the total selling price.

d. If cancellation or breach shall occur after Blue Water has notified Buyer that the order is ready for shipment, then the liquidated damages shall be the total selling price.

VII DRAWINGS & SPECIFICATIONS: In the event that drawings are sent to Buyer for approval after an order is placed, the drawings must be returned marked "Approved" or "Approved As Noted" within twenty (20) working days after receipt unless otherwise noted. In the event that Buyer's written comments are not given within the twenty (20) day period, Blue Water shall deem the items approved.

VIII CORRECTIVE WORK & "BACK CHARGES": In no event shall any work be done, or services or material be purchased or expense otherwise incurred by the Buyer for the account of Blue Water until after full and complete particulars (including and estimate of material cost) have been submitted in writing and approved in writing by Blue Water. Blue Water must be given the opportunity to discuss and research alternative methods to lower the costs involved in such corrective work. Unless agreed-upon in writing by Blue Water, Blue Water will not be liable for labor costs, overhead, administrative costs, interest or any other consequential or indirect costs Buyer incurs. Returned items will not be accepted unless Blue Water has previously agreed to such return in writing and supplied written return-shipping instructions to Buyer.

IX SELECTION OF MATERIALS: Because all Blue Water products are specially manufactured products, the material make-up of many of Blue Water's products varies from project to project. The determination of the materials' suitability and adaptability (including without limitation, paints and/or coatings) to the specific needs of the Buyer is solely the Buyer's choice and responsibility.

X CONFIDENTIAL INFORMATION & IMPROVEMENTS: The design, construction, application and operation of the Blue Water's products and services embody proprietary and confidential information; therefore, Buyer will maintain this information in strict confidence, will not disclose it to others and will only use this information in connection with the use of the products or to facilitate the provision of services sold by Blue Water. Buyer will not copy or reproduce any written or printed materials or drawings furnished to Buyer by Blue Water. Buyer agrees to immediately return all confidential material to Blue Water if requested in writing by Blue Water. Buyer will not copy the products or make any design drawings of the products and will not permit others to copy or make any design drawings of the products. Blue Water shall have a royalty-free license to make, use and sell, any changes or improvements in the products invented or suggested by Buyer or its employees. Buyer acknowledges that a remedy at law for any breach or attempted breach of this Section will result in a harm to Blue Water for which monetary damages alone will not be adequate. Buyer covenants and agrees that neither it nor any of its affiliates will oppose any demand for specific performance and injunctive and other equitable relief in case of any such breach or attempted breach. Notwithstanding anything to the contrary herein, Blue Water may seek enforcement of any breach of this Section without the necessity of complying with the provisions regarding resolution of disputes herein.

XI FIELD SERVICE: Field Service included in the quotation will only be scheduled upon written request and may be subject to credit approval. Should the Buyer have outstanding balances due Blue Water, no startup/field service will be scheduled until such payments are received by Blue Water. The Buyer assumes all responsibility for the readiness of the system when it requests startup service. Should Blue Water's Field Service Engineer arrive at the jobsite and determine that the system cannot be started up within a reasonable time, Blue Water shall have the option to bring the Field Service Engineer home and bill the Buyer for time, travel and living expenses. Additional field service is available from Blue Water at the prevailing per-diem rate at the time of the request for service plus all travel and living expenses, portal-to-portal. A purchase order or change order will be required prior to scheduling this additional service.

XII LIMITATION OF LIABILITY: Unless expressly agreed to in writing by Blue Water, all damages not direct and actual in nature, including without limitation, consequential, incidental, exemplary and punitive damages, shall be expressly prohibited damages. Such prohibited damages include, but are not limited to, lost rent or revenue; rental payments; costs (increased or not) of administration or supervision; costs or delays suffered by others unable to commence work or provide services as previously scheduled for which a party to this contract may be liable; increased costs of borrowing funds devoted to the project (including interest); delays in selling all or part of the project upon completion; damages caused by reason of Force Majeure or acts of God (with the broadest statutory or court of law definition possible); termination of agreements to lease or buy all or part of the project, whether or not suffered before completion of services or work; forfeited bonds, deposits, or other

monetary costs or penalties due to delay of the project; interest for any reason assessed to Buyer; increased taxes (federal, state, local, or international) due to delay or recharacterization of the project; lost tax credits or deductions due to delay; impairment of security; attorney and other legal fees for any reason assessed to Buyer, loss of use of the Equipment or any associated Equipment, costs of substitute Equipment, facilities or services, down time costs, claims of customers of Buyer for such other damages; or any other indirect loss arising from the conduct of the parties. Blue Water only agrees to responsibility for damages from proven negligent and willful acts of its direct employees only.

XIII APPLICABLE LAWS & GOVERNING LAW: To the best of Blue Water's knowledge, Blue Water products comply with most laws, regulations and industrial practices; however, Blue Water does not accept responsibility for any state, city or other local law not specifically brought to Blue Water's attention. For OSHA compliance, (1) Blue Water is only liable for those OSHA standards, which are in effect as of the date of the quotation, and to the extent they are applicable to the performance by Blue Water. (2) Blue Water is only responsible for the physical characteristics of the product(s) and not for the circumstances of the use of the product(s). (3) Blue Water's liability through any noncompliance to OSHA shall be limited to the cost of modifying the product(s) or replacing the non-complying product(s) or component(s) after receipt of prompt written notice of noncompliance. The rights and obligations of Buyer and Blue Water shall be governed by and interpreted in accordance with the substantive laws of the state of Idaho including the uniform commercial code of Idaho, excluding conflicts of law and choice of law principles.

XIV DISPUTE RESOLUTION: Any issue, claim or dispute ("Action") that may arise out of or in connection with the project referenced in the quotation and which Buyer and Blue Water are not able to resolve by good faith negotiations, shall be submitted to mediation. Both parties shall choose a mediator and said mediator will decide the forum most convenient for both parties. Both parties agree to reasonably attempt to resolve all Actions via this medium. If mediation shall fail, the Action shall be submitted to binding arbitration administered by the American Arbitration Association under its Construction Industry Arbitration Rules and Mediation Procedures (including Procedures for Large, Complex Construction Disputes), and judgment on the award rendered by the arbitrator(s) may be entered in a court having jurisdiction thereof. The parties agree to use mediation then arbitration to resolve such Action in lieu of litigation. In the event that an Action is brought, the prevailing party shall be entitled to be reimbursed for, and/or have judgment entered with respect to, all of its costs and expenses, including reasonable attorney's fees' and legal expenses. The governing jurisdiction will be mutually agreed upon by both parties.

XV PATENTS: Blue Water shall indemnify Buyer against any judgment for damages and costs which may be rendered against Buyer in a suit brought on account of the alleged infringement of any United States patent by any product supplied by Blue Water, unless (a) the alleged infringement occurs as a result of any alteration or modification to the product or the use of the product in combination with the products or services of any party other than Blue Water, or (b) the product was made in accordance with materials, designs or specifications furnished or designated by Buyer, in which case Buyer shall indemnify Blue Water against any judgment for damages and costs which may be rendered against Blue Water in any suit brought on account of the alleged

infringement of any United States patent by such product or by such materials, designs or specifications; provided that prompt written notice be given to the party from whom indemnity is sought of the bringing of the suit and an opportunity be given to such party to settle or defend it as that party may see fit and that every reasonable assistance in settling or defending it shall be rendered. Blue Water shall in no event be liable to Buyer for special, indirect, incidental or consequential damages arising out of allegation of patent infringement.

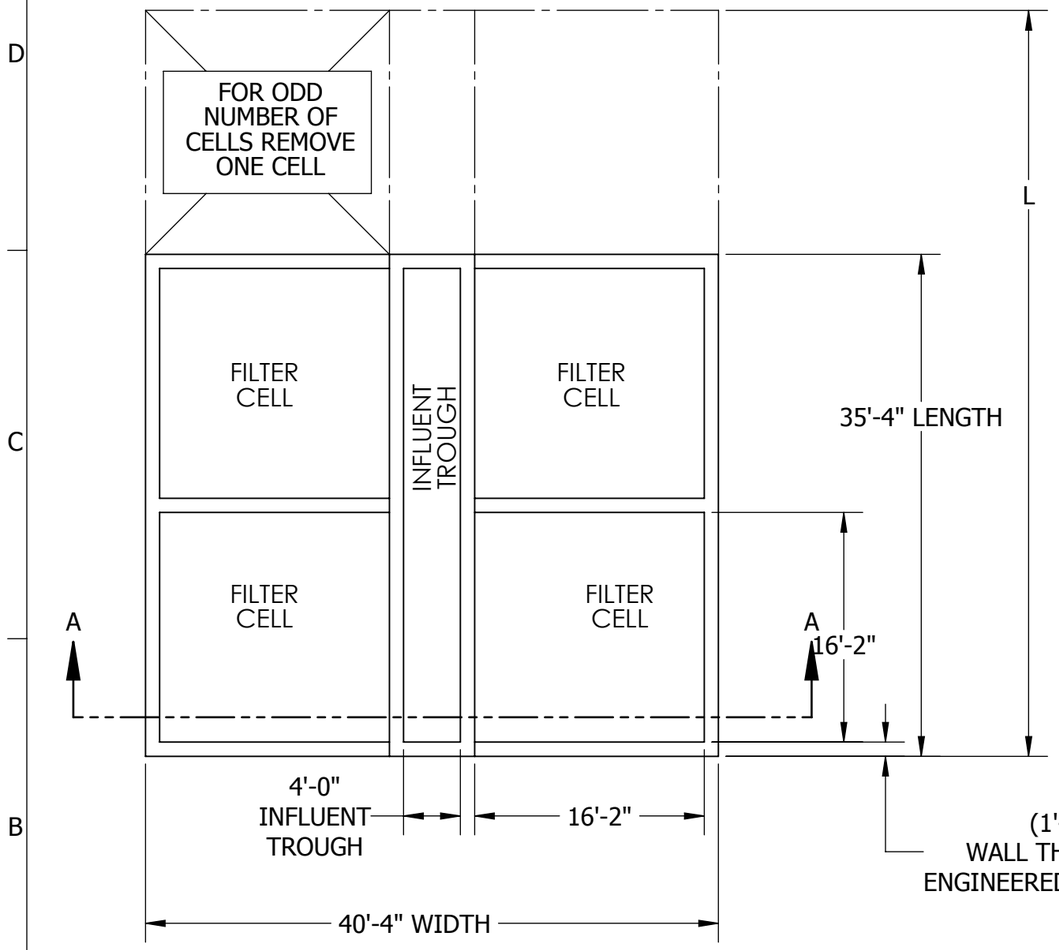
XVI MECHANICAL WARRANTY: All Equipment will be warranted against manufacturer's defects in accordance with Blue Water's warranty for eighteen (18) months from equipment delivery or twelve (12) months from the date of startup, whichever comes first, when operated at stated conditions and according to the instructions in Blue Water's operations and maintenance manual. In the event that defects develop during the Warranty Period, under normal and proper use, Blue Water is to be notified promptly in writing, and upon receipt of its written consent, the products are to be returned promptly to Blue Water, F.O.B. Blue Water's factory. If Blue Water's inspection indicates defective material or workmanship, the parts will, at Blue Water's option, either be repaired or replaced without charge. In the case of components purchased by Blue Water and incorporated in the Equipment, Blue Water's Mechanical Warranty is limited to the component manufacturer's warranty. In addition to any other limitation or disclaimer with respect to this Mechanical Warranty, Blue Water shall have no liability with respect to any of the following: failure of the products, or damages to them, due to Buyer's negligence or willful misconduct, abuse or improper storage, installation, application or maintenance (as specified in Blue Water's O&M manuals); any products that have been altered or repaired in any way without Blue Water's prior written consent; any products damaged while in transit or otherwise by accident; decomposition of products by chemical action, erosion or corrosion or wear of products caused by abrasive materials. Service calls during the Warranty Period, when requested by Buyer and where no evidence of defective material or workmanship is found, will be at Buyer's expense. Blue Water shall not be held liable for any further cost, expense, or labor to replace Equipment or replaceable parts. All indirect damages are hereby limited pursuant to the Limitation of Liability clause herein and shall continue for the duration of the Warranty Period.

THE FOREGOING MECHANICAL WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER GUARANTEES AND WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY, WHETHER WRITTEN, ORAL OR STATUTORY, WHICH ARE EXCLUDED TO THE FULLEST EXTENT PERMISSIBLE BY LAW. ALL WARRANTIES AND OBLIGATIONS OF BLUE WATER SHALL TERMINATE IF BUYER FAILS TO PERFORM ITS OBLIGATIONS UNDER THIS OR ANY OTHER AGREEMENT BETWEEN THE PARTIES OR IF BUYER FAILS TO PAY ANY CHARGES DUE BLUE WATER.

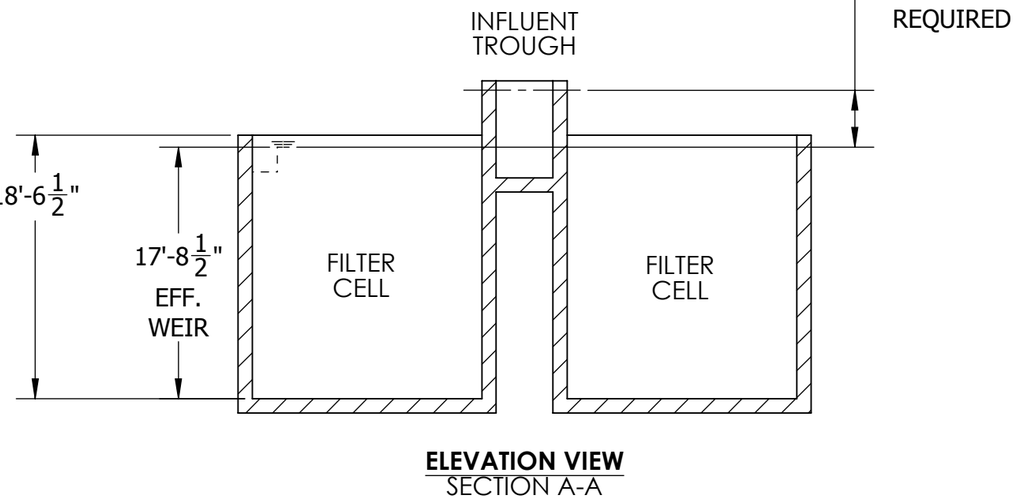
XVII MISCELLANEOUS: The parties agree that the foregoing constitutes the entire agreement between Buyer and Blue Water and that there are no other agreements, terms or conditions, expressed or implied, unless otherwise agreed to in writing. This document may not be modified or superseded other than by an instrument in writing signed by both Buyer and Blue Water. This document shall be binding upon and inure to the benefit of Buyer and Blue Water and their heirs, assignees, legal representatives and the project Owner for the project referenced in the quotation. The invalidity or non-enforceability of any particular provision of this document

shall not affect the other provisions hereof, and this document shall be construed in all respects as if such invalid or unenforceable provisions were omitted.

REVISIONS			
REV.	DESCRIPTION	DATE	ECO
01		7/16/2013	



PLAN VIEW
4 CELLS SHOWN
OF 4 UNITS EACH



ELEVATION VIEW
SECTION A-A

FOOT PRINT LENGTH L	
NUMBER OF CELLS	OVERALL LENGTH
6	52'6"
8	69'8"
10	86'10"
12	104"
14	121'2"
16	138'4"
18	155'6"
20	172'8"

NOTES:

1. DIMENSIONS ARE BASED ON A 1'-0" CONCRETE WALL THICKNESS.
2. DIMENSIONS MAY VARY DEPENDING ON CONCRETE WALL THICKNESS, ENGINEERED BY OTHERS.
3. INFLUENT TROUGH DIMENSIONS MAY VARY DEPENDING ON DESIGN FLOW.
4. FOR ADDITIONAL FOOTPRINT LENGTHS ADD 9'-1" FOR EACH ADDITIONAL CELL.
5. IF AN ODD NUMBER OF CELLS ARE REQUIRED REMOVE ONE CELL AS SHOWN IN THE PLAN VIEW.
6. HEIGHTS MAY VARY DEPENDING ON REQUIRED BED DEPTH AND/OR HYDRAULIC PROFILE.
   - MINIMUM EFFLUENT WEIR HEIGHT = 17' 8 1/2"

DWG SIZE: B | SCALE: 1:128 | PAGE: 1 OF 2

PROJECT: Templates
DESCRIPTION: Footprint Drawing, CF64-80BG Quad Center
REV: 01
DRAWING NUMBER: CF64-80BG Quad Center

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±1/32"
ONE PLACE DECIMAL ±.125
TWO PLACE DECIMAL ±.030
THREE PLACE DECIMAL ±.010
ANGULAR ±2.0°
THIRD ANGLE PROJECTION

BLUE WATER TECHNOLOGIES
10450 N. AIRPORT RD.
HAYDEN, ID 83835

DRAWN BY:	KJennings	7/9/13
CHECKED BY:	BMesserschmidt	7/9/13
ENGINEERING APPROVAL:	--	--
PROJECT APPROVAL:	--	--
NAME:		DATE:

Ky, Caroline

From: Dale Sanchez <dale@vectorprocess.com>
Sent: May-09-16 2:42 PM
To: Ky, Caroline; Sterne, Lars
Cc: 'Robin Schroeder'; 'André Osborne'
Subject: RE: Alexandria - Class EA - Vector process
Attachments: 160019-C1-3 Alexandria, ON Proposal.pdf; CF64-80BG Quad Center.pdf

Hi Caroline,

Here is an updated proposal and a drawing of the layout of the filters. The original proposal apparently had a typo. I don't have any dimensions for the ferric tank as this will depend on the amount of chemical consumed and amount of chemical delivered by the supplier. For initial layout purposes the chemical storage would probably be a prefabricated tank either 10ft diameter or 8 ft. diameter and one should allow some extra space for the spill containment. I hope this helps.

Regards

Dale Sanchez
Vector Process Equipment Inc.
Phone (905) 979-8660

From: Ky, Caroline [mailto:caroline.ky@amecfw.com]
Sent: May 9, 2016 11:48 AM
To: Dale Sanchez; Sterne, Lars
Cc: Robin Schroeder; André Osborne
Subject: RE: Alexandria - Class EA - Vector process

Hi Dale,

Please can you indicate what would be the dimensions (footprint) of the BluePro filters and the chemical storage tank (for ferric)? If you could have this information today it would be great !

Thanks,

R. Caroline Ky, P.Eng., M.A.Sc., MBA, PMP
Senior water treatment engineer/Project Manager, Amec Foster Wheeler Environment & Infrastructure
1425, Trans-Canada Hwy, Suite 400, Dorval, Quebec, H9P 2W9, Canada
T +1 (514) 684-5555 ext.: 2305
caroline.ky@amecfw.com amecfw.com

From: Dale Sanchez [mailto:dale@vectorprocess.com]
Sent: April-28-16 8:20 AM
To: Sterne, Lars <lars.sterne@amec.com>
Cc: Ky, Caroline <caroline.ky@amec.com>; Robin Schroeder <RSchroeder@bluewater-technologies.com>; André Osborne <andre@vectorprocess.com>
Subject: RE: Alexandria - Class EA - Vector process

Hi Lars,

Please find attached the budget proposal for the Blue Water Technologies Blue PRO sand filters for P removal. The filters have been sized based on a peak flow of 3X average flow on the basis that flow from the lagoon will be attenuated to the SAGR system and thus the filters.

Please call me if you have any questions.

Regards

Dale Sanchez
Vector Process Equipment Inc.
Phone (905) 979-8660

From: Sterne, Lars [mailto:lars.sterne@amecfw.com]
Sent: April 22, 2016 8:26 AM
To: Dale Sanchez
Cc: Ky, Caroline
Subject: Alexandria - Class EA - Vector process

Dale,

I am working on a class EA for Alexandria WWTP and would like to get some preliminary sizing and costing for a potential upgrade for their system.

We are considering post lagoon treatment. In addition to solids control, we are looking for biological (SAGR) and TP control (Blue Water Technologies). I have copied below flows and design objectives. I believe the peak hour factors are high for the plant and these may be reduced considering the flow were are considering for treatment is after the lagoons (some hydrdaulic dampening). The max daily peaking factor is real.

If you have any questions, please feel free to call.

Kind regards,

Lars

Assumed Future Treatment Levels

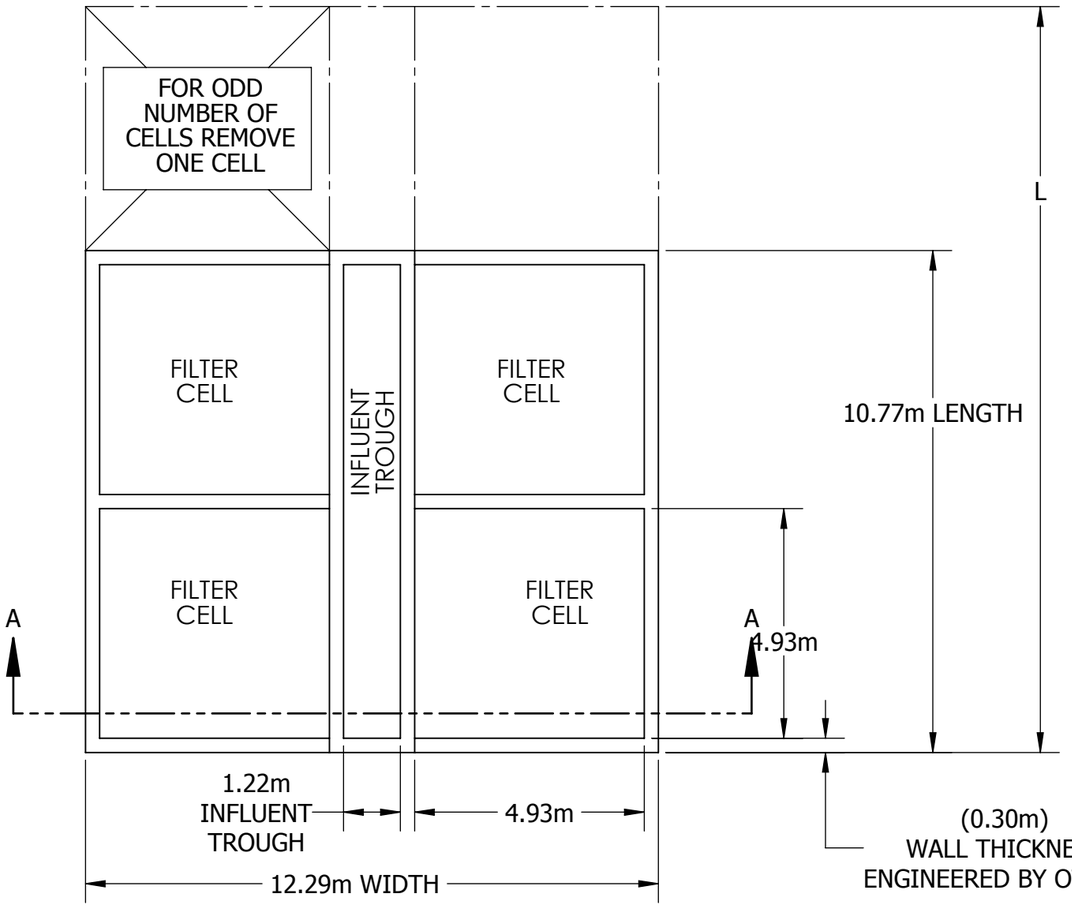
	Compliance (range)	Compliance (single value)	Design Objective
CBOD	10-15	10	8
TSS	10-20	15	10
TAN - summer	1-3	2	1
TAN - winter		4	2
TP	0.1 - 0.3	0.2	0.1

Flows – assumed post lagoon flows

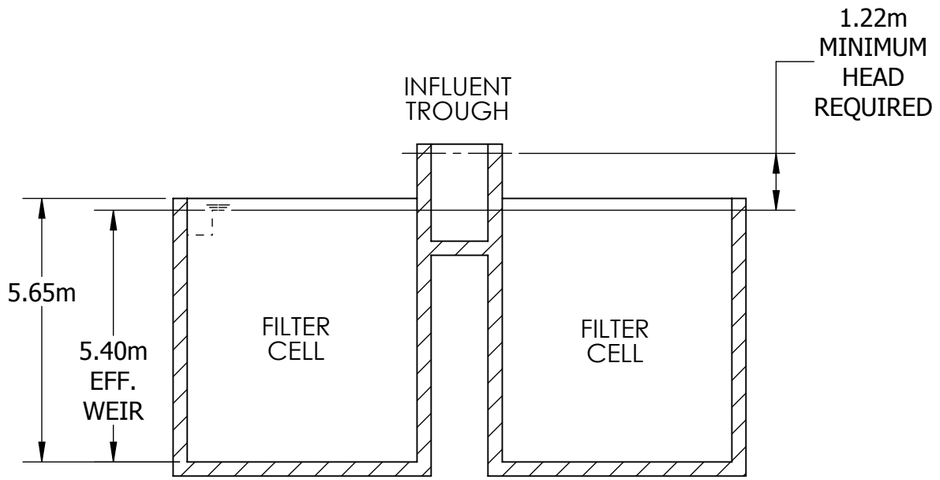
Average	6,500		m3/d
Max Day PF	6	39,000	m3/d
Peak hour PF	10	65,000	m3/d

Lars Sterne, M.Sc., P.Eng.
Senior Engineer, Amec Foster Wheeler Environment & Infrastructure
900 Maple Grove Road, Unit 10, Cambridge, ON N3H 4R7, Canada
D 519.650.7118 M 519.831.1035 F 519.653.6554
Lars.Sterne@amecfw.com amecfw.com

Be more sustainable - think before you print



PLAN VIEW
4 CELLS SHOWN
OF 4 MODULES EACH



ELEVATION VIEW
SECTION A-A

FOOT PRINT LENGTH L	
NUMBER OF CELLS	OVERALL LENGTH
6	16.00m
8	21.23m
10	26.47m
12	31.70m
14	36.93m
16	42.16m
18	47.40m
20	52.63m

NOTES:

1. DIMENSIONS ARE BASED ON A 1'-0" CONCRETE WALL THICKNESS.
2. DIMENSIONS MAY VARY DEPENDING ON CONCRETE WALL THICKNESS, ENGINEERED BY OTHERS.
3. INFLUENT TROUGH DIMENSIONS MAY VARY DEPENDING ON DESIGN FLOW.
4. FOR ADDITIONAL FOOTPRINT LENGTHS ADD 2.46m FOR EACH ADDITIONAL CELL.
5. IF AN ODD NUMBER OF CELLS ARE REQUIRED REMOVE ONE CELL AS SHOWN IN THE PLAN VIEW.
6. HEIGHTS MAY VARY DEPENDING ON REQUIRED BED DEPTH AND/OR HYDRAULIC PROFILE.
   - MINIMUM EFFLUENT WEIR HEIGHT = 5.4m

DWG SIZE: B | SCALE: 1:128 | PAGE: 2 OF 2

PROJECT: Templates
DESCRIPTION: Footprint Drawing, CF64-80BG Quad Center
REV: 01
DRAWING NUMBER: CF64-80BG Quad Center

UNLESS OTHERWISE SPECIFIED
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FRACTIONAL ±1/32"
ONE PLACE DECIMAL ±.125
TWO PLACE DECIMAL ±.030
THREE PLACE DECIMAL ±.010
ANGULAR ±2.0°
THIRD ANGLE PROJECTION

BLUE WATER TECHNOLOGIES
10450 N. AIRPORT RD.
HAYDEN, ID 83835

DRAWN BY:	KJennings	7/9/13	
CHECKED BY:	BMesserschmidt	7/9/13	
ENGINEERING APPROVAL:	--	--	
PROJECT APPROVAL:	--	--	
		NAME:	DATE:

APPENDIX M

HIGH RATE BALLASTED CLARIFICATION

Ky, Caroline

From: GARIEPY, Denis <denis.gariepy@veolia.com>
Sent: April-26-16 4:52 PM
To: Ky, Caroline
Cc: Marc LARIVIERE; Robert LAFOND; Martin COUTURE
Subject: Re: Demande de soumissions pour nitrification en eau froide - post étangs aérés
Attachments: GA100ACP700R1_EN_B.pdf

Bonjour Caroline,

Suite à nos conversations téléphoniques et les différents échanges par courriel, voici notre proposition budgétaire pour le procédé MBBR de nitrification en eau froide ainsi que le procédé de déphosphatation par décantation Actiflo.

NITRIFICATION (EN EAU FROIDE):

Avec un débit moyen de 6500 m3/d, une concentration en TKN de 16 mg/L (estimation à 12 mg/L en NH4-N) et une température minimum de 1,0 degré C, nous proposons la filière MBBR suivante qui sera installée en aval des étangs
aérés existants. À ce débit moyen, la conception de la filière MBBR permettra un effluent ayant une concentration en **NH4-N < 2 mg/L** en hiver, à une température de 1 degré C

Volume requis de traitement MBBR : **1000 m3**
Profondeur suggéré de l'eau : **5.0 m**
Surface de traitement requise (empreinte au sol) : **200 m2**
Dimensions suggérées de la filière MBBR (en béton coulé sur place): **10m x 20m OU 14,1m x 14,1m**

Notre fourniture d'équipements se compose des éléments suivants:
- Lot de média K5 pour nitrification
- Lot de rampes d'aération en acier inoxydable 304L (incluant supports et conduites verticale d'alimentation jusqu'à 600 mm au dessus du niveau d'eau)
- Lot de grilles de retenue de média en acier inoxydable 304L
- Deux (2) surpresseurs de 30 HP chacun, incluant abri acoustique (1 en opération + 1 en attente)
- Un panneau de contrôle d'opération de la filière MBBR
- Instrumentation: 2 sondes de DO, 1 sonde d'azote ammoniacal et flottes de niveau.

Les articles suivants sont exclus:
- Frais de mise en route
- Frais de transport, déchargement et entreposage
- Démarreurs des surpresseurs
- Conduite interconnectrice air/eau entre bâtiment mécanique et MBBR
- Installation des équipements mécanique, instrumentation, etc.
- Bassins MBBR en béton
- Génie civil

Notre prix budgétaire est de $ 805 000.00 CDN.

Notes
1) Advenant une exigence de rejet en azote ammoniacal de l'ordre de 5 mg/L en hiver, à une température de 1 degré C, il serait possible de réduire de 30% notre offre budgétaire et réduire de 40% l'empreinte au sol.
2) Puisque la conception a été basée sur une capacité de traitement à un débit de 6500 m3/jour mais en considérant une capacité hydraulique de 39 000 m3/jour, une évaluation plus exhaustive des variations
de la qualité de l'eau usée en fonction de la variation des débit en amont de ce MBBR pourrait modifier la sélection et en réduire les dimensions ainsi que les coûts.

À ce jour, il n'y a aucune installation à pleine échelle au Canada mais les études effectuées à Masson-Angers par l'Université d'Ottawa a démontré une excellente performance de nitrification avec une eau usée
municipale de 0.5 degré C.

DÉPHOSPHATATION (TRAITEMENT TERTIAIRE):

Avec un débit moyen de 6500 m3/d et une concentration en phosphore total de 0.5 mg/L, nous proposons la filière de décantation Actiflo suivante qui sera installée en aval du MBBR proposé pour la nitrification.
aérés existants. À ce débit moyen, la conception de la filière Actflo permettra un effluent ayant une concentration en **P total < 0.1 mg/L**.

Modèle d'Actiflo requis : **ACP-700R**
Nombre d'Actiflo requis : **2 unités**
Vitesse de décantation à un débit de 6500 m3/jour (avec 1 seul Actiflo en opération) : **20 m/h**
Vitesse de décantation à un débit de 39 000 m3/jour (avec 2 Actiflo en opération) : **60 m/h**
Gamme de vitesse optimale pour la décantation en eau usée pour l'Actiflo : **de 20 à 80 m/h**

Notre fourniture d'équipements se compose des éléments suivants:
- Deux (2) Actflo pré-fab modèle ACP-700R, incluant toutes les composantes standards
- Ensemble automatisé de préparation de polymère Hydra-Pol
- Skid triplex pour le dosage de polymère
- Skid triplex pour le dosage de coagulant
- Un panneau de contrôle d'opération de la filière de décantation
- Instrumentation

Les articles suivants sont exclus:
- Frais de mise en route
- Frais de transport, déchargement et entreposage
- Conduite interconnectrice
- Installation des équipements mécanique, instrumentation, etc.
- Génie civil

Notre prix budgétaire est de $ 1 425 000.00 CDN.

Notes
1) Advenant la possibilité de dévier une partie de l'effluent lorsque la qualité de l'eau est conforme aux normes de rejet à la sortie du MBBR proposé pour la nitrification, il serait possible de proposer deux Actiflo plus

petits (ACP-600R) et ainsi, réduire la valeur de notre offre budgétaire et réduire de l'empreinte au sol.
2) Puisque la conception a été basée sur une capacité de traitement à un débit de 6500 m3/jour mais en considérant une capacité hydraulique de 39 000 m3/jour, une évaluation plus exhaustive des variations
de la qualité de l'eau usée en fonction de la variation des débit en amont des décanteurs pourrait modifier la sélection et en réduire les dimensions ainsi que les coûts.

L'empreinte au sol de chaque Actiflo modèle ACP-700R est tel que le dessin ci-joint.

N'hésite pas à communiquer avec moi pour discuter de cette offre préliminaire.
Il me fera plaisir d'impliquer mes collègues du département d'ingénierie dans la conversation.

Salutations.

Denis Gariépy
Représentant développement des affaires, Marché municipal
Business Development Representative, Municipal Market
WATER TECHNOLOGIES

bureau/office: 514-334-7230 # 3513
cell.: 514-247-0167
télécopieur/fax:514-334-5070
4105 Sartelon, Saint-Laurent
QC, H4S 2B3
Canada
denis.gariepy@veolia.com

ISO 9001
www.veoliawatertechnologies.ca / **www.veoliawaterstna.com**

Le 25 avril 2016 à 10:43, Ky, Caroline <caroline.ky@amecfw.com> a écrit :

> Bonjour,
>
> SVP pouvez-vous aussi nous donner un estimé budgétaire pour les systèmes de filtration tertiaire que vous recommanderiez? Je comprends que ce serait l'Actiflo?
>
> Si on pouvait avoir des estimés (même très grossiers) d'ici les prochains jours, ce serait excellent (le rapport est dû à la fin de cette semaine). Désolée pour le peu de temps alloué mais je suis dans le dossier seulement depuis jeudi dernier !
>
> Cordialement,

R. Caroline Ky, ing., M.Sc.A., MBA, PMP

Ingénieure Senior en traitement des eaux/Gestionnaire de projets, Amec Foster Wheeler Environnement & Infrastructure

1425, route Transcanadienne, bureau 400, Dorval, Québec, H9P 2W9, Canada

T +1 (514) 684-5555 poste 2305

caroline.ky@amecfw.com amecfw.com

From: Ky, Caroline
Sent: April-22-16 4:18 PM
To: 'LAFOND, Robert' <robert.lafond@veolia.com>
Cc: Denis GARIEPY <denis.gariepy@veolia.com>; Marc LARIVIERE <marc.lariviere@veolia.com>; Martin COUTURE <martin.couture@veolia.com>; Sterne, Lars <lars.sterne@amec.com>
Subject: RE: Demande de soumissions pour nitrification en eau froide - post étangs aérés

Robert,

Finalement, on a décidé de garder une température de conception de 1oC.

Pour le NTK à l'affluent, STP utilise une concentration de **16 mg/L.**

Merci et bon week-end,

R. Caroline Ky, ing., M.Sc.A., MBA, PMP

Ingénieure Senior en traitement des eaux/Gestionnaire de projets, Amec Foster Wheeler Environnement & Infrastructure

1425, route Transcanadienne, bureau 400, Dorval, Québec, H9P 2W9, Canada

T +1 (514) 684-5555 poste 2305

caroline.ky@amecfw.com amecfw.com

From: LAFOND, Robert [mailto:robert.lafond@veolia.com]
Sent: April-22-16 4:08 PM
To: Ky, Caroline <caroline.ky@amec.com>
Cc: Denis GARIEPY <denis.gariepy@veolia.com>; Marc LARIVIERE <marc.lariviere@veolia.com>; Martin COUTURE <martin.couture@veolia.com>
Subject: Re: Demande de soumissions pour nitrification en eau froide - post étangs aérés

Caroline,

Je propose de prendre 15 mg/L en TKN et 11 mg/L en NH4-N comme valeur de conception surtout que celles-ci se produisent durant l'hiver au moment le plus critique en eau froide.

Es-tu d'accord avec mon hypothèse de travail?

Bonne fin de semaine

Robert Lafond, ing.

Ingénieur de procédés, ***WATER TECHNOLOGIE***
Process engineer, ***WATER TECHNOLOGIES***

bureau/office: 514-334-7230 # 3313 /télécopieur/fax:514-334-5070
4105 Sartelon/ Saint-Laurent, QC H4S 2B3 Canada
robert.lafond@veolia.com

ISO 9001
www.veoliawatertechnologies.ca / www.veoliawaterstna.com

Le 22 avril 2016 à 16:03, Ky, Caroline <caroline.ky@amecfw.com> a écrit :

Bonjour Robert,

Voici les concentrations actuelles pour les étangs existants. Les concentrations futures seront comparables. En hiver, présumons qu'il n'y aura aucune nitrification. Nous pensions 1oC pour la température de conception, mais 0.5oC ça va aussi, ça nous donne une sécurité supplémentaire. À moins que le 0.5oC de moins ait un impact majeur sur la taille des réacteurs requis?

Municipa			Year:	2014					
Project:			Receiving Stream:	Delisle River					
			Design Capacity:						
			Approved Capacity	3237 m³/day					
Descripti	1 Pumping Station, 1 Aerated Cell, 3 Facultative Cells								
	Continuous Discharge with Phosphorous Removal. Effluent Chlorir								
	Biochemical O_2 Demand			Suspended Solids			Phosphorus		
MONTH	Average Raw $CBOD_5$	Average Effluent $CBOD_5$	Percent Removal	Average Raw SS	Average Effluent SS	Percent Removal	Average Raw TP	Average Effluent TP	Percer Remov
	(mg/L)	(mg/L)	%	(mg/L)	(mg/L)	%	(mg/L)	(mg/L)	%
Jan	53.0	20.8	60.8	50.0	16.8	66.4	0.93	0.41	55.9
Feb	127.0	17.5	86.2	52.0	17.5	66.3	1.30	0.42	67.7
Mar	55.3	20.8	62.4	77.3	20.8	73.1	0.70	0.43	38.6
Apr	20.0	10.8	46.0	20.0	10.8	46.0	0.40	0.21	47.5
May	106.5	4.0	96.2	50.0	4.2	91.6	1.00	0.13	87.0
Jun	178.0	4.2	97.6	68.0	3.2	95.3	1.30	0.14	89.2
Jul	174.0	6.8	96.1	48.0	7.0	85.4	1.20	0.17	85.8
Aug	104.0	3.5	96.6	48.0	3.7	92.3	1.50	0.15	90.0
Sep	106.0	3.0	97.2	91.0	3.0	96.7	1.90	0.11	94.2
Oct	132.0	3.0	97.7	76.0	3.2	95.8	1.30	0.13	90.0
Nov	95.0	8.3	91.3	114.0	10.0	91.2	4.40	0.21	95.2
Dec	158.0	13.8	91.3	45.0	19.6	56.4	1.10	0.39	64.5
Total									
Average	109.1	9.7	85	61.6	10.0	80	1.42	0.24	75
Maximum	178	20.8	98	114.0	20.8	97	4.4	0.43	95

Cordialement,

R. Caroline Ky, ing., M.Sc.A., MBA, PMP

Ingénieure Senior en traitement des eaux/Gestionnaire de projets, Amec Foster Wheeler Environnement & Infrastructure

1425, route Transcanadienne, bureau 400, Dorval, Québec, H9P 2W9, Canada

T +1 (514) 684-5555 poste 2305

caroline.ky@amecfw.com amecfw.com

From: LAFOND, Robert [mailto:robert.lafond@veolia.com]
Sent: April-22-16 3:13 PM
To: Ky, Caroline <caroline.ky@amec.com>
Cc: Denis GARIEPY <denis.gariepy@veolia.com>; Marc Larivière <marc.lariviere@veolia.com>; Martin COUTURE <martin.couture@veolia.com>
Subject: Re: Demande de soumissions pour nitrification en eau froide - post étangs aérés

Bonjour Caroline,

Pour la température, j'assumerai 0,5 C en sortie du dernier étang comme étant la température soutenue la plus contraignante. SVP confirmer?

J,aurais aussi besoin que tu me fournisses la concentration en azote ammoniacal et en TKN à la sortie du dernier étang pour notre conception

Merci et bonne fin de semaine

Robert Lafond, ing.

Ingénieur de procédés, ***WATER TECHNOLOGIE***
Process engineer, ***WATER TECHNOLOGIES***

bureau/office: 514-334-7230 # 3313 /télécopieur/fax:514-334-5070
4105 Sartelon/ Saint-Laurent, QC H4S 2B3 Canada
robert.lafond@veolia.com

ISO 9001
www.veoliawatertechnologies.ca / www.veoliawaterstna.com

We are proud to announce our new name / *Nous sommes fiers d'annoncer notre nouveau nom*
Veolia Water Technologies Canada

2016-04-22 14:58 GMT-04:00 Marc Larivière <marc.lariviere@veolia.com>:

> Bonjour Caroline,
>
> On vient de se parler et j'ai oublie de te demander quelle serait la température de conception pour la nitrification?
>
> Egalement, étant donne la proximité, ce sera Denis Gariepy qui s'occupera du dossier d'un point de vue commercial.
>
> Merci
>
> Cordialement
>
> Envoyé de mon iPhone

Le 2016-04-22 à 09:19, "Ky, Caroline" <caroline.ky@amecfw.com> a écrit :

Bonjour Marc,

J'ai besoin rapidement de soumissions pour une technologie qui permettrait la nitrification en eau froide en aval d'étangs aérés existants. Le projet est en Ontario. Pour te donner une idée, voici les paramètres de conception :

STP appelle-moi à ce sujet.

Merci !

Assumed Future Treatment Levels

	Compliance (range)	Compliance (single value)	Design Objective
CBOD	10-15	10	8
TSS	10-20	15	10
TAN - summer	1-3	2	1
TAN - winter		4	2
TP	0.1 - 0.3	0.2	0.1

Flows – assumed post lagoon flows

Average	6,500	m3/d

Max Day PF	6	39,000	m3/d
Peak hour PF	10	65,000	m3/d

R. Caroline Ky, ing., M.Sc.A., MBA, PMP

Ingénieure Senior en traitement des eaux/Gestionnaire de projets, Amec Foster Wheeler Environnement & Infrastructure

1425, route Transcanadienne, bureau 400, Dorval, Québec, H9P 2W9, Canada

T +1 (514) 684-5555 poste 2305

caroline.ky@amecfw.com amecfw.com

R. Caroline Ky, P.Eng., M.A.Sc., MBA, PMP

Senior water treatment engineer/Project Manager, Amec Foster Wheeler Environment & Infrastructure

1425, Trans-Canada Hwy, Suite 400, Dorval, Quebec, H9P 2W9, Canada

T +1 (514) 684-5555 ext.: 2305

caroline.ky@amecfw.com amecfw.com

<116042214201302423.jpg>

receive invoices, project communications and similar factual, non-commercial electronic communications.

Please click http://amecfw.com/email-disclaimer for notices and company information in relation to emails originating in the UK, Italy or France.

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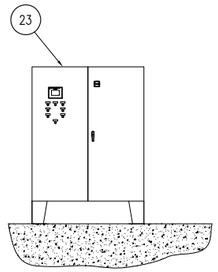
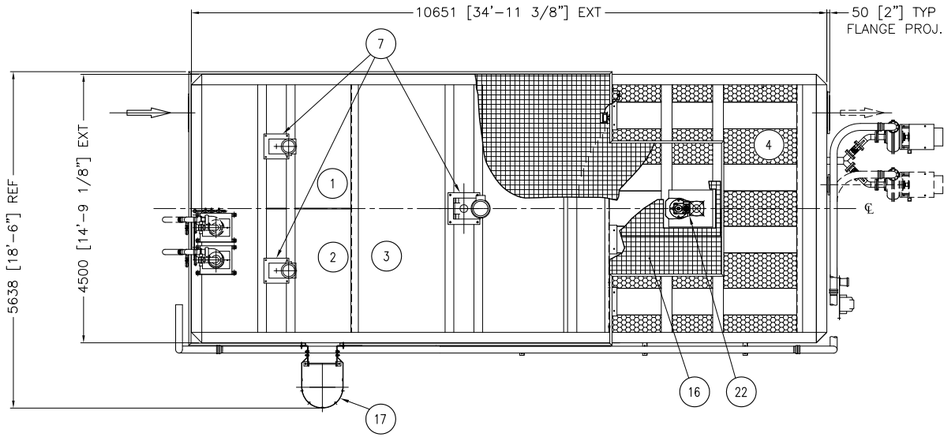


CONTROL PANEL

ALLOW 915 [3'–0"] MIN. CLEARANCE IN FRONT OF PANEL

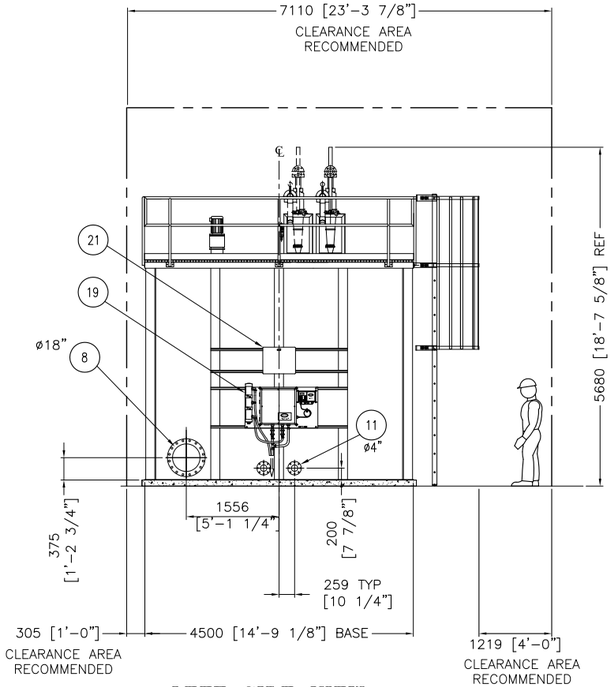


PLAN VIEW

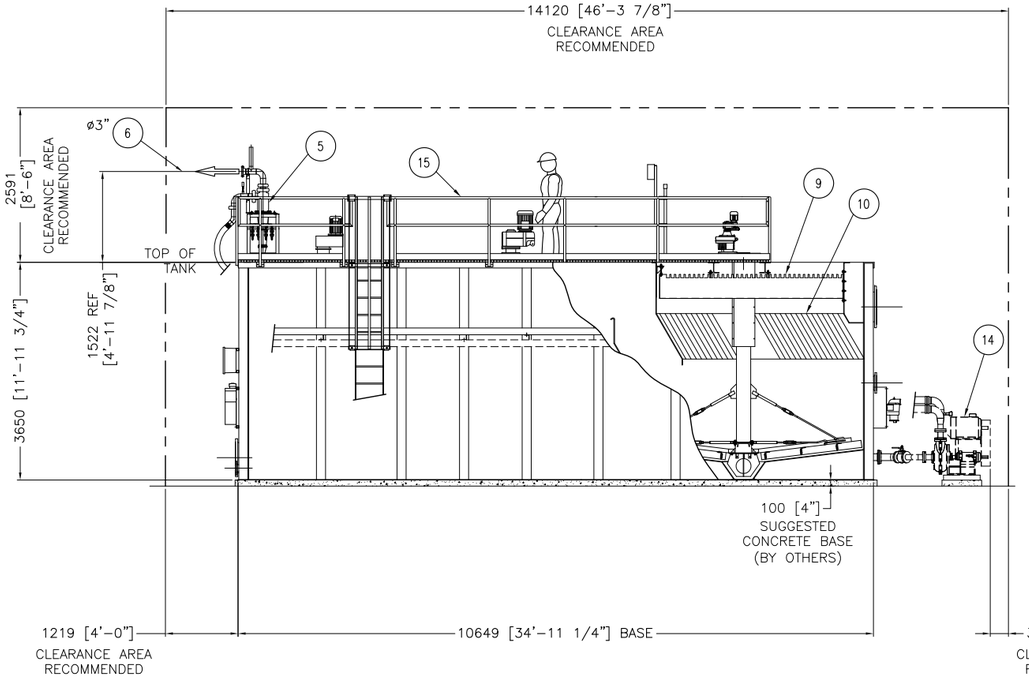
1. COAGULATION TANK
2. INJECTION TANK
3. MATURATION TANK
4. SETTLING TANK
5. HYDROCYCLONE
6. HYDROCYCLONE SLUDGE OUTLET
7. MIXER
8. RAW WATER INLET
9. CLARIFIED WATER TROUGH
10. LAMELLA
11. DRAIN
12. CLARIFIED WATER OUTLET
13. PARTIAL DRAIN (OPTIONAL)
14. MICROSAND RECIRCULATION PUMPS
15. GALVANIZED HANDRAIL
16. FRP GRATING
17. LADDER
18. COAGULATION pH METER
19. RAW WATER TURBIDIMETER
20. CLARIFIED WATER TURBIDIMETER
21. JUNCTION BOX
22. SCRAPER
23. CONTROL PANEL

PRELIMINARY

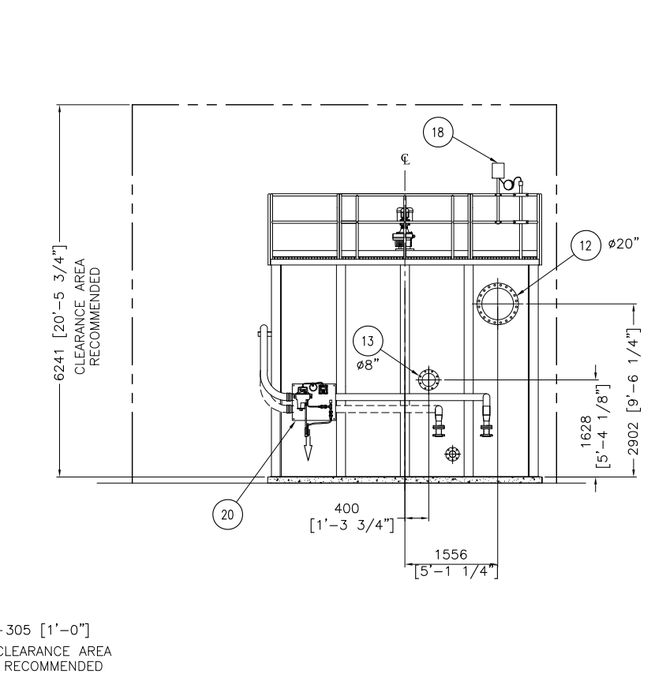
John Meunier



LEFT SIDE VIEW



ELEVATION



RIGHT SIDE VIEW

(PUMPS NOT SHOWN FOR CLARITY)

NOTES:

1– FOR LIST OF SUPPLY OF THIS EQUIPMENT, PLEASE REFER TO THE TECHNICAL SPECIFICATIONS.

2– OPTIONAL –––––

3– A DROP AT EACH HYDROCYCLONE OULET IS IMPORTANT TO AVOID BACKFLOW THROUGH THE HYDROCYCLONE.

4– HYDROCYCLONE OUTLET ELEVATION MUST BE CONFIRMED BASED ON SUPPLIED RECIRCULATION FLOW (UPON AVAILABLE SELECTIONS).

5– TANK SHALL NOT BE USED AS SUPPORT FOR ANY OTHER EQUIPMENT. EQUIPMENT THAT NEED TO BE CONNECTED TO TANK SHALL BE SELF–SUPPORTED.

4– WEIGHT FOR (1) ACTIFLO:
TOTAL WEIGHT: 15 000 kg (33 000 LBS) (WITHOUT WATER)
TOTAL WEIGHT IN SERVICE:
165 000 kg (363 000 LBS) (WITH WATER)

REV	DESCRIPTION	DATE	DWN	CHKD	APVD	ECN
B	GENERAL REVIEW	2007–03–08	M.D.	P.S.		
A	PRELIMINARY	2004–09–19	D.T.	P.S.		

STD: "D" 22x34 | REF: | BAR = 1" AT PLOT SCALE

		DATE
DESIGNER	D.TARALUNGA	2004–09–19
CHECKER	P. SIMARD	2004–09–19
ENGINEER		DATE
MANAGER		DATE
SCALE:	1 : 50	

TITLE: ACTIFLO ACP–700R GENERAL ARRANGEMENT

CLIENT

VEOLIA WATER TECHNOLOGIES CANADA INC. 4105 Sartelon, Saint-Laurent, Qc, Canada. Tel: (514) 334-7230

PROJECT	DRAWING	INTERNAL	SHEET	REV
– GA100		ACP700R1	1 OF 1	B

APPENDIX N
CONSULTATION

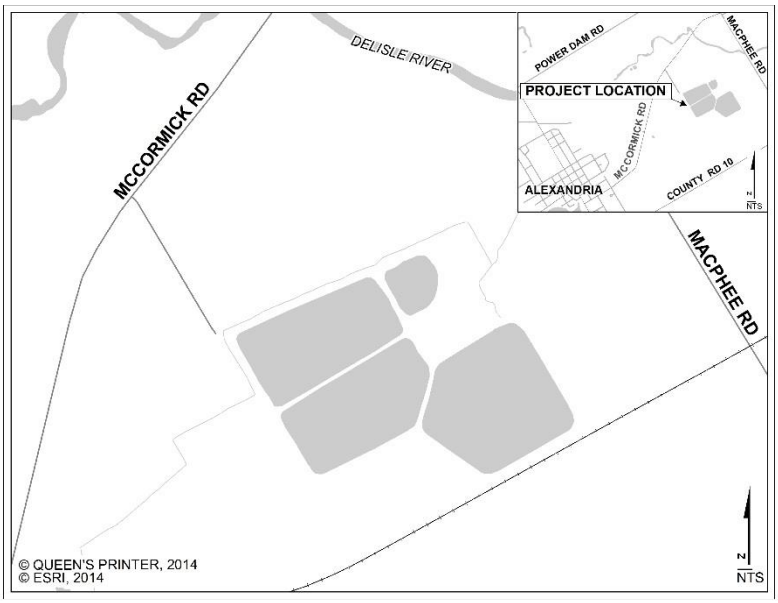
APPENDIX N1

NOTIFICATIONS

NOTICE OF STUDY COMMENCEMENT
ALEXANDRIA SEWAGE LAGOON FACILITY
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

The Township of North Glengary has initiated a Municipal Class Environmental Assessment for the proposed expansion of the Alexandria Sewage Lagoon Treatment Facility located on McCormick Road.

The Alexandria Sewage Lagoon Facility has exceeded it's rated capacity. The Township has undertaken many and various actions to reduce and eliminate infiltration into the system. Although effective, the results have not reduced extraneous flows to the extent upon which the Lagoon System can continue to operate under compliance with its certificate of approval. In addition, the Township investegated the possibility of re-rating the lagoons, but it was determined that this route was not feasible. The lack of capacity is creating a barrier for growth and economic development in the Township. Therefore, the Township has initiated this study to develop a plan for the Alexandria Sewage Lagoon Treatment Facility to address capacity issues and future growth.



This project is being planned as a Schedule 'C' undertaking and is to follow the requirements of the Municipal Class Environmental Assessment process (October 2000, as amended in 2007 & 2011). The purpose of the study is to develop and evaluate alternative for the proposed expansion to the Alexandria Sewage Lagoon Treatment Facility.

Input and comments are invited for incorporation into the planning and design of this project and will be received until **February 17, 2016**. Subject to comments received and the receipt of necessary approvals, the Township of North Glengarry intends to proceed with the planning and design as defined in the Municipal Class Environmental Assessment process.

For further information on this project please contact the following:

Corporation of the Township of North Glengarry
Ryan Morton
Director of Public Works
63 Kenyon Street West
Alexandria, Ontario K0C 1A0
Phone: 613-525-3087
Fax: 613-525-1649
ryanmorton@northglengarry.ca

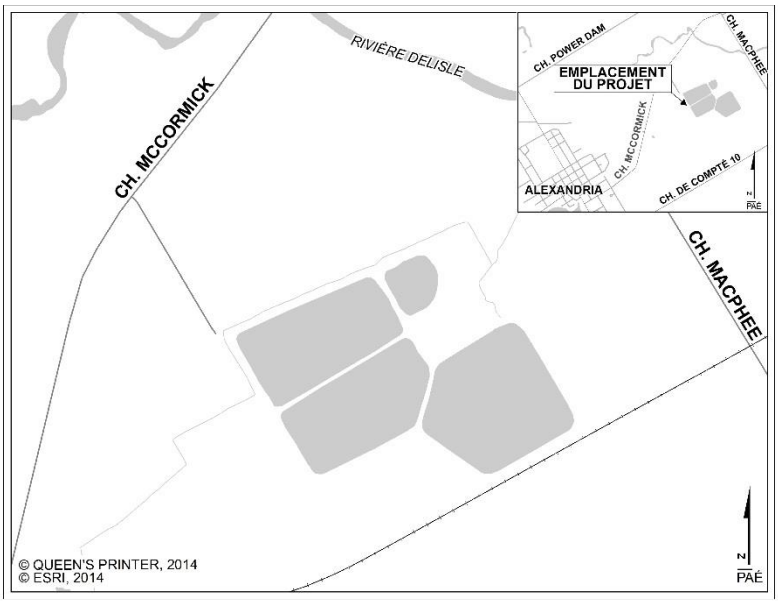
McIntosh Perry Consulting Engineers Ltd.
Lisa Marshall, P.Eng.
Environmental Coordinator/Project Engineer
115 Walgreen Road, R.R.3
Carp, Ontario, K0A 1L0
Phone: 613-836-2184 ext. 2224
Fax: 613-836-3742
l.marshall@mcintoshperry.com

This notice issued January 20, 2016.

AVIS DE LANCEMENT D'ÉTUDE
USINE D'ÉPURATION DES EAUX USÉES D'ALEXANDRIA
ÉVALUATION ENVIRONNEMENTALE MUNICIPALE DE PORTÉE GÉNÉRALE

Le canton de Glengarry Nord a entamé une évaluation environnementale municipale de portée générale pour l'agrandissement proposé de l'usine d'épuration des eaux usées d'Alexandria situé sur le chemin McCormick.

L'usine d'épuration des eaux usées d'Alexandria a à l'heure actuelle dépassé son débit timbré. Le canton a entrepris plusieurs différentes tentatives pour réduire et éliminer l'infiltration dans le système d'égouts. Même si ceci fut efficace, les résultats n'ont pas pu réduire le débit de source externe à un point tel que l'usine d'épuration peut continuer s'est opérations d'après ses autorisations environmentales existantes. De plus, le canton a fait enquête sur la possibilité de modifier le débit timbré de l'usine, mais il fut déterminé que ceci n'était pas possible. Le manque de capacité nominale crée une barrière à la croissance et au développement économique dans la municipalité. Le canton entreprendra dans l'évaluation de développer un plan pour l'usine d'épuration des eaux usées d'Alexandria qui traitera du problème de capacité nominale et de la croissance future.



Le projet suit un processus de planification conforme aux projets de groupe « C » tel que défini dans le document « Évaluation environnementale municipale de portée générale » (octobre 2000, ainsi modifié en 2007 et 2011). Le but de cette évaluation est de développer et évaluer les options pour l'expansion de l'usine d'épuration des eaux usées d'Alexandria.

Les membres du public sont invités à nous faire parvenir leurs commentaires pour l'intégration dans la planification et conception de ce projet. Ces commentaires seront reçus jusqu'au **17 février 2016**. Sous réserve des commentaires reçus et de l'obtention des approbations nécessaires, le canton de Glengarry Nord a l'intention de procéder à la planification et la conception de ce projet tel que défini dans le processus d'évaluation environnementale municipale.

Pour de plus amples renseignements, veuillez rejoindre :

Canton de Glengarry Nord
Ryan Morton
Directeur des travaux publics
63 rue Kenyon Ouest
Alexandria (Ontario) K0C 1A0
Téléphone : 613-525-3087
Télécopieur : 613-525-1649
Courriel : ryanmorton@northglengarry.ca

ou

McIntosh Perry Consulting Engineers Ltd.
Lisa Marshall, P.Eng.
Coordinatrice environnementale/ingénieure
115 chemin Walgreen, R.R.3
Carp (Ontario) K0A 1L0
Téléphone : 613-836-2184 poste 2224
Télécopieur : 613-836-3742
Courriel : l.marshall@mcintoshperry.com

Pour des renseignements en français au sujet de ce projet, veuillez rejoindre Patrick Leblanc en composant le 613-836-2184, poste 2233 ou par courriel au p.leblanc@mcintoshperry.com.

Cet avis fut publié le 20 janvier 2016.

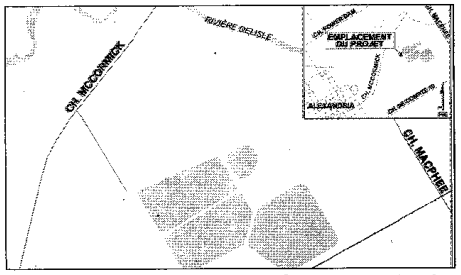
Notices / Tenders

TOWNSHIP OF NORTH GLENGARRY NOTICE OF STUDY COMMENCEMENT

ALEXANDRIA SEWAGE LAGOON FACILITY MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

The Township of North Glengarry has initiated a Municipal Class Environmental Assessment for the proposed expansion of the Alexandria Sewage Lagoon Treatment Facility located on McCormick Road.

The Alexandria Sewage Lagoon Facility has exceeded its rated capacity. The Township has undertaken many and various actions to reduce and eliminate infiltration into the system. Although effective, the results have not reduced extraneous flows to the extent upon which the Lagoon System can continue to operate under compliance with its certificate of approval. In addition, the Township investegated the possibility of re-rating the lagoons, but it was determined that this route was not feasible. The lack of capacity is creating a barrier for growth and economic development in the Township. Therefore, the Township has initiated this study to develop a plan for the Alexandria Sewage Lagoon Treatment Facility to address capacity issues and future growth.



This project is being planned as a Schedule 'C' undertaking and is to follow the requirements of the Municipal Class Environmental Assessment process (October 2000, as amended in 2007 & 2011). The purpose of the study is to develop and evaluate alternatives for the proposed expansion to the Alexandria Sewage Lagoon Treatment Facility.

Input and comments are invited for incorporation into the planning and design of this project and will be received until **February 17, 2016**. Subject to comments received and the receipt of necessary approvals, the Township of North Glengarry intends to proceed with the planning and design as defined in the Municipal Class Environmental Assessment process.

For further information on this project please contact the following:
Corporation of the Township of North Glengarry
Ryan Morton, Director of Public Works
63 Kenyon Street West
Alexandria, Ontario K0C 1A0
Phone: 613-525-3087 Fax: 613-525-1649
ryanmorton@northglengarry.ca
or
McIntosh Perry Consulting Engineers Ltd.
Lisa Marshall, P.Eng.
Environmental Coordinator / Project Engineer
115 Walgreen Road, R.R.3
Carp, Ontario, K0A 1L0
Phone: 613-836-2184 ext. 2224 Fax: 613-836-3742
l.marshall@mcintoshperry.com

This notice issued January 20, 2016.

CANTON DE GLENGARRY NORD AVIS DE LANCEMENT D'ÉTUDE USINE D'ÉPURATION DES EAUX USÉES D'ALEXANDRIA

ÉVALUATION ENVIRONNEMENTALE MUNICIPALE DE PORTÉE GÉNÉRALE

Le canton de Glengarry Nord a entamé une évaluation environnementale municipale de portée générale pour l'agrandissement proposé de l'usine d'épuration des eaux usées d'Alexandria situé sur le chemin McCormick.

L'usine d'épuration des eaux usées d'Alexandria a à l'heure actuelle dépassé son débit timbré. Le canton a entrepris plusieurs différentes tentatives pour réduire et éliminer l'infiltration dans le système d'égouts. Même si ceci fut efficace, les résultats n'ont pas pu réduire le débit de source externe

Help Wanted

PART-TIME position on dairy farm near Lancaster. Duties include fresh cow care, milking, calf care, general farm duties and field work when required. Must be available evenings and every other weekend. Requirements: self motivated, valid driver's licence and some dairy experience. Salary based on experience. Please forward resume with references to:
moo-land@xplornet.com 3-2p

FULL-TIME position on free stall dairy farm in St-Eugène. Duties include parlour milking, calf feeding, general farm and field work. Falling Star Farms. Tel. 613-677-1561. 4-1p

Help Wanted

RAISIN River Marine Ltd. is looking for a general labourer for the following duties: Assist the technicians, operate the forklift, pump fuel, clean and maintain boats, general up-keep of marine facility. Full-time seasonal position. Must be willing to work weekends. Please send resume by email to: raisinrivermarine@yahoo.com or deliver in person to the Marina. Salary is $14 per hour to start.

4-3c

Help Wanted

MECHANIC

Full-time, five days a week.
Must have experience on diesel engines, transmissions and hydraulics.
Must have a valid driver's licence.
Must have own tools.
Salary depends on experience.

***Apply at* Trottier Farm Equipment**
20159 Cty Rd 43, Alexandria
613-525-3120 4-1c

White Swan LINEN

CASUAL GENERAL LABOURERS

White Swan Linen is seeking Casual General Labourers to work in linen facilities

Hours worked would be: Days, evenings and weekends

The ideal candidate will have:

- Completed post-secondary education an asset
- Ability to contribute to a teamwork environment
- Demonstrated organizational skills
- Ability and willingness to assume responsibilities as required
- Valid driver's licence and access to a vehicle an asset
- A criminal check for service with the vulnerable sector (completed within the last 6 months) prior to the interview
- Experience working in a production position an asset
- Experience working in a linen facility an asset
- Must be available for call-ins.
- In accordance with the Accessibility for Ontarians with Disabilities Act (AODA), Community Living Glengarry Inc. will provide accommodation, accessible formats and communication supports for the interview process upon request.

Starting date: April 2016

Deadline for application: February 8, 2016

Salary: $13 per hour, plus 6% in lieu of vacation and 4% in lieu of benefits

Please forward letter of application and resumé to:
Community Living Glengarry Inc.
Suzanne Lavoie, Executive Administrative – Human Resources Assistant
332 Macdonald Blvd.
Alexandria, Ontario K0C 1A0
Email: suzanne@clglen.on.ca 4-1c

We thank all interested applicants; however, only qualified applicants will be contacted for an interview.

Operated by:

COMMUNITY LIVING Glengarry — *Inspiring Possibilities*
INTÉGRATION COMMUNAUTAIRE Glengarry — *Inspirant des possibilités*

COMMUNITY LIVING Glengarry — *Inspiring Possibilities*
INTÉGRATION COMMUNAUTAIRE Glengarry — *Inspirant des possibilités*

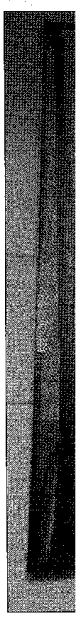
PART-TIME SUPPORT WORKER

Community Living Glengarry is seeking qualified casual Part-time Support Worker to work in our different locations.

Hours: Variety of shifts including days, afternoons, evenings, nights and weekends.

The ideal candidates will have:

- Satisfactory experience working with people with



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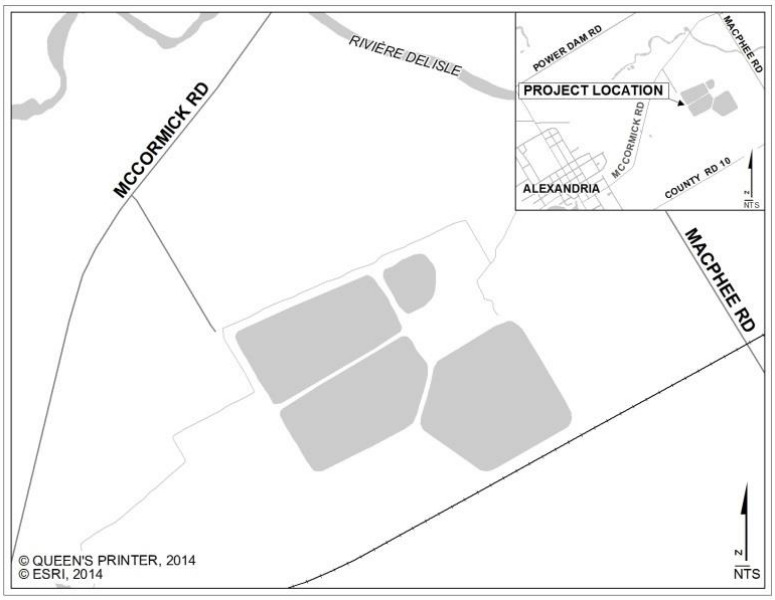
PUBLIC COMMENT INVITE AND NOTICE OF PUBLIC INFORMATION CENTRE ALEXANDRIA SEWAGE LAGOON FACILITY MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

The Township of North Glengarry has initiated a Municipal Class Environmental Assessment for the proposed expansion of the Alexandria Sewage Lagoon Treatment Facility located on McComrick Road.



The Alexandria Sewage Lagoon Facility has exceeded it's rated capacity. The Township has undertaken many and various actions to reduce and eliminate infiltration into the system. Although effective, the results have not reduced extraneous flows to the extent upon which the Lagoon System can continue to operate under compliance with its certificate of approval. In addition, the Township investegated the possibility of re-rating the lagoons, but it was determined that this route was not feasible. The lack of capacity is creating a barrier for growth and economic development in the Township. Therefore, the Township has initiated this study to develop a plan for the Alexandria Sewage Lagoon Treatment Facility to address capacity issues and future growth.

The project is being planned under a Schedule 'C' undertaking as defined in the Municipal Engineers Association "Municipal Class Environmental Assessment" (October 2000, as amended 2007 & 2011). A Public Information Centre (PIC) is planned to provide further information regarding the project and present the alternative solutions for the expansion of the Alexandria Sewage Lagoon, as well as answer questions. The PIC will be held:

Monday, November 28, 2016
The Sandfield Centre (Township of North Glengarry)
102 Derby St. West, Alexandria, Ontario
4:30 p.m. – 6:30 p.m. (open house format)

A Phase 2 Environmental Study Report is currently available for viewing on the the Township website's (http://northglengarry.ca/en/townhall/waterandsewage.asp). Public input and comment are invited for incorporation into the planning and design of this project and will be received until December 5th, 2016. Subject to comments received as a result of this Notice, the Township plans to instruct the consultant to proceed with the Environmental Assessment for this project.

For further information on this project please contact the following individuals:

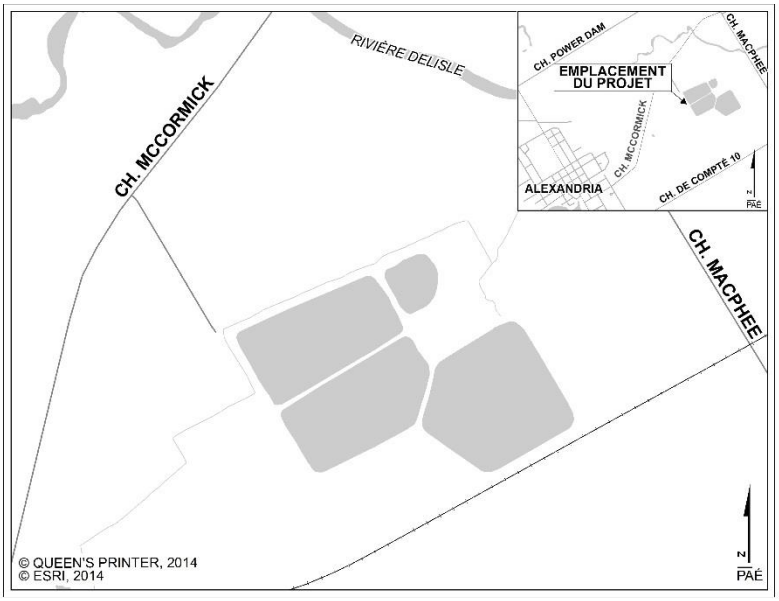
Corporation of the Township of North Glengarry
Ryan Morton
Director of Public Works
63 Kenyon Street West
Alexandria, Ontario, K0C 1A0
Phone: 613-525-3087
Fax: 613-525-1649
ryanmorton@northglengarry.ca

McIntosh Perry Consulting Engineers Ltd.
Lisa Marshall
Environmental Coordinator/Engineer
115 Walgreen Road, R.R.3
Carp, Ontario, K0A 1L0
Phone: 613-836-2184 ext. 2224
Fax: 613-836-3742
l.marshall@mcintoshperry.com

This notice issued November 16th and 23rd, 2016

APPEL AU COMMENTAIRES DU PUBLIC ET AVIS DE SÉANCE D'INFORMATION PUBLIQUE
USINE D'ÉPURATION DES EAUX USÉES D'ALEXANDRIA
ÉVALUATION ENVIRONNEMENTALE MUNICIPALE DE PORTÉE GÉNÉRALE

Le canton de Glengarry Nord a entamé une évaluation environnementale municipale de portée générale pour l'agrandissement proposé de l'usine d'épuration des eaux usées d'Alexandria situé sur le chemin McCormick.



L'usine d'épuration des eaux usées d'Alexandria a à l'heure actuelle dépassé son débit timbré. Le canton a entrepris plusieurs différentes tentatives pour réduire et éliminer l'infiltration dans le système d'égouts. Même si ceci fut efficace, les résultats n'ont pas pu réduire le débit de source externe à un point tel que l'usine d'épuration peut continuer s'est opérations d'après ses autorisations environmentales existantes. De plus, le canton a fait enquête sur la possibilité de modifier le débit timbré de l'usine, mais il fut déterminé que ceci n'était pas possible. Le manque de capacité nominale crée une barrière à la croissance et au développement économique dans la municipalité. Le canton entreprendra dans l'évaluation de développer un plan pour l'usine d'épuration des eaux usées d'Alexandria qui traitera du problème de capacité nominale et de la croissance future.

Le projet suit un processus de planification conforme aux projets de groupe « C » tel que défini dans le document « Évaluation environnementale municipale de portée générale » (octobre 2000, ainsi modifié en 2007 et 2011). Une séance d'information publique (SIP) est prévue pour fournir plus d'information au sujet du projet et présenter les solutions alternatives à l'agrandissement de l'usine d'épuration des eaux usées d'Alexandria, ainsi que pour répondre aux questions. Les détails de la SIP se retrouve ci-dessous :

Le lundi, 28 novembre 2016
Centre Sandfield (Canton de Glengarry Nord)
102, rue Derby Ouest, Alexandria, Ontario
16h30 à 18h30 (format portes ouvertes)

Un rapport d'étude environnementale de phase 2 peut être consulté sur le site web du Canton (http://northglengarry.ca/en/townhall/waterandsewage.asp). Les membres du public sont invités à faire parvenir leurs commentaires pour l'intégration dans la planification et conception de ce projet. Ces commentaires seront reçus jusqu'au **5 décembre 2016**. Sous réserve des commentaires reçus suite à cet avis, le Canton a l'intention de donner des consignes à l'équipe du project pour procéder avec l'évaluation environnementale.
Pour de plus amples renseignements, veuillez rejoindre :

Canton de Glengarry Nord
Ryan Morton
Directeur des travaux publics
63 rue Kenyon Ouest
Alexandria (Ontario) K0C 1A0
Téléphone : 613-525-3087
Télécopieur : 613-525-1649
Courriel : ryanmorton@northglengarry.ca

ou

McIntosh Perry Consulting Engineers Ltd.
Lisa Marshall, P.Eng.
Coordinatrice environnementale/ingénieure
115 chemin Walgreen, R.R.3
Carp (Ontario) K0A 1L0
Téléphone : 613-836-2184 poste 2224
Télécopieur : 613-836-3742
Courriel : l.marshall@mcintoshperry.com

Cet avis fut publié les 16 et 23 novembre 2016

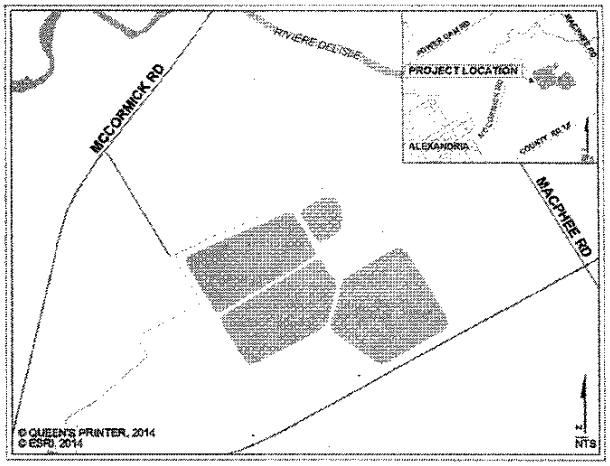
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

The Township of North Glengarry has initiated a Municipal Class Environmental Assessment for the proposed expansion of the Alexandria Sewage Lagoon Treatment Facility located on McCormick Road.

The Alexandria Sewage Lagoon Facility has exceeded its rated capacity. The Township has undertaken various actions to reduce and eliminate infiltration into the system. Although effective, the results have not reduced extraneous flows to the extent that the Lagoon System can continue to operate in compliance with its certificate of approval. In addition, the Township investigated the possibility of re-rating the lagoons, but it was determined that this route was not feasible. The lack of capacity is creating a barrier for growth and economic development in the Township. Therefore, the Township has initiated this study to develop a plan for the Alexandria Sewage Lagoon Treatment Facility to address capacity issues and future growth.

The project is being planned under a Schedule 'C' undertaking as defined in the Municipal Engineers Association "Municipal Class Environmental Assessment" (October 2000, as amended 2007 & 2011). A Public Information Centre (PIC) is planned to provide further information regarding the project and present alternative solutions for the expansion of the Alexandria Sewage Lagoon, as well as answer questions. The PIC will be held:

Monday, November 28, 2016
Sandfield Centre (Township of North Glengarry)
102 Derby St. West, Alexandria, Ontario
4:30 p.m. – 6:30 p.m. (open house format)



A Phase 2 Environmental Study Report is currently available for viewing on the Township website http://northglengarry.ca/en/townhall/waterandsewage.asp. Public input and comments are invited for incorporation into the planning and design of this project and will be received until December 5, 2016. Subject to comments received as a result of this Notice, the Township plans to instruct the consultant to proceed with the Environmental Assessment for this project.

For further information on this project please contact the following individuals:

Corporation of the Township of North Glengarry
Ryan Morton
Director of Public Works
63 Kenyon Street West
Alexandria, Ontario, K0C 1A0
Phone: 613-525-3087 Fax: 613-525-1649
ryanmorton@northglengarry.ca

or

McIntosh Perry Consulting Engineers Ltd.
Lisa Marshall
Environmental Coordinator/Engineer
115 Walgreen Road, R.R.3
Carp, Ontario, K0A 1L0
Phone: 613-836-2184 ext. 2224 Fax: 613-836-3742
l.marshall@mcintoshperry.com

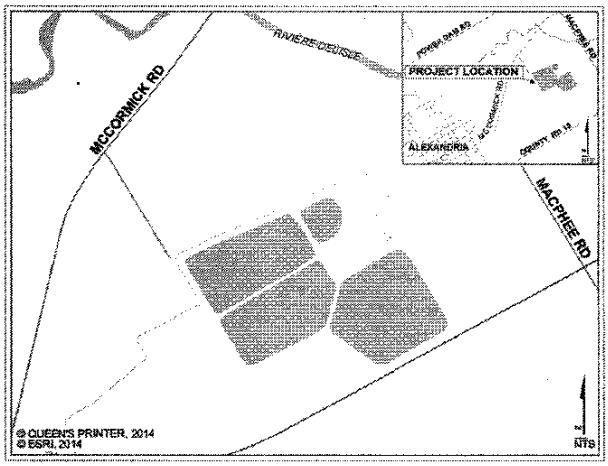
This notice issued November 16th and 23rd, 2016.

LE CANTON DE GLENGARRY NORD
APPEL AU COMMENTAIRES DU PUBLIC ET AVIS DE SÉANCE D'INFORMATION PUBLIQUE USINE D'ÉPURATION DES EAUX USÉES D'ALEXANDRIABÉVALUATION ENVIRONNEMENTALE MUNICIPALE DE PORTÉE GÉNÉRALE

Le canton de Glengarry Nord a entamé une évaluation environnementale municipale de portée générale pour l'agrandissement proposé de l'usine d'épuration des eaux usées d'Alexandria situé sur le chemin McCormick.

L'usine d'épuration des eaux usées d'Alexandria a à l'heure actuelle dépassé son débit timbré. Le canton a entrepris plusieurs différentes tentatives pour réduire et éliminer l'infiltration dans le système d'égouts. Même si ceci fut efficace, les résultats n'ont pas pu réduire le débit de source externe à un point tel que l'usine d'épuration peut continuer ses opérations d'après ses autorisations environnementales existantes. De plus, le canton a fait enquête sur la possibilité de modifier le débit timbré de l'usine, mais il fut déterminé que ceci n'était pas possible. Le manque de capacité nominale crée une barrière à la croissance et au développement économique dans la municipalité. Le canton entreprendra dans l'évaluation de développer un plan pour l'usine d'épuration des eaux usées d'Alexandria qui traitera du problème de capacité nominale et de la croissance future.

Le projet suit un processus de planification conforme aux projets de groupe « C » tel que défini dans le document « Évaluation environnementale municipale de portée générale » (octobre 2000, ainsi modifié en 2007 et 2011). Une séance d'information publique (SIP) est prévue pour fournir plus d'information au sujet du projet et présenter les solutions alternatives à l'agrandissement de l'usine d'épuration des eaux usées d'Alexandria, ainsi que pour répondre aux questions. Les détails de la SIP se retrouve ci-dessous :



Le lundi, 28 novembre 2016
Centre Sandfield (Canton de Glengarry Nord)
102, rue Derby Ouest, Alexandria, Ontario
16h30 à 18h30 (format portes ouvertes)

Un rapport d'étude environnementale de phase 2 peut être consulté sur le site web du Canton (http://northglengarry.ca/en/townhall/waterandsewage.asp). Les membres du public sont invités à faire parvenir leurs commentaires pour l'intégration dans la planification et conception de ce projet. Ces commentaires seront reçus jusqu'au 5 décembre 2016. Sous réserve des commentaires reçus suite à cet avis, le Canton a l'intention de donner des consignes à l'équipe du project pour procéder avec l'évaluation environnementale.

Pour de plus amples renseignements, veuillez rejoindre :

Canton de Glengarry Nord
Ryan Morton
Directeur des travaux publics
63 rue Kenyon Ouest
Alexandria (Ontario) K0C 1A0
Téléphone : 613-525-3087

ou

McIntosh Perry Consulting Engineers Ltd.
Lisa Marshall, P.Eng.
Coordinatrice environnementale/ingénieure
115 chemin Walgreen, R.R.3
Carp (Ontario) K0A 1L0

PUBLIC COMMENT INVITED AND PUBLIC INFORMATION CENTRE #1
MUNICIPAL CLASS "C" ENVIRONMENTAL ASSESSMENT
EXPANSION OF THE ALEXANDRIA SEWAGE LAGOON FACILITY
TOWNSHIP OF NORTH GLENGARRY

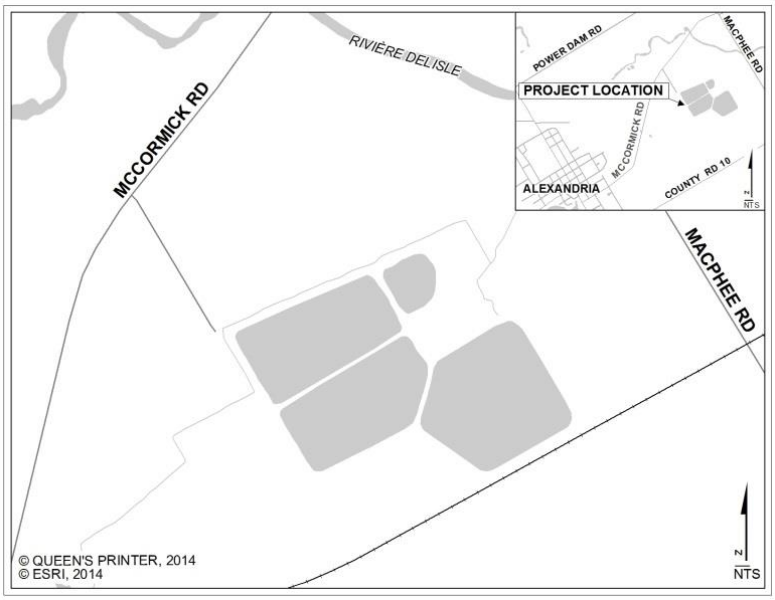
SIGN-IN SHEET

MONDAY, NOVEMBER 28TH, 2016

NAME (Please Print)	ORGANIZATION	ADDRESS	EMAIL ADDRESS	TELEPHONE NO.	RECEIVE FUTURE NOTIFICATION (YES/NO)
S. Smith	MOECC	Cornwall			
Carl Waymann	—	McCormick Rd.			
Michel Depratto	Twp North Glengarry ARR	Alexandria		329-8394	
Malcolm MacPherson	—	McCormick Rd		613-930-5495	
Michael Morton		Kenyon			
		MacDonell Rd.		613-525-4654	
Chris McDonell	Mayor	Alexandria		551-8613	

PUBLIC COMMENT INVITE AND NOTICE OF PUBLIC INFORMATION CENTRE #2 ALEXANDRIA SEWAGE LAGOON FACILITY MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

The Township of North Glengarry has initiated a Municipal Class Environmental Assessment for the proposed expansion of the Alexandria Sewage Lagoon Facility located on McComrick Road.



The Alexandria Sewage Lagoon Facility has exceeded it's rated capacity. The purpose of the study is to identify and evaluate alternatives for the expansion of the Alexandria Sewage Lagoon Treatment Facility has exceeded it's rated capacity. The lack of capacity is creating a barrier for growth and economic development in the Township. Therefore, the Township has initiated this study to develop and evaulate alternatives for the Alexandria Sewage Lagoon Treatment Facility to address capacity issues and future growth.

The project is being planned under a Schedule 'C' undertaking as defined in the Municipal Engineers Association "Municipal Class Environmental Assessment" (October 2000, as amended 2007 & 2011).

A second Public Information Centre (PIC #2) is being planned to present the preliminary alternative design concepts for Alexandria Sewge Lagoon expansion. The PIC will allow time for interested parties to review the display boards and ask questions pertaining to the project. The PIC will be held:

Tuesday, December 20th, 2016
The Sandfield Centre (Township of North Glengarry)
102 Derby St. West, Alexandria, Ontario
4:30 p.m. – 6:30 p.m. (open house format)

A Phase 3 Environmental Study Report is currently available for viewing on the the Township website's (http://northglengarry.ca/en/townhall/waterandsewage.asp). Public input and comment are invited for incorporation into the planning and design of this project and will be received until January 6th, 2017. Subject to comments received as a result of this Notice, the Township plans to proceed with the assignment and prepare an Enviornmental Study Report which will be placed on public record for a minimum of 30 day review period.

For further information on this project please contact the following individuals:

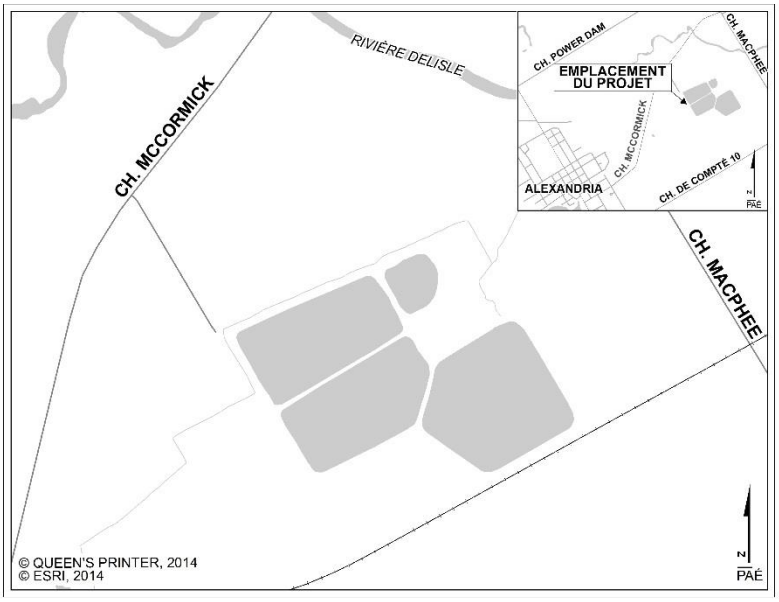
Corporation of the Township of North Glengarry
Ryan Morton
Director of Public Works
63 Kenyon Street West
Alexandria, Ontario, K0C 1A0
Phone: 613-525-3087
Fax: 613-525-1649
ryanmorton@northglengarry.ca

McIntosh Perry Consulting Engineers Ltd.
Lisa Marshall
Environmental Coordinator/Engineer
115 Walgreen Road, R.R.3
Carp, Ontario, K0A 1L0
Phone: 613-836-2184 ext. 2224
Fax: 613-836-3742
l.marshall@mcintoshperry.com

This notice issued December 7th and 14th, 2016

APPEL AU COMMENTAIRES DU PUBLIC ET AVIS DE SÉANCE D'INFORMATION PUBLIQUE NO. 2
USINE D'ÉPURATION DES EAUX USÉES D'ALEXANDRIA
ÉVALUATION ENVIRONNEMENTALE MUNICIPALE DE PORTÉE GÉNÉRALE

Le canton de Glengarry Nord a entamé une évaluation environnementale municipale de portée générale pour l'agrandissement proposé de l'usine d'épuration des eaux usées d'Alexandria situé sur le chemin McCormick.



L'usine d'épuration des eaux usées d'Alexandria a à l'heure actuelle dépassé son débit timbré. Le canton a entrepris plusieurs différentes tentatives pour réduire et éliminer l'infiltration dans le système d'égouts. Même si ceci fut efficace, les résultats n'ont pas pu réduire le débit de source externe à un point tel que l'usine d'épuration peut continuer s'est opérations d'après ses autorisations environmentales existantes. De plus, le canton a fait enquête sur la possibilité de modifier le débit timbré de l'usine, mais il fut déterminé que ceci n'était pas possible. Le manque de capacité nominale crée une barrière à la croissance et au développement économique dans la municipalité. Le canton a entrepris dans l'évaluation de développer un plan pour l'usine d'épuration des eaux usées d'Alexandria qui traitera du problème de capacité nominale et de la croissance future.

Le projet suit un processus de planification conforme aux projets de groupe « C » tel que défini dans le document « Évaluation environnementale municipale de portée générale » (octobre 2000, ainsi modifié en 2007 et 2011). Une deuxième séance d'information publique (SIP) est prévue pour présenter les grandes lignes de la solution préliminaire choisi pour l'agrandissement de l'usine d'épuration des eaux usées d'Alexandria, ainsi que donner la chance aux membres du public de lire les panneaux informatifs et de poser des questions liés au projet. Les détails de la SIP se retrouve ci-dessous :

Le mardi, 20 décembre 2016
Centre Sandfield (Canton de Glengarry Nord)
102, rue Derby Ouest, Alexandria, Ontario
16h30 à 18h30 (format portes ouvertes)

Un rapport d'étude environnementale de phase 3 peut être consulté sur le site web du Canton (http://northglengarry.ca/en/townhall/waterandsewage.asp). Les membres du public sont invités à faire parvenir leurs commentaires pour l'intégration dans la planification et conception de ce projet. Ces commentaires seront reçus jusqu'au **6 janvier 2017**. Sous réserve des commentaires reçus suite à cet avis, le Canton a l'intention de donner des consignes à l'équipe du project de procéder avec la préparation d'un rapport d'étude environnementale. Le rapport d'étude environnementale sera disponible pour consultation du public pour un minimum de 30 jours.

Pour de plus amples renseignements, veuillez rejoindre :

Canton de Glengarry Nord
Ryan Morton, Directeur des travaux publics
63 rue Kenyon Ouest
Alexandria (Ontario) K0C 1A0
Téléphone : 613-525-3087
Télécopieur : 613-525-1649
Courriel : ryanmorton@northglengarry.ca

ou

McIntosh Perry Consulting Engineers Ltd.
Lisa Marshall, P.Eng., Coordinatrice environnementale
115 chemin Walgreen, R.R.3
Carp (Ontario) K0A 1L0
Téléphone : 613-836-2184 poste 2224
Télécopieur : 613-836-3742
Courriel : l.marshall@mcintoshperry.com

Cet avis fut publié les 7 et 14 décembre 2016.

Tel. 613-933-2227
www.aplusmanagement.ca 37-tf

Notices / Tenders

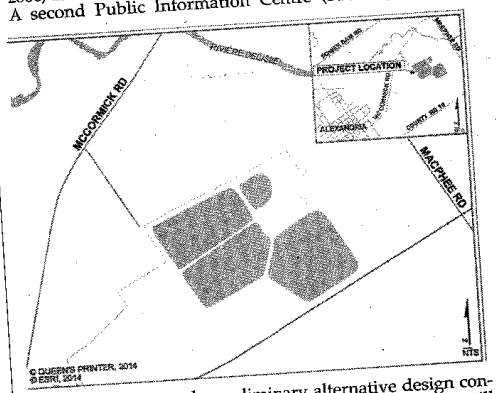
PUBLIC COMMENT INVITE AND NOTICE OF PUBLIC INFORMATION CENTRE #2, ALEXANDRIA SEWAGE LAGOON FACILITY MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

The Township of North Glengarry has initiated a Municipal Class Environmental Assessment for the proposed expansion of the Alexandria Sewage Lagoon Facility located on McCormick Road.

The Alexandria Sewage Lagoon Facility has exceeded its rated capacity. The purpose of the study is to identify and evaluate alternatives for the expansion of the Alexandria Sewage Lagoon Treatment Facility has exceeded its rated capacity. The lack of capacity is creating a barrier for growth and economic development in the Township. Therefore, the Township has initiated this study to develop and evaulate alternatives for the Alexandria Sewage Lagoon Treatment Facility to address capacity issues and future growth.

The project is being planned under a Schedule 'C' undertaking as defined in the Municipal Engineers Association "Municipal Class Environmental Assessment" (October 2000, as amended 2007 and 2011).

A second Public Information Centre (PIC #2) is being



planned to present the preliminary alternative design concepts for Alexandria Sewge Lagoon expansion. The PIC will allow time for interested parties to review the display boards and ask questions pertaining to the project. The PIC will be held:

Tuesday, December 20, 2016
The Sandfield Centre (Township of North Glengarry)
102 Derby St. West, Alexandria, Ontario
4:30 p.m. - 6:30 p.m. (open house format)

A Phase 3 Environmental Study Report is currently available for viewing on the Township's website (http://northglengarry.ca/en/townhall/waterandsewage.asp). Public input and comment are invited for incorporation into the planning and design of this project and will be received until January 6th, 2017. Subject to comments received as a result of this Notice, the Township plans to proceed with the assignment and prepare an Enviornmental Study Report which will be placed on public record for a minimum of 30 day review period.

For further information on this project please contact the following individuals:

Corporation of the Township of North Glengarry
Ryan Morton
Director of Public Works
63 Kenyon Street West
Alexandria, ON K0C 1A0
Phone: 613-525-3087 Fax: 613-525-1649
ryanmorton@northglengarry.ca
or
McIntosh Perry Consulting Engineers Ltd.
Lisa Marshall
Environmental Coordinator/Engineer
115 Walgreen Road, R.R.3
Carp, Ontario, K0A 1L0
Phone: 613-836-2184 ext. 2224 Fax: 613-836-3742
l.marshall@mcintoshperry.com

This notice issued December 7 and 14, 2016 49-2c

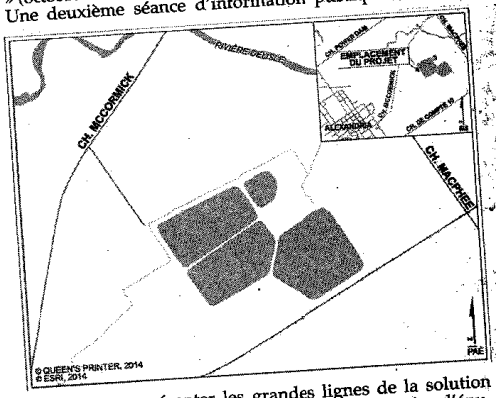
APPEL AU COMMENTAIRES DU PUBLIC ET AVIS DE SÉANCE D'INFORMATION PUBLIQUE NO. 2 USINE D'ÉPURATION DES EAUX USÉES D'ALEXANDRIA ÉVALUATION ENVIRONNEMENTALE MUNICIPALE DE PORTÉE GÉNÉRALE

Le canton de Glengarry Nord a entamé une évaluation environnementale municipale de portée générale pour l'agrandissement proposé de l'usine d'épuration des eaux usées d'Alexandria situé sur le chemin McCormick.

L'usine d'épuration des eaux usées d'Alexandria a à l'heure actuelle dépassé son débit timbré. Le canton a entrepris plusieurs différentes tentatives pour réduire et éliminer l'infiltration dans le système d'égouts. Même si ceci fut efficace, les résultats n'ont pas pu réduire le débit de source externe à un point tel que l'usine d'épuration peut continuer s'est opérations d'après ses autorisations environmentales existantes. De plus, le canton a fait enquête sur la possibilité de modifier le débit timbré de l'usine, mais il fut déterminé que ceci n'était pas possible. Le manque de capacité nominale crée une barrière à la croissance et au développement économique dans la municipalité. Le canton a entrepris dans l'évaluation de développer un plan pour l'usine d'épuration des eaux usées d'Alexandria qui traitera du problème de capacité nominale et de la croissance future.

Le projet suit un processus de planification conforme aux projets de groupe « C » tel que défini dans le document « Évaluation environnementale municipale de portée générale » (octobre 2000, ainsi modifié en 2007 et 2011).

Une deuxième séance d'information publique (SIP) est



prévue pour présenter les grandes lignes de la solution préliminaire choisi pour l'agrandissement de l'usine d'épuration des eaux usées d'Alexandria, ainsi que donner la chance aux membres du public de lire les panneaux informatifs et de poser des questions liés au projet. Les détails de la SIP se retrouve ci-dessous :

Le mardi, 20 décembre 2016
Centre Sandfield (Canton de Glengarry Nord)
102, rue Derby Ouest, Alexandria, Ontario
16h30 à 18h30 (format portes ouvertes)

Un rapport d'étude environnementale de phase 3 peut être consulté sur le site web du Canton (http://northglengarry.ca/en/townhall/waterandsewage.asp). Les membres du public sont invités à faire parvenir leurs commentaires pour l'intégration dans la planification et conception de ce projet. Ces commentaires seront reçus jusqu'au 6 janvier 2017. Sous réserve des commentaires reçus suite à cet avis, le Canton a l'intention de donner des consignes à l'équipe du project de procéder avec la préparation d'un rapport d'étude environnementale. Le rapport d'étude environnementale sera disponible pour consultation du public pour un minimum de 30 jours.

Pour de plus amples renseignements, veuillez rejoindre :

Canton de Glengarry Nord
Ryan Morton, Directeur des travaux publics
63 rue Kenyon Ouest
Alexandria (Ontario) K0C 1A0
Téléphone : 613-525-3087
Télécopieur : 613-525-1649
Courriel : ryanmorton@northglengarry.ca
ou
McIntosh Perry Consulting Engineers Ltd.
Lisa Marshall, P.Eng., Coordinatrice environnementale
115 chemin Walgreen, R.R.3
Carp (Ontario) K0A 1L0
Téléphone : 613-836-2184 poste 2224
Télécopieur : 613-836-3742
Courriel : l.marshall@mcintoshperry.com

Cet avis fut publié les 7 et 14 décembre 2016. 49-2c

Notice to Creditors

NOTICE TO CREDITORS AND OTHERS

ALL PERSONS having any claim against the Estate of Shirley

PUBLIC COMMENT INVITED AND PUBLIC INFORMATION CENTRE #2
MUNICIPAL CLASS "C" ENVIRONMENTAL ASSESSMENT
EXPANSION OF THE ALEXANDRIA SEWAGE LAGOON FACILITY
TOWNSHIP OF NORTH GLENGARRY

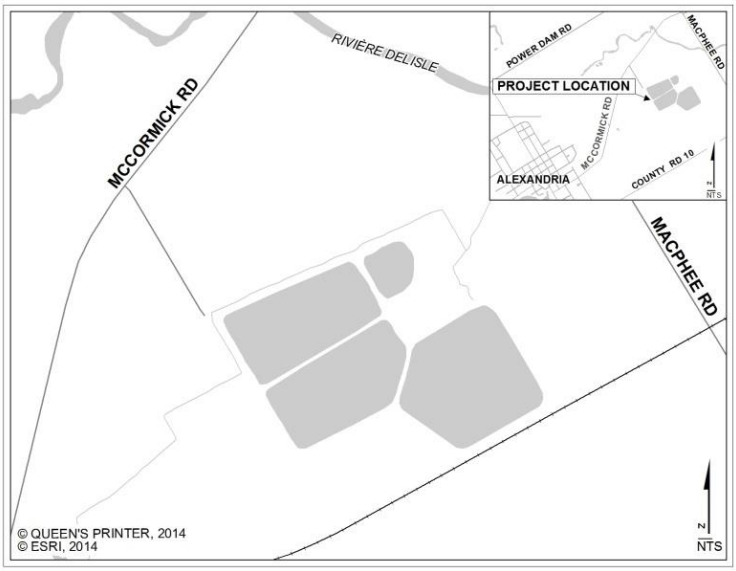
SIGN-IN SHEET

TUESDAY, DECEMBER 20TH, 2016

NAME (Please Print)	ORGANIZATION	ADDRESS	EMAIL ADDRESS	TELEPHONE NO.	RECEIVE FUTURE NOTIFICATION (YES/NO)
Chris McDonell	N.G	Alex	-	525 1110	
Dean McDonald	N.G	Alexandria		551-2756	
Anne Leduc	N C	Vankleek Hill		613-363-7497	

NOTICE OF COMPLETION OF ENVIRONMENTAL STUDY REPORT
ALEXANDRIA SEWAGE LAGOON FACILITY EXPANSION
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

The Township of North Glengarry has completed a Municipal Class Environmental Assessment for the proposed expansion of the Alexandria Sewage Lagoon Treatmetn Facility located on McComrick Road. The study followed the requirements of the of a Schedule 'C' undertaking as defined in the Municipal Engineers Association "Municipal Class Environmental Assessment" (October 2000, as amended 2007 & 2011).



The Alexandria Sewage Lagoon Facility has exceeded it's rated capacity. The lack of capacity is creating a barrier for growth and economic development in the Township. Therefore, the Township initiated this study to identify and evaulate alternatives for the expansion of the Alexandria Sewage Lagoon Treatment Facility to address capacity issues and future growth.

The technically preferred design concept for the expansion of the Alexandria Sewage Lagoon Treatment Facility consists of upgrading the existing system by implementing pre-lagoon technology for removal of larger solids and grit, as well as implementing post-lagoon treatment technologies for ammonia, phosphorus and solids control and disinfection.

The Environmental Study Report is being placed on public record for viewing on the Township's website (http://northglengarry.ca/en/townhall/waterandsewage.asp) and at the following location:

North Glengarry Township
63 Kenyon Street West
Alexandria, Ontario
Monday - Friday: 8:30 a.m. - 4:30 p.m.
Phone: 613-525-1110

Please provide written comments to the Township of North Glengarry within 30 calendar days from the date of this notice. If concerns regarding this project cannot be resolved in discussion with the municipality, a person may request that the Minister of the Environment and Climate Change make an order for the project to comply with Part II of the *Environmental Assessment Act* (referred to as Part II Order), which addresses individual environmental assessments. Requests must be made to the Minister at the address below by **February 18th, 2017**. A copy of the request must be copied to the Township of North Glengarry Public Works Department. Subject to comments received as a result if this Notice and the receipt of necessary approval and funding, the Township intends to proceed with detail design and construction of this project in 2017/2019.

The Honorable Glen Murray
Ministry of the Environment and Climate Change
11th Floor, Ferguson Block
77 Wellesley Street West
Toronto, Ontario M7A 2T5

For further information on this project please contact the following individuals:

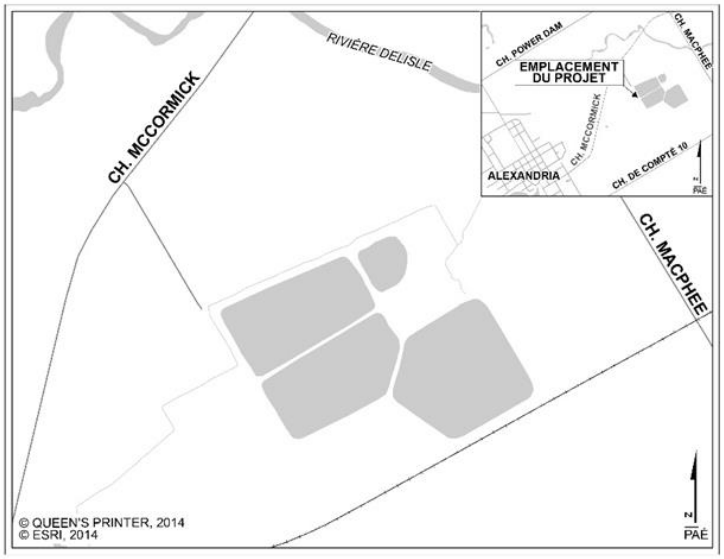
Corporation of the Township of North Glengarry
Ryan Morton
Director of Public Works
63 Kenyon Street West
Alexandria, Ontario, K0C 1A0
Phone: 613-525-3087
Fax: 613-525-1649
ryanmorton@northglengarry.ca

McIntosh Perry Consulting Engineers Ltd.
Lisa Marshall, P.Eng.
Environmental Coordinator/Project Engineer
115 Walgreen Road, R.R.3
Carp, Ontario K0A 1L0
Phone: 613-836-2184 ext. 2224
Fax: 613-836-3742
l.marshall@mcintoshperry.com

This notice issued January 18th and 25th, 2017

AVIS DE D'ACHÈVEMENT DU RAPPORT D'ÉTUDE ENVIRONNEMENTALE
USINE D'ÉPURATION DES EAUX USÉES D'ALEXANDRIA
ÉVALUATION ENVIRONNEMENTALE MUNICIPALE DE PORTÉE GÉNÉRALE

Le canton de Glengarry Nord a complété une évaluation environnementale municipale de portée générale pour l'agrandissement proposé de l'usine d'épuration des eaux usées d'Alexandria situé sur le chemin McCormick.



Le projet a suivi le processus de planification conforme aux projets de groupe « C » tel que défini dans le document « Évaluation environnementale municipale de portée générale » (octobre 2000, ainsi modifié en 2007 et 2011).

L'usine d'épuration des eaux usées d'Alexandria a à l'heure actuelle dépassé son débit timbré. Le manque de capacité nominale crée une barrière à la croissance et au développement économique dans la municipalité. Le canton a alors entrepris cette évaluation afin de développer et évaluer les options pour l'expansion de l'usine d'épuration des eaux usées d'Alexandria pour traiter du problème de capacité nominale et de la croissance future.

Le concept de design préférentiel du point de vue technique pour l'agrandissement de l'usine d'épuration des eaux usées d'Alexandria consiste en ceci : une amélioration du système existant en amont de l'usine d'épuration pour éliminer les plus gros objets solides ainsi que les grosses particules, en plus de l'implémentation en aval de l'usine d'épuration des technologies de traitement pour l'ammoniaque, le phosphore, le contrôle des solides, ainsi que la désinfection.

Le rapport d'étude environnementale est disponible pour être consulté sur le site web du Canton (http://northglengarry.ca/en/townhall/waterandsewage.asp) et par les membres du public au :

Canton de Glengarry Nord
63 rue Kenyon Ouest
Alexandria (Ontario) K0C 1A0
Lundi au vendredi : 8 h 30 à 16 h 30
Téléphone : 613-525-1110

Les membres du public sont invités à nous faire parvenir leurs commentaires dans les 30 jours suivant la date de cet avis. Si après avoir consulté le Canton, vous estimez que vos préoccupations n'ont pas été réglées, vous êtes en droit de déposer une requête au ministère de l'Environnement afin de reclasser le projet (c.-à-d. un arrêté en vertu de la Partie II). Un arrêté en vertu de la Partie II peut mener à une évaluation environnementale individuelle. Le ministère doit recevoir les requêtes d'ici le **18 février 2017** à l'adresse ci-dessous. Une copie de la requête doit également être envoyée au Directeur des travaux publics pour le Canton de Glengarry Nord. Sous réserve des commentaires reçus et de l'obtention des approbations et fonds nécessaires, le canton de Glengarry Nord a l'intention de procéder à la conception détaillée et à la construction de ce projet en 2017/2019.

L'honorable Glen Murray
Ministre de l'Environnement et de l'Action en matière de changement climatique
Édifice Ferguson, 11e étage,
77, rue Wellesley Ouest
Toronto (Ontario) M7A 2T5

Pour de plus amples renseignements, veuillez rejoindre :

Canton de Glengarry Nord
Ryan Morton
Directeur des travaux publics
63 rue Kenyon Ouest
Alexandria (Ontario) K0C 1A0
Téléphone : 613-525-3087
Télécopieur : 613-525-1649
Courriel : ryanmorton@northglengarry.ca

ou

McIntosh Perry Consulting Engineers Ltd.
Lisa Marshall, P.Eng.
Coordinatrice environnementale/ingénieure
115 chemin Walgreen, R.R.3
Carp (Ontario) K0A 1L0
Téléphone : 613-836-2184 poste 2224
Télécopieur : 613-836-3742
Courriel : l.marshall@mcintoshperry.com

Pour des renseignements en français au sujet de ce projet, veuillez rejoindre Patrick Leblanc en composant le 613-836-2184, poste 2233 ou par courriel au p.leblanc@mcintoshperry.com.

Cet avis fut publié le 18 et 25 janvier 2017.

APPENDIX N2

MAILING LIST

Township of North Glengarry
Consultation Contact List

Salutation	First_Name	Last_Name	Job_ Title	Company / Agency	Address	City/Town	Prov	Postal_Code	Phone	Email
Municipality										
	Christopher	McDonell	Mayor	Township of North Glengarry	90 Main Street, P.O Box 700	Alexandria	ON	K0C 1A0	613-525-1110	chrismcdonell@northglengarry.ca
	Jamie	MacDonald	Deputy Mayor	Township of North Glengarry	90 Main Street, P.O Box 700	Alexandria	ON	K0C 1A0	613-525-1110	jamiemacdonald@northglengarry.ca
	Jacques	Massie	Councillor at Large	Township of North Glengarry	90 Main Street, P.O Box 700	Alexandria	ON	K0C 1A0	613-525-1110	jacquesmassie@northglengarry.ca
	Michel	Depratto	Alexandria Ward Councillor	Township of North Glengarry	90 Main Street, P.O Box 700	Alexandria	ON	K0C 1A0	613-525-1110	micheldepratto@northglengarry.ca
	Jeff	Manley	Kenyon Ward Councillor	Township of North Glengarry	90 Main Street, P.O Box 700	Alexandria	ON	K0C 1A0	613-525-1110	jeffmanley@northglengarry.ca
	Brian	Caddell	Lochiel Ward Councillor	Township of North Glengarry	90 Main Street, P.O Box 700	Alexandria	ON	K0C 1A0	613-525-1110	briancaddell@northglengarry.ca
	Carma	Williams	Maxville Ward Councillor	Township of North Glengarry	90 Main Street, P.O Box 700	Alexandria	ON	K0C 1A0	613-525-1110	carmawilliams@northglengarry.ca
	Daniel	Gagnon	Chief Administrative Officer/Clerk	Township of North Glengarry	90 Main Street, P.O Box 700	Alexandria	ON	K0C 1A0	613-525-1110	cao@northglengarry.ca
	Dean	MacDonald	Water Works Manager	Township of North Glengarry	90 Main Street, P.O Box 700	Alexandria	ON	K0C 1A0	613-525-1110	waterworks@northglengarry.ca
	Gerry	Murphy	Chief Building Official / Planning Manager	Township of North Glengarry	91 Main Street, P.O Box 700	Alexandria	ON	K0C 1A1	613-525-1116	building@northglengarry.ca
	Helen	Thomson	County Clerk	United Counties of Stormont, Dundas & Glengarry	26 Pitt St., Suite 323	Cornwall	ON	K6J 3P2	613-932-1515 x200	hthomson@sdgcounties.ca
	Benjamin	de Hann	Director of Transportation and Planning Services	United Counties of Stormont, Dundas and Glengarry	26 Pitt Street, Suite 208	Cornwall	ON	K6J 3P2	613-932-1515 x3	bdehann@sdgcounties.ca
Emergency Services										
Police	Chief		Alexandria Detachment	Ontario Provincial Police	624 Main Street South	Alexandria	ON	K0C 1A0	613-525-1954	
Fire and Emergency	Stephen	Stewart	Fire Chief	North Glengarry	90 Main Street, P.O Box 700	Alexandria	ON	K0C 1A0	613-525-1110	firedepartment@northglengarry.ca
SD&G EMS	Myles	Cassidy	Chief	Cornwall Stormont Dundas & Glengarry Emergency Medical Services	360 Pitt Street	Cornwall	On	K6J 3P9	613-933-0931, x2114	
MPP										
MPP Leeds-Grenville	Grant	Crack	MPP - Glengarry-Prescott-Russell	Legislative Assembly of Ontario	Suite 116151 Main Street East	Hawkesbury	ON	K6A 1A1	613-632-2706	gcrack.mpp.co@liberal.ola.org
Federal Government										
			Environmental Assessment Coordinator	Department of Fisheries and Oceans Canada	867 Lakeshore Road, P.O. Box 5050	Burlington	ON	L7R 4A6		fisheriesprotection@dfo-mpo.gc.ca
	Sara	Eddy	Senior Habitat Biologist	Department of Fisheries and Oceans Canada	867 Lakeshore Road, P.O. Box 5050	Burlington	ON	L7R 4A6	905-336-6285	Sara.Eddy@dfo-mpo.gc.ca
Provincial Government										
MOECC	Vicki	Mitchell	Environmental Assessment Coordinator	Ministry of the Environment and Climate Change - Eastern Ontario	1259 Gardiners Rd, Unit 3	Kingston	ON	K7P 3J6	1-613-540-6850	vicki.mitchell@ontario.ca
MOECC	Victor	Castro	Technical Support, Surface Water	Ministry of the Environment and Climate Change - Eastern Ontario	1259 Gardiners Rd, Unit 3	Kingston	ON	K7P 3J6	1-613-540-6850	victor.castro@ontario.ca
MOECC	James	Mahoney	Supervisor	Ministry of the Environment and Climate Change - Cornwall Area Office, Kingston Office, Ottawa Office	113 Amelia Street	Cornwall	ON	K6H 3P1	613-548-6902	james.mahoney@ontario.ca
MOECC	Suzanne	Smith	Water Inspector	Ministry of the Environment and Climate Change - Cornwall Area Office	113 Amelia Street	Cornwall	ON	K6H 3P1	613-933-7402	suzanne.smith@ontario.ca
MNRF	Mary	Dillon	District Planner	Ministy of Natural Resources and Forestry-Kemptville District Office	10 Campus Dr,PO Box 2002	Kemptville	ON	K0G 1J0	613-258-8470	laura.melvin@ontario.ca
	John	O'Neil	Rural Planner - Environmental and Land Use Policy-Eastern Ontario	Ministry of Agriculture, Food and Rural Affairs	Box 2004, 59 Ministry Road	Kemptville	ON	K0G 1J0	613-258-8341	John.O'Neil@ontario.ca
	Jennifer	Bionda	Deputy Chief, Ottawa Central Ambulance Communications Centre	Ministry of Health	2475 Don Reid Dr., Room C107	Ottawa	ON	K1H 1E2	613-580-2424, x22450	Jennifer.Bionda@ottawa.ca
	Michael	Elms	Manager - COMMUNITY PLANNING AND DEVELOPMENT	Ministry of Municipal Affairs & Housing Eastern Municipal Services Office	Rockwood House8 Estate Lane	Kingston	ON	K7M 9A8	613-545-2120	michael.elms@ontario.ca
	Katherine	Kirzati	Team Lead - Heritage Land Use Planning	Ministry of Tourism Culture and Sport	401 Bay Street, Suite 1700	Toronto	ON	M7A 0A7	416-314-7643	katherine.kirzati@ontario.ca
	Heather	Levecque	Consultation Unit Aboriginal Relations and Ministry Partnerships Division	Ministry of Aboriginal Affairs	160 Bloor St. E., 9th Flr	Toronto	ON	M7A 2E1	416-325-4044	heather.levecque@ontario.ca
			Coordinator	Ministry of Aboriginal Affairs - Consulation unit	160 Bloor Street East, 4th Floor	Toronto	ON	M7A 2E6		maa.ea.review@ontario.ca
First Nation										
				Métis Nation of Ontario Head Office, Métis Consultation Unit	500 Old St. Patrick Street, Unit 3	Ottawa	On	K1N 9G4	613-798-1488	mnoweb@metisnation.org
	Aly	Alibhai	Director, Lands Rsources and Consultation	Métis Nation of Ontario Head Office, Métis Consultation Unit	75 Sherbourne, St. Suite 311	Toronto	On	M5A 2P9	416-977-9881	alya@metisnation.org
	Janet	Stavinga	Executive Director	Algonquins of Ontario Consultation Office	31 Riverside Dr., Suite 101	Pembroke	ON	K8A 8R6	613-735-3759	algonquins@nrtco.net
	Abram	Benedict	Grand Chief	Mohawks of Akwessane	PO Box 579	Cornwall	ON	K6H 5T3	613-575-2250	
Conservation Authority										
	Lissa	Deslandes	Regulations Officer & Communications Coordinator	Raisin Region Conservation Authority	18045 County Road #2, Box 429	Cornwall	ON	K6H 5T2	613-938-3611	info@rrca.on.ca
	Matthew	Levac	Planning & Regulations Assistant	Raisin Region Conservation Authority	18045 County Road #2, Box 429	Cornwall	ON	K6H 5T2	613-938-3611	matthew.levac@rrca.on.ca
	Phil	Barnes	Raisin River CA – Water Resources Engineer	Raisin Region Conservation Authority	18045 County Road #2, Box 429	Cornwall	ON	K6H 5T2	613-938-3611	phil.barnes@rrca.on.ca
	Alison	McDonald	Watershed Planner - SWP Specialist	Raisin South Nation Source Protection Region	38 Victoria Street P.O. Box 29	Finch	ON	K0C 1K0	613-984-2948 ext. 311	amcdonald@nation.on.ca
					Utility Companies					
			East Zone (4)	Hydro One Inc					613-267-2154	eastzonescheduling@hydroone.com
	Leslie	Koch	Sustainment Manager, Lines Infomration System and Programs	Hydro One Inc	483 Bay Street	Toronto	On	M5G 2P5	416-345-6275	Leslie.Koch@HydroOne.com
	Suzanne	Renaud	Customer Field Representative	Enbridge Consumers Gas	400 Coventry Road	Ottawa	ON	K1K 2C7	1-800-267-3616	suzanne.renaud@enbridge.com
	John	Hung	Supervisor, Planning and Design	Enbridge Gas Distribution	500 Consumers Road, 4th Floor	North York	ON	M2J 1P8	1-877-362-7434	john.hung@enbridge.com
	Sandy	Clement	Regional Director, Community Affiars	BellCanada	450 Princess Street, 2nd Floor	Kingston	On	K7L 4Z9	613-542-8372	sandy.clement@bell.ca
Public										
	Carl Wilfres	Waymann			40 Landry St Suite 1106	Vanier On		K1L 8K4		
	Jacqueline	Dubeau			20680 McCormick Rd	Alexandria On		K0C 1A0		

Township of North Glengarry
Consultation Contact List

Salutation	First_Name	Last_Name	Job_ Title	Company / Agency	Address	City/Town	Prov	Postal_Code	Phone	Email
	Germain	Sabourin			20660 McCormick Rd	Alexandria On		K0C 1A0		
	Reynald	Balis			20521 Glen Robertson Rd	Alexandria On		K0C 1A0		
	Claire David	Crowley			20527 McCormick Rd	Alexandria On		K0C 1A0		
	Luc	Seguin			20543 McCormick Rd	Alexandria On		K0C 1A0		
	Rejean	Poirier			20551McCormick Rd	Alexandria On		K0C 1A0		
	Grant	Crack			20560 McCormick Rd	Alexandria On		K0C 1A0		
	Christina	Andreatos			20609 Glen Robertson Rd	Alexandria On		K0C 1A0		
	Christine	Gauthier			14 Main St N PO Box 654	Alexandria On		K0C 1A0		
	Michel	Deschamps			20640 McCormick Rd	Alexandria On		K0C 1A0		
	Rene	Quesnel			20615 Glen Robertson Rd	Alexandria On		K0C 1A0		
	Michele	Ritarose			20555 Glen Robertson Rd	Alexandria On		K0C 1A0		
	Nicole	Poirier			20657 Glen Robertson Rd	Alexandria On		K0C 1A0		
	Anik & Dignard, Luc	Samson			20661 Glen Robertson Rd	Alexandria On		K0C 1A0		
	Jeannette	Pilon			20675 Glen Robertson Rd	Alexandria On		K0C 1A0		
	Luc	Theoret			20663 Glen Robertson Rd	Alexandria On		K0C 1A0		
	Christine	Nussbaumer			20181 Cty Rd 43	Alexandria On		K0C 1A0		
	Eric	Bornstein			2260 Old Military Rd	Alexandria On		K0C 1A0		
	Yvon	Lortie			20573 Glen Robertson Rd	Alexandria On		K0C 1A0		
	St John Margaret	Boekhoff			20750 MacDonell Rd	Alexandria On		K0C 1A0		
	Donald	MacPhee			P.O. Box 1314, 20725 County Road 10	Alexandria On		K0C 1A0		
	Justin	Ricard			2940 Ouellette Rd	Alexandria On		K0C 1A0		
	Claude	Montpetit			20687 Glen Robertson Rd	Alexandria On		K0C 1A0		
	Via Rail Canada Inc Attn Real Estate Unit 500				3 Ville-Marie Place	Montreal Qc		H3B 2C9		
	Mark	Hutchinson			909 Nestingway	Ottawa On		K4A 3X4		
	Robert James	Gillissie			20545 McCormick Rd	Alexandria On		K0C 1A0		
	Fermes Des Vallees Inc				20535 Concession 8 Rd	Green Valley On		K0C 1L0		
	Gerald Noel	Murphy			1635 Dalkeith Rd	Dalkeith On		K0B 1E0		
	Marc Jacques	Bourdon			20660 Power Dam Rd	Alexandria On		K0C 1A0		
	Malcolm	MacPherson			20605 McCormick Rd	Alexandria On		K0C 1A0		
	Renald	Theoret			20661 Glen Robertson Rd	Alexandria On		K0C 1A0		

APPENDIX N3

CORRESPONDENCE

Ministry of Natural Resources

Kemptville District
P.O. Box2002
10 Campus Drive
Kemptville, ONK0G 1J0

Tel.: (613) 258-8204
Fax.: (613) 258-3920

Ministère des Richesses naturelles

District de Kemptville
CP 2002
10 Campus Drive
Kemptville, ONK0G 1J0

Tél.: (613) 258-8204
Téléc.: (613) 258-3920

Mon. Jun 22, 2015

Heather Lunn
McIntosh Perry
115 Walgreen Rd.
Carp, Ontario
K0A 1L0
(613) 836-2184 ext 2277
h.lunn@mcintoshperry.com

Attention: Heather Lunn

Subject: Information Request - Developments
Project Name: Proposed Lagoon Expansion on McCormick Rd., Alexandria
Site Address: McCormick Rd., Approx. 1.2km east of Sandfield Ave. S.
Our File No. 2015_LOC-3094

Natural Heritage Values
The Ministry of Natural Resources (MNR) Kemptville District has carried out a preliminary review of the area in order to identify any potential natural resource and natural heritage values.

The MNR works closely with partner agencies and local municipalities in order to establish concurrent approval process and to achieve streamlined and efficient service delivery. The MNR strongly encourages all proponents to contact partner agencies (e.g. MOE, Conservation Authority, etc.) and appropriate municipalities early on in the planning process. This provides the proponent with early knowledge regarding agency requirements and approval timelines.

Natural heritage features and values contribute to the province's rich biodiversity and provide habitat for a variety of species. The following Natural Heritage values were identified:

- Ditch
- Evaluated Wetland, Delisle River (Evaluated-Provincial)
- Pond
- River, Rivière Delisle

Municipal Official Plans contain additional information related to natural heritage features. Please see the local municipal Official Plan for more information such as specific policies and direction pertaining to activities which may impact natural heritage features. For planning advice or Official Plan interpretation, please contact the local municipality.

Where natural values and natural hazards exist (e.g., floodplains), there may be additional approvals and permitting required from the local Conservation Authority. The MNR strongly recommends contacting the local Conservation Authority for further information and approvals. Please see the MNR Kemptville Information Guide (2012) for contact information pertaining to Conservation Authorities located within the Kemptville District area.

For additional information and online mapping tools, please see the Natural Heritage Information Centre (NHIC), where additional data and files can be downloaded in both list and digital format. In addition sensitive species information can be requested and accessed through the NHIC at NHICrequests@ontario.ca.

In Addition, the following Fish species were identified: bluntnose minnow, brassy minnow, brook stickleback, brown bullhead, Carps and Minnows, central mudminnow, common shiner, creek chub, fathead minnow, finescale dace, northern redbelly dace, pumpkinseed, tadpole madtom, white sucker.

Water

Where the site is adjacent to or contains a watercourses or waterbodies, additional considerations apply. If any in-water works are to occur, there are timing restriction periods for which work in water can take place (see below). Appropriate measures should be taken to minimize and mitigate impact on water quality and fish habitat, including:

- including the installation of sediment and erosion control measures;
- avoiding removal alteration or covering of substrates used for fish spawning, feeding, over-wintering or nursery areas; and
- debris control measures should be put in place to manage falling debris (e.g. spalling).

A work permit from the MNR may be required pending further details regarding the proposed works. No encroachment on the bed or banks of the waterbody (e.g. abutments, embankments, etc.) is permitted until MNR approval and clearance has been issued. In order for MNR staff to determine when a work permit is required, additional information can include:

- Detailed drawings (existing and proposed)
- Location mapping
- Registered Plan survey
- Site photographs
- Public Lands Act Forms - application forms, ownership form and landowner notification form.

The MNR does not have any water quality or quantity data available. We recommend that the Ministry of the Environment be contacted for such data along with the local Conservation Authority. For further information regarding fish habitat and protocols, please refer to the following

interagency, document, *Fish Habitat Referral Protocol for* Ontario at: http://www.mnr.gov.ca/264110.pdf

Timing restriction periods in MNR Kemptville District*:

Warmwater → March 15 – June 30
→ March 15 – July 15 for St. Lawrence River & Ottawa River
Coldwater → October 1 – May 31
Mixed lakes → October 1 – June 30 (Big Rideau & Charleston)

* *Please note: Additional timing restrictions may apply as it relates to Endangered and Threatened Species, including works in both water and wetland areas.*

	FISH SPECIES	TIMING WINDOW
Spring:	Walleye	March 15 to May 31
	Northern Pike	March 15 to May 31
	Lake Sturgeon	May 1 to June 30
	Muskellunge	March 15 to May 31
	Largemouth/Smallmouth Bass	May 1 to July 15
	Rainbow Trout	March 15 to June 15
	Other/Unknown Spring Spawning Species	March 15 to July 15

	FISH SPECIES	TIMING WINDOW
Fall:	Lake Trout	October 1 to May 31
	Brook Trout	October 1 to May 31
	Pacific Salmon	September 15 to May 31
	Lake Whitefish	October 15 to May 31
	Lake Herring	October 15 to May 31
	Other/Unknown Fall Spawning Species	October 1 to May 31

Additional approvals and permits may be required for the proposed works as it relates to the Fisheries Act. Please contact your local Conservation Authority and the Department of Fisheries and Oceans to determine requirements and next steps. Where the Fisheries Act is triggered and habitat compensation, mitigation measures or best management practices are being considered; as the MNR is charged with the management of Provincial fish populations, the MNR requests ongoing involvement in such discussions in order to ensure population conservation. Furthermore, local Conservation Authorities may also have additional approvals for works in and adjacent to water and wetland features. Finally, Transport Canada's Navigable Waters Protection Division may require review and approval of the proposed project. Please contact these local agencies directly for more information.

As per the Natural Heritage Reference Manual (Section 13; OMNR 2010) the MNR strongly recommends that an Ecological Site Assessment be carried out to more thoroughly determine the presence of natural heritage features, and Species at Risk and their habitat located on site. The MNR can provide survey methodology for particular species at risk and their habitats. In addition, the local planning authority may have more details pertaining to the requirements of the assessment process, which will allow for the municipality to make planning decisions which are consistent with the Provincial Policy Statement (2005).

Species at Risk

With the new Endangered Species Act (ESA, 2007) in effect, it is important to understand which species and habitats exist in the area and the implications of the legislation. A review of the Natural Heritage Information Centre (NHIC) and internal records and aerial photograph interpretation indicate that there is a potential for the following Threatened (THR) and/or Endangered (END) species on the site or in proximity to it:

- Barn Swallow (THR)
- Bobolink (THR)
- Butternut (END)
- Cutlip Minnow (THR)
- Eastern Meadowlark (THR)
- Least Bittern (THR)

All Endangered and Threatened species receive individual protection under section 9 of the ESA and receive general habitat protection under Section 10 of the ESA, 2007. Thus any potential works should consider disturbance of possible important habitat (e.g. nesting sites). Please note that as of June 30, 2013 general habitat protection applies to all Threatened and Endangered species. The habitat of these listed species is protected from damage and destruction and certain activities may require authorization(s) under the ESA. Please keep this date in mind when planning any species and habitat surveys

Species receiving General Habitat protection:

- Barn Swallow (THR)
- Bobolink (THR)
- Butternut (END)
- Cutlip Minnow (THR)
- Eastern Meadowlark (THR)
- Least Bittern (THR)

If the proposed activity is known to have an impact on the species mentioned above or any other SAR, an authorization under the Endangered Species Act, 2007 (ESA) may be required. It is recommended that MNR Kemptville be contacted prior to any activities being carried out to discuss potential survey and mitigation measures to avoid contravention of the ESA.

Habitat has been identified within the project area that appears suitable for one or more species listed by SARO as Special Concern (SC). In Addition, one or more Special Concern species has been documented to occur either on the site or nearby. Species listed as Special Concern are not protected under the ESA, 2007. However, please note that some of these species may be protected under the Fish and Wildlife Conservation Act. Species of Special Concern for consideration:

- Black Tern (SC)
- Monarch (SC)
- Snapping Turtle (SC)

If any of these or any other species at risk are discovered throughout the course of the work, and/or should any species at risk or their habitat be potentially impacted by on site activities, MNR

should be contacted immediately and operations be modified to avoid any negative impacts to species at risk or their habitat until further direction is provided by MNR.

Please note that information regarding species at risk is based on documented occurrences only and does not include an interpretation of potential habitat within or in proximity to the site in question. Although this data represents the MNR's best current available information, it is important to note that a lack of information for a site does not mean that additional features and values are not present. i.e.: Species at Risk (SAR) or their habitat could still be present at the location or in the immediate area. It is the responsibility of the proponent to ensure that species at risk are not killed, harmed, or harassed; or their habitat is not damaged or destroyed through the activities carried out on the site. The MNR continues to strongly encourage ecological site assessments to determine the potential for SAR habitat and occurrences. When a SAR or potential habitat for a SAR does occur on a site, it is recommended that the proponent contact the MNR for technical advice and to discuss what activities can occur without contravention of the Act. If an activity is proposed that will contravene the ESA (such as Section 9 or 10), the proponent must contact the MNR to discuss the potential for a permit (Section 17). For specific questions regarding the Endangered Species Act (2007) or SAR, please contact a district Species at Risk Biologist at sar.kemptville@ontario.ca. For more information regarding the ESA (2007), please see attached ESA Information Sheet.

As of July 1, 2013, the approvals processes for a number of activities that have the potential to impact SAR or their habitat were changed in an effort to streamline approvals processes while continuing to protect and sustainably manage Ontario's natural resources. For those activities that require registration with the Ministry, businesses and individuals will be able to do so through a new online system. The online system will also include information to help guide individuals and businesses through the new processes. For further information on which activities are authorized through this new online registration process and how to apply, please refer to the following website: http://www.mnr.gov.on.ca/en/About/2ColumnSubPage/STDPROD_104342.html. General inquiries may be directed towards Kemptville District MNR, while questions and comments involving the new online forms can be directed to the Registry Approvals Service Centre (RASC) at 1-855-613-4256 or mnr.rasc@ontario.ca.

Please note: The advice in this letter may become invalid if:

- The Committee on the Status of Species at Risk in Ontario (COSSARO) re-assesses the status of the above-named species OR adds a species to the SARO List such that the section 9 and/or 10 protection provisions apply to those species.
- Additional occurrences of species are discovered.
- Habitat protection comes into force for one of the above-mentioned species through the creation of a habitat regulation (see general habitat protection above).

This letter is valid until: Tue. Jun 21, 2016

MNR is streamlining and automating its approvals processes for natural resource-related activities. Some activities that may otherwise contravene the ESA may be eligible to proceed without a permit from MNR provided that regulatory conditions are met for the ongoing protection of species at risk and their habitats. There are regulatory provisions for projects that have attained a specified level

of approval prior to, or shortly after, the specified species or its habitat became protected under the ESA. Their requirements include registering the activity with the Ministry of Natural Resources, taking steps to immediately minimize adverse effects on species and habitat, and developing a mitigation plan. Anyone intending to use this regulatory provision is strongly advised to review Ontario Regulation 242/08 under the Endangered Species Act, 2007 for the full legal requirements.

For more information please check out the following link http://www.ontario.ca/environment-and-energy/development-and-infrastructure-projects-and-endangered-or-threatened-species

The MNR would like to advise, by way of this letter, that we continue to be circulated on information with regards to this project. If you have any questions or require clarification please do not hesitate to contact me.

Sincerely,

Erin Seabert
Resource Management Tech
erin.seabert@ontario.ca

Encl.\
-ESA Infosheet
-NHIC/LIO Infosheet

From: Benjamin De Haan <b_dehaan@sdgcounties.ca>
Sent: Thursday, January 28, 2016 11:25 AM
To: Lisa Marshall
Subject: Contact Update: Alexandria Sewage Lagoon Expansion

Greetings Lisa,

Can you please update your contacts at the County as Mr. Mike Otis has retired. EA information of this nature can be forwarded directly to my attention

Thanks

Benjamin de Haan
Director of Transportation and Planning Services

United Counties of Stormont, Dundas and Glengarry
26 Pitt Street Cornwall, ON K6J 3P2
P: (613) 932-1515 x3
F: (613) 936-2913
E: bdehaan@sdgcounties.ca
W: www.sdgcounties.ca

From:	Mitchell, Vicki (MOECC) <Vicki.Mitchell@ontario.ca>
Sent:	Thursday, February 4, 2016 9:34 AM
To:	Lisa Marshall
Cc:	ryanmorton@northglengarry.ca; Mahoney, James (MOECC); Smith, Suzanne (MOECC); Castro, Victor (MOECC)
Subject:	Alexandria Sewage Lagoon Treatment Expansion - Notice of Commencement
Attachments:	Alexandriawwtp.pdf; Attachment_Aboriginal Consultation_2015.May.7.pdf

Hello Lisa,

Here are MOECC preliminary comments on the Alexandria sewage lagoon project, in response to the Notice of Commencement.

I understand you are trying to arrange a meeting with MOECC to discuss the project. I'm interested in attending meetings about the project, either in person or via teleconference.

Thanks,

Vicki Mitchell
Regional EA Coordinator
MOECC Eastern Region
1259 Gardiners Road, Kingston ON
(613) 540-6852

Ministry of the Environment and Climate Change

P.O. Box 22032
Kingston, Ontario
K7M 8S5
613/549-4000 or 1-800/267-0974
Fax: 613/548-6908 Fax: 613/548-6908

Ministère de l'Environnement et de l'Action en matière de changement climatique

C.P. 22032
Kingston (Ontario)
K7M 8S5
613/549-4000 ou 1-800/267-0974

Ontario

By email only

February 4, 2016

McIntosh Perry

Attention: Lisa Marshall, P. Eng., Environmental Engineer
l.marshall@mcintoshperry.com

Dear Ms. Marshall:

Re: Alexandria Sewage Lagoon Treatment Expansion, Township of North Glengarry

Thank you for your January 20, 2016 letter about the commencement of the above project. The letter indicates that the project is being planned as a schedule C activity in accordance with the Municipal Class Environmental Assessment (Class EA).

Class EA Process

The Kingston Regional Office is a mandatory contact for all notices received as part of the *Municipal Class Environmental Assessment* (Class EA) process. In addition, I request at least two copies of information packages, supporting technical reports, any intermediate reports, and the Environmental Study Report. I will ensure that the information is circulated to the appropriate reviewers in the Regional and District offices and will coordinate the response on behalf of the reviewers.

Please send notices and copies of reports and information packages to the attention of:

Vicki Mitchell, Environmental Assessment Coordinator
Ministry of the Environment and Climate Change
1259 Gardiners Road
P.O. Box 22032
Kingston, Ontario
K7M 8S5

vicki.mitchell@ontario.ca

We normally recommend that intermediate reports, such a Phase 1 and 2 Report or Technical Memoranda, be prepared and circulated for comment before the Environmental Study Report (ESR) is prepared. This is not a requirement of the

Municipal Class Environmental Assessment (Class EA) process; however, it can ensure that consultation with review agencies is carried out in an effective way and that technical comments are received from agencies before the ESR is finalized.

Supporting technical information such as a receiving stream assessment should be submitted at an early stage of the Class EA process, so that this Ministry has an opportunity to confirm our acceptance of the proposal before the ESR is finalized.

Ministry of the Environment and Climate Change (MOECC) Technical Review

This Ministry's interest in the project includes problems identified during MOECC inspections of the existing facilities; impacts to the receiving water body due to increase in the discharge of sewage treatment plant effluent; impacts to groundwater and surface water due to construction (i.e. dewatering of trenches during installation of sewers, control of erosion and sedimentation, construction and/or dredging at outfall location); information on the existing sewage collection system, extent of inflow and infiltration to sewage collection system and any remedial measures under consideration; noise and odour impacts to nearby residents from new infrastructure such as pumping stations; and information on water and sewage service areas.

Impacts to surface water due to increased volumes or concentrations of sewage effluent should be evaluated as soon in the Municipal Class EA process as possible. A site-specific receiving water assessment must be conducted to determine the effluent requirements based on the waste assimilative capacity of the receiver. The site-specific effluent requirements derived from the receiving water assessment must be compared to provincial guidelines for effluent discharge (MOECC procedure F-5-1: *Determination of Treatment Requirements for Municipal and Private Sewage Treatment Works Discharging to Surface Waters*), and the most stringent criteria will apply. The receiving stream assessment, including background water quality and flow data, must be provided to MOECC by the proponent.

The Class EA study should consider the need for an adequate buffer area between the sewage treatment facility and residences, and should identify the separation distances between the facility and nearest residences. Adequate buffer area should be acquired for new facilities or enlargements of existing facilities. The study should discuss the potential for odour or noise impacts, and propose appropriate mitigation measures. Please refer to this Ministry's Guideline *D-2 Compatibility between Sewage Treatment and Sensitive Land Use*.

Consultation with First Nation and Métis Communities

Your proposed project may have the potential to affect Aboriginal communities who hold or claim Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act* 1982.

The Crown has a duty to consult First Nation and Métis communities when it knows about established or credibly asserted Aboriginal or treaty rights, and contemplates decisions or actions that may adversely affect them.

Although the Crown remains responsible for ensuring the adequacy of consultation with potentially affected Aboriginal communities, it may delegate procedural aspects of the consultation process to project proponents.

The environmental assessment process requires proponents to consult with interested persons and government agencies, including those potentially affected by the proposed project. This includes a responsibility to conduct adequate consultation with First Nation and Métis communities.

The Ministry relies on consultation conducted by proponents when it assesses the Crown's obligations and directs proponents during the regulatory process.

Where the Crown's duty to consult is triggered in relation to your proposed project**,** the Ontario Ministry of the Environment and Climate Change is delegating the procedural aspects of rights-based consultation to you through this letter.

Steps that you may need to take in relation to Aboriginal consultation for your proposed project are outlined in the attached "Aboriginal Consultation Information" document. Please complete the checklist contained there, and keep related notes as part of your consultation record. Doing so will help you assess your project's potential adverse effects on Aboriginal or treaty rights.

You must contact the Director, Environmental Approvals Branch if you have reason to believe that your proposed project may **adversely affect an Aboriginal or treaty right**, **consultation has reached an impasse**, or if a Part II Order request is anticipated. The Ministry will then assess the extent of any Crown duty to consult in the circumstances, and will consider whether additional steps should be taken and what role you will be asked to play in them.

Should you or any members of your project team have any questions regarding the material above, please contact me at (613) 540-6852.

Yours sincerely,

Vicki Mitchell
Environmental Assessment Coordinator
Technical Support Section
Eastern Region
VM/kh

ec: Township of North Glengarry, Ryan Morton, Director of Public Works, ryanmorton@northglengarry.ca
Jim Mahoney, MOECC
Suzanne Smith, MOECC
Victor Castro, MOECC

ABORIGINAL CONSULTATION INFORMATION

Consultation with Interested Persons under the Ontario Environmental Assessment Act

Proponents subject to the Ontario *Environmental Assessment Act* are required to consult with interested persons, which may include First Nations and Métis communities. In some cases, special efforts may be required to ensure that Aboriginal communities are made aware of the project and are afforded opportunities to provide comments. Direction about how to consult with interested persons/communities is provided in the Code of Practice: Consultation in Ontario's Environmental Assessment Process available on the Ministry's website:

https://www.ontario.ca/environment-and-energy/consultation-ontarios-environmental-assessment-process

As an early part of the consultation process, proponents are required to contact the Ontario Ministry of Aboriginal Affairs' Consultation Unit and visit Aboriginal Affairs and Northern Development Canada's Aboriginal and Treaty Rights Information System (ATRIS) to help identify which First Nation and Métis communities may be interested in or potentially impacted by their proposed projects.

ATRIS can be accessed through the Aboriginal Affairs and Northern Development Canada website:

http://sidait-atris.aadnc-aandc.gc.ca/atris_online/

For more information in regard Aboriginal consultation as part of the Environmental Assessment process, refer to the Ministry's website:

www.ontario.ca/government/environment-assessments-consulting-aboriginal-communities

You are advised to provide notification directly to all of the First Nation and Métis communities who may be interested in the project. You should contact First Nation communities through their Chief and Band Council, and Metis communities through their elected leadership.

Rights-based consultation with First Nation and Métis Communities

Proponents should note that, in addition to requiring interest-based consultation as described above, certain projects may have the potential to adversely affect the ability of First Nation or Métis communities to exercise their established or credibly asserted Aboriginal or treaty rights. In such cases, Ontario may have a duty to consult those Aboriginal communities.

Activities which may restrict or reduce access to unoccupied Crown lands, or which could result in a potential adverse impact to land or water resources in which harvesting rights are exercised, may have the potential to impact Aboriginal or treaty rights. For assistance in determining whether your proposed project could affect these rights, please refer to the attached "Preliminary Assessment Checklist: First Nation and Métis Community Interest."

If there is likely to be an adverse impact to Aboriginal or treaty rights, accommodation may be required to avoid or minimize the adverse impacts. Accommodation is an outcome of consultation and includes any mechanism used to avoid or minimize adverse impacts to Aboriginal or treaty rights and traditional uses. Solutions could include mitigation such as

adjustments in the timing or geographic location of the proposed activity. Accommodation may in certain circumstances involve the provision of financial compensation, but does not necessarily require it.

For more information about the duty to consult, please see the Ministry's website at:

www.ontario.ca/government/duty-consult-aboriginal-peoples-ontario

The proponent must contact the Director, Environmental Approvals Branch if a project may adversely affect an Aboriginal or treaty right, consultation has reached an impasse, or if a Part II Order or an elevation request is anticipated; the Ministry will then determine whether the Crown has a duty to consult.

The Director of the Environmental Approvals Branch can be notified either by email with the subject line "Potential Duty to Consult" to EAASIBgen@ontario.ca or by mail or fax at the address provided below:

Email:	EAASIBGen@ontario.ca Subject: Potential Duty to Consult
Fax:	416-314-8452
Address:	Environmental Approvals Branch 135 St. Clair Avenue West, 1st Floor Toronto, ON, M4V 1P5

Delegation of Procedural Aspects of Consultation

Proponents have an important and direct role in the consultation process, including a responsibility to conduct adequate consultation with First Nation and Métis communities as part of the environmental assessment process. This is laid out in existing environmental assessment codes of practice and guides that can be accessed from the Ministry's environmental assessment website at

www.ontario.ca/environmentalassessments

The Ministry relies on consultation conducted by proponents when it assesses the Crown's obligations and directs proponents during the regulatory process. Where the Crown's duty to consult is triggered, various additional procedural steps may also be asked of proponents as part of their delegated duty to consult responsibilities. In some situations, the Crown may also become involved in consultation activities.

Ontario will have an oversight role as the consultation process unfolds but will be relying on the steps undertaken and information you obtain to ensure adequate consultation has taken place. To ensure that First Nation and Métis communities have the ability to assess a project's potential to adversely affect their Aboriginal or treaty rights, Ontario requires proponents to undertake certain procedural aspects of consultation.

The proponent's responsibilities for procedural aspects of consultation include:

- Providing notice to the elected leadership of the First Nation and/or Métis communities (e.g., First Nation Chief) as early as possible regarding the project;

- Providing First Nation and/or Métis communities with information about the proposed project including anticipated impacts, information on timelines and your environmental assessment process;
- Following up with First Nation and/or Métis communities to ensure they received project information and that they are aware of the opportunity to express comments and concerns about the project. If you are unable to make the appropriate contacts (e.g. are unable to contact the Chief) please contact the Environmental Assessment and Planning Coordinator at the Ministry's appropriate regional office for further direction.
- Providing First Nation and/or Métis communities with opportunities to meet with appropriate proponent representatives to discuss the project;
- Gathering information about how the project may adversely impact the relevant Aboriginal and/or Treaty rights (for example, hunting, fishing) or sites of cultural significance (for example, burial grounds, archaeological sites);
- Considering the comments and concerns provided by First Nation and/or Métis communities and providing responses;
- Where appropriate, discussing potential mitigation strategies with First Nation and/or Métis communities;
- Bearing the reasonable costs associated with these procedural aspects of consultation, which may include providing support to help build communities' capacity to participate in consultation about the proposed project.
- Maintaining a Consultation Record to show evidence that you, the proponent, completed all the steps itemized above or at a minimum made meaningful attempts to do so.
- Upon request, providing copies of the Consultation Record to the Ministry. The Consultation Record should:
    - summarize the nature of any comments and questions received from First Nation and/or Métis communities
    - describe your response to those comments and how their concerns were considered
    - include a communications log indicating the dates and times of all communications; and
    - document activities in relation to consultation.

Successful consultation depends, in part, on early engagement by proponents with First Nation and Métis communities. Information shared with communities must be clear, accurate and complete, and in plain language where possible. The consultation process must maintain sufficient flexibility to respond to new information, and we trust you will make all reasonable efforts to build positive relationships with all First Nation and Métis communities contacted. If you need more specific guidance on Aboriginal consultation steps in relation to your proposed project, or if you feel consultation has reached an impasse, please contact the Environmental Assessment and Planning Coordinator at the Ministry's appropriate regional office.

Preliminary Assessment Checklist: First Nation and Métis Community Interests and Rights

In addition to other interests, some main concerns of First Nation and Métis communities may pertain to established or asserted rights to hunt, gather, trap, and fish – these activities generally occur on Crown land or water bodies. As such, projects related to Crown land or water bodies, or changes to how lands and water are accessed, may be of concern to Aboriginal communities.

Please answer the following questions and keep related notes as part of your consultation record. "Yes" responses will indicate a potential adverse impact on Aboriginal or treaty rights.

Where you have identified that your project may trigger rights-based consultation through the following questions, you should arrange for a meeting between you and the Environmental Assessment and Planning Coordinator at the Ministry's appropriate regional office to provide an early opportunity to confirm whether Ontario's duty to consult is triggered and to discuss roles and responsibilities in that event.

	YES	NO
1. Are you aware of concerns from First Nation and Métis communities about your project or a similar project in the area? The types of concerns can range from interested inquiries to environmental complaints, and even to land use concerns. You should consider whether the interest represents on-going, acute and/or widespread concern.		
2. Is your project occurring on Crown land, or is it close to a water body? Might it change access to either?		
3. Is the project located in an open or forested area where hunting or trapping could take place?		
4. Does the project involve the clearing of forested land?		
5. Is the project located away from developed, urban areas?		
6. Is your project close to, or adjacent to, an existing reserve? Projects in areas near reserves may be of interest to the First Nation and Métis communities living there.		
7. Will the project affect First Nations and/or Métis ability to access areas of significance to them?		
8. Is the area subject to a land claim? Information about land claims filed in Ontario is available from the Ministry of Aboriginal Affairs; information about land claims filed with the federal government is available from Aboriginal Affairs and Northern Development Canada.		
9. Does the project have the potential to impact any archaeological sites?		

Ministry of Tourism, Culture and Sport

Culture Services Unit
Programs and Services Branch
401 Bay Street, Suite 1700
Toronto ON M7A 0A7
Tel: 416 314 7643
Fax: 416 212 1802

Ministère du Tourisme, de la Culture et du Sport

Unité des services culturels
Direction des programmes et des services
401, rue Bay, Bureau 1700
Toronto ON M7A 0A7
Tél: 416 314 7643
Téléc: 416 212 1802

Ontario

10 February 2016 EMAIL ONLY

Lisa Marshall, P.Eng.
Environmental Engineer
McIntosh Perry Consulting Engineers Ltd.
115 Walgreen Road, R.R.3
Carp, ON K0A 1L0
l.marshall@mcintoshperry.com

MTCS File # : 0004145
Proponent : Township of North Glengarry
Subject : Notice of Commencement
Project : Expansion of the Alexandria Sewage Lagoon Treatment Facility
Location : McCormick Road, Township of North Glengarry,

Dear Ms. Marshall:

Thank you for providing the Ministry of Tourism, Culture and Sport (MTCS) with the Notice of Commencement for the above-noted project. MTCS's interest in this environmental assessment (EA) project relates to its mandate of conserving Ontario's cultural heritage, which includes:

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

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

Project Summary
The Township of North Glengarry is proposing the expansion of the Alexandria Sewage Lagoon Treatment Facility as it has exceeded the rated capacity. The project follows the Schedule C undertaking requirements of the Municipal Class Environmental Assessment process.

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

Archaeological Resources
The EA project may impact archaeological resources and you should screen the project with the MTCS *Criteria for Evaluating Archaeological Potential* to determine if an archaeological assessment is needed. MTCS archaeological sites data are available at *archaeology@ontario.ca*. If the EA project area exhibits archaeological potential, then an archaeological assessment (AA) should be undertaken by an

archaeologist licenced under the *OHA*, who is responsible for submitting the report directly to MTCS for review.

Built Heritage and Cultural Heritage Landscapes
The MTCS *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* should be completed to help determine whether the EA project may impact cultural heritage resources. The Clerk for the Township of North Glengarry can provide information on property registered or designated under the *Ontario Heritage Act*. Municipal Heritage Planners can also provide information that will assist you in completing the checklist.

If potential or known heritage resources exist, MTCS recommends that a Heritage Impact Assessment (HIA), prepared by a qualified consultant, should be completed to assess potential project impacts. Our Ministry's *Info Sheet #5: Heritage Impact Assessments and Conservation Plans* outlines the scope of HIAs. Please send the HIA to MTCS and the Township for review, and make it available to local organizations or individuals who have expressed interest in heritage.

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

Thank you for consulting MTCS on this project; please continue to do so through the EA process and contact me for any questions or clarification.

Sincerely,

Katherine Kirzati
Heritage Planner
katherine.kirzati@ontario.ca

Copied to: Ryan Morton
Township of North Glengarry

Canadian Environmental Assessment Agency
Agence canadienne d'évaluation environnementale

55 St. Clair Avenue East
Suite 907
Toronto, Ontario
M4T 1M2

55, avenue St-Clair Est
Bureau 907
Toronto (Ontario)
M4T 1M2

February 16, 2016

Sent by E-mail

Mr. Ryan Morton, Director of Public Works
Corporation of the Township of North Glengarry
63 Kenyon Street West
Alexandria, Ontario, K0C 1A0
ryanmorton@northglengarry.ca

Dear Mr. Morton:

Re: Information on the *Canadian Environmental Assessment Act, 2012*

Thank you for your correspondence regarding the expansion of the Alexandria Sewage Lagoon Treatment Facility in the Township of North Glengarry.

The *Canadian Environmental Assessment Act, 2012* (CEAA 2012) focuses federal environmental reviews on projects that have the potential to cause significant adverse environmental effects in areas of federal jurisdiction and applies to physical activities described in the *Regulations Designating Physical Activities* (the Regulations). Based on the information provided, your project does not appear to be described in the Regulations. **Kindly review the Regulations to confirm applicability to the proposed project.**

If you believe the project is not subject to a federal environmental assessment, and do not submit a project description, we kindly request that you remove the Canadian Environmental Assessment Agency from your distribution list.

If you have questions, please get in touch with our office through the switchboard at 416-952-1576. The attachment that follows provides web links to useful legislation, regulation, and guidance documents.

Sincerely,

Anjala Puvananathan
Director, Ontario Region
Canadian Environmental Assessment Agency

Attachment – Useful Legislation, Regulation, and Guidance Documents

Attachment – Useful Legislation, Regulation, and Guidance Documents

For more information on the *Canadian Environmental Assessment Act, 2012* (CEAA 2012), please access the following links on the Canadian Environmental Assessment Agency's (the Agency) website:

Overview of CEAA 2012
http://www.ceaa.gc.ca/default.asp?lang=En&n=16254939-1

Regulations Designating Physical Activities, and
Prescribed Information for a Description of a Designated Project Regulations
http://www.ceaa.gc.ca/default.asp?lang=En&n=9EC7CAD2-1

If your project is in a federally designated wildlife area or migratory bird sanctuary please check section 1 of the Regulations, which details the designated projects specific to those locations.

If it appears that CEAA 2012 may apply to your proposed project, you must provide the Agency with a description of the proposed project. Please see the link below to the Agency's guide to preparing a project description.

Guide to Preparing a Description of a Designated Project
http://www.ceaa.gc.ca/63D3D025-2236-49C9-A169-DD89A36DA0E6/Guide_to_Preparing_a_Description_of_a_Designated_Project_under_CEAA_2012.pdf

From:	Mitchell, Vicki (MOECC) <Vicki.Mitchell@ontario.ca>
Sent:	Thursday, November 10, 2016 11:18 AM
To:	Lisa Marshall
Cc:	Smith, Suzanne (MOECC); Castro, Victor (MOECC); Evers, Andrew (MOECC)
Subject:	Alexandria WPCP expansion
Follow Up Flag:	Follow up
Flag Status:	Completed

Hi Lisa,

Thank you for taking the time to discuss the project with me yesterday. I had some comments on public and agency consultation and indicated I would follow up with an email.

Section A.3.4.1 of the Municipal Class EA discusses the points of contact with public and review agencies during the Class EA process.

This section says "By phase 2 of the planning process, a proponent will have identified the problem or opportunity, identified and evaluated alternative solutions to the problem, and made a general inventory of the natural social and economic environments in order to determine the possible impacts which each of the alternative solutions might have on the environment. The purpose of the first contact with the public and agencies is to review these issues with them and to allow them an opportunity to provide input to the problem or opportunity and alternative solutions, and to assist in the selection of the preferred solution…**The first mandatory contact with the public and review agencies therefore occurs towards the end of Phase 2 when a notice is issued inviting public comment and input** (See Appendix 6, Sample Notice – Public Comment Invited)". The sample notice provided in Appendix 6 states that preliminary study information is available for review, and provides the location of the material.

In phase 3 of the Class EA process for schedule C projects "…These activities will identify alternative designs, will evaluate the alternative designs, and will identify the possible impact of the alternative designs on the environment. The second mandatory point of contact is therefore intended to review these alternatives with the public and agencies to assist in the selection of the preferred design for the chosen solution." This section indicates that the Phase 3 public consultation point often involves holding public information centres, workshops or meetings. A sample notice is included in Appendix 6.

As discussed above, the Class EA process requires two separate consultation points during phase 2 and phase 3, to discuss alternatives and environmental impacts. This requirement is also reflected in the sample notices and in the charts describing the Class EA process – Exhibits A.1 and A.2.

In addition to the phase 2 and 3 consultation points, proponents often issue a Notice of Commencement during phase 1 to alert the public and review agencies of the planned Class EA project. The Notice of Commencement can also be combined with a notice inviting public comments, but only where there is information available to the public and review agencies on the alternative solutions and environmental impacts.

As we discussed yesterday, there is no mechanism in the Class EA for combining the phase 2 and phase 3 public consultation points – the process requires separate consultation on the alternative solutions and alternative designs. Although the Class EA does not state how much time should be allowed for phase 2 public consultation before proceeding to phase 3, most proponents seem to allow at least 30 days review and comment before proceeding to the next phase.

If the proponent does not meet the minimum mandatory consultation requirements, there is a risk that a Part II Order request will be received by the Minister of the Environment and Climate Change. Part II Order requests can cause significant delay in the Class EA process. If the review of the Part II Order request(s) indicates that the public consultation process did not meet the Class EA requirements, then additional consultation may be required by the Minister's decision on the Part II Order requests.

Finally, it is possible to proceed with design concurrently with the Class EA process. Our Environmental Approvals Branch cannot issue an Environmental Compliance Approval until the Class EA process is complete, but this does not prevent the proponent from commencing detailed design work before the Class EA process is finished. There is some risk inherent in proceeding with design before the EA process is completed, if there is a chance that the Class EA project cannot proceed as planned (for example, if public or agency input result in a significant change to the project). As MOECC input is important to the outcome of the Class EA process (i.e. preferred design alternative), timely consultation with MOECC technical review staff (and perhaps, pre-submission consultation with MOECC Approvals Engineers) is recommended before getting too far into the detailed design phase. For WPCP expansions, typically MOECC would review proposed effluent criteria, modelling or flow information submitted in support of the effluent criteria, and some basic information on nutrient trading/offsetting if proposed as part of the project.

Thank you again for discussing the project with me. If you have questions or concerns about these comments, please feel free to call or email me.

Vicki Mitchell
Regional EA Coordinator
MOECC Eastern Region
1259 Gardiners Road, Kingston ON
(613) 540-6852

From:	EnviroOnt <EnviroOnt@tc.gc.ca>
Sent:	Tuesday, November 15, 2016 11:34 AM
To:	Lisa Marshall; ryanmorton@northglengarry.ca
Subject:	Class EA - Expansion of Alexandria Sewage Lagoon Facility, Township of North Glengarry ONT, NEATS 43357
Attachments:	General Public Agency letter - PIC.8Nov2016_EA Coordinator, Ontario Regi….pdf

Greetings,

Thank you for your correspondence.

Please note Transport Canada does not require receipt of all individual or Class EA related notifications. We are requesting project proponents to self-assess if their project will interact with a federal property and require approval and/or authorization under any Acts administered by Transport Canada*.

Under *the Canadian Environmental Assessment Act, 2012*, Transport Canada is required to determine the likelihood of significant adverse environmental effects of projects that will occur on federal property prior to exercising a power, performing a function or duty in relation to that project. The project proponent should review the Directory of Federal Real Property, available at http://www.tbs-sct.gc.ca/dfrp-rbif/, to verify if the project will potentially interact with any federal property and/or waterway. The project proponent should also review the list of Acts that Transport Canada administers and assists in administering that may apply to the project, available at: https://www.tc.gc.ca/eng/acts-regulations/acts.htm.

If the aforementioned does not apply, the Environmental Assessment program should not be included in any correspondence. If there is a role under the program, correspondence should be forwarded *electronically* to: EnviroOnt@tc.gc.ca.

*Below is a summary of the most common Acts that have applied to projects in an Environmental Assessment context:

- *Navigation Protection Act (NPA)* – the Act applies primarily to works constructed or placed in, on, over, under, through, or across scheduled navigable waters set out under the Act. The Navigation Protection Program administers the NPA through the review and authorization of works affecting scheduled navigable waters. Information about the Program, NPA and approval process is available at: http://www.tc.gc.ca/eng/programs-621.html. Enquiries can be directed to NPPONT-PPNONT@tc.gc.ca or by calling (519) 383-1863.

- *Railway Safety Act (RSA)* – the Act provides the regulatory framework for railway safety, security, and some of the environmental impacts of railway operations in Canada. The Rail Safety Program develops and enforces regulations, rules, standards and procedures governing safe railway operations. Additional information about the Program is available at: https://www.tc.gc.ca/eng/railsafety/menu.htm. Enquiries can be directed to RailSafety@tc.gc.ca or by calling (613) 998-2985.

- *Transportation of Dangerous Goods Act (TDGA)* – the transportation of dangerous goods by air, marine, rail and road is regulated under the TDGA. Transport Canada, based on risks, develops safety standards and regulations, provides oversight and gives expert advice on dangerous goods to promote public safety. Additional information about the transportation of dangerous goods is available at: https://www.tc.gc.ca/eng/tdg/safety-menu.htm. Enquiries can be directed to TDG-TMDOntario@tc.gc.ca or by calling (416) 973-1868.

- *Aeronautics Act* – Transport Canada has sole jurisdiction over aeronautics, which includes aerodromes and all related buildings or services used for aviation purposes. Aviation safety in Canada is regulated under this Act and the Canadian Aviation Regulations (CARs). Elevated Structures, such as wind turbines and communication towers, would be examples of projects that must be assessed for lighting and marking requirements in accordance with the CARs. Transport Canada also has an interest in projects that have the potential to cause interference between wildlife and aviation activities. One example would be waste facilities, which may attract birds into commercial and recreational flight paths. The *Land Use In The Vicinity of Aerodromes* publication recommends guidelines for and uses in the vicinity of aerodromes, available at: https://www.tc.gc.ca/eng/civilaviation/publications/tp1247-menu-1418.htm. Enquires can be directed to CASO-SACO@tc.gc.ca or by calling 1 (800) 305-2059 / (416) 952-0230.

Please advise if additional information is needed.

Thank you,

Environmental Assessment Program | Programme d'évaluation environnementale
Transport Canada, Ontario Region | Transports Canada, Région de l'Ontario
4900 Yonge St., Toronto, ON M2N 6A5 | 4900, rue Yonge, Toronto, ON, M2N 6A5
Email | Courriel: EnviroOnt@tc.gc.ca
Facsimile | télécopieur: (416) 952-0514
Government of Canada | Gouvernement du Canada

From: Lisa Marshall [mailto:l.marshall@mcintoshperry.com]
Sent: Monday, November 14, 2016 5:20 PM
To: EnviroOnt <EnviroOnt@tc.gc.ca>
Subject: Township of North Glengarry - Alexandria Sewage Lagoon Expansion Municipal Class Environmental Assessment

Hello,

The Township of North Glengarry has initiated a Municipal Class Environmental Assessment for the proposed expansion of the Alexandria Sewage Lagoon Treatment Facility located on McComrick Road. Please find attached Invitation for Public Comment. A formal letter to following in the mail.

If you have any questions, please do not hesitate to contact the undersigned.

Regards,

Lisa Marshall, P.Eng
Practice Area Lead | Environmental Engineering
115 Walgreen Road, R R 3, Carp, ON, K0A 1L0
T. 613.836.2184 (2224) | **F.** 613.836.3742
l.marshall@mcintoshperry.com | www.mcintoshperry.com

From: [redacted]
Sent: Saturday, November 19, 2016 10:35 AM
To: Lisa Marshall
Cc: ryanmorton@northglengarry.ca
Subject: Expansion of the Alexandria Sewage Lagoon Facility

Regarding the subject matter, I received a letter this week addressed as follows:

[redacted]

Canada Post stamped a notice on the envelope to advise that future mail, similarly addressed, may not be delivered.

My correct address is:

[redacted]

To ensure I receive future correspondence, please amend your records and acknowledge.

Thank you,

[redacted]

From: Kirzati, Katherine (MTCS) <Katherine.Kirzati@ontario.ca>
Sent: Wednesday, November 23, 2016 12:11 PM
To: Lisa Marshall
Subject: RE: Township of North Glengarry - Alexandria Sewage Lagoon Expansion Municipal Class Environmental Assessment

Hello Lisa:

Thank you for the invitation. At this time, we have nothing to add to our letter of 10 Feb 2016.

We await your submission of any archaeological assessments or heritage impact assessments, if they have been deemed necessary.

Regards, Katherine

Katherine Kirzati
Heritage Planner | Heritage Program Unit
Ministry of Tourism, Culture and Sport
401 Bay Street, Suite 1700 | Toronto, ON M7A 0A7
t: 416.314.7643 katherine.kirzati@ontario.ca

From: Lisa Marshall [mailto:l.marshall@mcintoshperry.com]
Sent: 14-Nov-16 5:25 PM
To: Kirzati, Katherine (MTCS)
Subject: Township of North Glengarry - Alexandria Sewage Lagoon Expansion Municipal Class Environmental Assessment

Hello,

The Township of North Glengarry has initiated a Municipal Class Environmental Assessment for the proposed expansion of the Alexandria Sewage Lagoon Treatment Facility located on McComrick Road. Please find attached Invitation for Public Comment. A formal letter to following in the mail.

If you have any questions, please do not hesitate to contact the undersigned.

Regards,

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Practice Area Lead | Environmental Engineering
115 Walgreen Road, R R 3, Carp, ON, K0A 1L0
T. 613.836.2184 (2224) | **F.** 613.836.3742
l.marshall@mcintoshperry.com | www.mcintoshperry.com

From: Dillon, Mary (MNRF) <Mary.Dillon@ontario.ca>
Sent: Thursday, November 24, 2016 11:31 AM
To: Lisa Marshall
Subject: Alexandria Sewage Lagoon Facility Expansion Municipal Class EA

Hello Ms. Marshall,

Laura Melvin is away from the office on a leave and I am backfilling her position until April 2017. I have received the letter regarding the invitation for public comment and PIC #1 related to the above-noted project and dated November 14, 2016. The MNRF would like to participate in this project and comments on the Phase 2 ESR will follow.

Thank you,
Mary

Mary Dillon
A/District Planner
Kemptville District
613-258-8470

Ministry of Natural Resources and Forestry

Kemptville District

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Téléc.: 613 258-3920

Ontario

Thu. Dec 8, 2016

Lisa Marshall
McIntosh Perry Consulting Engineers Ltd
115 Walgreen Road, R.R.3
Carp, ON
K0A 1L0
(613) 836-2184 ext 2224
l.marshall@mcintoshperry.com

Attention: Lisa Marshall

Subject: Information Request - Developments
Project Name: Expansion of the Alexandria Sewage Lagoon Facility
Our File No. 2016_LOC-3829

Natural Heritage Values

The Ministry of Natural Resources and Forestry (MNRF) Kemptville District has carried out a preliminary review of the above mentioned area in order to identify any potential natural resource and natural heritage values.

The following Natural Heritage values were identified for the general subject area:

- Evaluated Wetland, Delisle River (Evaluated-Provincial)
- Municipal Drain, Delisle River
- Municipal Drain, Hamell Municipal Drain
- Municipal Drain, Un-named Drain
- River, Rivière Delisle
- Unevaluated Wetland

Municipal Official Plans contain information related to natural heritage features. Please see the local municipal Official Plan for more information, such as specific policies and direction pertaining to activities which may impact natural heritage features. For planning advice or Official Plan interpretation, please contact the local municipality. Many municipalities require environmental impact studies and other supporting studies be carried out as part of the development application process to allow the municipality to make planning decisions which are consistent with the Provincial Policy Statement (PPS, 2014).

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The MNRF strongly encourages all proponents to contact partner agencies and appropriate municipalities early on in the planning process. This provides the proponent with early knowledge regarding agency requirements, authorizations and approval timelines; Ministry of the Environment and Climate Change (MOECC) and the local Conservation Authority may require approvals and permitting where natural values and natural hazards (e.g., floodplains) exist.

As per the Natural Heritage Reference Manual (NHRM, 2010) the MNRF strongly recommends that an ecological site assessment be carried out to determine the presence of natural heritage features and species at risk and their habitat on site. The MNRF can provide survey methodology for particular species at risk and their habitats.

The NHRM also recommends that cumulative effects of development projects on the integrity of natural heritage features and areas be given due consideration. This includes the evaluation of the past, present and possible future impacts of development in the surrounding area that may occur as a result of demand created by the presently proposed project.

In Addition, the following Fish species were identified: American eel, banded killifish, blackchin shiner, blacknose shiner, bluntnose minnow, brassy minnow, brook stickleback, brown bullhead, Carps and Minnows, central mudminnow, common carp, common shiner, creek chub, emerald shiner, fantail darter, fathead minnow, finescale dace, golden shiner, Iowa darter, johnny darter, johnny darter/tesselated darter, largemouth bass, logperch, longear sunfish, longnose dace, mimic shiner, muskellunge, North American Catfishes, northern redbelly dace, Notropis sp., Pimephales sp., pumpkinseed, rock bass, rosyface shiner, sand shiner, smallmouth bass, spottail shiner, stonecat, tadpole madtom, white sucker, yellow perch.

Wildland Fire

MNRF woodland data shows that the site contains woodlands. The lands should be assessed for the risk of wildland fire as per PPS 2014, Section 3.1.8 "*Development shall generally be directed to areas outside of lands that are unsafe for development due to the presence of hazardous forest types for wildland fire. Development may however be permitted in lands with hazardous forest types for wildland fire where the risk is mitigated in accordance with wildland fire assessment and mitigation standards".* Further discussion with the local municipality should be carried out to address how the risks associated with wildland fire will be covered for such a development proposal. Please see the Wildland Fire Risk Assessment and Mitigation Guidebook (2016) for more information.

Significant Woodlands

Section 2.1.5 b) of the PPS states: *Development and site alteration shall not be permitted in significant woodlands unless it has been demonstrated that there will be no negative impacts on*

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the natural features or their ecological functions. The 2014 PPS directs that significant woodlands must be identified following criteria established by the Ontario Ministry of Natural Resources and Forestry, i.e. the Natural Heritage Reference Manual (NHRM), 2010. Where the local or County Official Plan has not yet updated significant woodland mapping to reflect the 2014 PPS, all wooded areas should be reviewed on a site specific basis for significance. The MNRF Kemptville District modelled locations of significant woodlands in 2011 based on NHRM criteria. The presence of significant woodland on site or within 120 metres should trigger an assessment of the impacts to the feature and its function from the proposed development. Based on criteria from the NHRM, the site has potential for significant woodlands.

Significant Wildlife Habitat

Section 2.1.5 d) of the PPS states: *Development and site alteration shall not be permitted in significant wildlife habitat unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.* It is the responsibility of the approval authority to identify significant wildlife habitat or require its identification. The MNRF has several guiding documents which may be useful in identification of significant wildlife habitat and characterization of impacts and mitigation options:

- Significant Wildlife Habitat Technical Guide, 2000
- The Natural Heritage Reference Manual, 2010
- Significant Wildlife Habitat Mitigation Support Tool, 2014
- Significant Wildlife Habitat Criteria Schedule for Ecoregion 5E and 6E, 2015

The habitat of special concern species (as identified by the Species at Risk in Ontario list) and Natural Heritage Information Centre tracked species with a conservation status rank of S1, S2 and S3 may be significant wildlife habitat and should be assessed accordingly.

Water

If any in-water works are to occur, there are timing windows for which work in water should not take place (see below). Appropriate measures should be taken to minimize and mitigate impact on water quality and fish habitat, including:

- installation of sediment and erosion control measures;
- avoiding the removal, alteration, or covering of substrates used for fish spawning, feeding, over-wintering or nursery areas; and
- debris control measures to manage falling debris (e.g. spalling).

Timing windows (no in-water works) in MNRF Kemptville District*:

Warmwater and cool water → March 15 – June 30

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St. Lawrence River & Ottawa River → March 15 – July 15
Coldwater → October 1 – May 31
Big Rideau Lake & Charleston Lake → October 1 – June 30

* *Please note: Additional timing restrictions may apply as they relate to endangered and threatened species for works in both water and wetland areas.*

Timing windows when in-water work is restricted – based on species presence:

	FISH SPECIES	TIMING WINDOW (No in-water works)
Spring:	Walleye	March 15 to May 31
	Northern Pike	March 15 to May 31
	Lake Sturgeon	May 1 to June 30
	Muskellunge	March 15 to May 31
	Largemouth/Smallmouth Bass	May 1 to July 15
	Rainbow Trout	March 15 to June 15
	Other /Unknown Spring Spawning Species	March 15 to July 15

	FISH SPECIES	TIMING WINDOW (No in-water works)
Fall:	Lake Trout	October 1 to May 31
	Brook Trout	October 1 to May 31
	Pacific Salmon	September 15 to May 31
	Lake Whitefish	October 15 to May 31
	Lake Herring	October 15 to May 31
	Other /Unknown Fall Spawning Species	October 1 to May 31

Additional approvals and permits may be required under the Fisheries Act. Please contact Fisheries and Oceans Canada to determine requirements and next steps. There may also be approvals required by the local Conservation Authority or Transport Canada. As the MNRF is responsible for the management of provincial fish populations, we request ongoing involvement in such discussions in order to ensure population conservation.

Species at Risk

A review of the Natural Heritage Information Centre (NHIC) and internal records indicate that there is a potential for the following threatened (THR) and/or endangered (END) species on the site or in proximity to it:

- American Eel (END)
- Barn Swallow (THR)

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- Bobolink (THR)
- Chimney Swift (THR)
- Cutlip Minnow (THR)
- Butternut (END)
- Little Brown Bat (END)
- Northern Long-eared Bat (END)
- Tri-Colored Bat (END)

All endangered and threatened species receive individual protection under section 9 of the ESA and receive general habitat protection under Section 10 of the ESA, 2007. Thus any potential works should consider disturbance to the individuals as well as their habitat (e.g. nesting sites). General habitat protection applies to all threatened and endangered species. Note some species in Kemptville District receive regulated habitat protection. The habitat of these listed species is protected from damage and destruction and certain activities may require authorization(s) under the ESA. For more on how species at risk and their habitat is protected, please see: https://www.ontario.ca/page/how-species-risk-are-protected.

If the proposed activity is known to have an impact on any endangered or threatened species at risk (SAR), or their habitat, an authorization under the ESA may be required. It is recommended that MNRF Kemptville be contacted prior to any activities being carried out to discuss potential survey protocols to follow during the early planning stages of a project, as well as mitigation measures to avoid contravention of the ESA. Where there is potential for species at risk or their habitat on the property, an Information Gathering Form should be submitted to Kemptville MNRF at sar.kemptville@ontario.ca.

The Information Gathering Form may be found here:
http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/FormDetail?OpenForm&ACT=RDR&TAB=PROFILE&ENV=WWE&NO=018-0180E

For more information on the ESA authorization process, please see:
https://www.ontario.ca/page/how-get-endangered-species-act-permit-or-authorization

One or more special concern species has been documented to occur either on the site or nearby. Species listed as special concern are not protected under the ESA, 2007. However, please note that some of these species may be protected under the Fish and Wildlife Conservation Act and/or Migratory Birds Convention Act. Again, the habitat of special concern species may be significant wildlife habitat and should be assessed accordingly. Species of special concern for consideration:

- Black Tern (SC)

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- Snapping Turtle (SC)

If any of these or any other species at risk are discovered throughout the course of the work, and/or should any species at risk or their habitat be potentially impacted by on site activities, MNRF should be contacted and operations be modified to avoid any negative impacts to species at risk or their habitat until further direction is provided by MNRF.

Please note that information regarding species at risk is based largely on documented occurrences and does not necessarily include an interpretation of potential habitat within or in proximity to the site in question. Although this data represents the MNRF's best current available information, it is important to note that a lack of information for a site does not mean that additional features and values are not present. It is the responsibility of the proponent to ensure that species at risk are not killed, harmed, or harassed, and that their habitat is not damaged or destroyed through the activities carried out on the site.

The MNRF continues to strongly encourage ecological site assessments to determine the potential for SAR habitat and occurrences. When a SAR or potential habitat for a SAR does occur on a site, it is recommended that the proponent contact the MNRF for technical advice and to discuss what activities can occur without contravention of the Act. For specific questions regarding the Endangered Species Act (2007) or SAR, please contact MNRF Kemptville District at sar.kemptville@ontario.ca.

The approvals processes for a number of activities that have the potential to impact SAR or their habitat have recently changed. For information regarding regulatory exemptions and associated online registration of certain activities, please refer to the following website: https://www.ontario.ca/page/how-get-endangered-species-act-permit-or-authorization.

Please note: The advice in this letter may become invalid if:

- The Committee on the Status of Species at Risk in Ontario (COSSARO) re-assesses the status of the above-named species OR adds a species to the SARO List such that the section 9 and/or 10 protection provisions apply to those species; or
- Additional occurrences of species are discovered on or in proximity to the site.

This letter is valid until: Fri. Dec 8, 2017

The MNRF would like to request that we continue to be circulated on information with regards to this project. If you have any questions or require clarification please do not hesitate to contact me.

Ministry of Natural Resources and Forestry

Kemptville District

10 Campus Drive
Postal Box 2002
Kemptville ON K0G 1J0
Tel.: 613 258-8204
Fax: 613 258-3920

Ministère des Richesses naturelles et des Forêts

District de Kemptville

10, promenade Campus
Case postale, 2002
Kemptville ON K0G 1J0
Tél.: 613 258-8204
Téléc.: 613 258-3920

Ontario

Sincerely,

Dom Ferland
Management Biologist
dominique.ferland@ontario.ca

Encl.\
-ESA Infosheet
-NHIC/LIO Infosheet

Ministry of Natural Resources and Forestry

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January 9, 2017

Lisa Marshall
Environmental Coordinator/Engineer
McIntosh Perry Consulting Engineers Ltd.
115 Walgreen Road, R.R.3
Carp, Ontario K0A 1L0

Subject: Review of Phase 2 Environmental Study Report
Municipal Class Environmental Assessment
Expansion of the Alexandria Sewage Lagoon Facility
Township of North Glengarry

Dear Ms. Marshall,

In response to the invitation for public comment dated November 14, 2016, the Ministry of Natural Resources and Forestry (MNRF) has reviewed the Phase 2 Environmental Study Report (ESR) for the Municipal Class Environmental Assessment of the Expansion of the Alexandria Sewage Lagoon Facility and offers the following comments (below) on the ESR. A screening of the natural environment features, including occurrence information and known or potential habitats for Species at Risk (SAR), was provided separately in a letter dated December 8, 2016.

There are documented occurrences of American Eel (Endangered under the *Endangered Species Act*, 2007(ESA)) in the Delisle River. The most recent occurrence is from the year 2001. Given that effluent from the lagoon facility will be directed to the Delisle River, the ESR should document American Eel and provide an assessment regarding the potential for impacts to the species and its habitat.

A male bobolink (Threatened under the ESA) was observed singing in cultural meadow to the north of the property during surveys in June 2016 suggesting the possibility of breeding habitat. The cultural meadow to the south of the property is also considered suitable habitat for the species. If the preferred solution for the Alexandria Sewage Lagoon Facility upgrade includes any construction or other activities within these cultural meadows, the project may result in a contravention of the ESA. MNRF suggests targeted surveys for Bobolink prior to any site disturbance or construction work at the site to determine risk of contravention of the ESA. The work may be eligible for an exemption under Section 23.6 of Ontario Regulation 242/08 if less than 30 hectares of habitat are impacted, but certain rules would apply. These rules include the need to register the activity with MNRF and conduct the works outside of the bobolink

nesting period (May 1 to July 31). More information on the exemption can be found on the Ontario government website at: https://www.ontario.ca/page/bobolink-and-eastern-meadowlark-habitats-and-land-development.

Once the preferred solution has been established and a design has been proposed, MNRF will be in a position to better assess any impacts of the project on Endangered or Threatened SAR and consider potential for avoidance or mitigation of impacts, as well as any ESA permitting requirements. If there is no potential for contravention of the ESA, MNRF is satisfied that concerns related to its interests have been addressed for this project based on our current understanding of the proposal.

If you have any questions or concerns, I would be pleased to discuss them with you.

Sincerely,

Mary Dillon

Mary Dillon
A/District Planner, Kemptville District
613-258-8470
mary.dillon@ontario.ca

c. Dom Ferland, Management Biologist

APPENDIX N4

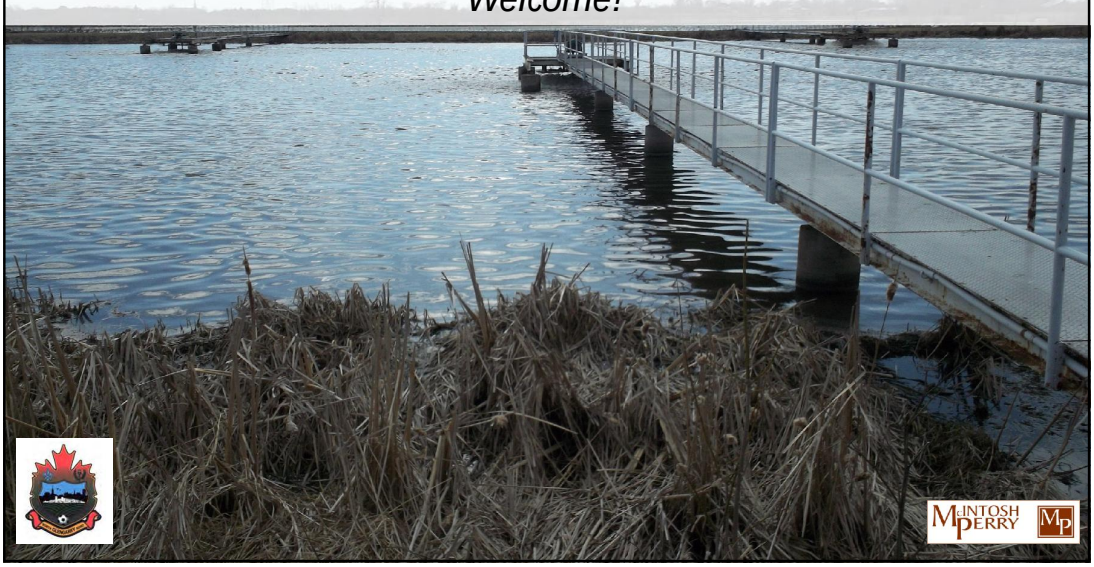
PUBLIC INFORMATION CENTRE DISPLAY BOARDS

Alexandria Sewage Lagoon Treatment Facility

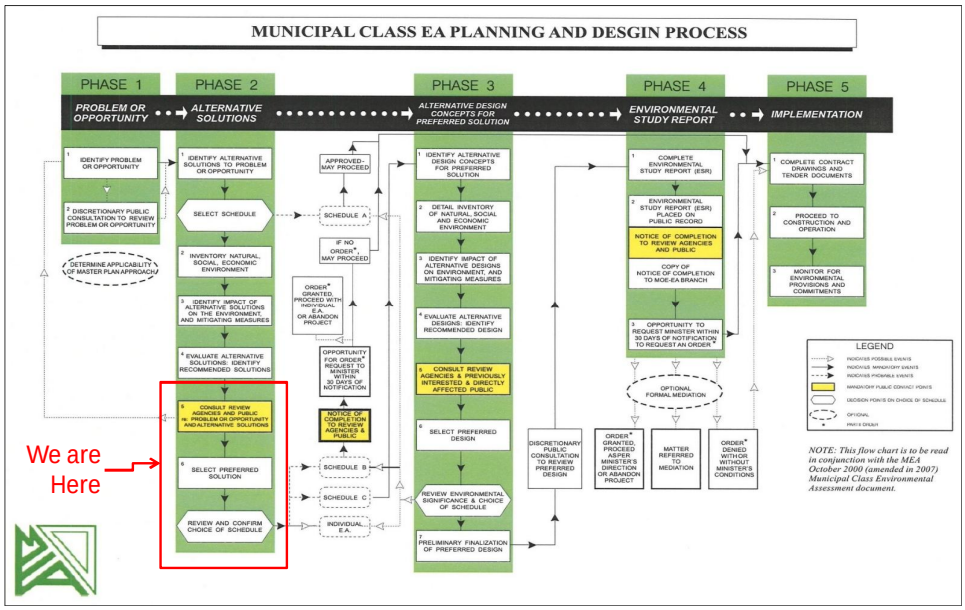
Municipal Class 'C' Environmental Assessment

Public Information Centre #1

Welcome!



Municipal Class Environmental Assessment Status



Study Overview

The Township of North Glengarry has initiated a Schedule 'C' Municipal Class Environmental Assessment for the proposed expansion of the Alexandria Sewage Lagoon Treatment Facility.

- The Alexandria Sewage Lagoon Treatment Facility is located east of the Town of Alexandria off of McCormick Road. The Alexandria Sewage Lagoon Facility is located approximately 1.8 km northeast from downtown Alexandria
- Owned and operated by the Township of North Glengarry (1962)
- The Township is currently exceeding its approved Ministry of Environment and Climate Change (MOECC) amended Environmental Compliance Approval (ECA) rated capacity
- Since 2008, the Township has taken steps to eliminate infiltration into the collection system such as spot repairs, lining, replacements, manhole sealing/replacements, etc. The Township has also invested into studies for the identification and removal of roof leaders and sump pumps (this summer).
- The lack of capacity is creating a barrier for growth and economic development in the Township

Existing Lagoon Facility

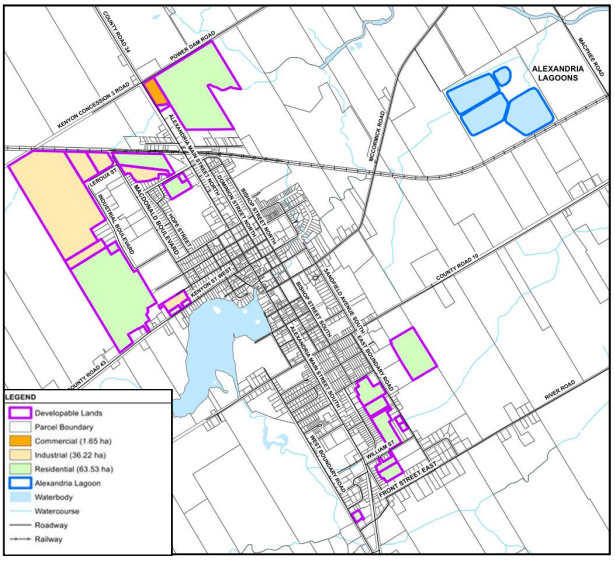
- The Alexandria Sewage Lagoon Facility is currently operating under MOECC Amended Environmental Compliance Approval (ECA) Reference Number 9324-8WKJD2, August 2, 2012
- Amended ECA for the existing Lagoon Facility has a rated Capacity of 3,237 m^3/day
- 4-Cell Continuous Discharge Lagoon System (3 Facultative Lagoons and 1 Aerating Cell)
- Alum is added to the effluent flow from the aerated lagoon to control Phosphorus
- Effluent flows from lagoon C to B to A before flowing over an adjustable stop log weir
- Lagoon effluent flows by gravity to the disinfection process
- Disinfection is accomplished by chlorination which then goes through a dechlorination process
- Effluent from the dechlorination chamber flows into a facility perimeter ditch and ultimately to the Delisle River
- Bio-solids are currently treated in Geotubes

MOECC Compliance

- Annual average flows over the past three years have exceeded the rated capacity of the sewage lagoon (3,237 m^3/day). Therefore, the facility has <u>not</u> been in compliance with the rated capacity identified in the amended ECA.
- The facility is generally in compliance with amended ECA effluent criteria limits for:
  - $CBOD_5$
  - Total Suspended Solids
  - Total Phosphorus
  - Total Residual Chlorine
  - pH
- With exception to a few exceedances in 2015 for $CBOD_5$, Total Suspended Solids, Total Phosphorus and Total Residual Chlorine.
- With a rated capacity of 3,237 m^3/day and continuous discharge, the sewage lagoons have a total retention time of approximately 88 days. Therefore, the Alexandria Sewage Lagoon Facility is in compliance with MOECC current design guidelines which states that aerated facultative lagoons are to provide a minimum total retention time of 30 days.

Projected Growth of the Community

- The Township of North Glengarry aims to grow at a moderate pace with development taking place primarily in the urban areas
- Focus will be directed at sustaining the existing economic base, as well as new opportunities such as residential, light industrial and commercial developments
- The projected average day wastewater flow rate is 6,500 m^3/d (next 50 years)



Problem/ Opportunity Statement

The Alexandria Sewage Lagoon Treatment Facility has exceeded its rated capacity. The lack of capacity is creating a barrier for growth and economic development within the Township. Therefore, the Township has initiated this Schedule 'C' Municipal Class Environmental Assessment to develop a plan to expand the Alexandria Sewage Lagoon Treatment Facility to address capacity issues and future growth.

Identification of Alternative Solutions

The alternative solutions identified for the expansion of the Alexandria Sewage Lagoon Facility are as follows:

- Alternative 1: Do Nothing
- Alternative 2: Use Existing Lagoon with no Upgrades
  - Alternative 2a: Off-site treatment of excess flows
  - Alternative 2b: Excess flow holding basin/additional lagoon
  - Alternative 2c: Construct a new Mechanical Treatment Facility on a New Site
- Alternative 3: Upgrade Existing Lagoon
  - Alternative 3a: Enhance Lagoon Operations Only
  - Alternative 3b: Post Lagoon Effluent Treatment
  - Alternative 3c: Primary Treatment with Post Lagoon Treatment
  - Alternative 3d: Mechanical Treatment Facility Parallel to Lagoon Treatment (on-site)
  - Alternative 3e: Mechanical Treatment for "Excess Flow" and Polish Lagoon Effluent
- Alternative 4: Build New Mechanical Treatment Facility

Screening and Assessment Methodology

Preliminary Screening – A long list of Alternative Solutions were evaluated for suitability based on technical/operation, environmental, and socio-economic advantages and disadvantages. Alternative Solutions that were unable to meet the Problem/Opportunity Statement and the screening criteria were not carried forward to the detail evaluation.

Long List of Alternatives

- Alternative 1: Do Nothing
- Alternative 2: Use Existing Lagoon with no Upgrades
  - Alternative 2a: Off-site treatment of excess flows
  - Alternative 2b: Excess flow holding basin/additional lagoon
  - Alternative 2c: Construct a new Mechanical Treatment Facility on a New Site
- Alternative 3: Upgrade Existing Lagoon
  - Alternative 3a: Enhance Lagoon Operations Only
  - Alternative 3b: Post Lagoon Effluent Treatment
  - Alternative 3c: Primary Treatment with Post Lagoon Treatment
  - Alternative 3d: Mechanical Treatment Facility Parallel to Lagoon Treatment (on-site)
  - Alternative 3e: Mechanical Treatment for "Excess Flow" and Polish Lagoon Effluent
- Alternative 4: Build New Mechanical Treatment Facility

Short List of Alternatives

- Alternative 3: Upgrade Existing Lagoon
  - Alternative 3b: Post Lagoon Effluent Treatment
  - Alternative 3c: Primary Treatment with Post Lagoon Treatment
  - Alternative 3e: Mechanical Treatment for "Excess Flow" and Polish Lagoon Effluent
- Alternative 4: Build New Mechanical Treatment Facility

Overview of Short Listed Alternative Solutions

Alternative 3b: Post Lagoon Effluent Treatment

- Existing lagoons have hydraulic capacity (>30 day retention at 6,500 m^3/d), however cannot meet the higher level of treatment required by MOECC. Therefore, the lagoons would be modified and additional treatment systems would be added after the lagoon cells to polish the effluent discharging from the lagoons to meet the newly imposed MOECC effluent criteria.

Alternative 3c: Primary Treatment with Post Lagoon Effluent Treatment

- Similar to Alternative 3b, the lagoons would be modified and additional treatment systems would be added after the lagoon cells to polish the effluent. However, Alternative 3c includes headworks upstream of the aeration cell. The headworks would remove large debris pumped to the system (e.g. rags) and inert easily settle-able material (e.g. grit, solids, etc.).

Alternative 3e: Mechanical Treatment for "Excess Flow" and Polish Lagoon Effluent

- The existing lagoons have hydraulic capacity but not the ability to adequately treat the increased design flow. The lagoons would be modified (more air for organic control) and a Mechanical system would be added after the lagoons to polish the effluent from the lagoons to meet the newly imposed MOECC effluent criteria.

Alternative 4: Build New Mechanical Facility

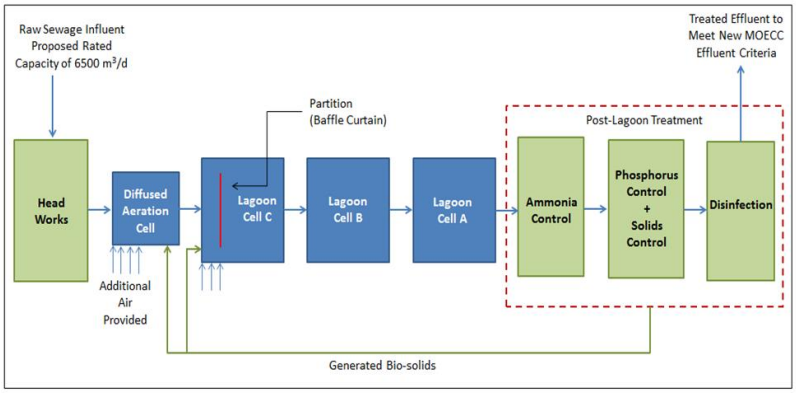
- Decommission the existing Alexandria Sewage Lagoons and constructed a new full scale mechanical treatment plant. The facility would utilize biological and tertiary treatment while using the existing aeration cell for bio-solids storage. The existing lagoons would be decommissioned and repurposed.

Impact	Evaluation Criteria	Alternative 3b: Upgrade Existing Lagoon – Post Lagoon Effluent Treatment	Alternative 3c: Primary Treatment with Post Lagoon Effluent Treatment	Alternative 3e: Upgrade Existing Lagoon – Mechanical Treatment for "Excess Flow" and polish Lagoon Effluent	Alternative 4: Build new Mechanical Facility
Technical/ Operation	Addresses current capacity constraints	Yes	Yes	Yes	Yes
	Achieves Effluent Design Objects set by MOECC	Yes	Yes	Yes	Yes
	Treatment Reliability and Ability to Handle Cold Weather Climate	Yes – Technologies exist for cold climates	Yes – Technologies exist for cold climates	Yes	Yes
	Ability to Treat Effluent Year Round	Yes	Yes	Yes	Yes
	Adequately Services Project Design Flow	Yes	Yes	Partially – Requires a more complex mechanical treatment system to handle excess flows	Yes
	Ability to Process Varying Design Flows	Yes - Can be designed to accommodate current and future flows	Yes - Can be designed to accommodate current and future flows	Yes - Can be designed to accommodate current and future flows	Yes - Can be designed to accommodate current and future flows
	Utilizes of Existing Assets	Yes - Utilizes all of the existing assets at the site (no decommissioning required; maximize use of existing infrastructure)	Yes - Utilizes all of the existing assets at the site (no decommissioning required; maximize use of existing infrastructure)	Partially - Still requires a more complex mechanical treatment plant to handle excess flows	No – Does not maximize the use of existing infrastructure. Existing system will need to be decommissioned
	Complexity of Operation of Treatment Technology	Less complex operations than a mechanical system.	Moderate - Not a conventional set up with primary treatment. Complexity of the system increase with the addition of solids treatment/separation in the headworks	Higher complexity of operation and maintaining compared to other passive wastewater treatment systems. Requires trained operator for the mechanical treatment	Higher complexity of operation and maintaining compared to other passive wastewater treatment systems. Requires on-site trained operator
	Complexity of Maintenance of Treatment Technology	Less maintenance requirements than mechanical systems. Reliable and mechanically simple	Less maintenance requirements than mechanical systems. Reliable and mechanically simple	More complex – Need to maintain two different treatment systems.	Higher complexity of maintaining compared to other passive wastewater treatment systems.
	Does it Fit within the Existing Property Limits	Yes - Based on preliminary observations and design work, it is unlikely additional land will be required to construct the expansion	Yes - Based on preliminary observations and design work, it is unlikely additional land will be required to construct the expansion	Potentially – Dependent on site layout and size of treatment units. Requires two systems to be placed on a parcel of land.	Potentially – Dependent on site layout and being able to abandon existing system and gain useable space
	Overall Evaluation of Technical/Operation				
Natural Environment	Effect on Aquatic/Ecological Habitat - Construction and Operation	Potential impact – Achieves the proposed effluent criteria (subject to MOECC acceptance), however, may have a harder time achieving desired treatment objectives during winter.	Potential impact – Achieves the proposed effluent criteria (subject to MOECC acceptance), however, may have a harder time achieving desired treatment objectives during winter.	Minimal impact – Achieves the proposed effluent criteria (subject to MOECC acceptance) and therefore reducing the impact to the Aquatic/Ecological habitat.	Minimal impact – Achieves the proposed effluent criteria (subject to MOECC acceptance) and therefore reducing the impact to the Aquatic/Ecological habitat.
	Effect on Terrestrial Habitat- Construction and Operation	Potential impact to Terrestrial Habitat and SAR. Mitigation measure will need to be implemented in the detail design. The proposed system utilizes existing assets and post treatment systems will have a smaller foot print. Therefore, reducing the impact to terrestrial habitat.	Potential impact to Terrestrial Habitat and SAR. Mitigation measure will need to be implemented in the detail design. The proposed system utilizes existing assets and post treatment systems will have a smaller foot print. Therefore, reducing the impact to terrestrial habitat.	Higher impacts due the complexity of the system (i.e. requiring two treatment trains), additional space will be required which has a higher potential to impact the terrestrial habitat including SAR.	Potential impacts due the complexity of the system. Site will need to be decommissioned and repurposed for the mechanical treatment facility. Potential impacts to SAR.
	Effect on Vegetation - Construction and Operation	Minimal impact as the proposed system utilizes existing assets. Post treatment systems will have a smaller foot print and will be strategically place treatment units to reduce impact on vegetation and SAR.	Minimal impact as the proposed system utilizes existing assets. Post treatment systems will have a smaller foot print and will be strategically place treatment units to reduce impact on vegetation and SAR.	Potential impacts due the complexity of the system (i.e. requiring two treatment trains), additional space will be required which has a higher potential for removal of vegetation during construction.	Potential impacts due the complexity of the system. Site will need to be decommissioned and repurposed for the mechanical treatment facility. Potential impacts to SAR.
	Effect on Surface Water Quality	Improved	Improved	Improved	Improved
	Effect on Groundwater Quality	No Impact Anticipated - the sewage works treat the wastewater and discharges it to the surface water	No Impact Anticipated - the sewage works treat the wastewater and discharges it to the surface water	No Impact Anticipated - the sewage works treat the wastewater and discharges it to the surface water	No Impact Anticipated - the sewage works treat the wastewater and discharges it to the surface water
	Effect on Surrounding Agricultural Land	Lower impacts on adjacent landowners since the proposed system is utilizing existing assets. Mitigation measures to be put in place during detail design	Lower impacts on adjacent landowners since the proposed system is utilizing existing assets. Mitigation measures to be put in place during detail design	Moderate impacts on adjacent landowners due to increased noise/odour associated with mechanical treatment processes.	Moderate impacts on adjacent landowners due to increased noise/odour associated with mechanical treatment processes.
	Overall Evaluation of Natural Environment				
Socio-Economic Environment	Ability to Meet Existing Community Wastewater Servicing Needs	Yes	Yes	Yes	Yes
	Ability to Meet Projected Community Growth Wastewater Servicing needs	Yes	Yes	Yes	Yes
	Affordability (Capital and Operating Costs)	Moderate	Moderate	High	Highest
	Overall Evaluation of Socio-Economic Environment				

Less Favourable Impact — More Favourable Impact

Preliminary Preferred Alternative Solution

Alternative 3b: Post Lagoon Effluent Treatment was identified as the Preliminary Preferred Alternative Solution. The Preliminary Preferred Alternative Solution is the result of the detailed evaluation, in addition to input from the Technical Advisory Committee (MOECC and Raisin Region Conservation Authority) and Township Council.



Next Steps & Scheduling

Milestone	Deadline
Phase 2 - Comment Period Expires	December 2, 2016
2nd Mandatory Consultation with Public and Governing Agencies	December 5, 2016
Technical Advisory Committee Meeting	December 7 or 8, 2016
Public Consultation Centre #2 – Present Phase 3	December 21, 2016
Update to Council	January 4, 2017
Phase 3 - Comment Period Expires	January 6, 2017
Select Technically Preferred Conceptual Design	January 6, 2017
Finalize Environmental Study Report	January 9, 2017
3rd Mandatory Consultation - Notice of Study Completion	January 9, 2017
Deadline for Comments and Part II Orders	February 7, 2017
Letter to MOECC and Municipality Indicating Class EA has been completed	February 8, 2017

For further information on the expansion of Alexandria Sewage Lagoon Treatment Facility, please contact:

Corporation of the Township of North Glengarry
Ryan Morton, MPM, CIPM
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Alexandria, Ontario, K0C 1A0
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McIntosh Perry Consulting Engineers Ltd.
Lisa Marshall, P. Eng.
Project Manager/Environmental Engineer
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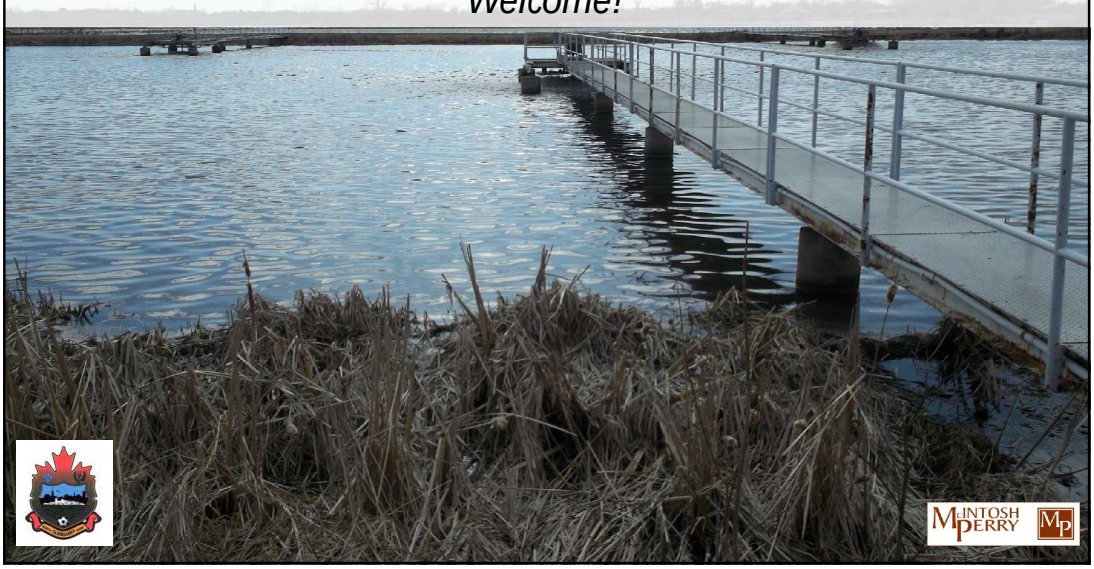
Fax: 613-836-3742
l.marshall@mcintoshperry.com

Alexandria Sewage Lagoon Treatment Facility

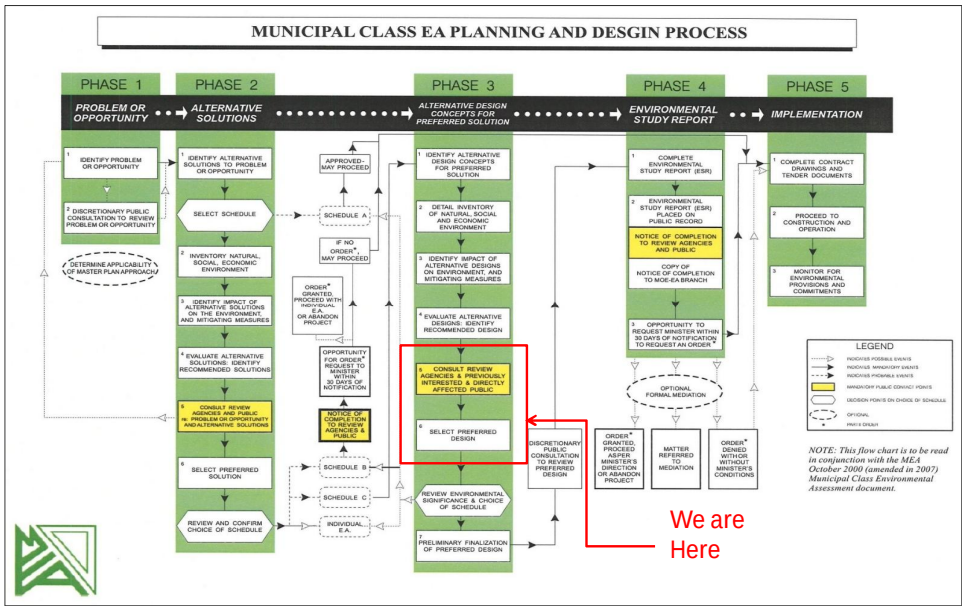
Municipal Class 'C' Environmental Assessment

Public Information Centre #2

Welcome!



Municipal Class Environmental Assessment Status



Study Overview

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- Since 2008, the Township has taken steps to eliminate infiltration into the collection system such as spot repairs, lining, replacements, manhole sealing/replacements, etc. The Township has also invested into studies for the identification and removal of roof leaders and sump pumps (this summer).
- The lack of capacity is creating a barrier for growth and economic development in the Township

Key Plan

Existing Lagoon Facility

- The Alexandria Sewage Lagoon Facility is currently operating under MOECC Amended Environmental Compliance Approval (ECA) Reference Number 9324-8WKJD2, August 2, 2012
- Amended ECA for the existing Lagoon Facility has a rated Capacity of 3,237 m^3/day
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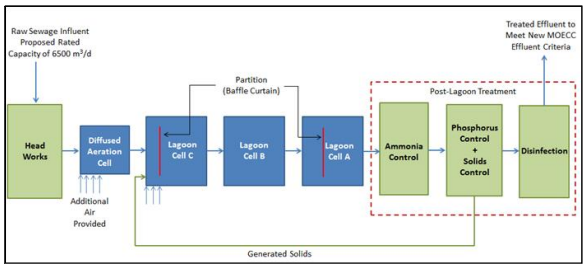
Problem/ Opportunity Statement

The Alexandria Sewage Lagoon Treatment Facility has exceeded its rated capacity. The lack of capacity is creating a barrier for growth and economic development within the Township. Therefore, the Township has initiated this Schedule 'C' Municipal Class Environmental Assessment to develop a plan to expand the Alexandria Sewage Lagoon Treatment Facility to address capacity issues and future growth.

Phase 2 Preferred Alternative Solution

The identified Preferred Alternative Solution is *Alternative 3b: Post Lagoon Effluent Treatment*. The Preliminary Preferred Alternative Solution is the result of the detailed evaluation, in addition to input from the Technical Advisory Committee (MOECC and Raisin Region Conservation Authority), Township Council, Governing Agencies and the Public.
The preferred alternative solution will consist of upgrading the existing facility and implementing new treatment technologies:

- Pre-lagoon treatment for the removal of large objects;
- Aeration for organics removal; and
- Post-lagoon treatment for ammonia, phosphorus and solids control and disinfection.



Phase 3 Identification of Design Concepts

The Alternative Design Concepts identified for the Phase 2 - Preferred Alternative Solution for the expansion of the Alexandria Sewage Lagoon Facility are as follows:

Pre-Lagoon Treatment

Screening

- Alternative 1: Manually Cleaned Bar Screens
- Alternative 2: Mechanically Cleaned Bar Screens

Grit Removal

- Alternative 1: Gravity Settling
- Alternative 2: Centrifugal Systems

Aeration

- Alternative 1: Upgrade the aeration system by increasing number of mechanical aerations
- Alternative 2: Upgrade the aeration system by augmenting its capacity with fine bubble diffusers
- Alternative 3: Upgrade the aeration system by replacing mechanical aerators with fine bubble diffusers

Identification of Design Concepts Continued

Post-Lagoon Treatment

Ammonia Control

- Alternative 1: Sequencing Batch Reactor (SBR)
- Alternative 2: Aerobic Submerged Fixed-Bed Reactors
- Alternative 3: Membrane Bioreactor
- Alternative 4: Rotating Biological Contactor (RBC)
- Alternative 5: Submerged Attached Growth Reactor (SAGR)
- Alternative 6: Moving Bed Biofilm Bioreactor (MBBR)

Phosphorus and Solids Control

- Alternative 1: Surface Filters
- Alternative 2: Loose Media Filters
  - Alternative 2a: Conventional Down-flow Sand Filters
  - Alternative 2b: Deep-bed up-flow continuous backwash filters
- Alternative 3: Adsorption
- Alternative 4: Ballasted Clarification

Disinfection

- Alternative 1: Chlorination/Dechlorination
- Alternative 2: Ultraviolet (UV) Disinfection

Key Considerations / Design Criteria

- Delisle River is a Policy 2 receiver for total phosphorus, in that concentrations exceed the Provincial Water Quality Objective (PWQO; MOE 1994) of 0.03 mg/L for Protection of Aquatic Life. Policy 2 requirements stipulate that there can be no further degradation of the receiving stream, and that all reasonable measures should be undertaken to improve water quality to the objective.
- The Township of North Glengarry aims to grow at a moderate pace with development taking place primarily in the urban areas. Therefore, the projected average day wastewater flow rate is 6,500 m^3/d (next 50 years).

Parameter	Effluent Limits Range	Compliance	Design Objectives
$CBOD_5$	10 – 15 mg/L	10	8
TSS	10 – 20 mg/L	15	10
Total Ammonia Nitrogen			
Summer	1 – 3 mg/L	1	1
Winter		3	2
Total Phosphorus	0.1 – 0.3 mg/L	0.2	0.1
E-coli	Counts/100mL	150	100

Note: The above proposed effluent discharge limits still need to be confirmed and approved by MOECC during the detail design.

- MOECC also requested that consideration be given to incorporating new innovative technology that will aid in the reduction of ammonia and phosphorus concentration levels being discharged to the Delisle River.

Evaluation Criteria

Each alternative design concept was evaluated based on its potential impact to the natural, socio-economic and cultural environments. However, in order to be considered a viable option, the alternative design concept needed to meet the following key criteria:

- Ability to remove desired constituents as per treatment level objectives
  - Is the alternative design concept capable and efficient at removing constituents that the technology was designed to remove? If applicable, does the alternative design concept achieve effluent design objects set by MOECC ?
- Treatment Reliability on full-scale applications and ability to handle cold weather climate?
  - Can the alternative design concepts, more specifically alternative design concepts for nitrification, achieve desired constituent removals in a low temperature environment?
- Ability to process varying design flows?
- System complexity and maintenance of treatment facility?
- Footprint of treatment system?
  - Is the selected alternative design concept reasonably sized? Does it fit within the existing property limits?
- Use of existing assets (for the aeration cell upgrade)?
- Effects on the Environment (Terrestrial/ Aquatic/Ecological Habitat/Vegetation/Species at Risk Impacts)?
  - Will there be Environmental Impacts during Construction and Operation? Are there potential impacts to the existing environment and/or the potential to provide mitigation measures or create habitat?

Evaluation of Alternative Design Concepts

Pre-Lagoon Treatment Evaluation

Screening:

The automated cleaning and/or mechanical bar screen systems have similar disadvantages and advantages with respect to potential environmental (natural and social) impacts. However, the mechanical system will have a higher capital and operational cost, whereas the manual system will be more labour intensive to operate. Based on the screening evaluation, the automated cleaning and/or mechanical bar screens are both appropriate treatments for the proposed facility and therefore, at this time both systems have been elected to be carried forward to the detailed design. *Refer to Table 1*.

Grit Removal:

The gravity and centrifugal based systems have similar disadvantages and advantages with respect to potential environmental (natural and social) impacts. However, the centrifugal system will have a higher capital and operational cost, whereas the gravity system will be more labour intensive to operate. Therefore Based on the grit removal evaluation, the *Alternative 1 - Gravity Settling* system was carried forward based on the Township's desire to keep the system as simple as possible. *Refer to Table 2*.

Aeration Cell:

The addition of air in the existing partially mixed aeration cell would ensure adequate oxygen for organics removal ($CBOD_5$) as flow to the facility increased. Three treatment technologies were evaluated, *refer to Table 3.*

Based on the Aeration Cell evaluation, *Alternative 2 - Upgrade the aeration system by augmenting its capacity with fine bubble diffusers* is the preliminary preferred design concept. Alternative 2 makes use of the existing mechanical aerators and reduces the footprint of the required blowers' to be located in the headworks building. The flexibility of the system allows for the addition of additional blowers as required.

Evaluation of Alternative Design Concepts

Post-Lagoon Treatment Evaluation

Ammonia Control:

To meet the total ammonia nitrogen effluent criteria year-round, the lagoon effluent will need to be treated by a biological nitrification treatment process that has been proven to achieve nitrification at cold water temperatures. Six treatment technologies were evaluated, *refer to Table 4.*

Based on the Ammonia Control evaluation, *Alternative 5 - Submerged Attached Growth Reactor (SAGR)* is the preliminary preferred design concept. The SAGR has been proven to effectively and efficiently treat lagoon effluent at low temperatures and provide ammonia control.

Phosphorus and Solids Control:

To meet the stringent Total Phosphorus (TP) effluent design and limit objectives, tertiary treatment will be required to polish the effluent. Six treatment technologies for phosphorus and solids control were evaluated, *refer to Table 5*.

Based on the evaluation of phosphorus and solids control technologies, four treatment technologies were considered to be capable of meeting the design criteria and controlling phosphorus and solids. Therefore, it is being recommended that the following treatment technologies be carried forward to the detail design phase to allow for flexibility in the design:

- Alternative 1: Surface Filters
- Alternative 2: Deep bed filtration
- Alternative 3: Adsorption
- Alternative 4: Ballasted Clarification

Evaluation of Alternative Design Concepts

Post-Lagoon Treatment Evaluation

Phosphorus and Solids Control Continued:

The above identified forms of treatment are all considered well established technologies of similar scale and have proven to be reliable forms of phosphorus and solids control treatment options in cold climates. All four alternatives will be constructed at the same location and will generally have the same overall footprint. As such, it is believed that the environmental impacts are comparable for all four alternatives.

Disinfection:

Both the chlorination/dechlorination and UV treatment are reliable and effective treatment processes for removing a wide spectrum of pathogenic organisms. However, chlorination/dechlorination treatment has a number of environmental disadvantages:

- Chlorine is highly corrosive and toxic, which poses a risk during shipping, storage and handling;
- Chemical dechlorination can be difficult to control, especially when near zero levels of residual chlorine are required (typically excess dosing is utilized); and
- Long-term effects of discharge dechlorinated compounds into the environment are unknown.

Chlorination/dechlorination is currently being used at the Alexandria Sewage Lagoon Facility; however, the system is causing operation and maintenance issues and is causing severe corrosion of the building. Therefore, the Township would like to cease using this form of treatment at the facility.

Based on the disinfection evaluation, *Alternative 2 - UV disinfection* is the preliminary preferred design concept. UV disinfection is effective at inactivating most viruses, spores, and cysts, as well as provides a friendlier working environment.

Preliminary Preferred Design Concept Site Layout

Preliminary Preferred Design Concept Costing

Process	Design Concept #1 SAGR® + Cloth Filter	Design Concept #2 SAGR® + Phosphorus Adsorption Media System	Design Concept #3 SAGR® + Deep Bed Sand Filter	Design Concept #4 SAGR® + High rate ballasted clarification processes
Headworks				
Building[1]	$619,000	$619,000	$619,000	$619,000
Process Equipment[2][2a]	$420,000	$420,000	$420,000	$420,000
Aeration cell upgrade with fine bubble diffusers [3]	$163,000	$163,000	$163,000	$163,000
Ammonia Control - SAGR [4]	$3,396,000	$3,396,000	$3,396,000	$3,396,000
Tertiary treatment				
Building[5]	$1,093,000	$1,199,000	$1,947,000	$1,606,000
Phosphorus Control[6]	$1,484,000	$1,131,000	$1,722,000	$1,995,000
UV Disinfection[6]	$289,000	$289,000	$289,000	$289,000
Site Works and Miscellaneous[7]	$629,000	$629,000	$629,000	$629,000
SUBTOTAL	*$8,093,000*	*$7,846,000*	*$9,185,000*	*$9,117,000*
Contingency (20%)	$1,619,000	$1,569,000	$1,837,000	$1,823,000
Engineering (15%)	$1,214,000	$1,177,000	$1,378,000	$1,368,000
TOTAL	$10,926,000	$10,592,000	$12,400,000	$12,308,000

Notes:
(1) Including gravel access, modified forcemain at site, electrical upgrades, building mechanical, rooms for: process, blowers, electrical
(2) Cost provided for mechanically cleaned bar screens and grit systems
(2a) Selecting manually cleaned bar screens (opposed to mechanical) will reduce the headworks process equipment cost, displayed in the table above, by $400,000
(3) Blowers, diffusers, air lines
(4) Process equipment and civil work for process
(5) Including electrical, building mechanical, rooms for: process, blowers, electrical, lab/office, washrooms with lockers
(6) Process equipment with installation
(7) Including general site works, emergency power supply, fire control systems
(8) The total operating costs for the options range from $430,000 to $480,000

Next Steps & Scheduling

Milestone	Deadline
Public Consultation Centre #2 – Present Phase 3	December 20, 2016
Update to Council	January 4, 2017
Phase 3 - Comment Period Expires	January 6, 2017
Select Technically Preferred Conceptual Design	January 6, 2017
Finalize Environmental Study Report	January 9, 2017
3rd Mandatory Consultation - Notice of Study Completion	January 9, 2017
Deadline for Comments and Part II Orders	February 7, 2017
Letter to MOECC and Municipality Indicating Class EA has been completed	February 8, 2017

For further information on the expansion of Alexandria Sewage Lagoon Treatment Facility, please contact:

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Lisa Marshall, P. Eng.
Project Manager/Environmental Engineer
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Carp, Ontario, K0A 1L0
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The Phase 3 Environmental Study Report is currently available for viewing on the Township website's (http://northglengarry.ca/en/townhall/waterandsewage.asp)

APPENDIX N5

TECHNICAL ADVISORY COMMITTEE MEETING

MOECC Pre-Consultation Meeting Minutes
Schedule "C" Municipal Class Environmental Assessment
Alexandria Sewage Lagoon Expansion

Date: Friday, July 10th
Time: 10:30am – 12:30pm
Location: Kingston Regional and District Offices, 1259 Gardiners Rd.

Project: **Alexandria Sewage Lagoon Expansion**
Schedule 'B' Municipal Class Environmental Assessment

Attendees:

Victor Castro	MOECC - Surface Water
Suzanne Smith	MOECC - Water Inspector – Cornwall Area Office
James Mahoney	MOECC - Supervisor
Ryan Morton	Director of Public Works
Lars Stern	AMEC (Teleconference)
Deborah Sinclair	Hutchinson Environmental Sciences (Teleconference)
Neil Hutchinson	Hutchinson Environmental Sciences (Teleconference)
Lisa Marshall	McIntosh Perry, Project Manger
Barry Burns	McIntosh Perry, Project Engineer

Regrets:

Dean McDonald	Water Works Manager

1.0 INTRODUCTION

- Introduction to project team
- Defined the project scope of work and Township's vision to make the existing lagoons more efficient and allow for future growth within the Municipality which is currently be capped due insufficient capacity at the Alexandria Sewage Lagoon.

2.0 DISCUSSION

- The Alexandria Lagoons discharge to the Pilot Drain, an agricultural swale, which conveys effluent to the Delisle River approximately 700 m downstream.
- Under the current ECA (CofA), the Alexandria Sewage Lagoon has an approved rated capacity of 3,237 m^3/d; however, the lagoon facility is receiving approximately 130% of the rated capacity.
- The Delisle River is a Policy 2 system for total phosphorus.
- MOECC indicated that the Delisle River is pretty close to being considered a dry ditch, however, agreed that effluent calculations would be completed based on Delisle River having a continuous flow rate.
- The Township has undertaken various actions to reduce and eliminate infiltration into the system. The Township is currently setting up an incentive program to redirect roof leaders from the sanitary

collection system. Once roof leaders have been successfully redirected, the Township will be moving on to improperly connected sump pumps.

- As the Township continues to rectify infiltration into the sanitary collection system, the effluent will become less dilute.
- Existing facility is not capable of treating a future average flow rate of approximately 7,500 m^3/d.
- The Township believes there is currently short circuiting occurring within the existing cells.
- One design option being considered is the potential removal of BOD and TSS at the headworks to try and reduce sludge build up.
- Based on a rate capacity of 5,500 m^3/d, the proposed increase in flow could be achieved by a proportional reduction in phosphorous limit to 0.3 mg/L and 1-3 mg/L for ammonia. TSS and cBOD5 were not identified in this study.

MOECC Comments:

- The Alexandria Sewage Lagoon is currently not in compliance.
- Effluent limits provided within the Hutchinson Environmental assessment are in line with MOECC criteria.
- Other options for treatment of Stormwater Management Facilities should be examined:
    - Municipal Drains/farming
    - Other point source discharge
- Nutrient Trading - offset mechanisms to obtain the required phosphorus levels. This will need to be documented in the Class EA process.

MOECC Design Requirements:

- MOECC Toronto Approval Branch will be looking for the following:
    - An evaluation of the existing system to determine if it meets current MOECC design standards. Document the facilities ability to treat current rated capacity.
    - An improved treatment facility that successfully decreases ammonia and phosphorous concentration levels being discharged to the Delisle River.
- Design Criteria provided by MOECC:

    cBOD5 = 10 -15 mg/L

    TSS = 10-20 mg/L

    Total Ammonia = 1-3 mg/L

    Total Phosphorous = 0.1-0.3 mg/L

- MOECC has agreed to consider effluent concentrations within the above noted ranges.
- As part of the approval, MOECC will require monitoring and reporting on a regular basis to ensure that the level of treatment identified in the design is being achieved.

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TECHNICAL ADVISORY MEETING #1
Schedule "C" Municipal Class Environmental Assessment
Alexandria Sewage Lagoon Expansion

Date: February 9th, 2016
Time: 1:00pm – 3:00pm
Location: Island Park Facility, Gary Shepherd Hall, 102 Derby St. West, Alexandria, Ontario

Project: **Alexandria Sewage Lagoon Expansion**
Schedule 'C' Municipal Class Environmental Assessment

Attendees:

Ryan Morton	Director of Public Works
Lissa Deslandes	Raisin River CA – Reg. Officer & Communications Coordinator
Phil Barnes	Raisin River CA – Water Resources Engineer
Lisa Marshall	McIntosh Perry, Project Manger
Steve Walker	McIntosh Perry, EIT
Teleconference:	
Victor Castro	MOECC - Surface Water
Suzanne Smith	MOECC - Water Inspector – Cornwall Area Office
David Trombley	MOECC - Water Inspector, Eastern Region - Kingston District
Lars Stern	Amec Foster Wheeler

Regrets:

Dean McDonald	Water Works Manager
James Mahoney	MOECC – Supervisor
Barry Burns	McIntosh Perry, Project Engineer
Matthew Levac	Raisin River CA – Planning and Regulations Assistant
Laura Melvin	Ministry of Natural Resources and Forestry

1.0 INTRODUCTION

- Introduction to the TAC attendees
- Defined the project scope of work and Township's vision to make the existing lagoons more efficient and allow for future growth within the Municipality which is currently be capped due insufficient capacity at the Alexandria Sewage Lagoon.

2.0 BACKGROUND

- The Alexandria Lagoons discharge to the Pilot Drain, an agricultural swale, which conveys effluent to the Delisle River approximately 700 m downstream.
- Under the current ECA (CofA), the Alexandria Sewage Lagoon has an approved rated capacity of 3,237 m^3/d; however, the lagoon facility is receiving approximately 130% of the rated capacity.

- The Delisle River is a Policy 2 system for total phosphorus.
- The Township has undertaken various actions to reduce and eliminate infiltration into the system. The Township is currently setting up an incentive program to redirect roof leaders from the sanitary collection system. Once roof leaders have been successfully redirected, the Township will be moving on to improperly connected sump pumps.

3.0 DISCUSSION

- The projected average day wastewater flow rate is 6,500 m^3/d (next 50 years)
- McIntosh Perry defined proposed Alternative Solutions:
  - Alternative 1: Do Nothing
  - Alternative 2: Use Existing Lagoon with no Upgrades
    - Alternative 2a: Off-site treatment of excess flows
    - Alternative 2b: Excess flow holding basin/additional lagoon
    - Alternative 2c: Construct a new Mechanical Treatment Facility on a New Site
  - Alternative 3: Upgrade Existing Lagoon
    - Alternative 3a: Enhance Lagoon Operations Only
    - Alternative 3b: Post Lagoon Effluent Treatment
    - Alternative 3c: Mechanical Treatment Facility Parallel to Lagoon Treatment (on-site)
    - Alternative 3d: Mechanical Treatment for "Excess Flow" and Polish Lagoon Effluent
  - Alternative 4: Build New Mechanical Facility
- The outcome of the detailed evaluation was as follows:
  - All four alternative solutions (3b, 3c, 3e and 4) will be able to meet the more stringent effluent criteria being imposed by MOECC for the Delisle River.
  - Alternative Solutions 3e and 4 - it is anticipated that there will be:
    - Higher capital and operating costs
    - Higher complexity of operating and maintaining
    - More extensive sludge handling requirements
    - On-site trained operator will be required
- Therefore, the Preliminary Preferred Alternative Solution(s) is Alternative 3b: Post Lagoon Effluent Treatment and Alternative 3c: Primary Treatment with Post Lagoon Treatment
- The technically preferred alternative solution will not be finalized until Phase 2 consultation has been completed.
- Therefore, the Township of North Glengarry and McIntosh Perry invite the Technical Advisory Committee (TAC) to provide input into this study, which will be incorporated into the planning and design of the Alexandria Sewage Lagoon Treatment Facility expansion.

MOECC Comments:

- No major comments at this time.
- MOECC agreed with the direction the Class EA was taking and that the following preliminary design criteria should be used to assist with generating the preferred design concept:

  cBOD5 = 10 -15 mg/L
  TSS = 10-20 mg/L
  Total Ammonia = 1-3 mg/L
  Total Phosphorous = 0.1-0.3 mg/L

- MOECC indicated that the Delisle River is pretty close to being considered a dry ditch, however, agreed that effluent calculations would be completed based on Delisle River having a continuous flow rate.
- MOECC also requested that consideration be given to incorporating new innovative technology that will aid in the reduction of ammonia and phosphorus concentration levels being discharged to the Delisle River.
- MOECC is looking forward to discussing the proposed design concepts.

Raisin Region Conservation Authority Comments:

- RRCA had no comments at this time.
- Phil Barnes offered to supply some flow data for the Delisle River.

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TECHNICAL ADVISORY MEETING #2
Schedule "C" Municipal Class Environmental Assessment
Alexandria Sewage Lagoon Expansion

Date: December 8th, 2016
Time: 10:00pm – 12:00pm
Location: 1259 Gardiners Road, unit #3

Project: **Alexandria Sewage Lagoon Expansion**
Schedule 'C' Municipal Class Environmental Assessment

Attendees:

Ryan Morton	Director of Public Works
Victor Castro	MOECC - Surface Water
Suzanne Smith	MOECC - Water Inspector – Cornwall Area Office
Dan White	MOECC – Supervisor
Vicki Mitchell	MOECC – Regional EA Coordinator
Lars Stern	Amec Foster Wheeler (Conference Call)
Barry Burns	McIntosh Perry, Project Engineer
Lisa Marshall	McIntosh Perry, Project Manger

1.0 INTRODUCTION

- Introduction attendees
- The purpose of this TAC meeting is to discuss the proposed preliminary preferred design concept for expanding Alexandria Sewage Lagoon Facility and confirm projected effluent limits with MOECC.

2.0 ENVIRONMENTAL ASSESSMENT UPDATE

- Hosted a Public information Centre on November 28th, 2016 to provide the public and governing agencies a second opportunity to comment on the Alternative Solutions for expanding the Alexandria Sewage Lagoon Treatment Facility. Attendees included 3 adjacent property owners, 1 local resident and 1 governing agency representation (MOECC), as well as approximately 6 members of council.
    - Residence primarily inquired about the Class EA process and what the preferred alternative solutions will be. No written or verbal comments received at the PIC.
- During the Phase 2 consultation period, we received:
    - Standard response from Ministry of Tourism, Culture and Sport, MOECC, MNRF, CEAA
    - MOECC – Provide direction and guidance through the Municipal Class EA process.

- Based on input from the public, governing agencies, Technical Advisory Committee (MOECC and Raisin Region Conservation Authority) and Township Council, as well as the detail evaluation, the preferred alternative solution selected was **Alternative 3b: Upgrading the Existing Lagoon with Post Lagoon Effluent Treatment**. Township also elected to carry forward a portion of the headwork treatment process (i.e. girt and screening) to remove large objects prior to the lagoons.

3.0 CURRENT COMPLIANCE OF THE FACILITY

- The Alexandria Sewage Lagoon Facility has generally been in compliance with amended ECA effluent criteria limits for CBOD5, Total Suspended Solids, Total Phosphorus, Total Residual Chlorine and pH, with exception to a few exceedances in 2014 and 2015 for
    - CBOD5 - two exceedances in February and March 2015
    - Total Suspended Solids - one exceedance in March 2015
    - Total Phosphorus - one exceedance in March 2015
    - Total Residual Chlorine - one in August 2014 and two in May and June 2015
- The annual average flows over two of the past three years have exceeded the rated capacity of the sewage lagoon (3,237 m^3/day). In 2013, the Alexandria Sewage Lagoon Facility was approximately 131% over rated capacity and 115% in 2014. Therefore, during 2013 and 2014, the facility was not in compliance with the rated capacity identified in the amended ECA. However, over the years the Township has undertaken many and various corrective actions to help reduce and eliminate infiltration into their sanitary network, which seems to be working as the annual average flow rate for 2015 was below the 3,237 m3/day.
- Based on depth assumptions and estimated aerated cell area, the total approximate working volume of the sewage lagoon is 284,700 m3. With a rated capacity of 3,237 m^3/day and continuous discharge, the sewage lagoons have a total retention time of approximately 88 days. Therefore, the Alexandria Sewage Lagoon Facility is in compliance with MOECC current design guidelines which states that aerated facultative lagoons are to provide a minimum total retention time of 30 days.

4.0 DESIGN CRITERIA

- McIntosh Perry presented the following design criteria used to identify the proposed design concepts:

Parameter	MOECC Preliminary Effluent Limits	ECA Proposed	
		Compliance	Design Objectives
$cBOD_5$	10 – 15 mg/L	10 mg/L	8 mg/L
TSS	10 – 20 mg/L	15 mg/L	10 mg/L
Total Ammonia Nitrogen	1 – 3 mg/L		
Summer		1 mg/L	1 mg/L
Winter		3 mg/L	2 mg/L
Total Phosphorus	0.1 – 0.3 mg/L	0.2 mg/L	0.1 mg/L
E-coli	Counts/100mL	150 organisms/100mL	100 organisms/100mL

- The proposed compliance limits for $CBOD_5$ of 10 mg/L and 15 mg/L for TSS which are significantly lower than the current ECA limits of 30 mg/L CBOD5 and 40 mg/L TSS.
- The proposed compliance limits for Total Ammonia Nitrogen of 1 mg/L during the summer months and 3 mg/L during the winter months are in accordance with those recommended in the HESL Report and those discussed with MOECC during pre-submission consultation. It is anticipated that the increase in design flows will not affect these limits, which will continue to ensure that the discharge to the Delisle River will be non-toxic with respect to un-ionized ammonia.
- An impact assessment of the discharge was carried out with the revised sewage plant flow of 6500 m3/day and lower Total Phosphorus limit of 0.2 mg/L through mass balance calculations using the river flows developed from gauge station 02MC036 and water quality data from the HESL Report.
    - The results show that in spite of the higher effluent flow, the more restrictive effluent concentration of 0.2 mg/L will actually result in lower in-stream Total Phosphorus concentrations than those for a design flow of 5500 m3/day and effluent limit of 0.3 mg/L Total Phosphorus (0.104 mg/L vs. 0.135 mg/L).
    - With the currently approved sewage flows of 3237 m^3/day and effluent limit of 0.5 mg/L for Total Phosphorus, the resulting in-stream mass balance concentration is 0.154 mg/L.
    - These results confirm that an expansion of the Alexandria sewage works will be in complete compliance with Policy 2 receiver as there will be no further degradation of the Delisle River with respect to Total Phosphorus; there will in fact be a lower loading from the facility and potentially, slight improvements to Total Phosphorus water quality in the river.
- The proposed compliance limits for E.Coli 150 organisms/100 mL and limit of 200 organisms/100 mL (monthly geometric mean density) which is in line with the existing amended ECA.

5.0 PRELIMINARY PREFERRED DESIGN CONCEPT

- The technically preferred alternative solution for the expansion of the Alexandria Sewage Lagoon Treatment Facility consists of upgrading the existing system and implementing new treatment technologies. It is being proposed that the treatment facility consists of:
    - Pre-lagoon treatment for the removal of large objects;
    - Aeration for organics removal; and
    - Post-lagoon treatment for ammonia, phosphorus and solids control and disinfection.
- Proposed Design Concepts are as follows:

Pre-Lagoon Treatment

Screening:

1. Alternative 1: Manually Cleaned Bar Screens
2. Alternative 2: Mechanically Cleaned Bar Screens

Evaluation Summary - The automated cleaning and/or mechanical bar screens systems have similar disadvantages and advantages with respect to potential environmental (natural and social) impacts.

However, the mechanical system will have a higher capital and operational cost, whereas the manual system will be more labour intensive to operate. Based on the screening evaluation, the automated cleaning and/or mechanical bar screens are both appropriate treatments for the proposed facility and therefore, at this time both systems have been elected to be carried forward to the detailed design.

Grit Removal:

1. Alternative 1: Gravity Settling
2. Alternative 2: Centrifugal Systems

Evaluation Summary - The gravity and centrifugal based systems have similar disadvantages and advantages with respect to potential environmental (natural and social) impacts. However, the centrifugal system will have a higher capital and operational cost, whereas the gravity system will be more labour intensive to operate. Based on the grit removal evaluation, the Gravity Settling system was carried forward based on the Township's desire to keep the system as simple as possible.

Aeration Cell:

1. Alternative 1: Upgrade the aeration system by increasing number of mechanical aerators
2. Alternative 2: Upgrade the aeration system by augmenting its capacity with fine bubble diffusers
3. Alternative 3: Upgrade the aeration system by replacing mechanical aerators with fine bubble diffusers

Evaluation Summary - Based on the evaluation, Alternative 2 is the preliminary preferred design concept for aeration. Alternative 2 makes use of the existing mechanical aerators and reduces the footprint of the required blowers' room to be located in the headworks building. The flexibility of the system allows for the addition of additional blowers as required.

Post-Lagoon Treatment

Ammonia Control Treatment Alternatives:

1. Alternative 1: Sequencing Batch Reactor (SBR)
2. Alternative 2: Aerobic Submerged Fixed-Bed Reactors
3. Alternative 3: Membrane Bioreactor
4. Alternative 4: Rotating Biological Contactor (RBC)
5. Alternative 5: Submerged Attached Growth Reactor (SAGR)
6. Alternative 6: Moving Bed Biofilm Bioreactor (MBBR)

Evaluation Summary - Based on the Ammonia Control evaluation, the only alternative that has proven too effectively and efficiently treat lagoon effluent at low temperatures and provide ammonia control is the Submerged Attached Growth Reactor System (SAGR). Therefore, the preliminary preferred design concept for ammonia control is Submerged Attached Growth Reactor System (SAGR).

Phosphorus and Solids Control Alternatives:

1. Alternative 1: Surface Filters

2. Alternative 2: Loose Media Filters
3. Conventional Down-flow Sand Filters
4. Deep-bed up-flow continuous backwash filters
5. Alternative 3: Adsorption Media System
6. Alternative 4: High Rate Ballasted Clarification

Evaluation Summary - Based on the evaluation of phosphorus and solids control technologies, the following four design alternatives are all considered capable with respect to meeting the design criteria and controlling phosphorus and solids, as well as similar environmental impacts. Therefore, it is being recommended that the following treatment technologies be carried forward to the detail design phase to allow for flexibility in the design: Alternative 1: Surface Filters, Alternative 2: Deep bed filtration, Alternative 3: Adsorption and Alternative 4: Ballasted Clarification.

Disinfection Treatment:

1. Alternative 1: Chlorination/Dechlorination
2. Alternative 2: Ultraviolet Disinfection

Evaluation Summary - the preliminary preferred design concept is UV disinfection. UV disinfection is effective at inactivating most viruses, spores, and cysts, as well it provides a friendlier working environment.

MOECC Comments:

- MOECC agreed with the proposed preliminary preferred design concept.
- MOECC acknowledged that McIntosh Perry documented phosphorus sharing within the Environmental Study Report as possible option to allow for flexibility in the future if the above noted concentration levels are too stringent.
- MOECC agreed with the Preliminary Preferred Design Concept and effluent limits. MOECC is to provide a letter of support, which is to be included in the detail design submission package to MOECC.
- The above proposed effluent discharge limits still need to be confirmed and approved by MOECC Approval during the detail design.

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APPENDIX N6

UPDATE TO COUNCIL

Alexandria Sewage Lagoon Treatment Facility

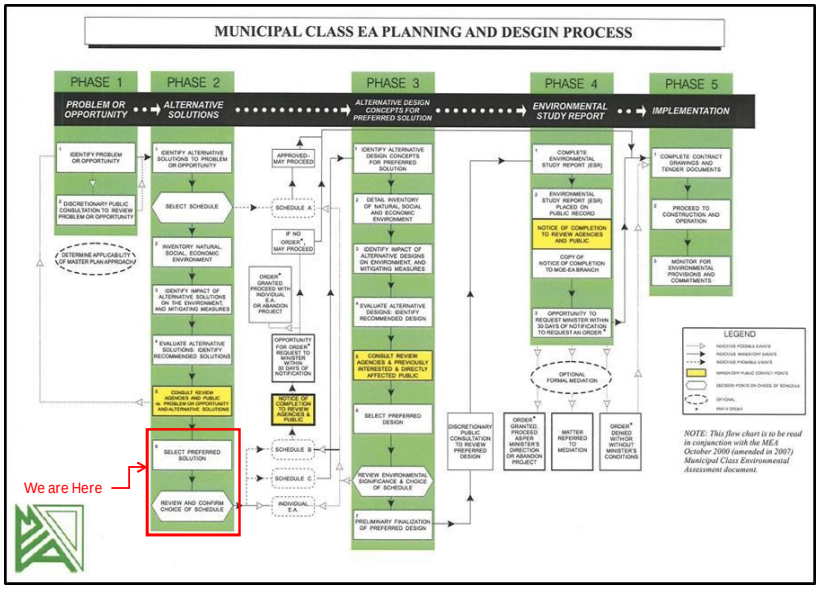
Municipal Class 'C' Environmental Assessment

Technical Advisory Committee Meeting

Agenda

- Municipal Class EA Status Update
- MOECC Effluent Criteria
- Identification and Evaluation of Alternative Solutions
- Next Steps

Municipal Class Environmental Assessment Status Update



MOECC Effluent Criteria

- A pre-consultation meeting was held on July 10, 2015 with MOECC. During the meeting, MOECC provided the following target effluent criteria for the Alexandria Sewage Lagoon Treatment Facility:

Parameter	Effluent Limits
cBOD5	10 – 15 mg/L
TSS	10-20 mg/L
Total Ammonia	1-3 mg/L
Total Phosphorus	0.1 – 0.3 mg/L

- The existing Lagoons have the hydraulic capacity to treat the projected flow rate (6,500 m^3/d), however, cannot meet the higher level of treatment required by MOECC.

Identification of Alternative Solutions

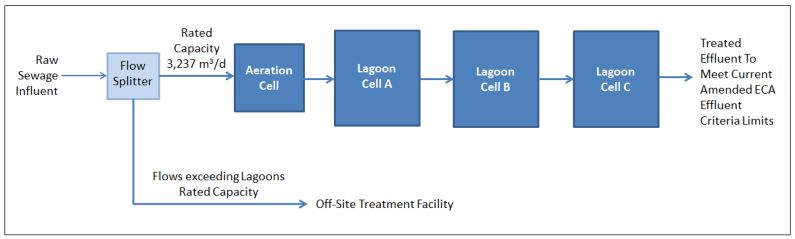
The alternative solutions identified for the expansion of the Alexandria Sewage Lagoon Facility are as follows:

- Alternative 1: Do Nothing
- Alternative 2: Use Existing Lagoon with no Upgrades
  - Alternative 2a: Off-site treatment of excess flows
  - Alternative 2b: Excess flows to holding basin/additional lagoon
  - Alternative 2c: Construct a new Mechanical Treatment Facility on a New Site
- Alternative 3: Upgrade Existing Lagoon
  - Alternative 3a: Enhance Lagoon Operations Only
  - Alternative 3b: Post Lagoon Effluent Treatment
  - Alternative 3c: Primary Treatment with Post Lagoon Treatment
  - Alternative 3d: Mechanical Treatment Facility Parallel to Lagoon Treatment (on-site)
  - Alternative 3e: Mechanical Treatment for “Excess Flow” and Polish Lagoon Effluent
- Alternative 4: Build New Mechanical Treatment Facility

Alternative 2: Use Existing Lagoon with no Upgrades

Alternative 2a: Off-site Treatment of Excess Flows

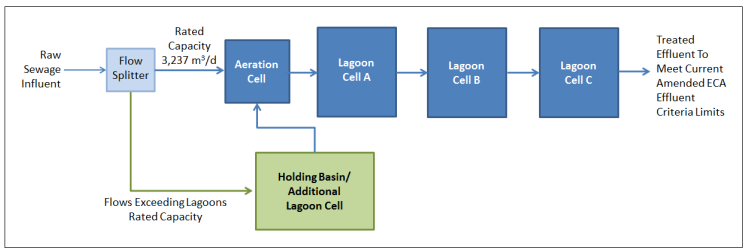
The Alexandria Sewage Lagoon Facility would continue to operate in its current condition; however, a pumping station would be installed to pump the excess flows from the Alexandria Sewage Lagoons (current and future growth) to an existing licensed facility via a proposed forcemain.



Advantages	Disadvantages
• The existing facility can meet the current amended ECA effluent criteria if flow is controlled to the approved rated capacity	• Off-site treatment options are limited due to limited receivers (i.e. Maxville) • Off-site treatment facilities may not have the capacity to accept flows in excess of 3,300 m³/d

Alternative 2b: Excess Flows to Holding Basin / Additional Lagoon

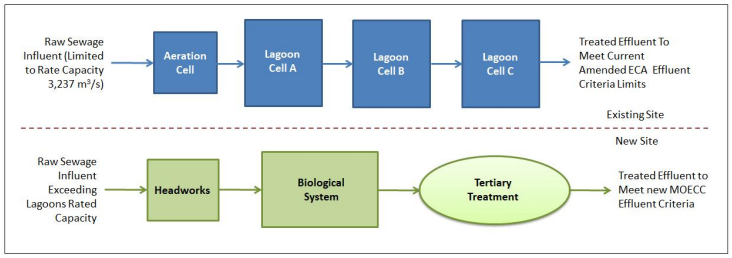
The lagoons would continue to operate in its current condition; however, flows to the lagoon system would be maintained below amended ECA rated capacity (3,237 m³/day). Flows in excess of the current rated capacity and to a maximum of 6,500 m³/day would then be redirected to a holding basin/additional lagoon cell for storage until capacity became available within the primary treatment process.



Advantages	Disadvantages
• The existing facility can meet current amended ECA effluent criteria if raw sewage flows are limited to the rated capacity. • Utilizes all of the existing assets at the site.	• This option is only viable if there are periods when the flows are less than the current rated capacity. • Potentially unable to accommodate future flows and therefore limiting the growth within the Township. • Potential odour issues associated with stagnant sewage in storage cell.

Alternative 2c: Construct a New Mechanical Treatment Facility on a New Site

The new Mechanical Treatment Facility would be constructed within the Township's limits to handle design flows that exceed the rated capacity of the Lagoons (3,237m³/d).

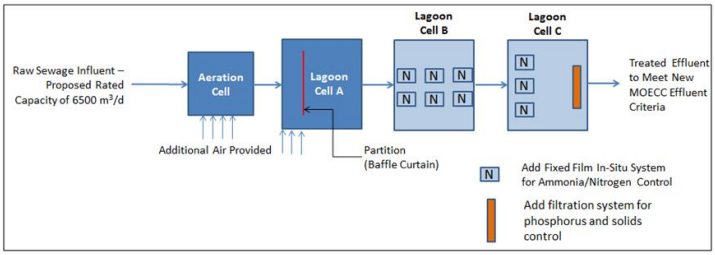


Advantages	Disadvantages
• The existing facility can meet current ECA effluent criteria if raw sewage flows are limited to the rated capacity. • Allows for additional growth within Township.	• Would need to retrofit the Township's sewer network to redirect flows to the new Mechanical Treatment Facility • Higher capital and operating costs will be incurred due to mechanical treatment plant. • Will require the Township to maintain two separate facilities • Higher complexity of operation and maintaining

Alternative 3: Upgrade Existing Lagoon

Alternative 3a: Enhance Lagoon Operations Only

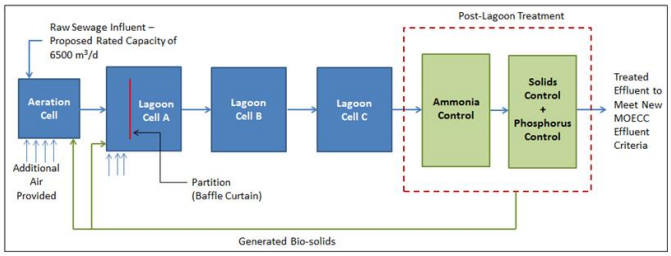
The existing Lagoons would receive upgrades to enhance the treatment capability. Additional treatment systems would need to be added within the lagoons or potentially small compact systems near the edge of the lagoons, such as fixed film in-situ systems for ammonia/nitrogen control and filtration systems. The existing lagoons have the hydraulic capacity (30 day retention) to treat the projected design flow of 6,500 m^3/d.



Advantages	Disadvantages
• Utilizes all of the existing assets at the site (no decommissioning required). • Lower capital and long term operation costs in comparison to a Mechanical Treatment Plant option. • Minimizes the need to develop land beyond the existing lagoon boundaries.	• Unaware of any existing in-lagoon ammonia treatment systems that can meet the strict effluent criteria. In-situ lagoon ammonia control systems have not had long term winter testing to prove successful. • Ice in lagoon during winter will need to be managed (prevent ice build-up at in-situ units).

Alternative 3b: Post Lagoon Effluent Treatment

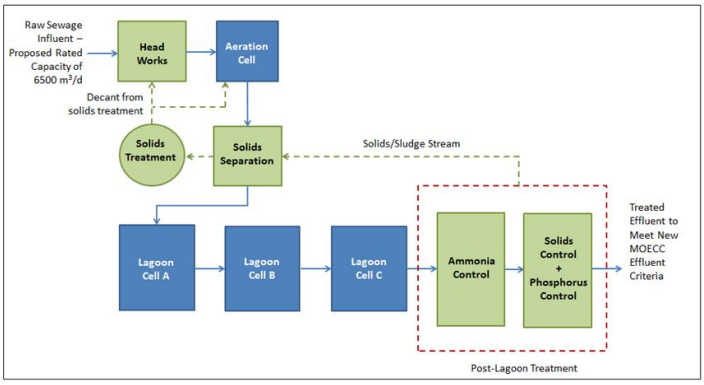
The lagoons would be modified and additional treatment systems would be added after the lagoon cells to polish the effluent discharging from the lagoons.



Advantages	Disadvantages
• The existing lagoons have hydraulic capacity (>30 day retention at 6,500 m^3/d) • Achieves the newly imposed MOECC effluent criteria and therefore reducing the impact to the environment (Aquatic/Ecological and Terrestrial). • This alternative includes technologies that have lower capital and O&M costs. • Utilizes all of the existing assets at the site (no decommissioning required).	• Increased generation of solids. • Increasing aeration will increase operating costs. • Oxygen transfer efficiency is lower than a mechanical system since the liquid depth is low versus a mechanical system.

Alternative 3c: Primary Treatment with Post Lagoon Effluent Treatment

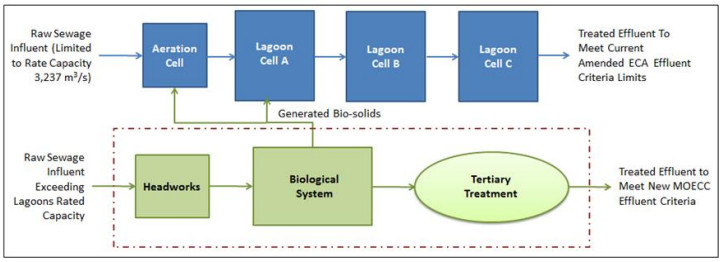
Alternative 3c is similar to Alternative 3b. However, Alternative 3c contains additional solids treatment at the forefront and does not introduce generated bio-solids back into the lagoon system.



Advantages	Disadvantages
• Same as Alternative 3b. • Removes solids before the lagoon cells.	• Same as Alternative 3b. • Not standard practice

Alternative 3d: Mechanical Treatment Facility Parallel to Lagoon Treatment (on-site)

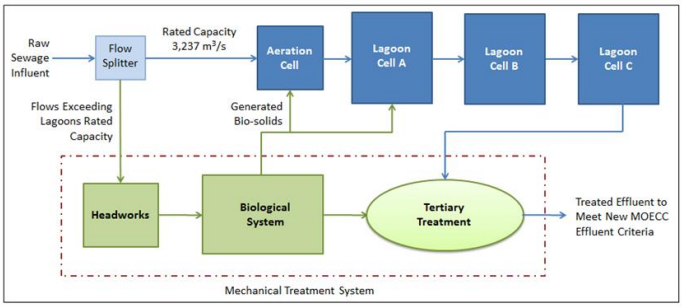
A "parallel" facility would be constructed adjacent to the existing lagoon on the same parcel of land to treat flows in excess of the rated capacity of the Alexandria Sewage Lagoons.



Advantages	Disadvantages
• Reduces the impact to the environment (Aquatic/Ecological and Terrestrial). • Upgrade lagoons to help remove solids build-up to enhance lagoon operability and reduce short-circuiting. • Utilizes all of the existing assets at the site.	• If "two" plants are located on the same site, MOECC will potentially consider this configuration to be one facility and will require the combined effluent to meet the more strict MOECC effluent criteria. • Higher complexity of operation/maintaining, as well as higher capital and operation costs compared to other passive wastewater treatment systems. • More extensive sludge treatment and removal requirements with mechanical treatment facilities. • Requires on-site trained operator

Alternative 3e: Mechanical Treatment for "Excess Flow" and Polish Lagoon Effluent

The lagoons would be modified (more air for organic control) and a Mechanical system would be added after the lagoons to polish the effluent to meet the newly imposed MOECC effluent criteria.

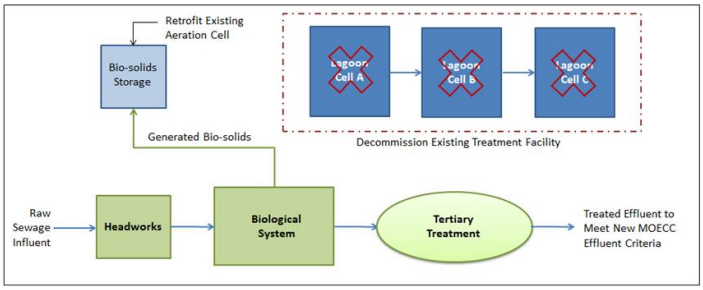


Advantages	Disadvantages
• Same as Alternative 3b. • The system is now capable of achieving the newly imposed MOECC effluent criteria for the projected design flow (6,500 m³/d).	• Higher complexity of operation/maintaining, as well as higher capital and operation costs compared to other passive wastewater treatment systems. • More extensive sludge treatment and removal requirements with mechanical treatment facilities. • Requires on-site trained operator

Alternative 4: New Mechanical Treatment Facility

Alternative 4: Build New Mechanical Treatment Facility

Decommission the existing Alexandria Sewage Lagoons and construct a new full scale Mechanical Treatment Plant. The facility would utilize biological and tertiary treatment while using the existing aeration cell for bio-solids storage. The existing lagoons would be decommissioned and repurposed.



Advantages	Disadvantages
• Effective and robust treatment option. • Option to convert existing lagoons into a natural vegetated area. • Smaller footprint than other alternatives which include the existing lagoons. • Low performance risk and offers reliable treatment. • Allows to construct new facility while still providing service to the Township.	• Higher complexity of operation and maintaining compared to other passive wastewater treatment systems. • High capital and operating costs (i.e. energy). • More extensive sludge handling requirements. • Requires on-site trained operator.

Evaluation of Alternative Solutions

The evaluation of alternative solutions was carried out in a two phases approach:

- Preliminary Screening
- Detailed Evaluation

Preliminary Screening

To be considered a viable alternative solution, the alternative must:

- Meet the higher level of effluent requirements imposed by the MOECC;
- Meet the target projected design flow;
- Reduce impacts to the environment;
- Staffed and maintained locally;
- Financially feasible; and
- Low Operation & Maintenance Costs

Four Alternative Solutions were carried forward to the detailed evaluation:

- Alternative 3b: Lagoon with Post Lagoon Effluent Treatment
- Alternative 3c: Lagoon with Primary and Post Lagoon Treatment
- Alternative 3e: Mechanical Treatment for “Excess Flow” and Polishing Lagoon Effluent
- Alternative 4: Build New Mechanical Treatment Facility

Detailed Evaluation

- A numerical evaluation process was completed to assess the “favourability” of each alternative
- Criteria were divided up into four categories
- For each category, sub-criteria were established, as well as a rationale for the criterion
- Each criterion was given a weighing factor based on relative importance and each alternative was given a numerical score based on its impact
- Highest scoring Alternative was deemed the preliminary technically preferred solution

Evaluation Criteria	Weighing Factor	Alternative	
		Score	Weighed Score
Technical / Operation			
Complexity			
Operation			
Constructability Challenges			
Life Cycle			
Land Requirement			
Bio-solids Issues			
Scheduling/Flexibility			
Natural Environment			
MOE Effluent Criteria			
Aquatic/Ecological Habitat			
Terrestrial Habitat			
Vegetation			
Social Environment			
Agricultural Land			
Noise and Odour			
Construction Impacts			
Access to water			
Aesthetics / Appearance			
Public Safety			
Economic			
Affordability			
Sustainability			
Summary Result			

Detailed Evaluation

- All four alternative solutions (3b, 3c, 3e and 4) will be able to meet the more stringent effluent criteria being imposed by MOECC for the Delisle River.
- However, Alternative Solutions 3e and 4 are less preferred options due to:
    - Higher capital and operating costs
    - Higher complexity of operating and maintaining
    - More extensive sludge handling requirements
    - On-site trained operator
- Preliminary preferred alternative solution(s):
    - Alternative 3b: Post Lagoon Effluent Treatment
    - Alternative 3c: Primary Treatment with Post Lagoon Treatment

Next Steps

- Select the Technically Preferred Alternative Solution – March 24, 2016
- Identify and Evaluate Alternative Design Concepts for Preferred Alternative Solution
- Generate Conceptual Design for the Preferred Solution
- Technical Advisory Committee Meeting #2 – May 20, 2016
- Public Consultation Centre – May 27, 2016
- Select Technically Preferred Design Alternative – June 10, 2016
- Finalize Environmental Summary Report – July 8, 2016
- Notice of Completion (30 Days) – August 5, 2016

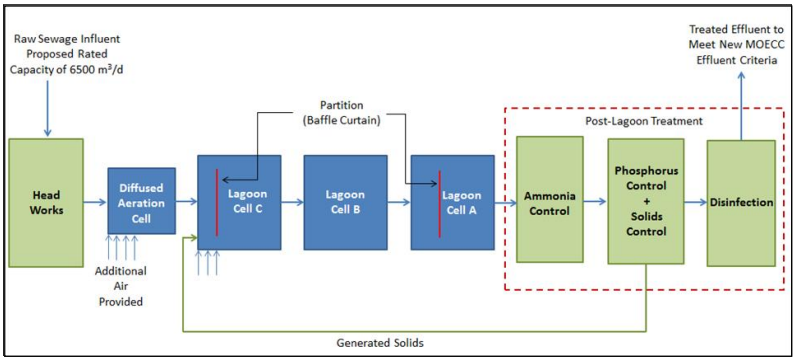
Alexandria Sewage Lagoon Treatment Facility Expansion
Municipal Class 'C' Environmental Assessment
Update to Council

Phase 2 Preferred Alternative Solution

The identified Preferred Alternative Solution was *Alternative 3b: Post Lagoon Effluent Treatment*, which was determined through the detailed evaluation, in addition to input from the Technical Advisory Committee (MOECC and Raisin Region Conservation Authority), Township Council, Governing Agencies and the Public.

The preferred alternative solution consists of upgrading the existing facility and implementing new treatment technologies:

- Pre-lagoon treatment for the removal of large objects;
- Aeration for organics removal; and
- Post-lagoon treatment for ammonia, phosphorus and solids control and disinfection.



Phase 3 - Key Considerations / Design Criteria

- Delisle River is a Policy 2 receiver for total phosphorus. Policy 2 requirements stipulate that there can be no further degradation of the receiving stream, and that all reasonable measures should be undertaken to improve water quality to the objective.
- Township of North Glengarry's projected average day wastewater flow rate is 6,500 m^3/d.
- During the MOECC pre-consultation meeting, MOECC provided the following preliminary effluent limit ranges, which were to be used as a guideline for selecting viable treatment technologies.

Parameter	Effluent Limits Range
$CBOD_5$	10 – 15 mg/L
TSS	10 – 20 mg/L
Total Ammonia Nitrogen Summer Winter	1 – 3 mg/L
Total Phosphorus	0.1 – 0.3 mg/L
E-coli	Counts/100mL

- MOECC also requested that consideration be given to incorporating new innovative technology that will aid in the reduction of ammonia and phosphorus concentration levels being discharged to the Delisle River.

Evaluation Criteria

Each alternative design concept was evaluated based on its potential impact to the natural, socio-economic and cultural environments. However, in order to be considered a viable option, the alternative design concept at a minimum needed to meet the following key criteria:

- Ability to remove desired constituents as per treatment level objectives
  - Is the alternative design concept capable and efficient at removing constituents that the technology was designed to remove? If applicable, does the alternative design concept achieve effluent design objects set by MOECC ?
- Treatment Reliability on full-scale applications and ability to handle cold weather climate?
- Ability to process varying design flows?
- System complexity and maintenance of treatment facility?
- Footprint of treatment system?
- Use of existing assets?
- Effects on the Environment (Terrestrial/ Aquatic/Ecological Habitat/Vegetation/Species at Risk Impacts)?

Phase 3 - Identification and Evaluation of Design Concepts

The Alternative Design Concepts identified for Phase 2 - Preferred Alternative Solution for the expansion of the Alexandria Sewage Lagoon Facility are as follows:

Pre-Lagoon Treatment

Screening Alternatives:
Screening of the influent wastewater was selected to be part of the treatment process to remove large objects that might damage or clog downstream equipment.

Alternative 1: Manually Cleaned Bar Screens
Alternative 2: Mechanically Cleaned Bar Screens

Evaluation:

- The automated and/or mechanical bar screen systems have similar disadvantages and advantages with respect to potential environmental (natural and social) impacts.
- However, the mechanical system will have a higher capital and operational cost, whereas the manual system will be more labour intensive to operate.

Conclusion:
Based on the screening evaluation, the automated cleaning and/or mechanical bar screens are both appropriate treatments for the proposed facility and therefore, at this time both systems have been elected to be carried forward to the detail design.

Phase 3 - Identification and Evaluation of Design Concepts

Grit Removal Alternatives:
Grit removal will help prevent the accumulation of heavy deposits in lagoon cells, pipelines, channels, and conduits, as well protect moving mechanical equipment from abrasion and abnormal wear.

Alternative 1: Gravity Settling
Alternative 2: Centrifugal Systems

Evaluation:

- The gravity and centrifugal based systems have similar disadvantages and advantages with respect to potential environmental (natural and social) impacts.
- However, the centrifugal system will have a higher capital and operational cost, whereas the gravity system will be more labour intensive to operate.

Conclusion:
Based on the grit removal evaluation, the *Alternative 1 - Gravity Settling* system was carried forward based on the Township's desire to keep the system as simple as possible.

Phase 3 - Identification and Evaluation of Design Concepts

Aeration Cell Alternatives:

The addition of air in the existing partially mixed aeration cell would ensure adequate oxygen for organic removal ($CBOD_5$) as flow to the facility increase. Three treatment technologies were evaluated:

Alternative 1: Upgrade the aeration system by increasing number of mechanical aerations

Alternative 2: Upgrade the aeration system by augmenting its capacity with fine bubble diffusers

Alternative 3: Upgrade the aeration system by replacing mechanical aerators with fine bubble diffusers

Evaluation:

- All three alternatives have similar disadvantages and advantages with respect to potential environmental (natural and social) impacts.
- Alternatives 1 and 2 makes use of the existing mechanical aerators and reduces the footprint of the required blowers' to be located in the headworks building. The flexibility of the system allows for additional blowers to be added as required.
- Alternative 3 does not make use of existing assets, as well it would require additional blowers and a large mechanical building.

Conclusion:

Based on the Aeration Cell evaluation, *Alternative 2 - Upgrade the aeration system by augmenting its capacity with fine bubble diffusers* is the preferred design concept.

Phase 3 - Identification and Evaluation of Design Concepts

Post-Lagoon Treatment Evaluation

Ammonia Control Alternatives:

To meet the total ammonia nitrogen effluent criteria year-round, the lagoon effluent will need to be treated by a biological nitrification treatment process that has been proven to achieve nitrification at cold water temperatures. Six treatment technologies were evaluated:

Alternative 1: Sequencing Batch Reactor (SBR)

Alternative 2: Aerobic Submerged Fixed-Bed Reactors

Alternative 3: Membrane Bioreactor

Alternative 4: Rotating Biological Contactor (RBC)

Alternative 5: Submerged Attached Growth Reactor (SAGR)

Alternative 6: Moving Bed Biofilm Bioreactor (MBBR)

Evaluation:

- All of the above alternatives can achieve MOECC effluent limits, however, the Submerged Attached Growth Reactor (SAGR) is the only system that has been proven to effectively and efficiently treat lagoon effluent at low temperatures and provide the require ammonia control.

Conclusion:

Based on the Ammonia Control evaluation, *Alternative 5 - Submerged Attached Growth Reactor (SAGR)* is the preferred design concept.

Phase 3 - Identification and Evaluation of Design Concepts

Phosphorus and Solids Control Alternatives:
To meet the stringent Total Phosphorus (TP) effluent design and limit objectives, tertiary treatment will be required to polish the effluent. Six treatment technologies for phosphorus and solids control were evaluated:

Alternative 1: Surface Filters
Alternative 2: Loose Media Filters
Alternative 2a: Conventional Down-flow Sand Filters
Alternative 2b: Deep-bed up-flow continuous backwash filters
Alternative 3: Adsorption
Alternative 4: Ballasted Clarification

Evaluation:
- All four alternatives have similar disadvantages and advantages with respect to potential environmental (natural and social) impacts.
- All of the alternatives are considered well established technologies and have proven to be reliable forms of phosphorus and solids control treatment options in cold climates.
- The alternatives are all capable of meeting the MOECC effluent limits with exception to the Conventional Down-flow Sand Filters which may have difficulties achieving the required Total Phosphorus effluent limit.

Conclusion:
Therefore, it is being recommended that the above noted treatment technologies be carried forward with exception to the Conventional Down-flow Sand Filters to the detail design phase to allow for flexibility in the detail design.

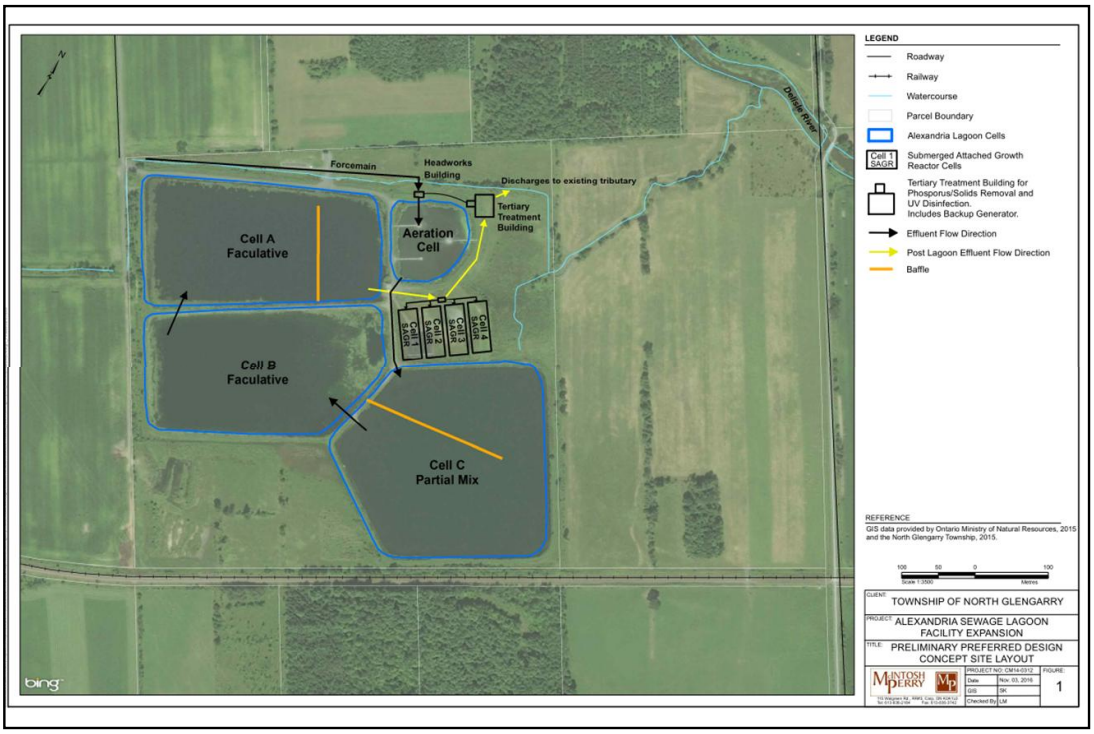
Phase 3 - Identification and Evaluation of Design Concepts

Disinfection:
Disinfection is required to meet the E.Coli discharge effluent limit.

Alternative 1: Chlorination/Dechlorination
Alternative 2: Ultraviolet (UV) Disinfection

Evaluation:
- Both the chlorination/dechlorination and UV treatment are reliable and effective treatment processes for removing a wide spectrum of pathogenic organisms.
- However, chlorination/dechlorination treatment have a number of environmental disadvantages:
  - Chlorine is highly corrosive and toxic, which poses a risk during shipping, storage and handling;
  - Chemical dechlorination can be difficult to control, especially when near zero levels of residual chlorine are required (typically excess dosing is utilized); and
  - Long-term effects of discharge dechlorinated compounds into the environment are unknown.
- Chlorination/dechlorination is currently being used at the Alexandria Sewage Lagoon Facility; however, the system is causing operation and maintenance issues and is causing severe corrosion of the building.

Conclusion:
Based on the disinfection evaluation, *Alternative 2 - UV disinfection* is the preferred design concept. UV disinfection is effective at inactivating most viruses, spores, and cysts, as well as provides a friendlier working environment.



Technical Advisory Committee Meeting

- A secondary TAC meeting was help on December 8, 2016 to present the Preliminary Preferred Design Concept and present the below effluent limits:

Parameter	Effluent Limits Range	Compliance	Design Objectives
$CBOD_5$	10 – 15 mg/L	10	8
TSS	10 – 20 mg/L	15	10
Total Ammonia Nitrogen Summer Winter	1 – 3 mg/L	 1 3	 1 2
Total Phosphorus	0.1 – 0.3 mg/L	0.2	0.1
E-coli	Counts/100mL	150	100

Note: The above proposed effluent discharge limits still need to be confirmed and approved by MOECC during the detail design.

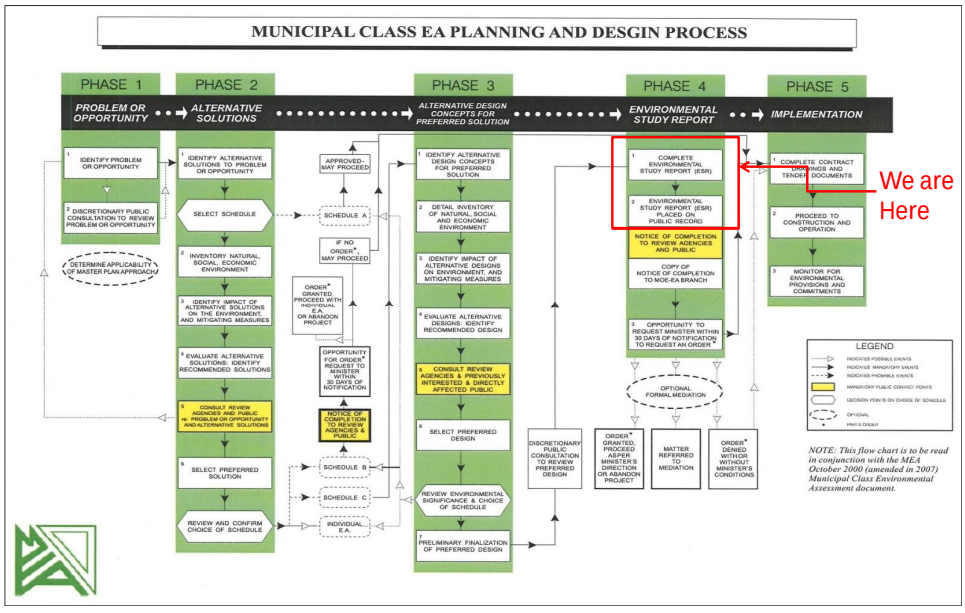
- MOECC also requested that phosphorus sharing be identified in the Environmental Study Report as possible option to allow for flexibility in the future if the above noted concentration levels are to stringent.
- MOECC agreed with the Preliminary Preferred Design Concept and effluent limits. MOECC is currently in the process of drafting a letter of support, which is to be included in the detail design submission package to MOECC.

Preliminary Preferred Design Concept Costing

Process	Design Concept #1 SAGR® + Cloth Filter	Design Concept #2 SAGR® + Phosphorus Adsorption Media System	Design Concept #3 SAGR® + Deep Bed Sand Filter	Design Concept #4 SAGR® + High rate ballasted clarification processes
Headworks				
Building[1]	$619,000	$619,000	$619,000	$619,000
Process Equipment[2][2a]	$420,000	$420,000	$420,000	$420,000
Aeration cell upgrade with fine bubble diffusers [3]	$163,000	$163,000	$163,000	$163,000
Ammonia Control - SAGR [4]	$3,396,000	$3,396,000	$3,396,000	$3,396,000
Tertiary treatment				
Building[5]	$1,093,000	$1,199,000	$1,947,000	$1,606,000
Phosphorus Control[6]	$1,484,000	$1,131,000	$1,722,000	$1,995,000
UV Disinfection[6]	$289,000	$289,000	$289,000	$289,000
Site Works and Miscellaneous[7]	$629,000	$629,000	$629,000	$629,000
SUBTOTAL	*$8,093,000*	*$7,846,000*	*$9,185,000*	*$9,117,000*
Contingency (20%)	$1,619,000	$1,569,000	$1,837,000	$1,823,000
Engineering (15%)	$1,214,000	$1,177,000	$1,378,000	$1,368,000
TOTAL	$10,926,000	$10,592,000	$12,400,000	$12,308,000

Notes:
(1) Including gravel access, modified forcemain at site, electrical upgrades, building mechanical, rooms for: process, blowers, electrical
(2) Cost provided for mechanically cleaned bar screens and grit systems
(2a) Selecting manually cleaned bar screens (opposed to mechanical) will reduce the headworks process equipment cost, displayed in the table above, by $400,000
(3) Includes blowers, diffusers, air lines
(4) Process equipment and civil work for process
(5) Including electrical, building mechanical, rooms for: process, blowers, electrical, lab/office, washrooms with lockers
(6) Process equipment with installation
(7) Including general site works, emergency power supply, fire control systems
(8) The total operating costs for the options range from approximately $430,000 to $480,000

Municipal Class Environmental Assessment Status



Next Steps & Scheduling

Milestone	Deadline
Finalize Environmental Study Report	January 13, 2017
3rd Mandatory Consultation - Notice of Study Completion	January 19, 2017
Deadline for Comments and Part II Orders	February 16, 2017
Letter to MOECC and Municipality Indicating Class EA has been completed	February 17, 2017

Thank you!
Any Comments or Questions?