

Appendix E – Public and Stakeholder Consultation

**Appendix E1 –
Stakeholder List**

Salutation	First Name	Last Name	Title	Department	Organization	Address 1	Address 2	Community	Province	Postal Code
Federal Agencies										
Mr.	John	Fischer	EA Coordinator District Manager	Fisheries Protection Program	Environment Canada Fisheries and Oceans Canada (DFO)	867 Lakeshore Road 867 Lakeshore Road	PO Box 5050	Burlington Burlington	ON ON	L7R 4A6 L7S 1A1
Ms.	Kitty	Ma	Regional Environmental Assessment Coordinator	Ontario Region	Health Canada	180 Queen Street West		Toronto	ON	M5V 3L7
Provincial Agencies										
Ms.	Barbara	Slattery	Regional EA and Planning Coordinator	West Central Regional Office	Ministry of Environment and Climate Change (MOECC)	119 King Street West, 12th Floor		Hamilton	ON	L8P 4Y7
Ms.	Jane	Glassco	Director	Guelph District Office	Ministry of Environment and Climate Change (MOECC)	1 Stone Road West		Guelph	ON	N1G 4Y2
Ms.	Martha	Weber	Provincial Officer, Water Inspection Program	Guelph District Office	Ministry of Environment and Climate Change (MOECC)	4th Fl., 1 Stone Rd. W.		Guelph	ON	N1G 4Y2
Mr.	Bruce	Curtis	Manager, Community Planning and Development	Western Municipal Service Office	Ministry of Municipal Affairs and Housing	659 Exeter Road, 2nd Floor		London	ON	N6E 1L3
Mr.	Charles	O'Hara	Manager, Growth Policy	Ontario Growth Secretariat	Ministry of Municipal Affairs and Housing	777 Bay Street, 4th Floor, Suite 425		Toronto	ON	M5G 2E5
Ms.	Erin	Cotnam		Southern Region	Ministry of Natural Resources and Forestry (MNRF)	300 Water Street, Box 7000	4th Floor, South Tower	Peterborough	ON	K9J 8M5
Mr.	David	Marriott	District Planner	Guelph District	Ministry of Natural Resources and Forestry (MNRF)	1 Stone Road West	Ontario Government Building	Guelph	ON	N1G 4Y2
Ms.	Carol	Neuman	Regional Planner	Environmental & Land Use Policy Food Safety and Environmental Policy Branch	Ministry of Agriculture, Food and Rural Affairs	6484 Wellington Road 7 – Unit 10		Elora	ON	NoB 1S0
Mr.	Tony	Amalfa	Manager	Environmental Health Policy & Programs	Ministry of Health and Long-Term Care	393 University Avenue, 21st Floor		Toronto	ON	M7A 2S1
Dr.	Nicola	Mercer	Medical Officer of Health & Chief Executive Officer	Consultation Unit	Wellington-Dufferin-Guelph Public Health Unit	474 Wellington Road 18, Suite 100	RR # 1	Fergus	ON	N1M 2W3
Ms.	Sandra	Cooke			Ministry of Aboriginal Affairs Grand River Conservation Authority (GRCA)	4th Floor, 160 Bloor Street East 400 Clyde Road	PO Box 729	Toronto Cambridge	ON ON	M7A 2E6 N1R 5W6
Mr.	Mark	Anderson	Water Quality Engineer		Grand River Conservation Authority (GRCA)	400 Clyde Road	PO Box 729	Cambridge	ON	N1R 5W6
Ms.	Nancy	Davy	Planner		Grand River Conservation Authority (GRCA)	400 Clyde Road	PO Box 729	Cambridge	ON	N1R 5W6
Mr.	Jamie	Austin	Manager, Growth Policy	Growth Policy, Planning and Analysis Branch	Ministry of Energy and Infrastructure	777 Bay Street, 4th Floor	Suite 425	Toronto	ON	M5G 2E5
Mr.	Kevin Zsolt	Bentley Katzirz	Engineering Office Manager Corridor Management Planner	Southwest Region Corridor Management, West Region	Ministry of Transportation Ministry of Transportation	659 Exeter Road 659 Exeter Road	1st Floor 1st Floor	London London	ON ON	N6E 1L3 N6E 1L3
Ms.	Paula	Brown	Manager (Inspector)	Operational Policy and Support Bureau	Ontario Provincial Police	777 Memorial Avenue, 3rd Floor		Orillia	ON	L3V7V3
Ms.	Laura	Hatcher	Team Lead (A)	Culture Services Unit Programs and Services Branch West Region	Ministry of Tourism, Culture and Sport	401 Bay Street, Suite 1700		Toronto	ON	M7A 0A7
Mr.	Chris	Stack	Manager		Ministries of Citizenship and Immigration, Tourism, Culture, and Sport	4275 King Street, 2nd Floor		Kitchener	ON	N2P 2E9
Mr.	Michael	Spencer	Surface Water Group Leader	Water Unit, West Central Region	Ministry of Environment and Climate Change (MOECC)	119 King Street West, 12th Floor		Hamilton	ON	L8P 4Y7
Mr.	Rick	Neubrand	Senior Environmental Officer / Inspector	Guelph District Office	Ministry of Environment and Climate Change (MOECC)	1 Stone Road West		Guelph	ON	N1G 4Y2
Utilities										
Mr.	Shawn	Artt	Utility Service Manager (Guelph)		Union Gas	10 Surrey Street East		Guelph	ON	N1H 3P5
Ms.	Yvonne	Huang	Construction Project Manager		Union Gas	603 Kumpf Drive		Waterloo	ON	N2J 4A4
Mr.	Naim	McQueen	Manager (Engineering and Construction Service)		Hydro One Inc.	483 Bay Street, North Tower, 14th Floor		Toronto	ON	M5G 2P5

Ms.	Lena	Demarco	Regional Director	Community Affairs	Bell Canada	5025 Creekbank Road	5th Floor, Building A, Mail Room Number M3	Mississauga	ON	L4W 0B6
Mr.	Doug	Benton			Mornington Communications Co- operative Limited	21 Wellington Street South, Unit 4		Drayton	ON	N0G 1P0
Aboriginal / First Nation / Metis Groups										
Ms.	Joanne	Thomas	Consultation Supervisor	Land Use Unit	Six Nations of the Grand River Territory	2498 Chiefswood Road	PO Box 5000	Ohsweken	ON	N0A 1M0
Chief	G. Ava	Hill			Six Nations of the Grand River Territory	1695 Chiefswood Road	PO Box 5000	Ohsweken	ON	N0A 1M0
Grand Council Chief	Patrick	Madahbee			Union of Ontario Indians	1 Migizii Miikan	PO Box 711	North Bay	ON	P1B 8J8
Ms.	Lynn	Bowerman	Executive Liaison		Union of Ontario Indians	1 Migizii Miikan	PO Box 711	North Bay	ON	P1B 8J8
Mr.	Hohahe Leroy	Hill	Secretary		Haudenosaunee Confederacy Chiefs Council	2634 6th Line Road	RR #2	Ohsweken	ON	N0A 1M0
Chief	R. Stacey	LaForme			Mississaugas of the New Credit First Nation	2789 Mississauga Road	RR #6	Hagersville	ON	N0A 1H0
Ms.	Fawn	Sault	Consultation Manager	Department of Consultation and Accommodation	Mississaugas of the New Credit First Nation	2789 Mississauga Road	RR #6	Hagersville	ON	N0A 1H0
Community Stakeholders										
Mr.	Scott	Wilson	Chief Administrative Officer		County of Wellington	74 Woolwich Street		Guelph	ON	N1H 3T9
Mr.	Fred	Prior	President		Glenaviland Development Corporation	9 Kerr Crescent			ON	
Mr.	John	Mohle			Wellingdale Construction Ltd.	8718 Wellington Road 7	R.R. 1	Puslinch	ON	N0B 2J0
Mr.	Peter	Armbruster	Chief Operating Officer		Activa Holdings Inc.	735 Bridge Street West		Palmerston	ON	N0G 2P0
Mr.	Dennis	Cuomo	Planner		Upper Grand District School Board			Waterloo	ON	N2V 2H1
Mr.	Nathan	Duimering				7108 Sideroad 15	R.R. #2 Moorefield	Mapleton	ON	N0G 2K0
Mr.	Rick	Richardson	Fire Chief		Mapleton Township Fire Rescue	Box 1		Drayton	ON	N0G 1P0
Mr.	Doug and Brenda Bradley	Duimering Martin								
Mr.	Larry	Masseo	Vice President, Planning Development Services		2217082 ONTARIO INC Activia Management Corporation	PO BOX 218		Drayton	ON	N0G 1P0
Mr.	Dave	Peres			Activa Holdings Inc.	55 Columbia Street East, Suite 2		Waterloo	ON	N2J 4N7
Ms.	Emily	Bumbaco	Planning Technician		Upper Grand District School Board	500 Victoria Road North		Guelph	ON	N1E 6K2
Mr.	Bill	Vanzwol			Wellingdale Construction Ltd.					
Ms.	Jennifer	Voss			Activa Holdings Inc.					
Mr.	Luke	Lise								
Other Stakeholders										
Mr.	Jim	Curry	Product Manager		Quest Brands	1 Van Der Graf Court		Brampton	ON	L6T 5E5
Ms.	Carly	Dixon			R.J. Burnside & Associates Limited	292 Speedvale Avenue West, Unit 20		Guelph	ON	N1H 1C4

**Appendix E2 –
Notice of Commencement**



NOTICE OF STUDY COMMENCEMENT

TOWNSHIP OF MAPLETON

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR MAPLETON WASTEWATER SERVICING

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Drayton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to upgrade the wastewater collection system.

The study is being conducted in accordance with Schedule C of the Municipal Class Environmental Assessment process (October 2000, amended 2007 and 2011), which is approved under the Ontario Environmental Assessment Act.

Consultation with the public and review agencies is a key element of the Class EA process, and input will be sought throughout the study using various means including this notice and Public Open Houses. Details regarding upcoming Public Open Houses will be advertised as the study progresses.

Please contact any of the following project team members if you wish to be added to the project mailing list or if you have any questions, comments about the study.

Brad McRoberts, MPA, P.Eng Director of Public Works Township of Mapleton P.O. Box 160 Drayton, Ontario N0G 1P0 Phone: (519) 638-3313 Ext 41 E-mail: BMcRoberts@mapleton.ca	Arun P. Jain, M.Eng., P.Eng. Manager – Water and Wastewater Infrastructure Exp Services Inc. 1595 Clark Blvd. Brampton, ON L6T 4V1 Phone: (905) 793-9800 x 2373 E-mail: arun.jain@exp.com
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This Notice first issued on March 6, 2015

**Appendix E3 –
Public Information Centre #1**



TOWNSHIP OF MAPLETON

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR MAPLETON WASTEWATER SERVICING

NOTICE OF PUBLIC INFORMATION CENTRE

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Mapleton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to upgrade the wastewater collection system.

The study is being conducted in accordance with Schedule C of the Municipal Class Environmental Assessment process (October 2000, amended 2007 and 2011), which is approved under the Ontario Environmental Assessment Act. A Public Information Centre (PIC) is planned to provide further information to the public on the project and to receive input and comment from interested persons:

Date, Time and Location:

Time: 4:00 pm to 7:00 pm
Date: June 16, 2015
Location: Township of Mapleton Council Chambers
7275 Sideroad 16
Drayton, ON

Following the PIC, further comments are invited for incorporation into the planning and design of the project and will be received until July 3, 2015.

Please contact any of the following project team members if you wish to be added to the project mailing list or if you have any questions or comments about the study.

Brad McRoberts, MPA, P.Eng
Director of Public Works
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P.O. Box 160
Drayton, Ontario N0G 1P0
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Arun P. Jain, M.Eng., P.Eng.
Manager – Water and Wastewater Infrastructure
Exp Services Inc.
1595 Clark Blvd.
Brampton, ON L6T 4V1
Phone: (905) 793-9800 x 2373
E-mail: arun.jain@exp.com



Mapleton

**Mapleton Wastewater Servicing
Municipal Class Environmental Assessment**


Public Information Centre
June 16, 2015
Welcome!




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Welcome!

- Please sign in and take a comment sheet.
- The **purpose** of this PIC is to:
 - Review the project with the public
 - Present the alternative solutions being evaluated
 - Present the preliminary preferred alternative solution
 - Seek your input and comments
 - Explain next steps
- If you have questions, our team members are available to discuss the project with you.
- Please place your comment sheets in the “Comment Box” or send them before July 3, 2015 to:



Brad McRoberts, MPA, P.Eng Director of Public Works Township of Mapleton P.O. Box 160 Drayton, Ontario N0G 1P0 E-mail: BMcRoberts@mapleton.ca	Arun P. Jain, M.Eng., P.Eng. Manager – Water and Wastewater Infrastructure Exp Services Inc. 1595 Clark Blvd. Brampton, ON L6T 4V1 E-mail: arun.jain@exp.com
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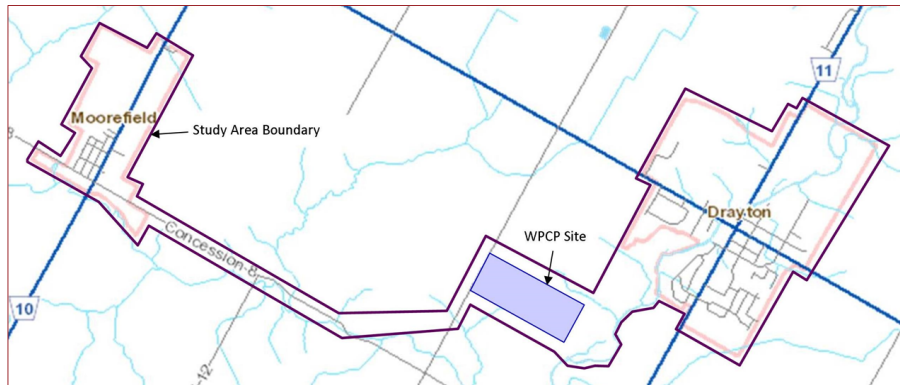


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Project Study Scope

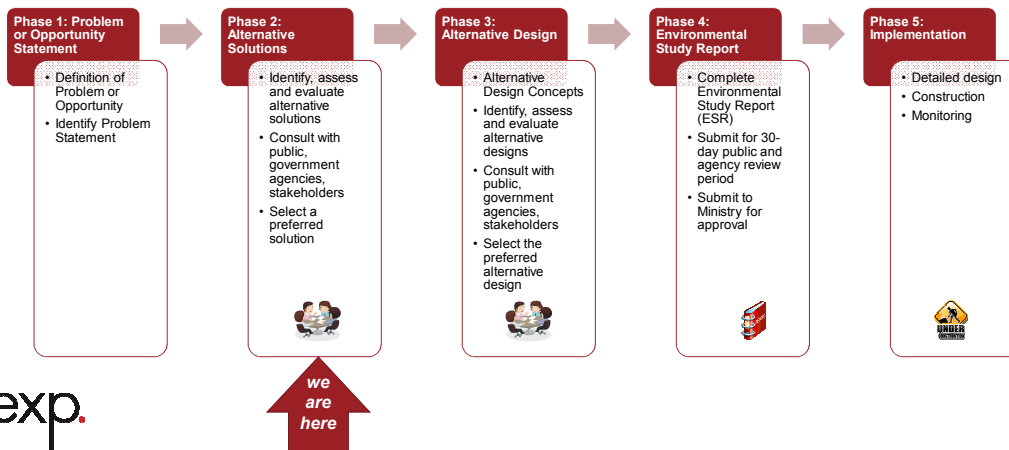
- To undertake Municipal Class EA to evaluate alternatives to potentially upgrade the Mapleton Wastewater Collection and Treatment System; and
- Prepare preliminary design of municipal wastewater system.

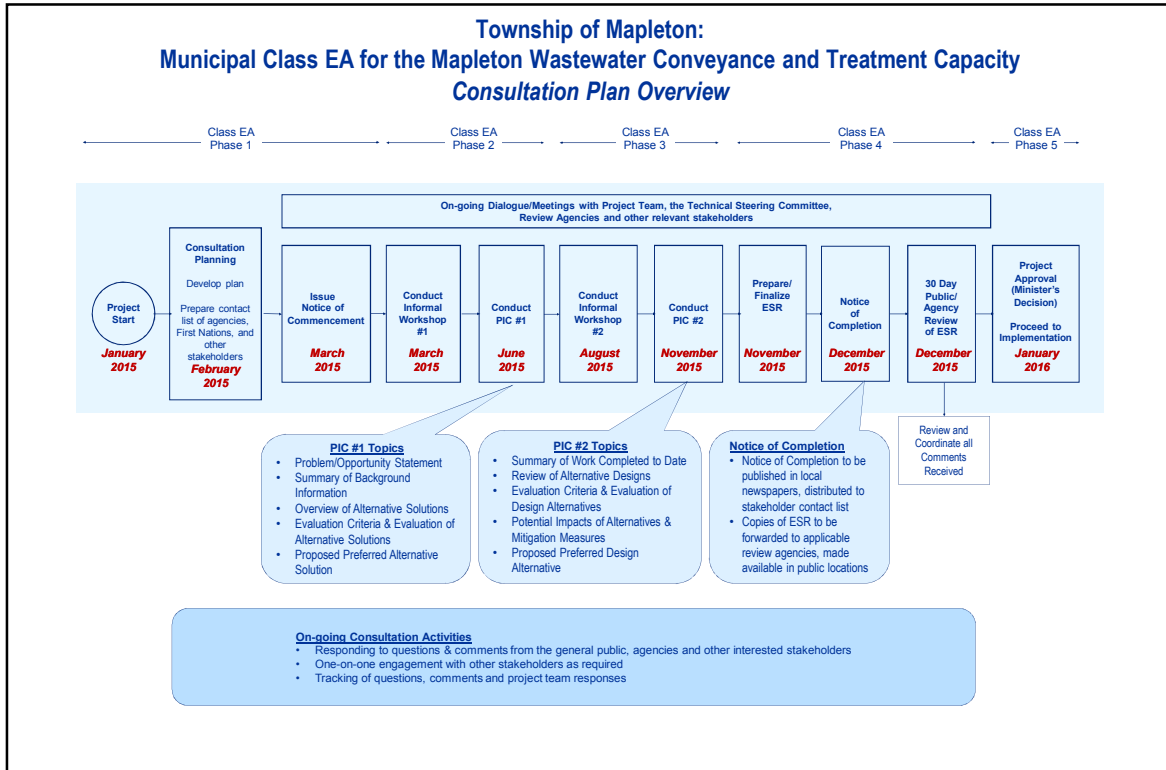
STUDY AREA



Municipal Class EA Process

- A Class EA is a study to plan for a proposed project, which includes background and technical studies, a review and assessment of potential environmental, social and economic impacts and how they can be avoided, and an evaluation of possible alternatives.
- The result is an Environmental Study Report (ESR), which documents the process and lists the commitments made by the proponent.
- The Class EA process is completed in accordance with the *Environmental Assessment Act*.





Existing Wastewater Collection System

Drayton Sewage Collection System

- 11.5 km of gravity sewers and 167 manholes
- All sewage drains to the Drayton SPS (north side of Mill Street)

Drayton Sewage Pumping Station (SPS)

- Has wet well and two submersible sewage pumps (duty/standby)
- Sewage pumps capable of 32 L/s (3,100 cubic m/day approx.) Pumps are not intended to run together to provide additional flow
- Pumps sewage through a 200 mm forcemain that discharges at the Mapleton WPCP raw splitter chamber
- **Drayton SPS is inadequate for 2031 flows**

Current and Future Peak Hourly Sewage Flows - Drayton

Parameter	Current	Future (2031)
Population	2,000 persons	3,100 persons
Per capita flow	312 L/pers/d	312 L/pers/d
Average daily flow	624 m ³ /d	967 m ³ /d
Peak flows	2,497 m ³ /d 29 L/s	3,870 m ³ /d 45 L/s

The current maximum pumping capacity is 36 L/s. This will not meet the projected peak flow rate of 45 L/s for 2031. Therefore, the pumping capacity of the SPS must be increased.

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Existing Wastewater Collection System

Moorefield Sewage Collection System

- Consists of enclosed, low pressure sewers
- Individual connections have small grinder pump discharging through 40-125 mm PVC pipe

Moorefield Sewage Pumping Station (SPS)

- Consists of 2.4 m diameter by 4.5 m deep wet well with two submersible pumps (duty/standby)
- Pumps rated for 14.14 L/s (1,200 cubic m /day approx.) at a TDH of 47 m
- Has a 50 kW standby diesel generator unit and automatic transfer switch.
- 2031 peak flow is estimated at 12 L/s
- **The Moorefield SPS is adequate for Year 2031**

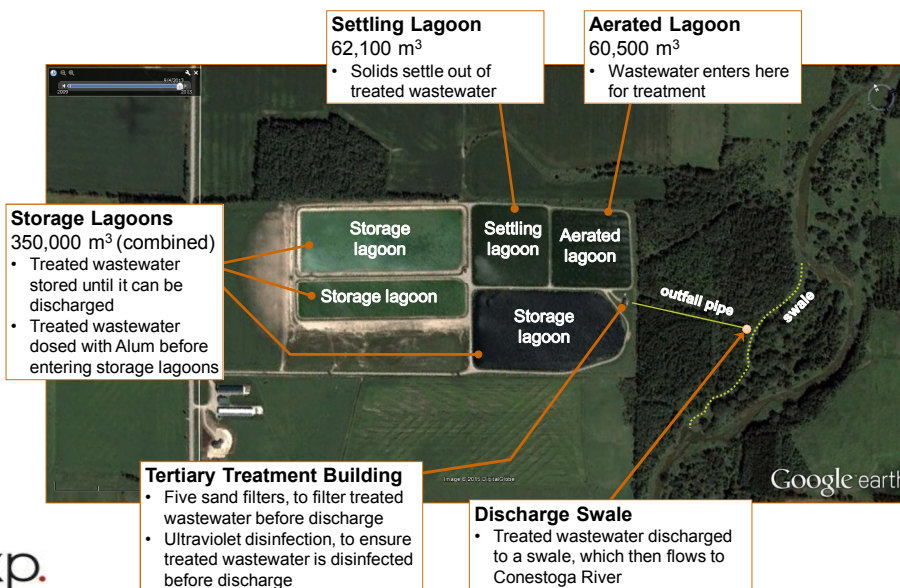
Current and Future Peak Hourly Sewage Flows - Moorefield

Parameter	Current	Future (2031)
Population	450 persons	1,300 persons
Per capita flow	200 L/pers/d	200 L/pers/d
Average daily flow	90 m ³ /d	260 m ³ /d
Peak flows	361 m ³ /d 4.2 L/s	1,040 m ³ /d 12 L/s

The current maximum pumping capacity is 14 L/s. This is adequate to meet the projected peak flow rate of 12 L/s for 2031.



Overview: Wastewater Pollution Control Plant (WPCP)



Wastewater Pollution Control Plant Performance

- Effluent from WPCP is monitored regularly
- Effluent objectives and limits based on provincial approval
- Effluent Limit: maximum allowable concentration for a parameter
- Effluent objective: a target that is more stringent than the limit

Effluent Parameter	Effluent Objective	Effluent Limit	Measured Final Effluent (2013 - 2014)
cBOD5	5.0 mg/L	Apr/Oct: 7.5 mg/L Mar/Nov/Dec: 10.0 mg/L	Apr/Oct: ~ 2 to 5 mg/L Mar/Nov/Dec: ~ 2 to 3.5 mg/L
Total Suspended Solids (TSS)	None	None	Spring 2-8 mg/l Fall 2-7 mg/l
Total Ammonia Nitrogen (TAN)	3.0 mg/L	5.0 mg/L	~0.01 to 4.75 (highest in March)
Total Phosphorus (TP)	0.3 mg/L	0.5 mg/L	~0.05 to 0.25
E.Coli	100 org./100 mL	200 org./100 mL	nil

The Drayton WPCP is performing well. Effluent from the WPCP is consistently below the regulated limit and is generally below the more-strict effluent objective.



Overview: Existing System – Effluent Discharge Window

- Current rated capacity is 750 m³/day (or 273,872 m³/year of influent flow)
- Current Effluent Discharge Window:

Month	Discharge Limits	
	m ³ /d	m ³ /month
March	1,581	49,015
April (1 st to 13 th)	3,154	40,997
October	233	7,232
November	1,754	52,618
December	4,000	124,010
Annual total		273,872 m³

- In addition, it is estimated that ~147 m³/day (53,655 m³/year) of precipitation accumulates in the plant which needs to be discharged
- It is desirable that the new effluent discharge window addresses it



Agency / Stakeholder Consultation

- Study includes close consultation with agencies, in particular with the Grand River Conservation Authority (GRCA) and the Ministry of Environment and Climate Change (MOECC)
- Meetings held with GRCA and MOECC
- Key outcomes:
 - MOECC and GRCA advised of project and process to be followed
 - Data and background information provided by agencies to project team
 - Input received from agencies on alternative solutions and evaluation criteria
 - Reasonable opportunity to explore expanded discharge windows for WPCP
- Meeting also held with developers in March 2015 to provide project details, including background, EA process and expected time frames etc.



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Natural Heritage Investigation

Conestoga River Subwatershed

- A warmwater system of tributaries and municipal drains that flow into the main channel and eventually into Conestoga Lake, approximately 7 km downstream of Drayton.
- The adjacent lands are intensively farmed and heavily drained.
- In the local area, the river is relatively wide (10-20m) flat, and less than 1 m deep during the summer months.
- Aquatic habitat includes shallow pools, riffles, and runs that flow over a variety of substrates, with silt in the backwater areas.
- River suffers from low baseflow, warm temperatures, lack of riparian vegetation and agricultural runoff input, and water level changes due to the Conestoga dam.
- Algae mats can form throughout backwater areas.

Fish and Mussels in the Conestoga

- The river has a diverse warmwater fish community including Northern Pike, Smallmouth Bass, Yellow Perch, Walleye, and Common Carp, and a variety of warmwater baitfish species.
- The river was historically stocked with Brown Trout (a coldwater species) downstream of Conestoga Lake.
- A variety of common mussel species are known to occur.
- One mussel Species at Risk, the Rainbow (*Villosa iris*) is known to occur in the Conestoga River at the WPCP.
- Rainbow is listed Endangered under the Ontario *Endangered Species Act*, giving the species and its habitat legal protection.
- Rainbow is also listed Endangered and is protected under the federal *Species at Risk Act*, and Critical Habitat under this legislation has also been delineated by Fisheries and Oceans Canada.

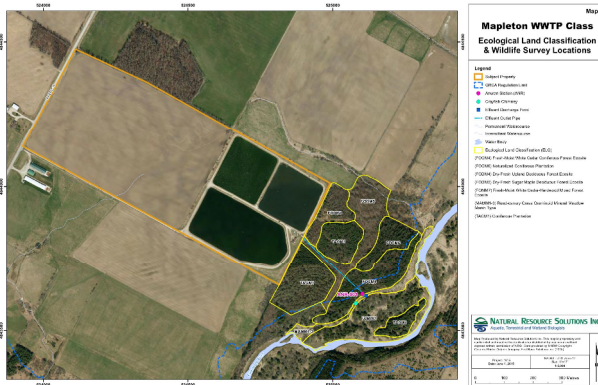


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Natural Heritage Investigation

Site Conditions

- Effluent is piped through GRCA-owned Conestoga Lake Conservation Area lands, and discharges to a swale that outlets to the Conestoga River.
- GRCA property is mainly forested with deciduous and coniferous forest, and coniferous plantation. There is a narrow band of meadow marsh along the swale.
- The swale is an intermittent watercourse that conveys flow as part of the Conestoga River during high flows. WPCP effluent provides flow during discharge at low/moderate river flows.
- Fish habitat present in the swale, including some large pools and deeper sections downstream of the effluent discharge that can be used when connected to the river.
- Northern pike spawning habitat exists throughout the swale, and would be used in the spring when the swale is inundated.
- Terrestrial Crayfish Significant Wildlife Habitat identified downstream of effluent discharge outlet, within the meadow marsh vegetation community.
- American Gromwell (*Lithospermum latifolium*), a Species of Conservation Concern, identified throughout the majority of the surveyed vegetation communities.



Problem Statement

- Facility operating very close to rated capacity of 750 m³/d
- Average 2013 inflow: 714 m³/d (95% of rated capacity)
- Rated capacity of facility must be increased to 1,230 m³/day allow the Township to meet projected service area growth to 2031
- New effluent discharge window to also consider discharge of accumulated water from precipitation
- Drayton system does not have sufficient pumping capacity to service projected future population

Problem Statement

- *The Township has a lagoon-based Wastewater Treatment system which currently only has the rated capacity for 750 cubic metres per day. The treatment capacity needs to be increased to permit growth within the served areas of the Township to meet the Township's projected serviced area growth until 2031. Proposed effluent discharge window to also address discharge of water from precipitation.*
- *The Drayton Pumping Station does not have sufficient capacity to service Drayton's projected 2031 population. Pumping capacity will need to be increased in order to meet this service requirement.*



Treatment Alternative Solutions – Selection and Evaluation

- Pre-screening of alternative solution categories conducted, based on problem statement
- Treatment approaches for primary, secondary and tertiary treatment considered
- Based on WPCP treatment requirements, three alternative solutions were considered for upgrading the Drayton WPCP:
 1. Pre-lagoon nitrification with Moving Bed Biofilm Reactor
 2. Post-lagoon nitrification with SAGR technology
 3. Extended Aeration
- The three alternatives were evaluated against evaluation criteria and a preliminary preferred solution identified



Pre-Screening of Treatment Alternatives

Category	Will solution allow facility to increase its capacity to meet treatment demands projected for 2031?	Conclusion
Do Nothing	No. The WPCP would either exceed approved & design capacity with increased population growth, or growth in the Drayton and Moorefield communities would be unable to continue.	"Do nothing" would not allow the Mapleton wastewater treatment system to address the problem statement. Therefore, this alternative is screened out.
Control Infiltration/Inflow	No. The Mapleton wastewater treatment system currently has some infiltration and inflow. While infiltration/inflow control measures may reduce wet weather inflow and provide some hydraulic load handling improvements at the WPCP, it will not provide additional treatment capacity.	While infiltration and inflow control measures would likely be beneficial to the Mapleton wastewater treatment system, it would not address the problem statement. Therefore, this alternative is screened out.
Additional Treatment Capacity	Yes. Providing additional capacity through upgrades or replacement would allow the WPCP to meet capacity requirements and adequately manage increased volumes of wastewater.	Providing community with additional wastewater treatment capacity (either by upgrading the plant or replacing it) would address problem statement. Therefore, this alternative is carried forward.

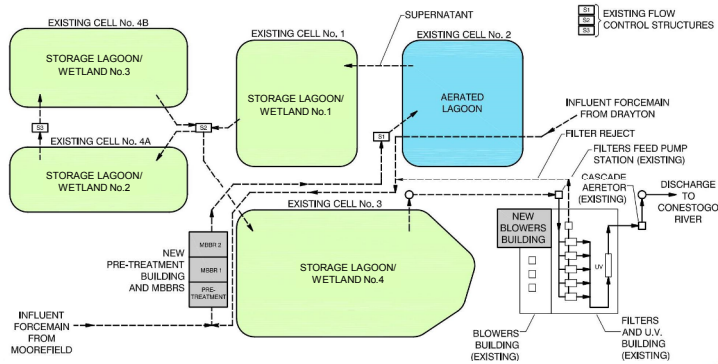
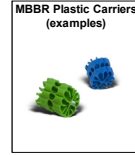
Conclusion: Additional treatment capacity at the WPCP is required to address the problem statement, as neither "do nothing" nor infiltration/inflow control will adequately do so.



Treatment Alternative Solutions

Alternative # 1: Pre-Lagoon Nitrification with MBBR

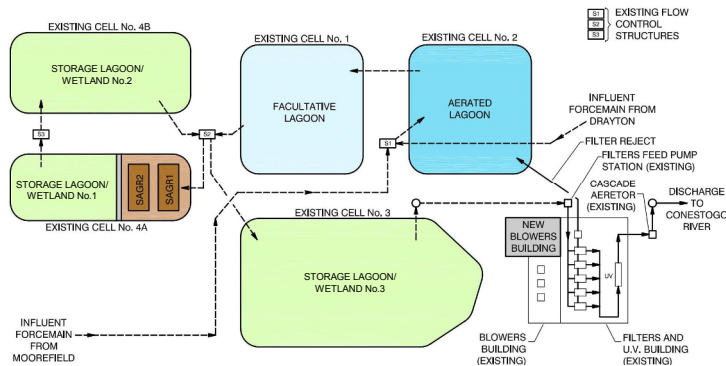
- The system could be reinforced by adding a moving bed biofilm reactor (MBBR) nitrification treatment before the wastewater enters the treatment lagoons.
- Nitrification is a biological process where bacteria convert ammonia in wastewater to nitrate.
- The MBBR technology includes a reactor (or tank) that is filled with small plastic carriers that increase microbial action within the reactor by maximizing the surface area where the beneficial bacteria grow.
- Dosing of alum could be optimized by adding a new mixing tank.
- The storage lagoons could be enhanced to provide further treatment or finishing through the use of floating "wetlands" in the lagoons.
- The treated wastewater would continue to use the sand filters and UV disinfection before being discharged.



Treatment Alternative Solutions

Alternative # 2: Post-Lagoon Nitrification with SAGR

- Alternative 2 would see nitrification of ammonia taking place after lagoon treatment using a Submerged Attached Growth Reactor (SAGR)
- The SAGR system would consist of a media bed (i.e., stone or gravel), an air diffuser system, and a cover layer of wood chips or mulch.
- The aerated lagoon would require upgrading to ensure incoming wastewater is partially treated before entering the SAGR system.
- Like Alternative 1, the storage lagoons could be enhanced to provide further treatment or finishing through the use of floating "wetlands" in the lagoons.
- Dosing of alum could be optimized by adding a new mixing tank.
- The treated wastewater would continue to use the sand filters and UV disinfection before being discharged.

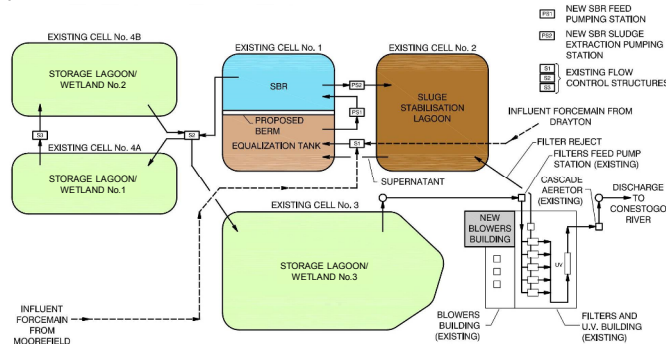


Treatment Alternative Solutions

Alternative #3: Extended Aeration

- Alternative 3 would consist of using extended aeration to provide additional treatment capacity for the WPCP.
- The extended aeration would use a Sequencing Batch Reactor (SBR), where wastewater would be treated sequentially in batches in a single reactor tank.
- In this alternative, the settling lagoon would be retrofitted into two sections – an equalization tank and the SBR.
- The equalization tank would be used to store incoming wastewater while the SBR processes a batch.
- The SBR would be where the treatment would occur over four phases: fill, react, settle and decant.
- Because the process generates sludge, the existing aerated lagoon would be converted into a sludge stabilization lagoon.
- Like Alternative 1 and 2, the storage lagoons could be enhanced to provide further treatment or finishing through the use of floating "wetlands" in the lagoons.
- Dosing of alum could be optimized by adding a new mixing tank.
- The treated wastewater would continue to use the sand filters and UV disinfection before being discharged.

Examples of Floating Wetlands



Evaluation

Proposed Evaluation Criteria for Treatment Alternative Solutions

Technical

- ★ Ability to meet effluent quality objectives
- Impacts on existing operations
- Ease of implementation
- Flexibility to meet long-term objectives
- Maintainability of plant equipment and processes
- Ease of operation
- Track record of technology

Natural Environment

- Impact on aquatic resources
- Impact on terrestrial environment, such as woodlots, parks or habitats

Social/Cultural

- Noise/air/odour and other nuisances

Financial

- Capital costs
- Operating and maintenance costs

★ indicates a key evaluation criterion



Evaluation

- High – best performance with respect to the evaluation criterion
- Medium – medium performance with respect to the evaluation criterion
- Low – lowest relative performance with respect to the evaluation criterion

Evaluation Criteria	Alternative 1: Pre-Lagoon Nitrification with MBBR	Alternative 2: Post-Lagoon Nitrification with SAGR	Alternative 3: Extended Aeration with SBR
TECHNICAL			
Ability to meet Effluent Quality Objectives (key criteria)	<p>High</p> <ul style="list-style-type: none"> • Can meet all effluent objectives consistently • Good performance during winter season 	<p>High</p> <ul style="list-style-type: none"> • Can meet all effluent objectives consistently • Good performance during winter season 	<p>Medium</p> <ul style="list-style-type: none"> • Performance for nitrification in cold temperatures may be sub-optimal
Impacts on Existing Operations	<p>Medium</p> <ul style="list-style-type: none"> • Some impacts on existing operations due to addition of new technology 	<p>High</p> <ul style="list-style-type: none"> • Least impact on existing operations 	<p>Low</p> <ul style="list-style-type: none"> • Most impact on existing operations due to need to handle more sludge and more process control. • Need to train staff on new processes and control requirements.
Ease of Implementation	<p>Medium</p> <ul style="list-style-type: none"> • Can be implemented with relative ease, with minor interruption to plant operation • MBBR tanks can be added to empty/vacant space on WPCP property. • Due to existing site configuration, alternative will require more civil works, including extending (on site) the influent force main from Drayton and access roads to the new pre-treatment building 	<p>High</p> <ul style="list-style-type: none"> • Can be implemented easily, with little interruption to plant operation. • Installation of post lagoon treatment will occur in existing storage lagoon without any interruption of lagoon based treatment. 	<p>Low</p> <ul style="list-style-type: none"> • The implementation will require using one of the existing treatment lagoons. • Conversion of treatment lagoon to SBR may cause interruption to plant operation. • Requires installation of more mechanical equipment compared to other alternatives.
Flexibility to Meet Long Term Objectives	<p>High</p> <ul style="list-style-type: none"> • Easily expandable using higher density of the growth media • Aeration tank is modular and can be added easily. 	<p>Medium</p> <ul style="list-style-type: none"> • Can be expanded if lagoon volume is available or on empty space on WPCP property 	<p>High</p> <ul style="list-style-type: none"> • Expansion would likely require upgrade of mechanical equipment only, with little additional civil works.
Maintainability of Plant Equipment and Process	<p>Medium</p> <ul style="list-style-type: none"> • Maintenance of pre-treatment equipment required. 	<p>High</p> <ul style="list-style-type: none"> • Little maintenance required. 	<p>Low</p> <ul style="list-style-type: none"> • Maintenance of sludge pumping and equipment required. • Process control maintenance required.

Evaluation

- High – best performance with respect to the evaluation criterion
- Medium – medium performance with respect to the evaluation criterion
- Low – lowest relative performance with respect to the evaluation criterion

Evaluation Criteria	Alternative 1: Pre-Lagoon Nitrification with MBBR	Alternative 2: Post-Lagoon Nitrification with SAGR	Alternative 3: Extended Aeration with SBR
TECHNICAL			
Ease of Operation	<p>Medium</p> <ul style="list-style-type: none"> • MBBR requires pre-treatment 	<p>High</p> <ul style="list-style-type: none"> • Easily operable process 	<p>Low</p> <ul style="list-style-type: none"> • Will require regular operator attention to avoid process upset (e.g., bulking of sludge, etc) • Need to monitor and control biomass (MLSS) and sludge age etc. on an ongoing basis.
Track Record of Technology	<p>Medium</p> <ul style="list-style-type: none"> • Established treatment technology 	<p>Medium</p> <ul style="list-style-type: none"> • Relatively new process • Approved in provinces of Ontario and Quebec 	<p>High</p> <ul style="list-style-type: none"> • Long established treatment technology

Evaluation Summary – Technical

- Alternative 2 (Post Lagoon) was ranked "high" in five technical categories, while Alternatives 1 (Pre Lagoon) and 3 (Extended Aeration) were ranked "high" in only two categories.
- Alternative 2 (Post Lagoon) ranks highest for the Technical group of criteria because:
 - It would have good performance in winter;
 - It would require the least changes to existing operations;
 - It would be easier to implement than Alternative 1 or 3;
 - The alternative could be expanded if required in the future;
 - It would require the least maintenance compared to the other alternatives;
 - It would be easier to operate compared to the other alternatives;
 - While a relatively new process, it is approved for use in Ontario and Quebec.

Evaluation

- High – best performance with respect to the evaluation criterion
- Medium – medium performance with respect to the evaluation criterion
- Low – lowest relative performance with respect to the evaluation criterion

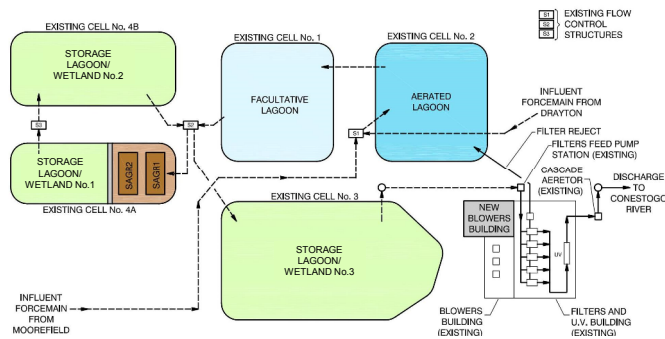
Evaluation Criteria	Alternative 1: Pre-Lagoon Nitrification with MBBR	Alternative 2: Post-Lagoon Nitrification with SAGR	Alternative 3: Extended Aeration with SBR
NATURAL ENVIRONMENT			
Minimization of Impact on Aquatic Resources	High • Will meet effluent discharge standards	High • Will meet effluent discharge standards	Medium • Will meet effluent discharge standards most of the time • Nitrification in winter may be less than optimal
Minimization of Impact on Terrestrial Environment	High • Little or no impact on terrestrial environment	High • Little or no impact on terrestrial environment	High • Little or no impact on terrestrial environment
Evaluation Summary – Natural Environment • Alternatives 1 (Per Lagoon) and 2 (Post Lagoon) will each provide reliable protection of the environment, while Alternative 3 may have reduced environmental performance in the winter season.			
SOCIAL/CULTURAL			
Noise/air/odour and other nuisances	High • Little or no impacts	High • Little or no impacts	Medium • May have some odor impacts from sludge handling /storage
Evaluation Summary – Social/Cultural • Alternatives 1 (Per Lagoon) and 2 (Post Lagoon) will each have minimal noise, air or odour impacts or other nuisances, while Alternative 3 (Extended Aeration) may have some odour impacts from sludge handling and storage.			
FINANCIAL			
Capital Cost	Medium \$2.5 –3 M	High \$2-2.5 M	High \$2-2.5 M
Annual Operating Cost	High • Aeration costs for MBBR • Will have some mechanical maintenance costs	High • Aeration costs for lagoon and SAGR • Will have least mechanical maintenance costs	Medium • High aeration costs for extended aeration • Will have more mechanical maintenance costs • Sludge handling and disposal costs
Evaluation Summary – Financial • Alternative 2 (Post Lagoon) was ranked as 'High' in both financial categories, meaning that it was among the lowest capital cost and lowest operating costs.			

Evaluation Summary

Preliminary Preferred Treatment Alternative Solution

Based on the evaluation, Alternative 2 (Post Lagoon) is identified as the preliminary preferred treatment alternative for the following reasons:

- It had the best ranking for technical performance among the alternatives evaluated;
- It provides reliable protection of the natural environment;
- It will have little to no impacts on noise, air or odour or other nuisances; and
- The estimated capital and operating costs are lower than other alternatives.



Discharge Alternative Solutions

- **Alternative 1: Propose Continuous Effluent Discharge**
 - Treated effluent would be discharged year-round
 - Discharge flow rate would depend on river flow volume
- **Alternative 2: Expanded Effluent Discharge Window**
 - Discharge window for treated effluent would be expanded compared to existing
 - Discharge would not occur in summer months
 - Discharge flow rate would depend on river flow volume
- **Alternative 3: Existing Discharge with Spray Irrigation**
 - Discharge window for treated effluent would remain the same
 - Wastewater effluent from storage lagoon would be drawn and used for spray irrigation with necessary due diligence



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Evaluation of Discharge Alternatives

- **Alternative 1: Propose Continuous Effluent Discharge**
 - Discussed with MOECC and GRCA
 - Discharge in summer may not be permitted
- **Alternative 2: Expanded Effluent Discharge Window**
 - Discussed with MOECC and GRCA
 - Based on discussions; expanded discharge is possible based on low flow in the river and the assimilative capacity
 - Assimilative capacity review indicates that expanded discharge window is possible
 - Alternative 2 is the preferred alternative
- **Alternative 3: Existing Discharge with Spray Irrigation**
 - Does not allow flexibility of additional discharge into river
 - Spray irrigation will require additional operational challenges and environmental monitoring



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Updated Low Flow in Conestogo River and Potential Expanded Effluent Discharge Window

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7Q20 Low Flow (m ³ /d)	32,227	15,466	53,827	53,309	18,835	1,901	1,210	1,555	5,875	13,133	34,906	44,064
Current Discharge Window (m ³ /d)	0	0	1,581	3,154	0	0	0	0	0	233	1,754	4,000
Potential Discharge Window @ 1:10 dilution (m ³ /d)	3,223	1,547	5,383	5,331	1,884	190	121	156	588	1,313	3,491	4,406

- The potential discharge window was estimated based on a 1:10 dilution factor (i.e., 1 part wastewater to 10 parts river water)
- The results indicate that more than existing discharge may be allowable
- The table above compares the existing discharge window and the potential discharge window



Existing and Proposed Effluent Discharge Windows

- The MOECC and GRCA indicated that no flow may be allowable during the months of May – August
- The maximum possible effluent from the WPCP filters is 4,000 m³/day
- Accordingly, the proposed effluent discharge window does not include summer flow and has a maximum allowable flow of 4,000 m³/day

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Annual Discharge (m ³)
Current Discharge Window (m ³ /d)	0	0	1,581	3,154	0	0	0	0	0	233	1,754	4,000	273,872
Adjusted Proposed Discharge Window (m ³ /day)	3,223	1,547	4,000	4,000	0	0	0	0	588	1,313	3,491	4,000	661,726

- The resulting total annual discharge is 661,726 m³/day.
- Accordingly, the proposed effluent discharge window will easily accommodate new annual effluent flow of 448,950 m³/year, as well as 53,655 m³/year of flow resulting from accumulated water from precipitation.



Assimilation of Un-ionised Ammonia in Conestogo River for the Proposed Effluent Discharge Window

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Proposed Discharge (m ³ /day)	3,223	1,547	5,383	5,331	0	0	0	0	588	1,313	3,491	4,406
Un-ionised NH ₃ Concentration in River - Upstream (mg/L)	0.001	0.0014	0.001	0.0001	0.0033	0.0001	0.004	0.00	0.0001	0.0004	0.00	0.0005
Un-ionised NH ₃ Concentration in Effluent (mg/L)	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Resulting Un-ionised NH ₃ concentration - Downstream (mg/L)	0.0171	0.0175	0.0171	0.0163	N/A	N/A	N/A	N/A	0.0163	0.0166	0.0162	0.0167

- The Provincial Water Quality Objective for un-ionized ammonia in river waters is 0.02 mg/L.
- The un-ionised ammonia concentration downstream in the Conestogo River resulting from the proposed effluent discharge window will meet the provincial water quality objectives.



New Proposed Plant Capacity and Effluent Objectives and Limits

- New proposed treatment capacity of the plant is 1,230 m³/day
- Plant will be designed to hydraulically handle additional 147 m³/day of precipitation
- New effluent objectives and limits being proposed are based on assimilative capacity assessment and technically achievable standards
- Proposed effluent objectives and limits are subject to provincial approval

Effluent Parameter	Proposed Effluent Objective	Proposed Effluent Limit
cBOD ₅	5.0 mg/L	Apr/Oct: 7.5 mg/L Mar/Nov/Dec: 10.0 mg/L
Total Suspended Solids (TSS)	10 mg/L	15 mg/L
Total Ammonia Nitrogen (TAN)	1.0 mg/L	3.0 mg/L
Total Phosphorus (TP)	0.18 mg/L	0.3 mg/L
E.Coli	100 org./100 mL	200 org./100 mL



Effluent Storage at the Plant: Existing and Proposed

- Total Required Storage (design year) for 5 months @ 1,377 m³/day is 206,550 m³ to store effluent and rainwater
- Total existing storage is 350,000 m³
- After installation of SAGR, approximate storage will be 320,000 m³
- It is therefore anticipated that enough storage would be available in future.



Next Steps

Step	Timing
Conclude Phase 2	Late June 2015
Phase 3 <ul style="list-style-type: none"> • Will include identification and evaluation of alternative designs • Discharge alternatives will be reviewed and evaluated as part of the Phase 3 	July – November 2015
Phase 4	December 2015
Preliminary Design	November – December 2015

We want to hear from You!

Please send us your thoughts, comments and suggestions by July 3, 2015.

Brad McRoberts, MPA, P.Eng
 Director of Public Works
 Township of Mapleton
 P.O. Box 160
 Drayton, Ontario N0G 1P0
 E-mail: BMcRoberts@mapleton.ca

Arun P. Jain, M.Eng., P.Eng.
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 Exp Services Inc.
 1595 Clark Blvd.
 Brampton, ON L6T 4V1
 E-mail: arun.jain@exp.com





Mapleton Wastewater Servicing Municipal Class Environmental Assessment
Public Information Centre

Tuesday, June 16, 2015

SIGN-IN SHEET
(please print)

NAME	ADDRESS	E-mail (if you wish to receive information via e-mail)
Trevor Prior	[REDACTED]	[REDACTED]
Neil Driscoll	Moorefield	ndriscoll@mapleton.ca
Mark Anderson	400 Clyde Rd, Cambridge	manderson@grandriver.ca
Bill Van Zwol	[REDACTED]	[REDACTED]
John Moore	[REDACTED]	[REDACTED]
Miss Doyle	[REDACTED]	[REDACTED]
Lori Woodham	7159 Wellington Rd #10, Moorefield	lwoodham@mapleton.ca
Marlene Ottens	8570 Conc 6 RRS Moorefield	mottens@mapleton.ca
MICHAEL MARTIN	81 McGiven St, RRS Moorefield	mmartin@mapleton.ca
Nathan Dinning	[REDACTED]	[REDACTED]
Jim Carney	[REDACTED]	[REDACTED]
Dennis CRAVEN	[REDACTED]	[REDACTED]

Jean Louis Gaudet

From: Jim Curry [REDACTED]
Sent: June-29-15 6:43 PM
To: Jean Louis Gaudet
Cc: Arun Jain; BMcRoberts@mapleton.ca
Subject: RE: Mapleton Wastewater Servicing Municipal Class EA - Notice of PIC #1

Follow Up Flag: Follow up
Flag Status: Flagged

Jean Louis,

The short term solution is the expanded window of effluent but this does not solve the long term demands for Drayton, and Moorefield.

An integrated approach with spray irrigation in a cropping situation (takes up the nutrients and fodder for animals) on 20+ acres is still a viable approach along the expanded effluent.

As mentioned on June 16 the Penn State (State College Campus) has 20+ years of experience and their team is dedicated to help our lagoon system become viable for spray irrigation..

We have monitoring wells strategically located from past emergency irrigation.

This combined effort will more than double to effluent as the expanded window.

Also with the cleanliness of the effluent we should be able to place more volume in a shorter length of time I the river without exceeding the parameters set for the 750m³.

Our Lagoon Committee established this last year.

Thanks for your consideration.

Regards,

Jim Curry

Jim Curry B.Sc. (Chemistry); M.Sc. (Environmental Biology)

From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: June-09-15 9:08 AM
To: Jim Curry
Cc: Arun Jain; Brad McRoberts <BMcRoberts@mapleton.ca> (BMcRoberts@mapleton.ca)
Subject: RE: Mapleton Wastewater Servicing Municipal Class EA - Notice of PIC #1

Good morning Jim,

Thanks for your question.

The Class EA is currently in Phase 2, and the irrigation alternative was evaluated along with other discharge alternatives, such as full discharge or an expanded discharge window. The recommended discharge alternative for the WPCP is the expanded discharge window. These results, along with other project information, shall be presented at the PIC on June 16th.

Regards,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator

t: +1.905.793.9809 x2344 | e: jeanlouis.gaudet@exp.com

1595 Clark Boulevard
Brampton, ON L6T 4V1
Canada

exp.com | [legal disclaimer](#)

keep it green, read from the screen

From: Jim Curry [<mailto:> [REDACTED]]
Sent: June-05-15 2:08 PM
To: Jean Louis Gaudet
Subject: RE: Mapleton Wastewater Servicing Municipal Class EA - Notice of PIC #1

Jean-Louis,
Thanks for this news.
Is the irrigation still be considered?

Regards,
Jim Curry
Jim Curry

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]
Sent: June-05-15 10:08 AM
To: Jean Louis Gaudet
Subject: Mapleton Wastewater Servicing Municipal Class EA - Notice of PIC #1

Good morning,

Please find attached a notice of Public Information Centre #1 for the Mapleton Wastewater Servicing Municipal Class Environmental Assessment, to be held on **June 16, 2015** from 4:00 pm to 7:00 pm at the Township of Mapleton Council Chambers .

Regards,

Jean-Louis



Jean-Louis Gaudet

Project Coordinator

t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com

1595 Clark Blvd.

Brampton, ON L6T 4V1

CANADA

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Jean Louis Gaudet

From: Arun Jain
Sent: June-23-15 11:43 AM
To: Jean Louis Gaudet
Subject: Fwd: Mapleton Wastewater Servicing Municipal Class Environmental Assessment
Attachments: mime-attachment.gif

Follow Up Flag: Follow up
Flag Status: Flagged

Begin forwarded message:

From: Carley Dixon <Carley.Dixon@rjburnside.com>
Date: June 23, 2015 at 10:30:19 AM EDT
To: <arun.jain@exp.com>
Cc: Brad McRoberts <BMcRoberts@mapleton.ca>
Subject: Mapleton Wastewater Servicing Municipal Class Environmental Assessment

Hi Arun,

I wasn't available to attend the PIC on June 16th, but have briefly looked at the PIC boards posted online on the Township's website and have a comment related to the Drayton Sewage Pumping Station (SPS).

In the year 2031 at the Drayton SPS, 45 L/s with 3,100 people was projected by exp. Burnside is in the process of assisting the Township with pump replacement at the Drayton SPS and have spoken to the Township's operator regarding existing peak flows that the SPS has had to manage. Based on that discussion, it is our understanding that during peak periods (a few times a year), the Drayton SPS has had to maintain flows between 36-40 L/s with both pumps on. The EA should consider a higher projected peak flow at the Drayton SPS and the future upgrades required to convey flows to the wastewater pollution control plant. The EA should also consider the impact of the future industrial growth area in Drayton. Only the sewage pumping station in terms of the collection system was shown on the PIC boards. Is that the extent of the scope of the EA in terms of the collection system?

Can you please add me to your list for any future notices related to the project.

Thanks,
Carley



Carley Dixon, P.Eng.

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Unit 20
Guelph, Ontario N1H 1C4
Carley.Dixon@rjburnside.com
Office: 519-823-4995
Direct Line: 226-486-1542
www.rjburnside.com

Jean Louis Gaudet

From: Bill Vanzwol <[REDACTED]>
Sent: June-18-15 3:48 PM
To: Jean Louis Gaudet; Jmohle; Brad McRoberts
Subject: Comments re public meeting in township of Mapleton
Attachments: bizhub22220150618141115.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi All. As per request by Jean, here are my following observations:

A: currently the effluent to the river **is not measured** it is estimated (as the reports have indicated)

B: The precipitation (+/- 150 cubic meter per day as per your report) is added to influent of the plant, and the evaporation is not mentioned at all in the Mapleton WPCP CPE report.

C: As you can see from the attached information, this is not correct. (these reports indicate about 900 mm precipitation and about 500mm evaporation on average.

D: As we have suggested before, for a good design, you have to **measure** what goes to the river.

E: To ignore the evaporation and design with a estimated out flow you are not designing as per actual field conditions.

F: As your reports indicate the river can take all kinds of flow. (potential annual discharge 661.726 cubic meter)

G: For the municipality to make good decisions you should know(and keep track) what you are actually discharging to the river. (I am sure the MOE will like a measured quantity better than a estimated one) Note: this will also keep the operators on their toes as well :-)

Hope fully this input will be taken into consideration. Thanks. Bill van Zwol (Wellingdale construction)

Waterloo Wellington, Ontario Canada Climate Data

Waterloo Wellington Average Monthly Climate Data & Extremes

[Forecasts & Conditions](#)

[Canada Radar](#)

[Canada Satellite](#)

[Weather Alerts](#)

[Climate Directory](#)

Temperature	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Daily Average (°C)	-7.1	-6.4	-1.2	5.8	12.5	17.3	19.8	18.7	14.3	8.2	2.3	-3.8	6.7	A
Standard Deviation	2.8	2.8	2.4	1.7	1.9	1.4	1.1	1.2	1	1.7	1.5	2.6	6.8	A
Daily Maximum (°C)	-3.1	-2	3.3	11.1	18.6	23.4	25.9	24.7	20.2	13.4	6.1	-0.2	11.8	A
Daily Minimum (°C)	-11	-10.7	-5.8	0.4	6.3	11.2	13.7	12.7	8.4	2.9	-1.5	-7.3	1.6	A
Extreme Maximum (°C)	14.2	13.7	24.4	29.2	32	36.1	36	38.5	33.3	29.4	21.7	18.7		
Date (yyyy/dd)	1995/14	2000/26	2000/08	1990/25	1987/28	1968/25	1988/07+	2001/08	1973/03	1971/02	1974/01	1982/03		
Extreme Minimum (°C)	-31.8	-29.2	-25.4	-16.1	-3.9	-0.6	5	1.1	-3.7	-8.3	-15.4	-27.2		
Date (yyyy/dd)	1984/16	1979/18	1980/02	1972/06	1970/07	1972/11	1971/03+	1983/25	1989/27	1976/27	2000/23	1980/25		
Precipitation														
Rainfall (mm)	27.9	25.6	45.1	69.1	77.9	81.3	91.8	86.3	85.8	64.5	70.4	39.5	765	A
Snowfall (cm)	43.5	30.6	24.1	7.8	0.3	0	0	0	0	1.2	13.7	38.5	159.5	A
Precipitation (mm)	64.4	51.5	69.9	76.9	78.3	81.3	91.8	86.3	85.8	65.6	82.7	73.6	907.9	A
Average Snow Depth (cm)	12	14	6	0	0	0	0	0	0	0	1	5	3	A
Median Snow Depth (cm)	12	14	5	0	0	0	0	0	0	0	0	4	3	A
Snow Depth at Month-end (cm)	15	11	1	0	0	0	0	0	0	0	1	8	3	A
Extreme Daily Rainfall (mm)	43	47	36.8	53.4	51.8	54.2	89.8	73.7	74.4	39.2	56	36.8		
Date (yyyy/dd)	1995/15	2001/09	1991/27	1992/16	1996/20	1984/17	1985/15	1975/24	1986/10	1977/08	1992/12	1990/29		
Extreme Daily Snowfall (cm)	16.8	17.8	21.2	14	6	0	0	0	0	6	16.6	22.4		
Date (yyyy/dd)	1992/14	1989/12	1980/08	1975/02	1984/13	1970/01+	1970/01+	1970/01+	1970/01+	1997/26	1986/20	1971/30		
Extreme Daily Precipitation (mm)	43	47	53.8	53.4	51.8	54.2	89.8	73.7	74.4	39.2	56	36.8		
Date (yyyy/dd)	1995/15	2001/09	1976/02	1992/16	1996/20	1984/17	1985/15	1975/24	1986/10	1977/08	1992/12	1990/29		
Extreme Snow Depth (cm)	58	74	77	18	0	0	0	0	0	1	19	50		
Date (yyyy/dd)	1976/24+	1982/14	1982/18	1975/04+	1970/01+	1970/01+	1970/01+	1970/01+	1970/01+	1989/21	1984/21	2000/31		

Data courtesy of Environment Canada

4 Fruits & veggies to never eat:

Cut down a bit of stomach fat every day by never eating these 4 foods.

→ **4 Foods**



Grocery Stores FEAR Him

Man creates brain-dead simple system to cutting your grocery bill by 90% (HINT: It's NOT Coupons)... [Click Here](#)

Description

The above climate weather data chart for Waterloo Wellington, Ontario Canada shows average monthly weather statistics with historic daily extremes. Weather climate statistics include monthly averages, maximum and minimum average mean temperatures, mean rainfall, mean snowfall & daily high and low extremes for temperature.

There are many ways to calculate "climate normals"; the most useful ones adhere to accepted standards. The WMO considers thirty years long enough to eliminate year-to-year variations.

Snow cover is the depth of snow on the ground, which is measured at several different points of the immediate area which is then averaged.

Code Legend

Normals for some of the statistics are taken from less than 30 years of records. The minimum number of years are defined by a "code" in the far right hand column. The Code Legend is shown below:

- * "A": No more than 3 consecutive or 5 total missing years between 1971 to 2000.
- * "B": At least 25 years of record between 1971 and 2000.
- * "C": At least 20 years of record between 1971 and 2000.
- * "D": At least 15 years of record between 1971 and 2000.

The elevation is 1036.30 m

Southwestern Ontario

Average amount of rain and snow a year

Days	Place	Inches	Millimetres
137	Chatham-Kent	34.7	882
167	Guelph	36.7	931
168	London	39.8	1012
177	Owen Sound	43.9	1114
154	Point Pelee National Park	36.3	922
150	Sarnia	34.6	878
166	Waterloo	36.1	916
150	Windsor	36.8	935

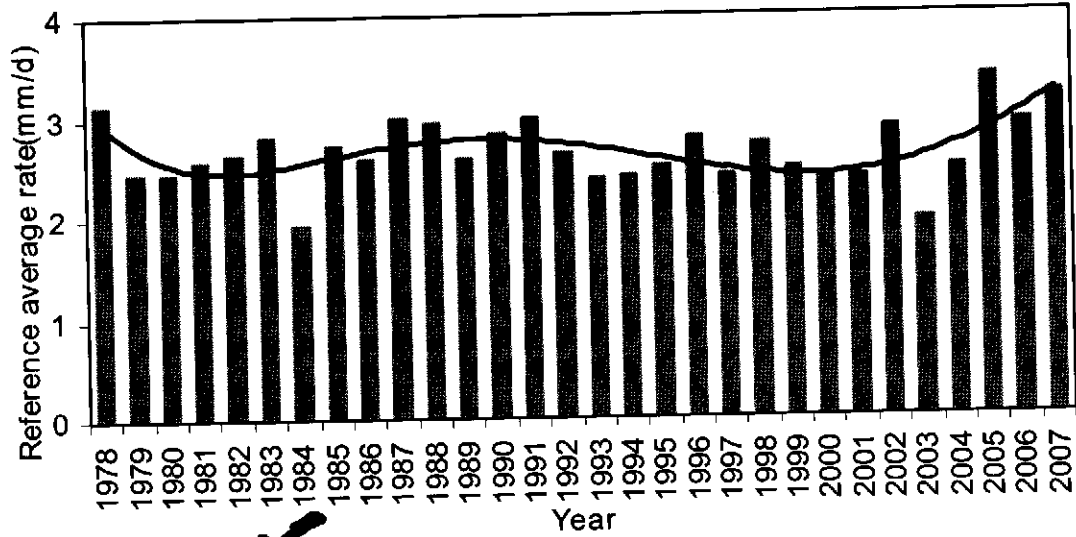
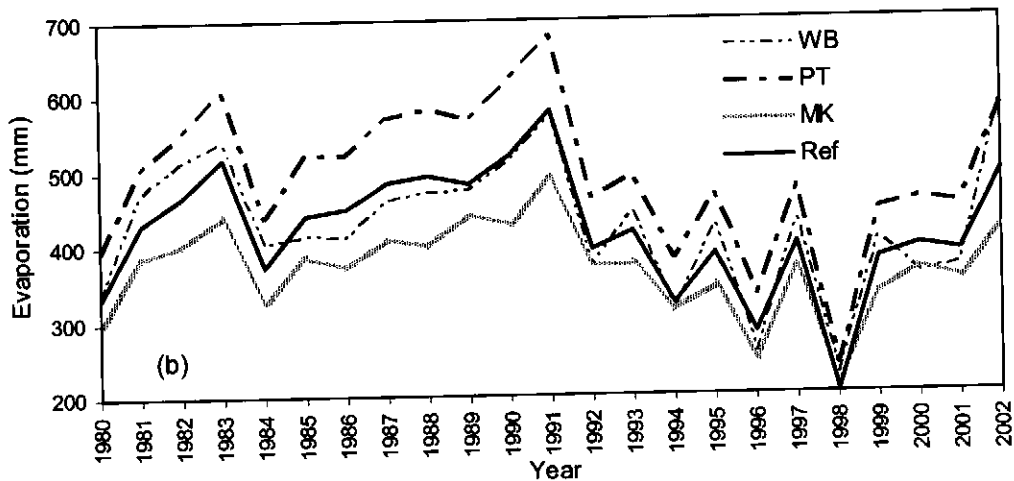
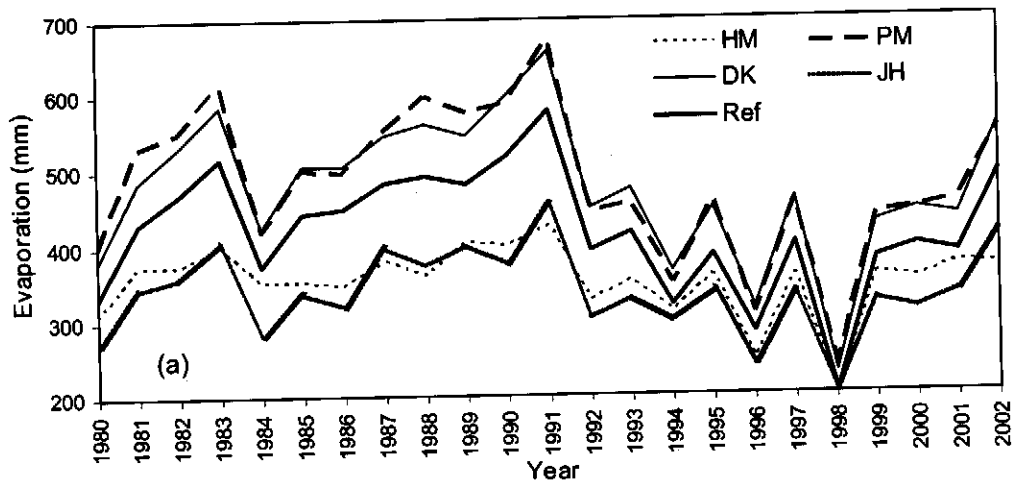


Figure 5. Annual reference evaporation rate averaged over all the days in the span of a year (the bar showing averaged evaporation rate in mm/d, the solid line showing an inter-annual variation pattern of the rates).



be well applied to the study area, for example changing its constant 1.26. One common concern for the three methods (DK, PM, PT) which all overestimate evaporation is noted but has not been identified: they all include a net radiation in their equations. If the net radiation were not correctly measured or calculated, a systematic overestimation would have occurred.

The sixth-ranked Hamon method (Equation (8)) does not give good estimates simply because it only considers air temperature as the controlling factor. Unless the meteorological data is severely restricted, this method is not recommended for lake evaporation. The seventh-ranked Jensen-Haise method (Equation (14)) includes very site-dependent parameters, and may be not applicable to our study lake without proper adjustment. The evaporation is badly underestimated.

The data length of 30 years would remind that a timely trend analysis may be worthwhile. All meteorological and energy budget variables were checked to find potential trends or periodic cycles in the 30 years, but none has been found to have a significant trend at Dickie Lake.

Linacre [40] proposed that lake-evaporation rate is generally decreasing at around 0.1 mm/d per decade around the world, chiefly on account of reduced solar radiation. The estimated rates by energy budget method for Dickie Lake do not show such a reduction.

The averaged daily rate in ice-free season for three decades (1981–1990, 1991–2000, 2001–2007, with the third decade being 7 years only) is 2.66, 2.57 and 2.74 mm/d respectively, the rate decreases by 0.09 mm/d from the first to second decade, but increases 0.17 mm/d from the second to third decade.



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Abstract

Evapotranspiration (ET) was measured via the eddy covariance technique at a shrub bog peatland in southeastern Ontario for 5 years. For most of the study period the temperature was above normal. Precipitation was variable, but, in 2 years, late summer dry periods resulted in an extended period of deep drawdown of the water table (WT). Growing-season (May–September) daily ET varied considerably; maximum ET rates were 4 to 5 mm day⁻¹. Winter ET rates were an order of magnitude smaller than in summer, yet the total winter ET loss was important, accounting for 23 to 30% of the annual ET water loss. Annual precipitation exceeded annual ET by 1.55 to 1.94 times. 

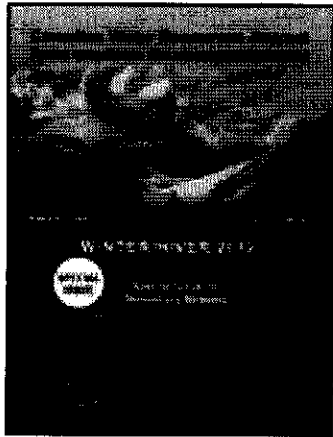
During the growing season, daily ET was closely related to daily potential evaporation (PET); however, the slope of this relationship was statistically different in some years. In contrast, ET and WT were only weakly related in most years. When ET was sorted into 5 cm WT classes there was no difference in mean ET across most WT classes; only the two deepest WT classes had significantly smaller mean ET. The ratio ET/PET followed the same pattern. We present a conceptual model of ET that relates WT, soil hydraulic properties and moss and vascular plant processes. Copyright © 2005 John Wiley & Sons, Ltd.

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ESTIMATED SEASONAL AND ANNUAL WATER SURPLUS IN ONTARIO

G.W. Parkin, C. Wagner-Riddle, D.J. Fallow & D.M. Brown

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season was assumed to be of constant duration at all sites for all years. Default values included with the SHAW model version 2.3 were selected for the plant, canopy, and crop residue parameters.

Model Runs and Output

The SHAW model was run on daily climate data from December 1, 1960 to November 30, 1990 for all four sites and soil profiles as described in Tables 1 and 2. The generated output included daily totals of intercepted precipitation, evaporation, crop transpiration, drainage, runoff and water storage in the canopy, soil, snow, and residue, and the mass balance errors. Based on this output, the mean annual evapotranspiration, deep drainage below 1.25m, and surface runoff as well as seasonal totals were calculated for each site. Months were grouped into seasons as follows: winter (December, January, February and March), spring (April and May),

summer (June, July and August), and fall (September, October and November). In addition to the predominant soil type found in each of the four sites, the North Gower soil type (used for Ottawa site) was used for runs of the model at Harrow, Guelph and Kapuskasing, in order to provide differences in water surplus caused by climate only. The standard deviations for the annual and seasonal averages of the three components of the water balance were calculated as well.

Results and Discussion

Annual Water Balance

Thirty-year averages and standard deviations of annual precipitation, model predictions of evapotranspiration, deep drainage, and runoff for the four sites are compared in Table 3. The average annual precipitation for the thirty year period was fairly similar at the four sites ranging from 860 mm at

Table 3: Average \pm Standard Deviation of Annual Water Balance Components (mm) Derived from the SHAW Model for a Typical Local Soil Type at Four Sites in Ontario for 1961-1990 Period

	Harrow	Guelph	Ottawa	Kapuskasing
Precipitation	902 \pm 138	863 \pm 126	871 \pm 117	860 \pm 131
Evapotranspiration	675 \pm 68	497 \pm 50	562 \pm 38	505 \pm 37
Deep Drainage	183 \pm 90	283 \pm 108	201 \pm 137	153 \pm 85
Runoff	46 \pm 56	81 \pm 64	100 \pm 74	206 \pm 53
Average Water Surplus	209 \pm 90	364 \pm 98	301 \pm 103	359 \pm 106
Average Annual Water Surplus (other studies)				
1931-1960 (Brown <i>et al.</i> 1968)	229*	305*	305*	318*
1923-1948	195 \pm 103	323 \pm 102	374 \pm 86	N/A
1941-1970 (Sanderson, 1950 and 1980)	242			

* values obtained from map.

Table 2. Period daily averages in actual evapotranspiration (AET) and potential equilibrium evaporation (PET), and the resulting Priestley–Taylor coefficient (a) for the upper and lower sites, Strawberry Creek watershed, Maryhill, Ontario, DOY 153–232, 2003.

DOY	Number of samples	Upper site			Lower site		
		AET	PET	a	AET	PET	a
153–175	8	3.25	2.77	1.17	3.05	2.56	1.19
176–208	11	4.08	3.26	1.25	4.07	3.01	1.35
209–232	10	2.74	3.16	0.87	3.36	3.29	1.02

Periods are defined by the wet periods delineated in Fig. 2. AET and PET are the areally weighted totals for both sites as described above.

larger than that at the lower site in the third period (DOY 209–232) (Table 2). The fact, that the a values differed little between the two sites should not come as a surprise as a dominant controlling factor on a is moisture availability (Dingman, 1994) and precipitation and soil moisture were similar between the lower and upper sites.

A total of 178 mm of precipitation fell over the study period whereas slightly over 100 mm of ET was observed from riparian areas (i.e. nearly 60%). To put these numbers into perspective, less than 2 mm of runoff was observed at the basin outflow over the entire study period. Therefore, the water balance of the basin was dominated by atmospheric exchange during the study period. While these dry periods do not contribute significantly to annual basin hydrochemical export as most nutrient loading occurs during storm events (Macrae et al., in press-a), such periods are critical to nutrient loading patterns because the cumulative daily ET that occurs during these periods dries out riparian soils affecting both their water storage and nutrient retention potential. Thus, ET patterns during the dry summer months have a direct effect on the ability of riparian zones to respond to runoff and its associated nutrient transport during late summer and autumn storms.

5. Conclusions

Estimates of summer PET and AET for riparian zones within a first-order agricultural catchment were 2.9–3.1 and 3.36–3.49 mm d⁻¹, respectively. Nearly 60% of summer precipitation was returned to the atmosphere via ET in riparian areas and thus atmospheric exchange dominated the water balance of these zones during the study period. In basins with larger, more extensive riparian zones and floodplains, these large AET rates may account for a significant portion of the water available to the entire basin, which has implications for irrigation planning.

Estimates of the P–T coefficient (a) were 1.10–1.18 over the season supporting the use of a value of 1.26 that has been suggested by others for use in modelling scenarios. Furthermore, no spatial variability in ET was observed between sites within riparian areas suggesting that these areas may be treated as one homogenous unit with respect to ET.

In small basins such as the Strawberry Creek watershed, the cumulative ET during dry periods plays a critical role in drying riparian soils between storms. These dry antecedent hydrologic conditions allow storm runoff to go into storage rather than passing through riparian areas into the adjacent stream, and thus affect both stream water quality and

quantity. Therefore, it is critical to understand this loss of water in a riparian zone to ensure the hydrologic conditions necessary to maintain the critical biogeochemical functioning of the riparian zone.

Riparian zones are often ignored in studies of ET in agricultural watersheds. However, as this study illustrates, less intensive research methods could be used such as micro-lysimeters and simple energy balance measurements, which can be carried out using automated instruments, once relationships between PET and AET are quantified for the various representative land-use types comprising the system. Such relationships can then be used as more meaningful functional relationships to parameterize more detailed models like the FAO-P–M.

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**BLACK/HARMONY/FAREWELL CREEK WATERSHED
EXISTING CONDITIONS REPORT
CHAPTER 8 - CLIMATE**

April 2011



Figure 2 depicts the variation in average annual precipitation collected at five climate stations listed in Table 1. By depicting an average annual precipitation of 886 mm/yr, the fluctuations showing wet, dry and average years can be easily observed over the period of record as shown in Figure 2. Four of the Environment Canada stations have been decommissioned over the last 10 to 12 years including Burketon McLaughlin, Orono, Tyrone, and Bowmanville Mostert (Figure 2).

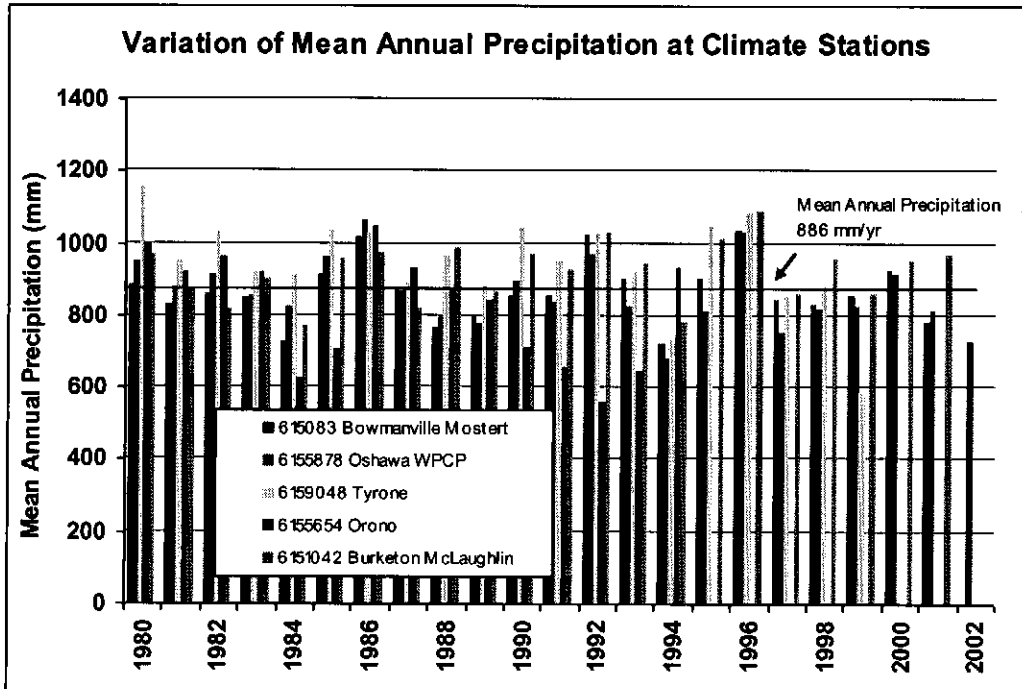


Figure 2: Variation of annual precipitation at selected climate stations with extended periods of record.

While several CLOCA monitoring stations have recently been commissioned in and around the watershed to advance the flood forecasting program, they do not yet have sufficient periods of record to be used for long-term climate assessments (Table 2). CLOCA climate stations, for the most part, collect rainfall information whereas the Environment Canada stations also account for other forms of precipitation (such as snow accumulation and collected temperature data).

Table 2: CLOCA precipitation stations within or around the Black/Harmony/Farewell Creek watershed.

Station Name (ID)	Year Commissioned
Purple Woods (Prec1)	1999
Howden Road (Prec2)	1999
CLOCA Admin Office (Prec3)	2001
Lynde Creek (02HC018)	2002
Heber Down (55)	2003
Hampton CA (3)	2003
Chalk Lake (Prec4)	2003
Enniskillen (Prec5)	2003
Oshawa Airport	2008

Several CLOCA monitoring stations have recently been commissioned in and around the watershed

4.5 Evapotranspiration

While there are several methods for collecting evaporation data in the field, estimating the amounts of evaporation and transpiration typically rely on empirical calculations as part of commonly-used methodologies. Evapotranspiration information is important for hydrology and water budget investigations.

The mean annual potential evapotranspiration (PET) was calculated for the Ecodistrict 553 in which the Black/Harmony/Farewell Creek watershed resides (Table 3). Ecodistrict 553 covers CLOCA's jurisdictional area as well as the Ganaraska and Trent watersheds. Ecodistricts are mapped across Canada by Agriculture and Agri-food Canada (<http://sis.agr.gc.ca/cansis/nsdb/ecostrat/district/climate.html>). Table 3 presents monthly and annual estimates of potential evapotranspiration (PET) calculated using two methodologies: the Thornthwaite and the Penman methods. Comparison with average precipitation data shows that PET exceeds available precipitation from May to August (Penman method) or June to August (Thornthwaite method). Actual evapotranspiration in those months will depend on the ability of plants to extract moisture from the soil.

Table 3: Monthly and Annual Estimated Potential Evapotranspiration for the CLOCA jurisdiction (from: Earthfx, 2007).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Potential ET (mm) Thornthwaite Method	0	0	0	30.8	72.5	108.3	127.6	112.7	77.4	38.0	10.1	0	577.3
Potential ET (mm) Penman Method	0	0	11.7	63.0	97.6	114.5	129.4	103.0	64.7	30.5	8.2	0	622.56
Precipitation (mm)	62.2	57.5	65.9	67.0	74.0	73.8	67.2	82.5	79.1	73.9	84.5	81.6	867.4

Estimates of long-term actual evapotranspiration (AET) generated using the Precipitation-Runoff Modelling System (PRMS) numerical model are shown for the Black/Harmony/Farewell Creek watershed in Figure 4. The estimates depicted represent the long-term average millimetres per year (mm/yr) of evapotranspiration that is predicted from all sources including intercepted and stored precipitation that is eventually evaporated. AET depends on soil type, soil water storage capacity, vegetation rooting depths, amount of interception storage based on land cover type, temperature, and solar radiation. The model estimates an evapotranspiration rate of approximately 411 mm/yr for the watershed.

Urban areas are depicted in Figure 4 as having on average lower evapotranspiration rates than the watershed average. This is largely influenced by the greater percentage of impervious surfaces in urban areas such as roadways, parking lots and rooftops. While some of the precipitation including melting snowpacks remains stored in surface depressions and is evaporated by the model, much of the precipitation is diverted from these surfaces as runoff.

An actual evapotranspiration rate of about 411 mm/yr is predicted for the watershed

3.2 CONCEPTUAL WATER BUDGET

The conceptual water budget is a simple water budget performed at coarse spatial and temporal scales. It gathers the information that will be required for subsequent steps of the water budget process and provides a general overview of water movement through a watershed. It also includes an assessment of watershed features that may impact the water budget calculation, such as geology, physiography, and land cover.

The conceptual water budget was developed separately for the Trent River watershed and the subwatersheds of Lake Ontario and Bay of Quinte tributaries that are located in the Lower Trent Source Protection Area. These conceptual water budgets are documented in the following reports:

- *Conceptual Water Budget: Trent River Watershed (March 2007)*
- *Conceptual Water Budget: Lake Ontario/Bay of Quinte Tributaries (Lower Trent Watershed) (March 2007).*

This section is a summary of these reports.

3.2.1 SUBWATERSHEDS

Since the study area is large and complex, it has been divided into 10 subwatersheds for purposes of the conceptual water budget (see Map 3-1). The delineation of these subwatersheds was based on local geology, physiography, and the location of hydrometric stations. Most subwatershed outlets were defined at the location of hydrometric stations with sufficiently long flow records that were located near the outlets of major tributaries of the Trent River or along the Trent-Severn Waterway. The Lower Trent South subwatershed was associated with the Trenton hydrometric station despite its limited data record (1999 to 2002) because it is located at the outlet of the Trent River. Further, because there are no hydrometric stations in the Bay of Quinte tributaries subwatershed, flow data at this station was estimated using the Ontario Flow Assessment Techniques software. Subwatersheds and the hydrometric stations selected as their outlets are described in Table 3.2-1.

3.2.2 CLIMATE

Climate is a critical influence on the hydrology and hydrogeology of a region. This section is an assessment of the climatic parameters that are components of the water budget equation: precipitation, temperature, and evapotranspiration.

3.2.2.1 DATA SOURCES

Climate data in the study area are available from climate stations operated by the Meteorological Service of Canada (Environment Canada), Conservation Authorities, Ministry of Natural Resources, Ministry of Transportation, Hydro One, Airport Authorities, municipalities, universities and colleges, and other research organizations. In the Trent River watershed, the coverage of climate stations in the Paleozoic area is reasonable, but data are sparse in portions of the Precambrian area. In the Lake Ontario and Bay of Quinte tributaries subwatersheds, stations are concentrated in the south and in larger communities along the shore of Lake Ontario. Climate stations in the study area are listed in Table 3.2-2 and shown on Map 3-2.



Table 3.2-22: Summary of Water Budget Components for Trent River Subwatersheds

Component	Unit	Gull River	Dunn River	Kawartha Lakes		Rice Lake	Crawe River	Lower Trent		Total	Average
				West	East			North	South		
Drainage Area	km ²	1,280	1,270	3,495	1,292	1,730	1,990	920	577	12,584	-
Precipitation	m ³ /sec	42	42	96	39	46	60	25	15	366	46
Actual	mm/year	1,045	1,045	869	940	840	957	841	841	919	922
Evapotranspiration	m ³ /sec	20	20	58	22	28	33	15	9	206	26
	mm/year	504	504	526	528	511	523	511	514	518	515
	% of precip.	48	48	60	56	61	55	61	61	56	56
Surplus Water ¹	m ³ /sec	22	22	76	76	104	27	128	148	160	85
	mm/year	541	541	343	412	329	434	329	327	160	160
	% of precip.	52	52	40	44	39	45	39	39	-	407
Surface Water In	m ³ /sec	0	0	38	59	86	0	118	142	-	44
	m ³ /sec	19	18	59	86	95	24	142	150	-	-
Surface Water Out	% of surplus	88	84	78	113	91	86	111	101	-	-
	m ³ /sec	2.6	3.5	16.4	-9.8	9.4	3.8	-14.3	-1.5	-	-
Water Budget Residual	mm/year	63	87	148	-240	172	60	-489	-83	10	-
	m ³ /sec	0.024	0.076	0.43	0.078	0.357	0.187	0.059	0.066	25	-
Anthropogenic Removal	mm/year	0.583	1.893	3.879	1.894	6.510	3.06	2.023	3.614	1.27	-
	% of precip.	0.06	0.18	0.45	0.20	0.78	0.31	0.24	0.44	0.35	-

¹Surplus water is the difference between precipitation and actual evapotranspiration (i.e. Surplus = P - AET)

**Appendix E4 –
Public Information Centre #2**



TOWNSHIP OF MAPLETON

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR MAPLETON WASTEWATER SERVICING

NOTICE OF PUBLIC INFORMATION CENTRE

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Mapleton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to upgrade the wastewater collection system.

The study is being conducted in accordance with Schedule C of the Municipal Class Environmental Assessment process (October 2000, amended 2007 and 2011), which is approved under the Ontario Environmental Assessment Act. A Public Information Centre (PIC) is planned to provide further information to the public on the project and to receive input and comment from interested persons:

Date, Time and Location:

Time: 4:00 pm to 7:00 pm
Date: February 11, 2016
Location: Township of Mapleton Council Chambers
7275 Sideroad 16
Drayton, ON

Following the PIC, further comments are invited for incorporation into the planning and design of the project and will be received until February 26, 2016.

Please contact any of the following project team members if you wish to be added to the project mailing list or if you have any questions or comments about the study.

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Mapleton Wastewater Servicing Municipal Class Environmental Assessment

Public Information Centre

February 11, 2016

Welcome!



1

Welcome!

- Please sign in and take a comment sheet.
- The purpose of this PIC is to:
 - Review the project with the public
 - Present the alternative designs being evaluated
 - Present the preliminary preferred alternative design
 - Seek your input and comments
 - Explain next steps
- If you have questions, our team members are available to discuss the project with you.
- Please place your comment sheets in the "Comment Box" or send them before February 26, 2016 to:



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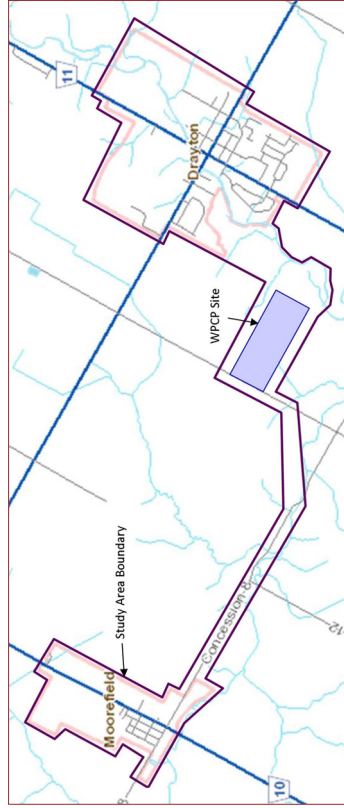


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Project Study Scope

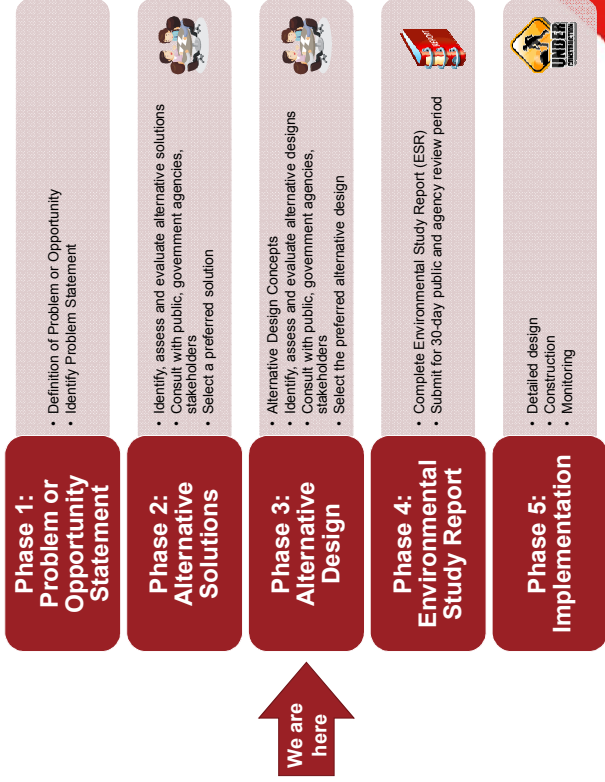
- To undertake Municipal Class EA to evaluate alternatives to potentially upgrade the Mapleton Wastewater Collection and Treatment System; and
- Prepare preliminary design of municipal wastewater system.

STUDY AREA



Municipal Class EA Process

- A Class EA is a study to plan for a proposed project, which includes background and technical studies, a review and assessment of potential environmental, social and economic impacts and how they can be avoided, and an evaluation of possible alternatives.
- The result is an Environmental Study Report (ESR), which documents the process and lists the commitments made by the proponent.
- The Class EA process is completed in accordance with the *Environmental Assessment Act*.



Wastewater Collection System: Current and Future Flows

Current and Future Peak Hourly Sewage Flows - Drayton

Parameter	Current	Future (2031)
Population	1,880 persons	3,070 persons
Per capita flow	332 L/pers/d	332 L/pers/d
Average daily flow	624 m ³ /d	1,019 m ³ /d
Peak flows	2,497 m ³ /d 29 L/s	4,077 m ³ /d 47 L/s

The current maximum pumping capacity is 36 L/s. This will not meet the projected peak flow rate of 47 L/s for 2031.

Therefore, the pumping capacity of the SPS must be increased.

Current and Future Peak Hourly Sewage Flows - Moorefield

Parameter	Current	Future (2031)
Population	420 persons	1,310 persons
Per capita flow	215 L/pers/d	215 L/pers/d
Average daily flow	90 m ³ /d	281 m ³ /d
Peak flows	361 m ³ /d 4.2 L/s	1,125 m ³ /d 13 L/s

The current maximum pumping capacity is 14 L/s. This is adequate to meet the projected peak flow rate of 13 L/s for 2031.

Overview: Wastewater Pollution Control Plant (WPCP)

Storage Lagoons

- 350,000 m³ (combined)
- Treated wastewater stored until it can be discharged
- Treated wastewater dosed with Alum before entering storage lagoons

Settling Lagoon

- 62,100 m³
- Solids settle out of treated wastewater

Aerated Lagoon

- 60,500 m³
- Wastewater enters here for treatment



Tertiary Treatment Building

- Five sand filters, to filter treated wastewater before discharge
- Ultraviolet disinfection, to ensure treated wastewater is disinfected before discharge

Discharge Swale

- Treated wastewater discharged to a swale, which then flows to Conestoga River

Wastewater Pollution Control Plant Performance

- Effluent from WPCP is monitored regularly
- Effluent objectives and limits based on provincial approval
- Effluent Limit: maximum allowable concentration for a parameter
- Effluent objective: a target that is more stringent than the limit

Effluent Parameter	Effluent Objective	Effluent Limit	Measured Final Effluent (2013 - 2014)
cBOD5	5.0 mg/L	Apr/Oct: 7.5 mg/L Mar/Nov/Dec: 10.0 mg/L	Apr/Oct: ~ 2 to 5 mg/L Mar/Nov/Dec: ~ 2 to 3.5 mg/L
Total Suspended Solids (TSS)	None	None	Spring 2-8 mg/l Fall 2-7 mg/l
Total Ammonia Nitrogen (TAN)	3.0 mg/L	5.0 mg/L	~0.01 to 4.75 (highest in March)
Total Phosphorus (TP)	0.3 mg/L	0.5 mg/L	~0.05 to 0.25
E.Coli	100 org./100 mL	200 org./100 mL	nil

The Mapleton WPCP is performing well. Effluent from the WPCP is consistently below the regulated limit and is generally below the more-strict effluent objective.

Overview: Existing System – Effluent Discharge Window

- Current rated capacity is 750 m³/day (or 273,872 m³/year of influent flow)
- Current Effluent Seasonal Discharge Window:

Month	Discharge Limit m ³ /day
March	1,581
April	3,154
October	233
November	1,754
December	4,000

- The Township's recent Environmental Compliance Approval amendment allows for flexible increased discharge during these months, under conditions:
 - 10:1 streamflow to discharge rate (based on streamflow data from Grand River Conservation Authority website)
 - Discharge rate cannot exceed maximum design capacity of sand filter/UV disinfection unit (4,000 m³/d)
- In addition, it is estimated that ~147 m³/day (53,655 m³/year) of precipitation accumulates in the plant, which needs to be discharged
- It is desirable that the new effluent discharge window addresses accumulated precipitation

Agency / Stakeholder Consultation

- Study includes consultation with agencies, including detailed discussion with the Grand River Conservation Authority (GRCA) and the Ministry of Environment and Climate Change (MOECC)
- Key outcomes:
 - MOECC and GRCA advised of project and process to be followed
 - Data and background information provided by agencies to project team
 - Input received from agencies on alternative solutions and evaluation criteria
 - Reasonable opportunity to explore expanded discharge windows for WPCP
 - On-going engagement regarding finalization of proposed discharge window
- Meeting also held with developers in March 2015 to provide project details, including background, EA process and expected time frames etc.

Natural Heritage Investigation

Conestoga River Subwatershed

- A warmwater system of tributaries and municipal drains that flow into the main channel and eventually into Conestogo Lake, approximately 7 km downstream of Drayton.
- The adjacent lands are intensively farmed and heavily drained.
- In the local area, the river is relatively wide (10-20m) flat, and less than 1 m deep during the summer months.
- Aquatic habitat includes shallow pools, riffles, and runs that flow over a variety of substrates, with silt in the backwater areas.
- River suffers from low baseflow, warm temperatures, lack of riparian vegetation and agricultural runoff input, and water level changes due to the Conestoga dam.
- Algae mats can form throughout backwater areas.

Fish and Mussels in the Conestoga

- The river has a diverse warmwater fish community including Northern Pike, Smallmouth Bass, Yellow Perch, Walleye, and Common Carp, and a variety of warmwater baitfish species.
- The river was historically stocked with Brown Trout (a coldwater species) downstream of Conestoga Lake.
- A variety of common mussel species are known to occur.
- One mussel Species at Risk, the Rainbow (*Villosa iris*) is known to occur in the Conestoga River near the WPCP.
- Rainbow is listed Endangered under the Ontario *Endangered Species Act*, giving the species and its habitat legal protection.
- Rainbow is also listed Endangered and is protected under the federal *Species at Risk Act*, and Critical Habitat under this legislation has also been delineated by Fisheries and Oceans Canada.



Rainbow Mussel
(*Villosa iris*)

Treatment Alternatives: Selection and Evaluation

- Pre-screening of alternative solution categories conducted, based on problem statement
- Treatment approaches for primary, secondary and tertiary treatment considered
- Based on WPCP treatment requirements, three alternative solutions were considered for upgrading the Drayton WPCP:
 1. Pre-lagoon nitrification with Moving Bed Biofilm Reactor (MBBR)
 2. Post-lagoon nitrification with Submerged Attached Growth Reactor (SAGR) technology
 3. Extended Aeration
- The three alternatives were evaluated against evaluation criteria and Post-lagoon nitrification with SAGR technology identified as preferred alternative treatment solution
- Two alternative designs prepared and evaluated

Alternative Treatment Solutions

- Alternative 1: Pre-Lagoon Nitrification with MBBR
- Alternative 2: Post-lagoon with SAGR
- Alternative 3: Extended Aeration (using Sequencing Batch Reactor)

Preferred Treatment Alternative Solution

Based on the evaluation, Alternative 2 (Post Lagoon with SAGR) is identified as the preliminary preferred treatment alternative for the following reasons:

- It had the best ranking for technical performance among the alternatives evaluated;
- It provides reliable protection of the natural environment;
- It will have little to no impacts on noise, air or odour or other nuisances; and
- The estimated capital and operating costs are lower than other alternatives.

SAGR: An Overview

Process Overview

- Provides nitrification (ammonia removal) in cold to moderate climates.
- Consists of a clean aggregate media bed with evenly distributed wastewater flow across width of cell.
- Two SAGR cells operate in parallel, allowing either cell to be isolated and bypassed if required (e.g., for maintenance or repair).

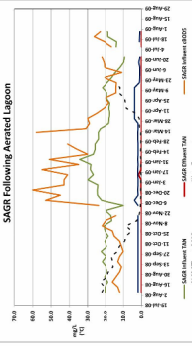
Examples in Other Jurisdictions

2007	Steinbach (Ontario)
2007	St. Catharines (Ontario, SK)
2010	Durham (Ontario, MB)
2011	Dutton Creek, BC
2011	Merrimack, IN
2011	Glencoe, ON
2012	St. Catharines, MB
2012	Swan Lake, SD
2012	Wilkes, IA
2012	Perth (Ontario), ON
2012	St. Catharines, ON
2012	Shelburne, SK
2012	Blumenort (Ontario)
2013	Mississippi, TN, MB
2013	St. Catharines, ON
2013	Kennel, IN
2013	Guthrie School, ON
2013	Kingstley, IA
2013	Newbridge, ON
2014	Conestoga, IA
2014	Hull, IA

Example of Performance Data

SAGR Performance Data

Parameters	SAGR Influent Average (mg/L)	SAGR Effluent (mg/L)	Removal
CRD	47	2.1	95.5%
TSS	30	1.3	95.7%
TAN	24.9	0.12	99.5%
TN	32.5	1.8	94.5%
FC (fu/100 ml)	35900	13.5	99.99%
Average water Temperature (°C)	8.3	1.0	



Alternative Treatment Designs

- Two alternative designs being considered.
- Alternative 1: Post-lagoon SAGR treatment without floating island wetlands
- Alternative 2: Post-lagoon SAGR treatment with floating island wetlands
- Main difference in design is the inclusion of floating island wetlands.
- Alternative designs evaluated against technical, natural environment, social/cultural and financial criteria.

Alternative Design Evaluation Criteria

Category	Criteria	Definition
Technical	Effluent water quality	Ability of the alternative to meet effluent limits
	Ease of implementation	Whether implementation of the solution will be relatively straight-forward or will be technologically complex or disruptive
	Approvals Required	The number and complexity of approvals required
Natural Environment	Impact on environment, such as woodlots, parks or habitats	The potential impact of the solution on the terrestrial environment
	Impact on aquatic environment, such as the Conestoga River within the Conestoga River Archaeological	The potential impact of the solution on the aquatic environment
Social/Cultural	Archaeological	The potential impact of the solution on archaeological resources
	Nuisance to Community Construction	The potential impact of dust, noise and odours from construction activity on nearby residents
Financial	Nuisance to Community operations	The potential impact of dust, noise and odours during operations on nearby residents
	Operating Costs	The estimated capital cost of the solution and the estimated annual operating cost of the solution

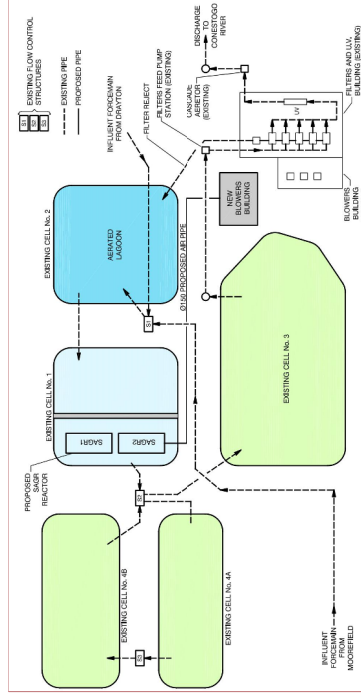
Alternative Treatment Designs

Alternative 1: Post Lagoon Nitrification with SAGR

Key features include:

- Installation of a SAGR system in the facultative lagoon, which would consist of a media bed, a coarse bubble air diffusers system, influent distribution piping and effluent collection piping, and a cover layer of wood chips or mulch. The media material used in the SAGR would be uniformly graded clean rock or stone. The two SAGR units would be installed in parallel, which allows for the possibility to isolate one of the reactors while keeping the other in operation (e.g., for maintenance or repair)
- A new alum mixing tank;
- A new blowers building.

Schematic for Alternative 1



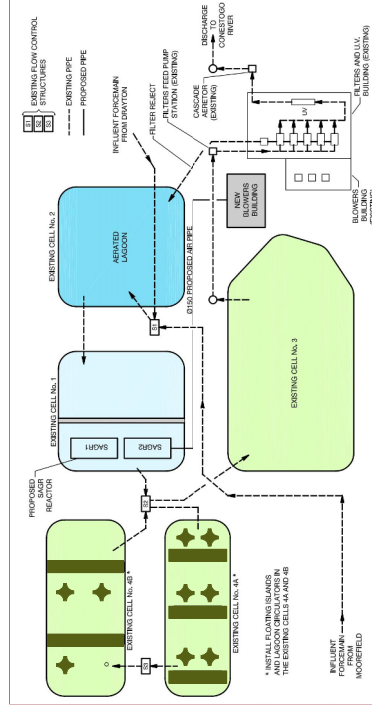
Alternative Treatment Designs

Alternative 2: SAGR with Floating Island Wetland

Key features include:

- Installation of a SAGR system in the facultative lagoon, which would consist of a media bed, a coarse bubble air diffusers system, influent distribution piping and effluent collection piping, and a cover layer of wood chips or mulch. The media material used in the SAGR would be uniformly graded clean rock or stone. The two SAGR units would be installed in parallel, which allows for the possibility to isolate one of the reactors while keeping the other in operation (e.g., for maintenance or repair)
- A new alum mixing tank;
- A new blowers building;
- Floating island wetlands and lagoon circulators in lagoons 4A and 4B

Schematic for Alternative 2



Evaluation of Alternative Treatment Designs

Category	Criteria	Alternative 1 Post Lagoon Nitrification with SAGR	Alternative 2 SAGR Reactors with Floating Islands Wetland
Technical	Effluent water quality	The effluent discharged from the facility will be able to meet approved effluent limits.	The floating island wetland treatments will provide some additional polishing treatment and sludge digestion compared to Alternative Design #2. However, the treatments are not required to ensure the effluent meets the effluent limits.
Technical	Ease of implementation	Implementation of Alternative Design #2 would not require additional coordination otherwise required for the floating island wetland treatments.	Implementation of the floating island wetland treatments into the lagoons may experience some delays compared to the rest of the upgrade implementation, as the floating island wetland will require time for the vegetative material to grow before installation.
Technical	Approvals Required	There would be no differences between approvals required for either Alternative Design #1 or Alternative Design #2.	There would be no difference between approvals required for either Alternative Design #1 or Alternative Design #2.
Natural Environment	Impact on terrestrial environment, such as woodlands, parks or habitats	The alternative designs for Alternative Design #1 and Alternative Design #2 will take place within the WPCP's footprint. Therefore, neither alternative is expected to have any impact on the terrestrial environment.	The alternative designs for Alternative Design #1 and Alternative Design #2 will take place within the WPCP's footprint. Therefore, neither alternative is expected to have any impact on the terrestrial environment.
	Impact on aquatic environment, such as the Conestogo River	Both alternatives would operate within the approved effluent limit and therefore the level of effluent discharged into the river from either alternative is expected to have a negative impact on the aquatic environment.	Both alternatives would operate within the approved effluent limit and therefore the level of effluent discharged into the river from either alternative is expected to have a negative impact on the aquatic environment.
Social/Cultural	Archaeological	The alternative designs for Alternative Design #1 and Alternative Design #2 will take place within the WPCP's footprint and on soil previously disturbed. Therefore, neither alternative is expected to have any impact on archaeological resources.	The alternative designs for Alternative Design #1 and Alternative Design #2 will take place within the WPCP's footprint and on soil previously disturbed. Therefore, neither alternative is expected to have any impact on archaeological resources.
	Nuisance to Local Community during Construction	There may be some potential for disturbance due to noise and dust during construction. However, these can be mitigated through standard construction mitigation activities. The level of disturbance from noise and dust during construction is expected to be the same for both alternative designs.	There may be some potential for disturbance due to noise and dust during construction. However, these can be mitigated through standard construction mitigation activities. The level of disturbance from noise and dust during construction is expected to be the same for both alternative designs.
	Nuisance to Local Community during Operations	No nuisance odours are anticipated due to construction activities.	No nuisance odours are anticipated due to construction activities.
Financial	Capital Costs	There may be some potential for disturbance due to increased construction traffic, for example for the delivery of the SAGR units' stone media and the floating island installation. However, this construction traffic would be short-term and could be mitigated through traffic control measures, such as limiting construction traffic to regular working hours.	There may be some potential for disturbance due to increased construction traffic, for example for the delivery of the SAGR units' stone media and the floating island installation. However, this construction traffic would be short-term and could be mitigated through traffic control measures, such as limiting construction traffic to regular working hours.
	Operating Costs	Estimated Capital Costs: High (~\$3M) + contingency	Estimated Capital Costs: High (~\$3M) + contingency
Summary		Comparable but slightly higher than Alternative 2	Comparable but slightly lower than Alternative 1

Conclusion: Alternative 1: Post Lagoon Nitrification with SAGR is more preferred than the alternative that uses the floating island wetlands, as the floating islands wetland add approximately \$1.2M to the capital cost and are not critical to the wastewater treatment process.

Updated Conestogo River Low Flow Values and Potential Expanded Effluent Discharge Window

- Updated 7Q20 values calculated based on data from 1973 to 2013.
- Proposed discharge window considers updated 7Q20 values and assimilative capacity of Conestogo River.
- Discharge window volumes are currently under review by MOECC / GRCA.

Month	7Q20 Low Flow (m ³ /d)	Current Discharge Window (m ³ /d)	Proposed Discharge Window (m ³ /d)
Jan	22,918	0	4,000
Feb	17,740	0	3,150
Mar	21,129	1,581	3,800
Apr	45,407	3,154	4,000
May	14,738	0	0
Jun	1,643	0	0
Jul	639	0	0
Aug	1,312	0	0
Sep	712	0	0
Oct	3,057	233	180
Nov	15,085	1,754	1,500
Dec	24,402	4,000	4,000

- Total potential annual discharge based calculated discharge window can be up to 624,580 m³/year.
- Proposed effluent discharge window will easily accommodate new annual effluent flow of 474,688 m³/year, as well as 53,655 m³/year of flow resulting from accumulated water from precipitation.
- Total Required Storage (design year) for 5 months @ 1,447 m³/day is 217,127 m³ to store effluent and rainwater.
- With a total existing storage of 350,000 m³, there is sufficient storage available for future needs.



New Proposed Plant Capacity and Effluent Objectives and Limits

- New proposed treatment capacity of the plant is 1,300 m³/day
- Plant will be designed to hydraulically handle additional 147 m³/day of precipitation
- New effluent objectives and limits being proposed are based on assimilative capacity assessment and technically achievable standards
- Proposed effluent objectives and limits are subject to provincial approval

Effluent Parameter	Current Effluent Objective	Current Effluent Limit	Proposed Effluent Objective	Proposed Effluent Limit
cBOD5	5.0 mg/L	Apr/Oct: 7.5 mg/L Mar/Nov/Dec: 10.0 mg/L	5.0 mg/L	Apr/Oct: 7.5 mg/L Jan- Mar/Nov/Dec: 10.0 mg/L
Total Suspended Solids (TSS)	None	None	10 mg/L	15 mg/L
Total Ammonia Nitrogen (TAN)	3.0 mg/L	5.0 mg/L	1.0 mg/L	3.0 mg/L
Total Phosphorus (TP)	0.3 mg/L	0.5 mg/L	0.17 mg/L	0.3 mg/L
E.Coli	100 org./100 mL	200 org./100 mL	100 org./100 mL	200 org./100 mL

Next Steps

Steps	Timing
File ESR	March 2016
Design	March – June 2016
Tendering	July 2016
Construction	August 2016 – March 2017 (pending funding)

We want to hear from You!

Please send us your thoughts, comments and suggestions by February 26, 2016.

Brad McRoberts, MPA, P.Eng
CAO Clerk
Township of Mapleton
 7275 Sideroad 16
 Drayton, Ontario N0G 1P0
 bmcroberts@mapleton.ca

Arun P. Jain, M.Eng., P.Eng.
Manager – Water and Wastewater Infrastructure
Exp Services Inc.
 1595 Clark Blvd.
 Brampton, ON L6T 4V1
 arun.jain@exp.com



Mapleton Wastewater Servicing Municipal Class Environmental Assessment
Public Information Centre

Thursday, February 11, 2016

SIGN IN SHEET
(please print)

NAME	ADDRESS	E-mail (If you wish to receive Information via e-mail)
Mark Andersen	SRCA, 400 Clyde Rd, Cambridge	
Yoi Woodlans	Councillor, Township of Mapleton	
Mike Martin	Township of Mapleton Council	
Neil Driscoll	"	
Nathan Dinning	[REDACTED]	[REDACTED]
Teh Dinning	[REDACTED]	[REDACTED]
Dennis C RAGAN	COUNCILLOR MAPLETON	
Marlene Ottens	Mapleton Councillor	
Doug Dinning	[REDACTED]	[REDACTED]
Brenda Dinning	[REDACTED]	[REDACTED]



Mapleton Wastewater Servicing Municipal Class Environmental Assessment

Public Information Centre

Thursday, February 11, 2016

SIGN-IN SHEET
(please print)

NAME	ADDRESS	E-mail (if you wish to receive information via e-mail)
Jim Gross	DRAYTON	jgrosse@mapleton.ca

Mapleton Wastewater Servicing Municipal Class Environmental Assessment

Public Information Centre

Thursday, February 11, 2016

COMMENT SHEET

Please provide us with your comments

Finish the project.

Need Topsoil.

Need Trees.

Need Weed control.

Additional space available on other side

Contact Information (Optional)

Name:

Mailing address:

E-mail:

Telephone:

Jean Louis Gaudet

From: Nathan & Rachel Duimering <[REDACTED]>
Sent: February-26-16 3:48 PM
To: Jean Louis Gaudet
Cc: [REDACTED] BMcRoberts@mapleton.ca; Arun Jain
Subject: RE: Notice of Public Information Centre - Mapleton Wastewater Servicing Class EA
Attachments: 22 November 23 Agenda WWTP Report.pdf; 2010-22 - November 23.pdf; 3F943048-00000030.eml

Good afternoon Jean-Louis,

I'm emailing you as a follow up to my comments at the PIC held at the township office.

I mentioned at the meeting that during the previous lagoon expansion EA process we had raised various concerns regarding the expansion, some were concerns relating to the project and its effects on the neighboring stakeholders and others were with the EA process that the Township followed at that time.

That standout items at that time were:

- Groundwater quality
- Security
- Visual Screening

Groundwater Quality:

This was a concern during the previous project and to alleviate our concerns the township, along with their consultant at the time (Burnside), agreed to perform semi-annual detailed water testing. I believe that this testing was performed once in September of 2011 but I don't recall seeing the results and have never seen any other testing since then. I've attached the resolution from council at the time as well as an email regarding the well survey prior to them coming for water sampling. We would appreciate if this testing would continue/start.

Security:

This was brought forward as more of a concern for the Township liability, as there is known recreational use that passes through the plant on a regular basis. In my correspondence with Burnside they mentioned that the township was aware of this activity and they would assess the risk. As a result, they just fenced between the driveway and the neighboring property but didn't enclose the facility. This doesn't bother me too much, I just wanted to note that there is still recreation activity on a weekly basis.

Visual Screening:

There was a commitment to erect trees, which has happened but I wanted to point out the lacking health of these trees, which the township attempted to transplant themselves. I would appreciate a review of the health of this screen and remediation as required.

Additional Concerns:

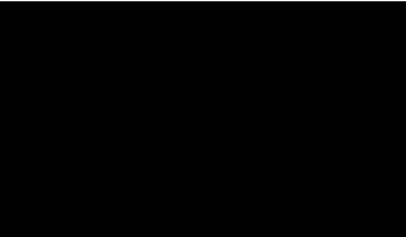
- **Topsoil & Seed** - As mentioned at the meeting, during the construction of the last expansion the Township removed the spreading of topsoil item from the contract, with the intent to be completed at a later date. We don't believe that this work was done and have concerns that there are erosion issues as well as just an ugly visual of the facility.
- **Noise** – in the proposal presented at the meeting it showed a new blower building and we would just emphasize our concerns regarding any rise in noise coming from the facility.

- **Odor** – Since the proposed drawings mentioned blowers and oxidization and my lack of knowledge regarding the SAGR unit I'm a little unsure if there is any potential for additional odor levels.

Thanks for your time and if you have any questions or would like additional information from the previous EA just let me know.

Nathan

**Nathan Duimering – Owner
NR Duimering Farms**



From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: Monday, February 1, 2016 11:43 AM
To: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>
Subject: Notice of Public Information Centre - Mapleton Wastewater Servicing Class EA

Good morning,

Please find attached a notice for a Public Information Centre for the Township of Mapleton Municipal Class Environmental Assessment for Mapleton Wastewater Servicing.

Date, Time and Location:

Time: 4:00 pm to 7:00 pm
Date: February 11, 2016
Location: Township of Mapleton Council Chambers
7275 Sideroad 16
Drayton, ON

Thank you,

Jean-Louis Gaudet



Jean-Louis Gaudet

Project Coordinator
t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
CANADA

exp.com | [legal disclaimer](#)

keep it green, read from the screen

**Appendix E5 –
Public Correspondance**

Jean Louis Gaudet

From: Brad McRoberts <BMcRoberts@mapleton.ca>
Sent: March-04-15 10:04 AM
To: jmohle@wellingtonconstruction.on.ca; priordevelopment@rogers.com;
parnbruster@activagroup.ca
Cc: Arun Jain; Jean Louis Gaudet
Subject: Wastewater Servicing Environmental Assessment

Follow Up Flag: Follow up
Flag Status: Flagged

You will be shortly invited to a stakeholder consultation with our Wastewater Servicing EA consultant "exp Services Inc" to gather your input into the ongoing Wastewater Servicing EA. Mr. Jean Louis Gaudet will be reaching out to you shortly to provide you with some notices and a consultation form. They will also provide some details regards the purpose of the meeting at that time.

The meeting will be held at the Municipal Offices, 7275 Sideroad 16 at 9:30 am on March 24, 2015. We look forward to meeting with you.

Regards,

Brad McRoberts, MPA, P.Eng

Director of Public Works
Township of Mapleton
P.O. Box 160
Drayton, Ontario
N0G 1P0

Phone (519) 638-3313 Ext 41
Toll Free 1-800-385-7248
Fax (519) 638-5113



www.mapleton.ca

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: March-10-15 4:16 PM
To: Jean Louis Gaudet
Cc: Arun Jain
Subject: Township of Mapleton Wastewater Servicing Class EA - Notice of Study Commencement
Attachments: Mapleton WWS Class EA_NOC (Mar 10 2015).pdf; Mapleton WW Class EA_consultation form.docx

Good afternoon,

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Drayton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to review the wastewater collection system.

Please find attached a Notice of Study Commencement and a project consultation feedback form.

Regards,

Jean-Louis Gaudet



Jean-Louis Gaudet

Project Coordinator
t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
CANADA

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March 10, 2015

Re: Township of Mapleton Wastewater Servicing Class EA
Notice of Study Commencement

To Whom It May Concern:

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Drayton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to review the wastewater collection system. Please find attached a Notice of Study Commencement and a project consultation feedback form.

The study is being conducted in accordance with Schedule C of the Municipal Class Environmental Assessment process (October 2000, amended 2007 and 2011), which is approved under the Ontario Environmental Assessment Act.

The Township wishes to consult with your community /organization to identify any potential concerns or issues it may have with respect to this project. We request that you indicate whether this project is of interest to you, the nature of the interest and whether you wish to be consulted further about the project.

For your convenience, a consultation feedback form has been provided with this letter, which can be returned to my colleague Jean-Louis Gaudet by mail, email at jeanlouis.gaudet@exp.com or by fax at (905) 793-0641.

Sincerely,

A handwritten signature in blue ink that reads 'A. P. J.' followed by a horizontal line.

Arun Jain
Manager – Water and Wastewater Infrastructure

exp Services Inc.



NOTICE OF STUDY COMMENCEMENT

TOWNSHIP OF MAPLETON

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR MAPLETON WASTEWATER SERVICING

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Drayton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to upgrade the wastewater collection system.

The study is being conducted in accordance with Schedule C of the Municipal Class Environmental Assessment process (October 2000, amended 2007 and 2011), which is approved under the Ontario Environmental Assessment Act.

Consultation with the public and review agencies is a key element of the Class EA process, and input will be sought throughout the study using various means including this notice and Public Open Houses. Details regarding upcoming Public Open Houses will be advertised as the study progresses.

Please contact any of the following project team members if you wish to be added to the project mailing list or if you have any questions, comments about the study.

<p>Brad McRoberts, MPA, P.Eng Director of Public Works Township of Mapleton P.O. Box 160 Drayton, Ontario N0G 1P0 Phone: (519) 638-3313 Ext 41 E-mail: BMcRoberts@mapleton.ca</p>	<p>Arun P. Jain, M.Eng., P.Eng. Manager – Water and Wastewater Infrastructure Exp Services Inc. 1595 Clark Blvd. Brampton, ON L6T 4V1 Phone: (905) 793-9800 x 2373 E-mail: arun.jain@exp.com</p>
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This Notice first issued on March 6, 2015



Township of Mapleton

Wastewater Servicing Municipal Class EA

Consultation Form

Organization/Department:

Contact Name:

Title:

Mailing address:

E-mail Address:

Phone/Fax:

<input checked="" type="checkbox"/>	Please Check All Responses Below That Apply:
<input type="checkbox"/>	Our organization/department does not require any further involvement in this study
<input type="checkbox"/>	Please keep us informed throughout the project
<input type="checkbox"/>	My organization's area of interest for this project includes (please indicate, if applicable):

Please fax, email or mail this form back to:

Jean-Louis Gaudet
exp Services Inc.

Fax: (905) 793-0641

E-mail: jeanlouis.gaudet@exp.com

Mailing address:
1595 Clark Blvd
Brampton, ON L6T 4V1

Jean Louis Gaudet

From: Arun Jain
Sent: March-10-15 6:52 PM
To: Jim Curry
Cc: bmcroberts@mapleton.ca; Jean Louis Gaudet
Subject: RE: Mapleton EA

Jim,

Thanks for your e-mail.

We are in the early stages of the EA and will keep your offer in mind and will contact you if required.

We are also adding you to the project mailing list so that you continue to receive the updates.

Regards,

Arun



Arun P. Jain, P.Eng., M.Eng.
Practice Lead - Linear Infrastructure, Central Ontario
exp Services Inc.
t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
CANADA

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From: Jim Curry [REDACTED]
Sent: Friday, March 06, 2015 8:31 AM
To: Arun Jain
Subject: Mapleton EA

Good Morning Arun,
Congratulations on your work on the EA for the Mapleton Wastewater Lagoon.
As a way of introduction I was a Councillor for 20 years until the recent election when I ran for Mayor.
Due to ALS my speech became an issue and is one of the reasons I am no longer on Council.

I was on the Drayton Council and then the Mapleton Council until last December. Over the years I was very involved with the Water and Wastewater system as a resident of Drayton as well as a M.Sc. Degree in Environmental Biology. I also was Chair of the Wastewater Committee and

attended the MOE meeting last Fall.

There are a couple of things that I would like to share with you.

One is that I am the one that suggested irrigation on an ongoing basis to our 25 acres of crop land. In the past few years I have done a great deal of study on spray irrigation. One of the leading spray irrigation in the US is Penn State College at State College in Pennsylvania. Last August I met with their Operations Manager, as well as one of the leading Wastewater Engineers in their ongoing spray irrigation (over 1 million US gallons per day). They have 400 acres of crop land as well as 400 acres of forest that they irrigate. Their team is willing to lend their expertise to Mapleton in such a project.

Secondly Dr. Eric Lyons, University of Guelph, has done extensive research in Wastewater Spray irrigation and they are willing to assemble a team to work with Mapleton. I have many discussions with Dr. Lyons and he has attended Council in 2014 to present a preliminary plan.

Our Quest Brands Inc. office is on Van Der Graaf Court in Brampton and if you are interested in meeting with me I can coordinate that when I am down to the office.

I would also like to be added to the mailing list as I am very interested in following all aspects of the Wastewater System for Mapleton.

Thanks

Regards,

Jim Curry B.Sc., M.Sc.
Product Manager
jcurry@questbrands.ca



Quest Brands Inc.
1 Van Der Graaf Court
Brampton · Ontario · Canada · L6T 5E5
ph: 905-789-6868 ext: 231

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: March-11-15 8:46 AM
To: 'Nathan & Rachel Duimering'
Cc: Arun Jain
Subject: RE: Township of Mapleton Wastewater Servicing Class EA - Notice of Study Commencement


Good morning Mr. Duimering,

Thank you for your response to the project notice and your interest in the project.

We will keep you advised as the project progresses and look forward to hearing your thoughts.

Regards,

Jean-Louis

From: Nathan & Rachel Duimering [mailto: 
Sent: Tuesday, March 10, 2015 6:30 PM
To: Jean Louis Gaudet
Cc: Arun Jain
Subject: Re: Township of Mapleton Wastewater Servicing Class EA - Notice of Study Commencement

Good evening Jean-Louis,

Please find attached the filled out feedback form. I am very interested in this EA and look forward to future communications to discuss solutions.

Nathan Duimering



From: [Jean Louis Gaudet](#)
Sent: Tuesday, March 10, 2015 4:16 PM
To: [Jean Louis Gaudet](#)
Cc: [Arun Jain](#)
Subject: Township of Mapleton Wastewater Servicing Class EA - Notice of Study Commencement

Good afternoon,

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Drayton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to review the wastewater collection system.

Please find attached a Notice of Study Commencement and a project consultation feedback form.

Regards,

Jean-Louis Gaudet



Jean-Louis Gaudet

Project Coordinator

t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com

1595 Clark Blvd.

Brampton, ON L6T 4V1

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Township of Mapleton

Wastewater Servicing Municipal Class EA

Consultation Form

Organization/Department: Property Owner

Contact Name: Nathan Duimering
Title: Owner
Mailing address: [REDACTED]
E-mail Address: [REDACTED]
Phone/Fax: [REDACTED]

<input checked="" type="checkbox"/>	Please Check All Responses Below That Apply:
<input type="checkbox"/>	Our organization/department does not require any further involvement in this study
<input checked="" type="checkbox"/>	Please keep us informed throughout the project
<input checked="" type="checkbox"/>	<p>My organization's area of interest for this project includes (please indicate, if applicable):</p> <p>I am a neighbouring property owner directly across from the existing facility. I would very much like to be apprised of the process and look forward to communicating and participating with you and the township towards developing a solution through the EA process.</p> <p>My initial interests/concerns regarding an expansion would be (continue to be): groundwater quality, safety, odor, noise, vegetative cover, as well as how a potential solution will service the community as a whole.</p> <p>I would like to encourage thorough communication during this process as previous EA communications have been very lackluster. If you have any questions or would like to meet to discuss my concerns please don't hesitate to ask.</p> <p>Nathan</p>

Jean Louis Gaudet

From: Larry Masseo <[REDACTED]>
Sent: March-11-15 8:25 AM
To: Jean Louis Gaudet
Cc: Brad McRoberts
Subject: Township of Mapleton Wastewater Servicing Class EA - Notice of Study Commencement
Attachments: Mapleton WWS Class EA_NOC (Mar 10 2015).pdf; Mapleton WW Class EA_consultation form.docx

Jean Louis,

I am unable to make it to the meeting on March 24 although Dave Peres from Activa will be in attendance.

I am interested in staying apprised of this project. Could you please ensure that my name and contact information is added to the project notification list?

Thanks,

Larry Masseo MCIP RPP
VICE PRESIDENT, PLANNING & DEVELOPMENT SERVICES

ACTIVA MANAGEMENT CORPORATION
55 COLUMBIA ST E, SUITE 2
WATERLOO, ON N2J 4N7

[REDACTED]

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From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]
Sent: Tuesday, March 10, 2015 4:16 PM
To: Jean Louis Gaudet
Cc: Arun Jain
Subject: Township of Mapleton Wastewater Servicing Class EA - Notice of Study Commencement

Good afternoon,

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Please find attached a Notice of Study Commencement and a project consultation feedback form.

Regards,

Jean-Louis Gaudet



Jean-Louis Gaudet

Project Coordinator

t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com

1595 Clark Blvd.

Brampton, ON L6T 4V1

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GLENAVILAND DEVELOPMENT CORPORATION

9 Kerr Crescent, Puslinch, Ontario NOB 2J0
 (519) 763-1542 FAX (519) 763-3757

FAX COVER PAGE

Date: March 12 th , 2015	To: exp Services Inc.
No. of Pages (including this page): 2	Attention: Jean-Louis Gaudet
Reply Required: _____ Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Fax No.: (905) 793-0641
From: Trevor Prior	Original to follow in mail _____ Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Message: Jean-Louis,

Consultation Form Incl.

We will attend March 24th meeting
 in Drayton.

Regards

Trevor Prior

Project Co-ordinator

Note: If you do not receive all of these pages,
 please call (519) 763-1542



Township of Mapleton
 Wastewater Servicing
 Municipal Class EA

Consultation Form

Organization/Department:

Contact Name: Glenaviland Development Corporation

Title: Fred Prior, President

Mailing address:

9 Kerr Crescent, Puslinch, ON, N0B 2J0

E-mail Address:

Phone/Fax: 519-763-1542 Fax 519-763-3757

<input checked="" type="checkbox"/>	Please Check All Responses Below That Apply:
<input type="checkbox"/>	Our organization/department does not require any further involvement in this study
<input checked="" type="checkbox"/>	Please keep us informed throughout the project
<input checked="" type="checkbox"/>	My organization's area of interest for this project includes (please indicate, if applicable): Future Sewage + Water Capacity to be allocated by Township of Mapleton to the Developers

Please fax, email or mail this form back to:

Jean-Louis Gaudet
 exp Services Inc.

Fax: (905) 793-0641
 E-mail: jeanlouis.gaudet@exp.com

Mailing address:
 1595 Clark Blvd
 Brampton, ON L6T 4V1



Township of Mapleton

Wastewater Servicing Municipal Class EA

Consultation Form

Organization/Department:	Mapleton Fire / Rescue
Contact Name:	Rick Richardson
Title:	Fire Chief
Mailing address:	Box 1 Drayton Ontario N0G1P0
E-mail Address:	mapleton.fc.701@gmail.com
Phone/Fax:	519-574-8387

<input checked="" type="checkbox"/>	Please Check All Responses Below That Apply:
<input type="checkbox"/>	Our organization/department does not require any further involvement in this study
<input checked="" type="checkbox"/>	Please keep us informed throughout the project
<input type="checkbox"/>	My organization's area of interest for this project includes (please indicate, if applicable):

Please fax, email or mail this form back to:

Jean-Louis Gaudet
exp Services Inc.

Fax: (905) 793-0841
E-mail: jeanlouis.gaudet@exp.com

Mailing address:
1595 Clark Blvd
Brampton, ON L6T 4V1

Jean Louis Gaudet

From: Larry Masseo [redacted]
Sent: March-11-15 9:11 AM
To: Jean Louis Gaudet
Cc: Arun Jain
Subject: RE: Township of Mapleton Wastewater Servicing Class EA - Notice of Study Commencement

Thanks Jean Louis.

Dave's email is: [redacted]

Regards,

Larry Masseo MCIP RPP
VICE PRESIDENT, PLANNING & DEVELOPMENT SERVICES

ACTIVA MANAGEMENT CORPORATION
55 COLUMBIA ST E, SUITE 2
WATERLOO, ON N2J 4N7

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From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: Wednesday, March 11, 2015 9:09 AM
To: Larry Masseo
Cc: Arun Jain
Subject: RE: Township of Mapleton Wastewater Servicing Class EA - Notice of Study Commencement

Good morning Larry,

Thank you for your e-mail. We have added you to the distribution list.

Sorry you're not able to attend the March 24 meeting. Since Dave will be attending for Activa, would you be able to forward us his contact information for when we send out the meeting information?

Thank you,

Jean-Louis

From: Larry Masseo [mailto:[redacted]]
Sent: Wednesday, March 11, 2015 8:25 AM
To: Jean Louis Gaudet

Cc: Brad McRoberts

Subject: Township of Mapleton Wastewater Servicing Class EA - Notice of Study Commencement

Jean Louis,

I am unable to make it to the meeting on March 24 although Dave Peres from Activa will be in attendance.

I am interested in staying apprised of this project. Could you please ensure that my name and contact information is added to the project notification list?

Thanks,

Larry Masseo MCIP RPP

VICE PRESIDENT, PLANNING & DEVELOPMENT SERVICES

ACTIVA MANAGEMENT CORPORATION

55 COLUMBIA ST E, SUITE 2

WATERLOO, ON N2J 4N7

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From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]

Sent: Tuesday, March 10, 2015 4:16 PM

To: Jean Louis Gaudet

Cc: Arun Jain

Subject: Township of Mapleton Wastewater Servicing Class EA - Notice of Study Commencement

Good afternoon,

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Drayton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to review the wastewater collection system.

Please find attached a Notice of Study Commencement and a project consultation feedback form.

Regards,

Jean-Louis Gaudet



Jean-Louis Gaudet

Project Coordinator

t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com

1595 Clark Blvd.

Brampton, ON L6T 4V1

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Jean Louis Gaudet

From: John Mohle [REDACTED]
Sent: March-11-15 6:18 PM
To: Jean Louis Gaudet
Cc: Arun Jain
Subject: RE: Township of Mapleton Wastewater Servicing Class EA - Notice of Study Commencement
Attachments: Mapleton WW Class EA_consultation form.docx

As requested

[jmohle](#)

From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: March-10-15 4:16 PM
To: Jean Louis Gaudet
Cc: Arun Jain
Subject: Township of Mapleton Wastewater Servicing Class EA - Notice of Study Commencement

Good afternoon,

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Drayton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to review the wastewater collection system.

Please find attached a Notice of Study Commencement and a project consultation feedback form.

Regards,

Jean-Louis Gaudet



Jean-Louis Gaudet
Project Coordinator
t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
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Township of Mapleton
 Wastewater Servicing
 Municipal Class EA

Consultation Form

Organization/Department:

Contact Name: billvanzwol,
 luke lise
 john mohle

Title:

Mailing address:wellingdale r r
 1 palmerston ontario
 n0g 1p0

E-mail [redacted] and
Address: [redacted]

Phone/Fax: 519 572 2008

<input checked="" type="checkbox"/>	Please Check All Responses Below That Apply:
	Our organization/department does not require any further involvement in this study
chek	Please keep us informed throughout the project
chek	My organization's area of interest for this project includes (please indicate, if applicable): township citizen, township developer, former owner of municipal construction contractor specializing in sewage and water facilities

exp Services Inc.

Company:
Re:
Project Number:
Date:

Please fax, email or mail this form back to:

Jean-Louis Gaudet
exp Services Inc.

Fax: (905) 793-0641

E-mail: jeanlouis.gaudet@exp.com

Mailing address:
1595 Clark Blvd
Brampton, ON L6T 4V1

Jean Louis Gaudet

From: Duimering, John Douglas:(EXW) <[REDACTED]>
Sent: March-17-15 10:39 AM
To: Jean Louis Gaudet
Cc: Brenda Duimering ([REDACTED]); Mapleton Energy ([REDACTED])
Subject: Mapleton EA Notice
Attachments: 2015 03 10 Notice of EA.pdf
Follow Up Flag: Follow up
Flag Status: Flagged

Jean-Louis,

Please see the attached request to be kept up to date on the Mapleton Waste Water Municipal Class EA.

Regards,
Doug Duimering
Business Development Manager



Office: [REDACTED]
[REDACTED] www.exeloncorp.com



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Township of Mapleton
Wastewater Servicing
Municipal Class EA

Consultation Form

Organization/Department:
Contact Name: *Doug Duimering + Brenda Duimering*
Title:
Mailing address:
E-mail Address:
Phone/Fax:

<input checked="" type="checkbox"/>	Please Check All Responses Below That Apply:
<input type="checkbox"/>	Our organization/department does not require any further involvement in this study
<input checked="" type="checkbox"/>	Please keep us informed throughout the project
<input type="checkbox"/>	My organization's area of interest for this project includes (please indicate, if applicable): <i>Adjacent property owner. The lagoon property drains onto our property</i>

Please fax, email or mail this form back to:

Jean-Louis Gaudet
exp Services Inc.

Fax: (905) 793-0641
E-mail: jeanlouis.gaudet@exp.com

Mailing address:
1595 Clark Blvd
Brampton, ON L6T 4V1

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: March-23-15 4:08 PM
To: [REDACTED]; [REDACTED]; [REDACTED]; [REDACTED]
Cc: Arun Jain; 'Brad McRoberts'; 'Larry Masseo'; Patty Sinnamon (PSinnamon@mapleton.ca) (PSinnamon@mapleton.ca)
Subject: RE: Wastewater Servicing Environmental Assessment
Attachments: Agenda_Stakeholder Meeting (Mar 24 2015)_Mapleton WW Servicing Class EA (final).pdf

Hello,

Please find attached the agenda for tomorrow morning's meeting regarding the Township of Mapleton's Wastewater Servicing Municipal Class EA.

Date: Tuesday, March 24

Time: 9:30 AM to 11:30 AM

Location: Township of Mapleton, Council Chambers, 7275 Sideroad 16, Drayton

We look forward to meeting you all and hearing your thoughts about the project.

Regards,

Jean-Louis Gaudet



Jean-Louis Gaudet

Project Coordinator

t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com

1595 Clark Blvd.

Brampton, ON L6T 4V1

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From: Brad McRoberts [<mailto:BMcRoberts@mapleton.ca>]

Sent: Wednesday, March 04, 2015 10:04 AM

To: [REDACTED]; [REDACTED]
Cc: Arun Jain; Jean Louis Gaudet
Subject: Wastewater Servicing Environmental Assessment

You will be shortly invited to a stakeholder consultation with our Wastewater Servicing EA consultant “exp Services Inc” to gather your input into the ongoing Wastewater Servicing EA. Mr. Jean Louis Gaudet will be reaching out to you shortly to provide you with some notices and a consultation form. They will also provide some details regards the purpose of the meeting at that time.

The meeting will be held at the Municipal Offices, 7275 Sideroad 16 at 9:30 am on March 24, 2015. We look forward to meeting with you.

Regards,

Brad McRoberts, MPA, P.Eng

Director of Public Works
Township of Mapleton
P.O. Box 160
Drayton, Ontario
N0G 1P0

Phone (519) 638-3313 Ext 41
Toll Free 1-800-385-7248
Fax (519) 638-5113



www.mapleton.ca



Meeting Agenda

Date: Tuesday, March 24, 2015 from 9:30 AM to 11:30 AM

Project Name: Mapleton Wastewater Servicing Municipal Class EA Project #: BRM-605325-A0

Subject: Stakeholder Meeting

Participants: Brad McRoberts, Patty Sinnamon – Township of Mapleton
Arun Jain, Jean-Louis Gaudet – exp
John Mohle – Wellington Construction
Trevor Prior – Glenaviland Development
Dave Peres - Activa Group

Location: Township of Mapleton
Council Chambers
7275 Sideroad 16, Drayton Prepared By: JL Gaudet

Distribution: All

Meeting Purpose:

- Introduce the project to stakeholder developers
- Obtain input on key issues related to the project and identify opportunities for solutions

1. Introductions
2. Project Scope
3. Project Objectives – what do you want from the project?
4. Project Drivers and the Problem Statement
5. Project Process
6. Discussion
 - What are the key issues with respect to the Drayton and Moorefield wastewater collection system and the Drayton Wastewater Pollution Control Plant?
 - What are the possible solutions to these issues?
7. Project Next Steps

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: March-23-15 4:56 PM
To: [REDACTED]
Subject: FW: Wastewater Servicing Environmental Assessment
Attachments: Agenda_Stakeholder Meeting (Mar 24 2015)_Mapleton WW Servicing Class EA (final).pdf

Hi John,

I sent this agenda to your 'wellingtonconstruction' e-mail, but I thought I would forward to your gmail address as well, just to make sure you get this.

Thanks, and I look forward to meeting you tomorrow.

Jean-Louis

From: Jean Louis Gaudet
Sent: Monday, March 23, 2015 4:08 PM
To: [REDACTED]; [REDACTED]; [REDACTED]
Cc: Arun Jain; 'Brad McRoberts'; 'Larry Masseo'; Patty Sinnamon (PSinnamon@mapleton.ca) (PSinnamon@mapleton.ca)
Subject: RE: Wastewater Servicing Environmental Assessment

Hello,

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Date: Tuesday, March 24
Time: 9:30 AM to 11:30 AM
Location: Township of Mapleton, Council Chambers, 7275 Sideroad 16, Drayton

We look forward to meeting you all and hearing your thoughts about the project.

Regards,

Jean-Louis Gaudet



Jean-Louis Gaudet
Project Coordinator
t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com

1595 Clark Blvd.
Brampton, ON L6T 4V1
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From: Brad McRoberts [<mailto:BMcRoberts@mapleton.ca>]

Sent: Wednesday, March 04, 2015 10:04 AM

To: [REDACTED]; [REDACTED]; [REDACTED]

Cc: Arun Jain; Jean Louis Gaudet

Subject: Wastewater Servicing Environmental Assessment

You will be shortly invited to a stakeholder consultation with our Wastewater Servicing EA consultant "exp Services Inc" to gather your input into the ongoing Wastewater Servicing EA. Mr. Jean Louis Gaudet will be reaching out to you shortly to provide you with some notices and a consultation form. They will also provide some details regards the purpose of the meeting at that time.

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Regards,

Brad McRoberts, MPA, P.Eng

Director of Public Works
Township of Mapleton
P.O. Box 160
Drayton, Ontario
NOG 1P0

Phone (519) 638-3313 Ext 41
Toll Free 1-800-385-7248
Fax (519) 638-5113



www.mapleton.ca

Jean Louis Gaudet

From: Trevor Prior [REDACTED]
Sent: April-10-15 3:21 PM
To: Jean Louis Gaudet
Subject: Township of Mapleton - Treated Effluent for Golf Course
Attachments: Effluent dlm-Curry GLD January 30th 2014.pdf

Jean Louis,

Thank you for including us in the meeting you held several weeks back at the Township.

Prior to the Municipal Elections last year, former Councillor Jim Curry was trying to gain traction with MOE on uses for using Treated Effluent from Township Lagoons.

In support of his effort, our golf course architect, David Moote, provided a detailed letter describing our attempts with MOE and provided golf course data of how our golf course is designed to accept the Townships effluent.

Said letter is attached and hopefully of assistance to you.

Regards,
Trevor Prior
Glenaviland Development Corporation
[REDACTED]



Consultants to Golf
Courses and Living
Communities

Planning . Architecture . Management & The Environment

R.F. MOOTE & ASSOCIATES LTD. ~ *rfm&a* | MOOTE

33 Chapel Street
BRAMPTON, ONTARIO
CANADA L6W 2H5
Telephone 905.454.5222
Fax 905.454.5589
info@mootegolfarchitects.com

January 31st, 2014

Township of Mapleton
7275 Sideroad 16
Drayton, Ontario N0G 1P0

Attention: Mr. Jim Curry, Municipal Councillor

Re: Golf Course Irrigation Regime & Treated Municipal Effluent/ Lagoon Water
Drayton Ridge Golf Course, also referenced as Glenaviland Estates Golf Course
Township of Mapleton, Village of Drayton, Province of Ontario

Dear Councillor Curry,

On behalf of the Glenaviland Development Corporation (GDC), the purpose of this correspondence is to provide supplemental information pertaining to your on-going review and assessment of the potential use of 'treated effluent' from the municipal sewage treatment facility (Drayton Lagoons), located adjacent to the Drayton Ridge Estates development site, for use on the proposed Drayton Ridge Golf Course slated to be situated within the development envelope. Without patronization, your championing the use of 'EFFLUENT' on the "future golf course" is highly commendable from both future community development and environmental stewardship perspectives; the latter, a cause that has been at the core of GDC's viability work from the initial stages of project conceptualization.

The golf course routing plan, architectural design, specifications and environmental turf and water management programs for a nine-hole golf course and learning facility were undertaken by our firm, R.F. Moote & Associates Ltd. (*rfm&a* | MOOTE). Tested environmental stewardship, constraint and sustainability are at the heart of the design, as well as operational platform. Reference to the accompanying '*Golf Study & Overview*', *Glenaviland Estates Golf Course, October 6th, 2010* will illustrate the diligence, dedication and commitment of the GDC team to this fundamental goal.

Being the lifeline of the "future golf course", all possible sources were studied for the provision and supply of water for irrigation: surface run-off capture, Conestogo River, processed municipal 'EFFLUENT' and groundwater (wells). It was concluded that the development of a 'groundwater' well was the most effective and viable source supplemented with surface water capture.

That said, as per reference above, the GDC project principals from the outset and the golf architect had identified the use of 'EFFLUENT' from the adjacent municipal sanitary Drayton Lagoons

complex as a potential source, or partial source of irrigation water, one that offered environmentally 'green' technical pros and favourable public perception & stewardship. MOE senior officials were contacted during the early review and assessment stages of the golf project. Hitesh Vaja (MOE Toronto Sanitary approvals, 2 St. Clair) was encouraging and supportive as was Jamie Connelly (MOE Hamilton Region); later in the process after the use of effluent was discarded, at least in part for the short term, Kim Chow of MOE offered positive candor and encouragement regarding the incorporation of effluent use infrastructure at the front end of the project as part of possible future irrigation water sourcing regime. In spite of this support, plus that of the project planner and ownership principals plus the municipality in terms of the prospect and value to the community, even if formal approval is several years off, the project engineers recommended that the effluent route, although rationally admirable, not be pursued due to the time it would take for CofA changes, legal agreements between municipality-land owner-provincial authority, etc. A regulated MOE Permit-To-Take –Water (PTTW) including on-going site monitoring will regulate water sourcing via groundwater (well) source. EFFLUENT use has NOT been included in the MOE PTTW application; however, it has been duly noted under the Water Conservation program (future) as being built-in now for potential future use as needed and if approved by the various levels and MOE departments at some point in time to come. Note too the GDC project ownership, golf architect and planners from the outset had been cautioned that any and all water taking regimes in the province over time may need to shift from one source to another, or some combination thereof involving reservoiring, etc. as local supply & sustainability potentially change and/or public water-taking policy shifts. A combination of sources incorporated at the front end of golf course development, even as potential non-guaranteed CAPPED-OFF contingencies, would keep options open in the future and in the short term perhaps even offer a viable option.

Supplemental to your discussion with University of Guelph turfgrass specialist, Dr. E. Lyons, your own research and on-going dialogue with GDC principals including their letter to you dated January 30th, 2014, information follows that hopefully will assist in your study of golf course EFFLUENT use as it relates to the development challenges present in Drayton.

I. BENEFITS OF USING 'EFFLUENT'

- Minimize/reduce direct annual discharge from Drayton Lagoons into Conestogo River per water quality, habitat, etc.;
- Improve effluent water quality eventually making it to the Conestogo River over-land & via shallow groundwater;
- Increase 'effective' capacity of the Lagoon infra-structure per future Drayton area development and growth;
- Community goodwill and optics – tangible confirmation of Municipal and GDC developer commitment to 'Best Management' practices and environmental stewardship plus best interests of the community;
- Reduce golf course dependency on limited groundwater (wells) resource use for irrigation;
- Provides golf course with alternative water supply resource contingency should there be MOE PTTW resource policy changes and/or changes to the originally approved groundwater supply program;
- Expeditious and cost effective mechanism for delivery of irrigation water noting on-course cost savings in pumps/motors, hydro, etc.

II. QUALITY OF 'EFFLUENT'

- See accompanying *APPENDIX I – Environmental Turf Management Program: Soil, Tissue and Water Analysis 2009*. Specific reference to Lagoon water results will be helpful; however, please note that for best turfgrass management, soil, tissue, etc. results need to be considered in conjunction with Lagoon water results.
- For the immediate study period, please refer to Section 1. Report 342724 – Water Analysis, Sample 5 – Sewage Lagoon 1; Section 7, Microbiological Report 342603 – Sewage Lagoon 1; Section 10. Report 34958 – Sewage Lagoon 3; and Section 11. Report 348903 – Sewage Lagoon 3.
- Reference should also be made to Ontario Clean Water Agency Report 2011-2013 which exclusively summarizes Drayton Lagoon results.
- Informal testing of Lagoon water in 2009 per Agri-Food Lab results portrays a water profile that can be suitable for quality, sustainable turfgrass management with nominal mitigation/treatment in the following areas – pH, chlorides, sodium, Bicarbonate. AS well, although sampling methodology may have resulted in skewed microbiological readings, Faecal Trep, Faecal Coliform, E. Coli and Total Coliform are slightly higher than preferred. For comparative reference, groundwater (well) water 'quality' measures from the source will also be required to mitigate the impact of high Bicarbonate levels, pH and Total Dissolved Solids to quality sustainable turf growth.

III. ANNUAL WATER VOLUME REQUIREMENTS FOR IRRIGATION

Water Demand for Golf Course Irrigation at Glenaviland Estates in Drayton

Projected Maximum Amount per Minute:	500 USG
Projected Maximum Hours Per Day:	10 hours
Projected Maximum Volume per Day:	300,000 USG
Projected Typical Volume per Day:	210,000 USG
Projected Maximum Irrigation Days:	125 days
Projected Earliest Calendar Date of Taking:	April 1 st
Projected Latest Calendar Date of Taking:	October 31 st
Projected Agronomic Turf Irrigation Demand	32,765,094 USG
Projected Annual Maximum Irrigation Water Use:	37,500,000 USG
Projected Annual Average Irrigation Water Use:	26,250,000 USG

IV. NUMBER AND VOLUMES OF STORAGE PONDS/RESERVOIRS, including 'clay-lined' ponds

- In the final design of the golf course and its integral water supply/irrigation system components, ten (10) ponds/reservoir holding areas have been incorporated in addition to the existing SWM (Storm Water Management) pond. Total Water Storage capacity on-site will be 21,616,111 US Gallons. Utilizing preferred drawdowns varying from 3.0' to 7.0' at specific

ponds which mitigate nutrient and particulate dilution and decantation requirements plus strategic golf play, the Total Available Preferred Drawdown in US gallons is 6,589,401. See Table I immediately following.

Table I – Proposed Pond Capacity

Glenaviland Estates Golf Course ~ Proposed Pond Capacity ~ 'Regulation' 9 Hole Routing Plan						
9 Hole Routing Plan updated august 25 2010		Water Depth	Total Water Storage Capacity	Preferred Drawdown For Irrigation	Water Available Utilizing Preferred Drawdown In Gallons US	
Pond	m2	acres	ft	In Gallons US	ft	
P1	6,108	1.51	10	4,167,717.5	3.0	1,250,315.2
P2	12,545	3.10	10	8,559,923.9	3.0	2,567,977.2
		0.00	10	-	3.0	-
		0.00		-		-
P5	379	0.09		-		-
P6	5,441	1.34	10	3,712,598.3	3.0	1,113,779.5
P7	295	0.07	4	80,515.8	-	-
P8	1,599	0.39	11	1,200,163.4	4.0	436,423.1
P10	2764	0.68	13	2,451,775.1	6.0	1,131,588.5
P11	187	0.05	14	178,636.0	7.0	89,318.0
P12	538	0.13	8	293,678.1		-
sww	1460	0.36062	6	597727.65		
P13	684	0.17	8	373,375.1		-
	32,000	7.90		21,616,111		6,589,401

- To the topic at hand, specific ponds/reservoirs have been designated for future, albeit speculative, use as 'effluent water' retention locations. From Table I, Ponds P5, P6, P7, P8, P10, P11, P12 and P13, all located above the 100 year Floodline as per MOE and GRCA discussion, will be 'clay-lined' creating an impermeable pond base suitable for retention of effluent without water leakage/migration into the shallow ground water moving through shallow soil horizons around these pond locations. These ponds are typically at the highest elevations within the golf course land envelope and minimally subject to run off collection.
- Total Effluent Storage capacity in the eight (8) clay-lined ponds will be 3,830,575 US Gallons. Please note however, that the Primary effluent storage ponds located at the highest elevation and closest to the municipal sewage lagoon source are P8, P10 & P11 which together provide storage of 1,639,521 US gallons.
- Note that during the recent site grading of the GDC residential lands, stockpiles of clay soil have been stored on-site. This material is slated to be used to 'line' the bases of the EFFLUENT designated ponds, should effluent become available in the future. The purpose of the clay-lining is to prevent water from leaking from the ponds and infiltrating the ground water. This condition is fundamental to the regulatory compliance to the integration of effluent into the Drayton Ridge GC irrigation regime.

V. DESIGNATED GOLF COURSE AREAS FOR DIRECT 4 SEASON 'EFFLUENT' IRRIGATION

- Beyond EFFLUENT being stored in clay-lined ponds and reservoirs, the golf course has been set up for direct spray irrigation, without being reservoired, to Fairway Primary Rough, Secondary Rough and Fescue Rough areas.
- Total AREA that can receive direct effluent is 27.0 Acres. Application should be judicious and not exceed 1.0" per week, otherwise 'rough' turf stands will thin, lose their sustaining hardiness & tolerances, as well as become undesirably dependent on irrigation. For reference 1 acre/foot is approximately 320,000 US gallons; therefore, under hypothetically ideal site conditions over 12 weeks on 27.0 acres, a volume of 8,640,00 US gallons could be received.
- In an ideal world the best-case situation would be for there to be a 'tap' installed at the Lagoons which could be opened by Drayton Ridge GC personnel as needed throughout the golf season April - October funnelling EFFLUENT directly to the golf course. This would be a major boost to golf course operational budget constraint and efficiency; however, the reality is that Lagoon discharge historically has been in-between golf seasons for the most part. Although THIS HAS been looked upon as a limiting factor to EFFLUENT use for the benefit of the golf operation, it should not be looked upon as limiting in the context of INCREASING the CAPACITY of the Drayton Lagoon facility.
- EFFLUENT can be discharged to ROUGH areas of the golf course during the non-golf season including during the winter. Micro-bacterial activity can be very effective in freezing temperatures. Logistically, self-draining lines and spray nozzles, similar to that utilized in ski hill snow-making and fire-hydrant applications, can be cost-effectively incorporated which, although not beneficial to the golf operation per se, will benefit the Community in terms of sewage processing capacity. In some situations, Nordic ski trails can be a co-incidental benefit during certain weather circumstances.

'Trust that this rudimentary commentary is helpful Jim. Please feel free to touch base should you have further questions. 'Apologies for the tardiness in forwarding this information. ALSO please see the accompanying documents per Golf Study & Overview, Appendix I – Soil, Tissue and Water AFL Analysis 2009. 'Very best wishes with this important initiative.

Yours truly,



David L. Moote asgca
Sr. Golf Architect & Environmental Turf Management Consultant
RF Moote & Associates Ltd. ~ rfm&a | MOOTE
905.866.3295 . david@mootegolfarchitects.com

*Attachments: Golf Study & Overview, October 6th, 2014
APPENDIX I – Soil, Tissue and Water AFL Sample Analysis, 2009
Ontario Clean Water Agency Report Binder 2011-2013.. Drayton Lagoons*

Jean Louis Gaudet

From: Arun Jain
Sent: June-02-15 5:30 PM
To: John Mohle
Cc: bmcroberts@mapleton.ca; Jean Louis Gaudet
Subject: RE: Township of Mapleton Wastewater Servicing Class EA - Notice of Study Commencement

John,

Thanks for your mail and also the kind comments after the meeting.

The expanded discharge window assessment that we presented in the council meeting on May 26, 2015 is based on the new proposed effluent limit for ammonia nitrogen of 3 mg/L. Unfortunately, the existing process at the plant is operating to an effluent limit of 5 mg/L for ammonia nitrogen. It will not be possible to apply the results of analysis that we conducted until the new process/treatment improvements are in place and the effluent limits are revised appropriately as part of the MOECC's approval of the Final Environmental Assessment (EA) Report and issuance of a new Environmental Compliance Approval (ECA).

Regardless, we appreciate your thought process and will be happy to answer any other question that you may have.

Regards,

Arun



Arun P. Jain, P.Eng., M.Eng.

Practice Lead - Linear Infrastructure, Central Ontario
exp Services Inc.
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From: John Mohle [mailto: [REDACTED]]
Sent: Tuesday, May 26, 2015 3:32 PM
To: Jean Louis Gaudet
Cc: Arun Jain
Subject: RE: Township of Mapleton Wastewater Servicing Class EA - Notice of Study Commencement

hi All

one other thot from today.....

can rainwater/additional discharge windo matter be an intermediate step to alleviate current stp hold issue and then followed up by plant expansion(whatever its final form)

thx:)

jm

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]
Sent: March-10-15 4:16 PM
To: Jean Louis Gaudet
Cc: Arun Jain
Subject: Township of Mapleton Wastewater Servicing Class EA - Notice of Study Commencement

Good afternoon,

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Drayton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to review the wastewater collection system.

Please find attached a Notice of Study Commencement and a project consultation feedback form.

Regards,

Jean-Louis Gaudet



Jean-Louis Gaudet
Project Coordinator
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Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: June-05-15 10:08 AM
To: Jean Louis Gaudet
Subject: Mapleton Wastewater Servicing Municipal Class EA - Notice of PIC #1
Attachments: Mapleton Wastewater Class EA_PIC 1 Notice.pdf

Good morning,

Please find attached a notice of Public Information Centre #1 for the Mapleton Wastewater Servicing Municipal Class Environmental Assessment, to be held on **June 16, 2015** from 4:00 pm to 7:00 pm at the Township of Mapleton Council Chambers .

Regards,

Jean-Louis



Jean-Louis Gaudet

Project Coordinator

t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com

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TOWNSHIP OF MAPLETON
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR
MAPLETON WASTEWATER SERVICING

NOTICE OF PUBLIC INFORMATION CENTRE

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Mapleton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to upgrade the wastewater collection system.

The study is being conducted in accordance with Schedule C of the Municipal Class Environmental Assessment process (October 2000, amended 2007 and 2011), which is approved under the Ontario Environmental Assessment Act. A Public Information Centre (PIC) is planned to provide further information to the public on the project and to receive input and comment from interested persons:

Date, Time and Location:

Time: 4:00 pm to 7:00 pm
Date: June 16, 2015
Location: Township of Mapleton Council Chambers
7275 Sideroad 16
Drayton, ON

Following the PIC, further comments are invited for incorporation into the planning and design of the project and will be received until July 3, 2015.

Please contact any of the following project team members if you wish to be added to the project mailing list or if you have any questions or comments about the study.

Brad McRoberts, MPA, P.Eng
Director of Public Works
Township of Mapleton
P.O. Box 160
Drayton, Ontario N0G 1P0
Phone: (519) 638-3313 Ext 41
E-mail: BMcRoberts@mapleton.ca

Arun P. Jain, M.Eng., P.Eng.
Manager – Water and Wastewater Infrastructure
Exp Services Inc.
1595 Clark Blvd.
Brampton, ON L6T 4V1
Phone: (905) 793-9800 x 2373
E-mail: arun.jain@exp.com

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: June-09-15 9:08 AM
To: 'Jim Curry'
Cc: 'Arun Jain' (Arun.Jain@exp.com); Brad McRoberts <BMcRoberts@mapleton.ca> (BMcRoberts@mapleton.ca)
Subject: RE: Mapleton Wastewater Servicing Municipal Class EA - Notice of PIC #1

Good morning Jim,

Thanks for your question.

The Class EA is currently in Phase 2, and the irrigation alternative was evaluated along with other discharge alternatives, such as full discharge or an expanded discharge window. The recommended discharge alternative for the WPCP is the expanded discharge window. These results, along with other project information, shall be presented at the PIC on June 16th.

Regards,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator

t: +1.905.793.9809 x2344 | e: jeanlouis.gaudet@exp.com

1595 Clark Boulevard

Brampton, ON L6T 4V1

Canada

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From: Jim Curry [mailto:████████████████████]
Sent: June-05-15 2:08 PM
To: Jean Louis Gaudet
Subject: RE: Mapleton Wastewater Servicing Municipal Class EA - Notice of PIC #1

Jean-Louis,

Thanks for this news.

Is the irrigation still be considered?

Regards,

Jim Curry

Jim Curry

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]
Sent: June-05-15 10:08 AM
To: Jean Louis Gaudet
Subject: Mapleton Wastewater Servicing Municipal Class EA - Notice of PIC #1

Good morning,

Please find attached a notice of Public Information Centre #1 for the Mapleton Wastewater Servicing Municipal Class Environmental Assessment, to be held on **June 16, 2015** from 4:00 pm to 7:00 pm at the Township of Mapleton Council Chambers .

Regards,

Jean-Louis



Jean-Louis Gaudet
Project Coordinator
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Jean Louis Gaudet

From: John Mohle <[REDACTED]>
Sent: July-07-15 10:41 AM
To: Jean Louis Gaudet; Arun Jain
Subject: FW: C of A amendment

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Gents

just confirming u rec'd this:)

thx:)

jm

From: Patty Sinnamon [mailto:PSinnamon@mapleton.ca]
Sent: June-16-15 2:24 PM
To: John Mohle; Neil Driscoll; Dennis Craven; Michael Martin; Marlene Ottens; Lori Woodham
Cc: Brad McRoberts
Subject: RE: C of A amendment

John, I will forward your inquiry to our consultants who will be preparing the application.

Patty Sinnamon

CAO Clerk, Dipl.M.M.
Township of Mapleton
7275 Sideroad 16, Box 160, Drayton, ON N0G 1P0
psinnamon@mapleton.ca
Tel: 519.638.3313, Ext. 24
Fax: 519.638.5113
www.mapleton.ca



From: John Mohle [mailto:[REDACTED]]
Sent: Monday, June 15, 2015 3:18 PM

To: Neil Driscoll; Dennis Craven; Michael Martin; Marlene Ottens; Lori Woodham
Cc: Patty Sinnamon
Subject: C of A amendment

hi All

per attached letter stating that municipal leadership will be submitting a C of A amendment to extend discharge period:

-could a request be made to increase capacity to 750m² plus the current precipitation calculation or some other collaborative attempt ?

please advise

thx:)

jm

Jean Louis Gaudet

From: Bill Vanzwol <[REDACTED]>
Sent: June-18-15 3:48 PM
To: Jean Louis Gaudet; Jmohle; Brad McRoberts
Subject: Comments re public meeting in township of Mapleton
Attachments: bizhub22220150618141115.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi All. As per request by Jean, here are my following observations:

A: currently the effluent to the river **is not measured** it is estimated (as the reports have indicated)

B: The precipitation (+/- 150 cubic meter per day as per your report) is added to influent of the plant, and the evaporation is not mentioned at all in the Mapleton WPCP CPE report.

C: As you can see from the attached information, this is not correct. (these reports indicate about 900 mm precipitation and about 500mm evaporation on average.

D: As we have suggested before, for a good design, you have to **measure** what goes to the river.

E: To ignore the evaporation and design with a estimated out flow you are not designing as per actual field conditions.

F: As your reports indicate the river can take all kinds of flow. (potential annual discharge 661.726 cubic meter)

G: For the municipality to make good decisions you should know(and keep track) what you are actually discharging to the river. (I am sure the MOE will like a measured quantity better than a estimated one) Note: this will also keep the operators on their toes as well :-).

Hope fully this input will be taken into consideration. Thanks. Bill van Zwol (Wellingdale construction)

Waterloo Wellington, Ontario Canada Climate Data
Waterloo Wellington Average Monthly Climate Data & Extremes



Forecasts & Conditions Canada Radar Canada Satellites Weather Alerts Climate Directory

Parameter	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Year	Code
Daily Average (°C)	-7.1	-6.4	-1.2	5.8	12.5	17.3	19.8	18.7	14.3	8.2	2.3	-3.8	6.7	A
Minimum (°C)	-2.8	-2.8	-2.4	1.7	1.8	2.4	1.1	1.3	1	1.7	2.5	2.8	6.8	A
Daily Maximum (°C)	-3.1	-2	3.3	11.1	18.6	23.4	25.9	24.7	20.2	13.4	6.1	-0.2	11.8	A
Daily Minimum (°C)	-11	-10.7	-5.8	0.4	0.3	11.2	13.7	12.7	8.4	2.9	-1.5	-7.3	1.6	A
Extreme Maximum (°C)	14.2	13.7	24.4	29.2	32	36.1	36	30.8	33.3	29.4	21.7	18.7		
Date (yyyy/dd)	1995/14	2000/26	2000/08	1990/25	1987/28	1988/25	1988/07+	2001/08	1973/03	1971/02	1974/01	1982/03		
Extreme Minimum (°C)	-31.8	-29.2	-25.4	-14.1	-3.9	-0.6	5	1.1	-3.7	-6.3	-15.4	-17.2		
Date (yyyy/dd)	1984/18	1979/18	1980/02	1972/08	1970/07	1972/11	1971/03+	1982/29	1989/27	1978/27	2000/23	1980/25		
Rainfall (mm)	27.9	25.6	45.1	69.1	77.9	81.3	91.8	86.3	85.8	64.5	70.4	39.5	765	A
Snowfall (cm)	43.5	30.8	24.1	7.8	0.9	0	0	0	0	3.2	13.7	38.5	150.5	A
Precipitation (mm)	64.4	51.5	69.9	76.9	78.3	81.3	91.8	86.3	85.8	65.6	82.7	73.6	907.9	A
Average Snow Depth (cm)	12	14	6	0	0	0	0	0	0	0	1	5	3	A
Median Snow Depth (cm)	12	14	5	0	0	0	0	0	0	0	0	4	3	A
Record Depth of Melts-and (cm)	15	13	1	0	0	0	0	0	0	0	1	8	3	A
Extreme Daily Rainfall (mm)	43	47	36.8	53.4	51.8	54.2	89.8	73.7	74.4	39.2	56	36.8		
Date (yyyy/dd)	1995/15	2001/09	1991/27	1992/16	1996/20	1984/17	1983/18	1975/24	1986/10	1977/08	1992/12	1990/29		
Extreme Daily Snowfall (cm)	16.8	17.8	21.3	34	6	0	0	0	0	1	16.5	23.8		
Date (yyyy/dd)	1982/14	1983/12	1980/08	1973/02	1984/13	1970/01+	1970/01+	1970/01+	1970/01+	1997/28	1986/20	1971/30		
Extreme Daily Precipitation (mm)	43	47	53.8	53.4	51.8	54.2	89.8	73.7	74.4	39.2	56	36.8		
Date (yyyy/dd)	1995/15	2001/09	1976/02	1992/16	1996/20	1984/17	1983/18	1975/24	1986/10	1977/08	1992/12	1990/29		
Extreme Snow Depth (cm)	36	34	37	18	0	0	0	0	0	2	13	30		
Date (yyyy/dd)	1976/24+	1982/14	1982/18	1975/04+	1970/01+	1970/01+	1970/01+	1970/01+	1970/01+	1986/21	1984/21	2000/23		

Data courtesy of Environment Canada



Grocery Stores FEAR Him

Man creates brain-dead simple system to cutting your grocery bill by 90% (HINT: It's NOT Coupons)... [Click Here](#)

Description

The above climate weather data chart for Waterloo Wellington, Ontario Canada shows average monthly weather statistics with historic daily extremes. Weather climate statistics include monthly averages, maximum and minimum average mean temperatures, mean rainfall, mean snowfall & daily high and low extremes for temperature.

There are many ways to calculate "climate normals"; the most useful ones adhere to accepted standards. The WMO considers thirty years long enough to eliminate year-to-year variations.

Snow cover is the depth of snow on the ground, which is measured at several different points of the immediate area which is then averaged.

Code Legend

Normals for some of the statistics are taken from less than 30 years of records. The minimum number of years are defined by a "code" in the far right hand column. The Code Legend is shown below:

- * "A": No more than 3 consecutive or 5 total missing years between 1971 to 2000.
- * "B": At least 25 years of record between 1971 and 2000.
- * "C": At least 20 years of record between 1971 and 2000.
- * "D": At least 15 years of record between 1971 and 2000.

The elevation is 1036.30 m

Southwestern Ontario

Average amount of rain and snow a year

Days	Place	Inches	Millimetres
137	Chatham-Kent	34.7	882
167	Guelph	36.7	931
168	London	39.8	1012
177	Owen Sound	43.9	1114
154	Point Pelee National Park	36.3	922
150	Sarnia	34.6	878
166	Waterloo	36.1	916
150	Windsor	36.8	935

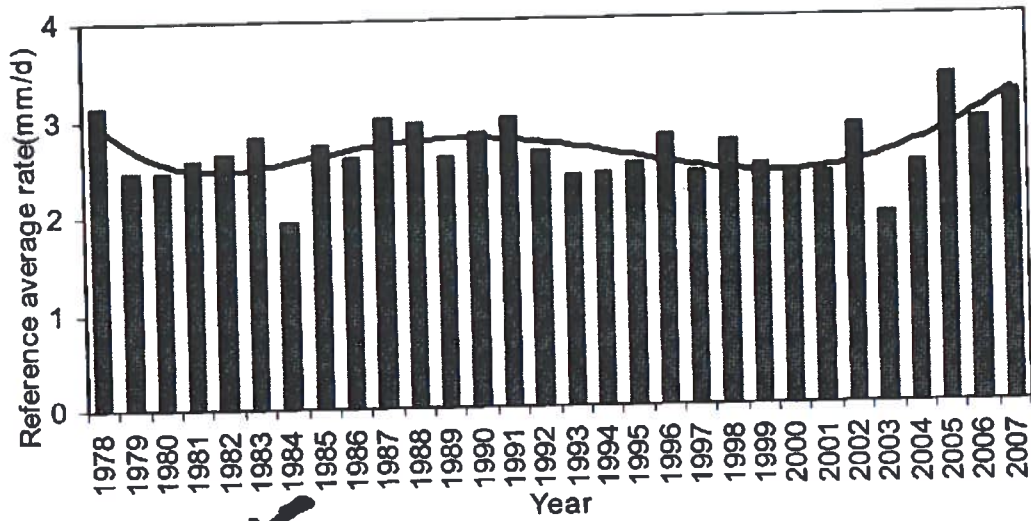
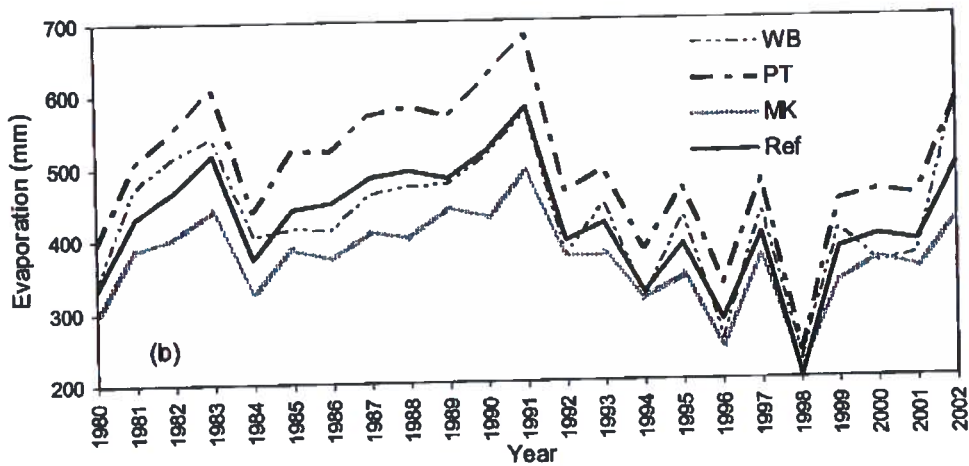
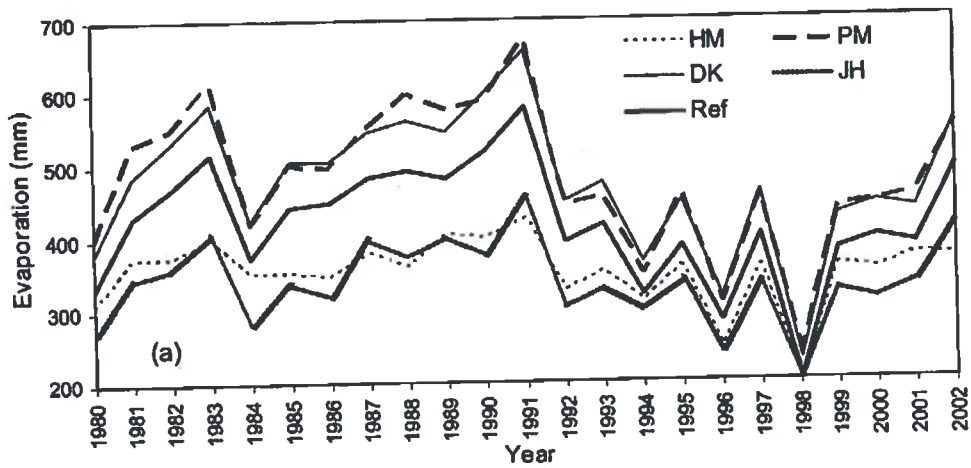


Figure 5. Annual reference evaporation rate averaged over all the days in the span of a year (the bar showing averaged evaporation rate in mm/d, the solid line showing an inter-annual variation pattern of the rates).




oe well applied to the study area, for example changing its constant 1.26. One common concern for the three methods (DK, PM, PT) which all overestimate evaporation is noted but has not been identified: they all include a net radiation in their equations. If the net radiation were not correctly measured or calculated, a systematic overestimation would have occurred.

The sixth-ranked Hamon method (Equation (8)) does not give good estimates simply because it only considers air temperature as the controlling factor. Unless the meteorological data is severely restricted, this method is not recommended for lake evaporation. The seventh-ranked Jensen-Haise method (Equation (14)) includes very site-dependent parameters, and may be not applicable to our study lake without proper adjustment. The evaporation is badly underestimated.

The data length of 30 years would remind that a timely trend analysis may be worthwhile. All meteorological and energy budget variables were checked to find potential trends or periodic cycles in the 30 years, but none has been found to have a significant trend at Dickie Lake.

Linacre [40] proposed that lake-evaporation rate is generally decreasing at around 0.1 mm/d per decade around the world, chiefly on account of reduced solar radiation. The estimated rates by energy budget method for Dickie Lake do not show such a reduction.

The averaged daily rate in ice-free season for three decades (1981–1990, 1991–2000, 2001–2007, with the third decade being 7 years only) is 2.66, 2.57 and 2.74 mm/d respectively, the rate decreases by 0.09 mm/d from the first to second decade, but increases 0.17 mm/d from the second to third decade.



Author Information

1

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2

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3

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- [Cited By \(/doi/10.1002/hyp.5842/citedby\)](https://doi.org/10.1002/hyp.5842/citedby)

[Get PDF \(367K\) \(/doi/10.1002/hyp.5842/epdf\)](#)[Get PDF \(367K\) \(/doi/10.1002/hyp.5842/pdf\)](#)

Abstract

Evapotranspiration (ET) was measured via the eddy covariance technique at a shrub bog peatland in southeastern Ontario for 5 years. For most of the study period the temperature was above normal. Precipitation was variable, but, in 2 years, late summer dry periods resulted in an extended period of deep drawdown of the water table (WT). Growing-season (May–September) daily ET varied considerably; maximum ET rates were 4 to 5 mm day⁻¹. Winter ET rates were an order of magnitude smaller than in summer, yet the total winter ET loss was important, accounting for 23 to 30% of the annual ET water loss. Annual precipitation exceeded annual ET by 1.55 to 1.94 times. 

During the growing season, daily ET was closely related to daily potential evaporation (PET); however, the slope of this relationship was statistically different in some years. In contrast, ET and WT were only weakly related in most years. When ET was sorted into 5 cm WT classes there was no difference in mean ET across most WT classes; only the two deepest WT classes had significantly smaller mean ET. The ratio ET/PET followed the same pattern. We present a conceptual model of ET that relates WT, soil hydraulic properties and moss and vascular plant processes. Copyright © 2005 John Wiley & Sons, Ltd.

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**ESTMATED SEASONAL AND ANNUAL
WATER SURPLUS IN ONTARIO**

G.W. Parkin, C. Wagner-Riddle, D.J. Fallow & D.M. Brown
Published online: 23 Jan 2013.

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To link to this article: <http://dx.doi.org/10.4296/cwrj2404277>

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season was assumed to be of constant duration at all sites for all years. Default values included with the SHAW model version 2.3 were selected for the plant, canopy, and crop residue parameters.

Model Runs and Output

The SHAW model was run on daily climate data from December 1, 1960 to November 30, 1990 for all four sites and soil profiles as described in Tables 1 and 2. The generated output included daily totals of intercepted precipitation, evaporation, crop transpiration, drainage, runoff and water storage in the canopy, soil, snow, and residue, and the mass balance errors. Based on this output, the mean annual evapotranspiration, deep drainage below 1.25m, and surface runoff as well as seasonal totals were calculated for each site. Months were grouped into seasons as follows: winter (December, January, February and March), spring (April and May),

summer (June, July and August), and fall (September, October and November). In addition to the predominant soil type found in each of the four sites, the North Gower soil type (used for Ottawa site) was used for runs of the model at Harrow, Guelph and Kapuskasing, in order to provide differences in water surplus caused by climate only. The standard deviations for the annual and seasonal averages of the three components of the water balance were calculated as well.

Results and Discussion

Annual Water Balance

Thirty-year averages and standard deviations of annual precipitation, model predictions of evapotranspiration, deep drainage, and runoff for the four sites are compared in Table 3. The average annual precipitation for the thirty year period was fairly similar at the four sites ranging from 860 mm at

Table 3: Average \pm Standard Deviation of Annual Water Balance Components (mm) Derived from the SHAW Model for a Typical Local Soil Type at Four Sites in Ontario for 1961-1990 Period

	Harrow	Guelph	Ottawa	Kapuskasing
Precipitation	902 \pm 138	863 \pm 128	871 \pm 117	860 \pm 131
Evapotranspiration	675 \pm 68	497 \pm 50	562 \pm 38	505 \pm 37
Deep Drainage	163 \pm 90	283 \pm 108	201 \pm 137	153 \pm 85
Runoff	46 \pm 56	81 \pm 64	100 \pm 74	206 \pm 53
Average Water Surplus	209 \pm 90	364 \pm 98	301 \pm 103	359 \pm 108
Average Annual Water Surplus (other studies)				
1931-1960 (Brown <i>et al.</i> 1968)	229 ^a	305 ^a	305 ^a	318 ^a
1923-1948	195 \pm 103	323 \pm 102	374 \pm 86	N/A
1941-1970 (Sanderson, 1960 and 1980)	242			

^a values obtained from map.

Table 2. Period daily averages in actual evapotranspiration (AET) and potential equilibrium evaporation (PET), and the resulting Priestley–Taylor coefficient (α) for the upper and lower sites, Strawberry Creek watershed, Maryland, Ontario, DOY 153–232, 2005

DOY	Number of samples	Upper site			Lower site		
		AET	PET	α	AET	PET	α
153–175	8	3.25	2.77	1.17	3.06	2.56	1.19
176–208	11	4.08	3.26	1.25	4.07	3.01	1.35
209–232	10	2.74	3.16	0.87	3.36	3.29	1.02

Periods are defined by the wet periods delineated in Fig. 2. AET and PET are the area-ly weighted totals for both sites as described above.

larger than that at the lower site in the third period (DOY 209–232) (Table 2). The fact, that the α values differed little between the two sites should not come as a surprise as a dominant controlling factor on α is moisture availability (Dingman, 1994) and precipitation and soil moisture were similar between the lower and upper sites.

A total of 178 mm of precipitation fell over the study period whereas slightly over 100 mm of ET was observed from riparian areas (i.e. nearly 60%). To put these numbers into perspective, less than 2 mm of runoff was observed at the basin outflow over the entire study period. Therefore, the water balance of the basin was dominated by atmospheric exchange during the study period. While these dry periods do not contribute significantly to annual basin hydrochemical export as most nutrient loading occurs during storm events (Macrae et al., in press-a), such periods are critical to nutrient loading patterns because the cumulative daily ET that occurs during these periods dries out riparian soils affecting both their water storage and nutrient retention potential. Thus, ET patterns during the dry summer months have a direct effect on the ability of riparian zones to respond to runoff and its associated nutrient transport during late summer and autumn storms.

5. Conclusions

Estimates of summer PET and AET for riparian zones within a first-order agricultural catchment were 2.9–3.1 and 3.36–3.49 mm d⁻¹, respectively. Nearly 60% of summer precipitation was returned to the atmosphere via ET in riparian areas and thus atmospheric exchange dominated the water balance of these zones during the study period. In basins with larger, more extensive riparian zones and floodplains, these large AET rates may account for a significant portion of the water available to the entire basin, which has implications for irrigation planning.

Estimates of the P–T coefficient (α) were 1.10–1.18 over the season supporting the use of a value of 1.26 that has been suggested by others for use in modelling scenarios. Furthermore, no spatial variability in ET was observed between sites within riparian areas suggesting that these areas may be treated as one homogenous unit with respect to ET.

In small basins such as the Strawberry Creek watershed, the cumulative ET during dry periods plays a critical role in drying riparian soils between storms. These dry antecedent hydrologic conditions allow storm runoff to go into storage rather than passing through riparian areas into the adjacent stream, and thus affect both stream water quality and

quantity. Therefore, it is critical to understand this loss of water in a riparian zone to ensure the hydrologic conditions necessary to maintain the critical biogeochemical functioning of the riparian zone.

Riparian zones are often ignored in studies of ET in agricultural watersheds. However, as this study illustrates, less intensive research methods could be used such as micro-lysimeters and simple energy balance measurements, which can be carried out using automated instruments, once relationships between PET and AET are quantified for the various representative land-use types comprising the system. Such relationships can then be used as more meaningful functional relationships to parameterize more detailed models like the FAO-P–M.

Acknowledgements

Funding for this research was provided by the Natural Science and Engineering Research Council of Canada, the Canadian Foundation for Innovation, and a Wilfrid Laurier University Short-term Research Grant. The field assistance of Patrick Cahil and J.R. Van Haarlem is gratefully acknowledged. The authors wish to thank the anonymous reviewers and the Joint Editor in Chief for their insightful comments.

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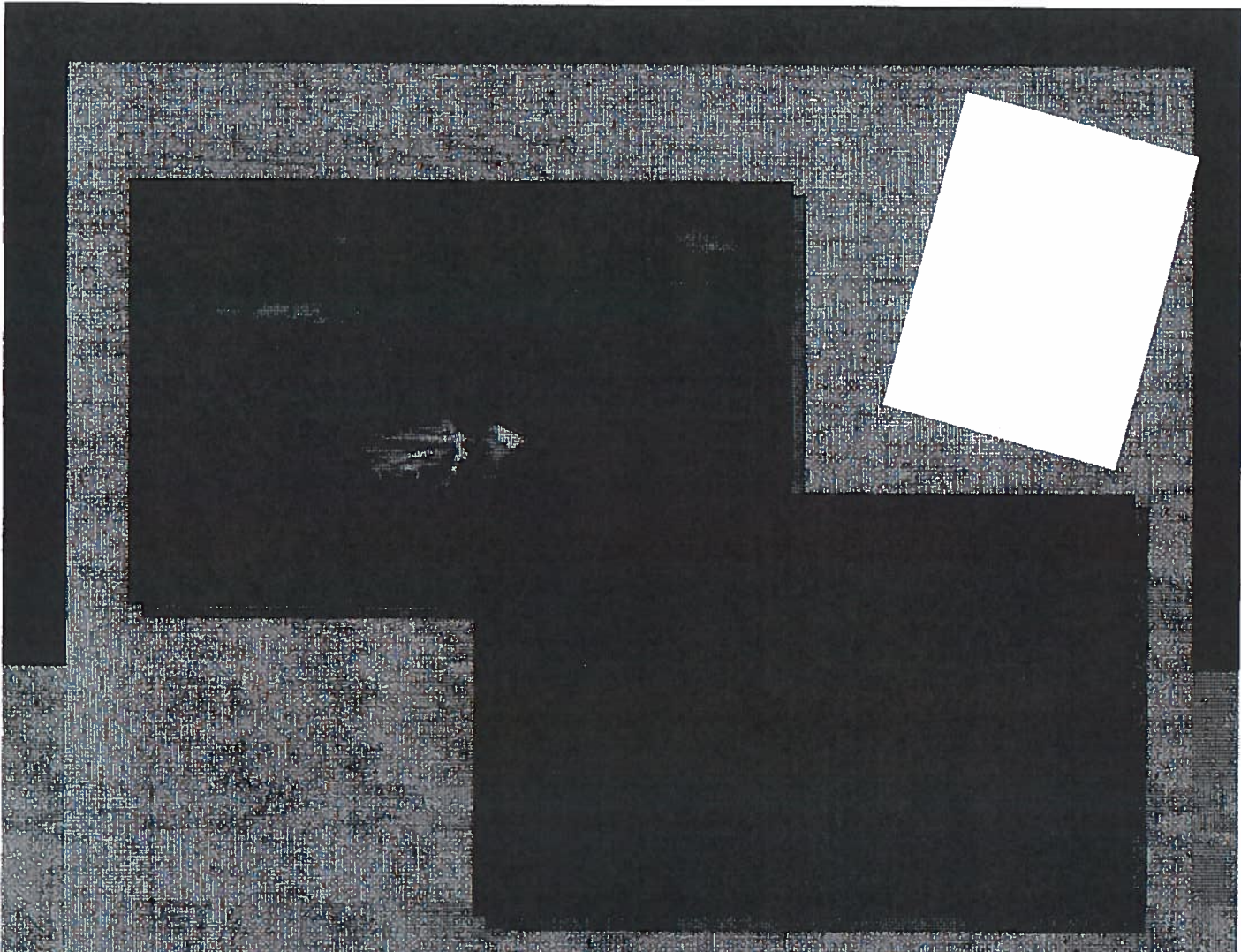
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**BLACK/HARMONY/FAREWELL CREEK WATERSHED
EXISTING CONDITIONS REPORT
CHAPTER 8 - CLIMATE**

April 2011



Figure 2 depicts the variation in average annual precipitation collected at five climate stations listed in Table 1. By depicting an average annual precipitation of 886 mm/yr, the fluctuations showing wet, dry and average years can be easily observed over the period of record as shown in Figure 2. Four of the Environment Canada stations have been decommissioned over the last 10 to 12 years including Burketon McLaughlin, Orono, Tyrone, and Bowmanville Mostert (Figure 2).

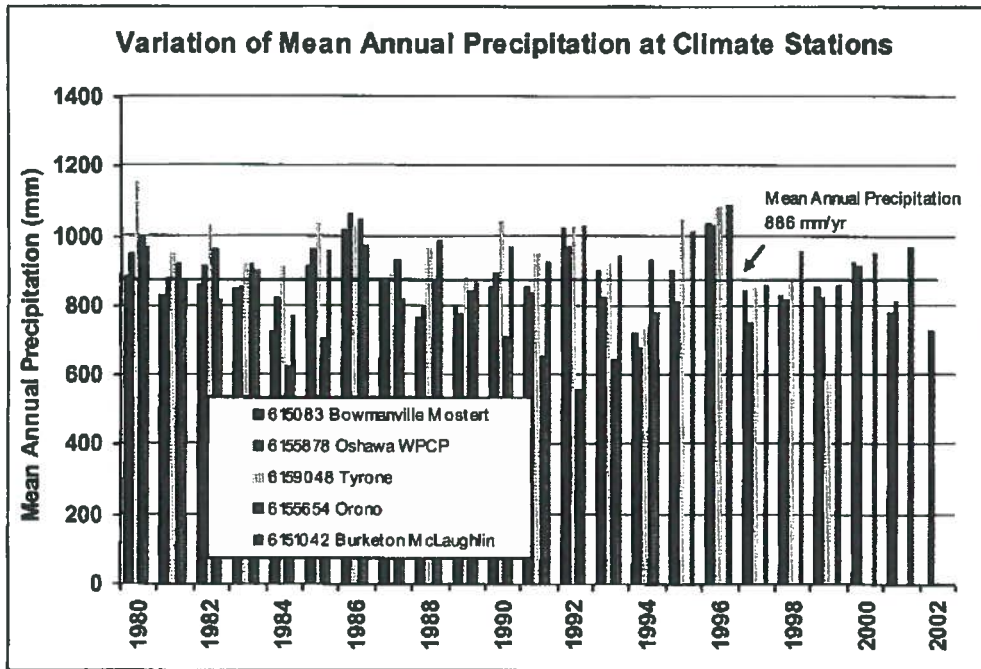


Figure 2: Variation of annual precipitation at selected climate stations with extended periods of record.

While several CLOCA monitoring stations have recently been commissioned in and around the watershed to advance the flood forecasting program, they do not yet have sufficient periods of record to be used for long-term climate assessments (Table 2). CLOCA climate stations, for the most part, collect rainfall information whereas the Environment Canada stations also account for other forms of precipitation (such as snow accumulation and collected temperature data).

Table 2: CLOCA precipitation stations within or around the Black/Harmony/Farewell Creek watershed.

Station Name (ID)	Year Commissioned
Purple Woods (Prec1)	1999
Howden Road (Prec2)	1999
CLOCA Admin Office (Prec3)	2001
Lynde Creek (02HC018)	2002
Heber Down (55)	2003
Hampton CA (3)	2003
Chalk Lake (Prec4)	2003
Enniskillen (Prec5)	2003
Oshawa Airport	2008



4.5 Evapotranspiration

While there are several methods for collecting evaporation data in the field, estimating the amounts of evaporation and transpiration typically rely on empirical calculations as part of commonly-used methodologies. Evapotranspiration information is important for hydrology and water budget investigations.

The mean annual potential evapotranspiration (PET) was calculated for the Ecodistrict 553 in which the Black/Harmony/Farewell Creek watershed resides (Table 3). Ecodistrict 553 covers CLOCA's jurisdictional area as well as the Ganaraska and Trent watersheds. Ecodistricts are mapped across Canada by Agriculture and Agri-food Canada (<http://sis.agr.gc.ca/cansis/nsdb/ecostrat/district/climate.html>). Table 3 presents monthly and annual estimates of potential evapotranspiration (PET) calculated using two methodologies: the Thornthwaite and the Penman methods. Comparison with average precipitation data shows that PET exceeds available precipitation from May to August (Penman method) or June to August (Thornthwaite method). Actual evapotranspiration in those months will depend on the ability of plants to extract moisture from the soil.

Table 3: Monthly and Annual Estimated Potential Evapotranspiration for the CLOCA jurisdiction (from: Earthfx, 2007).

Potential ET (mm) Thornthwaite Method	0	0	0	30.8	72.5	108.3	127.6	112.7	77.4	38.0	10.1	0	577.3
Potential ET (mm) Penman Method	0	0	11.7	63.0	97.6	114.5	129.4	103.0	64.7	30.5	8.2	0	622.56
Precipitation (mm)	62.2	57.5	65.9	67.0	74.0	73.8	67.2	82.5	79.1	73.9	84.5	81.6	867.4

Estimates of long-term actual evapotranspiration (AET) generated using the Precipitation-Runoff Modelling System (PRMS) numerical model are shown for the Black/Harmony/Farewell Creek watershed in Figure 4. The estimates depicted represent the long-term average millimetres per year (mm/yr) of evapotranspiration that is predicted from all sources including intercepted and stored precipitation that is eventually evaporated. AET depends on soil type, soil water storage capacity, vegetation rooting depths, amount of interception storage based on land cover type, temperature, and solar radiation. The model estimates an evapotranspiration rate of approximately 411 mm/yr for the watershed.

Urban areas are depicted in Figure 4 as having on average lower evapotranspiration rates than the watershed average. This is largely influenced by the greater percentage of impervious surfaces in urban areas such as roadways, parking lots and rooftops. While some of the precipitation including melting snowpacks remains stored in surface depressions and is evaporated by the model, much of the precipitation is diverted from these surfaces as runoff.



3.2 CONCEPTUAL WATER BUDGET

The conceptual water budget is a simple water budget performed at coarse spatial and temporal scales. It gathers the information that will be required for subsequent steps of the water budget process and provides a general overview of water movement through a watershed. It also includes an assessment of watershed features that may impact the water budget calculation, such as geology, physiography, and land cover.

The conceptual water budget was developed separately for the Trent River watershed and the subwatersheds of Lake Ontario and Bay of Quinte tributaries that are located in the Lower Trent Source Protection Area. These conceptual water budgets are documented in the following reports:

- *Conceptual Water Budget: Trent River Watershed (March 2007)*
- *Conceptual Water Budget: Lake Ontario/Bay of Quinte Tributaries (Lower Trent Watershed) (March 2007).*

This section is a summary of these reports.

3.2.1 SUBWATERSHEDS

Since the study area is large and complex, it has been divided into 10 subwatersheds for purposes of the conceptual water budget (see Map 3-1). The delineation of these subwatersheds was based on local geology, physiography, and the location of hydrometric stations. Most subwatershed outlets were defined at the location of hydrometric stations with sufficiently long flow records that were located near the outlets of major tributaries of the Trent River or along the Trent-Severn Waterway. The Lower Trent South subwatershed was associated with the Trenton hydrometric station despite its limited data record (1999 to 2002) because it is located at the outlet of the Trent River. Further, because there are no hydrometric stations in the Bay of Quinte tributaries subwatershed, flow data at this station was estimated using the Ontario Flow Assessment Techniques software. Subwatersheds and the hydrometric stations selected as their outlets are described in Table 3.2-1.

3.2.2 CLIMATE

Climate is a critical influence on the hydrology and hydrogeology of a region. This section is an assessment of the climatic parameters that are components of the water budget equation: precipitation, temperature, and evapotranspiration.

3.2.2.1 DATA SOURCES

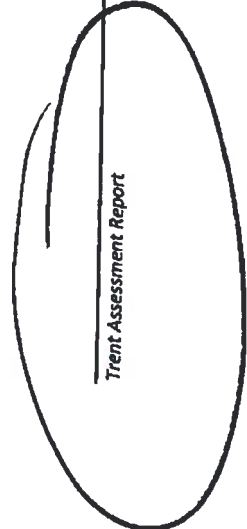
Climate data in the study area are available from climate stations operated by the Meteorological Service of Canada (Environment Canada), Conservation Authorities, Ministry of Natural Resources, Ministry of Transportation, Hydro One, Airport Authorities, municipalities, universities and colleges, and other research organizations. In the Trent River watershed, the coverage of climate stations in the Paleozoic area is reasonable, but data are sparse in portions of the Precambrian area. In the Lake Ontario and Bay of Quinte tributaries subwatersheds, stations are concentrated in the south and in larger communities along the shore of Lake Ontario. Climate stations in the study area are listed in Table 3.2-2 and shown on Map 3-2.



Table 3.2-22: Summary of Water Budget Components for Trent River Subwatersheds

Category	Unit	Surplus Water	Surface Water	Evapotranspiration	Actual	Surplus Water	Surface Water	Evapotranspiration	Actual	Surplus Water	Surface Water	Evapotranspiration	Actual	Surplus Water	Surface Water	Evapotranspiration	Actual	Surplus Water	Surface Water	Evapotranspiration	Actual	Surplus Water	Surface Water	Evapotranspiration	Actual
Drainage Area	km ²	1,280	1,270	3,495	1,292	1,730	1,990	920	577	12554	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Precipitation	m ³ /sec	42	42	96	39	46	60	25	15	366	46	60	25	15	366	46	60	25	15	366	46	60	25	15	366
Actual	mm/year	1,045	1,045	869	940	840	957	841	841	919	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922
Evapotranspiration	m ³ /sec	20	20	58	22	28	33	15	9	206	26	33	15	9	206	26	33	15	9	206	26	33	15	9	206
Surplus Water ¹	mm/year	504	504	526	528	511	523	511	514	518	515	515	515	515	515	515	515	515	515	515	515	515	515	515	515
Surface Water In	m ³ /sec	22	22	76	56	61	55	61	61	56	56	61	55	61	56	56	61	55	61	56	56	61	55	61	56
Surface Water Out	mm/year	541	541	343	412	329	434	329	327	160	85	434	329	327	160	85	434	329	327	160	85	434	329	327	160
Water Budget Residual	m ³ /sec	0	0	40	44	39	45	39	39	407	44	45	39	39	407	44	45	39	39	407	44	45	39	39	407
Anthropogenic Removal	% of precip.	19	18	59	86	95	24	142	150	-	-	24	142	150	-	-	24	142	150	-	-	-	-	-	-
	m ³ /sec	2.6	3.5	16.4	9.8	9.4	3.8	-14.3	101	-	-	3.8	-14.3	101	-	-	3.8	-14.3	101	-	-	-	-	-	-
	mm/year	63	87	148	-240	172	60	-489	-83	25	-	60	-489	-83	25	-	60	-489	-83	25	-	-	-	-	-
	m ³ /sec	0.024	0.076	0.43	0.078	0.357	0.187	0.059	0.066	1.27	-	0.187	0.059	0.066	1.27	-	0.187	0.059	0.066	1.27	-	-	-	-	-
	mm/year	0.583	1.893	3.879	1.894	6.510	3.06	2.023	3.614	-	-	3.06	2.023	3.614	-	-	3.06	2.023	3.614	-	-	-	-	-	-
	% of precip.	0.06	0.18	0.45	0.20	0.78	0.31	0.24	0.44	0.35	-	0.31	0.24	0.44	0.35	-	0.31	0.24	0.44	0.35	-	-	-	-	-

¹Surplus water is the difference between precipitation and actual evapotranspiration (i.e. Surplus = P - AET)



Trent Assessment Report

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: June-18-15 4:32 PM
To: 'Bill Vanzwol'
Cc: Jmohle; Brad McRoberts; 'Arun Jain' (Arun.Jain@exp.com)
Subject: RE: Comments re public meeting in township of Mapleton

Hi Bill,

Thanks for this, we appreciate the input. We'll take a look at the material you sent.

Cheers,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator
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1595 Clark Boulevard
Brampton, ON L6T 4V1
Canada

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From: Bill Vanzwol [mailto:]
Sent: June-18-15 3:48 PM
To: Jean Louis Gaudet; Jmohle; Brad McRoberts
Subject: Comments re public meeting in township of Mapleton

Hi All. As per request by Jean, here are my following observations:

A: currently the effluent to the river **is not measured** it is estimated (as the reports have indicated)

B: The precipitation (+/- 150 cubic meter per day as per your report) is added to influent of the plant, and the evaporation is not mentioned at all in the Mapleton WPCP CPE report.

C: As you can see from the attached information, this is not correct. (these reports indicate about 900 mm precipitation and about 500mm evaporation on average.

D: As we have suggested before, for a good design, you have to **measure** what goes to the river.

E: To ignore the evaporation and design with a estimated out flow you are not designing as per actual field conditions.

F: As your reports indicate the river can take all kinds of flow. (potential annual discharge 661.726 cubic meter)

G: For the municipality to make good decisions you should know(and keep track) what you are actually discharging to the river. (I am sure the MOE will like a measured quantity better than a estimated one) Note:

this will also keep the operators on their toes as well :-).

Hope fully this input will be taken into consideration. Thanks. Bill van Zwol (Wellingdale construction)

Jean Louis Gaudet

From: Jim Curry <[REDACTED]>
Sent: June-29-15 6:43 PM
To: Jean Louis Gaudet
Cc: Arun Jain; BMcRoberts@mapleton.ca
Subject: RE: Mapleton Wastewater Servicing Municipal Class EA - Notice of PIC #1

Follow Up Flag: Follow up
Flag Status: Flagged

Jean Louis,

The short term solution is the expanded window of effluent but this does not solve the long term demands for Drayton, and Moorefield.

An integrated approach with spray irrigation in a cropping situation (takes up the nutrients and fodder for animals) on 20+ acres is still a viable approach along the expanded effluent.

As mentioned on June 16 the Penn State (State College Campus) has 20+ years of experience and their team is dedicated to help our lagoon system become viable for spray irrigation..

We have monitoring wells strategically located from past emergency irrigation.

This combined effort will more than double to effluent as the expanded window.

Also with the cleanliness of the effluent we should be able to place more volume in a shorter length of time I the river without exceeding the parameters set for the 750m³.

Our Lagoon Committee established this last year.

Thanks for your consideration.

Regards,

Jim Curry

Jim Curry B.Sc. (Chemistry); M.Sc. (Environmental Biology)

From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: June-09-15 9:08 AM
To: Jim Curry
Cc: Arun Jain; Brad McRoberts <BMcRoberts@mapleton.ca> (BMcRoberts@mapleton.ca)
Subject: RE: Mapleton Wastewater Servicing Municipal Class EA - Notice of PIC #1

Good morning Jim,

Thanks for your question.

The Class EA is currently in Phase 2, and the irrigation alternative was evaluated along with other discharge alternatives, such as full discharge or an expanded discharge window. The recommended discharge alternative for the WPCP is the expanded discharge window. These results, along with other project information, shall be presented at the PIC on June 16th.

Regards,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator

t: +1.905.793.9809 x2344 | e: jeanlouis.gaudet@exp.com

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From: Jim Curry [REDACTED]
Sent: June-05-15 2:08 PM
To: Jean Louis Gaudet
Subject: RE: Mapleton Wastewater Servicing Municipal Class EA - Notice of PIC #1

Jean-Louis,
Thanks for this news.
Is the irrigation still be considered?

Regards,
Jim Curry
Jim Curry

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]
Sent: June-05-15 10:08 AM
To: Jean Louis Gaudet
Subject: Mapleton Wastewater Servicing Municipal Class EA - Notice of PIC #1

Good morning,

Please find attached a notice of Public Information Centre #1 for the Mapleton Wastewater Servicing Municipal Class Environmental Assessment, to be held on **June 16, 2015** from 4:00 pm to 7:00 pm at the Township of Mapleton Council Chambers .

Regards,

Jean-Louis



Jean-Louis Gaudet

Project Coordinator

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Jean Louis Gaudet

From: John Mohle [redacted]
Sent: July-02-15 4:03 PM
To: Arun Jain; Jean Louis Gaudet
Cc: 'Trapp, Rick'
Subject: RE: Water Treatment Technologies

Follow Up Flag: Follow up
Flag Status: Flagged

hi Gents

fyi

thx:)

jm

From: Trapp, Rick [mailto:[redacted]]
Sent: June-29-15 4:20 PM
To: Mike Doyle; John Mohle
Subject: Fwd: Water Treatment Technologies

Attention Mike & John,

As I had mentioned to Mike, but I don't recall having taken the opportunity yet to mention to you John, I had been speaking to Jamie Doran recently at an Angel Investment Event in Guelph. I had been telling him about the problems we were experiencing in Drayton with regards to the sewage treatment and its impact on land development. He mentioned that he was aware of some companies operating in this field with some interesting new technologies. He thought that somewhere in this group there might be a solution or solutions that if applied to the treatment process in Drayton might help lead to a partial solution to the problem. I asked him to forward to me the information about these companies so that I might pass it along to the two of you for further investigation. I'm not sure if left solely in the hands of the Township that the problem will come to it's quickest and best resolution. Perhaps there is something of value in this information. Good luck.

Rick

Richard Trapp
Emerald Homes Ltd.
Tel: [redacted]
www.emeraldhomesltd.com
[redacted]

----- Forwarded message -----
From: James Doran <[redacted]>
Date: Tue, Jun 16, 2015 at 9:49 AM
Subject: RE: Water Treatment Technologies
To: "Trapp, Rick" [redacted]

Hi Rick

Yes, I mentioned a few local waste water treatment companies that you might want to learn more about.

1. Waterloo Biofilter (standalone water treatment units; biodegradation) <http://waterloo-biofilter.com/>
2. Enpar Technologies (water treatment; selective ion removal) <http://www.enpar-tech.com/>
3. Lystek (biosolids management and waste to energy) <http://lystek.com>

Check out the websites and if you need a personal introduction I can hook you up.

JAMIE

From: Trapp, Rick [mailto: [REDACTED]]
Sent: June-16-15 9:34 AM
To: James Doran
Subject: Water Treatment Technologies

Hi Jamie,

We were speaking at the last GTAN event held at Cutten Fields in Guelph and if I'm not mistaken, you were mentioning a company that you were aware of that had some leading edge waste water treatment technologies. I would like to get some more information on this company to pass along to one of the developers that I work with. If my memory fails me and you are not the correct person, perhaps you could connect me with the right contact for this.

Sincerely,

Rick

Richard Trapp
Emerald Homes Ltd.
Tel: [REDACTED]
www.emeraldhomesltd.com
[REDACTED]

Jean Louis Gaudet

From: Emily Bumbaco <Emily.Bumbaco@ugdsb.on.ca>
Sent: June-30-15 4:13 PM
To: Jean Louis Gaudet
Subject: Mapleton Wastewater Servicing EA
Attachments: doc09579320150630154204.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Jean-Louis,

Please see that attached consultation form. The Board does not require direct involvement in the study, but would like to be notified at important benchmarks in the process.

Thanks,

Emily Bumbaco
Planning Technician
Upper Grand District School Board
519-822-4420 ext. 863
emily.bumbaco@ugdsb.on.ca

----- Original Message -----

TASKalfa 300i
[00:c0:ee:78:9e:06]



Township of Mapleton

Wastewater Servicing
Municipal Class EA

Consultation Form

Organization/Department:

Contact Name: EMILY BUMBACO

Title: PLANNING TECHNICIAN

Mailing address:

500 Victoria Rd. N, Guelph ON N1E 4E3

E-mail Address: emily.bumbaco@ucpsb.on.ca

Phone/Fax: 519-362-2597 ext 863

<input checked="" type="checkbox"/>	Please Check All Responses Below That Apply:
<input type="checkbox"/>	Our organization/department does not require any further involvement in this study
<input checked="" type="checkbox"/>	Please keep us informed throughout the project
	My organization's area of interest for this project includes (please indicate, if applicable): - interest in total population that system will accommodate - general interest

Please fax, email or mail this form back to:

Jean-Louis Gaudet
exp Services Inc.

Fax: (905) 793-0641
E-mail: jeanlouis.gaudet@exp.com

Mailing address:
1595 Clark Blvd
Brampton, ON L6T 4V1

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: August-11-15 10:06 AM
To: [REDACTED]
Cc: Arun Jain
Subject: RE: attached milestones

Hi John,

Thanks for your e-mail, and my apologies for the delay in getting back to you.

The stakeholder meeting being referred to in the document you sent is actually referring to operational and agency stakeholders.

But thanks for your interest in the project and your contributions. We shall keep you posted.

Cheers,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator
t: +1.905.793.9809 x2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Boulevard
Brampton, ON L6T 4V1
Canada

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From: John Mohle [mailto:[REDACTED]]
Sent: August-05-15 1:33 PM
To: Arun Jain; Jean Louis Gaudet
Subject: FW: attached milestones

hi All

has date for august stakeholders meet been set

thx:)

jm

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: February-01-16 11:43 AM
To: Jean Louis Gaudet
Subject: Notice of Public Information Centre - Mapleton Wastewater Servicing Class EA
Attachments: Mapleton MPCP Class EA_PIC 2 Notice.pdf

Good morning,

Please find attached a notice for a Public Information Centre for the Township of Mapleton Municipal Class Environmental Assessment for Mapleton Wastewater Servicing.

Date, Time and Location:

Time: 4:00 pm to 7:00 pm
Date: February 11, 2016
Location: Township of Mapleton Council Chambers
7275 Sideroad 16
Drayton, ON

Thank you,

Jean-Louis Gaudet



Jean-Louis Gaudet

Project Coordinator
t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com
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TOWNSHIP OF MAPLETON

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR MAPLETON WASTEWATER SERVICING

NOTICE OF PUBLIC INFORMATION CENTRE

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Mapleton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to upgrade the wastewater collection system.

The study is being conducted in accordance with Schedule C of the Municipal Class Environmental Assessment process (October 2000, amended 2007 and 2011), which is approved under the Ontario Environmental Assessment Act. A Public Information Centre (PIC) is planned to provide further information to the public on the project and to receive input and comment from interested persons:

Date, Time and Location:

Time: 4:00 pm to 7:00 pm
Date: February 11, 2016
Location: Township of Mapleton Council Chambers
7275 Sideroad 16
Drayton, ON

Following the PIC, further comments are invited for incorporation into the planning and design of the project and will be received until February 26, 2016.

Please contact any of the following project team members if you wish to be added to the project mailing list or if you have any questions or comments about the study.

Brad McRoberts, MPA, P.Eng
CAO Clerk
Township of Mapleton
P.O. Box 160
Drayton, Ontario N0G 1P0
Phone: (519) 638-3313 Ext 41
E-mail: BMcRoberts@mapleton.ca

Arun P. Jain, M.Eng., P.Eng.
Manager – Water and Wastewater Infrastructure
Exp Services Inc.
1595 Clark Blvd.
Brampton, ON L6T 4V1
Phone: (905) 793-9800 x 2373
E-mail: arun.jain@exp.com

Jean Louis Gaudet

From: Trevor Prior [REDACTED]
Sent: February-02-16 1:04 PM
To: Jean Louis Gaudet
Cc: Mike Doyle
Subject: Re: Notice of Public Information Centre - Mapleton Wastewater Servicing Class EA

Jean Louis,

Thanks for the update,

Trevor

On Tuesday, February 2, 2016 12:29 PM, Jean Louis Gaudet <jeanlouis.gaudet@exp.com> wrote:

Hi Trevor,

We are hoping to. We should know over the next couple of days. I will keep you posted.

Thanks,

JL

Jean-Louis Gaudet | exp

Project Coordinator
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Brampton, ON L6T 4V1
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From: Trevor Prior [mailto:[REDACTED]]
Sent: February-01-16 11:47 AM
To: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>
Cc: Mike Doyle [REDACTED]
Subject: Re: Notice of Public Information Centre - Mapleton Wastewater Servicing Class EA

Jean Louis,

Thank you for the notice of public meeting on the 11th.

do you know if there is a Stakeholders' meeting prior to the 11th?

Regards,
Trevor Prior
Glenaviland Development Corporation

On Monday, February 1, 2016 11:42 AM, Jean Louis Gaudet <jeanlouis.gaudet@exp.com> wrote:

Good morning,

Please find attached a notice for a Public Information Centre for the Township of Mapleton Municipal Class Environmental Assessment for Mapleton Wastewater Servicing.

Date, Time and Location:

Time: 4:00 pm to 7:00 pm
Date: February 11, 2016
Location: Township of Mapleton Council Chambers
7275 Sideroad 16
Drayton, ON

Thank you,

Jean-Louis Gaudet



Jean-Louis Gaudet

Project Coordinator
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Jean Louis Gaudet

From: luke lise [REDACTED]
Sent: February-03-16 12:34 PM
To: Jean Louis Gaudet
Subject: Re: Notice of Public Information Centre - Mapleton Wastewater Servicing Class EA

Thanks for the update Jean

Sent from my iPhone

On Feb 3, 2016, at 11:31 AM, Jean Louis Gaudet <jeanlouis.gaudet@exp.com> wrote:

Hi Luke,

My apologies, I don't believe this PIC notice made it through to you first attempt.

Regards,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator
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Brampton, ON L6T 4V1
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From: Jean Louis Gaudet
Sent: February-01-16 11:43 AM
To: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>
Subject: Notice of Public Information Centre - Mapleton Wastewater Servicing Class EA

Good morning,

Please find attached a notice for a Public Information Centre for the Township of Mapleton Municipal Class Environmental Assessment for Mapleton Wastewater Servicing.

Date, Time and Location:

Time: 4:00 pm to 7:00 pm
Date: February 11, 2016
Location: Township of Mapleton Council Chambers
7275 Sideroad 16
Drayton, ON

Thank you,

Jean-Louis Gaudet

<image003.jpg>

Jean-Louis Gaudet

Project Coordinator

t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com

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<Mapleton MPCP Class EA_PIC 2 Notice.pdf>

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: February-03-16 11:31 AM
To: [REDACTED]
Subject: FW: Notice of Public Information Centre - Mapleton Wastewater Servicing Class EA
Attachments: Mapleton MPCP Class EA_PIC 2 Notice.pdf

Hi Jennifer,

My apologies, I don't believe this PIC notice made it through to you first attempt.

Regards,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator
t: +1.905.793.9809 x2344 | e: jeanlouis.gaudet@exp.com
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Brampton, ON L6T 4V1
Canada

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From: Jean Louis Gaudet
Sent: February-01-16 11:43 AM
To: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>
Subject: Notice of Public Information Centre - Mapleton Wastewater Servicing Class EA

Good morning,

Please find attached a notice for a Public Information Centre for the Township of Mapleton Municipal Class Environmental Assessment for Mapleton Wastewater Servicing.

Date, Time and Location:

Time: 4:00 pm to 7:00 pm
Date: February 11, 2016
Location: Township of Mapleton Council Chambers
7275 Sideroad 16
Drayton, ON

Thank you,

Jean-Louis Gaudet



Jean-Louis Gaudet

Project Coordinator

t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com

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Brampton, ON L6T 4V1

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Jean Louis Gaudet

Subject: Mapleton Wastewater Class EA - Stakeholder Meeting
Location: Township Office, 7275 Sideroad 16, Drayton

Start: Thu 11/02/2016 1:30 PM
End: Thu 11/02/2016 2:30 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Jean Louis Gaudet
Required Attendees: 'Arun Jain' (Arun.Jain@exp.com); Brad McRoberts; priordevelopment@rogers.com;
[REDACTED];
[REDACTED]; [REDACTED];
[REDACTED]; [REDACTED]

Hello all,

Thank you all for your interest in Mapleton Wastewater Class Environmental Assessment. We'd like to invite you to a meeting so we can provide you with an update on the project and next steps.

Date and time: February 11, 2016 – 1:30 pm

Location: Township office

Thank you,

Jean-Louis

Jean Louis Gaudet

From: John Mohle <jmohle@wellingtonconstruction.on.ca>
Sent: February-11-16 4:58 PM
To: Jean Louis Gaudet; Arun Jain; 'Brad McRoberts'; priordevelopment@rogers.com;
[redacted]; [redacted]; [redacted]
[redacted]; [redacted]; [redacted]
Subject: DRAFT TAKEWAYS-RE: Mapleton Wastewater Class EA - Stakeholder Meeting

hi All

DRAFT takeaways referenced meeting

- Arun presented 11 february PIC presentation
 - MOE has bought in thematically to EXP approach/proposal
 - EXP is hopeful some formula of discharge geared to river flow will be part of proposed C of A
 - final design will be commence March 16 and be complete June 16(regardless of external funding matter)
 - there was concurrence that precipitation calcs are some what arbitrary

- Brad presented water/wastewater external funding matter including letter 11 february letter
 - both municipality and developers will aim to exchange proposals regarding the matter by 15 april 2016
 - Brad will dig into potential of prov/fed funding due to Mapleton's absorption of cleaning up Moorefield's sewage problems
 - developers requested and were granted participation in review of early stage design from a cost/buildability perspective

thx:)

jm

-----Original Appointment-----

From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]

Sent: February-03-16 11:26 AM

To: Arun Jain; Brad McRoberts; [redacted]; [redacted];
[redacted]; [redacted]; [redacted]; [redacted];
[redacted]

Subject: Mapleton Wastewater Class EA - Stakeholder Meeting

When: February-11-16 1:30 PM-2:30 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Township Office, 7275 Sideroad 16, Drayton

Hello all,

Thank you all for your interest in Mapleton Wastewater Class Environmental Assessment. We'd like to invite you to a meeting so we can provide you with an update on the project and next steps.

Date and time: February 11, 2016 – 1:30 pm

Location: Township office

Thank you,

Jean-Louis

Jean Louis Gaudet

From: Nathan & Rachel Duimering [REDACTED]
Sent: February-26-16 3:48 PM
To: Jean Louis Gaudet
Cc: [REDACTED]; BMcRoberts@mapleton.ca; Arun Jain
Subject: RE: Notice of Public Information Centre - Mapleton Wastewater Servicing Class EA
Attachments: 22 November 23 Agenda WWTP Report.pdf; 2010-22 - November 23.pdf; 3F943048-00000030.eml

Good afternoon Jean-Louis,

I'm emailing you as a follow up to my comments at the PIC held at the township office.

I mentioned at the meeting that during the previous lagoon expansion EA process we had raised various concerns regarding the expansion, some were concerns relating to the project and its effects on the neighboring stakeholders and others were with the EA process that the Township followed at that time.

That standout items at that time were:

- Groundwater quality
- Security
- Visual Screening

Groundwater Quality:

This was a concern during the previous project and to alleviate our concerns the township, along with their consultant at the time (Burnside), agreed to perform semi-annual detailed water testing. I believe that this testing was performed once in September of 2011 but I don't recall seeing the results and have never seen any other testing since then. I've attached the resolution from council at the time as well as an email regarding the well survey prior to them coming for water sampling. We would appreciate if this testing would continue/start.

Security:

This was brought forward as more of a concern for the Township liability, as there is known recreational use that passes through the plant on a regular basis. In my correspondence with Burnside they mentioned that the township was aware of this activity and they would assess the risk. As a result, they just fenced between the driveway and the neighboring property but didn't enclose the facility. This doesn't bother me too much, I just wanted to note that there is still recreation activity on a weekly basis.

Visual Screening:

There was a commitment to erect trees, which has happened but I wanted to point out the lacking health of these trees, which the township attempted to transplant themselves. I would appreciate a review of the health of this screen and remediation as required.

Additional Concerns:

- **Topsoil & Seed** - As mentioned at the meeting, during the construction of the last expansion the Township removed the spreading of topsoil item from the contract, with the intent to be completed at a later date. We don't believe that this work was done and have concerns that there are erosion issues as well as just an ugly visual of the facility.
- **Noise** - in the proposal presented at the meeting it showed a new blower building and we would just emphasize our concerns regarding any rise in noise coming from the facility.

- **Odor** – Since the proposed drawings mentioned blowers and oxidization and my lack of knowledge regarding the SAGR unit I'm a little unsure if there is any potential for additional odor levels.

Thanks for your time and if you have any questions or would like additional information from the previous EA just let me know.

Nathan

**Nathan Duimering – Owner
NR Duimering Farms**



From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: Monday, February 1, 2016 11:43 AM
To: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>
Subject: Notice of Public Information Centre - Mapleton Wastewater Servicing Class EA

Good morning,

Please find attached a notice for a Public Information Centre for the Township of Mapleton Municipal Class Environmental Assessment for Mapleton Wastewater Servicing.

Date, Time and Location:

Time: 4:00 pm to 7:00 pm
Date: February 11, 2016
Location: Township of Mapleton Council Chambers
7275 Sideroad 16
Drayton, ON

Thank you,

Jean-Louis Gaudet



Jean-Louis Gaudet

Project Coordinator
t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com
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Brampton, ON L6T 4V1
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Jean Louis Gaudet

From: John Mohle [REDACTED] >
Sent: February-29-16 2:09 PM
To: Arun Jain; Jean Louis Gaudet; 'Brad McRoberts'
Cc: [REDACTED]; [REDACTED]; [REDACTED];
Mike Doyle; [REDACTED]; [REDACTED];
[REDACTED]
Subject: Drayton lagoon (Mapleton, ON) - another supplier
Attachments: Biolac-Wave-Oxidation-System.pdf; Biolac-System.pdf; document-biolac-system-enhanced-wave-ox-process-760.pdf

hi All

more grist for the mill

thx:)

jm



Biolac[®]

Wastewater Treatment System





Biolac® Wastewater Treatment System

Extended sludge age biological technology

The Biolac® System is an innovative activated sludge process using extended retention of biological solids to create an extremely stable, easily operated system.

The capabilities of this unique technology far exceed ordinary extended aeration treatment. The Biolac process maximizes the stability of the operating environment and provides high-efficiency treatment. The design ensures the lowest-cost construction and guarantees operational simplicity. Over 500 Biolac Systems are installed throughout North America treating municipal wastewater and many types of industrial wastewater.

The Biolac system utilizes a longer sludge age than other aerobic systems. Sludge age, also known as SRT (solids retention time) or MCRT (mean cell residence time), defines the operating characteristics of any aerobic biological treatment

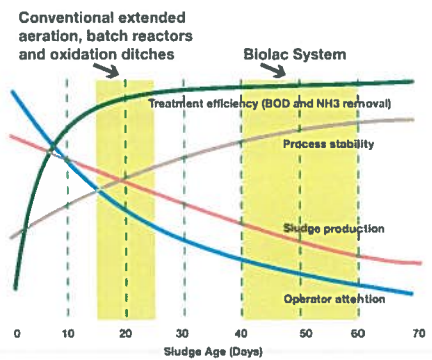
system. A longer sludge age dramatically lowers effluent BOD and ammonia levels. The Biolac long sludge age process produces BOD levels of less than 10 mg/L and complete nitrification (less than 1 mg/L ammonia). Minor modifications to the system will extend its capabilities to denitrification and biological phosphorus removal.

While most extended aeration systems reach their maximum mixing capability at sludge ages of approximately 15-25 days, the Biolac System efficiently and uniformly mixes the aeration volumes associated with 30-70 day sludge age treatment.

The large quantity of biomass treats widely fluctuating loads with very few operational changes. Extreme sludge stability allows sludge wasting to non-aerated sludge ponds or basins and long storage times.

This innovative process features

- Low-loaded activated sludge technology
- High oxygen transfer efficiency delivery system
- Exceptional mixing energy from controlled aeration chain movement
- Simple system construction



Aeration Components

Simple Process Control and Operation

The control and operation of the Biolac® process is similar to that of conventional extended aeration. Parkson provides a very basic system to control both the process and aeration. Additional controls required for denitrification, phosphorus removal, dissolved oxygen control and SCADA communications are also available.

Aeration System Components

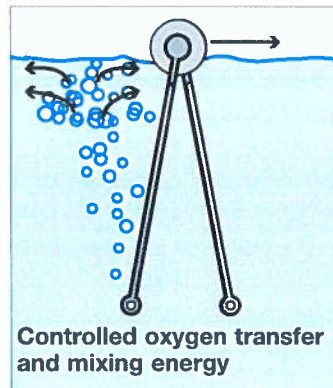
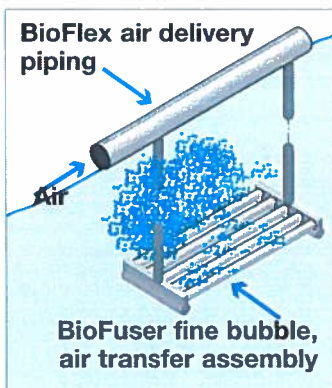
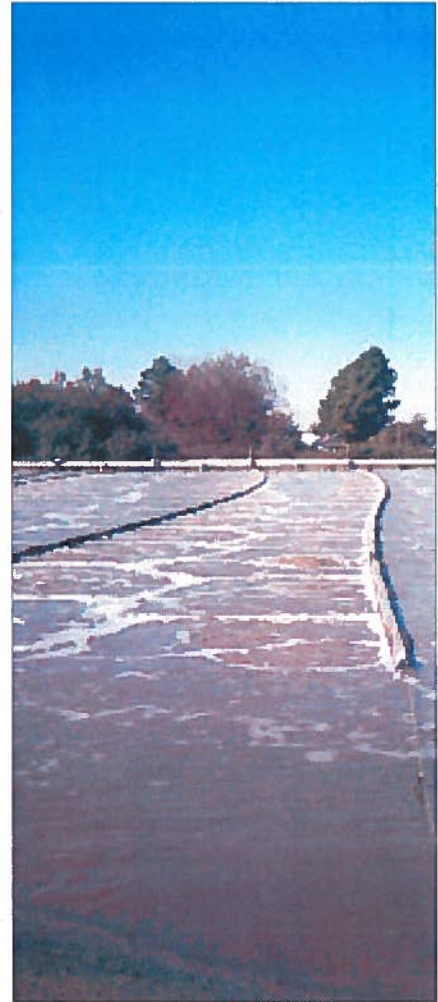
The ability to mix large basin volumes using minimal energy is a function of the unique BioFlex moving aeration chains and the attached BioFuser® fine bubble diffuser assemblies. The gentle, controlled, back and forth motion of the chains and diffusers distributes the oxygen transfer and mixing energy evenly throughout the basin area. No additional airflow is required to maintain mixing.

Stationary fine-bubble aeration systems require 8-10 CFM of air per 1000 cu. ft. of aeration basin volume. The Biolac System maintains the required mixing of the activated sludge and suspension of the solids at only 4 CFM per 1000 cu.ft. of aeration

basin volume. Mixing of a Biolac basin typically requires 35-50 percent of the energy of the design oxygen requirement. Therefore, air delivery to the basin can be reduced during periods of low loading without the risk of solids settling out of the wastewater.

System Construction

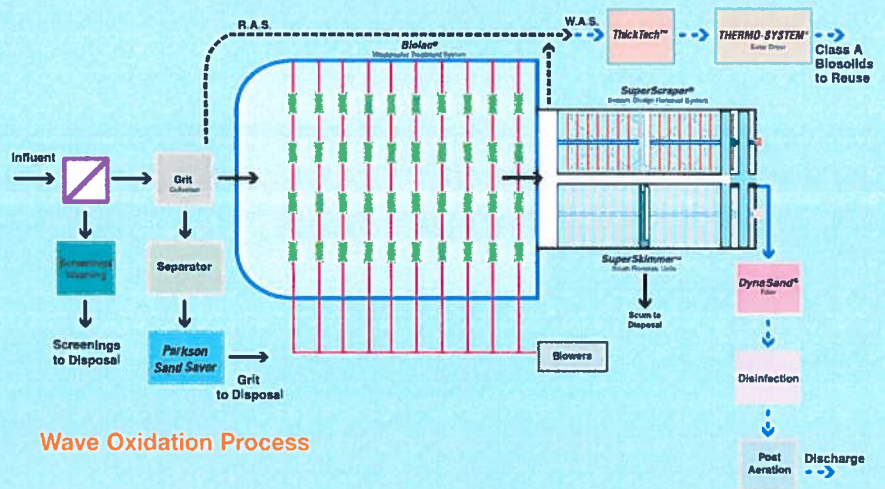
A major advantage of the Biolac system is its low installed cost. Most systems require costly in-ground concrete basins for the activated sludge portion of the process. A Biolac system can be installed in earthen basins, either lined or unlined. The BioFuser fine bubble diffusers require no mounting to basin floors or associated anchors and leveling. These diffusers are suspended from the BioFlex aeration chains above the basin floor. The only concrete structural work required is for the simple internal clarifier(s) and blower/control buildings.



Biological Nutrient Removal

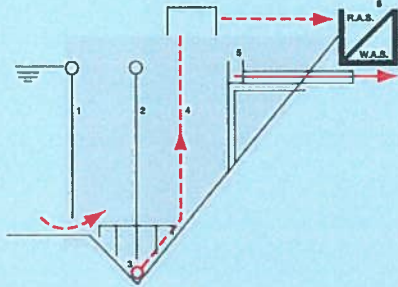
Simple control of the air distribution to the BioFlex chains creates moving waves of oxic and anoxic zones within the basin. This repeated cycling of environments nitrifies and denitrifies the wastewater without recycle pumping or additional external basins. This mode of Biolac® operation is known as the Wave Oxidation process. No additional in-basin equipment is required and simple timer-operated actuator valves regulate manipulation of the air distribution.

Biological phosphorus removal can also be accomplished by incorporating an anaerobic zone.



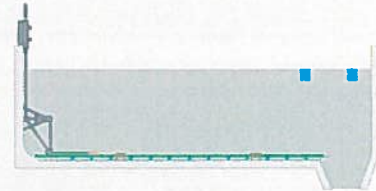
Type "R" Clarifier

Land space and hydraulic efficiencies are maximized using the type "R" clarifier. The clarifier design incorporates a common wall between the clarifier and aeration basin. The inlet ports in the bottom of the wall create negligible hydraulic headloss and promote efficient solids removal by filtering the flow through the upper layer of the sludge blanket. The hopper-style bottom simplifies sludge concentration and removal, and minimizes clarifier HRT. The sludge return airlift pump provides important flexibility in RAS flows with no moving parts. All maintenance is performed from the surface without dewatering the clarifier.



Type "SS" Clarifier

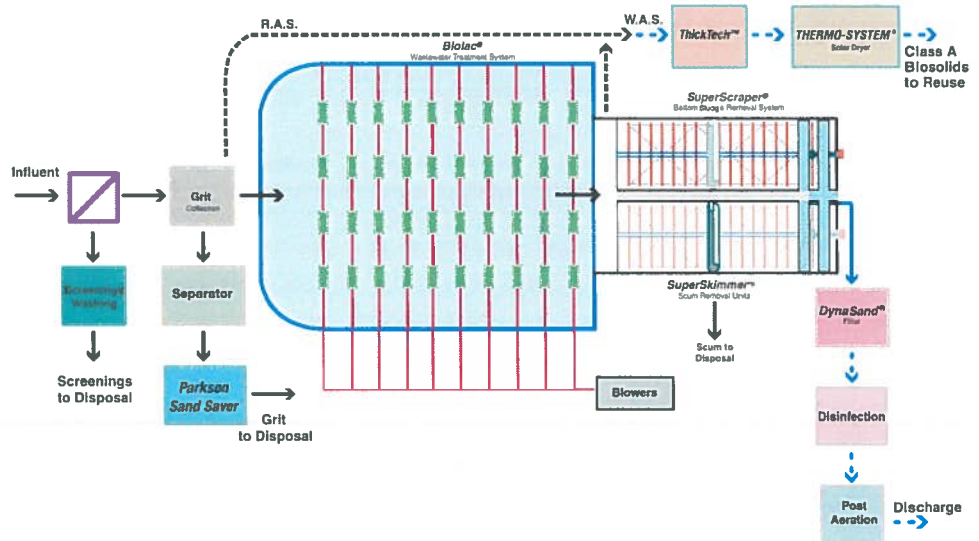
Higher flow systems incorporate a flat-bottom internal clarifier utilizing the Parkson SuperScrapper® sludge removal system. This clarifier design maintains the efficiencies of the common wall layout while providing ample clarification surface area within the footprint of the aeration basin width. The SuperScrapper system moves settled solids along the bottom of the clarifier to an integral collection trough. The unique design of the scraper blades and gentle forward movement of the SuperScrapper system concentrates the biological solids as they are moved along the bottom of the clarifier without disturbing the sludge blanket.



A Parkson Complete Wastewater Treatment System

The Parkson "Complete" system featured here utilizes the Biolac® process with two flat-bottom internal Type SS clarifiers. SuperScrapper® units are installed in the clarifier bottoms to simplify sludge removal. Influent screening with grit removal and appropriate residuals management such as washing, dewatering and conveying are included.

Sludge from the clarifiers is sent to the ThickTech rotary drum thickener and on to a THERMO-SYSTEM® Solar Sludge Dryer to reduce the volume of sludge by 50% and produce a Class "A" product suitable for beneficial reuse. Clarifier effluent is polished by a DynaSand® Filter followed by disinfection and post-aeration as the final steps prior to discharge.



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Mixed Sources
Product group from well-managed
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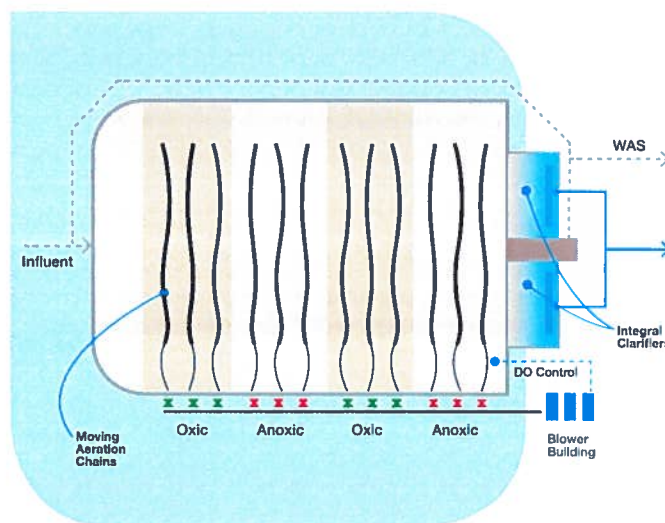
Biolac[®] System Enhanced Wave-Ox[™] Process

Biological Nutrient Removal with MixMode[™] Energy Reduction Technology

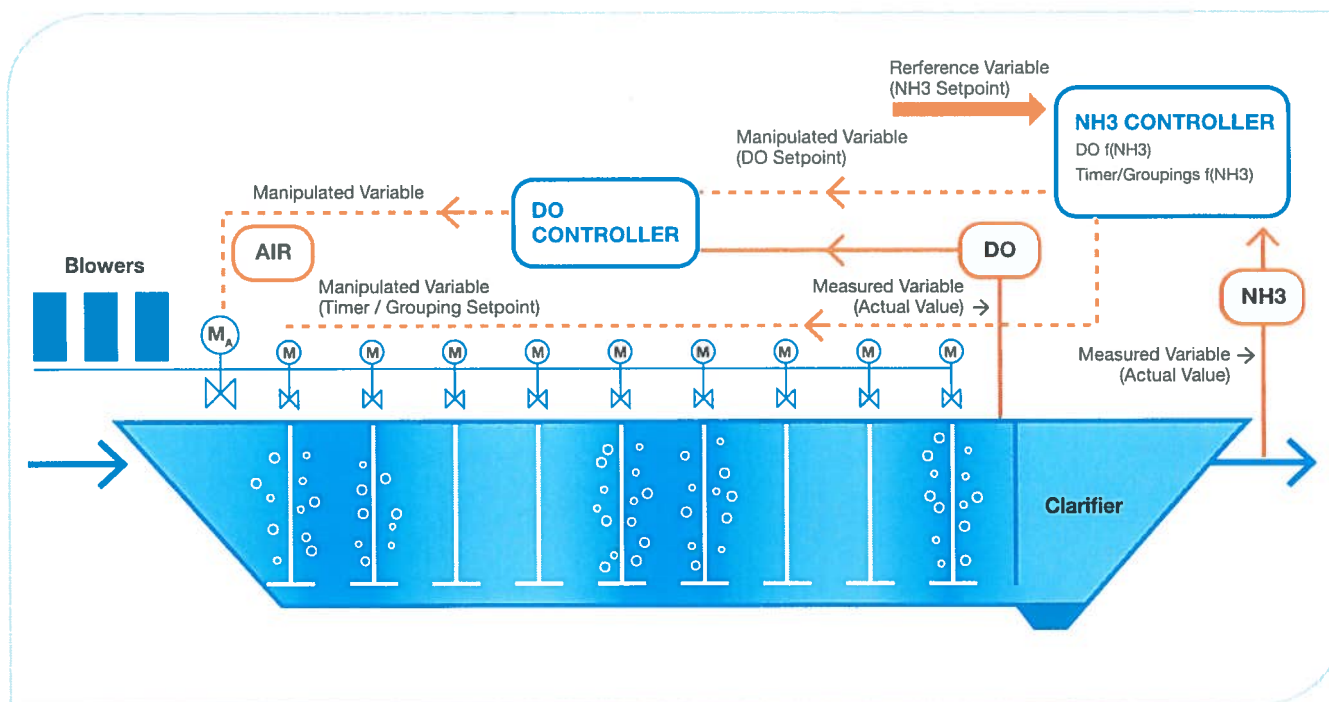
Biological nutrient removal (BNR) is simple and affordable with the Biolac[®] Wave-Ox[™] process. Proven by hundreds of successful installations, the Wave-Ox[™] process is a simple, single basin total nitrogen removal process developed specifically for the Biolac System's unique, long sludge age process and moving aeration chain design. Automatic control of the air flow distribution to the moving aeration chains creates unique moving waves of multiple oxic and anoxic zones. This repeated cycling of environments nitrifies and denitrifies the wastewater in the long sludge age Biolac basin without nitrate recycle, separate staging or additional external basins. Nitrogen removal to 5 mg/l is typical with many municipal installations achieving <3 mg/l total N.

Parkson has now taken this user-friendly solution to the next level in automatic operation and efficiency with the patent-

pending enhanced Wave-Ox[™] Process with MixMode[™] energy reduction technology. Enhanced process control automatically adjusts the oxic vs. anoxic conditions in the basin to continuous delivery optimized process performance at the lowest possible energy usage.



Enhanced Wave-Ox™ Process with MixMode™ Energy Reduction Technology



All wastewater treatment plants are dynamically loaded as influent flows and loads change depending on the time of day, day of the week and season of the year. The innovative Enhanced Wave-Ox™ process automatically optimizes the process conditions over a wide range of influent conditions to maximize total nitrogen removal at the lowest possible energy usage. Rather than relying on DO control of the process and manual aeration system adjustments, the Enhanced Wave-Ox™ process uses continuous online effluent NH3 measurement to automatically adjust the DO setpoint, the aeration chain timer and their sequence to maximize the total nitrogen removal capability of the process while minimizing air and energy usage.

The result is an automatically tuned process that maximizes total nitrogen removal continuously without manual, operator intervention, even as influent loads to the process change dramatically.

MixMode™ technology insures this optimum treatment is achieved with the lowest possible energy usage. Only enough air to consistently optimize the level of total nitrogen removal is used, and no more. MixMode™ automatically uses the minimum amount of air needed to mix the basin during times of low load. The aeration system automatically adjusts up and down as needed to maintain optimum total nitrogen removal and mixing with minimal energy usage.

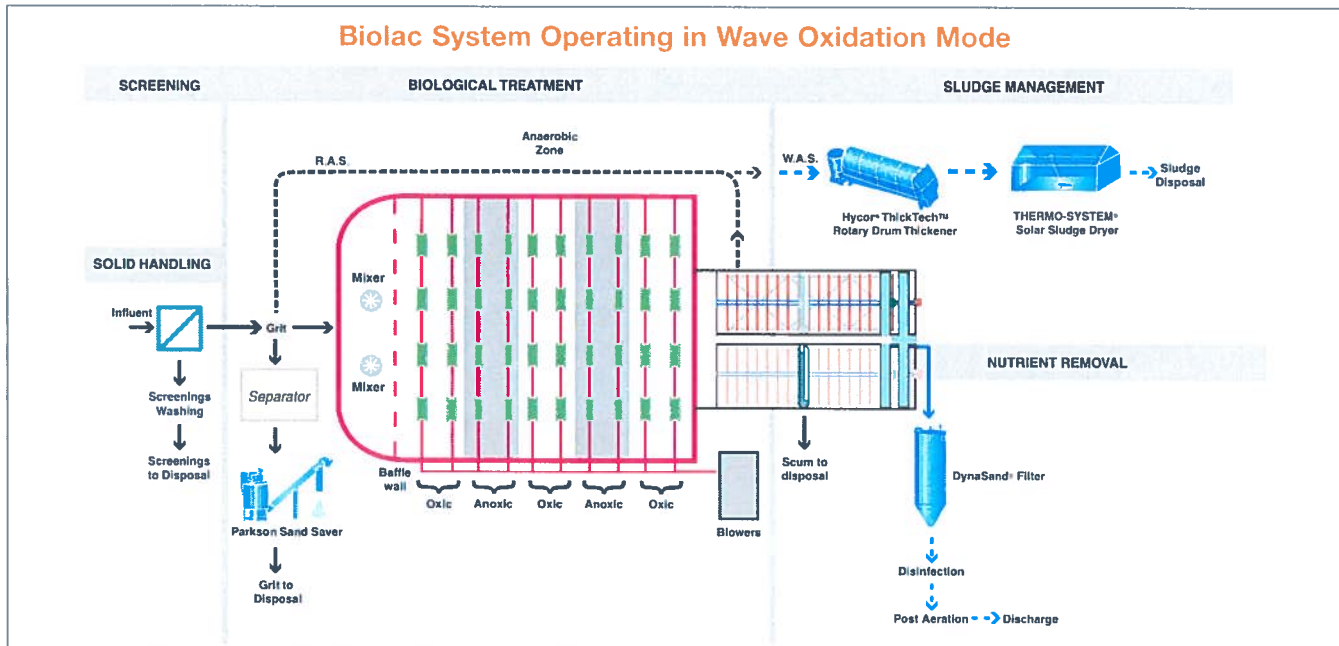


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www.parkson.com

Biolac® Wave Oxidation System

Biological Nutrient Removal



High Quality Effluent at an Affordable Price

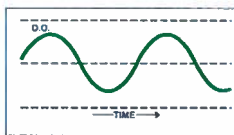
Biological Nutrient Removal (BNR) is simplified and affordable with the Biolac® Wave Oxidation process.

Simple control

of the air flow

distribution to

the Biolac's moving aeration chains varies the basin dissolved oxygen content by creating a unique moving wave of multiple oxic and anoxic zones. This repeated cycling of environments nitrifies and denitrifies the wastewater without recycle pumping or additional external basins. Nitrogen removal to 8 mg/L is standard, with many installations achieving <3-4 mg/L Total N.



Biological phosphorus removal can also be accomplished by incorporating an anaerobic zone or Bio-P zone. With the Bio-P zone, phosphorus levels of <2 mg/L are standard.

The Biolac Wastewater Treatment System is an activated sludge process utilizing a longer sludge age that reduces BOD to <10 mg/L and produces complete nitrification. The system is extremely stable and able to treat widely fluctuating loads with few operating changes.

Fine bubble diffuser assemblies are suspended above the basin floor by the BioFlex moving aeration chains. The motion of the chains and diffusers distributes the oxygen transfer and mixing energy evenly throughout the basin. Depending on customer preference and budget considerations, Biolac systems can be installed in concrete basins or lined earthen basins.

Expandable Systems

Parkson combines the best biological and filtration technologies into an enhanced nutrient removal system that will meet or exceed any mandated effluent quality. There is no effluent requirement too tough for this process.

If nitrogen and phosphorus removal requirements become more stringent, Parkson can expand your Biolac Wave Oxidation system to meet those requirements. The addition of a DynaSand® filter to polish the Biolac Wave Oxidation System effluent will reduce nitrogen to <1 mg/L and phosphorus to <0.1 mg/L. Dual phase filtration in the DynaSand D2® System can reduce phosphorus to <0.03 mg/L.

Building a total wastewater treatment plant around the Biolac system ensures a versatile, expandable facility from influent screening to final discharge.

Features

- BNR in a single basin
- Multiple treatment zones
- Reduced energy consumption
- High quality effluent
- Affordable price

Benefits

- Guaranteed process results
- 90+% total nutrient removal
- 25-30% lower energy costs
- Minimal operator attention
- Simple, low-cost construction
- Available as lined earthen basins and concrete basins
- No internal MLSS recycle required
- Alkalinity recovery



Biolac® basins with rectangular, flat bottom clarifiers under construction in California. Each clarifier will be fitted with Parkson's SuperScrapper® Sludge Removal System and SuperSkimmer Scum Removal System.



A single basin Biolac Wave Oxidation system in Arizona.



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Jean Louis Gaudet

From: John Mohle <[REDACTED]>
Sent: March-28-16 7:49 PM
To: Arun Jain; Jean Louis Gaudet; 'Brad McRoberts'
Cc: [REDACTED]; [REDACTED]; [REDACTED];
Mike Doyle; [REDACTED]; [REDACTED];
lukelise2011@hotmail.com
Subject: Drayton lagoon (Mapleton, ON)
Attachments: 20160329032740908.pdf

hi All

another potential option.....

thx:)

jm



Basis of Design

March 24, 2016
Drayton, ON Canada
Wastewater Lagoon - Aeration Upgrade

Discussion of Preliminary Calculations

The biological treatment efficiency of an aeration system is dependent on three factors: sufficient oxygenation, time, and temperature (see Eqn. 1). Temperature affects the rate of biological activity, it tends to be faster in the summer when temperatures are higher. Time is dependent on flow rate and treatment volume – by dividing the cell volume by the average daily flow, the treatment time, in days, can be determined for each cell.

There are many factors involved in the proper calculation of oxygenation requirements for an aerated treatment cell. Some of the key factors are:

- Site conditions (such as treatment depth, elevation, and temperature)
- Influent conditions (such as flow-rate, BOD and or TKN concentrations)
- Type of aerator
- Oxygen transfer efficiency of the aerator (should be measured by an independent lab)
- Field conditions (see Eqn. 2)

General treatment calculations are detailed below.

Equations

1. $E = 2.3 * k * t / (1 + 2.3 * k * t)$ *biological treatment efficiency*
 Where,
 k = varies kinetic coefficient {related to temperature}
 t = time treatment time in days

2. $FTE = \alpha (SOTE) \theta^{(T-20)} (\beta C^*_{\infty T} - DO) \div C^*_{\infty 20}$ *field transfer efficiency*
 Where,
 α contaminant factor {contaminants, depth, bubble-size} (range: 0.40 – 0.70)
 β TDS factor {total dissolved solids} (range: 0.90-1.00)
 $\theta = 1.024$ temperature factor
 DO target dissolved oxygen level (mg/L)
 $C^*_{\infty T}$ saturation oxygen concentration at site – adjusted for water depth
 $C^*_{\infty 20}$ sat. oxygen concentration at STP conditions – adjusted for water depth
 T water temperature (Celsius)

Detailed Aeration Calculations*

SUMMARY - General Design Parameters

V2.0.1	Design Scenario Name		N Removal
1	Number of Treatment Cells		1
2	Flow Regime		Series
3	Site Elevation - HWL	MSL - ft	1380.88
4	Influent Flowrate	MGD	0.34
5	Influent Concentration	mg/L	250.0
6a	Effluent Concentration (summer)	mg/L	17.8
6b	Effluent Concentration (winter)	mg/L	33.2
7	Number of Aerators		26
8	Airflow	scfm	958
9	Design Pressure (includes cushion)	psig	5.30
10	Brake Horsepower	bhp	28.69
11	Min. Design Horsepower	hp	34

SUMMARY - Biological Treatment Calculations

Item	Description	Units	N Removal
Cell 1			
1	Wastewater Flowrate	MGD	0.3432
2	Treatment Volume	M-Gal	16.0
3	Treatment Time	days	46.5
4	Design Water Temp	°C	20
5	Treatment Type	-	Partial Mix
6	Standard Reaction Rate, k_{20}	days ⁻¹	0.28
7	Design Reaction Rate, k_T	days ⁻¹	0.122
8	Biological Treatment Efficiency	%	92.9%
9	Influent BOD Loading	lb/day	715
10	Influent BOD Concentration	mg/L	250.0
11	BOD Removed	lb/day	664
12	Effluent BOD Loading	lb/day	51
13	Effluent BOD Concentration	mg/L	17.8
14	Influent NBOD Loading	lb/day	86
15	Influent NBOD Concentration	mg/L	30.0
16	NBOD Removed* (Assumed)	lb/day	77
17	Effluent NBOD Loading*	lb/day	9
18	Effluent NBOD Concentration*	mg/L	3

*Values for nitrification are assumed. Actual nitrogen removal varies based on conditions such as temperature.

SUMMARY - Aeration Calculations

Item	Description	Units	N Removal
Cell 1			
1	Lagoon Elevation	ft, MSL	1380.88
2	Lagoon Side Water Depth	ft	7.954
3	Air Release Depth	ft	7.204
4	O ₂ Loading Factor (BOD ₅)	lb-O ₂ /lb-BOD	1.5
5	O ₂ Loading Factor (NBOD ₅)	lb-O ₂ /lb-NBOD	4.6

6	AOR	lb/day	1351
7	SOTE/ft	%/ft	1.98%
8	SOTE	%	14.24%
9	Design DO Concentration	mg/L	2.0
10	Alpha-value, α		0.60
11	Beta-value, β		0.95
12	Theta-value, θ		1.02
13	FTE		5.62%
14	Air requirement	scfm	958
15	Airflow per aeration unit	scfm/unit	36.9
16	Number of aeration units	units	26
17	Water Pressure	psi	3.12
18	Aerator Pressure Loss	psi	0.75
19	Header/Feeder Pressure Allowance	psi	0.43
20	Total Operating Pressure	psig	4.30
21	Design Motor Pressure	psig	5.30

* All parameters in this table were assumed based on limited data provide. Therefore this design should not be taken as final and is subject to change based on more information being provided later.

Jean Louis Gaudet

From: Brad McRoberts <BMcRoberts@mapleton.ca>
Sent: June-17-16 11:11 AM
To: [REDACTED]; [REDACTED];
[REDACTED]; [REDACTED]; [REDACTED]
[REDACTED]; [REDACTED]
Cc: Jamie Morgan
Subject: RE: Water and Wastewater Front Ending Proposals

Folks,
Couple of updates.

We are awaiting final blessing from the MOECC on the wastewater discharge criteria before the EA can be posted and undergo the 30 day commenting period. The discharge criteria is the most critical piece to the EA and it would be inappropriate to proceed without their final review (i.e. they do not approve then the EA is meaningless). In the meantime EXP is proceeding with preliminary design and we are expecting them to provide shortly a proposal for the detailed design. We may need to consider concurrent processes to ensure that the project timeline remains as short as possible. MOECC Approvals Branch will be the next hurdle and/or time obstacle with respect to the Environmental Compliance Approval (ECA).

We are also anticipating a Ontario Community Infrastructure Fund (OCIF) announcement which will open applications for federal and provincial funding. Our delegation with the Ministry of Economic Development, Employment and Infrastructure in regards to funding of growth related projects was positive and recent correspondence appears encouraging.

Staff are meeting next week to consider the DC Bylaw review and I may have a better sense of figures following that meeting to be able to draft a front-ending proposal.

With respect the water tower EA Burnside now has all comments and will be finalizing the document for the 30 day commenting period as well.

Brad McRoberts, MPA, P.Eng

CAO Clerk
Township of Mapleton
P.O. Box 160
Drayton, Ontario
NOG 1P0
Phone (519) 638-3313 Ext 24
Toll Free 1-800-385-7248
Fax (519) 638-5113



From: Brad McRoberts
Sent: April-11-16 2:56 PM
To: [REDACTED]; [REDACTED]; [REDACTED]

[REDACTED]; [REDACTED]; [REDACTED];
[REDACTED]

Subject: Water and Wastewater Front Ending Proposals

Folks,

At our February 11, 2016 Stakeholder Meeting we had agreed to exchange proposals on April 15, 2016.

As we are currently revising our DC Study to reflect the increased cost for the wastewater project and I will not have draft numbers by April 15, 2016, I would request that we defer this exchange until the draft DC Study is completed. I am trying to get a firmer time line and will advise as soon as I know.

Thank you for your understanding.

Brad McRoberts, MPA, P.Eng

CAO Clerk

Township of Mapleton

P.O. Box 160

Drayton, Ontario

N0G 1P0

Phone (519) 638-3313 Ext 24

Toll Free 1-800-385-7248

Fax (519) 638-5113



www.mapleton.ca

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: March-22-17 10:28 AM
To: [REDACTED]
Cc: 'Arun Jain' (Arun.Jain@exp.com); 'Brad McRoberts'
Subject: Re: Mapleton Wastewater Servicing - Schedule C Class EA - Progress Update

Good Morning, Mr. Duimering,

On behalf of Brad and Arun, thank you for your e-mail and your interest in the project.

The EA is still active and the Township is looking to post the Environmental Study Report (ESR) for public review in the spring.

There were some items the Ministry of Environment and Climate Change (MOECC) wanted addressed with respect to the Receiving Water Impact Assessment (RWIA), including an effluent mixing zone study that was completed in the fall and additional background river water quality monitoring, which is performed on an on-going basis by the Grand River Conservation Authority.

We are in the process of finalizing the RWIA, which will then be submitted to the MOECC for review and sign-off. Once this occurs, we will then issue the Notice of Study Completion and post the ESR for public review and comment.

We will be sure to advise you when this occurs.

Regards,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator
t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com
80 Bancroft Street
Hamilton, ON L8E 2W5
Canada

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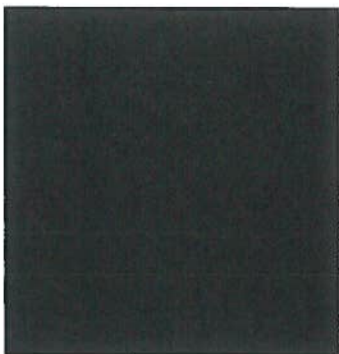
From: [REDACTED]
Sent: Monday, March 13, 2017 12:38 PM
To: bmcroberts@mapleton.ca; Arun Jain <Arun.Jain@exp.com>
Subject: Mapleton Wastewater Servicing - Schedule C Class EA - Progress Update

Good afternoon Arun/Brad,

I attended a PIC on June 16, 2015 regarding the expansion of the wastewater treatment plant and have not heard or seen any update since then. Is this EA still active and if so is there an update? I believe it warrants some follow for those interested.

Thank you.

Nathan Duimering



**Appendix E6 –
First Nations / Aboriginal / Metis Correspondence**

First Nations, Aboriginal and Metis Contact List

Contact	Organization	Mail / E-mail Address
Ms. Joanne Thomas Consultation Supervisor Land Use Unit	Six Nations of the Grand River Territory	2498 Chiefswood Road PO Box 5000 Ohsweken, ON N0A 1M0
Chief G. Ava Hill	Six Nations of the Grand River Territory	1695 Chiefswood Road PO Box 5000 Ohsweken, ON N0A 1M0 feedback@sixnations.ca
Patrick Madahbee Grand Council Chief	Union of Ontario Indians	1 Migizii Miikan PO Box 711 North Bay, ON P1B 8J8 info@anishinabek.ca
Ms. Lynn Bowerman Executive Liaison	Union of Ontario Indians	1 Migizii Miikan PO Box 711 North Bay, ON P1B 8J8 705-497-9127
Mr. Hohahes Leroy Hill Secretary	Haudenosaunee Confederacy Chiefs Council	2634 6th Line Road RR #2 Ohsweken, ON N0A 1M0 jocko@sixnationsns.com
Chief Bryan LaForme	Mississaugas of the New Credit First Nation	2789 Mississauga Road RR #6 Hagersville, ON N0A 1H0 bryanlaforme@newcreditfirstnation.com
Fawn D. Sault Consultation Manager	Mississaugas of the New Credit First Nation Department of Consultation and Accommodation	2789 Mississauga Road RR #6 Hagersville, ON N0A 1H0 Fawn.Sault@newcreditfirstnation.com

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: April-17-15 3:54 PM
To: maa.ea.review@ontario.ca
Cc: 'Arun Jain' (Arun.Jain@exp.com)
Subject: Township of Mapleton Wastewater Servicing Class EA
Attachments: 2015 04 17_JLG MAA_Mapleton_NOC and aboriginal consultation.pdf

Good afternoon,

Please find attached correspondence regarding the Township of Mapleton's Wastewater Servicing Municipal Class Environmental Assessment.

Hard copy to follow by regular mail.

Regards,

Jean-Louis



Jean-Louis Gaudet

Project Coordinator
t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
CANADA

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Consultation Unit
Ontario Ministry of Aboriginal Affairs
4th Floor, 160 Bloor Street East
Toronto, ON M7A 2E6

By e-mail: maa.ea.review@ontario.ca

April 17, 2015

Re: Township of Mapleton Wastewater Servicing Class EA
Consultation with First Nations, Aboriginal and Métis groups

To Whom It May Concern:

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Drayton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to review the wastewater collection system. Please find attached a Notice of Study Commencement and a project consultation feedback form. Also attached is the results of our search for Aboriginal community contacts conducted using AANDC's Aboriginal and Treaty Rights Information System (ATRIS).

The study is being conducted in accordance with Schedule C of the Municipal Class Environmental Assessment process (October 2000, amended 2007 and 2011), which is approved under the Ontario Environmental Assessment Act.

We are writing to consult with the Ministry of Aboriginal Affairs (MAA) to confirm our contact list regarding consultation with First Nations, Aboriginal and Métis groups. To date, a Notice of Commencement with consultation form has been mailed to the following First Nations and Aboriginal groups:

Ms. Joanne Thomas Consultation Supervisor, Land Use Unit Six Nations of the Grand River Territory	2498 Chiefswood Road PO Box 5000 Ohswéken, ON N0A 1M0
Chief G. Ava Hill Six Nations of the Grand River Territory	1695 Chiefswood Road PO Box 5000 Ohswéken, ON N0A 1M0
Grand Council Chief Patrick Madahbee Union of Ontario Indians	1 Migizii Miikan PO Box 711 North Bay, ON P1B 8J8
Ms. Lynn Bowerman Executive Liaison Union of Ontario Indians	1 Migizii Miikan PO Box 711 North Bay, ON P1B 8J8

We respectfully request MAA to comment on our distribution list and advise if there are other First Nations, Aboriginal and Métis groups that should be included in our consultation. The attached ATRIS search results map shows the approximate location of the project. The search using ATRIS was conducted by postal code with a 50 km buffer.

Thank you very much for your time. If you have any questions, please do not hesitate to contact me directly at (905) 793-9809 x 2344, by e-mail at Jeanlouis.gaudet@exp.com.

Sincerely,



Jean-Louis Gaudet
Project Coordinator

exp Services Inc.

cc: Arun Jain, Manager – Water and Wastewater Infrastructure, exp Services Inc.



NOTICE OF STUDY COMMENCEMENT

TOWNSHIP OF MAPLETON

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR MAPLETON WASTEWATER SERVICING

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Drayton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to upgrade the wastewater collection system.

The study is being conducted in accordance with Schedule C of the Municipal Class Environmental Assessment process (October 2000, amended 2007 and 2011), which is approved under the Ontario Environmental Assessment Act.

Consultation with the public and review agencies is a key element of the Class EA process, and input will be sought throughout the study using various means including this notice and Public Open Houses. Details regarding upcoming Public Open Houses will be advertised as the study progresses.

Please contact any of the following project team members if you wish to be added to the project mailing list or if you have any questions, comments about the study.

Brad McRoberts, MPA, P.Eng Director of Public Works Township of Mapleton P.O. Box 160 Drayton, Ontario N0G 1P0 Phone: (519) 638-3313 Ext 41 E-mail: BMcRoberts@mapleton.ca	Arun P. Jain, M.Eng., P.Eng. Manager – Water and Wastewater Infrastructure Exp Services Inc. 1595 Clark Blvd. Brampton, ON L6T 4V1 Phone: (905) 793-9800 x 2373 E-mail: arun.jain@exp.com
--	--

This Notice first issued on March 6, 2015



Township of Mapleton

Wastewater Servicing Municipal Class EA

Consultation Form

Organization/Department:

Contact Name:

Title:

Mailing address:

E-mail Address:

Phone/Fax:

<input checked="" type="checkbox"/>	Please Check All Responses Below That Apply:
<input type="checkbox"/>	Our organization/department does not require any further involvement in this study
<input type="checkbox"/>	Please keep us informed throughout the project
<input type="checkbox"/>	My organization's area of interest for this project includes (please indicate, if applicable):

Please fax, email or mail this form back to:

Jean-Louis Gaudet
exp Services Inc.

Fax: (905) 793-0641

E-mail: jeanlouis.gaudet@exp.com

Mailing address:
1595 Clark Blvd
Brampton, ON L6T 4V1

Aboriginal and Treaty Rights Information System (ATRIS) Search Results

Legend

Aboriginal People and Communities

- First Nations
- Inuit Communities
- ▲ Metis
- Other Aboriginal Groups

Claims and Assertions

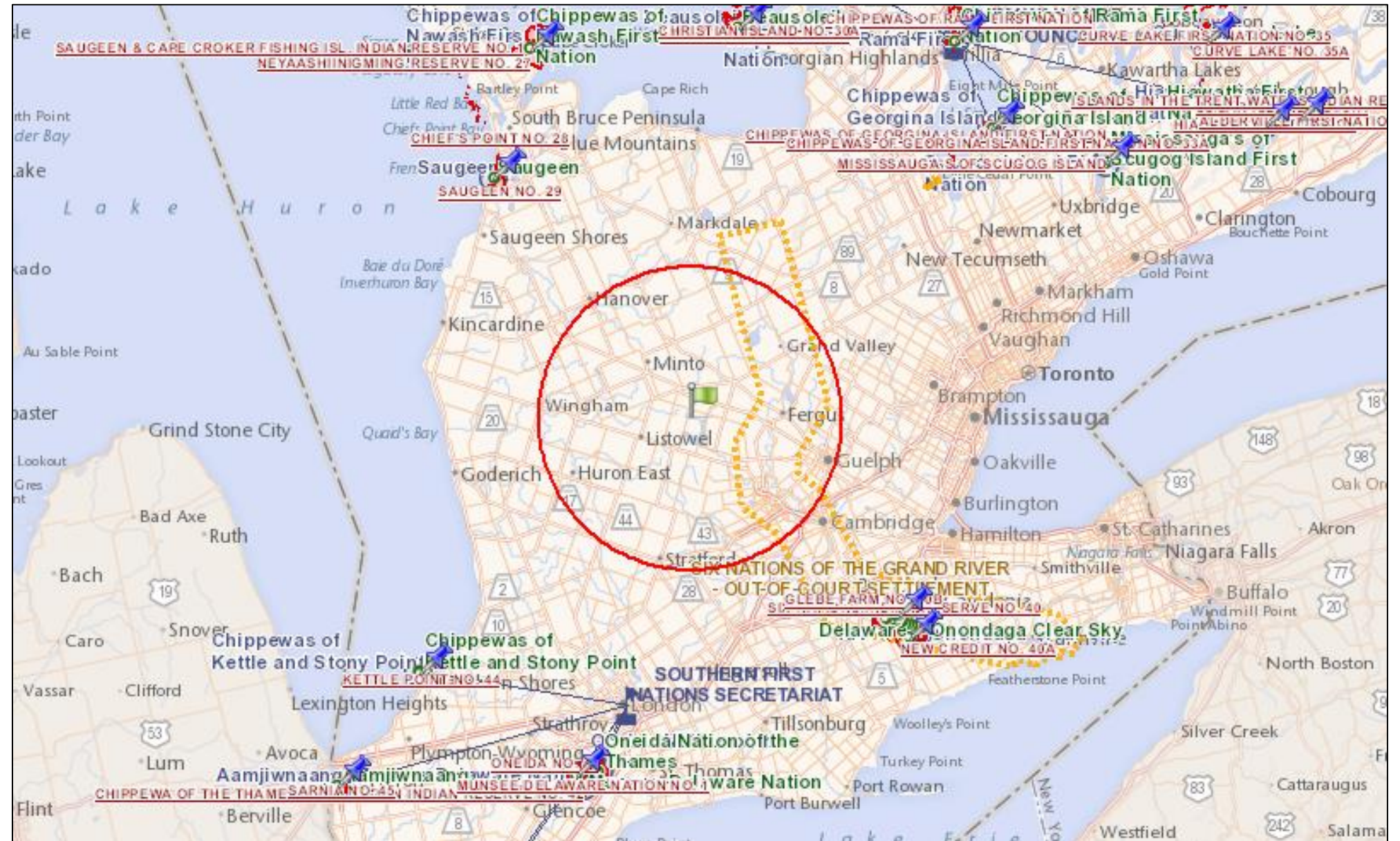
- Claim Submission Boundaries
- Traditional Territory Boundaries
- Comprehensive Land Claims
- Comprehensive Land Claims (with Self-Government)
- Other Process Claims
- Special Claims
- Statement of Intent Claims
- Transboundary Claims

Court Cases and Decisions

- Other Legal Assertions
- Out-of-Court Settlement Negotiations
- Writs of Summons

Lands, Areas and Regions

- Alberta Métis Settlements
- Inuit Nunangat (Regions)**
- Inuvialuit
- Nunatsiavut
- Nunavik
- Nunavut
- Indian Land
- Indian Reserve Lands



Search by: Postal Code (N0G 2K0)

Buffer Size: 50 km

Search Date: March 25, 2015

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: June-05-15 10:08 AM
To: Jean Louis Gaudet
Subject: Mapleton Wastewater Servicing Municipal Class EA - Notice of PIC #1
Attachments: Mapleton Wastewater Class EA_PIC 1 Notice.pdf

Good morning,

Please find attached a notice of Public Information Centre #1 for the Mapleton Wastewater Servicing Municipal Class Environmental Assessment, to be held on **June 16, 2015** from 4:00 pm to 7:00 pm at the Township of Mapleton Council Chambers .

Regards,

Jean-Louis



Jean-Louis Gaudet

Project Coordinator
t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
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TOWNSHIP OF MAPLETON

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR MAPLETON WASTEWATER SERVICING

NOTICE OF PUBLIC INFORMATION CENTRE

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Mapleton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to upgrade the wastewater collection system.

The study is being conducted in accordance with Schedule C of the Municipal Class Environmental Assessment process (October 2000, amended 2007 and 2011), which is approved under the Ontario Environmental Assessment Act. A Public Information Centre (PIC) is planned to provide further information to the public on the project and to receive input and comment from interested persons:

Date, Time and Location:

Time: 4:00 pm to 7:00 pm
Date: June 16, 2015
Location: Township of Mapleton Council Chambers
7275 Sideroad 16
Drayton, ON

Following the PIC, further comments are invited for incorporation into the planning and design of the project and will be received until July 3, 2015.

Please contact any of the following project team members if you wish to be added to the project mailing list or if you have any questions or comments about the study.

Brad McRoberts, MPA, P.Eng
Director of Public Works
Township of Mapleton
P.O. Box 160
Drayton, Ontario N0G 1P0
Phone: (519) 638-3313 Ext 41
E-mail: BMcRoberts@mapleton.ca

Arun P. Jain, M.Eng., P.Eng.
Manager – Water and Wastewater Infrastructure
Exp Services Inc.
1595 Clark Blvd.
Brampton, ON L6T 4V1
Phone: (905) 793-9800 x 2373
E-mail: arun.jain@exp.com



Township of Mapleton

Wastewater Servicing Municipal Class EA

Consultation Form

Organization/Department:

Contact Name:

Title:

Mailing address:

E-mail Address:

Phone/Fax:

<input checked="" type="checkbox"/>	Please Check All Responses Below That Apply:
<input type="checkbox"/>	Our organization/department does not require any further involvement in this study
<input type="checkbox"/>	Please keep us informed throughout the project
<input type="checkbox"/>	My organization's area of interest for this project includes (please indicate, if applicable):

Please fax, email or mail this form back to:

Jean-Louis Gaudet
exp Services Inc.

Fax: (905) 793-0641

E-mail: jeanlouis.gaudet@exp.com

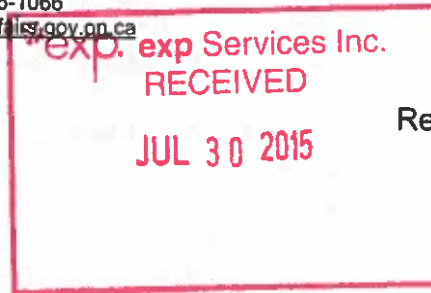
Mailing address:
1595 Clark Blvd
Brampton, ON L6T 4V1

Ministry of Aboriginal Affairs

160 Bloor St. East, 9th Floor
Toronto, ON M7A 2E6
Tel: (416) 326-4740
Fax: (416) 325-1066
www.aboriginalaffairs.gov.on.ca

Ministère des Affaires Autochtones

160, rue Bloor Est, 9^e étage
Toronto ON M7A 2E6
Tél. : (416) 326-4740
Télec. : (416) 325-1066
www.aboriginalaffairs.gov.on.ca



Reference: EA #103

Jean-Louis Gaudet
Project Coordinator
Exp
1595 Clark Blvd.
Brampton, ON
L6T 4V1

**Re: Township of Mapleton Wastewater Servicing Class EA
Consultation with First Nations, Aboriginal and Métis**

Dear Mr. Gaudet:

Thank you for informing the Ministry of Aboriginal Affairs (MAA) of your project. Please note that MAA treats all letters, emails, general notices, etc. about a project as a request for information about which Aboriginal communities may have rights or interests in the project area.

We acknowledge that you have identified the following Aboriginal communities/organizations:

- Six Nations of the Grand River
- Union of Ontario Indians

As a member of the government review team, the Ministry of Aboriginal Affairs (MAA) identifies First Nation and Métis communities who may have the following interests in the area of your project:

- reserves;
- land claims or claims in litigation against Ontario;
- existing or asserted Aboriginal or treaty rights, such as harvesting rights; or
- an interest in the area of the project.

MAA is not the approval or regulatory authority for your project, and receives very limited information about projects in the early stages of their development. In circumstances where a Crown-approved project may negatively impact a claimed Aboriginal or treaty right, the Crown may have a duty to consult the Aboriginal community advancing the claim. The Crown often delegates procedural aspects of its duty to consult to proponents. Please note that the information in this letter should not be relied on as advice about whether the Crown owes a duty to consult in respect of your project, or what consultation may be appropriate.

Should you have any questions about your consultation obligations, please contact the appropriate ministry.

You should be aware that many First Nations and/or Métis Communities either have or assert rights to hunt and fish in their traditional territories. For First Nations, these territories typically include lands and waters outside of their reserves.

In some instances, project work may impact aboriginal archaeological resources. If any Aboriginal archaeological resources could be impacted by your project, you should contact your regulating or approving Ministry to inquire about whether any additional Aboriginal communities should be contacted. Aboriginal communities with an interest in archaeological resources may include communities who are not presently located in the vicinity of the proposed project.

With respect to your project, and based on the brief materials you have provided, we can advise that the project appears to be located in an area where First Nations may have existing or asserted rights or claims in Ontario's land claims process or litigation, that could be impacted by your project. Contact information is below:

<p>Six Nations of the Grand River Territory P.O. Box 5000, 1695 Chiefswood Road OHSWEKEN, Ontario N0A 1M0</p>	<p>Chief Ava Hill (519) 445-2201 (Fax) 445-4208</p>
<p>Haudenosaunee Confederacy Chiefs Council 2634 6th Line Road RR 2 Ohsweken, ON N0A 1M0</p>	<p>Hohahes Leroy Hill Secretary to Haudenosaunee Confederacy Chiefs Council Cell 519 717 7326 jocko@sixnationsns.com</p>
<p>Mississaugas of the New Credit First Nation 2789 Mississauga Rd., R.R. #6 HAGERSVILLE, Ontario N0A 1H0</p>	<p>Chief Bryan LaForme (905) 768-1133 (Fax) 768-1225 bryanlaforme@newcreditfirstnation.com</p>

The information upon which the above comments are based is subject to change. First Nation or Métis communities can make claims at any time, and other developments can occur that could result in additional communities being affected by or interested in your undertaking.

Through Aboriginal Affairs and Northern Development (AANDC), the Government of Canada sometimes receives claims that Ontario does not receive, or with which Ontario does not become involved. AANDC's Consultation and Accommodation Unit (CAU) established a "single window" to respond to requests for baseline information held by AANDC on established or potential Aboriginal Treaty and rights. To request information from the Ontario Subject Matter Expert send an email to: UCA-CAU@aadnc-aandc.gc.ca.

Additional details about your project or changes to it that suggest impacts beyond what you have provided to date may necessitate further consideration of which Aboriginal communities may be affected by or interested in your undertaking. If you think that further consideration may be required, please bring your inquiry to whatever government body oversees the regulatory process for your project. MAA does not wish to be kept informed of the progress of the project; please be sure to remove MAA from the mailing list.

Yours truly,

A handwritten signature in black ink, appearing to read 'C Troje', written in a cursive style.

Corwin Troje
Manager, Ministry Partnerships Unit
Aboriginal Relations and Ministry Partnerships Branch

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: February-01-16 11:43 AM
To: Jean Louis Gaudet
Subject: Notice of Public Information Centre - Mapleton Wastewater Servicing Class EA
Attachments: Mapleton MPCP Class EA_PIC 2 Notice.pdf

Good morning,

Please find attached a notice for a Public Information Centre for the Township of Mapleton Municipal Class Environmental Assessment for Mapleton Wastewater Servicing.

Date, Time and Location:

Time: 4:00 pm to 7:00 pm
Date: February 11, 2016
Location: Township of Mapleton Council Chambers
7275 Sideroad 16
Drayton, ON

Thank you,

Jean-Louis Gaudet



Jean-Louis Gaudet

Project Coordinator
t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
CANADA

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TOWNSHIP OF MAPLETON

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR MAPLETON WASTEWATER SERVICING

NOTICE OF PUBLIC INFORMATION CENTRE

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Mapleton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to upgrade the wastewater collection system.

The study is being conducted in accordance with Schedule C of the Municipal Class Environmental Assessment process (October 2000, amended 2007 and 2011), which is approved under the Ontario Environmental Assessment Act. A Public Information Centre (PIC) is planned to provide further information to the public on the project and to receive input and comment from interested persons:

Date, Time and Location:

Time: 4:00 pm to 7:00 pm
Date: February 11, 2016
Location: Township of Mapleton Council Chambers
7275 Sideroad 16
Drayton, ON

Following the PIC, further comments are invited for incorporation into the planning and design of the project and will be received until February 26, 2016.

Please contact any of the following project team members if you wish to be added to the project mailing list or if you have any questions or comments about the study.

Brad McRoberts, MPA, P.Eng
CAO Clerk
Township of Mapleton
P.O. Box 160
Drayton, Ontario N0G 1P0
Phone: (519) 638-3313 Ext 41
E-mail: BMcRoberts@mapleton.ca

Arun P. Jain, M.Eng., P.Eng.
Manager – Water and Wastewater Infrastructure
Exp Services Inc.
1595 Clark Blvd.
Brampton, ON L6T 4V1
Phone: (905) 793-9800 x 2373
E-mail: arun.jain@exp.com

Jean Louis Gaudet

From: Brad McRoberts <BMcRoberts@mapleton.ca>
Sent: March-09-16 5:47 PM
To: Arun Jain; Jean Louis Gaudet
Subject: Fwd: Municipal Class Environmental Assessment
Attachments: image001.jpg; ATT00001.htm; LOLC Mapleton.docx; ATT00002.htm

Follow Up Flag: Follow up
Flag Status: Flagged

Sent from my iPhone

Begin forwarded message:

From: Fawn Sault <Fawn.Sault@newcreditfirstnation.com>
Date: March 9, 2016 at 4:03:40 PM EST
To: "BMcRoberts@mapleton.ca" <BMcRoberts@mapleton.ca>
Cc: Megan DeVries <Megan.DeVries@newcreditfirstnation.com>, Mark LaForme <Mark.LaForme@newcreditfirstnation.com>
Subject: Municipal Class Environmental Assessment



October 25, 2017

Brad McRoberts, MPA, P.Eng
CAO Clerk
Township of Mapleton
P.O. Box 160
Drayton, Ontario N0G 1P0
BMcRoberts@mapleton.ca

Dear Mr. McRoberts,

We are the Mississaugas of the New Credit First Nation (MNCFN), the descendants of the Mississaugas of the River Credit. Our traditional territory extends from the Rouge River Valley in the east, across to the headwaters of the Thames River, down to Long Point on Lake Erie, and back along the shores of Lake Erie, the Niagara River, and Lake Ontario to the Rouge River Valley. It encompasses present-day London, Hamilton, and Toronto, as well as our communal lands. Our traditional territory has defined and sustained us as a First Nation for countless generations, and must continue to do so for all our generations to come.

Thank you for your notification on *the Public Information Centre on the Municipal Class Environmental Assessment for Mapleton Wastewater Servicing* dated *January 2016*. The Mississaugas of the New Credit First Nation (MNCFN) has various treaty rights across its traditional territory, including the area contemplated by your project. For further information, please see our website, <http://www.newcreditfirstnation.com/>. MNCFN continues to exercise treaty rights which include, but are not limited to, rights to harvest, fish, trap and gather species of plants, animals and insects for any purpose including food, social, ceremonial, trade and exchange purposes. The MNCFN also has the right to use the water and resources from the rivers, creeks and lands across the MNCFN traditional territory.

At this time, MNCFN *does not* have a high level of concern regarding the proposed project and therefore, by way of this letter, approves the continuation of this project. However, MNCFN requests that you continue to notify us about the status of the project. **In addition, we respectfully ask you to immediately notify us if there are any changes to the project as they**

may impact MNCFN's interests and that you please provide us with a copy of all associated environmental and archaeology reports. This includes, but is not limited to changes related to the scope of work and expected archaeological and environmental impacts.

Additionally, MNCFN employs Field Liaison Representatives ("FLRs") to act as official representatives of the community and who are answerable to MNCFN Chief and Council through the Department of Consultation and Accommodation. The FLRs' mandate is to ensure that MNCFN's perspectives and priorities are considered in the field and to enable MNCFN to provide timely, relevant, and meaningful comment on the Project. Therefore, **it is MNCFN policy that FLRs are on location whenever any fieldwork for environmental and/or archaeological assessments are undertaken.** It is expected that the proponent will cover the costs of this FLR participation in the fieldwork. Please also provide the contact information of the person, or consultant, in charge of organizing this work so they may facilitate the participation of the MNCFN FLRs.

Nothing in this letter shall be construed as to affect the Aboriginal or Treaty rights and hence shall not limit any consultation and accommodation owed to MNCFN by the Crown or any proponent, as recognized by section 35 of the Constitution Act, 1982, of any other First Nation.

MNCFN reserves the right in relation to any development project or decision, to decide whether it supports a project and to: comment to regulators, participate in regulatory processes and hearings, seek intervener funding or status, or to challenge and seek remedies through the courts.

MNCFN expects all proponents to act according to the following best practices:

- Engage early in the planning process, before decisions are made
- Provide information in meaningful and understandable formats.
- Convey willingness to transparently describe the project and consider any MNCFN concerns.
- Recognize the significance of cultural activities and traditional practices of the MNCFN
- Demonstrate a respect for MNCFN knowledge and uses of land and resources.
- Understand the importance of youth and elders in First Nation communities.
- Act with honour, openness, transparency and respect.
- Be prepared to listen and allow time for meaningful discussion.

Sincerely,

Fawn D. Sault
Consultation Manager
MNCFN Department of Consultation and Accommodation

cc – Mark LaForme; Director, Department of Consultation and Accommodation

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: March-10-17 9:12 AM
To: Fawn.Sault@newcreditfirstnation.com
Cc: Brad McRoberts; Arun Jain; Megan.DeVries@newcreditfirstnation.com; Mark.LaForme@newcreditfirstnation.com
Subject: Mapleton Wastewater Servicing Municipal Class EA
Attachments: Fwd: Municipal Class Environmental Assessment; NRSI_1615_Mapleton WPCP_EA Report_combined_2015_12_15_AMD.pdf

Dear Ms. Sault,

We are writing to follow-up on your letter dated March 9, 2016 regarding the Municipal Class Environmental Assessment (EA) for Mapleton Wastewater Servicing. Thank you very much for your letter, and we appreciate the clarification of the Mississaugas of the New Credit First Nation's (MNCFN) interest in the project.

The proposed physical upgrades to the Mapleton Wastewater Pollution Control Plant (WPCP) will be confined to the WPCP site. The site has been previously subjected to extensive and intensive disturbance, for example from the construction of the WPCP and a subsequent storage lagoon expansion (in both cases, no items of archaeological significance were found). As such, no archaeological assessment was required for this project.

It is expected the Environmental Study Report will be made available for public review in the spring. We will include you on the circulation list for the Notice of Completion.

As per your request, please find attached a copy of the natural heritage report prepared for this project.

For more information about the project, including the display boards from Public Information Centre #1, please visit the Township's website at <http://www.mapleton.ca/component/content/article/2-uncategorised/90-environmental-assessment.html>.

Display boards from Public Information Centre #2 are available here:

http://www.mapleton.ca/images/Pdfs/Public_Works/2016/Mapleton_WWTP_MCEA_PIC_2_Boards_Feb_11_2016.pdf

Thank you,

Jean-Louis Gaudet



Jean-Louis Gaudet
Project Coordinator

t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com

80 Bancroft Street
Hamilton, ON L8E 2W5
CANADA

exp.com | [legal disclaimer](#)

keep it green, read from the screen

**Appendix E7 –
Agency Correspondence**

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: June-05-15 10:08 AM
To: Jean Louis Gaudet
Subject: Mapleton Wastewater Servicing Municipal Class EA - Notice of PIC #1
Attachments: Mapleton Wastewater Class EA_PIC 1 Notice.pdf

Good morning,

Please find attached a notice of Public Information Centre #1 for the Mapleton Wastewater Servicing Municipal Class Environmental Assessment, to be held on **June 16, 2015** from 4:00 pm to 7:00 pm at the Township of Mapleton Council Chambers .

Regards,

Jean-Louis



Jean-Louis Gaudet

Project Coordinator
t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
CANADA

exp.com | [legal disclaimer](#)

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Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: March-10-15 4:16 PM
To: Jean Louis Gaudet
Cc: Arun Jain
Subject: Township of Mapleton Wastewater Servicing Class EA - Notice of Study Commencement
Attachments: Mapleton WWS Class EA_NOC (Mar 10 2015).pdf; Mapleton WW Class EA_consultation form.docx

Good afternoon,

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Drayton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to review the wastewater collection system.

Please find attached a Notice of Study Commencement and a project consultation feedback form.

Regards,

Jean-Louis Gaudet



Jean-Louis Gaudet

Project Coordinator
t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
CANADA

exp.com | legal disclaimer

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March 10, 2015

Re: Township of Mapleton Wastewater Servicing Class EA
Notice of Study Commencement

To Whom It May Concern:

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Drayton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to review the wastewater collection system. Please find attached a Notice of Study Commencement and a project consultation feedback form.

The study is being conducted in accordance with Schedule C of the Municipal Class Environmental Assessment process (October 2000, amended 2007 and 2011), which is approved under the Ontario Environmental Assessment Act.

The Township wishes to consult with your community /organization to identify any potential concerns or issues it may have with respect to this project. We request that you indicate whether this project is of interest to you, the nature of the interest and whether you wish to be consulted further about the project.

For your convenience, a consultation feedback form has been provided with this letter, which can be returned to my colleague Jean-Louis Gaudet by mail, email at jeanlouis.gaudet@exp.com or by fax at (905) 793-0641.

Sincerely,

A handwritten signature in blue ink that reads 'A. P. J.' followed by a horizontal line.

Arun Jain
Manager – Water and Wastewater Infrastructure

exp Services Inc.



NOTICE OF STUDY COMMENCEMENT

TOWNSHIP OF MAPLETON

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR MAPLETON WASTEWATER SERVICING

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Drayton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to upgrade the wastewater collection system.

The study is being conducted in accordance with Schedule C of the Municipal Class Environmental Assessment process (October 2000, amended 2007 and 2011), which is approved under the Ontario Environmental Assessment Act.

Consultation with the public and review agencies is a key element of the Class EA process, and input will be sought throughout the study using various means including this notice and Public Open Houses. Details regarding upcoming Public Open Houses will be advertised as the study progresses.

Please contact any of the following project team members if you wish to be added to the project mailing list or if you have any questions, comments about the study.

Brad McRoberts, MPA, P.Eng Director of Public Works Township of Mapleton P.O. Box 160 Drayton, Ontario N0G 1P0 Phone: (519) 638-3313 Ext 41 E-mail: BMcRoberts@mapleton.ca	Arun P. Jain, M.Eng., P.Eng. Manager – Water and Wastewater Infrastructure Exp Services Inc. 1595 Clark Blvd. Brampton, ON L6T 4V1 Phone: (905) 793-9800 x 2373 E-mail: arun.jain@exp.com
--	--

This Notice first issued on March 6, 2015



Township of Mapleton

Wastewater Servicing Municipal Class EA

Consultation Form

Organization/Department:

Contact Name:

Title:

Mailing address:

E-mail Address:

Phone/Fax:

<input checked="" type="checkbox"/>	Please Check All Responses Below That Apply:
<input type="checkbox"/>	Our organization/department does not require any further involvement in this study
<input type="checkbox"/>	Please keep us informed throughout the project
<input type="checkbox"/>	My organization's area of interest for this project includes (please indicate, if applicable):

Please fax, email or mail this form back to:

Jean-Louis Gaudet
exp Services Inc.

Fax: (905) 793-0641

E-mail: jeanlouis.gaudet@exp.com

Mailing address:
1595 Clark Blvd
Brampton, ON L6T 4V1

**Ministry of the Environment and
Climate Change**

West-Central Region
Technical Support Section
Air, Pesticides & Environmental
Planning
12th Floor
119 King St W
Hamilton ON L8P 4Y7
Fax: (905) 521-7820
Tel:

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

Direction régionale du Centre-Ouest
Section du Soutien Technique
Air, pesticides et planification
environnementale
12e étage
119 rue King W
Hamilton ON L8P 4Y7
Télécopieur: (905) 521-7820
Té:



March 16, 2015

✓ Mr. Arun P. Jain
Exp Services Inc.
1595 Clark Blvd.
Brampton, ON
L6T 4V1

Mr. B. McRoberts
Director, Public Works
Township of Mapleton
P.O. Box 160
Drayton, ON
N0G 1P0

Dear Messrs. Jain and McRoberts:

**RE: Response to the Notice of Study Commencement
Township of Mapleton
Municipal Class Environmental Assessment for Mapleton Wastewater
Servicing
Reference Number 3636-9UNK4U**

This letter is our response to the Notice of Commencement for the above noted project. This response acknowledges that the Township of Mapleton has indicated that its study is following the Schedule "C" process as prescribed by the MEA Class Environmental Assessment. It is understood that the purpose of the study is to evaluate alternatives to expand the treatment capacity of the Drayton Wastewater Treatment Plant, and to upgrade the wastewater collection system. Thank you for the opportunity to comment on this project.

Based on the information submitted, we have identified the following key project details with respect to the proposed undertaking:

- Part C of the Municipal Class EA provides guidance on evaluation of alternatives and suggests possible alternative solutions to consider; and

- Given the subsequent approval requirements (i.e. amendment to existing Environmental Compliance Alternatives), it is recommended that you build in consultation with this office throughout the course of the EA study. For example, we are available to meet with the project team to discuss any technical requirements for studies that will support the EA such as an assimilative capacity assessment of the receiver.

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 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 (905) 521-7864 or at Barbara.slattery@ontario.ca

Yours truly,



Barbara Slattery

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 12A Flr 2 St Clair Ave W Toronto ON M4V1L5

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
<p>1. Are you aware of concerns from First Nation and Métis communities about your project or a similar project in the area?</p> <p>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.</p>		
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?		
<p>6. Is your project close to, or adjacent to, an existing reserve?</p> <p>Projects in areas near reserves may be of interest to the First Nation and Métis communities living there.</p>		
7. Will the project affect First Nations and/or Métis ability to access areas of significance to them?		
<p>8. Is the area subject to a land claim?</p> <p>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.</p>		
9. Does the project have the potential to impact any archaeological sites?		

Jean Louis Gaudet

From: Jason Wagler <jwagler@grandriver.ca>
Sent: March-18-15 2:04 PM
To: Jean Louis Gaudet
Cc: Sandra Cooke; Mark Anderson; Arun Jain; Brad McRoberts <BMcRoberts@mapleton.ca> (BMcRoberts@mapleton.ca)
Subject: Township of Mapleton Wastewater Servicing Class EA - Notice of Study Commencement
Attachments: Mapleton Wastewater Servicing.pdf; GRCA - Mapleton Wastewater Treatment EA - initial comments.pdf

Hi Jean-Louis,

Attached is the completed consultation feedback form as well as GRCA's initial comments.

Thank you.

Jason Wagler, MCIP, RPP
Resource Planner
Grand River Conservation Authority
400 Clyde Rd, Cambridge ON N1R 5W6
(519) 621-2763 x2320
www.grandriver.ca

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]
Sent: March-10-15 4:16 PM
To: Jean Louis Gaudet
Cc: Arun Jain
Subject: Township of Mapleton Wastewater Servicing Class EA - Notice of Study Commencement

Good afternoon,

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Drayton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to review the wastewater collection system.

Please find attached a Notice of Study Commencement and a project consultation feedback form.

Regards,

Jean-Louis Gaudet



Jean-Louis Gaudet

Project Coordinator

t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com

1595 Clark Blvd.

Brampton, ON L6T 4V1

CANADA

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Township of Mapleton
Wastewater Servicing
Municipal Class EA

Consultation Form

Organization/Department:

Contact Name: Jason Wagler

Title: Resource Planner

Mailing address: 100 Clyde Road, Cambridge, ON N1R5W6

E-mail Address: jwagler@grandrivers.ca

Phone/Fax: 519-621-2763 x2320

<input checked="" type="checkbox"/>	Please Check All Responses Below That Apply:
<input type="checkbox"/>	Our organization/department does not require any further involvement in this study
<input checked="" type="checkbox"/>	Please keep us informed throughout the project
<input checked="" type="checkbox"/>	My organization's area of interest for this project includes (please indicate, if applicable): - water quality - potential impacts on sign. natural features and - operational optimization of wastewater <i>horizons</i>

Please fax, email or mail this form back to:

Jean-Louis Gaudet
exp Services Inc.

Fax: (905) 793-0641

E-mail: jeanlouis.gaudet@exp.com

Mailing address:
1595 Clark Blvd
Brampton, ON L6T 4V1



400 Clyde Road, P.O. Box 729, Cambridge, ON N1R 5W6
Phone: 519-621-2761 Toll free: 866-900-4722 www.grandriver.ca

March 18, 2015

Brad McRoberts, MPA, P.Eng
Director of Public Works
Township of Mapleton
P.O. Box 160
Drayton, ON N0G 1P0

Arun Jain, M. Eng, P.Eng
Manager – Water and Wastewater
Infrastructure, Exp Services Inc.
1595 Clark Blvd
Brampton, ON L6T 4V1

Dear Mr. McRoberts and Mr. Jain:

**Re: Township of Mapleton – Mapleton Wastewater Servicing
Schedule C Class Environmental Assessment
Notice of Study Commencement**


Grand River Conservation Authority (GRCA) staff has received the Township of Mapleton/Exp Services Inc.'s notice of study commencement for the Class Environmental Assessment to evaluate alternatives to expand the treatment capacity of the Drayton Wastewater Treatment Plant.

The Grand River Conservation Authority is interested in being involved with this project and we wish to receive additional information as it becomes available.

We will provide additional comments upon receipt of further details related to this Schedule C EA.

Should you have any questions or require any information, please contact the undersigned at 519-621-2763 ext. 2320.

Yours truly,


Jason Wagler, MCIP, RPP
Resource Planner
Grand River Conservation Authority

c.c. Sandra Cooke and Mark Anderson, GRCA

Page 1 of 1

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: April-14-15 10:25 AM
To: manderson@grandriver.ca
Cc: 'Arun Jain' (Arun.Jain@exp.com)
Subject: Mapleton wastewater Class EA

Hi Mark,

As per my voice mail, can you please advise who from GRCA will be attending our meeting next week (April 22) about the Mapleton wastewater class EA? We are preparing the agenda and would like to include them on the participant list.

I understand that you are out in the field this week; if you are unable to forward the names, then we can send out a draft agenda and add them to the final.

Also, we are likely bringing our natural sciences sub-consultant Elaine Gosnell to the meeting, and she suggested it may be useful for Tony Zammit from GRCA's Natural Heritage section to also attend, to discuss natural heritage matters. If you agree, please feel free to extend the meeting invitation to him.

I am working at a different office this week, but can be reached by e-mail or by calling my cell – 416-728-6261.

Thanks,

Jean-Louis



Jean-Louis Gaudet

Project Coordinator
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Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: April-17-15 3:54 PM
To: maa.ea.review@ontario.ca
Cc: 'Arun Jain' (Arun.Jain@exp.com)
Subject: Township of Mapleton Wastewater Servicing Class EA
Attachments: 2015 04 17_JLG MAA_Mapleton_NOC and aboriginal consultation.pdf

Good afternoon,

Please find attached correspondence regarding the Township of Mapleton's Wastewater Servicing Municipal Class Environmental Assessment.

Hard copy to follow by regular mail.

Regards,

Jean-Louis



Jean-Louis Gaudet

Project Coordinator
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Consultation Unit
Ontario Ministry of Aboriginal Affairs
4th Floor, 160 Bloor Street East
Toronto, ON M7A 2E6

By e-mail: maa.ea.review@ontario.ca

April 17, 2015

Re: Township of Mapleton Wastewater Servicing Class EA
Consultation with First Nations, Aboriginal and Métis groups

To Whom It May Concern:

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Drayton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to review the wastewater collection system. Please find attached a Notice of Study Commencement and a project consultation feedback form. Also attached is the results of our search for Aboriginal community contacts conducted using AANDC's Aboriginal and Treaty Rights Information System (ATRIS).

The study is being conducted in accordance with Schedule C of the Municipal Class Environmental Assessment process (October 2000, amended 2007 and 2011), which is approved under the Ontario Environmental Assessment Act.

We are writing to consult with the Ministry of Aboriginal Affairs (MAA) to confirm our contact list regarding consultation with First Nations, Aboriginal and Métis groups. To date, a Notice of Commencement with consultation form has been mailed to the following First Nations and Aboriginal groups:

Ms. Joanne Thomas Consultation Supervisor, Land Use Unit Six Nations of the Grand River Territory	2498 Chiefswood Road PO Box 5000 Ohswegen, ON N0A 1M0
Chief G. Ava Hill Six Nations of the Grand River Territory	1695 Chiefswood Road PO Box 5000 Ohswegen, ON N0A 1M0
Grand Council Chief Patrick Madahbee Union of Ontario Indians	1 Migizii Miikan PO Box 711 North Bay, ON P1B 8J8
Ms. Lynn Bowerman Executive Liaison Union of Ontario Indians	1 Migizii Miikan PO Box 711 North Bay, ON P1B 8J8

We respectfully request MAA to comment on our distribution list and advise if there are other First Nations, Aboriginal and Métis groups that should be included in our consultation. The attached ATRIS search results map shows the approximate location of the project. The search using ATRIS was conducted by postal code with a 50 km buffer.

Thank you very much for your time. If you have any questions, please do not hesitate to contact me directly at (905) 793-9809 x 2344, by e-mail at Jeanlouis.gaudet@exp.com.

Sincerely,



Jean-Louis Gaudet
Project Coordinator

exp Services Inc.

cc: Arun Jain, Manager – Water and Wastewater Infrastructure, exp Services Inc.



NOTICE OF STUDY COMMENCEMENT

TOWNSHIP OF MAPLETON

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR MAPLETON WASTEWATER SERVICING

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Drayton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to upgrade the wastewater collection system.

The study is being conducted in accordance with Schedule C of the Municipal Class Environmental Assessment process (October 2000, amended 2007 and 2011), which is approved under the Ontario Environmental Assessment Act.

Consultation with the public and review agencies is a key element of the Class EA process, and input will be sought throughout the study using various means including this notice and Public Open Houses. Details regarding upcoming Public Open Houses will be advertised as the study progresses.

Please contact any of the following project team members if you wish to be added to the project mailing list or if you have any questions, comments about the study.

Brad McRoberts, MPA, P.Eng Director of Public Works Township of Mapleton P.O. Box 160 Drayton, Ontario N0G 1P0 Phone: (519) 638-3313 Ext 41 E-mail: BMcRoberts@mapleton.ca	Arun P. Jain, M.Eng., P.Eng. Manager – Water and Wastewater Infrastructure Exp Services Inc. 1595 Clark Blvd. Brampton, ON L6T 4V1 Phone: (905) 793-9800 x 2373 E-mail: arun.jain@exp.com
--	--

This Notice first issued on March 6, 2015



Township of Mapleton

Wastewater Servicing Municipal Class EA

Consultation Form

Organization/Department:

Contact Name:

Title:

Mailing address:

E-mail Address:

Phone/Fax:

<input checked="" type="checkbox"/>	Please Check All Responses Below That Apply:
<input type="checkbox"/>	Our organization/department does not require any further involvement in this study
<input type="checkbox"/>	Please keep us informed throughout the project
<input type="checkbox"/>	My organization's area of interest for this project includes (please indicate, if applicable):

Please fax, email or mail this form back to:

Jean-Louis Gaudet
exp Services Inc.

Fax: (905) 793-0641

E-mail: jeanlouis.gaudet@exp.com

Mailing address:
1595 Clark Blvd
Brampton, ON L6T 4V1

Aboriginal and Treaty Rights Information System (ATRIS) Search Results

Legend

Aboriginal People and Communities

- First Nations
- Inuit Communities
- ▲ Metis
- Other Aboriginal Groups

Claims and Assertions

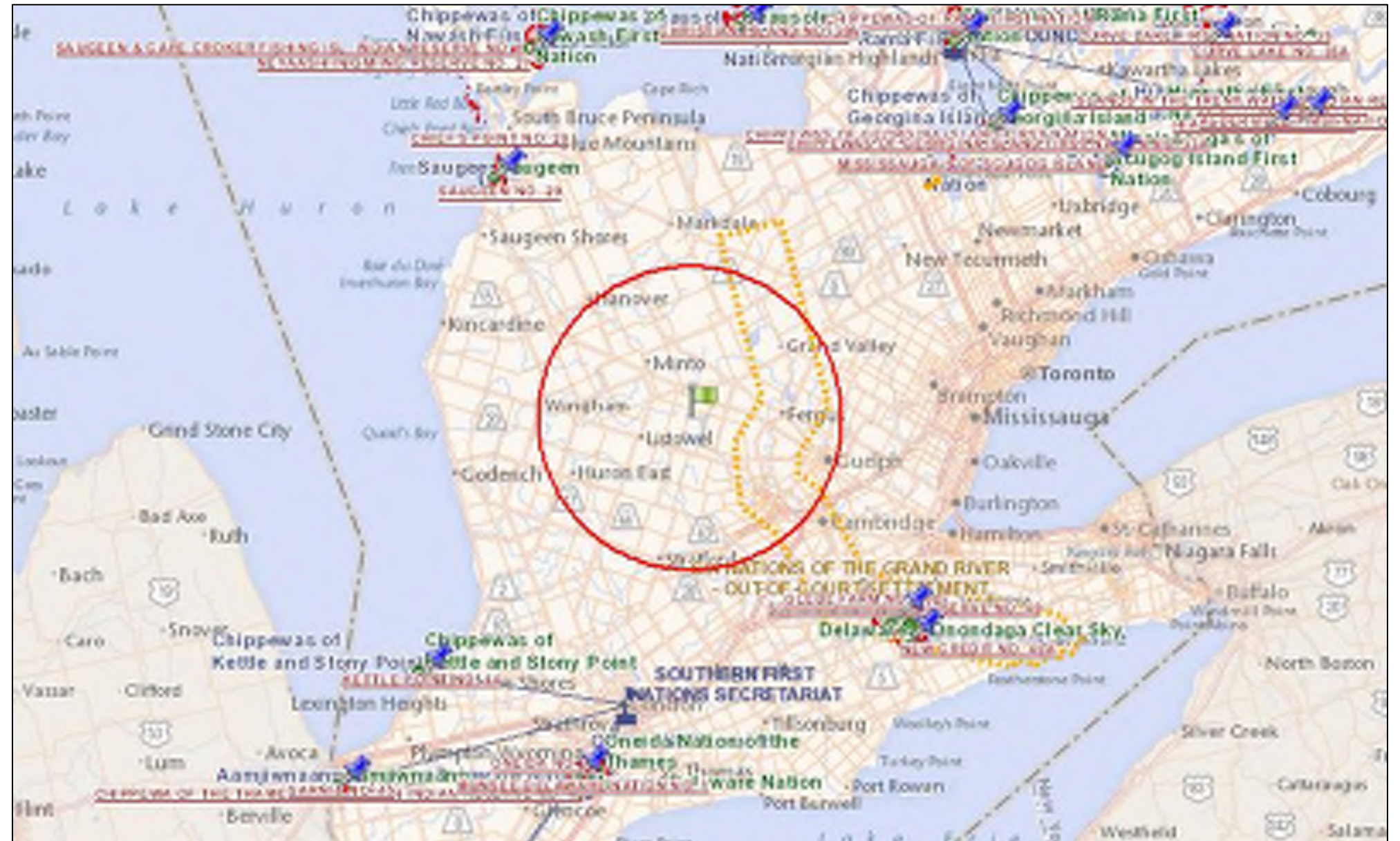
- Claim Submission Boundaries
- Traditional Territory Boundaries
- Comprehensive Land Claims
- Comprehensive Land Claims (with Self-Government)
- Other Process Claims
- Special Claims
- Statement of Intent Claims
- Transboundary Claims

Court Cases and Decisions

- Other Legal Assertions
- Out-of-Court Settlement Negotiations
- Writs of Summons

Lands, Areas and Regions

- Alberta Métis Settlements
- Inuit Nunangat (Regions)
 - Inuvialuit
 - Nunatsiavut
 - Nunavik
 - Nunavut
- Indian Land
- Indian Reserve Lands



Search by: Postal Code (N0G 2K0)

Buffer Size: 50 km

Search Date: March 25, 2015

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: April-23-15 11:19 AM
To: Mark Anderson
Cc: Arun Jain; Brad McRoberts <BMcRoberts@mapleton.ca> (BMcRoberts@mapleton.ca)
Subject: RE: Mapleton ECA
Attachments: Mapleton_GRCA Meeting_Apr 22 2015.pdf; Mapleton WW Servicing Class EA_Ph 1 Report (DRAFT_2015MAR20).pdf

Hi Mark,

Thanks for this.

And thanks again for agreeing to meet with us to discuss the EA and for hosting. It was great meeting your team and it was very informative. The presentation is attached.

Also attached is a copy of the phase 1 report, for your information.

Cheers,

JL

Jean-Louis Gaudet | exp

Project Coordinator
t: +1.905.793.9809 x2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Boulevard
Brampton, ON L6T 4V1
Canada

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From: Mark Anderson [mailto:manderson@grandriver.ca]
Sent: April-23-15 10:05 AM
To: Arun Jain; Jean Louis Gaudet
Subject: Mapleton ECA

Hi, Arun and Jean Louis

As discussed, here is the most recent version of the Mapleton ECA for your reference. Can you provide a copy of the presentation from yesterday when you get a chance? Thanks,

Mark Anderson, P.Eng.
Water Quality Engineer

Grand River Conservation Authority
400 Clyde Road
PO Box 729
Cambridge, ON N1R 5W6

Phone 519-621-2763 ext. 2226

Fax 519-621-4945

www.grandriver.ca

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Meeting Agenda

Date:	Wednesday, April 22, 2015 3:00 PM to 4:30 PM		
Project Name:	Mapleton Wastewater EA	Project #:	BRM-605325-A0
Subject:	Meeting with GRCA		
Participants:	Brad McRoberts (Mapleton) Mark Anderson, Sandra Cooke, Dwight Boyd, Jason Wagler, Tony Zammit (GRCA) Arun Jain, Jean-Louis Gaudet (exp) Elaine Gosnell (Natural Resources Solutions)		
Location:	Conference Room GRCA Offices 400 Clyde Road, Cambridge	Prepared By:	JL Gaudet
Distribution:	Brad McRoberts, Mark Anderson, Arun Jain, Jean-Louis Gaudet, Elaine Gosnell		

1. Introductions
2. Project Scope and Status Update
3. Wastewater Pollution Control Plant
 - 3.1. Key Issues
 - 3.2. Potential Solutions
4. Natural Heritage
 - 4.1. Key Natural Heritage Features
 - 4.2. Available GRCA Data
5. Next Steps



**Municipal Class EA for Mapleton
Wastewater Servicing:
*Meeting with GRCA***

April 22, 2015

— Meeting Agenda

- Introductions
- Project Scope and Status Update
- Wastewater Pollution Control Plant
 - Key Issues
 - Potential Solutions
- Natural Heritage
 - Key Natural Heritage Features
 - Available GRCA Data
- Next Steps



Project Scope

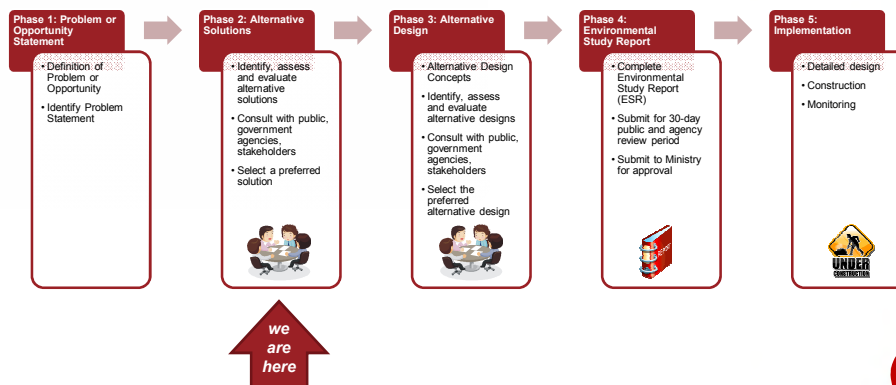
- To undertake Municipal Class EA to evaluate alternatives to potentially upgrade the Mapleton Wastewater Collection and Treatment System; and
- Prepare preliminary design of municipal wastewater system.



4

Municipal Class EA Process

- A Class EA is a study to plan for a proposed project, which includes background and technical studies, a review and assessment of potential environmental, social and economic impacts and how they can be avoided, and an evaluation of possible alternatives.
- The result is an Environmental Study Report (ESR), which documents the process and lists the commitments made by the proponent.
- The Class EA process is completed in accordance with the *Environmental Assessment Act*.



5

Problem Statement

- Facility operating very close to rated capacity of 750 m³/d
- Average 2013 inflow: 714 m³/d (95% of rated capacity)
- Rated capacity of facility must be increased to 1,225 m³/day allow the Township to meet projected service area growth to 2031
- Drayton system does not have sufficient pumping capacity to service projected future population

Proposed Problem Statement

- *The Township has a lagoon-based Wastewater Treatment system which currently only has the rated capacity for 750 cubic metres per day. The treatment capacity needs to be increased to permit growth within the served areas of the Township to meet the Township's projected serviced area growth until 2031.*
- *The Drayton Pumping Station does not have sufficient capacity to service Drayton's projected 2031 population. Pumping capacity will need to be increased in order to meet this service requirement.*

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Overview: Existing System - Treatment

- **Primary Treatment**
 - The existing plant has no primary treatment
- **Secondary Treatment**
 - An aerated lagoon (Cell 2) of 60,500 m³. Air supply is provided by two high speed blowers (1 duty and 1 standby) having a capacity of 680 m³/h at 45 kPa.
 - A secondary settling lagoon (Cell 1) of 62,100 m³.
 - Three storage ponds (Cells 3, 4A and 4B) with a total volume of 350,000 m³.
- **Tertiary Treatment**
 - An **alum dosing system** with a 15,000 L storage tank and two 7.1 L/h capacity metering pumps. Alum is dosed in the flow structure A located upstream of the storage pond (Cell 3). The flocculation takes place in Cell 3 using a diffused air system. Air supply for mixing is provided by a 25 hp compressor.
 - **Five tertiary sand filters**, each having a 4.65 m² filtration area. The total capacity of the filters is 5580 m³/d based on a filtration rate of 10 m³/m²/h.
 - Two **UV disinfection units**, designed to handle a peak flow of 4,000 m³/d.
 - The effluent is discharged into the Conestogo River via a 600 mm diameter pipe and a swale.

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Overview: Existing System - Treatment



13

Overview: Existing System

- Current rated capacity is 750 m³/day (or 273,872 m³/year of influent flow)
- Current Discharge Window:

Month	Discharge Limits	
	m ³ /d	m ³ /month
March	1,581	49,015
April (1 st to 13 th)	3,154	40,997
October	233	7,232
November	1,754	52,618
December	4,000	124,010
Annual total		273,872 m³



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Current Effluent Objectives

Effluent Parameter	Effluent Objective	Effluent Limit	Measured Final Effluent (2013 - 2014)
cBOD5	5.0 mg/L	Apr/Oct: 7.5 mg/L Mar/Nov/Dec: 10.0 mg/L	Apr/Oct: ~ 2 to 5 mg/L Mar/Nov/Dec: ~ 2 to 3.5 mg/L
TSS	None	None	Spring 2-8 mg/l Fall 2-7 mg/l
Total Ammonia Nitrogen (TAN)	3.0 mg/L	5.0 mg/L	~0.01 to 4.75 (highest in March)
Total Phosphorus (TP)	0.3 mg/L	0.5 mg/L	~0.05 to 0.25
E.Coli	100 org./100 mL	200 org./100 mL	nil



15

Key Issues

- Ensure future treatment remains adequate
- New ammonia standards
- Phosphorus treatment/loading
- Receiving water assessment
- Adequate storage - continuous discharge / intermittent discharge
- Effect of rainwater on storage
- Overland flow / Outfall (including measurement)
- Other Issues?



14

Potential Solutions



Natural Heritage

- Key local environmental feature → the Conestoga River
- Outlet traverses GRCA owned lands - Conestoga Lake Conservation Area
- mainly forested with deciduous and coniferous forest, and coniferous plantation
- No designated significant natural features
- WPCP discharges to Conestoga River via natural swale

Natural Heritage

Conestoga River Subwatershed Conditions

- Warmwater system of tributaries and municipal drains that flow into the main channel and eventually into Conestogo Lake, (approx. 7.0km downstream of Drayton),
- Adjacent lands are intensively farmed and heavily drained,
- In the local area, the river is relatively wide (10-20m) and flat, <1.0m deep during the summer months,
- Aquatic habitat includes shallow pools, riffles, and runs that flow over a variety of substrates and finer substrates (silt in the backwater areas),
- River suffers from low baseflow, warm temperatures, lack of riparian vegetation and agricultural runoff input, water level changes due to the Conestoga dam,
- Algae mats can form throughout backwater areas.



Natural Heritage

Conestoga River Fish/Mussel Community

- Supports diverse warmwater fish community, including northern pike, smallmouth bass, yellow perch, walleye, and carp, and a variety of warmwater baitfish species
- Historically, stocked with Brown Trout (coldwater species), downstream of Conestoga Lake,
- No Species At Risk (SAR) fish mapped by DFO
- Variety of common mussel species known and potential for 7 SAR mussels.



Natural Heritage

Site Conditions - Swale

- Narrow band of meadow marsh
- No amphibians calling at recent site visit (evening of April 16)
- No defined channel in swale upstream or downstream of outfall, until closer to Conestoga River confluence (300m downstream).
- During times of high water, swale connects to Conestoga River at upstream and downstream end
- Fish habitat present in the lower portions of the swale near the confluence with Conestoga River, including some large pools and deeper sections
- Fish habitat likely to be used in swale when pools are connected to river,
- Northern pike spawning may occur throughout swale, particularly in lower sections following spring freshet when swale is inundated.



Natural Heritage

Site Conditions – Outfall at swale



Natural Heritage

Upstream view of swale from outfall (facing east)



exp.

Natural Heritage

Downstream view of swale and outfall (facing southwest)



exp.

Natural Heritage

*Swale downstream of outfall, halfway to Conestoga River
(facing west)*



exp.

Natural Heritage

Available GRCA (and other) Data



exp.

Project Schedule

- Project Kick Off: Jan 28, 2015
- Class EA Phase 1 Feb – March 2015
- Class EA Phase 2 April – June 2015
- Class EA Phase 3 July – Nov 2015
- Class EA Phase 4 December 2015
- Preliminary Design Nov – Dec 2015



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Next Steps

- Meet with GRCA and MOECC
- Review/discuss alternative solutions and possible treatment enhancements
- Investigate opportunities for continuous discharge



23

Name:

E-mail

Ann Jain

Dr. By
T. Za +

GREC
GREC

@ a rick
ca

Elaine Gosnell

GRCA
NRSI

@

David Paretz

Burnside

david.paretz @
rijburnside.com

An

Uephr

~~_____~~



Meeting Minutes

Date:	May 14, 2015	Meeting Date:	April 22, 2015 3:00 pm
Project Name:	Mapleton Wastewater Class EA	Project #:	BRM-605325-A0
Subject:	Meeting with GRCA		
Participants:	Brad McRoberts (Township of Mapleton) Mark Anderson, Dwight Boyd, Tony Zammuto, Jason Wagler, Kelly Hagan (GRCA) Elaine Gosnell (NRSI) David Paetz (RJ Burnside) Arun Jain, Jean-Louis Gaudet (exp)		
Location:	GRCA Offices 400 Clyde Road Cambridge, ON	Prepared By:	JL Gaudet / Arun Jain
Distribution:	All Present		

Item No.	Discussions	Action
1.	Welcome and Introductions <ul style="list-style-type: none"> Arun welcomed all of the participants and everyone introduced themselves. Arun reviewed the agenda for the day's meeting. 	
2.	Project Scope and Status Update <ul style="list-style-type: none"> Arun presented the scope of the project, which includes a Class Environmental Assessment (EA) and preliminary design for the municipal wastewater system. The project is currently in Phase 2 of the Class EA Process. Arun described the purpose of the Class EA as to evaluate alternatives to potentially upgrade the Mapleton wastewater collection system and the wastewater Pollution Control Plant (WPCP). He presented the project's study area and problem statement. 	
3.	Wastewater Pollution Control Plant <ul style="list-style-type: none"> Arun presented a summary of the existing WPCP, including effluent limits, objectives and performance. Arun presented a list of identified issues for to be considered as the project moves forward. 	

	<ul style="list-style-type: none"> • Key points raised during discussion on potential issues: <ul style="list-style-type: none"> ○ MOECC may want to see calculations confirming that total ammonia will not increase. ○ Loading is very sensitive to the time of the year. ○ The ability of the system to remove ammonia in the winter. ○ Impact of ice on the river impacting the discharge's ability to enter the river during the winter (would discharge pool on top). This may be addressed by the outfall location (which is not located right at the river but is instead at a swale). ○ Potential issues related to generation of hydrogen sulfide. ○ Solutions need to be tested on low flow periods, which would require extra storage of the treated effluent. ○ What are the hydraulic issues with respect to sludge. • Issues identified with respect to continuous discharge include: <ul style="list-style-type: none"> ○ While effluent quality is good, it is not good compared to river water quality. ○ The discharge gets stored at the reservoir, which becomes in essence the receiver. The reservoir is used for recreation and fishing in the summer. ○ The dilution ratio in the summer would be very small. ○ There is uncertainty over how the systems will respond to low flow events. 	
4.	<p>Natural Heritage Summary</p> <ul style="list-style-type: none"> • Elaine provided summarized the findings of the project's recent natural heritage investigations and presented images of the outfall and swale. • She noted that there does not appear to be any natural heritage features that would interfere with facility upgrades. • GRCA commented that there may be a Species of Risk mussel in the vicinity, as Rainbow Mussel has been confirmed near Drayton. 	
5.	<p>Next Steps</p> <ul style="list-style-type: none"> • Arun reviewed the project schedule and next steps for the project. 	

This communication constitutes our understanding of the items discussed and any conclusions reached. If there are any clarifications or corrections, please advise this author, in writing within four (4) working days of receipt.

Submitted by:

Arun Jain, exp. Services Inc.

Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: April-27-15 2:48 PM
To: Jean Louis Gaudet
Cc: Arun Jain; Brad McRoberts <BMcRoberts@mapleton.ca> (BMcRoberts@mapleton.ca)
Subject: RE: Mapleton ECA
Attachments: reservoir operating policy - February 2004.pdf; DRAFT GRCA Reservoir Yield Tech Report November2014.pdf

Hi, Jean Louis

I just found a note that I was supposed to provide you with some additional information following our meeting last week. Specifically, I said I would send a link to the MOE website where you can download water quality data for the Conestogo River. The website is <https://www.ontario.ca/data/provincial-stream-water-quality-monitoring-network>

The sites that you may be most interested in are:

- 16018410002 Conestogo River at County Road 7 (note: this station was moved in 2007 to Wellington St, Drayton due to health and safety concerns)
- 16018407502 Conestogo River at Wellington St, Drayton
- 16018509102 Moorefield Creek at County Road 10, Moorefield

We also talked briefly about reservoir filling and drawing so I'm including some relevant documents for your information. Attached are the reservoir operating policy (outlines upper and lower target reservoir levels for filling in the spring) and a draft report on reservoir yield that was written last year. There may also be some additional information in the report on climate change that can be found on the GRCA website:

http://www.grandriver.ca/waterplan/2014_ClimateChangeModel.pdf

If you need more detailed information on historical reservoir levels and filling cycles, please let me know and that data can be made available to you.

Mark Anderson, P.Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge, ON N1R 5W6
Phone 519-621-2763 ext. 2226
Fax 519-621-4945
www.grandriver.ca

Follow us on...



From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: Thursday, April 23, 2015 11:19
To: Mark Anderson
Cc: Arun Jain; Brad McRoberts (BMcRoberts@mapleton.ca)
Subject: RE: Mapleton ECA

Hi Mark,

Thanks for this.

And thanks again for agreeing to meet with us to discuss the EA and for hosting. It was great meeting your team and it was very informative. The presentation is attached.

Also attached is a copy of the phase 1 report, for your information.

Cheers,

JL

Jean-Louis Gaudet | exp

Project Coordinator

t: +1.905.793.9809 x2344 | e: jeanlouis.gaudet@exp.com

1595 Clark Boulevard

Brampton, ON L6T 4V1

Canada

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From: Mark Anderson [<mailto:manderson@grandriver.ca>]

Sent: April-23-15 10:05 AM

To: Arun Jain; Jean Louis Gaudet

Subject: Mapleton ECA

Hi, Arun and Jean Louis

As discussed, here is the most recent version of the Mapleton ECA for your reference. Can you provide a copy of the presentation from yesterday when you get a chance? Thanks,

Mark Anderson, P.Eng.

Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road

PO Box 729

Cambridge, ON N1R 5W6

Phone 519-621-2763 ext. 2226

Fax 519-621-4945

www.grandriver.ca

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Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: May-04-15 12:40 PM
To: Jean Louis Gaudet
Cc: Arun Jain; Brad McRoberts (bmcroberts@mapleton.ca)
Subject: orthorectified images
Attachments: Conestogo_River_L1_clipped.tfw; Conestogo_River_L1_clipped.tif; Conestogo_River_L1_clipped.tif.aux.xml; Conestogo_River_L1_clipped.tif.ovr; Conestogo_River_L1_clipped.tif.xml; Conestogo_River_K1_clipped.tfw; Conestogo_River_K1_clipped.tif; Conestogo_River_K1_clipped.tif.aux.xml; Conestogo_River_K1_clipped.tif.ovr; Conestogo_River_K1_clipped.tif.xml; Conestogo_River_K2_clipped_2.tfw; Conestogo_River_K2_clipped_2.tif; Conestogo_River_K2_clipped_2.tif.aux.xml; Conestogo_River_K2_clipped_2.tif.vat.cpg; Conestogo_River_K2_clipped_2.tif.vat.dbf

Hi, Jean Louis

Here are the images of the floodplain mapping around the Mapleton WPCP, let me know if there are any problems.

Mark Anderson, P.Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge, ON N1R 5W6
Phone 519-621-2763 ext. 2226
Fax 519-621-4945
www.grandriver.ca

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Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: May-04-15 12:36 PM
To: Jean Louis Gaudet
Cc: Arun Jain; Brad McRoberts (bmcroberts@mapleton.ca)
Subject: Topographic/flood plain mapping
Attachments: MAPLETON_Waste_Water_Lagoons_FDRP_Base_Mapping.pdf;
MAPLETON_Waste_Water_Lagoons_FDRP_Base_MappingCloseUp.pdf

Hi, Jean Louis

Dwight Boyd mentioned the availability of floodplain mapping in the vicinity of the Mapleton WPCP. Here are a couple of PDFs showing the mapping that is available. I will dig up the ortho-rectified photos for you and send them over. Your GIS person should be able to drop the images onto a map to create something similar to the attached maps.

Mark Anderson, P.Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge, ON N1R 5W6
Phone 519-621-2763 ext. 2226
Fax 519-621-4945
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Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: May-06-15 3:26 PM
To: Arun Jain
Cc: Jean Louis Gaudet
Subject: RE: MOE Meeting Agenda - Draft

I don't think so, the flow is generally too small to have an ecological benefit and the nutrient loading is likely detrimental to the river and/or reservoir during the summer months.

Mark Anderson, P.Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge, ON N1R 5W6
Phone 519-621-2763 ext. 2226
Fax 519-621-4945
www.grandriver.ca

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From: Arun Jain [mailto:Arun.Jain@exp.com]
Sent: Wednesday, May 06, 2015 15:15
To: Mark Anderson
Cc: Jean Louis Gaudet
Subject: RE: MOE Meeting Agenda - Draft

I will flip you the ppt shortly.

From GRCA perspective does the plant based flow augmentation in river desirable from an ecological perspective?



Arun P. Jain, P.Eng., M.Eng.

Practice Lead - Linear Infrastructure, Central Ontario
exp Services Inc.
t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
CANADA

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From: Mark Anderson [<mailto:manderson@grandriver.ca>]
Sent: Wednesday, May 06, 2015 2:57 PM
To: Arun Jain
Cc: Jean Louis Gaudet
Subject: RE: MOE Meeting Agenda - Draft

Hi, Arun

Yes, I will be here at 4pm but I have to leave by 4:30.

Regarding the agenda, I don't think MOE will be very receptive to a continuous discharge. I would recommend trying to maximize discharge in the fall, winter and spring months using a flow-proportional discharge approach.

Mark Anderson, P.Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge, ON N1R 5W6
Phone 519-621-2763 ext. 2226
Fax 519-621-4945
www.grandriver.ca

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From: Arun Jain [<mailto:Arun.Jain@exp.com>]
Sent: Wednesday, May 06, 2015 14:38
To: Mark Anderson
Cc: Jean Louis Gaudet
Subject: MOE Meeting Agenda - Draft

Mark,

Would appreciate your comments on agenda noted below for MOE meeting specially on discharge discussion.

I am also preparing a presentation and flip to you in an hour. Will you be available say at 4 pm for a brief chat?

- Introductions
- Municipal Class EA: Scope and Problem Statement
- Wastewater Pollution Control Plant
 - Existing System
 - Current Effluent Limits / Objectives / Performance
 - Current Discharge Window
- Natural Heritage Summary
- Key Discussion Item - Treatment
 - New effluent limits
 - Ammonia standards and phosphorus loading (Policy 2)
 - Potential Alternative Solutions
- Key Discussion Item - Discharge
 - Continuous Discharge
 - Seasonal flow of Conestoga River

- Storage of nutrients at reservoir

Regards,

Arun



Arun P. Jain, P.Eng., M.Eng.

Practice Lead - Linear Infrastructure, Central Ontario

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Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: May-06-15 1:27 PM
To: Jean Louis Gaudet
Subject: RE: Mapleton ECA

Hi, Jean Louis

I'm around this afternoon, give me a call anytime. In terms of flow data, your best source of data is the Water Survey of Canada. You can download data directly from their website. The current gauge station is called "Conestogo River above Drayton (02GA039)". If you type "Drayton" into the station name search box, it should come up. I'm not sure if we have any 7Q20 values for the upper Conestogo and if we do, they are probably not up to date so it is better to calculate them using current data for your purposes.

http://wateroffice.ec.gc.ca/search/search_e.html?sType=h2oArc

Mark Anderson, P.Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge, ON N1R 5W6
Phone 519-621-2763 ext. 2226
Fax 519-621-4945
www.grandriver.ca

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From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: Wednesday, May 06, 2015 12:20
To: Mark Anderson
Cc: Arun Jain; Brad McRoberts <BMcRoberts@mapleton.ca> (BMcRoberts@mapleton.ca)
Subject: RE: Mapleton ECA

Hi Mark,

I don't think we have yet received any flow data for the Conestoga River. Is historical river flow data from available from the GRCA? Does GRCA also have information on monthly 7Q20 values for the river?

Also, we were wondering if you would have some time this afternoon to answer a few questions regarding Conestoga River water quality? There is just a few things we would like to clarify before our meeting with MOE tomorrow.

Thanks,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator

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From: Mark Anderson [<mailto:manderson@grandriver.ca>]

Sent: April-27-15 2:48 PM

To: Jean Louis Gaudet

Cc: Arun Jain; Brad McRoberts <BMcRoberts@mapleton.ca> (BMcRoberts@mapleton.ca)

Subject: RE: Mapleton ECA

Hi, Jean Louis

I just found a note that I was supposed to provide you with some additional information following our meeting last week. Specifically, I said I would send a link to the MOE website where you can download water quality data for the Conestogo River. The website is <https://www.ontario.ca/data/provincial-stream-water-quality-monitoring-network>

The sites that you may be most interested in are:

- 16018410002 Conestogo River at County Road 7 (note: this station was moved in 2007 to Wellington St, Drayton due to health and safety concerns)
- 16018407502 Conestogo River at Wellington St, Drayton
- 16018509102 Moorefield Creek at County Road 10, Moorefield

We also talked briefly about reservoir filling and drawing so I'm including some relevant documents for your information. Attached are the reservoir operating policy (outlines upper and lower target reservoir levels for filling in the spring) and a draft report on reservoir yield that was written last year. There may also be some additional information in the report on climate change that can be found on the GRCA website:

http://www.grandriver.ca/waterplan/2014_ClimateChangeModel.pdf

If you need more detailed information on historical reservoir levels and filling cycles, please let me know and that data can be made available to you.

Mark Anderson, P.Eng.

Water Quality Engineer

Grand River Conservation Authority

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PO Box 729

Cambridge, ON N1R 5W6

Phone 519-621-2763 ext. 2226

Fax 519-621-4945

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From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]

Sent: Thursday, April 23, 2015 11:19

To: Mark Anderson

Cc: Arun Jain; Brad McRoberts <BMcRoberts@mapleton.ca> (BMcRoberts@mapleton.ca)

Subject: RE: Mapleton ECA

Hi Mark,

Thanks for this.

And thanks again for agreeing to meet with us to discuss the EA and for hosting. It was great meeting your team and it was very informative. The presentation is attached.

Also attached is a copy of the phase 1 report, for your information.

Cheers,

JL

Jean-Louis Gaudet | exp

Project Coordinator

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From: Mark Anderson [<mailto:manderson@grandriver.ca>]

Sent: April-23-15 10:05 AM

To: Arun Jain; Jean Louis Gaudet

Subject: Mapleton ECA

Hi, Arun and Jean Louis

As discussed, here is the most recent version of the Mapleton ECA for your reference. Can you provide a copy of the presentation from yesterday when you get a chance? Thanks,

Mark Anderson, P.Eng.
Water Quality Engineer

Grand River Conservation Authority

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Jean Louis Gaudet

From: Arun Jain
Sent: May-06-15 3:47 PM
To: Arun Jain
Cc: Jean Louis Gaudet; Hui Wang
Subject: RE: Mapleton_MOE Meeting_May 7 2015_Version 3.pptx

Mark,

I am sending a conference call notice as I would like Hui Wang and Jean Louis both to join in our 15 min discussion.

Regards,



Arun P. Jain, P.Eng., M.Eng.

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From: Arun Jain
Sent: Wednesday, May 06, 2015 3:37 PM
To: Mark Anderson (manderson@grandriver.ca)
Cc: Jean Louis Gaudet; Hui Wang
Subject: Mapleton_MOE Meeting_May 7 2015_Version 3.pptx

Mark,

Please review specially the end slides. Will call you in 15 min.

Thanks again for kindly agreeing to speak with us.

Regards,

Arun

Jean Louis Gaudet

From: Weber, Martha (MOECC) <Martha.Weber@ontario.ca>
Sent: May-06-15 2:50 PM
To: Odom, Paul (MOECC); Arun Jain; Slattery, Barbara (MOECC); Jean Louis Gaudet; bmcroberts@mapleton.ca
Subject: RE: Mapleton wastewater Class EA

It's no problem for me to bring a projector for the presentation.

Note that there is public access to the 4th floor via the elevators, so we can just meet in boardroom 403 for 10am.

Please be sure to grab a beverage at the cafeteria or Starbucks in the atrium if you like before the meeting begins!

Martha Weber

Provincial Officer
Water Inspection Program
Guelph District Office
Ministry of the Environment
4th Fl., 1 Stone Rd. W.
Guelph, ON N1G 4Y2
Tel: (519) 826-4274
Fax: (519) 826-4286

From: Odom, Paul (MOECC)
Sent: May 6, 2015 2:46 PM
To: Arun Jain; Slattery, Barbara (MOECC); Jean Louis Gaudet
Cc: Weber, Martha (MOECC); bmcroberts@mapleton.ca
Subject: RE: Mapleton wastewater Class EA

Martha may be able to get one but usually there isn't – the meeting rooms are many and not overly large.
We've worked from hard copies in the past.
Paul

From: Arun Jain [<mailto:Arun.Jain@exp.com>]
Sent: May 6, 2015 2:41 PM
To: Odom, Paul (MOECC); Slattery, Barbara (MOECC); Jean Louis Gaudet
Cc: Weber, Martha (MOECC); bmcroberts@mapleton.ca
Subject: RE: Mapleton wastewater Class EA

Paul,

We look forward to meeting you tomorrow.

We are finalizing an agenda and will flip you the same soon.

In the meanwhile, could you confirm availability of a projector/screen as we will be bringing in a powerpoint presentation on our lap top for use during the meeting.

Regards,

Arun



Arun P. Jain, P.Eng., M.Eng.

Practice Lead - Linear Infrastructure, Central Ontario

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t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com

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From: Odom, Paul (MOECC) [<mailto:Paul.Odom@ontario.ca>]

Sent: Monday, April 27, 2015 3:09 PM

To: Slattery, Barbara (MOECC); Jean Louis Gaudet

Cc: Weber, Martha (MOECC); Arun Jain

Subject: RE: Mapleton wastewater Class EA

Hi all,

Martha has graciously booked Boardroom 403 for 10-12:30 at 1 Stone Road in Guelph.

Paul

From: Slattery, Barbara (MOECC)

Sent: April 27, 2015 9:01 AM

To: Odom, Paul (MOECC); Jean Louis Gaudet

Cc: Weber, Martha (MOECC); Arun Jain

Subject: RE: Mapleton wastewater Class EA

Good morning! The 7th is also fine with me. Would Guelph work as our meeting place?

From: Odom, Paul (MOECC)

Sent: April 23, 2015 12:16 PM

To: Jean Louis Gaudet

Cc: Slattery, Barbara (MOECC); Weber, Martha (MOECC); Arun Jain

Subject: RE: Mapleton wastewater Class EA

I'm Ok with the 7th but we'll await Barb's response – She's back on Monday.

Paul

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]

Sent: April 23, 2015 11:29 AM

To: Odom, Paul (MOECC)

Cc: Slattery, Barbara (MOECC); Weber, Martha (MOECC); Arun Jain

Subject: RE: Mapleton wastewater Class EA

Hi Paul,

How would some time on May the 7th work for you? We met with Brad yesterday, and that was the only day he is available that week. Mark Anderson from GRCA will also be attending the meeting. Any time that day would be fine. If the 7th does not work for you, we can look at a date the following week.

As for location, we, Brad and Mark are fine with either Hamilton or Guelph, so your call.

Thanks,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator

t: +1.905.793.9809 x2344 | e: jeanlouis.gaudet@exp.com

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From: Odom, Paul (MOECC) [<mailto:Paul.Odom@ontario.ca>]

Sent: April-21-15 7:53 AM

To: Jean Louis Gaudet

Cc: Slattery, Barbara (MOECC); Weber, Martha (MOECC)

Subject: RE: Mapleton wastewater Class EA

M. Gaudet,

It'll have to be May,

We'd prefer Hamilton but would be willing to meet half-way (Guelph).

For MOECC, will be myself and Barb Slattery, the EA Coordinator. Maybe Ms. Weber if she would like to attend.

Send us some dates and lets settle on one now.

P. Odom

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]

Sent: April 14, 2015 11:25 AM

To: Odom, Paul (MOECC)

Cc: Arun Jain

Subject: Mapleton wastewater Class EA

Hi Paul,

As I mentioned in my voicemail, our firm is working with the Township of Mapleton on their Moorefield/Drayton wastewater Class EA. We would appreciate meeting with the MOECC to discuss the project and to hear MOECC's perspective on potential issues and opportunities for the Drayton wastewater pollution control plant. We are looking at either the last week of April or the first week of May.

If you would like to call me to discuss, I can be reached today on my cell at 416-728-6261.

Thanks Paul,

Jean-Louis



Jean-Louis Gaudet

Project Coordinator

t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com

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Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: May-07-15 7:16 AM
To: Arun Jain
Cc: Jean Louis Gaudet; Hui Wang
Subject: Conestogo Lake
Attachments: Guildford_final_report.pdf; PaleolimnologyOfSedimentInConstogoLake 2005DEC09.pdf; Connestogo Interpretation.doc; CyanobacteriaWithTurkeyVultures.jpg; Sept 25 006.jpg; Sept 25 014.jpg; Sept 25 020.jpg; CyanobacteriaWithBoat.jpg

Hi, Arun

Here are some photos of Conestogo reservoir from September 2004 during a massive cyanobacteria bloom. I've also included some other information on cyanobacteria research that has been done on Conestogo Reservoir which may be of some use.

Mark

Your message is ready to be sent with the following file or link attachments:

CyanobacteriaWithTurkeyVultures.jpg
Sept 25 006.jpg
Sept 25 014.jpg
Sept 25 020.jpg
CyanobacteriaWithBoat.jpg

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: May-07-15 6:44 AM
To: Arun Jain
Cc: Jean Louis Gaudet; Hui Wang
Subject: RE: Mapleton_MOE Meeting_May 7 2015_Version 3.pptx
Attachments: F5-1[1].pdf; F5[1].pdf; f5-2[1].pdf; MOE_blue_booke_3303e[1].pdf; MOE Procedure F53_DerivationOfSTPCriteria.pdf

Hi, Arun

Here are the policies that I mentioned yesterday. Section 4.4.1 of Procedure B-1-5 specifically talks about using the 7Q20 as the basic design flow for discharge to rivers and streams. The other thing that I forgot to mention is that Paul is likely going to want to know how you're going to address the mixing zone in the river.

I'll see you in Guelph later this morning.

Mark Anderson, P.Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge, ON N1R 5W6
Phone 519-621-2763 ext. 2226
Fax 519-621-4945
www.grandriver.ca

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From: Arun Jain [mailto:Arun.Jain@exp.com]
Sent: Wednesday, May 06, 2015 15:38
To: Mark Anderson
Cc: Jean Louis Gaudet; Hui Wang
Subject: Mapleton_MOE Meeting_May 7 2015_Version 3.pptx

Mark,

Please review specially the end slides. Will call you in 15 min.

Thanks again for kindly agreeing to speak with us.

Regards,


Arun



Meeting Agenda

Date:	Thursday, May 7, 2015 10:00 AM to 12:30 PM		
Project Name:	Mapleton Wastewater EA	Project #:	BRM-605325-A0
Subject:	Meeting with MOECC		
Participants:	Paul Odom, Barbara Slattery, Martha Weber - MOECC Brad McRoberts (Mapleton) Mark Anderson, Sandra Cooke (GRCA) Arun Jain, Jean-Louis Gaudet (exp) Hui Wang (exp – by teleconference)		
Location:	MOECC Offices 1 Stone Road, Guelph Boardroom 403	Prepared By:	JL Gaudet
Distribution:	Paul Odom, Barbara Slattery, Martha Weber, Brad McRoberts, Mark Anderson, Sandra Cooke, Arun Jain, Jean-Louis Gaudet, Hui Wang		

- 1) Introductions
- 2) Municipal Class EA: Scope and Problem Statement
- 3) Wastewater Pollution Control Plant
 - a) Existing System
 - b) Current Effluent Limits / Objectives / Performance
 - c) Current Discharge Window
- 4) Natural Heritage Summary
- 5) Key Discussion Item - Treatment
 - a) New effluent limits
 - b) Ammonia standards and phosphorus loading (Policy 2)
 - c) Potential Alternative Solutions
- 6) Key Discussion Item - Discharge
 - a) Continuous Discharge
 - b) Seasonal flow of Conestoga River
 - c) Storage of nutrients at reservoir



**Municipal Class EA for Mapleton
Wastewater Servicing:
*Meeting with MOECC***

May 7, 2015

Meeting Agenda

- Introductions
- Municipal Class EA: Scope and Problem Statement
- Wastewater Pollution Control Plant
 - Existing System
 - Current Effluent Limits / Objectives / Performance
 - Current Discharge Window
- Natural Heritage Summary
- Key Discussion Item - Treatment
 - New effluent limits
 - Ammonia standards and phosphorus loading (Policy 2)
 - Potential Alternative Solutions
- Key Discussion Item - Discharge
 - Continuous Discharge
 - Seasonal flow of Conestoga River
 - Storage of nutrients at reservoir



2

Project Scope

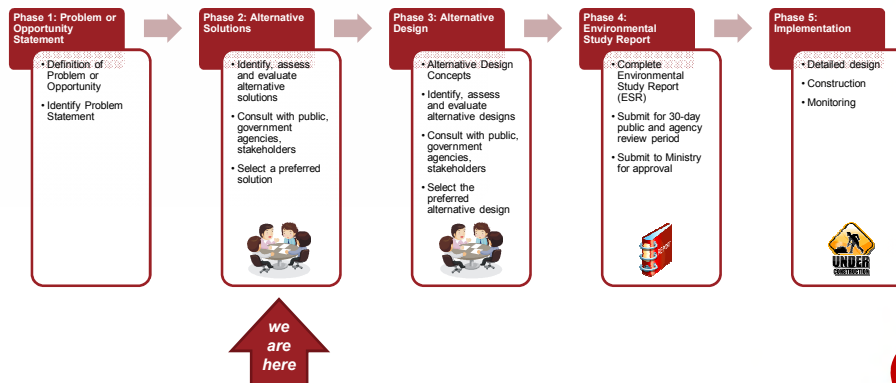
- To undertake Municipal Class EA to evaluate alternatives to potentially upgrade the Mapleton Wastewater Collection and Treatment System; and
- Prepare preliminary design of municipal wastewater system.



3

Municipal Class EA Process

- A Class EA is a study to plan for a proposed project, which includes background and technical studies, a review and assessment of potential environmental, social and economic impacts and how they can be avoided, and an evaluation of possible alternatives.
- The result is an Environmental Study Report (ESR), which documents the process and lists the commitments made by the proponent.
- The Class EA process is completed in accordance with the *Environmental Assessment Act*.



4

Problem Statement

- Facility operating very close to rated capacity of 750 m³/d
- Average 2013 inflow: 714 m³/d (95% of rated capacity)
- Rated capacity of facility must be increased to 1,225 m³/day allow the Township to meet projected service area growth to 2031
- Drayton system does not have sufficient pumping capacity to service projected future population

Proposed Problem Statement

- *The Township has a lagoon-based Wastewater Treatment system which currently only has the rated capacity for 750 cubic metres per day. The treatment capacity needs to be increased to permit growth within the served areas of the Township to meet the Township's projected serviced area growth until 2031.*
- *The Drayton Pumping Station does not have sufficient capacity to service Drayton's projected 2031 population. Pumping capacity will need to be increased in order to meet this service requirement.*

5

Overview: Existing System - Treatment

- **Primary Treatment**
 - The existing plant has no primary treatment
- **Secondary Treatment**
 - An aerated lagoon (Cell 2) of 60,500 m³. Air supply is provided by two high speed blowers (1 duty and 1 standby) having a capacity of 680 m³/h at 45 kPa.
 - A secondary settling lagoon (Cell 1) of 62,100 m³.
 - Three storage ponds (Cells 3, 4A and 4B) with a total volume of 350,000 m³.
- **Tertiary Treatment**
 - An **alum dosing system** with a 15,000 L storage tank and two 7.1 L/h capacity metering pumps. Alum is dosed in the flow structure A located upstream of the storage pond (Cell 3). The flocculation takes place in Cell 3 using a diffused air system. Air supply for mixing is provided by a 25 hp compressor.
 - **Five tertiary sand filters**, each having a 4.65 m² filtration area. The total capacity of the filters is 5580 m³/d based on a filtration rate of 10 m³/m²/h.
 - Two **UV disinfection units**, designed to handle a peak flow of 4,000 m³/d.
 - The effluent is discharged into the Conestogo River via a 600 mm diameter pipe and a swale.

6

Overview: Existing System - Treatment

The diagram shows an aerial view of a wastewater treatment plant. The layout includes several tanks: 4b storage, 4a storage, 1 settling, 2 aerated, and 3 storage. An outfall pipe is shown extending from the aerated tank, and a sewer line is also indicated. The image is sourced from Google Earth.

exp.

Current Effluent Limits /Objectives and Plant Performance

Effluent Parameter	Effluent Objective	Effluent Limit	Measured Final Effluent (2013 - 2014)
cBOD5	5.0 mg/L	Apr/Oct: 7.5 mg/L Mar/Nov/Dec: 10.0 mg/L	Apr/Oct: ~ 2 to 5 mg/L Mar/Nov/Dec: ~ 2 to 3.5 mg/L
TSS	None	None	Spring 2-8 mg/l Fall 2-7 mg/l
Total Ammonia Nitrogen (TAN)	3.0 mg/L	5.0 mg/L	~0.01 to 4.75 (highest in March)
Total Phosphorus (TP)	0.3 mg/L	0.5 mg/L	~0.05 to 0.25
E.Coli	100 org./100 mL	200 org./100 mL	nil

exp.

Overview: Existing System – Discharge Window

- Current rated capacity is 750 m³/day (or 273,872 m³/year of influent flow)
- Current Discharge Window:

Month	Discharge Limits	
	m ³ /d	m ³ /month
March	1,581	49,015
April (1 st to 13 th)	3,154	40,997
October	233	7,232
November	1,754	52,618
December	4,000	124,010
Annual total		273,872 m³



9

Natural Heritage

- Key local environmental feature → the Conestoga River
- Outlet traverses GRCA owned lands - Conestoga Lake Conservation Area
- mainly forested with deciduous and coniferous forest, and coniferous plantation
- No designated significant natural features
- WPCP discharges to Conestoga River via natural swale
- River suffers from low baseflow, warm temperatures, lack of riparian vegetation and agricultural runoff input, water level changes due to the Conestoga dam,
- Algae mats can form throughout backwater areas.



10

Natural Heritage
Site Conditions – Outfall at swale



exp. 11

Natural Heritage
Upstream view of swale from outfall (facing east)



exp. 12

Natural Heritage

Downstream view of swale and outfall (facing southwest)



13

Natural Heritage

Swale downstream of outfall, halfway to Conestoga River (facing west)



14


-- Key Discussion Items

Treatment

- New effluent limits
- Ammonia standards and Phosphorus loading (Policy 2)
- Potential Alternative Solutions


Discharge

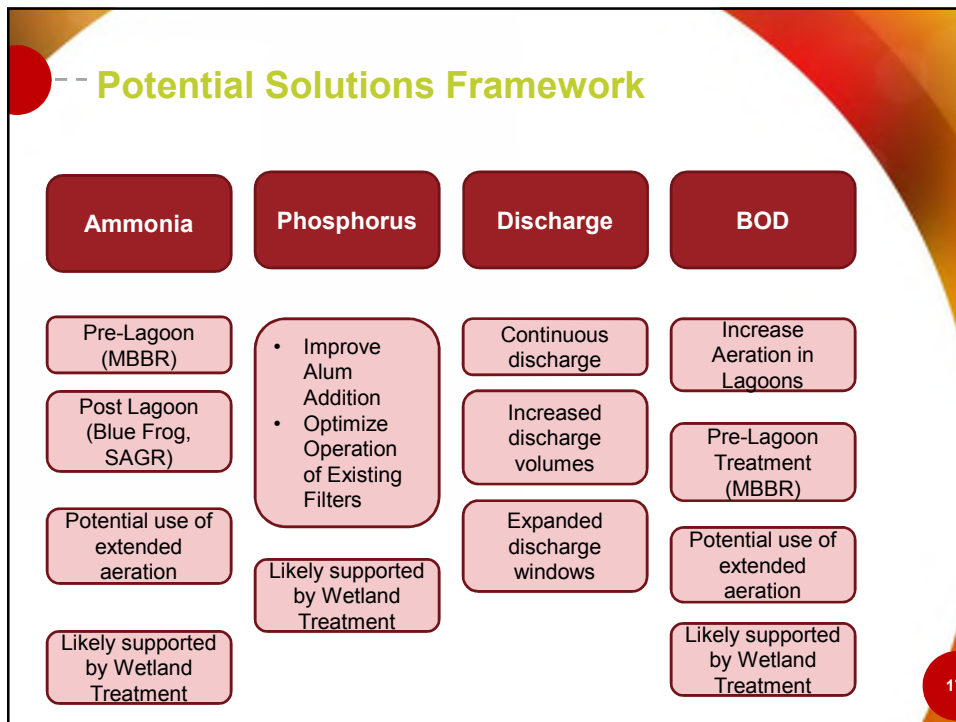
- Continuous Discharge
- Seasonal flow of Conestoga River
- Storage of nutrients at reservoir


15

-- Future Effluent Limits?

Effluent Parameter	Effluent Objective	Effluent Limit	Measured Final Effluent (2013 - 2014)
cBOD5	5.0 mg/L	Apr/Oct: 7.5 mg/L Mar/Nov/Dec: 10.0 mg/L	Apr/Oct: ~ 2 to 5 mg/L Mar/Nov/Dec: ~ 2 to 3.5 mg/L
TSS	None	None	Spring 2-8 mg/l Fall 2-7 mg/l
Total Ammonia Nitrogen (TAN)	3.0 mg/L	5.0 mg/L	~0.01 to 4.75 (highest in March)
Total Phosphorus (TP)	0.3 mg/L	0.5 mg/L	~0.05 to 0.25
E.Coli	100 org./100 mL	200 org./100 mL	nil


16




17



18

-- Why Continuous Discharge?

- The new solution will ensure that the plant can meet strict effluent standards represented by current effluent objectives or even stricter limits
- Downstream river quality is governed by flow from reservoir as opposed to flow from the plant
- Reservoir water quality is controlled primarily by contributions from non point sources


19

-- Average Flow Dilution Scenarios

The average flows in the river are as noted below:


Spring	~5000 L/s
Fall	~1000 – 2000 L/s
Summer	~300 L/s

The flow of effluent is noted to be:

• Average flow (1225 cubic m/day)	14.2 L/s
• One filter (800 cubic m/day)	9.25 L/s
• Two filter (1600 cubic m/day)	18.5 L/s


Dilution Scenarios

• Dilution with two filters on in Fall	1:54
• Dilution with one filters on in Summer	1:32


20


40 Year Average Monthly 7 Day Low Flow Dilution Scenarios

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Monthly 7 day low flow (m3/s)	0.879	0.608	1.474	1.803	0.715	0.248	0.107	0.097	0.109	0.474	0.934	1.229
Average Monthly 7 day low flow (L/s)	879	608	1474	1803	715	248	107	97	109	474	934	1229
Allowable Flow @ 1:10 dilution (L/s)	87.9	60.8	147.4	180.3	71.5	24.8	10.7	9.7	10.9	47.4	93.4	122.9
Allowable Flow @ 1:10 dilution (m3/d)	7595	5253	12735	15578	6178	2143	924	838	942	4095	8070	10619
Current Discharge Window (m3/d)	0	0	1581	3154	0	0	0	0	0	233	1754	4000


21

7Q20 Low Flow Dilution Scenarios

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7Q20 Low Flow (m3/s)	0.268	0.214	0.291	0.516	0.21	0.033	0.022	0.014	0.018	0.068	0.236	0.275
7Q20 Low Flow (L/s)	268	214	291	516	210	33	22	14	18	68	236	275
Allowable Flow @ 1:10 dilution (L/s)	26.8	21.4	29.1	51.6	21	3.3	2.2	1.4	1.8	6.8	23.6	27.5
Allowable Flow @ 1:10 dilution (m3/d)	2316	1849	2514	4458	1814	285	190	121	156	588	2039	2376
Current Discharge Window (m3/d)	0	0	1581	3154	0	0	0	0	0	233	1754	4000


22

Next Steps

- Complete Evaluation of Alternatives
- Report to the Council
- Hold PIC #1 in June



May 7th 2015

Meeting at MOE

<u>Name:</u>	<u>Company/Affiliation</u>	<u>Contact Info</u>
Arun Jain	Exp	arun.jain@exp.com
Bred McRoberts	Mapleton	bmcroberfs@mapleton.ca
Martha Weber	MOECC	martha.weber@ontario.ca
Mark Anderson	GRCA	manderson@grandriver.ca
Barb Slattery	MOECC	barbara.slattery@ontario
Paul Odom	MOECC	Paul.odom@ontario.ca
Sandra Cook	GRCA	scooke@grandriver.ca



DRAFT

Meeting Minutes

Date:	May 19, 2015	Meeting Date:	May 7, 2015 10:00 am
Project Name:	Mapleton Wastewater Class EA	Project #:	BRM-605325-A0
Subject:	Meeting with MOECC and GRCA		
Participants:	Paul Odom, Barbara Slattery, Martha Weber - MOECC Brad McRoberts (Township of Mapleton) Mark Anderson, Sandra Cooke (GRCA) Arun Jain, Jean-Louis Gaudet (exp) Hui Wang (exp – by teleconference)		
Location:	MOECC Offices 1 Stone Road, Guelph Boardroom 403	Prepared By:	JL Gaudet / Arun Jain
Distribution:	All Present		

Item No.	Discussions	Action
1.	Welcome and Introductions <ul style="list-style-type: none">Arun welcomed all of the participants and everyone introduced themselves.Arun reviewed the agenda for the day's meeting.	
2.	Municipal Class EA: Scope and Problem Statement <ul style="list-style-type: none">Arun presented the scope of the project, which includes a Class Environmental Assessment (EA) and preliminary design for the municipal wastewater system.Arun described the purpose of the Class EA as to evaluate alternatives to potentially expand the Mapleton Wastewater Pollution Control Plant (WPCP) and Drayton Pumping Station. He presented the project's study area and problem statement.	
3.	Wastewater Pollution Control Plant <ul style="list-style-type: none">Arun presented a summary of the existing WPCP.Paul commented that the WPCP currently runs 'tight', in that the inflows and outflows are closely matched. This can lead to issues if there are upsets in the WPCP, such as if more flow comes in than is going out. The Township and MOECC are trying to rectify that with the current temporary discharge scenario, which he said appears to be working well.	

	<ul style="list-style-type: none"> • Mark noted that the WPCP discharges were completed successfully during April. • Paul observed that the current discharge scenario would not help with the proposed treatment capacity expansion of the WPCP. • Arun reviewed the WPCP's performance and currently applicable effluent limits, objectives and discharge windows. 	
<p>4.</p>	<p>Natural Heritage Summary</p> <ul style="list-style-type: none"> • Arun summarized the findings of the project's recent natural heritage investigations and presented images of the outfall and swale. • Arun noted that there does not appear to be any natural heritage features that would interfere with facility upgrades. Mark commented that if any work is performed on the outfall, it could require a GRCA permit. Arun noted exp does not anticipate works being required at the outfall. 	
<p>5.</p>	<p>Discussion on Treatment</p> <p><i>Effluent Limits</i></p> <ul style="list-style-type: none"> • Arun summarized the WPCP's current effluent objectives and limits. He commented that, because of the increase in plant capacity and the requirement to maintain the same phosphorus loading, the WPCP's future effluent limit for phosphorus will be in the range of its current phosphorus objective (i.e., 0.3 mg/L). • Paul made the following comments on effluent parameters: <ul style="list-style-type: none"> ○ cBOD5 – current value is a good value. ○ TSS – there may be a value included for TSS the next time the ECA is updated, but that it would require additional consideration. Mark commented that because the effluent is coming from a lagoon, there may not be a good rationale to include it. ○ Ammonia – limits for ammonia likely to remain the same. Ammonia can be an issue in lagoons, particularly right after the ice thaws. The current effluent limits consider this. The issue for ammonia is not one of loading but of concentration. ○ E.Coli – will not change ○ pH – a pH range will likely be added when the ECA is updated. • Paul commented that the issue may be available flow in the Conestoga River. The 7Q20 for the river has been 0 in the summer and is close to that in September, because there is little to no summer flow. That is why the discharge has traditionally been resumed in October. • Paul explained that the 7Q20 values were calculated on a monthly basis in order to maximize how much effluent could be discharged. The original discharge was just in the Fall, but Spring was added to make use of Spring flow. He suggested the 7Q20 values be recalculated, as the current values are from the 1995 EA. The current discharge windows are matched with the river's low flow so that ammonia is not toxic in the river, as the effluent would not achieve the necessary mixing if it went into a low flow receiver. 	

- Brad added that ammonia is a key controlling factor. If a lagoon is high in ammonia, then it will not be released.

Potential Solutions Framework

- Arun reviewed the proposed framework for potential solutions, comprising of considerations for managing ammonia, phosphorous, BOD, and discharge.
- Paul noted that the SAGR system may be promising, as it has the advantage of reducing the lagoon size and may be good in cases where the footprint of the facility cannot be expanded. Mark observed that the technology has been demonstrated in Manitoba, so it should function well in winter.
- Mark asked whether converting part of the lagoons to wetland might remove some of the facility's storage capacity. He said it would be good to have if it has a purpose, but questioned whether it would be needed if something like SAGR was also used. Hui replied that the wetland aspect would be a safeguard and provide additional nitrogen removal. It could also be used as an equalization tank or for storage, as the volume can still be used.
- Mark asked if there would be BOD removal with the SAGR part. Arun replied that there would be some, but BOD would be largely removed before it reaches the SAGR, as the BOD should be mostly removed to protect the SAGR's bacteria.
- Arun noted that the WPCP's phosphorus removal system works well but could be improved by optimizing alum dosing. Hui explained that the phosphorus removal could be improved two ways. One is to provide better mixing conditions for the alum, which is applied in lagoon 3. This is not the best place as the volume is too big and the conditions for mixing are not the best. But there is room to optimize the mixing. The second is to optimize the operation of the filter by controlling its filtration velocity, as the filter does not work as well at a low filtration velocity.
- Arun clarified that the extended aeration will work similar to a sequential batch reactor (SBR). Mark asked if there are working examples of lagoons being converted to SBR. Arun noted that working examples in other areas will be included in the evaluation criteria. Mark noted that Frederick (in Approvals) will want reassurance that it works and where it has worked elsewhere.
- Arun noted that other evaluation criteria may include whether it would work well in Mapleton's environment (e.g., performance in cold weather) and cost.
- Brad commented that whether it works elsewhere should be included in the criteria, as he did not want the WPCP to be a testing site.
- Mark asked if the Blue Frog system consisted of solar-powered aerators and whether lagoon freezing would be an issue. Hui clarified that Blue Frog is not a treatment technology but instead is a type of aeration equipment that also improves the reduction of sludge and removal of nutrients. They are not solar powered. He also noted that the design of the Blue Frog system prevents freezing around the equipment.

Exp

	<p>Discussion on Discharge</p> <ul style="list-style-type: none"> • Arun enquired if based on proposed improvements to treatment, the fact that downstream river water quality is controlled by discharges from reservoir as opposed to discharges from plant and highly dominant role of non-point sources in reservoir water quality; Ministry would consider allowing continuous discharge from the plant into Conestoga River. • Paul noted that summer discharge would not be likely as there is no receiver except for the reservoir, and the reservoir still experiences algae blooms in the summer. But discharge could possibly be expanded to winter. • Brad asked if the WPCP's discharge would help improve the river's water quality in the summer. Sandra replied that it is not just loads that are of concern but concentrations, which are more important in the summer. If you look at the upper Conestoga Basin, there are other plants requiring discharge. From a watershed perspective, all sources need to be considered, including how to best optimize discharge from wastewater plants and how to mitigate non-point sources. • With respect to flow, Paul noted that only 7Q20 will be considered, as it is part of the guidelines. • Arun then presented 7Q20 data based on river flow data from last 40 years. Including potentially allowable flow and currently allowable flows. Based on the data presented it was noted that it is possible to expand allowable flows. • Sandra commented that there is flow through the reservoir once the reservoir meets its holding capacity. The operations strategy for the reservoir in the winter is that whatever comes in goes out. She added that winter discharge may be acceptable as there is no BOD activity in the winter, but she would be hesitant to consider discharge between May and September because of issues related to concentrations; if the concentrations in the effluent are high enough, then access to bacteria is immediate. While algae blooms in September and October are largely driven by internal loading, she is hesitant to consider release in summer as more information is needed. • General consensus was noted to be to allow more flow based on the analysis presented except during the summer months. 	<p>All</p>
	<p>Next Steps</p> <ul style="list-style-type: none"> • Arun reviewed the next steps for the project including completing of evaluation of alternatives, presenting the results to Council and holding PIC by mid-June 2015. • Barbara suggested that the PIC should be held as early in June as possible. • In closing, Mark noted that the impact of precipitation needs to be considered, and that the design of the facility should allow the facility to discharge more than what is coming into the system, depending on the amount of water accumulated. Brad agreed that the system design will need to ensure it can either hold or discharge the extra rainwater. 	

DRAFT

*Mapleton Wastewater Servicing Class EA
BRM-00605325
Meeting with MOECC and GRCA
May 7, 2015*

This communication constitutes our understanding of the items discussed and any conclusions reached. If there are any clarifications or corrections, please advise this author, in writing within four (4) working days of receipt.

Submitted by:

Jean Louis Gaudet / Arun Jain, exp. Services Inc.

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: June-05-15 10:08 AM
To: Jean Louis Gaudet
Subject: Mapleton Wastewater Servicing Municipal Class EA - Notice of PIC #1
Attachments: Mapleton Wastewater Class EA_PIC 1 Notice.pdf

Good morning,

Please find attached a notice of Public Information Centre #1 for the Mapleton Wastewater Servicing Municipal Class Environmental Assessment, to be held on **June 16, 2015** from 4:00 pm to 7:00 pm at the Township of Mapleton Council Chambers .

Regards,

Jean-Louis



Jean-Louis Gaudet

Project Coordinator
t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
CANADA

exp.com | [legal disclaimer](#)

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TOWNSHIP OF MAPLETON

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR MAPLETON WASTEWATER SERVICING

NOTICE OF PUBLIC INFORMATION CENTRE

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Mapleton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to upgrade the wastewater collection system.

The study is being conducted in accordance with Schedule C of the Municipal Class Environmental Assessment process (October 2000, amended 2007 and 2011), which is approved under the Ontario Environmental Assessment Act. A Public Information Centre (PIC) is planned to provide further information to the public on the project and to receive input and comment from interested persons:

Date, Time and Location:

Time: 4:00 pm to 7:00 pm
Date: June 16, 2015
Location: Township of Mapleton Council Chambers
7275 Sideroad 16
Drayton, ON

Following the PIC, further comments are invited for incorporation into the planning and design of the project and will be received until July 3, 2015.

Please contact any of the following project team members if you wish to be added to the project mailing list or if you have any questions or comments about the study.

Brad McRoberts, MPA, P.Eng
Director of Public Works
Township of Mapleton
P.O. Box 160
Drayton, Ontario N0G 1P0
Phone: (519) 638-3313 Ext 41
E-mail: BMcRoberts@mapleton.ca

Arun P. Jain, M.Eng., P.Eng.
Manager – Water and Wastewater Infrastructure
Exp Services Inc.
1595 Clark Blvd.
Brampton, ON L6T 4V1
Phone: (905) 793-9800 x 2373
E-mail: arun.jain@exp.com



Township of Mapleton

Wastewater Servicing Municipal Class EA

Consultation Form

Organization/Department:

Contact Name:

Title:

Mailing address:

E-mail Address:

Phone/Fax:

<input checked="" type="checkbox"/>	Please Check All Responses Below That Apply:
<input type="checkbox"/>	Our organization/department does not require any further involvement in this study
<input type="checkbox"/>	Please keep us informed throughout the project
<input type="checkbox"/>	My organization's area of interest for this project includes (please indicate, if applicable):

Please fax, email or mail this form back to:

Jean-Louis Gaudet
exp Services Inc.

Fax: (905) 793-0641

E-mail: jeanlouis.gaudet@exp.com

Mailing address:
1595 Clark Blvd
Brampton, ON L6T 4V1

Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: June-09-15 5:02 PM
To: Arun Jain; Odom, Paul (MOECC) (Paul.Odom@ontario.ca); Slattery, Barbara (MOECC) (barbara.slattery@ontario.ca)
Cc: bmcroberts@mapleton.ca; Jean Louis Gaudet; Sandra Cooke
Subject: RE: Township of Mapleton Wastewater Servicing Class EA

Hi, Arun

Here are my comments on the assimilative capacity work that was done:

- Table 1 provides a summary of 75th percentile values but most of this data was taken from the previous Burnside report. I would recommend updating the information in the table using recent data from PWQMN and other studies, such as water quality sampling done by the township in 2003, 2011 and 2015 during emergency discharges. The text suggests that the data in the table is based on PWQMN records for Site 16018410002 but this site was discontinued in 2006 so there is very limited recent data for this site. I would supplement this dataset with more recent sampling at Site 16018407502 (2007 to 2014) and the other sources that I mentioned above. It is unlikely to change the conclusion that the river is Policy 1 for un-ionized ammonia and Policy 2 for phosphorus but it is desirable to have recent data for the dilution calculations in Table 5. Special attention should be paid to un-ionized ammonia and the concentration should be calculated for each sampling event using the temperature and pH measured in the field on each sampling date, i.e. calculate the un-ionized ammonia concentration for each date and then take the 75th percentile.
- It would also be good to look at nitrate and nitrite concentrations because, although there is no PWQO for these parameters, they are important and there are Canadian Water Quality Guidelines that could be used for comparison, e.g. 2.9 mg/L for nitrate and 0.060 mg/L for nitrite
- The method used for 7Q20 calculations should be identified in the text. The source of the data and the flow gauge station id number should be identified. Any data analysis or QA/QC that was carried out should also be mentioned. Any errors in the data should be identified and a description of how they were dealt with should also be included.
- Table 5 provides dilution calculations for un-ionized ammonia using background concentrations from the 2007 Burnside report. As mentioned, this information should be updated using more recent data. The un-ionized ammonia concentration for the final effluent is 0.18 mg/L in each month but there is no discussion of where this value came from. I would expect the final effluent un-ionized ammonia (UIA) concentration to change from month to month because UIA is temperature and pH dependent. I also have some question about the units that were used for this table. I assume that the ammonia concentrations are in mg/L as N but it is not clear from the text. In this case, it should be noted that the PWQO for UIA is 0.0165 mg/L as N (= 0.020 mg/L as NH₃).
- A similar dilution calculation should be included for TP to demonstrate the impact of the proposed effluent criteria.
- Section 7 recommends a total ammonia limit in the final effluent of 1 mg/L. Does this apply to all months? It is typical to have a higher limit in the winter when conditions are cold and ammonia is less toxic.

Please let me know if you need any further information or clarification.

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority
400 Clyde Road

PO Box 729
Cambridge ON N1R 5W6
(519) 621-2761 ext 2226
www.grandriver.ca

From: Arun Jain [mailto:Arun.Jain@exp.com]
Sent: May-29-15 2:26 PM
To: Odom, Paul (MOECC) (Paul.Odom@ontario.ca); Mark Anderson; Slattery, Barbara (MOECC) (barbara.slattery@ontario.ca)
Cc: bmcroberts@mapleton.ca; Jean Louis Gaudet
Subject: Township of Maplteton Wastewater Servicing Class EA

Paul / Mark / Barb,

We would like to thank you for your time on May 7th to meet with the Township and us to discuss the aforementioned project.

Based on the discussions and the direction provided in the meeting; we have prepared the Receiving Water Impact Assessment Memo along with the presentation boards for the PIC proposed on June 11th.

We will appreciate if you could take some time to provide comments on both at your earliest convenience. We would like to refine our message to public based on your comments.

Please advise if you have any questions or need any clarifications.

With best regards,

Arun



Arun P. Jain, P.Eng., M.Eng.
Practice Lead - Linear Infrastructure, Central Ontario
exp Services Inc.
t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com
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CANADA

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Canadian Environmental
Assessment Agency

Agence canadienne
d'évaluation environnementale

55 St. Clair Avenue East,
Room 907
Toronto ON M4T 1M2

55, avenue St. Clair Est,
pièce 907
Toronto ON M4T 1M2

June 19, 2015

Sent by email

Arun P. Jain
Exp Services Inc.
1595 Clark Blvd.
Brampton, ON L6T4V1
Arun.jain@exp.com

Dear Mr. Jain:

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

Thank you for your correspondence regarding the Township of Mapleton's assessment for wastewater servicing.

As part of the Government of Canada's plan for Responsible Resource Development, 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.

The CEAA 2012 applies to projects 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 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.

For more information on 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>

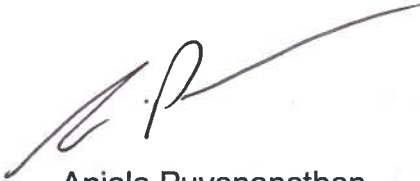
.../2

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](http://www.ceaa.gc.ca/63D3D025-2236-49C9-A169-DD89A36DA0E6/Guide%20to%20Preparing%20a%20Description%20of%20a%20Designated%20Project%20under%20CEAA%202012.pdf)

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 Agency from your distribution list.** If you have questions, please get in touch with our office through the switchboard at 416-952-1576.

Sincerely,

A handwritten signature in black ink, appearing to read 'A.P.', with a long, sweeping horizontal line extending to the right.

Anjala Puvananathan
Director, Ontario Region
Canadian Environmental Assessment Agency



TOWNSHIP OF MAPLETON

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR MAPLETON WASTEWATER SERVICING

NOTICE OF PUBLIC INFORMATION CENTRE

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Mapleton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to upgrade the wastewater collection system.

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Date, Time and Location:

Time: 4:00 pm to 7:00 pm
Date: June 16, 2015
Location: Township of Mapleton Council Chambers
7275 Sideroad 16
Drayton, ON

Following the PIC, further comments are invited for incorporation into the planning and design of the project and will be received until July 3, 2015.

Please contact any of the following project team members if you wish to be added to the project mailing list or if you have any questions or comments about the study.

Brad McRoberts, MPA, P.Eng
Director of Public Works
Township of Mapleton
P.O. Box 160
Drayton, Ontario N0G 1P0
Phone: (519) 638-3313 Ext 41
E-mail: BMcRoberts@mapleton.ca

Arun P. Jain, M.Eng., P.Eng.
Manager – Water and Wastewater Infrastructure
Exp Services Inc.
1595 Clark Blvd.
Brampton, ON L6T 4V1
Phone: (905) 793-9800 x 2373
E-mail: arun.jain@exp.com



Township of Mapleton
Wastewater Servicing
Municipal Class EA

Consultation Form

Organization/Department:
Contact Name:
Title:
Mailing address:
E-mail Address:
Phone/Fax:

<input checked="" type="checkbox"/>	Please Check All Responses Below That Apply:
<input type="checkbox"/>	Our organization/department does not require any further involvement in this study
<input type="checkbox"/>	Please keep us informed throughout the project
<input type="checkbox"/>	My organization's area of interest for this project includes (please indicate, if applicable):

Please fax, email or mail this form back to:

Jean-Louis Gaudet
exp Services Inc.

Fax: (905) 793-0641
E-mail: jeanlouis.gaudet@exp.com

Mailing address:
1595 Clark Blvd
Brampton, ON L6T 4V1

Jean Louis Gaudet

From: Odom, Paul (MOECC) <Paul.Odom@ontario.ca>
Sent: June-23-15 12:09 PM
To: Slattery, Barbara (MOECC)
Cc: bmcroberts@mapleton.ca; Jean Louis Gaudet; Sandra Cooke; Arun Jain; 'Mark Anderson' (manderson@grandriver.ca)
Subject: Drayton Receiving Water Assessment
Attachments: Drayton WPCP EA 15048.docx

Good Afternoon Barbara,
Please find attached my comments on exp.'s Receiving Water Impact Assessment dated May 29, 2015, likely first precursor to the Environmental Study Report for this Municipal Class EA.

Paul Odom

Surface Water Specialist / Team Leader
Provincial Officer #362
Ontario Ministry of the Environment and Climate Change
West Central Region
119 King St. W. 12th Fl.
Hamilton, Ontario L8P 4Y7
(905) 521-7674

June 23, 2015

MEMORANDUM

To: Barbara Slattery
EA Coordinator/Environmental Planner

From: Paul Odom
Surface Water Specialist/Team Leader

RE: Mapleton WPCP EA Receiving Water Assessment

I have reviewed the following document with regards to potential impacts of the Mapleton WPCP expansion on the waters of the Conestogo River and Conestogo Reservoir:

- *Receiving Water Impact Assessment*, exp., May 29, 2015.

I have also reviewed the requirements of the respective Certificates of Approval: № 7875-95DQSC (April 3, 2013) and the previous Ministry memoranda regarding limits and objectives from this plant.

Background

Between 1984 and 2012, the Township of Mapleton operated a 3-cell lagoon sewage treatment facility for the Town of Drayton and the Village of Moorefield. The facility features a primary treatment cell (#2) with fine bubble aeration followed by a stabilization pond (#1) and a final aerated stabilization cell (#3). Lagoon effluent is then polished through 5 sand filters (running in parallel) disinfected by UV and aerated in a cascade aerator before discharge to the Conestogo River. The facility has had capacity problems over the past decade, resulting in emergency discharges in 2003, 2005, 2008 and 2011 due to lack of storage in the three cells. In 2012, the Township completed construction of two additional stabilization ponds (#4A/4B) on the northwest side of the existing lagoons to provide additional storage of polished effluent. The facility, currently approved for 750m³/d inflow, has a bi-annual discharge (Oct-Dec and Mar-Apr) with graduated approved monthly discharge rates totaling 273,872m³/year, is undertaking a Municipal Class EA to seek an increase in capacity to 1,225 m³/d inflow and corresponding discharge.

The May 26, 2015 memorandum from exp. seeks to summarize the capabilities of the Conestogo River in a receiving water assessment of impact from the Drayton WPCP and present a future water quality scenario for an increased discharge rate.

Comments on the Memorandum

The content of the exp. memo is sparse and essentially constitutes an executive summary of what I assume will be the Environmental Study Report (ESR) which addresses impact and mitigation of a proposed discharge.

In the summary and in section 6, the consultant indicates that streamflow data from the period 1973-2013 was used to generate $7Q_{20}$ assimilation values. Given the period of record, I assume the record is from Water Survey of Canada station 02GA039 (Conestogo River above Drayton). The consultant should include both raw data and details of the calculations in appendix in the ESR.

In the introduction, the consultant indicates that the discharge is about 6.5 km upstream from the Conestogo Reservoir. Does the 6.5 km distance represent the top end of the reservoir when it is drawn down in the fall and how was this determined? Wastewater assimilation is an exact science and the impacts need to be precisely defined. The outfall does not directly discharge to the main channel but through the wetland and, when the reservoir is full, the upper end of the reservoir (taken as Concession 8) is only 1.2 km below the outfall. In any consideration of impact from the discharge, there needs to be assessment of impact in the wetland and in the river prior to the point of complete mixing (mixing zone assessment) as outlined in Policy 5 of the Bluebook or above the reservoir. If the mixing zone extended into the reservoir (full or drawn-down) the assessment of impact would be more difficult.

I have issues with Section 3. The consultant has used 2002-2012 data from station 10002; however, this station only has data up to 2006 which makes it out-of-date unless it can be shown that the water quality data is still valid in 2015. The analytical data upon which the Q3 values are calculated need to be included in appendix. Although Q3 values can be determined from a small dataset, the dataset should be large enough to be statistically valid and the error bounds within acceptable variance since statistical calculations need to be done on it. Even with the outdated analyses, it is likely that each month is only based on 5 samples (2002-2006), one taken each month of each year.

My understanding is that GRCA generally does not collect PWQMN data during the winter months. If exp is proposing winter discharge, they will have to develop a water quality database for that period.

The consultant has indicated that the water quality is from this and other sources. Those other sources must be defined and the data tabulated. The consultant quotes NH₃ values from a 2008 report in Table 1. Why was a previous report quoted instead of the appropriate calculations being

made? Is there in fact any difference between the data presented here and the data used in the 2008 report?

If the 10002 station data is combined with more recent data, it must be shown that the datasets are compatible. If they are not compatible, the most appropriate dataset should be used in further calculations.

In the original build, H₂S was considered a contaminant factor. This contaminant is not discussed in this report but it should be.

Section 4 presents the current requirements in the ECA. One of the critical assessments in the report must be the comparison of plant capabilities to these requirements. This involves presenting the facility's discharge monitoring data (at least for the past 5 years) both in summary and raw data tabulated in appendix along with any trending to the dataset. Since the EA section has yet to be completed it is necessary to show what capability the "do nothing" alternative has in meeting the current limits in ECA Table 2 and requirements of Sections 9 and 10.

Typically, the Ministry considers a load cap when a plant expands or re-rates so that the concentration limit goes down with increasing discharge (excepting UIA which is a toxicity (concentration-based) contaminant).

When discussing Best Available Technology, the source for that treatment technology should be provided. MBR facilities are now being built or are operational in Ontario.

I again have issues with Table 4. Using Cunnane regression on the 7Q₂₀ dataset from 02GA039, I cannot duplicate the values in Table 4. With the missing data from 1998 to 2001, the dataset provides either 38 or 39 (depending on the month) 7Q datapoints per month. Whatever methodology was used to generate Table 4, I need to see the calculation process and the methodology used. While other regressions are used in Hydrology, USGS and WSC both indicate that Cunnane provides the best results for naturally flowing waters in North America. In developing the 7Qs, GRCA and MOECC both use the day's flow and the preceding 6 days' flow. Although variation may slide some 7Q's to an adjacent month and some other regression may vary the result, I cannot see that the Table 4 numbers would vary as much from the ones I'm using or from the 7Q₂₀ values used in past assessments. (eg. I have $7Q_{20} = 0.0259 \text{ m}^3/\text{s}$ for October using $y=0.7692x^{-1.132}$ with $R^2=0.9041$ on thirty-eight 7Q datapoints.) All 7Q₂₀ values in Table 4 are significantly higher than what I'm seeing.

In section 6.2, the assimilation of the proposed discharge is discussed. The content is not assimilative capacity but simply a mass balance of unionized ammonia under complete mixing. No mixing zone assessment is made and there is no indication where the PCM occurs. With the discharge being only 1.2 km above the C8 bridge, it is plausible that the (river + discharge (@10%)) enters the reservoir before complete mixing occurs so it is difficult to tell what concentrations of parameters actually impact either the river or the reservoir during periods of discharge. It must also be considered and discussed what the impact of other parameters in the discharge would be on the aquatic system. Although BOD is commonly low, late spring

discharge still adds this reaction demand to the reservoir. Discharge of solids and nutrients to the reservoir also can impact water quality in the impoundment.

In Table 5, the consultant indicates the impact of totally mixed effluent with respect to un-ionized ammonia. While the concentration of UIA presented for the receiver may be impacted by issues with Table 1, the consultant needs to explain why 0.18 mg/L was selected for all 12 months of the year when the parameter is highly dependent on pH and temperature which can vary widely from month to month.

In table 6, the consultant proposes effluent objectives for the revised plant. Normally objectives are used to determine treatment processes while the receiving water impact study proposes limits since those are the worst case scenario.

Conclusions and Recommendations

The memorandum from exp provides summary information on a new discharge scheme for increased discharge from the Drayton WPCP to the Conestogo River based on an October to April discharge. In discussions with GRCA, they have indicated that they would prefer a winter discharge while the reservoir is drawn down and the system operates more like a river to any discharge which extends later in the spring while they are containing river water in the reservoir for the upcoming recreational season. The Ministry is not unopposed to this concept, given GRCA's approval.

I have also reviewed comments provided to you by Mark Anderson of GRCA on June 9, 2015. Mark has some very valid points as well. If I have not included them here, please consider them to be comments of which I also require assessment.

Primary issues with the exp memorandum (as explained in the previous section) are:

- 1) Specific data used in the calculations and proposal need to be included in the submission.
- 2) Water quality data (table 1) used in the water quality discussion appear to be restricted to station 16018410002 which was discontinued in 2006. The numbers, frequency and timing of the sampling are all critical to making statistically valid arguments for wastewater assimilation.
- 3) Ammonia, which is one of the critical parameters for this plant, appears to be a representation of the ammonia discussion from the 2008 RJ Burnside report which was rejected.
- 4) Discharge limits, objectives & flows are quoted from the current ECA but no discussion is presented of discharge quality/quantity from the current plant.
- 5) There is no discussion around Bluebook Policy 5 and the mixing zone from the Drayton discharge; impact assessment is restricted to a mass balance at some point of complete mixing.

- 6) I cannot duplicate the monthly 7Q20 values presented in Table 4. My calculations for the same data set provide 7Q20 values which are all less than the corresponding table 4 values.

Without the ability to assess the data and calculations, I cannot support the information or proposal presented in the exp memorandum at this time.

If you have any questions, please give me a call at (905)521-7674 or e-mail to paul.odom@ontario.ca.

A handwritten signature in black ink that reads "P. Odom". The "P" is a simple vertical stroke with a loop at the top. The "O" is a circle with a vertical line through it. The "dom" is written in a cursive style.

Limitations: The purpose of the preceding review is to provide advice to the Ministry of the Environment regarding surface water impacts based on a review of the information provided in the above referenced documents. The conclusions, opinions and recommendations of the reviewer are based on information provided by others, except where otherwise noted. The Ministry cannot guarantee that the information that is provided by others is accurate or complete. A lack of specific comment by the reviewer is not to be construed as endorsing the content or views expressed in the reviewed material.

Jean Louis Gaudet

From: Fisheries Protection <fisheriesprotection@dfo-mpo.gc.ca>
Sent: June-29-15 3:36 PM
To: Jean Louis Gaudet
Subject: RE: Mapleton Wastewater Servicing Municipal Class EA - Notice of PIC #1

Follow Up Flag: Follow up
Flag Status: Flagged

Thank you for the notification of the Public Notice Centre for the Mapleton Wastewater Servicing Municipal Class Environmental Assessment. The Department reviews projects (works, undertakings, or activities) being conducted in or near waterbodies that support fish that are part of or that support a commercial, recreational or Aboriginal fishery. We also review project proposals for impacts to Species at Risk. We do not review notifications for administrative processes. Please visit our website at: <http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html> to determine whether your project requires a review by the Department by using our self-assessment process. If you determine that your project needs a review please complete and submit a Request for Review Form to: FisheriesProtection@dfo-mpo.gc.ca. If you have any questions feel free to contact us at: 1-855-852-8320.

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]
Sent: June-05-15 10:08 AM
To: Jean Louis Gaudet
Subject: Mapleton Wastewater Servicing Municipal Class EA - Notice of PIC #1

Good morning,

Please find attached a notice of Public Information Centre #1 for the Mapleton Wastewater Servicing Municipal Class Environmental Assessment, to be held on **June 16, 2015** from 4:00 pm to 7:00 pm at the Township of Mapleton Council Chambers .

Regards,

Jean-Louis



Jean-Louis Gaudet

Project Coordinator
t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
CANADA

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Township of Mapleton
Wastewater Servicing
Municipal Class EA

Consultation Form

Organization/Department: Wellington-Dufferin-Guelph Public Health

Contact Name: Shawn Zentner (for MOC)

Title: Manager Health Protection

Mailing address:

160 Chancellors Way Guelph Ont N1G 0B1

E-mail Address: Shawn.Zentner@wdgpublichealth.ca

Phone/Fax: 519 823-4905

<input checked="" type="checkbox"/>	Please Check All Responses Below That Apply:
<input checked="" type="checkbox"/>	Our organization/department does not require any further involvement in this study
<input type="checkbox"/>	Please keep us informed throughout the project
<input type="checkbox"/>	My organization's area of interest for this project includes (please indicate, if applicable):

Please fax, email or mail this form back to:

Jean-Louis Gaudet
exp Services Inc.

Fax: (905) 793-0641

E-mail: jeanlouis.gaudet@exp.com

Mailing address:
1595 Clark Blvd
Brampton, ON L6T 4V1

Ministry of Aboriginal Affairs

160 Bloor St. East, 9th Floor
Toronto, ON M7A 2E6
Tel: (416) 326-4740
Fax: (416) 325-1066
www.aboriginalaffairs.gov.on.ca

Ministère des Affaires Autochtones

160, rue Bloor Est, 9^e étage
Toronto ON M7A 2E6
Tél. : (416) 326-4740
Télec. : (416) 325-1066
www.aboriginalaffairs.gov.on.ca



Reference: EA #103

Jean-Louis Gaudet
Project Coordinator
Exp
1595 Clark Blvd.
Brampton, ON
L6T 4V1

**Re: Township of Mepleton Wastewater Servicing Class EA
Consultation with First Nations, Aboriginal and Métis**

Dear Mr. Gaudet:

Thank you for informing the Ministry of Aboriginal Affairs (MAA) of your project. Please note that MAA treats all letters, emails, general notices, etc. about a project as a request for information about which Aboriginal communities may have rights or interests in the project area.

We acknowledge that you have identified the following Aboriginal communities/organizations:

- Six Nations of the Grand River
- Union of Ontario Indians

As a member of the government review team, the Ministry of Aboriginal Affairs (MAA) identifies First Nation and Métis communities who may have the following interests in the area of your project:

- reserves;
- land claims or claims in litigation against Ontario;
- existing or asserted Aboriginal or treaty rights, such as harvesting rights; or
- an interest in the area of the project.

MAA is not the approval or regulatory authority for your project, and receives very limited information about projects in the early stages of their development. In circumstances where a Crown-approved project may negatively impact a claimed Aboriginal or treaty right, the Crown may have a duty to consult the Aboriginal community advancing the claim. The Crown often delegates procedural aspects of its duty to consult to proponents. Please note that the information in this letter should not be relied on as advice about whether the Crown owes a duty to consult in respect of your project, or what consultation may be appropriate.

Should you have any questions about your consultation obligations, please contact the appropriate ministry.

You should be aware that many First Nations and/or Métis Communities either have or assert rights to hunt and fish in their traditional territories. For First Nations, these territories typically include lands and waters outside of their reserves.

In some instances, project work may impact aboriginal archaeological resources. If any Aboriginal archaeological resources could be impacted by your project, you should contact your regulating or approving Ministry to inquire about whether any additional Aboriginal communities should be contacted. Aboriginal communities with an interest in archaeological resources may include communities who are not presently located in the vicinity of the proposed project.

With respect to your project, and based on the brief materials you have provided, we can advise that the project appears to be located in an area where First Nations may have existing or asserted rights or claims in Ontario's land claims process or litigation, that could be impacted by your project. Contact information is below:

Six Nations of the Grand River Territory P.O. Box 5000, 1695 Chiefswood Road OHSWEKEN, Ontario N0A 1M0	Chief Ava Hill (519) 445-2201 (Fax) 445-4208
Haudenosaunee Confederacy Chiefs Council 2634 6th Line Road RR 2 Ohsweken, ON N0A 1M0	Hohahes Leroy Hill Secretary to Haudenosaunee Confederacy Chiefs Council Cell 519 717 7326 jocko@sixnationsns.com
Mississaugas of the New Credit First Nation 2789 Mississauga Rd., R.R. #6 HAGERSVILLE, Ontario N0A 1H0	Chief Bryan LaForme (905) 768-1133 (Fax) 768-1225 bryanlaforme@newcreditfirstnation.com

The information upon which the above comments are based is subject to change. First Nation or Métis communities can make claims at any time, and other developments can occur that could result in additional communities being affected by or interested in your undertaking.

Through Aboriginal Affairs and Northern Development (AANDC), the Government of Canada sometimes receives claims that Ontario does not receive, or with which Ontario does not become involved. AANDC's Consultation and Accommodation Unit (CAU) established a "single window" to respond to requests for baseline information held by AANDC on established or potential Aboriginal Treaty and rights. To request information from the Ontario Subject Matter Expert send an email to: UCA-CAU@aadnc-aandc.gc.ca.

Additional details about your project or changes to it that suggest impacts beyond what you have provided to date may necessitate further consideration of which Aboriginal communities may be affected by or interested in your undertaking. If you think that further consideration may be required, please bring your inquiry to whatever government body oversees the regulatory process for your project. MAA does not wish to be kept informed of the progress of the project; please be sure to remove MAA from the mailing list.

Yours truly,

A handwritten signature in black ink, appearing to read 'C Troje', is written over the typed name.

Corwin Troje
Manager, Ministry Partnerships Unit
Aboriginal Relations and Ministry Partnerships Branch

Jean Louis Gaudet

From: Arun Jain
Sent: November-02-15 1:47 PM
To: Odom, Paul (MOECC) (Paul.Odom@ontario.ca); Mark Anderson (manderson@grandriver.ca)
Cc: bmcroberts@mapleton.ca; Scott Craggs (SCraggs@ocwa.com); Hui Wang; Jean Louis Gaudet
Subject: Mapleton WW Class EA - updated RWIA technical memo
Attachments: 2015-05-20 Memo Receiving Water Impact Assessment_Version 12.pdf

Hi Paul,

Please find attached the updated Receiving Water Impact Assessment for the Mapleton Wastewater Class EA. We have updated the memo based on comments received from you and GRCA.

We would like to request a meeting with you and Mark to finalize the conclusions. In the meanwhile, after the PIC in June 2015; a Phase 3 evaluation for the Schedule C Class EA has been completed and the finalization of the EA is pending your approval of the attached.

Will greatly appreciate if you could you please advise of your availability over the next two weeks.

Thank you,

Arun



Arun P. Jain, P.Eng., M.Eng.

Practice Lead - Linear Infrastructure, Central Ontario

exp Services Inc.

t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com

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Brampton, ON L6T 4V1

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Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: November-13-15 1:54 PM
To: bmcroberts@mapleton.ca
Cc: Arun Jain; Scott Craggs (SCraggs@ocwa.com); Hui Wang; Jean Louis Gaudet; Odom, Paul (MOECC) (Paul.Odom@ontario.ca); Sandra Cooke; Jason Wagler
Subject: RE: Mapleton WW Class EA - updated RWIA technical memo
Attachments: 2015-11-13 MEM CommentsOnDraytonReceivingWater.docx

Hi, Brad

Here are my comments on the updated memo from exp. I'll see you next Thursday in Hamilton, until then have a nice weekend.

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge ON N1R 5W6
(519) 621-2761 ext 2226
www.grandriver.ca

From: Arun Jain [mailto:Arun.Jain@exp.com]
Sent: November-02-15 1:47 PM
To: Odom, Paul (MOECC) (Paul.Odom@ontario.ca); Mark Anderson
Cc: bmcroberts@mapleton.ca; Scott Craggs (SCraggs@ocwa.com); Hui Wang; Jean Louis Gaudet
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Thank you,

Arun



Arun P. Jain, P.Eng., M.Eng.

Practice Lead - Linear Infrastructure, Central Ontario

exp Services Inc.

t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com

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Grand River Conservation Authority - Memorandum

File Number: W88.155

Date: 13 November 2015

To: Brad McRoberts, Mapleton Township

From: Mark Anderson

Cc: Arun Jain, exp; Paul Odom, MOECC

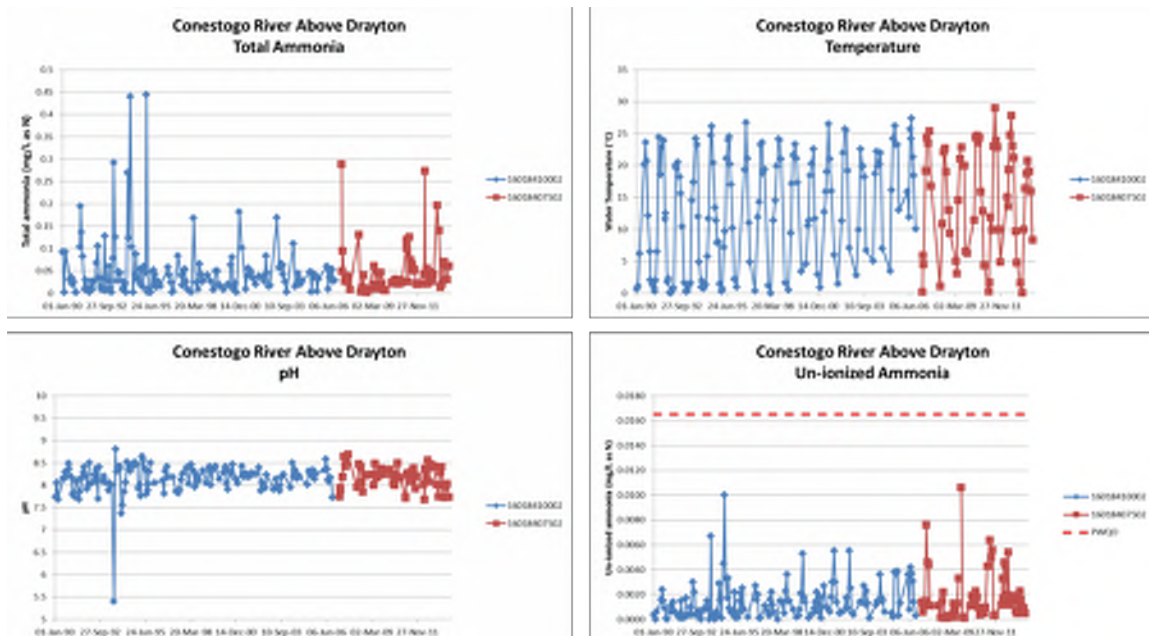
Re: Comments on receiving water impact assessment (final draft) dated 30 October 2015

Remarks: For your review

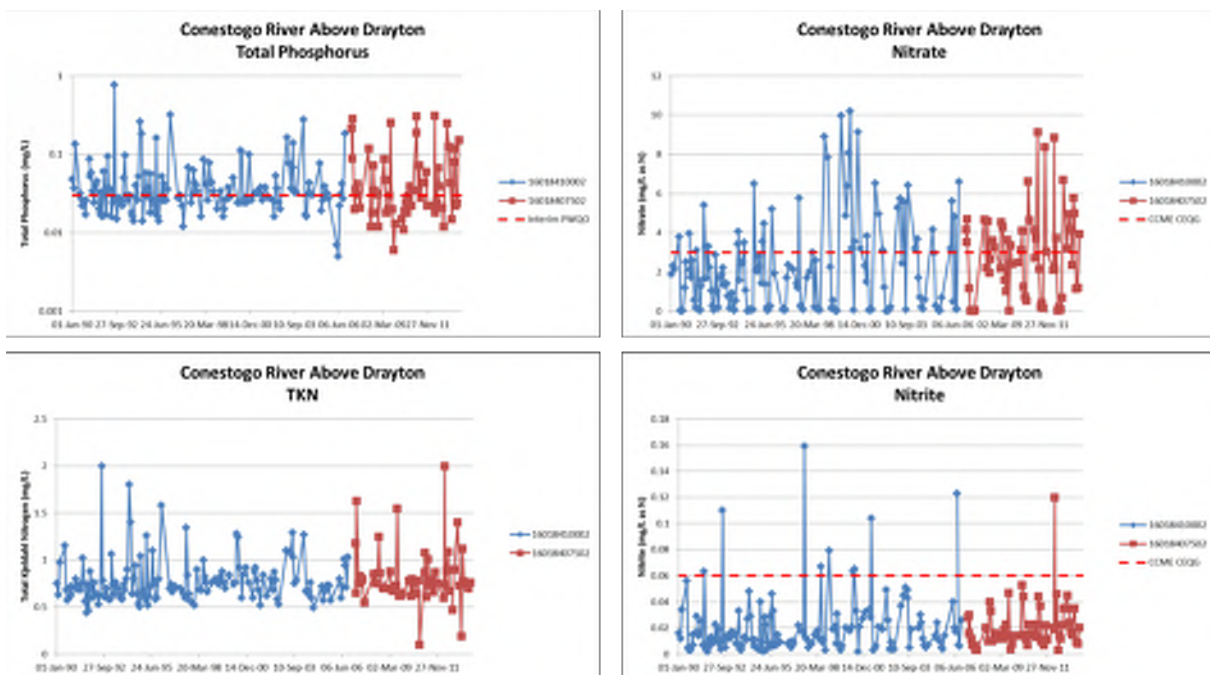
The following comments are provided for your consideration based on my review of the memorandum prepared by exp (Project number BRM-00605325-A0) regarding the receiving water impact assessment for the Drayton WPCP EA. Comments were provided on the initial draft in an email dated 9 June 2015, a number of these comments have not been addressed and are reiterated below.

Section 4: Water Quality of Conestogo River at Drayton

- Data provided in Table 1 appears to have been updated for Total and Un-ionized Ammonia only. The footnote to the table indicates that this data represents the period from 1990 to 2014 based on two upstream PWQMN stations. It would be good to include some time series graphs to illustrate the data from the two stations to show that they are relatively representative of the Conestogo River upstream of Drayton and can be combined for the purpose of this analysis (see examples below). Showing the data this way highlights potential errors (e.g. extremely low pH value in 1992 is likely a typo)



- Total phosphorus data has not been updated from the previous version of the memo and it is still unclear what data was used to develop the monthly 75th percentiles in Table 1. Again, a time series plot would be helpful (see additional examples below, note total phosphorus is on a logarithmic scale to show detail).



- The remainder of the data in Table 1 was simply cut and paste from RJ Burnside’s 2007 report, which was based on average concentrations from a limited field monitoring program carried out in 2003 and 2004. TSS concentrations were incorrectly copied from the Burnside report.
- Section 4 should be updated to include current data from a consistent time period (e.g. 75th percentiles from 1990 to 2014 to all parameters) for total ammonia, water temperature, pH, un-ionized ammonia (calculated), total phosphorus, nitrate, nitrite, total Kjeldahl nitrogen and total suspended solids. This should include a comparison to the relevant Provincial water quality objectives or CCME guidelines. It is important to be explicit about the units for nitrogen compounds such as ammonia and nitrate. These parameters are typically reported in mg/L as N, whereas some of the objectives are expressed in different units. For example, the PWQO for un-ionized ammonia is 0.020 mg/L as NH₃, which is equivalent to 0.0165 mg/L as N. Similarly, the CCME guideline for nitrate is 13 mg/L as NO₃, which is approximately equivalent to 3 mg/L as N.

Section 7.3 Assimilative Capacity based Validation of Potential Discharge Window

- The dilution calculations in Table 5 are based on an assumed value of 6% for the un-ionized fraction of ammonia. The basis for this assumption should be clearly stated, e.g. is this based on a “worst case” condition for water temperature and pH in the Conestogo River and if so, what is the temperature and pH?
- As mentioned above, it is important to be explicit about the units for un-ionized ammonia. The values reported by the lab are in mg/L as N, which means the results should be compared to a PWQO of 0.0165 mg/L as N.

- A similar dilution calculation for total phosphorus should be included in the analysis to demonstrate the potential impact of the proposed effluent criteria.

Section 8: Conclusion

- This section gives recommended effluent quality objectives but it should also identify the proposed effluent compliance criteria.
- As the EA continues, it will be important to consider the ability of the treatment system to produce and store high quality effluent to allow the discharge window to be fully utilized. The Drayton WPCP has had historical challenges with deteriorating effluent quality during cold weather months which have resulted in an inability to discharge during the spring discharge window. My understanding is that the preliminary preferred alternative involves installing SAGR technology in one of the existing storage cells, which will effectively reduce the available storage capacity of the treatment system. This needs to be considered moving forward to ensure that the proposed discharge window can be effectively utilized.

Jean Louis Gaudet

From: Odom, Paul (MOECC) <Paul.Odom@ontario.ca>
Sent: November-17-15 8:35 AM
To: Arun Jain; Mark Anderson (manderson@grandriver.ca)
Cc: bmcroberts@mapleton.ca; Scott Craggs (SCraggs@ocwa.com); Hui Wang; Jean Louis Gaudet
Subject: RE: Mapleton WW Class EA - updated RWIA technical memo

Arun,

We can meet if you want.

I've looked at your report – the approach is Ok but I have trouble with the data.

The daily flows (A Table) seem to be correct but I cannot validate the 7-day moving window (B Table).

Table B should represent a daily 7Q value. I cannot determine where the pivot is for this. Is the data presented on the first day of the window, middle day of the window or end day of the window? GRCA and MOECC normally use last day as that is the day which would receive the aggregate impact of the previous 6 days' flows. I also don't understand how/why you generated flows for days which don't exist (eg. November 31 of each year) or for periods without data (last 9 months of 1998).

In July, 1985 the monthly 7Q was 0.000 (real number). In Appendix 2, this month is left blank and appears to have been dropped in the assessment. Although I appreciate that some statistical analyses cannot accept a 0 value, the problem is with the analysis and not with the data. You can't simply treat it as an outlier. Tombstone document for this work is USGS Techniques Book 4 Chapter B1 (H.C. Riggs). Riggs indicates that Matalas indicates a preference for Gumbel or Pearson Type 3 and O'Conner prefers log normal. The preference appears to be with whatever equation best fits the low flow data being assessed. They all agree that the regression used must fit the graphical curve of the data ($R \geq 80\%$). So whichever distribution is selected, it need not necessarily be Pearson Type III just because it's the most common.

P. Odom

From: Arun Jain [mailto:Arun.Jain@exp.com]
Sent: November 2, 2015 1:47 PM
To: Odom, Paul (MOECC); Mark Anderson (manderson@grandriver.ca)
Cc: bmcroberts@mapleton.ca; Scott Craggs (SCraggs@ocwa.com); Hui Wang; Jean Louis Gaudet
Subject: Mapleton WW Class EA - updated RWIA technical memo

Hi Paul,

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Will greatly appreciate if you could you please advise of your availability over the next two weeks.

Thank you,

Arun



Arun P. Jain, P.Eng., M.Eng.

Practice Lead - Linear Infrastructure, Central Ontario

exp Services Inc.

t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com

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Brampton, ON L6T 4V1

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Meeting Agenda

Date:	Thursday, November 19, 2015 @ 2 pm		
Project Name:	Mapleton WW EA	Project #:	BRM-605325-A0
Subject:	Receiving Water Impact Assessment and MOECC Approvals		
Participants:	Brad McRoberts – Township of Mapleton Paul Odom, Martha Weber, Barbara Slattery – MOECC Mark Anderson – GRCA Arun Jain, Hui Wang, JL Gaudet – exp Services		
Location:	MOECC Offices 119 King St. W. Hamilton Ellen Fairclough Bldg 12th Floor Main Boardroom	Prepared By:	JL Gaudet, exp Services
Distribution:	All Participants		

1. Project Update
2. Receiving Water Impact Assessment
3. MOECC Approvals Process
 - 3.1. Class Environmental Assessment
 - 3.2. Environmental Compliance Approval






**Municipal Class EA for Mapleton
Wastewater Servicing:
MOECC and GRCA Meeting**

November 19 2015

Agenda


- Project Update
- Receiving Water Impact Assessment
- MOECC Approvals Process
 - Class Environmental Assessment
 - Environmental Compliance Approval



2

Project Scope

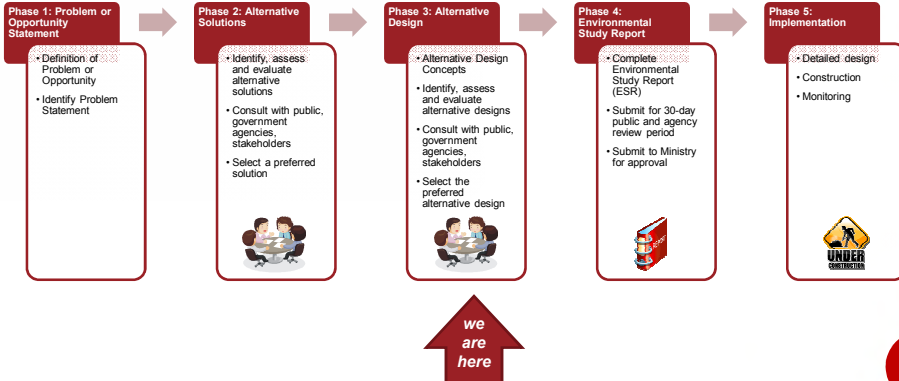
- To undertake Municipal Class EA to evaluate alternatives to potentially upgrade the Mapleton Wastewater Treatment System; and
- Prepare preliminary design of municipal wastewater treatment system.



3

Municipal Class EA Process

- A Class EA is a study to plan for a proposed project, which includes background and technical studies, a review and assessment of potential environmental, social and economic impacts and how they can be avoided, and an evaluation of possible alternatives.
- The result is an Environmental Study Report (ESR), which documents the process and lists the commitments made by the proponent.
- The Class EA process is completed in accordance with the *Environmental Assessment Act*.



```

    graph LR
      P1[Phase 1: Problem or Opportunity Statement] --> P2[Phase 2: Alternative Solutions]
      P2 --> P3[Phase 3: Alternative Design]
      P3 --> P4[Phase 4: Environmental Study Report]
      P4 --> P5[Phase 5: Implementation]
  
```

we are here

4

Timelines

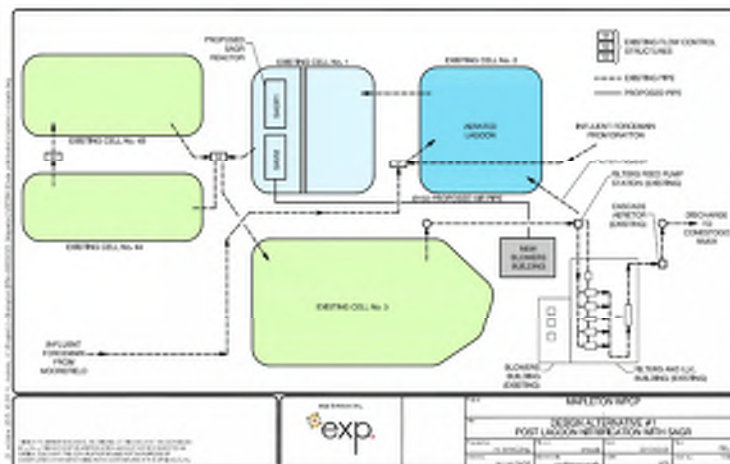
- PIC 2: December 2015 / January 2016
- Design: January to March 2016
- File Environmental Compliance Approval: Date ??
- Tendering: April / May 2016
- Construction: June to December 2016



16

Draft Phase 3 Evaluation

Preliminary Preferred Alternative
Post Lagoon Nitrification with SAGR

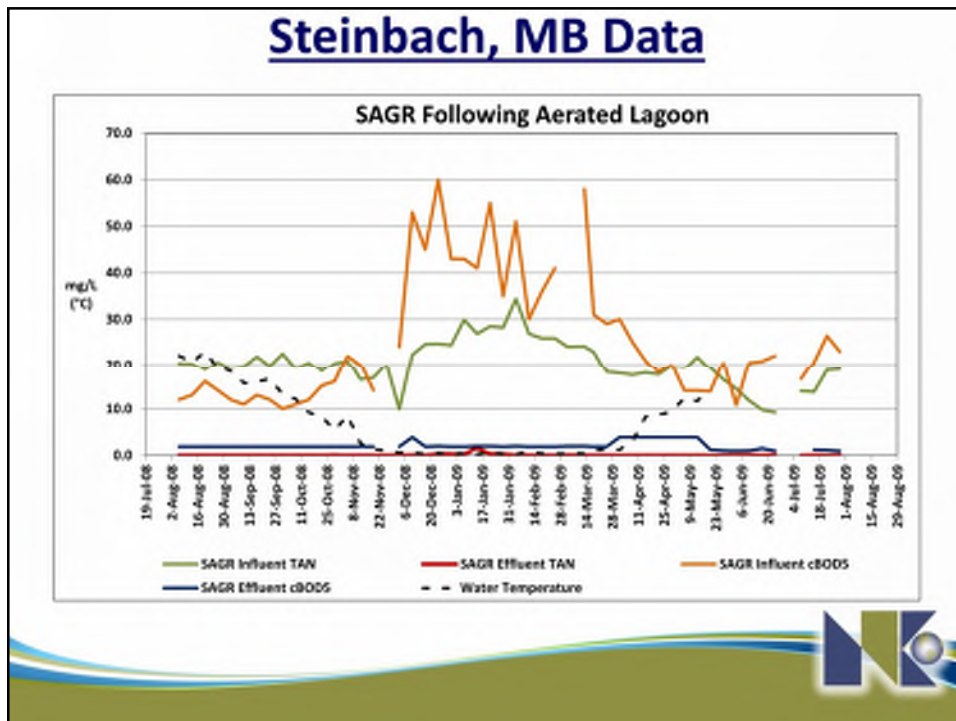


8

Municipal SAGR Projects

Steinbach (Demo)	2007
Lloydminster (Demo), SK	2008
Doaktown, NB	2010
Dawson Creek, BC	2011
Mentone, IN	2011
Glencoe, ON	2011
Long Plain FN, MB	2012
Sylvan Lake, SD	2012
Walker, IA	2012
Perth (Demo), ON	2012
Lamar, MD	2012
Shellbrook, SK	2012
Blumenort (Demo)	2012
Balcarres, SK	2013
Misipiwistik FN, MB	2013
Greenbryre, SK	2013
Kennard, IN	2013
Guthrie School, ON	2013
Kingsley, IA	2013
Sandridge, ON	2014
New London, IA	2014
Colesburg, IA	2014
Hull, IA	2014

 8



SAGR Performance Data

University of Manitoba Third Party Winter Operation Verification Data (JANUARY 13 – APRIL 21, 2010)			
Parameters	SAGR Influent Averages (mg/L)	SAGR Effluent Averages (mg/L)	Removal
cBOD	47	2.1	95.5%
TSS	30	1.3	95.7%
TAN	24.9	0.12	99.5%
TKN	32.5	1.8	94.5%
FC (cfu /100 ml)	253000	13.5	99.99%
Average water temperature (°C)	0.3	1.0	





Agenda

- Project Update
- **Receiving Water Impact Assessment**
- MOECC Approvals Process
 - Class Environmental Assessment
 - Environmental Compliance Approval

Receiving Water Impact Assessment



Scope of RWIA

- Update Burnside RWIA
- Arrive at acceptable discharge limits
- Consider ammonia and phosphorous discharges




Receiving Water Impact Assessment

- Initial meeting with GRCA
- Meeting with MOECC / GRCA
- First draft sent to MOECC / GRCA
- GRCA comments received
- Comments incorporated, 2nd draft sent to Township
- MOECC comments received on 1st draft
- RWIA updated, 3rd draft sent to MOECC / GRCA
- MOECC / GRCA comments received
- Revised draft under preparation



Receiving Water Impact Assessment


- Phosphorous
 - Policy 2
 - Based on proposed capacity, effluent objective can move to 0.18 mg/L from existing 0.3 mg/L
- NH₃
 - Policy 1
 - Develop acceptable discharge based on resulting un-ionized ammonia levels downstream of discharge
 - Proposed effluent standards for NH₃ are aggressive

 16

Receiving Water Impact Assessment


Key Comments


- Clarification on 7Q20 Calculations
- Use of latest data

 16

Receiving Water Impact Assessment


7Q20
Discussion

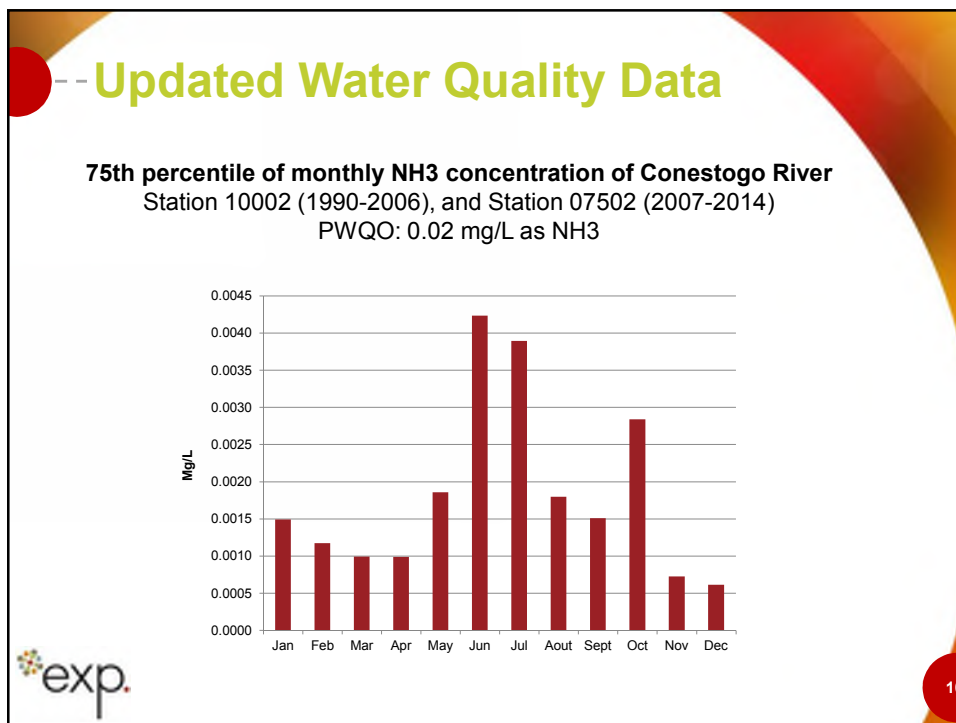
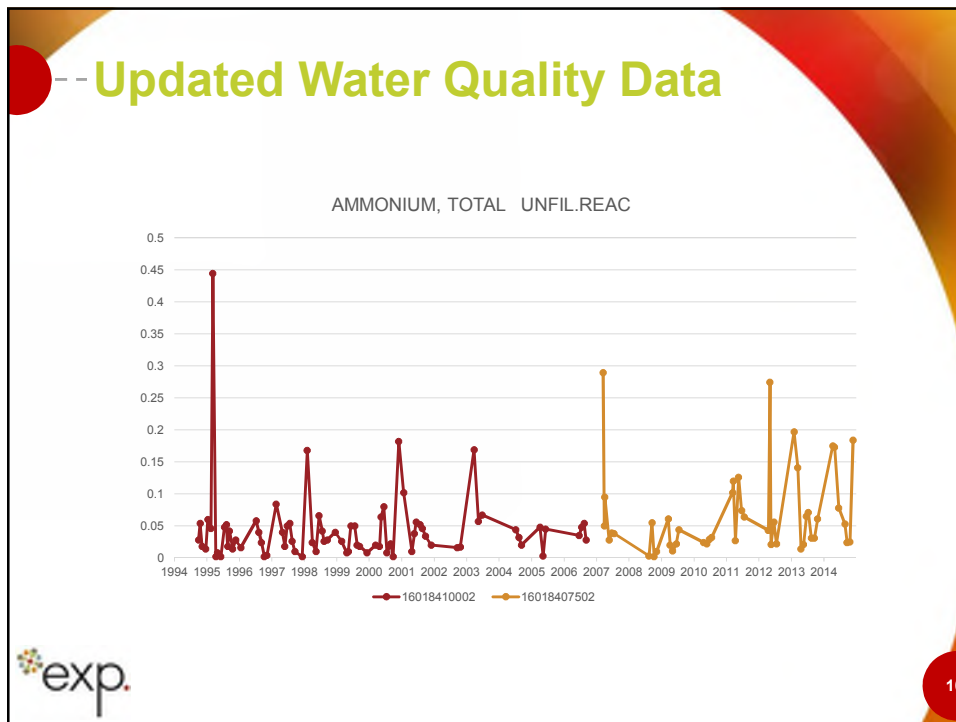



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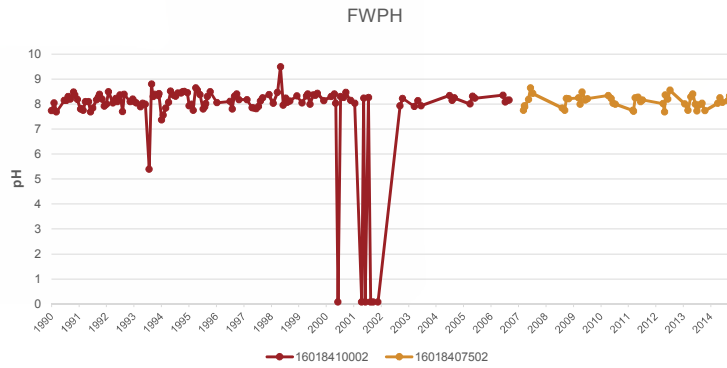
Receiving Water Impact Assessment

Description	Unit	Jan	Feb	Mar	Apr	Oct	Nov	Dec
7Q20 Low Flow (m3/s)	m ³ /d	22,464	17,885	21,600	45,014	4,493	21,427	26,438
Proposed discharge flow	m ³ /d	3,100	2,500	3,100	3,500	210	1,650	3,800
Proposed TAN (NH4-N) limit	mg/L	3	3	3	3	3	3	3
Effluent ammonium (NH4) limit*	mg/L	4.71	4.71	4.71	4.71	4.71	4.71	4.71
Conestogo River pH		8.5	8.5	8.5	8.5	8.5	8.5	8.5
Conestogo River water temperature	°C	3	3	3	10	15	10	3
pKa = $0.09018 + 2729.92 / (273.16 + T^{\circ}C)$		9.98	9.98	9.98	9.73	9.56	9.73	9.98
fNH3 = $1 / (10^{(pKa-pH)} + 1)$		0.0324	0.0324	0.0324	0.0555	0.0795	0.0555	0.0324
Effluent ammonia (NH3)**	mg/L	0.1526	0.1526	0.1526	0.2615	0.3747	0.2615	0.1526
NH3 in River - Upstream	mg/L	0.0015	0.0012	0.0010	0.0010	0.0028	0.0007	0.0006
NH3 in river-after mixing	mg/L	0.0198	0.0197	0.0200	0.0198	0.0194	0.0194	0.0197
PWQO criteria for NH3	mg/L	0.02	0.02	0.02	0.02	0.02	0.02	0.02

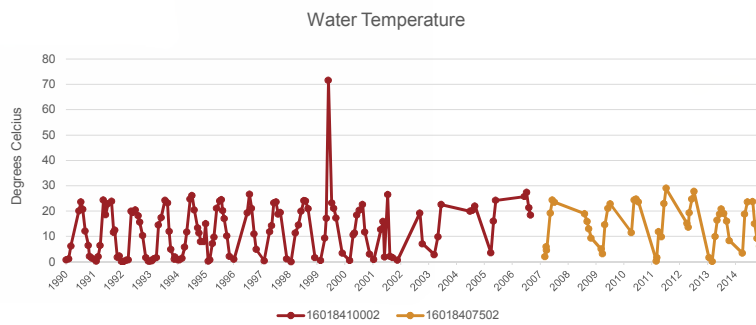

16



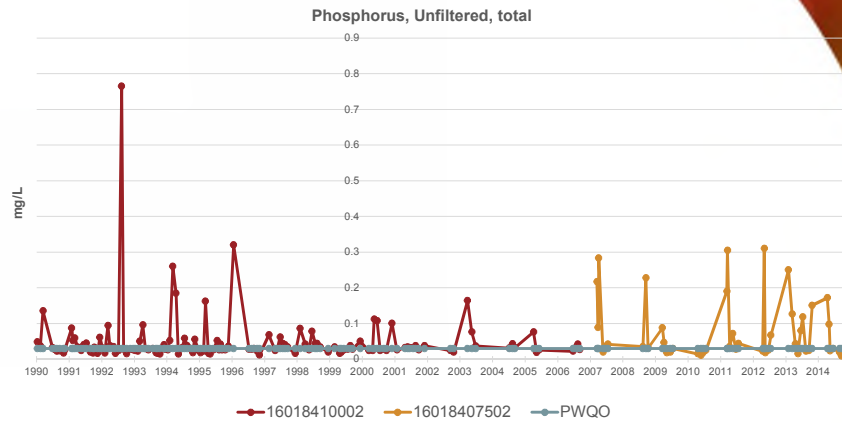
Updated Water Quality Data



Updated Water Quality Data



Updated Water Quality Data



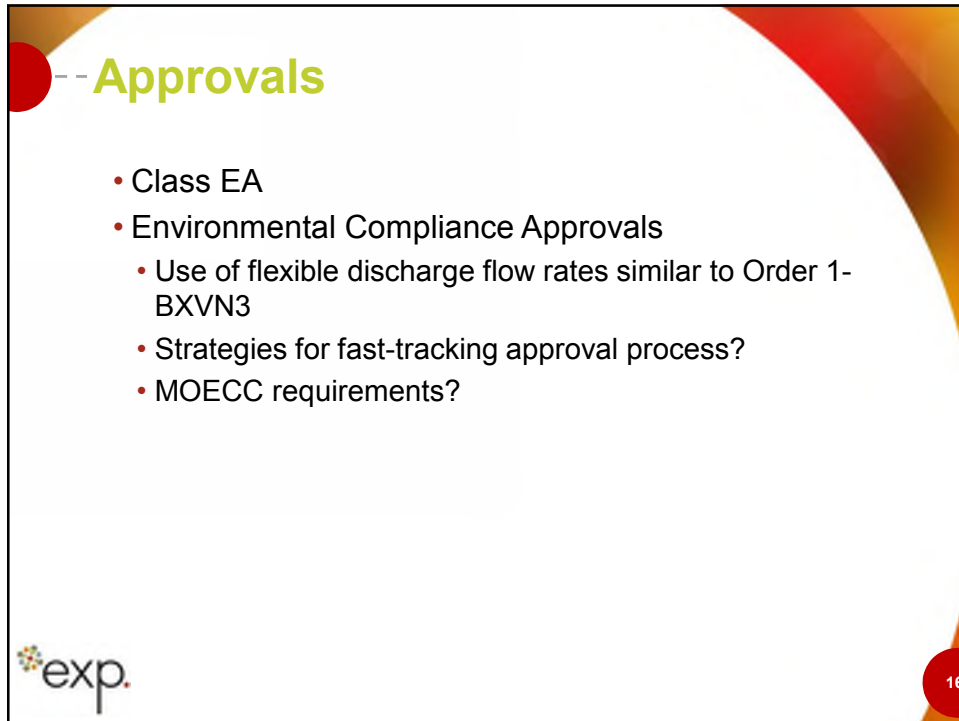
16

Agenda

- Project Update
- Receiving Water Impact Assessment
- **MOECC Approvals Process**
 - Class Environmental Assessment
 - Environmental Compliance Approval




2



Approvals

- Class EA
- Environmental Compliance Approvals
 - Use of flexible discharge flow rates similar to Order 1-BXVN3
 - Strategies for fast-tracking approval process?
 - MOECC requirements?

 16

Jean Louis Gaudet

From: Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>
Sent: November-23-15 3:44 PM
To: Jean Louis Gaudet; Hui Wang; Brad McRoberts; Arun Jain; Mark Anderson
Cc: Odom, Paul (MOECC); Weber, Martha (MOECC)
Subject: RE: Mapleton WPCP RWIA
Attachments: Drayton WPCP EA 15113.docx

Follow Up Flag: Follow up
Flag Status: Flagged

Hello everyone, as promised at our meeting last week, Paul Odom has completed his review with the following comments for your consideration, and action.

For simplicity, please contact Paul directly via email, with any thoughts or questions that you may have.

Best regards,

Barb Slattery, EA/Planning Coordinator
[Ministry of the Environment and Climate Change](#)
West Central Region
(905) 521-7864

November 23, 2015

MEMORANDUM

To: Barbara Slattery
EA Coordinator/Environmental Planner

From: Paul Odom
Surface Water Specialist/Team Leader

RE: Mapleton WPCP EA Receiving Water Assessment V12

I have reviewed the following document with regards to potential impacts of the Mapleton WPCP expansion on the waters of the Conestogo River and Conestogo Reservoir:

- *Receiving Water Impact Assessment (final draft)*, exp., October 30, 2015.

I have also reviewed the previous Ministry memoranda regarding limits and objectives from this plant, the previous ACS work and GRCA's comments on the two Impact Assessments by exp.

Background

The Drayton WPCP, approved for 750m³/d inflow, currently has a bi-annual discharge (Oct-Dec and Mar-Apr) with graduated approved monthly discharge rates totaling 273,872m³/year. The Township of Mapleton is undertaking a Municipal Class EA to seek an increase in capacity to 1,300 m³/d inflow for 2031 and corresponding discharge.

The October 30, 2015 draft memorandum from exp. seeks to summarize the ability of the Conestogo River to assimilate the discharge from the Drayton WPCP and present a future water quality scenario for an increased discharge rate.

Comments on the October Memorandum

The content of the exp. memo continues to be sparse. I presume that the content of the final will form a technical portion of the Environmental Study Report (ESR) which addresses impact and mitigation of a proposed discharge. The memorandum itself deals strictly with dilution of effluent (complete mixing). The ESR needs to address environmental conditions in the mixing zone and in the GRCA wetland to which the outfall discharges, both under current discharge rates and timing and under proposed rates and timing and will likely require the input of environmental scientists in addition to the engineers. From my previous memo:

In any consideration of impact from the discharge, there needs to be assessment of impact in the wetland and in the river prior to the point of complete mixing (mixing zone assessment) as outlined in Policy 5 of the Bluebook or above the reservoir. If the mixing zone extended into the reservoir (full or drawn-down) the assessment of impact would be more difficult.

The 1996 study by CH₂M Hill was acceptable to the Ministry and was the basis of approving the existing facility. The 2007 study was unacceptable to the Ministry and although monitoring data collected in the preparation of that study may be usable, the assessment itself should not be referenced.

In Section 3, the consultant references Policy from the Ministry of the Environment and Climate Change. Presentation of Ministry Policy requires that the policy be completely and correctly stated and not truncated. I note that the consultant discusses Policy 2 Deviation as presented in the Ministry's Blue Book. Policy 2 deviations are rarely granted and extremely unlikely as an alternative to approved treatment.

In section 4 of the memorandum, background water quality data is summarized in table 1, using stations 16-0184-075-02 and 16-0184-100-02 on the Conestogo River above the plant discharge. The final presentation should indicate how many samples are used to generate each value in table 1 and provide the source reference for the total phosphorus values. From my previous memo:

My understanding is that GRCA generally does not collect PWQMN data during the winter months. If exp is proposing winter discharge, they will have to develop a water quality database for that period.

In the introductory paragraph to table 1, the consultant indicates the data comes from these (PWQMN stations) "and other sources". Only one other source is listed; what other sources were used to generate table 1?

GRCA's review of sections 4, 7.3 and 8 (13 November, 2015) provides an excellent presentation of the water quality data from the two PWQMN stations. This presentation should be incorporated into the ESR report and the receiving water quality data and outliers discussed. GRCA's other suggestions are equally valid and should be incorporated in the ESR.

Current effluent criteria are presented in section 5. The consultant should identify the Approval number rather than the "current Certificate of Approval". Please note that approved parameters have specific legal ramifications, therefore the parameter identified in Amended Certificate of Approval № 7875-95DQSC (April 3, 2013) is "total phosphorus" and not "total phosphorous".

From my previous memo:

In the original build (existing plant), H₂S was considered a contaminant factor. This contaminant is not discussed in this report but it should be.

It is also incumbent on the consultant to identify and discuss the other parameters in the plant discharge (current and future). They have been identified in table 1 for the receiver and need to be discussed in sections 6, 7 and/or 8 for the discharge. While the “assimilation” focuses on ammonia impact, Total Phosphorus is only discussed as load capped (section 6) and no discussion is presented for BOD₅, Suspended Solids, pH and *E coli*. If the Drayton WPCP receives industrial effluent or septage, the potential impact of these will have to be addressed in Mapleton’s submission.

From my previous memo:

One of the critical assessments in the report must be the comparison of plant capabilities to these requirements. This involves presenting the facility’s discharge monitoring data (at least for the past 5 years) both in summary and raw data tabulated in appendix along with any trending to the dataset. Since the EA section has yet to be completed it is necessary to show what capability the “do nothing” alternative has in meeting the current limits in ECA Table 2 and requirements of Sections 9 and 10.

I again have issues with Table 4. I cannot duplicate the values in table 4 using the excel tables in Appendix 1 (which I shall refer to as table A (for the left hand side (daily flows) and table B (for the right hand side (7 day average window (7Q))))). Table A appears to be correct (without checking every specific value) but table B does not logically follow (and also needs to be 3 significant figures).

For every day of record (excepting 12 days for this station) there should be a 7Q average value. That value can be reported for the first day of the seven day period, for day four or for the last day of the seven day period. I prefer the last option as the 7Q we are using is associated with maximum environmental impact which is likely most felt on the seventh day by the contributing six previous days. It is not particularly critical which of the 3 is used but it should be identified. In table A, the data completes normal calendar years with blanks for days of months that do not have 31 days; however, table B does not have the corresponding null data but appears to have calculated values for each null day (they change). If we select the 7-day period to be presented on the last day, then the data in table B should be:

7Q for Feb 28, 1981 = avg Q for (Feb 22.....Feb 28)

7Q for Mar 1, 1981 = avg Q for (Feb 23.....Feb 28 & Mar 1)

7Q for Mar 2, 1981 = avg Q for (Feb 24.....Feb 28 & Mar 1+ Mar 2)

7Q for Mar 3, 1981 = avg Q for (Feb 25.....Feb 28 & Mar 1...Mar 3)

I don’t see this in the B table.

Since I don't think the B tables are correct, the tables derived from it (Appendices 2-5) are likely also incorrect. Although I haven't gone through appendix 2-5 tables in detail, I note the following concerns:

With the missing data from 1998 to 2001, the dataset provides either 38 or 39 (depending on the month) 7Q datapoints for each month. There should be no 7Q values for January, February or March 2001. These months should have only 38 regression points. Only March should have 39 values. Are the 5th Centile values taken from the plot of 7Q values using some form of plotting formula (Cunnane or Weibull) or are they projected from the Log Pearson Type III regression? The 5th Centile of this 7Q data represents the 1 in 20 year monthly return period.

In the Appendix 2 table, July 1984 is blank. The 7Q for July, 1984 is 0.000 m³/s. This represents the 38th data point for July and needs to be included in the analysis in appendix 4 although it creates problems for the regression formulae since none of the equations can accept a 0 value. In the first table in appendix 4 (4a?), it looks like the Log Pearson regression has generated negative flows for June – September. I presume this is the unstable (non-linear) portion of the regression and assume that the values below the table are the points from the Cunnane plot.

What is the significance of the table (from Hahn) in appendix 5? The calculations conducted in the previous assessment are for the 5th centile which is equivalent to the 20 year recurrence interval not listed on this table.

In section 7, it does identify the submerged attached growth reactor (SAGR) as technology under consideration. Nelson's technology was developed in Canada and designed for the Canadian climate (especially winter which gives lagoon-based systems the most problems). SAGR systems are making some in-roads in Ontario but are more common in prairie communities where the technology was developed. The success of such an application in Mapleton would have to be evaluated by Approvals Branch review engineers but the expectation listed by exp is in line with that approved for the Glencoe WPCP in Middlesex.

In section 7.1, exp discusses the estimation of the monthly 7Q₂₀ low flows, using data from WSC 02GA039 and application of a Log Pearson type iii distribution. Log Pearson type iii is the most commonly used distribution for water flow data, primarily flood forecasting but in a number of cases the best distribution for low flow frequency analysis. The best explanation of the use and limitations is found in the USGS open file report 2007-1033[†]. As mentioned previously, Log Pearson type iii cannot accept zero values and the probability of exceedance for July must be adjusted to address the zero-value from 1985.

Since I cannot verify the 7Q rolling averages in Table B, I cannot verify the 7Q₂₀ values calculated from them in table 4 or the corresponding assimilation assessment in table 5.

[†] - Winterstein, T.A., Arntson, A.D. and Maitton, G.B., Methods used to compute low-flow frequency characteristics for continuous-record streamflow stations in Minnesota, 2006; USGS Open File Report 2007-1033.

Conclusions and Recommendations

The feasibility of a new discharge scheme for increased discharge from the Drayton WPCP to the Conestogo River based on an October to April discharge appears to be feasible, provided the re-calculated 7Q₂₀ values are not significantly different from those quoted in the November memorandum. Certainly, the record that the aerated SAGR system currently exhibits should resolve ammonia issues in the polished effluent and SAGR's process requirement of low solids/BOD in the SAGR influent may very well address issues with those parameters in an expanded discharge. The highly sensitive months of June, July, August, September and the start of October will be the most impacted by changes in the calculated 7Q₂₀, fortunately June, July and August are excluded under the current proposal. Resolution of September and October 7Q₂₀ flow criteria may severely limit any discharge during those months.

While the consultant proposes effluent objectives in section 8, effluent limits should also be proposed; identification of the plant's current capabilities in a previous section would help in determining the appropriateness of the proposed objectives.

Without the ability to assess the correct data and calculations, I cannot support the information or proposal presented in exp's November memorandum at this time.

If you have any questions, please give me a call at (905)521-7674 or e-mail to paul.odom@ontario.ca.

A handwritten signature in black ink, consisting of a stylized 'P' followed by a dot and the name 'Odom' written in a cursive script.

Limitations: The purpose of the preceding review is to provide advice to the Ministry of the Environment regarding surface water impacts based on a review of the information provided in the above referenced documents. The conclusions, opinions and recommendations of the reviewer are based on information provided by others, except where otherwise noted. The Ministry cannot guarantee that the information that is provided by others is accurate or complete. A lack of specific comment by the reviewer is not to be construed as endorsing the content or views expressed in the reviewed material.

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: December-23-15 3:34 PM
To: 'paul.odom@ontario.ca'
Cc: Brad McRoberts; 'Arun Jain' (Arun.Jain@exp.com); Mark Anderson (manderson@grandriver.ca)
Subject: Mapleton WPCP - updated RWIA
Attachments: 2015-05-20 Memo Receiving Water Impact Assessment_Version 15.pdf

Hi Paul,

Please find attached our final draft of the RWIA memo for the Mapleton Wastewater Servicing Class EA. The RWIA has been updated based on the discussions held in the meeting dated Nov 19, 2015 and your and Mark's most recent comments on the RWIA.

Further, based on your comments received through Barbara, we note that you are in general agreement with the proposed discharges. In this updated memo, we have provided details of the supporting 7Q20 and other calculations as per our discussion in the last meeting.

We plan to proceed with public presentation of the proposed discharge regime in second PIC slated for January second half. Please advise if you are OK with the same.

We have also addressed your comments relating to data, its presentation and other sundry matters. We hope that this memo addresses them adequately. If there still further comments, then we would be happy to address them.

In general, we would appreciate your sign-off on the memo by January 10, in order to allow us to proceed with PIC #2 for this project.

Thank you for your time on this file, and happy holidays.

Regards,

Jean-Louis



Jean-Louis Gaudet

Project Coordinator
t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
CANADA

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: December-23-15 3:41 PM
To: 'barbara.slattery@ontario.ca'
Cc: 'Arun Jain' (Arun.Jain@exp.com)
Subject: FW: Mapleton WPCP - updated RWIA
Attachments: 2015-05-20 Memo Receiving Water Impact Assessment_Version 15.pdf

Hi Barb,

Please see forwarded e-mail. My apologies, I should have cc'd you.

Thanks, and happy holidays,

JL

Jean-Louis Gaudet | exp

Project Coordinator
t: +1.905.793.9809 x2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Boulevard
Brampton, ON L6T 4V1
Canada

[exp.com](#) | [legal disclaimer](#)

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From: Jean Louis Gaudet
Sent: December-23-15 3:34 PM
To: 'paul.odom@ontario.ca' <paul.odom@ontario.ca>
Cc: 'Brad McRoberts' <BMcRoberts@mapleton.ca>; 'Arun Jain' (Arun.Jain@exp.com) <Arun.Jain@exp.com>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>
Subject: Mapleton WPCP - updated RWIA

Hi Paul,

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In general, we would appreciate your sign-off on the memo by January 10, in order to allow us to proceed with PIC #2 for this project.

Thank you for your time on this file, and happy holidays.

Regards,

Jean-Louis



Jean-Louis Gaudet

Project Coordinator

t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com

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Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: January-19-16 12:08 PM
To: Brad McRoberts (bmcroberts@mapleton.ca)
Cc: Arun Jain; Jean Louis Gaudet; Paul Odom (paul.odom@ontario.ca); Jason Wagler
Subject: comments on Drayton RWIA
Attachments: 2016-01-19 MEM CommentsOnDraytonRWIA.docx

I apologize for missing the January 10th deadline. Here are my comments on the recent draft Receiving Water Impact Assessment for Drayton. Most of the comments are simply cut and paste from my previous comments as they have not been addressed.

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge ON N1R 5W6
(519) 621-2761 ext 2226
www.grandriver.ca

Grand River Conservation Authority - Memorandum

File Number: W88.155

Date: 19 January 2016

To: Brad McRoberts, Mapleton Township

From: Mark Anderson

Cc: Arun Jain, exp; Paul Odom, MOECC

Re: Comments on receiving water impact assessment (final draft) dated 23 December 2015

Remarks: For your review

I have reviewed the Receiving Water Impact Assessment (RWIA) prepared by exp dated 23 December 2015. Several comments that were provided on previous versions of the RWIA have not been addressed and are repeated below.

Section 4: Conestogo River Water Quality at Drayton

- The BOD, TSS and Fecal Coliform data in Table 1 was simply cut and paste from RJ Burnside's 2007 report, which was based on average (not 75 percentile) concentrations from a limited field monitoring program carried out in 2003 and 2004. TSS concentrations were incorrectly copied from the Burnside report (see page from Burside report copied below).
- Section 4 should be updated to include current data from a consistent time period (e.g. 75th percentiles from 1990 to 2014 to all parameters) for total ammonia, water temperature, pH, un-ionized ammonia (calculated), total phosphorus, nitrate, nitrite, total Kjeldahl nitrogen and total suspended solids. To date, only total ammonia, un-ionized ammonia and total phosphorus have been included in Section 4. This section should include a comparison to the relevant Provincial water quality objectives or CCME guidelines for all parameters. It is important to be explicit about the units for nitrogen compounds such as ammonia and nitrate. These parameters are typically reported in mg/L as N, whereas some of the objectives are expressed in different units. For example, the PWQO for un-ionized ammonia is 0.020 mg/L as NH₃, which is equivalent to 0.0165 mg/L as N. Similarly, the CCME guideline for nitrate is 13 mg/L as NO₃, which is approximately equivalent to 3 mg/L as N.

Section 6.1 Load Based Assessment for Phosphorus

- Prorating the existing effluent objective and criteria for total phosphorus by the annual average flow to the plant does not sufficiently address the need to maintain TP loading to the Conestogo River. The current ECA permits the following loadings to the

Conestogo River, future ECA loading limits will have to be consistent with the current annual TP loading of 137 kg/d to meet Policy 2.

Month	Discharge Days	Existing ECA Daily Flow (m ³ /d)	Monthly TP Loading (kg/d)
March	31	1581	24.5
April	13	3154	20.5
October	31	233	3.6
November	30	1754	26.3
December	31	4000	62.0
Annual			136.9

- Assuming a TP discharge limit of 0.3 mg/L and the discharge volumes proposed, the loadings are:

Month	Days	Proposed Discharge (m ³ /d)	Monthly TP Loading (kg/d)
January	31	4000	37.2
February	28	3150	26.5
March	31	3800	35.3
April	30	4000	36.0
October	31	180	1.7
November	30	1500	13.5
December	31	4000	37.2
Annual			187.4

Section 6.2.1.3 Assimilative Capacity based Validation of Proposed Discharge Window

- Dilution calculations are shown for un-ionized ammonia only. A similar dilution calculation for total phosphorus should be included in the analysis to demonstrate the potential impact of the proposed effluent criteria.

**Table 6: Average Monthly Results of Field-Monitoring Program in the Conestogo River
Upstream and Downstream of WPCP Outfall**

Parameter	PWQO/ CWQG	Mar. ¹	April	Oct.	Nov.	Dec. ¹
Upstream						
CBOD ₅ (mg/L)	-	0.6	0.55	0.95	1.33	<0.5
Dissolved Oxygen (mg/L)	-	14.3	13.1	12.4	13.22	16.8
TSS (mg/L)	-	92	6	4.75	14.3	9
Total Kjeldahl Nitrogen (mg/L)	-	0.98	0.55	0.77	0.88	0.61
Total Ammonia (mg/L)	-	0.19	0.065	<0.03	0.13	<0.03
Un-ionized Ammonia ² (mg/L)	0.02	0.0026	0.0008	0.0004	0.002	0.0005
Total Phosphorous (mg/L)	0.03	0.20	0.04	0.03	0.07	0.02
Fecal Coliform (#/100 mL)	-	350	11.5	1517	1133	80
Downstream						
CBOD ₅ (mg/L)	-	1.0	0.6	0.95	1.1	<0.5
Dissolved Oxygen	-	13.2	12.4	13.3	13.3	16.8
TSS (mg/L)	-	94	6	3.75	13	5
Total Kjeldahl Nitrogen (mg/L)	-	0.67	0.5	0.74	0.8	0.61
Total Ammonia (mg/L)	-	0.11	0.05	0.04	0.05	<0.03
Un-ionized Ammonia ² (mg/L)	0.02	0.0017	0.0009	0.0008	0.0008	0.0006
Total Phosphorous (mg/L)	0.03	0.13	0.03	0.026	0.062	0.02
Fecal Coliform (#/100 mL)	-	200	11.5	131	850	50
¹ Only 1 measurement taken due to ice conditions						
² Un-ionized ammonia values calculated using in stream pH and temperatures measurements						

Some exceedances of the after-mixing criteria as established by the 1996 ESR (summarized in Table 4 of this report) have occurred downstream of the WPCP outfall. The following sections discuss each parameter in more detail.

3.1.1 CBOD₅ and Dissolved Oxygen

The average monthly CBOD₅ values determined by the field-monitoring program show that the river met the maximum acceptable after-mixing concentrations downstream of the WPCP outfall for every month during discharge. The overall average for the discharge period is 0.83 mg/L, which is well below the criterion of 2.3 mg/L established by the ESR.

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: February-01-16 11:43 AM
To: Jean Louis Gaudet
Subject: Notice of Public Information Centre - Mapleton Wastewater Servicing Class EA
Attachments: Mapleton MPCP Class EA_PIC 2 Notice.pdf

Good morning,

Please find attached a notice for a Public Information Centre for the Township of Mapleton Municipal Class Environmental Assessment for Mapleton Wastewater Servicing.

Date, Time and Location:

Time: 4:00 pm to 7:00 pm
Date: February 11, 2016
Location: Township of Mapleton Council Chambers
7275 Sideroad 16
Drayton, ON

Thank you,

Jean-Louis Gaudet



Jean-Louis Gaudet

Project Coordinator
t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
CANADA

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TOWNSHIP OF MAPLETON

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR MAPLETON WASTEWATER SERVICING

NOTICE OF PUBLIC INFORMATION CENTRE

The Township of Mapleton has initiated a Municipal Class Environmental Assessment (Class EA) to evaluate alternatives to expand the treatment capacity of the Mapleton Wastewater Treatment Plant, located on Side Road 15, Drayton, and to upgrade the wastewater collection system.

The study is being conducted in accordance with Schedule C of the Municipal Class Environmental Assessment process (October 2000, amended 2007 and 2011), which is approved under the Ontario Environmental Assessment Act. A Public Information Centre (PIC) is planned to provide further information to the public on the project and to receive input and comment from interested persons:

Date, Time and Location:

Time: 4:00 pm to 7:00 pm
Date: February 11, 2016
Location: Township of Mapleton Council Chambers
7275 Sideroad 16
Drayton, ON

Following the PIC, further comments are invited for incorporation into the planning and design of the project and will be received until February 26, 2016.

Please contact any of the following project team members if you wish to be added to the project mailing list or if you have any questions or comments about the study.

Brad McRoberts, MPA, P.Eng
CAO Clerk
Township of Mapleton
P.O. Box 160
Drayton, Ontario N0G 1P0
Phone: (519) 638-3313 Ext 41
E-mail: BMcRoberts@mapleton.ca

Arun P. Jain, M.Eng., P.Eng.
Manager – Water and Wastewater Infrastructure
Exp Services Inc.
1595 Clark Blvd.
Brampton, ON L6T 4V1
Phone: (905) 793-9800 x 2373
E-mail: arun.jain@exp.com

Jean Louis Gaudet

From: Arun Jain
Sent: February-01-16 6:17 PM
To: Jean Louis Gaudet
Subject: FW: MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR MAPLETON WASTEWATER SERVICING
Attachments: Mapleton MPCP Class EA_PIC 2 Notice.pdf
Follow Up Flag: Follow up
Flag Status: Flagged

Please add...



Arun P. Jain, P.Eng., M.Eng.

Practice Lead - Linear Infrastructure, Central Ontario
exp Services Inc.
t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
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From: Katzirz, Zsolt (MTO) [<mailto:Zsolt.Katzirz@ontario.ca>]
Sent: Monday, February 01, 2016 3:02 PM
To: BMcRoberts@mapleton.ca; Arun Jain
Subject: MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR MAPLETON WASTEWATER SERVICING

Can you please add me to the distribution for this assessment.

We would like to review to evaluate any impacts to the Provincial Highway network.

Thanks,

Zsolt Katzirz | Corridor Management Planner
Corridor Management | West Region | Engineering Office
Provincial Highways Management | Ministry of Transportation
1st Floor | 659 Exeter Road | London, ON, N6E 1L3
Telephone: 519-873-4598 | Toll Free: 1-800-265-6072 Ext. 4598
Fax: (519) 873-4228 | E-mail: zsolt.katzirz@ontario.ca
Please consider the environment before printing this email

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: February-05-16 4:54 PM
To: Mark Anderson (manderson@grandriver.ca)
Cc: 'Arun Jain' (Arun.Jain@exp.com); Brad McRoberts
Subject: Mapleton wastewater EA PIC - display boards
Attachments: Mapleton WWTP MCEA_PIC 2 Boards_Version 4.pdf

Hi Mark,

Thanks for taking the time to chat with us today, and we look forward to seeing you at the PIC.

As discussed, please find attached the final draft display boards for next week's Mapleton wastewater EA Public Information centre.

Cheers,

JL



Jean-Louis Gaudet

Project Coordinator
t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
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Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: February-05-16 4:52 PM
To: 'paul.odom@ontario.ca'
Cc: 'Arun Jain' (Arun.Jain@exp.com); Brad McRoberts
Subject: Mapleton WPCP EA - display boards
Attachments: Mapleton WWTP MCEA_PIC 2 Boards_Version 4.pdf

Hi Paul,

Please find attached the final draft display boards for next week's Mapleton wastewater EA Public Information centre.

In particular, we would like to draw your attention to boards 20 and 21, which concern the 7q20 values, proposed discharge window and proposed effluent limits. If you have any issues with those as presented, please advise.

Thanks, and have a great weekend,

JL



Jean-Louis Gaudet

Project Coordinator
t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
CANADA

exp.com | [legal disclaimer](#)

keep it green, read from the screen

Jean Louis Gaudet

From: Odom, Paul (MOECC) <Paul.Odom@ontario.ca>
Sent: February-08-16 7:53 AM
To: Jean Louis Gaudet
Cc: Arun Jain; Brad McRoberts; 'Mark Anderson' (manderson@grandriver.ca)
Subject: RE: Mapleton WPCP EA - display boards

I've been working at it for 3 days can't go any faster.
The 7Q data is OK. Haven't checked the math on your statistical calculations.
If the proposed window includes the current period plus winter months then that is what we had been expecting since the first meeting.
Limits are probably wrong. Half of the TAN data from both stations is missing from your raw data tables. I've been negotiating with EMRB this morning to get the pre-2000 database. Haven't yet had the chance to check other parameters because I'm trying to get my memo out.
P. Odom

From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: February 5, 2016 4:52 PM
To: Odom, Paul (MOECC)
Cc: Arun Jain; Brad McRoberts
Subject: Mapleton WPCP EA - display boards

Hi Paul,

Please find attached the final draft display boards for next week's Mapleton wastewater EA Public Information centre.

In particular, we would like to draw your attention to boards 20 and 21, which concern the 7q20 values, proposed discharge window and proposed effluent limits. If you have any issues with those as presented, please advise.

Thanks, and have a great weekend,

JL



Jean-Louis Gaudet

Project Coordinator
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Brampton, ON L6T 4V1
CANADA

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keep it green, read from the screen

Jean Louis Gaudet

From: Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>
Sent: February-11-16 2:41 PM
To: Brad McRoberts (BMcRoberts@mapleton.ca); Jean Louis Gaudet
Cc: Weber, Martha (MOECC); Odom, Paul (MOECC)
Subject: MOECC Review - Mapleton WPCP EA Receiving Water Assessment V15
Attachments: Drayton WPCP EA 15131.docx

Good afternoon,

Paul has completed his review of the most recent submission from exp. which has looked at assimilative capacity to support an increased discharge from the Drayton Lagoons. For simplicity, I have simply appended Paul's technical memo and I would suggest that Paul be contacted directly should any clarification be required.

Regards to all,

Barb Slattery, EA/Planning Coordinator
[Ministry of the Environment and Climate Change](#)
West Central Region
(905) 521-7864



February 11, 2016

MEMORANDUM

To: Barbara Slattery
EA Coordinator/Environmental Planner
Technical Support Section

Martha Weber
Water Inspector
Guelph District Office

From: Paul Odom
Surface Water Specialist/Team Leader
Technical Support Section

RE: Mapleton WPCP EA Receiving Water Assessment V15

I have reviewed the following document with regards to potential impacts of the Mapleton WPCP (Drayton Lagoons) expansion on the waters of the Conestogo River and Conestogo Reservoir:

- *Receiving Water Impact Assessment (final draft) version 15*, exp., December 23, 2015.

I have also reviewed the previous Ministry memoranda regarding limits and objectives from this plant, the previous ACS work and GRCA's comments on the three Impact Assessments by exp. A number of my comments are restatements of concerns I raised with one or both of the previous versions.

Background

The Drayton WPCP, approved for 750m³/d inflow, currently has a bi-annual discharge (Oct-Dec and Mar-Apr) with graduated approved monthly discharge rates totaling 273,872m³/year. The Township of Mapleton is undertaking a Municipal Class C EA to seek an increase in capacity from 900 m³/d to 1,300 m³/d inflow for 2031 and corresponding increase in discharge. The previous version of the tech memo proposed an increase to 1,230 m³/d.

The December 23, 2015 version of the draft memorandum from exp. summarizes the ability of the Conestogo River to mathematically assimilate the discharge from the Drayton WPCP and presents a future water quality scenario for an increased discharge rate. The data come from PWQMN and

WSC monitoring stations on the Conestogo near Drayton. The consultant has conducted a desktop mass balance analysis of this data to determine dilution capacity without exceeding water quality criteria. There has been no site specific monitoring, investigation or analysis of the receiving waters and aquatic ecosystem.

Comments on the December Memorandum (version 15)

There is limited information presented by exp. and no indication of other related documents which will be forming part of the Environmental Assessment. The technical memorandum in the December 2015 version is an assessment of dilution capability of the Conestogo River that can be used to ensure that fully mixed concentrations do not increase phosphorus concentrations and that fully mixed concentrations do create Policy 2 conditions for un-ionized ammonia. The consultant has calculated fully mixed concentrations using a mathematical mass balance approach. There is no assessment of the quality of the receiver, determination of the mixing zone from the Drayton discharge or evaluation of any portions of the plume which are aquatically toxic or create avoidance barriers to migration. While the discharge from Drayton is well established for spring and fall, no assessment has been made of the ecosystem to which the discharge occurs, so there is no baseline against which to assess an increase in quantity and addition of winter discharge. I anticipate that this environmental assessment will be in the technical portion of the Environmental Study Report (ESR) which addresses the aquatic ecosystem and the impact and mitigation of a proposed discharge upon it. The ESR needs to address environmental conditions within the mixing zone (Policy 5) and in the GRCA wetland to which the outfall discharges, both under current discharge rates and timing and under proposed rates and timing and will likely require the input of environmental scientists in addition to engineers.

Since version 12, the consultant appears to have corrected the significant 7Q calculation errors using the flow database from the WSC gauging station. The latest 7Q flows for the Conestogo River now appear consistent with those values I have.

In Section 3, the consultant again references Policy from the Ministry of the Environment and Climate Change. In my comments on version 12, I indicated that Bluebook Policy 2 should be quoted in its entirety if it is being discussed. In version 15, in addition to the continued truncation (p.3), the consultant has also removed the second section of the Bluebook regarding Policy 2 deviation. Without the second part, the first part is meaningless.

Figure 3 presents a schematic of the dilution assessment approach taken by exp. The left hand side essentially shows assimilation to the PWQO (essentially how much contamination can be added to the receiver to reach the PWQO criteria (for whichever parameter is being assessed). The right hand side is incorrect. When a receiver is in policy 2 status, the water is already degraded. When considering changes to discharges of Policy 2 parameters, the proponent is required to assess conditions in problem areas and take all reasonable and practical measures to upgrade water quality to the PWQO. Maintenance of the status quo is the absolute minimum.

From my previous comments:

In section 4 of the memorandum, background water quality data is summarized in table 1, using stations 16-0184-075-02 and 16-0184-100-02 on the Conestogo River above the plant discharge. The final presentation should indicate how many samples are used to generate each value in table 1 and provide the source reference for the total phosphorus values. From my comments on the first memo:

My understanding is that GRCA generally does not collect PWQMN data during the winter months. If exp is proposing winter discharge, they will have to develop a water quality database for that period.

GRCA had originally reviewed sections 4, 7.3 and 8 (13 November, 2015) and provided an excellent presentation of the water quality data from the two PWQMN stations. In GRCA's review of version 15, they note that many of the original comments remain unaddressed and were reiterated in their memo of January 19, 2016. I still think the ESR would benefit from inclusion of this presentation and the receiving water quality data and outliers discussed. GRCA's other suggestions are equally valid and need to be addressed.

I had originally indicated that table 1 should indicate the number of samples comprising the statistical assessment. In any kind of statistical assessment of log-normally distributed environmental data, including the 75th percentile (3rd quartile) calculated values, there is an expectation that the database be robust enough that the value calculated be accurate (particularly when we're also separating it by month). In any formulaic calculation, the more data used, the better the accuracy of the calculation. Certainly, the WSC flow data is robust enough to provide good confidence in the 7Q₂₀ determination; however, the PWQMN database (for each parameter) is not as extensive. With sufficient applicable concentrations (more than 30 or so), the reliability of the data increases and then a reasonably accurate 3rd quartile (Q₃) calculation can be made. For most assessment, "older" data may be used if it is shown to be part of the same "data" (old but still representative). The Ministry generally relies on discharge data from the last 5 years as being sufficient in number and representative of plant operation (provided no process changes have occurred in the interim). River data is not collected as often as discharge data and therefore a longer-term database may be necessary for the statistical analysis to be valid. There are statistical programs for determining whether there is good fit between data from different locations or periods.

The ministry (MOE) laboratories have not done BOD₅ analysis for either station (and many others) since 1989 due to labload and the delay between sampling and start of the laboratory tests. It must be noted that temperature and pH for the calculation of unionized ammonia (UIA) both must be field measurements and each UIA must be calculated (per the Emerson equation) from that day's TAN, pH and temperature and the individual UIAs then carried forward as the data input for Q₃ determination.

For my own assessment of section 4, many of the TP values in table 1 exceed PWQO and should be in red. Although the database is presented in Appendix, there is no discussion on the limitations of the assessment based on the sample size. I note that the consultant started the assessment with

1990. There is no explanation why this date was selected. The ammonia data in Appendix 1 starts with September 1994 which coincides with the switch from a filtered to an unfiltered sample for total ammonium. The historical ammonia data for the period 1994-1999 appears accurate; however, 30 samples are missing from the period 2002-2014. Given the large proportion of missing data for ammonia, it is likely the same samples are missing from total phosphorus calculations and with Ministry solids data not being incorporated into the assessment, the calculation of that parameter is also likely in error.

For the generation of Table 1, we have the following number of analyses database from 1990-2014 from PWQMN stations 16018410002 (1990-06) and 16018407502 (2007-14):

Month	Number of analyses per parameter (1990-2014)							
	BOD ₅	TSS	TAN	UIA	pH	Temp	TP	Fecal Coliform
January	0	4	4	4	9	9	9	0
February	0	5	5	5	10	10	10	0
March	0	10	10	10	11	15	15	0
April	0	16	15	15	19	20	20	0
May	0	19	19	19	23	23	23	0
June	0	19	19	19	24	24	24	0
July	0	18	18	18	23	23	23	0
August	0	22	21	20	26	26	27	0
September	0	21	20	19	25	25	24	0
October	0	15	14	13	18	19	19	0
November	0	11	11	10	14	15	14	0
December	0	4	4	4	8	8	7	0
Total	0	164	160	156	210	217	215	0

While I appreciate that suspended solids values in table 1 were based on the few samples analyzed by R.J. Burnside for their report (numbers are not provided), the ministry's database provides a larger dataset which covers the summer months as well.

Due to the logistics of surface water sampling and access in the winter months, the database has been and continues to be skewed. Most data is collected during the summer period and little data has been collected during the winter months. This presents a problem in this case as Mapleton desires to add a winter discharge, the period where little data exist for the Conestogo River and the winter data which does exist is more than 15 years old.

Table 1 also presents Fecal Coliform bacteria (based on the R.J. Burnside work). Since May 1, 1994, the Ministry standard for bacterial contamination has been *Escherichia coli* which is the most suitable and specific indicator of the coliform group. The Drayton facility disinfects with UV to the 100/200 discharge standard for *E. coli* and disinfection must occur throughout any discharge period.

In previous comments I had requested presentation of the discharge data for comparison with the proposed discharge criteria. The data has now been incorporated into version 15, and although some data points scatter towards the limits and objectives (the consultant should explain the March

2013 ammonia values in figure 6), the plant has provided good effluent quality for the most part. In the tech memo, the consultant presents the effluent quality but does not discuss it with respect to changes that are anticipated with the approximate doubling of the ADF to the plant. The consultant should refer to the portion of the ESR where process change and its potential impact on storage and discharge concentrations will be discussed.

The current proposal incorporates a discharge through the winter months when no discharge has previously occurred, so there is no information on the plant performance during this period. Ministry review engineers will have to determine how sub-zero climatic conditions (and climate change) will affect the lagoons' ability to handle ammonia and H₂S as the cells ice over.

In my original memo, I had indicated that H₂S should be discussed as it is currently a parameter in the ECA. The consultant refers to the 2008 RWIA report and notes that then-recent upgrades to the WPCP and operational changes significantly reduced H₂S concerns (being anaerobic conditions caused by ice coverage). This is supplemented with reference to other documents which do not indicate any H₂S concerns. There is no indication of why these other parties determined this. Do the lagoons no longer freeze over? Is there data to support these contentions?

From my previous memo:

If the Drayton WPCP receives industrial effluent or septage, the potential impact of these will have to be addressed in Mapleton's submission. <I add, if this is not a consideration then just indicate it>

In the discussion of future discharge of total phosphorus from Drayton, the consultant indicates that the river will maintain its water quality policy designation for total phosphorus downstream of the discharge point. There are only 2 possible designations for surface water, Policy 1 and Policy 2. Since the upstream water quality already exceeds PWQO, the Conestogo River is a Policy 2 receiver before the plant discharges to it, so it is unlikely that it would change downstream. A new or increased discharge to a Policy 2 receiver should not make it worse and endeavor to make it better. The Ministry's normal approach is to cap the load and require a better quality effluent as a minimum (ie. The concentration limits decrease with increasing flow as has been proposed here); however, the discharge concentration is still above PWQO and several times higher than the concentrations in the river, so no change in TP policy status would be expected. In fact, the totally mixed concentration will be higher for the period where discharge does not presently occur.

I note that mention of the proposed treatment process has been removed from section 6.2 and I presume this has been moved to another section of the EA.

In section 6.2, the consultant predicts the assimilative capacity of ammonia nitrogen in the Conestogo River, maximizing the discharge to continuously approach the PWQO concentration for un-ionized ammonia based on mass balance.

In the generation of Ministry standard 7Q₂₀ flows for the Conestogo River at Drayton, the latest iteration of daily 7Qs appears to be correct. I have not checked the math of the statistical Log Pearson type III calculations performed by exp and I am assuming that they were done correctly

since most of the calculated values in Table 4 now sit between the lowest and second lowest annual 7Q values.

In section 6.2.1.2 it is unclear if a May discharge is being proposed. The first paragraph indicates it is not while the second paragraph indicates that it is. The first paragraph also indicates that a September discharge is not excluded (no discharge May to August inclusive).

Month	7Q ₂₀	Plant flow(2015)	ratio	Proposed flow(2016+)	ratio
January	22918	0	100:0	4000	5.7:1
February	17740	0	100:0	3150	5.6:1
March	21129	1581	13.4:1	3800	5.6:1
April	45407	3154	14.4:1	4000	11.4:1
May					
June					
July					
August					
September					
October	3057	233	13.1:1	180	17:1
November	15085	1754	8.6:1	1500	10:1
December	24402	4000	6.1:1	4000	6.1:1

The above table presents the existing and proposed discharge flows and their ratio with river (dilution) water for each month.

The consultant has used a mass-balance calculation to estimate the downstream completely mixed concentration of un-ionized ammonia (UIA) and then maximized the discharge to a number which approximates the in-stream UIA at the PWQO once the discharge is fully mixed. The following table presents the design fully-mixed concentrations for each month as well as the current upstream concentrations in the river.

UIA(mg/L)	October	November	December	January	February	March	April
PWQO	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Upstream	.0028	.0007	.0006	.0015	.0012	.0010	.0010
%PWQO	14%	3.5%	3%	7.5%	6%	5%	5%
Fully-mixed	.0197	.02	.0181	.0198	.0198	.0199	.0182
%PWQO	98.5%	100%	90.5%	99%	99%	99.5%	91%

In my last set of comments, I indicated the need to address the mixing zone for the Drayton WPCP. The consultant has included a small section on mixing zone and concluded that “the mixing zone will not extend to beyond the previously approved mixing zone and as such no such new analysis is required.”

In response, I offer the following:

- 1) The current mixing zone is unknown and any current impairment undefined so there is no baseline to predict the impact of expansion
- 2) Basic principles indicate that changes to dilution ratio will impact the areal extent of a mixing zone (laterally and longitudinally) and concentrations within it
- 3) While the ministry acknowledges that the discharge is to the GRCA wetland in lot 18 concession 9 Township of Mapleton, no assessment has been done of impairment or improvement from the discharge and no ecological assessment has been done of the impact a winter discharge, presumably this will be incorporated into the main EA document (GRCA, being the owner, may have information on this land parcel)
- 4) In the consultant's design to push fully mixed un-ionized ammonia concentrations to the maximum, there is no assessment of aquatic toxicity or fish avoidance concentrations within the plume or indeed from the fully mixed condition
- 5) There is no assessment of ecological data, especially sensitive aquatic species (including SARs) within the immediate river reaches (including downstream and into the reservoir) which may be negatively impacted by an increased discharge (fish/benthos/macrophyte information for this area may be available from MNR, GRCA or university researchers)
- 6) There has been no assessment of a HADD from changes to the discharge and specifically discharge during the winter rearing season
- 7) There has been no assessment of impact on the residual Conestogo Reservoir pool of the discharge plume (i.e. if the completely mixed plume has an average un-ionized ammonia concentration of 0.02 mg/L in the winter months, this concentration (unless dissipated) would form the waters of the reservoir pool in late winter. The extent of ice cover/open water on Conestogo Reservoir has not been determined, although exp indicates the main basin of the reservoir is 6.5 km downstream which would place it in lot 18, concession 6, Maryborough. It is unknown if the permanent pool and ice cover extends from this point to the dam face or whether it has a more riverine form during the winter

In tables 5 and 6, the consultant proposes the discharges identified in the first table on page 6 of this memo. The sum of discharges proposed totals 624,580 m³ or 1711 m³/d, more than doubling the current permitted discharge and providing for an allowance of 411 m³/d for precipitation and snowmelt excess over evaporation (~30%) which is excessive and requires justification, particularly since any I/I issues within the Drayton and Moorefield sewersheds are already included in the current 950 m³/d ADF allocation.

Conclusions and Recommendations

A new scheme for increased discharge from the Drayton WPCP to the Conestogo River based on a continuous seven month October to April discharge appears to be feasible; however, the calculations used in generating proposed discharge volumes are of mixed reliability. Flow volumes in the Conestogo River and in the WPCP discharge are well established or controllable; water and effluent quality are not. This impairs the reliability of only using a calculated mass balance approach.

River water quality is poorly known for a number of parameters, particularly during the winter period when samples are not traditionally collected.

Effluent quality is good and reasonably well understood for the current spring and fall discharge periods. There have been issues with ammonia nitrogen in the spring discharge in the past although this appears to have dissipated since cells 4A and 4B have opened. It is unclear what impacts the winter climate will have on the lagoons if discharge proceeds through January, February and early March. Although cell #2 is aerated, I understand that the others are not. It is unknown what conditions exist under the ice in the un-aerated cells and whether anaerobic conditions may exacerbate TAN and H₂S issues. Answers may be in process treatment units in the final EA. The consultant has indicated (Table 7) that BAT is the basis of projected effluent limits for TSS and TAN/UIA.

When projections are made on scant data, the error bounds become much larger and the control should be adjusted to compensate for error. Where projected concentrations are low in accuracy such things as the dilution ratios need to be increased to ensure environmental protection from these inaccurate predictions.

One of the Ministry's criteria is the assessment of cumulative effects of an activity. In this case, the assumption of the entire assimilative capacity of the Conestogo River for the expansion of the Drayton WPCP does not consider future needs for capacity from other dischargers to the river, particularly the Arthur WPCP, which is also undertaking expansion plans in Wellington County. The discharges from Arthur, Drayton and the Darling and All-Treat facilities all contribute to the cumulative impacts on the Conestogo River and Reservoir.

Given the poor database for BOD, solids and ammonia and the projection of discharge to the PWQO under the fully mixed condition potentially forcing the river into Policy 2 for un-ionized ammonia, I cannot support the discharge volumes in exp's November memorandum at this time. The discharge objectives/limits may be tolerable but with decreased river:discharge ratios, the error bounds on the calculations do not support the mass balance result. The excess allocated for rainfall and snowmelt also appears excessive and does not justify allocating the entire river capacity to the Drayton WPCP. The discharge scenario predictions may be further changed since considerable datapoints were missed in exp's calculations of Q₃ river water quality for TP and ammonia (both TAN and UIA) and none were used in TSS determination. Critical estimation of ammonia concentrations in the new months of January/February/March are also impaired by reliance on a very small dataset from the mid 1990's.

Tables 5 and 6 need to be revised using the Municipality's projected 1300 m³/d plus a reasonable, justified determination of precipitation/snowmelt excess (a well-established engineering process) and then the composite volume distributed over the discharge period.

Somewhere in this document or in the EA submission there needs to be discussion of the following issues:

- 1) Application of the federal Wastewater Systems Effluent Regulations to this facility
- 2) Discussion of other users of the Conestogo River and cumulative impact

- 3) Modeled predictions of the size and extent of the plume in the Conestogo River
- 4) Assessment of the current and projected discharges on dissolved oxygen levels in the Conestogo River/reservoir
- 5) Implications of the proposed expansion on GRCA's Water Management Plan
- 6) Discussion of water quality and the aquatic ecosystem in the Conestogo River

If you have any questions, please give me a call at (905)521-7674 or e-mail to paul.odom@ontario.ca.

A handwritten signature in black ink that reads "P. Odom". The "P" is a simple vertical stroke with a loop at the top. The "O" is a circle with a vertical line through it. The "dom" is written in a cursive style.

Limitations: The purpose of the preceding review is to provide advice to the Ministry of the Environment regarding surface water impacts based on a review of the information provided in the above referenced documents. The conclusions, opinions and recommendations of the reviewer are based on information provided by others, except where otherwise noted. The Ministry cannot guarantee that the information that is provided by others is accurate or complete. A lack of specific comment by the reviewer is not to be construed as endorsing the content or views expressed in the reviewed material.

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: April-21-16 7:39 AM
To: 'paul.odom@ontario.ca'
Cc: 'Brad McRoberts'; Mark Anderson (manderson@grandriver.ca); 'barbara.slattery@ontario.ca'; 'martha.weber@ontario.ca'
Subject: Mapleton Wastewater Class EA - updated RWIA
Attachments: 2016 04 20_RWIA Update_Final Draft.pdf; 2016 04 20_MAPleton RWIA Update - w changes tracked.docx; 2016 04 20_JLG_PO (MOECC) updated RWIA and exp responses.pdf

Hi Paul,

Thank you for your comments of February 11, 2016 on the previous version of the Mapleton Receiving Water Impact Assessment (RWIA).

Your comments (as well as Mark Anderson's from GRCA) have been considered in the updated version of the RWIA, which is attached for your consideration.

The attached cover letter notes changes to this version of the RWIA. It also includes responses to your comments that describe how your comments have been considered.

To assist in your review, a MS Word version of the updated RWIA (with changes tracked) has been included so that you can see where edits have been made. The PDF version is the full, updated RWIA.

Also, we will be forwarding you a copy of the Draft ESR by the end of this week for your consideration.

Thanks again, Paul, for your time and involvement on this project. It is much appreciated.

Regards,

Jean-Louis



Jean-Louis Gaudet

Project Coordinator
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April 20, 2016

Mr. Paul Odom
Surface Water Specialist/Team Leader
Technical Support Section
Ministry of the Environment and Climate Change
119 King Street West, 12th Floor
Hamilton, Ontario L8P 4Y7

Via e-mail: paul.odom@ontario.ca

Re: **Mapleton Wastewater Class Environmental Assessment
Updated RWIA and Responses to Previous Comments**

Dear Mr. Odom:

Please find attached the latest updated version of the Mapleton Receiving Water Impact Assessment (RWIA) in support of the Mapleton Wastewater Class EA. Also attached is a response to your comments of February 11, 2016 that describes how the comments have been considered in this updated version.

To assist in your review, a MS Word version with changes tracked has been included so that you can see where edits have been made. The PDF version is the full, updated RWIA.

We would like to point out a few changes to the structure of the RWIA that may not be easily visible in the tracked-changes version:

- The discussion on 7Q20 flows, which was included within the previous Section 6, has been moved up to Section 4 and expanded.
- This has pushed subsequent sections back one section (for example, Section 4 about river water quality is now section 5, and so on).
- The previous Section 6 (Assessment of Future Concentration Levels) has been expanded upon in Sections 7 (Identification of a Proposed Discharge Regime) and 8 (Proposed Effluent Limits for TAN and TP) to provide better clarity on how the proposed discharge regime was derived.

exp Services Inc.

*Mapleton Wastewater Class Environmental Assessment: Responses to February 11 2016 Comments on RWIA
BRM-605325-A0
April 20, 2016*

Thank you once again for your time and input into this process.

Sincerely,

Jean-Louis Gaudet
Project Coordinator

exp Services Inc.

enc.

cc: Brad McRoberts, Township of Mapleton
Barbara Slattery, MOECC
Martha Weber, MOECC
Mark Anderson, GRCA

Exp's Responses to MOECC Comments of Feb 11 2016 on the Mapleton Receiving Water Impact Assessment (December 23, 2015)

1. MOECC Comment

There is limited information presented by exp. and no indication of other related documents which will be forming part of the Environmental Assessment. The technical memorandum in the December 2015 version is an assessment of dilution capability of the Conestogo River that can be used to ensure that fully mixed concentrations do not increase phosphorus concentrations and that fully mixed concentrations do create Policy 2 conditions for un-ionized ammonia. The consultant has calculated fully mixed concentrations using a mathematical mass balance approach. There is no assessment of the quality of the receiver, determination of the mixing zone from the Drayton discharge or evaluation of any portions of the plume which are aquatically toxic or create avoidance barriers to migration. While the discharge from Drayton is well established for spring and fall, no assessment has been made of the ecosystem to which the discharge occurs, so there is no baseline against which to assess an increase in quantity and addition of winter discharge. I anticipate that this environmental assessment will be in the technical portion of the Environmental Study Report (ESR) which addresses the aquatic ecosystem and the impact and mitigation of a proposed discharge upon it. The ESR needs to address environmental conditions within the mixing zone (Policy 5) and in the GRCA wetland to which the outfall discharges, both under current discharge rates and timing and under proposed rates and timing and will likely require the input of environmental scientists in addition to engineers.

Exp Comment

- The results of the natural heritage investigations will be discussed the EA document.
- The purpose of the RWIA has been revised to include the identification of the theoretical maximum allowable discharge (based on assimilative capacity of ammonia) and the proposed discharge limits, which is less than the theoretical maximum.
- The revised RWIA has been updated include more information on the existing conditions of the receiving body, the mixing zone and potential environmental impacts of the preferred discharge regime. These are found in:
 - Table 3, page 11 - includes expanded presentation of water quality data
 - Table 11, page 24 - compares existing and proposed dilution factors
 - 8.2.1 and table 13, page 26 - compares after-mixing NH₃ concentrations for existing and proposed discharge regimes
 - 8.2.2, page 28 - includes discussion on mixing zone considerations, including potential impact on the aquatic environment

2. MOECC Comment

In Section 3, the consultant again references Policy from the Ministry of the Environment and Climate Change. In my comments on version 12, I indicated that Bluebook Policy 2 should be quoted in its entirety if it is being discussed. In version 15, in addition to the continued truncation (p.3), the consultant has also removed the second section of the Bluebook regarding Policy 2 deviation. Without the second part, the first part is meaningless.

Exp Response

- The discussion on the blue book policies in Section 3 (pages 4 and 5) has been updated.

3. MOECC Comment

Figure 3 presents a schematic of the dilution assessment approach taken by exp. The left hand side essentially shows assimilation to the PWQO (essentially how much contamination can be added to the receiver to reach the PWQO criteria (for whichever parameter is being assessed). The right hand side is incorrect. When a receiver is in policy 2 status, the water is already degraded. When considering changes to discharges of Policy 2 parameters, the proponent is required to assess conditions in problem areas and take all reasonable and practical measures to upgrade water quality to the PWQO. Maintenance of the status quo is the absolute minimum.

Exp Response

- Figure 3 on page 6 was updated.

4. MOECC Comment

From my previous comments:

In section 4 of the memorandum, background water quality data is summarized in table 1, using stations 16-0184-075-02 and 16-0184-100-02 on the Conestogo River above the plant discharge. The final presentation should indicate how many samples are used to generate each value in table 1 and provide the source reference for the total phosphorus values.

Exp Response

- n values have been added to the table showing water quality data (Table 3, page 11)

5. MOECC Comment

GRCA had originally reviewed sections 4, 7.3 and 8 (13 November, 2015) and provided an excellent presentation of the water quality data from the two PWQMN stations. In GRCA's review of version 15, they note that many of the original comments remain unaddressed and were reiterated in their memo of January 19, 2016. I still think the ESR would benefit from inclusion of this presentation and the receiving water quality data and outliers discussed. GRCA's other suggestions are equally valid and need to be addressed.

Exp Response

- Table 3 (page 11) includes an expanded list of parameters, including TSS, nitrates, nitrite and nitrate, TKN, and dissolved oxygen.

6. MOECC Comment

I had originally indicated that table 1 should indicate the number of samples comprising the statistical assessment. In any kind of statistical assessment of log-normally distributed environmental data, including the 75th percentile (3rd quartile) calculated values, there is an expectation that the database be robust enough that the value calculated be accurate (particularly when we're also separating it by month). In any formulaic calculation, the more data used, the better the accuracy of the calculation. Certainly, the WSC flow data is robust enough to provide good confidence in the 7Q₂₀ determination; however, the PWQMN database (for each parameter) is not as extensive. With sufficient applicable concentrations (more than 30 or so), the reliability of the data increases and then a reasonably accurate 3rd quartile (Q₃) calculation can be made. For most assessment, "older" data may be used if it is shown to be part of the same "data" (old but still representative). The Ministry generally relies on discharge data from the last 5 years as being sufficient in number and representative of plant operation (provided no process changes have occurred in the interim). River data is not collected as often as discharge data and therefore a longer-term database may be necessary for the statistical analysis to be valid. There are statistical programs for determining whether there is good fit between data from different locations or periods.

The ministry (MOE) laboratories have not done BOD₅ analysis for either station (and many others) since 1989 due to labload and the delay between sampling and start of the laboratory tests. It must be noted that temperature and pH for the calculation of unionized ammonia (UIA) both must be field measurements and each UIA must be calculated (per the Emerson equation) from that day's TAN, pH and temperature and the individual UIAs then carried forward as the data input for Q₃ determination.

Exp Response

- N values have been included in Table 3 (page 11)
- The temperature and pH values used were field values (parameters PH FIELD [FWPH] and TEMPERATURE, WATER [FWTEMP]). The parameter name and code have been included in Table 3 for clarity.
- UIA calculations are provided in Appendix G

7. MOECC Comment

For my own assessment of section 4, many of the TP values in table 1 exceed PWQO and should be in red. Although the database is presented in Appendix, there is no discussion on the limitations of the assessment based on the sample size. I note that the consultant started the assessment with 1990. There is no explanation why this date was selected. The ammonia data in Appendix 1 starts with September 1994 which coincides with the switch from a filtered to an unfiltered sample for total ammonium. The historical ammonia data for the period 1994-1999 appears accurate; however, 30 samples are missing from the period 2002-2014. Given the large proportion of missing data for ammonia, it is likely the same samples are missing from total phosphorus calculations and with Ministry solids data not being incorporated into the assessment, the calculation of that parameter is also likely in error.

For the generation of Table 1, we have the following number of analyses database from 1990-2014 from PWQMN stations 16018410002 (1990-06) and 16018407502 (2007-14):

Number of analyses per parameter (1990-2014)

<i>Month</i>	<i>BOD₅</i>	<i>TSS</i>	<i>TAN</i>	<i>UIA</i>	<i>pH</i>	<i>Temp</i>	<i>TP</i>	<i>Fecal Coliform</i>
<i>January</i>	0	4	4	4	9	9	9	0
<i>February</i>	0	5	5	5	10	10	10	0
<i>March</i>	0	10	10	10	11	15	15	0
<i>April</i>	0	16	15	15	19	20	20	0
<i>May</i>	0	19	19	19	23	23	23	0
<i>June</i>	0	19	19	19	24	24	24	0
<i>July</i>	0	18	18	18	23	23	23	0
<i>August</i>	0	22	21	20	26	26	27	0
<i>September</i>	0	21	20	19	25	25	24	0
<i>October</i>	0	15	14	13	18	19	19	0
<i>November</i>	0	11	11	10	14	15	14	0
<i>December</i>	0	4	4	4	8	8	7	0
<i>Total</i>	0	164	160	156	210	217	215	0

Exp Response

- PWQO exceedances in Table 3 have been formatted to be shown in red.
- We have reviewed our dataset and have identified the missing data. The missing data has been located and incorporated into the analysis. Generally, the data counts are within one or two points as presented in the MOECC comments. Tables, charts and calculations have been updated accordingly, and all available data has been used.
- In the proposed discharge window, only partial use of the available assimilative capacity calculated for ammonia has been proposed.

8. MOECC Comment

While I appreciate that suspended solids values in table 1 were based on the few samples analyzed by R.J. Burnside for their report (numbers are not provided), the ministry's database provides a larger dataset which covers the summer months as well.

Exp Response

- Agreed.
- In Table 3, the Ministry's dataset for RESIDUE, PARTICULATE was used instead of Burnside's data for TSS.

9. MOECC Comment

Due to the logistics of surface water sampling and access in the winter months, the database has been and continues to be skewed. Most data is collected during the summer period and little data has been collected during the winter months. This presents a problem in this case as Mapleton desires to add a winter discharge, the period where little data exist for the Conestogo River and the winter data which does exist is more than 15 years old.

Exp Response

- We agree that the data for January and February is limited. We considered aggregating data for the winter months, as there were 41 samples where the water temperature was less than 3 degrees Celsius. However, it was decided that to provide greater data transparency to leave the winter months un-aggregated.
- In recognition of the limited data, effort was made to limit the amount of discharge proposed for the months of January and February. The analysis in Section 8.2.1 (page 26) shows that, even under 7Q20 conditions, the after-mixing concentration of NH₃ in the river is well below the PWQO (around one-quarter to one-third) and therefore provides “buffer” for the limited data set.

10. MOECC Comment

In previous comments I had requested presentation of the discharge data for comparison with the proposed discharge criteria. The data has now been incorporated into version 15, and although some data points scatter towards the limits and objectives (the consultant should explain the March 2013 ammonia values in figure 6), the plant has provided good effluent quality for the most part. In the tech memo, the consultant presents the effluent quality but does not discuss it with respect to changes that are anticipated with the approximate doubling of the ADF to the plant. The consultant should refer to the portion of the ESR where process change and its potential impact on storage and discharge concentrations will be discussed.

Exp Response

- The RWIA update was intended to identify a theoretical maximum discharge regime and to help identify a preferred discharge regime, regardless of treatment technology. The treatment technology proposed is discussed in the ESR.
- An explanation of the March 2013 ammonia values have been added to Section 6.3.3 (page 18).

11. MOECC Comment

The current proposal incorporates a discharge through the winter months when no discharge has previously occurred, so there is no information on the plant performance during this period. Ministry review engineers will have to determine how sub-zero climatic conditions (and climate change) will affect the lagoons' ability to handle ammonia and H₂S as the cells ice over.

In my original memo, I had indicated that H₂S should be discussed as it is currently a parameter in the ECA. The consultant refers to the 2008 RWIA report and notes that then-recent upgrades to the WPCP and operational changes significantly reduced H₂S concerns (being anaerobic conditions caused by ice coverage). This is supplemented with reference to other documents which do not indicate any H₂S concerns. There is no indication of why these other parties determined this. Do the lagoons no longer freeze over? Is there data to support these contentions?

Exp Response

- Clarification on H₂S has been added to Section 6.3.5 (page 19) and 8.2.3 (page 28).
- The proposed SAGR system is a fully aerated system with a high degree of ammonia removal. With the SAGR system in place and continuous discharge through the winter months, H₂S is not expected to build up in the storage lagoons.

12. MOECC Comment

From my previous memo:

If the Drayton WPCP receives industrial effluent or septage, the potential impact of these will have to be addressed in Mapleton's submission. <I add, if this is not a consideration then just indicate it>

Exp Response

- The emphasis of the RWIA was on the proposed effluent discharge limits and identifying a proposed discharge regime that would be within the river's ability to assimilate. Discussion on the source of influent and treatment alternatives will be included in the ESR and preliminary design.

13. MOECC Comment

In the discussion of future discharge of total phosphorus from Drayton, the consultant indicates that the river will maintain its water quality policy designation for total phosphorus downstream of the discharge point. There are only 2 possible designations for surface water, Policy 1 and Policy 2. Since the upstream water quality already exceeds PWQO, the Conestogo River is a Policy 2 receiver before the plant discharges to it, so it is unlikely that it would change downstream. A new or increased discharge to a Policy 2 receiver should not make it worse and endeavor to make it better. The Ministry's normal approach is to cap the load and require a better quality effluent as a minimum (ie. The concentration limits decrease with increasing flow as has been proposed here); however, the discharge concentration is still above PWQO and several times higher than the concentrations in the river, so no change in TP policy status would be expected. In fact, the totally mixed concentration will be higher for the period where discharge does not presently occur.

Exp Response

- Agreed, the effluent discharge from the WPCP will have no impact whether the river is considered Policy 1 or 2.
- Table 12 on page 25 shows that the total annual phosphorus loading will go decrease based on the proposed TP effluent limit and discharge regime compared to the existing effluent limit and discharge regime (2016 ECA). While the focus of the RWIA has been based on limits, we also note that the treatment improvements recommended in the ESR is expected to further lower the TP in the effluent compared to the existing treatment process.

14. MOECC Comment

I note that mention of the proposed treatment process has been removed from section 6.2 and I presume this has been moved to another section of the EA.

Exp Response

- Yes, emphasis of the RWIA was on proposed effluent limits and discharge regime. The proposed treatment process will be included in the ESR.

15. MOECC Comment

In section 6.2, the consultant predicts the assimilative capacity of ammonia nitrogen in the Conestogo River, maximizing the discharge to continuously approach the PWQO concentration for un-ionized ammonia based on mass balance.

Exp Response

- The purpose of the then-Section 6.2 was to identify a theoretical maximum discharge window. The process followed for developing a proposed discharge regime has been clarified in Section 7 (page 20). The table calculating the theoretical maximum discharge regime based on assimilative capacity of NH₃ has been updated based on inclusion of the full dataset (see Table 9, page 22). The table name has also been made more descriptive. Section 7.3 (pages 23 and 24) presents the proposed discharge regime, while Section 8 presents the assimilative capacity of the river based on proposed effluent limits.

16. MOECC Comment

In section 6.2.1.2 it is unclear if a May discharge is being proposed. The first paragraph indicates it is not while the second paragraph indicates that it is. The first paragraph also indicates that a September discharge is not excluded (no discharge May to August inclusive).

Exp Response

- May discharge is not being proposed. The proposed discharge regime is provided in Table 10, page 24.

17. MOECC Comment

<i>Month</i>	<i>7Q₂₀</i>	<i>Plant flow(2015)</i>	<i>ratio</i>	<i>Proposed flow(2016+)</i>	<i>ratio</i>
<i>January</i>	22918	0	100:0	4000	5.7:1
<i>February</i>	17740	0	100:0	3150	5.6:1
<i>March</i>	21129	1581	13.4:1	3800	5.6:1
<i>April</i>	45407	3154	14.4:1	4000	11.4:1
<i>May</i>					
<i>June</i>					
<i>July</i>					
<i>August</i>					
<i>September</i>					
<i>October</i>	3057	233	13.1:1	180	17:1
<i>November</i>	15085	1754	8.6:1	1500	10:1
<i>December</i>	24402	4000	6.1:1	4000	6.1:1

The above table presents the existing and proposed discharge flows and their ratio with river (dilution) water for each month.

The consultant has used a mass-balance calculation to estimate the downstream completely mixed concentration of un-ionized ammonia (UIA) and then maximized the discharge to a number which approximates the in-stream UIA at the PWQO once the discharge is fully mixed. The following table presents the design fully-mixed concentrations for each month as well as the current upstream concentrations in the river.

<i>UIA(mg/L)</i>	<i>October</i>	<i>November</i>	<i>December</i>	<i>January</i>	<i>February</i>	<i>March</i>	<i>April</i>
<i>PWQO</i>	0.02	0.02	0.02	0.02	0.02	0.02	0.02
<i>Upstream</i>	.0028	.0007	.0006	.0015	.0012	.0010	.0010
<i>%PWQO</i>	14%	3.5%	3%	7.5%	6%	5%	5%
<i>Fully-mixed</i>	.0197	.02	.0181	.0198	.0198	.0199	.0182
<i>%PWQO</i>	98.5%	100%	90.5%	99%	99%	99.5%	91%

Exp Response

- As noted above, the discharge window presented in the previous RWIA was a theoretical maximum based on assimilative capacity of the river. This and the proposed discharge regime have been described more clearly in the revised RWIA in Section 7.
- The percentage of PWQO for NH₃ “used-up” by the existing and proposed TAN effluent limit and discharge regime has been included in Table 7 (page 15) and Table 14 (page 27). Table 13 (page 26) provides a direct comparison of the NH₃ after-mixing concentrations for both the existing and proposed regimes. Table 13 shows that, compared to the existing limits and under 7Q₂₀ conditions, after-mixing conditions improve for the months where discharge is currently approved.
- The December dilution factor was used as a bottom threshold; that is, no dilution factor for a given month would fall below that of December. This would ensure that the mixing zone boundary for any given month would not extend beyond that of December’s. This is clarified in Section 7.3 (page 24) and Section 8.2.2 (page 28).

18. MOECC Comment

In my last set of comments, I indicated the need to address the mixing zone for the Drayton WPCP. The consultant has included a small section on mixing zone and concluded that “the mixing zone will not extend to beyond the previously approved mixing zone and as such no such new analysis is required.”

In response, I offer the following:

- 1) The current mixing zone is unknown and any current impairment undefined so there is no baseline to predict the impact of expansion*
- 2) Basic principles indicate that changes to dilution ratio will impact the areal extent of a mixing zone (laterally and longitudinally) and concentrations within it*

Exp Response

- As noted above (and discussed in Sections 7.3 and Section 8.2.2 of the updated RWIA), we have ensured that the minimum dilution factor of December was kept as a minimum threshold. Further, the dilution factors based on proposed discharge flows for January and February are higher than December’s dilution factor.

19. MOECC Comment

- 3) While the ministry acknowledges that the discharge is to the GRCA wetland in lot 18 concession 9 Township of Mapleton, no assessment has been done of impairment or improvement from the discharge and no ecological assessment has been done of the impact a winter discharge, presumably this will be incorporated into the main EA document (GRCA, being the owner, may have information on this land parcel)*
- 4) In the consultant’s design to push fully mixed un-ionized ammonia concentrations to the maximum, there is no assessment of aquatic toxicity or fish avoidance concentrations within the plume or indeed from the fully mixed condition*
- 5) There is no assessment of ecological data, especially sensitive aquatic species (including SARs) within the immediate river reaches (including downstream and into the reservoir) which may be negatively impacted by an increased discharge (fish/benthos/macrophyte information for this area may be available from MNR, GRCA or university researchers)*
- 6) There has been no assessment of a HADD from changes to the discharge and specifically discharge during the winter rearing season*
- 7) There has been no assessment of impact on the residual Conestogo Reservoir pool of the discharge plume (i.e. if the completely mixed plume has an average un-ionized ammonia concentration of 0.02 mg/L in the winter months, this concentration (unless dissipated) would form the waters of the reservoir pool in late winter. The extent of ice cover/open water on Conestogo Reservoir has not been determined, although exp indicates the main basin of the reservoir is 6.5 km downstream which would place it in lot 18, concession 6, Maryborough. It is unknown if the permanent pool and ice cover extends from this point to the dam face or whether it has a more riverine form during the winter*

Exp Response

- A natural heritage assessment was completed for the study area, including the discharge channel. The report is summarized in the ESR and included in the ESR appendix.
- Benefits to water quality from the proposed discharge regime compared to the existing ECA are provided in Tables 12 (page 25) and 13 (26). Also, Section 8.2.2 includes some comment on potential impact from the proposed discharge regime.
- No harmful alteration, disruption or destruction (HADD) of fish habitat is likely from the proposed discharge regime and effluents.

20. MOECC Comment

In tables 5 and 6, the consultant proposes the discharges identified in the first table on page 6 of this memo. The sum of discharges proposed totals 624,580 m³ or 1711 m³/d, more than doubling the current permitted discharge and providing for an allowance of 411 m³/d for precipitation and snowmelt excess over evaporation (~30%) which is excessive and requires justification, particularly since any I/I issues within the Drayton and Moorefield sewersheds are already included in the current 950 m³/d ADF allocation.

Exp Response

- The proportion of discharge related to total precipitation has been updated and clarified in Section 7.3 (page 23). The updated allowance for precipitation has been adjusted to 149 m³/day, as per the water balance calculated in the GRCA/MOECC CPE report prepared for the Mapleton WPCP.

21. MOECC Comment

Conclusions and Recommendations

A new scheme for increased discharge from the Drayton WPCP to the Conestogo River based on a continuous seven month October to April discharge appears to be feasible; however, the calculations used in generating proposed discharge volumes are of mixed reliability. Flow volumes in the Conestogo River and in the WPCP discharge are well established or controllable; water and effluent quality are not. This impairs the reliability of only using a calculated mass balance approach.

Exp Response

- To minimize this risk, the after-mixing impacts of the proposed discharge regime on the PWQO have been calculated based on worst-case conditions, i.e., at the maximum effluent limit and at 7Q20 conditions. With the proposed treatment improvements, the effluent quality should be improved compared to the existing. Also, the calculations have been made using 7Q20 flows, when typical river flows will be higher. Given these worst-case scenarios, the resulting after-mixing concentrations for NH₃ are still well under the PWQO. This “buffer zone” helps to guard against unreliability of the data.
- Also, the WPCP’s existing ECA includes requirements for monitoring samples of the Conestogo River. These samples will help build the river water quality database and

will help to either confirm the analysis or provide direction on whether improvements are needed.

22. MOECC Comment

River water quality is poorly known for a number of parameters, particularly during the winter period when samples are not traditionally collected.

Effluent quality is good and reasonably well understood for the current spring and fall discharge periods. There have been issues with ammonia nitrogen in the spring discharge in the past although this appears to have dissipated since cells 4A and 4B have opened. It is unclear what impacts the winter climate will have on the lagoons if discharge proceeds through January, February and early March. Although cell #2 is aerated, I understand that the others are not. It is unknown what conditions exist under the ice in the un-aerated cells and whether anaerobic conditions may exacerbate TAN and H₂S issues. Answers may be in process treatment units in the final EA. The consultant has indicated (Table 7) that BAT is the basis of projected effluent limits for TSS and TAN/UIA.

When projections are made on scant data, the error bounds become much larger and the control should be adjusted to compensate for error. Where projected concentrations are low in accuracy such things as the dilution ratios need to be increased to ensure environmental protection from these inaccurate predictions.

Exp Response

- The proposed discharge flows for January and February have been reduced as much as possible in response to the limited dataset for those months. Also, as noted previously, the dilution factor for these months have been kept to above that of December.
- As noted previously, the treatment process, which will be described in the ESR, will minimize the potential for TAN and H₂S issues.

23. MOECC Comment

One of the Ministry's criteria is the assessment of cumulative effects of an activity. In this case, the assumption of the entire assimilative capacity of the Conestogo River for the expansion of the Drayton WPCP does not consider future needs for capacity from other dischargers to the river, particularly the Arthur WPCP, which is also undertaking expansion plans in Wellington County. The discharges from Arthur, Drayton and the Darling and All-Treat facilities all contribute to the cumulative impacts on the Conestogo River and Reservoir.

Exp Response

- Table 13 (page 13) shows that the amount of PWQO for NH₃ from the Mapleton WPCP will be less based on the proposed discharge regime and limits compared to the existing regime/limits.

24. MOECC Comment

Given the poor database for BOD, solids and ammonia and the projection of discharge to the PWQO under the fully mixed condition potentially forcing the river into Policy 2 for un-ionized

ammonia, I cannot support the discharge volumes in exp's November memorandum at this time. The discharge objectives/limits may be tolerable but with decreased river:discharge ratios, the error bounds on the calculations do not support the mass balance result. The excess allocated for rainfall and snowmelt also appears excessive and does not justify allocating the entire river capacity to the Drayton WPCP. The discharge scenario predictions may be further changed since considerable datapoints were missed in exp's calculations of Q₃ river water quality for TP and ammonia (both TAN and UIA) and none were used in TSS determination. Critical estimation of ammonia concentrations in the new months of January/February/March are also impaired by reliance on a very small dataset from the mid 1990's.

Tables 5 and 6 need to be revised using the Municipality's projected 1300 m³/d plus a reasonable, justified determination of precipitation/snowmelt excess (a well-established engineering process) and then the composite volume distributed over the discharge period.

Exp Response

- As noted previously:
 - River:discharge ratios are kept above the minimum of December's.
 - The amount of discharge related to total precipitation is based on 149 m³/day, as per the CPE water balance analysis conducted by GRCA/MOECC for the Mapleton WPCP.
 - Missing data points have been incorporated.
 - NH₃ after-mixing concentrations relative to PWQO are more conservative and show a benefit during discharge months compared to existing ECA.

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: April-21-16 9:48 AM
To: 'Odom, Paul (MOECC)'
Cc: Brad McRoberts; Mark Anderson (manderson@grandriver.ca); Slattery, Barbara (MOECC); Weber, Martha (MOECC)
Subject: RE: Mapleton Wastewater Class EA - updated RWIA
Attachments: 2016 04 20_RWIA Update_Final Draft_rebuild.pdf

Hello all,

My apologies on the damaged PDF file.

We've rebuilt the PDF file and attached it.

Regards,

JL

Jean-Louis Gaudet | exp

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From: Odom, Paul (MOECC) [<mailto:Paul.Odom@ontario.ca>]
Sent: April-21-16 8:02 AM
To: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>
Cc: Brad McRoberts <BMcRoberts@mapleton.ca>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>; Weber, Martha (MOECC) <Martha.Weber@ontario.ca>
Subject: RE: Mapleton Wastewater Class EA - updated RWIA

Jean,
The final draft pdf is corrupted and cannot be recovered.
Paul

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]
Sent: April 21, 2016 7:39 AM
To: Odom, Paul (MOECC)
Cc: Brad McRoberts; Mark Anderson (manderson@grandriver.ca); Slattery, Barbara (MOECC); Weber, Martha (MOECC)
Subject: Mapleton Wastewater Class EA - updated RWIA

Hi Paul,

Thank you for your comments of February 11, 2016 on the previous version of the Mapleton Receiving Water Impact Assessment (RWIA).

Your comments (as well as Mark Anderson's from GRCA) have been considered in the updated version of the RWIA, which is attached for your consideration.

The attached cover letter notes changes to this version of the RWIA. It also includes responses to your comments that describe how your comments have been considered.

To assist in your review, a MS Word version of the updated RWIA (with changes tracked) has been included so that you can see where edits have been made. The PDF version is the full, updated RWIA.

Also, we will be forwarding you a copy of the Draft ESR by the end of this week for your consideration.

Thanks again, Paul, for your time and involvement on this project. It is much appreciated.

Regards,

Jean-Louis



Jean-Louis Gaudet

Project Coordinator

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Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: April-25-16 8:00 AM
To: 'paul.odom@ontario.ca'; Mark Anderson (manderson@grandriver.ca)
Cc: 'Brad McRoberts'; 'barbara.slattery@ontario.ca'; 'martha.weber@ontario.ca'; 'Arun Jain' (Arun.Jain@exp.com)
Subject: Mapleton Wastewater Class EA - draft ESR
Attachments: 2016 02 19_Mapleton WW Servicing Class EA_ESR (DRAFT) V3.pdf; 2016 02 22 _Mapleton WW Servicing Class EA_ESR_appendices (DRAFT) V3 -red....pdf

Tracking:	Recipient	Delivery
	'paul.odom@ontario.ca'	
	Mark Anderson (manderson@grandriver.ca)	
	'Brad McRoberts'	
	'barbara.slattery@ontario.ca'	
	'martha.weber@ontario.ca'	
	'Arun Jain' (Arun.Jain@exp.com)	Delivered: 25/04/2016 8:01 AM

Hi Paul and Mark,

Please find attached the draft ESR for the Mapleton wastewater Class EA. Any comments you have would be greatly appreciated.

Thanks,

Jean-Louis

Jean-Louis Gaudet | exp

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From: Jean Louis Gaudet
Sent: April-21-16 7:39 AM
To: 'paul.odom@ontario.ca' <paul.odom@ontario.ca>
Cc: 'Brad McRoberts' <BMcRoberts@mapleton.ca>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; 'barbara.slattery@ontario.ca' <barbara.slattery@ontario.ca>; 'martha.weber@ontario.ca' <martha.weber@ontario.ca>
Subject: Mapleton Wastewater Class EA - updated RWIA

Hi Paul,

Thank you for your comments of February 11, 2016 on the previous version of the Mapleton Receiving Water Impact Assessment (RWIA).

Your comments (as well as Mark Anderson's from GRCA) have been considered in the updated version of the RWIA, which is attached for your consideration.

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Thanks again, Paul, for your time and involvement on this project. It is much appreciated.

Regards,

Jean-Louis



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Project Coordinator

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Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: May-10-16 10:06 AM
To: Jean Louis Gaudet
Cc: Sandra Cooke
Subject: RE: Mapleton Wastewater Class EA - draft ESR

I have not had a chance to review both documents but thanks for reminding me, I will dredge it back up from the pile on my desk. I can't promise anything for this week but I will definitely try to get you something by the end of next week.

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority

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From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: Monday, May 9, 2016 7:30 PM
To: 'paul.odom@ontario.ca'; Mark Anderson
Cc: Brad McRoberts; 'barbara.slattery@ontario.ca'; 'martha.weber@ontario.ca'; Arun Jain
Subject: RE: Mapleton Wastewater Class EA - draft ESR

Hi Paul and Mark,

We wanted to check in with you to see if any comments were forthcoming on the most recent RWIA and the draft ESR for the Mapleton Wastewater Class EA?

Would it be possible to have your comments by the end of this week?

Thanks,

Jean-Louis

Jean-Louis Gaudet | exp

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From: Jean Louis Gaudet
Sent: April-25-16 8:00 AM
To: 'paul.odom@ontario.ca' <paul.odom@ontario.ca>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>
Cc: 'Brad McRoberts' <BMcRoberts@mapleton.ca>; 'barbara.slattery@ontario.ca' <barbara.slattery@ontario.ca>;

'martha.weber@ontario.ca' <martha.weber@ontario.ca>; 'Arun Jain' (Arun.Jain@exp.com) <Arun.Jain@exp.com>

Subject: Mapleton Wastewater Class EA - draft ESR

Hi Paul and Mark,

Please find attached the draft ESR for the Mapleton wastewater Class EA. Any comments you have would be greatly appreciated.

Thanks,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator

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From: Jean Louis Gaudet

Sent: April-21-16 7:39 AM

To: 'paul.odom@ontario.ca' <paul.odom@ontario.ca>

Cc: 'Brad McRoberts' <BMcRoberts@mapleton.ca>; Mark Anderson (manderson@grandriver.ca)

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Jean Louis Gaudet

From: Odom, Paul (MOECC) <Paul.Odom@ontario.ca>
Sent: May-10-16 7:42 AM
To: Jean Louis Gaudet
Cc: 'Mark Anderson' (manderson@grandriver.ca)
Subject: RE: Mapleton Wastewater Class EA - draft ESR

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P. Odom

From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: May 9, 2016 7:30 PM
To: Odom, Paul (MOECC); Mark Anderson (manderson@grandriver.ca)
Cc: Brad McRoberts; Slattery, Barbara (MOECC); Weber, Martha (MOECC); Arun Jain
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Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: May-12-16 10:25 AM
To: 'Slattery, Barbara (MOECC)'; Odom, Paul (MOECC)
Cc: Arun Jain
Subject: RE: Mapleton Wastewater Class EA - draft ESR

Hi Barbara,

No. In fact, we would prefer to have MOECC's sign-off on the RWIA and ESR before issuing the notice of completion. The MOECC is a very important stakeholder in this process, and so we want to make sure that MOECC is okay with the content and conclusions of the RWIA and ESR before issuing the notice.

We just wanted to provide MOECC with our desired timeline and to get an idea of when we might expect comments, for planning purposes.

Thanks,

JL

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From: Slattery, Barbara (MOECC) [<mailto:barbara.slattery@ontario.ca>]
Sent: May-12-16 10:14 AM
To: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>; Odom, Paul (MOECC) <Paul.Odom@ontario.ca>
Cc: Arun Jain <Arun.Jain@exp.com>
Subject: RE: Mapleton Wastewater Class EA - draft ESR

Hello,

Can you please clarify: you wish to issue a Notice of Completion without having our review of the receiving water impact assessment/assimilative capacity study?

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]
Sent: May 12, 2016 10:00 AM
To: Odom, Paul (MOECC)
Cc: Slattery, Barbara (MOECC); Arun Jain
Subject: RE: Mapleton Wastewater Class EA - draft ESR

Hi Paul,

Thanks for the update.

Would it be possible to get an estimated time when we may expect comments? We would like to have the ESR submitted for public review by the end of the month.

Thanks,

JL

Jean-Louis Gaudet | exp

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From: Odom, Paul (MOECC) [<mailto:Paul.Odom@ontario.ca>]
Sent: May-10-16 7:42 AM
To: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>
Cc: 'Mark Anderson' (manderson@grandriver.ca) <manderson@grandriver.ca>
Subject: RE: Mapleton Wastewater Class EA - draft ESR

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Sent: May 9, 2016 7:30 PM
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Cc: Brad McRoberts; Slattery, Barbara (MOECC); Weber, Martha (MOECC); Arun Jain
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Jean-Louis

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Cc: 'Brad McRoberts' <BMcRoberts@mapleton.ca>; 'barbara.slattery@ontario.ca' <barbara.slattery@ontario.ca>; 'martha.weber@ontario.ca' <martha.weber@ontario.ca>; 'Arun Jain' (Arun.Jain@exp.com) <Arun.Jain@exp.com>

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Project Coordinator

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Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: May-19-16 4:08 PM
To: Brad McRoberts (bmcroberts@mapleton.ca); Jamie Morgan (jmorgan@mapleton.ca); Arun Jain; Paul Odom (paul.odom@ontario.ca)
Cc: Jean Louis Gaudet; Hui Wang; Sandra Cooke; Jason Wagler
Subject: RE: Mapleton Wastewater Class EA - draft ESR
Attachments: 2016-05-19 MEM CommentsOnDraytonRWIA.pdf

Please find attached some comments on the recent draft version of the Receiving Water Impact Assessment for the Mapleton WPCP EA. I have not had a chance to review the ESR yet.

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge ON N1R 5W6
(519) 621-2761 ext 2226
www.grandriver.ca

From: Arun Jain [mailto:Arun.Jain@exp.com]
Sent: Wednesday, May 18, 2016 2:49 PM
To: Mark Anderson
Cc: Jean Louis Gaudet; Hui Wang
Subject: RE: Mapleton Wastewater Class EA - draft ESR

Mark,

As per your e-mail below, we are hoping to receive your comments by Friday this week.

Hui is visiting us and we have planned an internal Saturday workshop (May 21) for this project and will be happy to have your comments by then.

Regards,

Arun



Arun P. Jain, P.Eng., M.Eng.
Practice Lead - Linear Infrastructure, Central Ontario
exp Services Inc.

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From: Jean Louis Gaudet
Sent: Tuesday, May 10, 2016 3:39 PM
To: Arun Jain
Subject: FW: Mapleton Wastewater Class EA - draft ESR

FYI

Jean-Louis Gaudet | exp

Project Coordinator
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From: Mark Anderson [<mailto:manderson@grandriver.ca>]
Sent: May-10-16 10:06 AM
To: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>
Cc: Sandra Cooke <scooke@grandriver.ca>
Subject: RE: Mapleton Wastewater Class EA - draft ESR

I have not had a chance to review both documents but thanks for reminding me, I will dredge it back up from the pile on my desk. I can't promise anything for this week but I will definitely try to get you something by the end of next week.

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority

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Cambridge ON N1R 5W6
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www.grandriver.ca

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]
Sent: Monday, May 9, 2016 7:30 PM
To: 'paul.odom@ontario.ca'; Mark Anderson
Cc: Brad McRoberts; 'barbara.slattery@ontario.ca'; 'martha.weber@ontario.ca'; Arun Jain
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Grand River Conservation Authority - Memorandum

File Number: W88.155

Date: 19 May 2016

To: Jamie Morgan and Brad McRoberts, Mapleton Township

From: Mark Anderson

Cc: Arun Jain, exp; Paul Odom, MOECC

Re: Comments on receiving water impact assessment (final draft) dated 20 April 2016

Remarks: For your review

I have reviewed the Receiving Water Impact Assessment (RWIA) prepared by exp dated 20 April 2016. The following comments are provided for your consideration:

Section 5: Conestogo River Water Quality at Drayton

- As mentioned previously, it is important to be explicit about the units for nitrogen compounds such as ammonia and nitrate. Much of the ammonia data and analysis in the report is incorrect as a result of the consultant misinterpreting the PWQMN data. The PWQMN reports these parameters in mg/L as N, whereas some of the objectives are expressed in different units. For example, the PWQO for un-ionized ammonia is 0.020 mg/L as NH₃, which is equivalent to 0.0165 mg/L as N. Similarly, the CCME guideline for nitrate is 13 mg/L as NO₃, which is approximately equivalent to 2.9 mg/L as N. **For the sake of clarification, all data and discussion of nitrogen compounds should be expressed as mg/L as N, since this is a standard convention.**
- The following is an example from Appendix G. The area identified in the green box is correct with the total ammonia concentration reported in mg/L as N and the un-ionized ammonia concentration calculated in mg/L as N. The final column, highlighted in red, is incorrect as the data is already in mg/L as N and no further conversion is necessary. The data from Appendix G has been summarized in Table 3, although the column heading is incorrect and should be changed to "mg/L as N" and updated to include the appropriate PWQO value is 0.0165 mg/L as N (CCME criterion is 0.056 mg/L as N). The 75th percentile numerical values included in Table 3 are correct for total ammonia, un-ionized ammonia, nitrate, nitrite and nitrate + nitrite expressed in mg/L as N.

Grand River Conservation Authority - Memorandum

Re: Comments on receiving water impact assessment (final draft) dated 20 April 2016

$$pK_a = 0.09018 + 2729.92 / (273.16 + T^{\circ}C)$$

$$fNH_3 = 1 / (10^{(pK_a - pH)} + 1)$$

Observed data				Calculation of NH3				
Month / Date	SAMPLE TYPE	AMMONIUM, TOTAL	PH FIELD	TEMPERATURE, WATER	pKa	fNH3	NH3	NH3-N
		NNHTFR	FWPH	FWTEMP				
		mg/L		°C			mg/L	mg/L
January								
10/01/1990	FILTER.REAC	0.092	7.74	0.7	10.1	0.48%	0.0004	0.0004
29/01/1991	FILTER.REAC	0.104	7.8	0.8	10.1	0.55%	0.0008	0.0005
08/01/1992	FILTER.REAC	0.028	8	0.1	10.1	0.82%	0.0002	0.0002
12/01/1993	FILTER.REAC	0.002	8.1	0.3	10.1	1.05%	0.0000	0.0000
12/01/1994	FILTER.REAC	0.27	7.37	0.8	10.1	0.21%	0.0008	0.0005
12/01/1995	UNFIL.REAC	0.06	7.93	15	9.8	2.27%	0.0014	0.0011
18/01/1996	UNFIL.REAC	0.016	8.06	1	10.0	1.02%	0.0002	0.0001
23/01/2001	UNFIL.REAC	0.102	8.04	0.9	10.1	0.97%	0.0010	0.0008
30/01/2013	UNFIL.REAC	0.197	8.01	1.6	10.0	0.95%	0.0019	0.0015
75% Percentile		0.104	8.04	1.0			0.0010	0.0008
n		9	9	9	9	9	9	9
February								

- The CCME criterion for nitrate given in Table 3 is also somewhat confusing as the data presented in Table 3 based on PWQMN data is reported in mg/L as N. Using the appropriate criterion for comparison, the Conestogo River exceeds the CCME criterion in all months except July, August and September.

Section 6.2 After-mixing Concentrations of Existing WPCP Effluent Limits

- There is a calculation error in Table 7, in addition to the errors introduced by using the wrong units for ammonia concentrations. Once again, it would have been much simpler to do the analysis with all data expressed in mg/L as N and compare to final result to the PWQO of 0.0165 mg/L as N. Table 7 gives the "Effluent Ammonium (NH4) Limit" as 6.43 mg/L, however it should read "Effluent Ammonia (NH3) Limit" and the concentration should be 6.04 mg/L as NH3. The note at the bottom of the table should have read "Concentration of NH₃ = (14.01+3)/14.01 x concentration of NH₃-N". The following is an example of what Table 7 should look like using information from October, November and December:

Grand River Conservation Authority - Memorandum

Re: Comments on receiving water impact assessment (final draft) dated 20 April 2016

Description	Unit	Oct	Nov	Dec
7Q20 Low Flow	m3/d	3,057	15,085	24,402
Existing Approved Discharge Flow	m3/d	233	1,754	4,000
Existing TAN (NH3) Effluent Limit	mg/L as N	5	5	5
Conestogo River pH (75th Percentile)		8.4	8.33	8.39
Conestogo River Water Temperature (75th Percentile)	°C	11.2	5.5	2.6
pKa		9.69	9.89	9.99
fNH3		0.0487	0.0270	0.0245
Effluent Un-ionized Ammonia	mg/L as N	0.2437	0.1350	0.1226
Un-ionized Ammonia in River - Upstream	mg/L as N	0.0010	0.0008	0.0004
Un-ionized Ammonia in River - after mixing	mg/L as N	0.0182	0.0148	0.0176
PWQO Criteria for un-ionized ammonia	mg/L as N	0.0165	0.0165	0.0165
% of PWQO				
- Upstream		6%	5%	2%
- Downstream		110%	90%	107%

- Previous comment:** Dilution calculations are shown for un-ionized ammonia only. A similar dilution calculation for total phosphorus should be included in the analysis to demonstrate the potential impact of the proposed effluent criteria. **The report states in Section 6.2.2 that after-mixing river concentrations for TP were calculated but they were not included in the report.**

Section 7.2 Calculation of Maximum Potential Discharge Flows

- Table 9 contains the same errors as noted above for Table 7. The analysis should be presented with all ammonia concentrations expressed as mg/L as N for simplicity. The following is an example of what Table 9 should look like using information from October, November and December:

Grand River Conservation Authority - Memorandum

Re: Comments on receiving water impact assessment (final draft) dated 20 April 2016

Description	Unit	Oct	Nov	Dec
7Q20 Low Flow	m ³ /d	3,057	15,085	24,402
Existing Approved Discharge Flow	m ³ /d	346	3,410	4,000
Existing TAN (NH₃) Effluent Limit	mg/L as N	3	3	3
Conestogo River pH (75th Percentile)		8.4	8.33	8.39
Conestogo River Water Temperature (75th Percentile)	°C	11.2	5.5	2.6
pKa		9.69	9.89	9.99
fNH₃		0.0487	0.0270	0.0245
Effluent Un-ionized Ammonia	mg/L as N	0.1462	0.0810	0.0735
Un-ionized Ammonia in River - Upstream	mg/L as N	0.0010	0.0008	0.0004
Un-ionized Ammonia in River - after mixing	mg/L as N	0.0158	0.0156	0.0107
PWQO Criteria for un-ionized ammonia	mg/L as N	0.0165	0.0165	0.0165
% of PWQO				
- Upstream		6%	5%	2%
- Downstream		96%	94%	65%

Section 7.3 Developing the Proposed Effluent Discharge Regime

- To clarify, the estimated daily average discharge due to net accumulation of precipitation was 149 m³/d based on the reported influent flow, effluent flow and measured changes in water level within the lagoon cells over the course of 11 months from January 2014 to November 2014. It was estimated that net precipitation may account for 158 m³/d based on long-term climate normal data.
- It should also be recognized that the net precipitation value given in the CPE report is an average value over the whole year and monthly accumulation may be higher or lower depending on the time of year. For example, based on Climate Normals for the Glen Allan station, the lagoons are expected to accumulate between 63 mm (in February) and 99 mm (in November) per month. If the area of the lagoons is 212,000 m², this equates to an excess volume of 13,356 to 21,000 m³ (i.e. 445 to 700 m³/d, depending on the month). How does this impact on the storage capacity and operation of the lagoon system during months when there is little or no evaporation?

Section 8.2.1 Assimilative Capacity Assessment (for Ammonia)

- Table 14 contains the same errors as Table 9 and Table 7. Correcting these errors will result in improved un-ionized ammonia concentrations in the downstream receiver under fully mixed conditions.

Grand River Conservation Authority - Memorandum

Re: Comments on receiving water impact assessment (final draft) dated 20 April 2016

If you have any questions regarding these comments, please let me know.

Mark Anderson, P.Eng.

Water Quality Engineer

Grand River Conservation Authority

Jean Louis Gaudet

From: Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>
Sent: June-15-16 3:23 PM
To: Jean Louis Gaudet; Odom, Paul (MOECC); Mark Anderson (manderson@grandriver.ca)
Cc: Brad McRoberts; Weber, Martha (MOECC); Arun Jain
Subject: RE: Mapleton Wastewater Class EA - draft ESR

Good Afternoon Jean-Louis,

I have completed my review of the Draft ESR and have the following comments for your consideration. I would like to preface these comments by stating that Paul Odom is reviewing all matters that relate to the discharge such as the proposed change to the discharge period, and the review of the Receiving Water Impact Assessment.

My role is focussed on providing suggestions to ensure that this ESR meets the requirements for Schedule "C" projects under the MEA Class EA.

I am pleased to say that I have only two comments:

1. Have the GRCA and MNRFB been provided the opportunity to review the Draft ESR and any relevant technical reports to comment on their mandates given that the outfall is within the regulated area of GRCA's permitting authority, and to ensure that MNRFB agrees with the identification of SARs and their habitat?
2. As part of Appendix E (consultation activities) the ministry will expect to see evidence of appropriate and adequate First Nations and Metis consultation. Please note, if there were no responses received to any of the earlier Notice circulations, the proponent is expected to reach out to the community particularly now that a Draft ESR is available for review to demonstrate that ongoing efforts to consult have been made.

Should you have any questions, please do not hesitate to contact me.

Best regards to all,

Barb Slattery, EA/Planning Coordinator
Ministry of the Environment and Climate Change
West Central Region
(905) 521-7864

From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: April 25, 2016 8:00 AM
To: Odom, Paul (MOECC); Mark Anderson (manderson@grandriver.ca)
Cc: Brad McRoberts; Slattery, Barbara (MOECC); Weber, Martha (MOECC); Arun Jain
Subject: Mapleton Wastewater Class EA - draft ESR

Hi Paul and Mark,

Please find attached the draft ESR for the Mapleton wastewater Class EA. Any comments you have would be greatly appreciated.

Thanks,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator

t: +1.905.793.9809 x2344 | e: jeanlouis.gaudet@exp.com

1595 Clark Boulevard

Brampton, ON L6T 4V1

Canada

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From: Jean Louis Gaudet

Sent: April-21-16 7:39 AM

To: 'paul.odom@ontario.ca' <paul.odom@ontario.ca>

Cc: 'Brad McRoberts' <BMcRoberts@mapleton.ca>; Mark Anderson (manderson@grandriver.ca)

<manderson@grandriver.ca>; 'barbara.slattery@ontario.ca' <barbara.slattery@ontario.ca>; 'martha.weber@ontario.ca'

<martha.weber@ontario.ca>

Subject: Mapleton Wastewater Class EA - updated RWIA

Hi Paul,

Thank you for your comments of February 11, 2016 on the previous version of the Mapleton Receiving Water Impact Assessment (RWIA).

Your comments (as well as Mark Anderson's from GRCA) have been considered in the updated version of the RWIA, which is attached for your consideration.

The attached cover letter notes changes to this version of the RWIA. It also includes responses to your comments that describe how your comments have been considered.

To assist in your review, a MS Word version of the updated RWIA (with changes tracked) has been included so that you can see where edits have been made. The PDF version is the full, updated RWIA.

Also, we will be forwarding you a copy of the Draft ESR by the end of this week for your consideration.

Thanks again, Paul, for your time and involvement on this project. It is much appreciated.

Regards,

Jean-Louis



Jean-Louis Gaudet
Project Coordinator
t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
CANADA

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Jean Louis Gaudet

From: Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>
Sent: June-22-16 12:47 PM
To: Dhesi, Manpreet (MOECC); Jean Louis Gaudet; Mark Anderson
(manderson@grandriver.ca); Brad McRoberts (BMcRoberts@mapleton.ca)
Subject: Comments for Drayton Assimilative Capacity Assessment
Attachments: Drayton WPCP 16015.docx

Best regards to all,

Barb Slattery, EA/Planning Coordinator
[Ministry of the Environment and Climate Change](#)
West Central Region
(905) 521-7864

June 22, 2016

Jean-Louis Gaudet | exp

Project Coordinator

t: +1.905.793.9809 x2344 | e: jeanlouis.gaudet@exp.com

RE: Drayton WPCP April 2016 Receiving Water Impact Assessment

The following document(s) have been reviewed and these comments are provided in order to provide clarification, guidance and direction as to what is required in order to assess the potential impacts from an expanded Drayton (Mapleton) WPCP on the waters of the Conestogo River and Conestogo Reservoir:

- *Receiving Water Impact Assessment, exp., April 20, 2016.*
- *Redline version of Receiving Water Impact Assessment version 15, exp., April 20, 2016*
- *Response to Comments, exp., April 20, 2016*

Supplementary information including the Certificate of Approval: № 0963-A4ZMVA (January 22, 2016); previous surface water comments; and the GRCA's comments have also been considered.

Comments

- a) Mapleton has determined over the past six years that significant inflow occurs to the lagoons which has not previously been considered and has caused overcapacity issues resulting in the need to construct cells 4a and 4b. This volume needs to be identified up front and carried right through the document. This may affect the rated capacity of the facility.
- b) Table 1 is acceptable and while the curve fit for September is a little poor, since that month will not be used for discharge, the fit is irrelevant. Figure 4 is unnecessary. The criterion is $7Q_{20}$ – with flow greater than this 95% of the time.
- c) References to non-ionized ammonia should be changed to un-ionized ammonia. The PWQO is $0.2 \mu\text{g/l}$ as NH_3 or $0.0165 \mu\text{g/l}$ as N.
- d) Table 3 summarizes monthly water quality Dissolved oxygen is not a contaminant; you don't assess the 75^o of the data. Both provincial and federal criteria are $>\#$ this means always. It should also be remembered that the DO measurements are instantaneous grab readings, probably completely obtained during daylight hours. UIA is a calculated concentration. The 75^o calculated must be the 75^o of the individual daily UIA calculations and not the product of 75^o TAN, 75^opH and 75^o temp.
- e) To provide context, the existing effluent discharge regime was never set out as an approved discharge. The construction of the Drayton lagoons was a result of a 1983 tribunal's decision to resolve multiple failing private septic systems in the Village of Drayton. The discharge from the lagoons is the equivalent of the approved inflow to the lagoons. The approval was modified to allow for additional discharge if flow permitted. The numbers were developed based on available flow in the Conestogo River as well as the need for the Village of Arthur to also discharge its storage lagoons during the same period. The period was severely curtailed due to the existence

immediately downstream of the Conestogo Reservoir which is emptied (mostly) during the winter and filled (gate closed) during March and April for the summer recreational season. December was allocated maximum discharge (at a minimum ratio) because it had to occur to match the inflow, not because the impact was shown to be acceptable. Reduced ratios (increased discharges) for the other months were deemed to be less acceptable.

- f) In Table 5, the monthly column needs to be replaced. The monthly flows were generally > 10:1 because the limit is a monthly average, measured weekly. The “dampening” therefore does not address individual variations and exceedances so the ratio needs to be conservative.
- g) Section 6 and section 7 clearly need to identify the contributing volume due to I/I and include it as part of the discharge capacity calculations.
- h) In section 6.1, 750m³/d is the Rated Capacity (approved), not the design influent. It is our understanding that the 1997 design flow was 950 m³/d but was passed through 650 m³/d and 750 m³/d phasing based on demonstrated no adverse impacts.
- i) Most of section 6.1 discusses average conditions. The design flow criterion is still 7Q₂₀; it is selected as 95° “worst case” so that most of the time conditions are better than design.
- j) Section 6.2 discusses after mixing concentrations (completely mixed discharge & streamflow). The point of complete mixing (PCM) is unidentified because the extent of the mixing zone is undefined. Likewise, conditions within the mixing zone are not considered or discussed. The assumption is that ammonia is a conservative substance (which it is not) and that water quality will not be worsened. However, since current conditions have not been proven to be acceptable, the current proposal would result in poorer conditions for longer time periods. Considering the mathematical errors identified by GRCA, even that assessment is flawed. The intent cannot be to drive completely mixed concentrations of un-ionized ammonia up to the PWQO and potentially make the Conestogo River full-width toxic, if and when 7Q₂₀ conditions occur.
- k) Consideration of Policy 5 relating to potentially toxic conditions within the mixing zone as specified in Bluebook §3.4 and Greenbook §2.4 must also be demonstrated.
- l) No explanation has been given as to why section 6.3 contains data only from September 2012 to December 2014?
- m) The cBOD₅ data in section 6.3.1 shows good compliance with the current objectives/limits. This will likely reflect in the results of the Dissolved Oxygen modeling. Depending on calibration under existing conditions, projection of DO conditions under the future scenario will show whether or not the oxygen demand load needs to be capped.
- n) Section 6.3.3, indicates that TAN exceedances were due to “temporary challenges”. These challenges need to be identified and shown that they cannot recur.
- o) It is understood that the purpose of the cascade aerator is to volatilize the H₂S, is there above and below data which demonstrates this or at least data from the outfall showing the absence of H₂S since 2008?
- p) In the discussions in section 7.1, MOECC may have agreed to consider discharge during the winter months but it is not because of the WPCP’s “ability now to manage ammonia levels.”
- q) An attempt has been made to maximize the discharge of the Drayton WPCP to the exclusion of any other dischargers to the system certainly at minimal dilution ratios and anticipation of discharge limits with fine tolerances. The December rate, currently calculated at 6.1:1 is not the bellwether guideline for discharge. The maximization to the plant in December was done to offset even larger impacts if the discharges in October, November, March or April were to be increased. It was done to accommodate an existing discharge problem at Drayton and not intended to create new ones.
- r) In table 11, the approach is not conservative. I/I will occur within the re-calculated 7Q₂₀ limits for March, April and October. These limits shall not increase to allow I/I.

- s) The assessment of proposed final effluent must consider all regulated parameters (concentration and load), not just TP and TAN, since a near doubling of the existing discharge is being proposed.
- t) One cannot do assimilative capacity on ammonia using mass balance mathematics. It may be possible for total nitrogen assuming no loss to atmosphere but nitrogen species are in continual equilibrium and being dynamic, are affected by physical and chemical changes (as of course is the percentage of ammonia in the un-ionized form). Instantaneous complete mixing has been assumed in the calculations. The real-life situation may be either better or worse than that estimate. However, if not proven by field studies it should at least be mathematically modeled.
- u) Table 14 strongly suggests that the 75th percentile (75^o) concentration of unionized ammonia has been calculated from the 75^o of total ammonia, the 75^o of pH and the 75^o of temperature. This is incorrect. Please ensure the procedure outlined in the Bluebook or CWQG is followed.
- v) Analysis within the mixing zone still needs to be done.
- w) Any new increased capacity for Drayton will include allowance for the appropriate precipitation volume. Precipitation (rainfall or snowmelt) is not a separate stream through the facility but forms part of the effluent.
- x) An assessment of the impact on Dissolved Oxygen in the River/Reservoir is still outstanding.

Conclusions and Recommendations

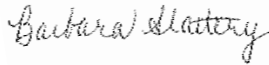
It appears that, in the latest version of the RWIA, the data now being used for streamflow (7Q₂₀) and water quality concentrations is correct. However, the calculations conducted on the data are still incorrect. The focus is on ammonia as the determining parameter but the calculations are erroneous. The GRCA has explained the errors in detail in their response. In addition to the detailed issues above, there are three major issues still outstanding with the current submission. These all need to be completely addressed before it is found to be acceptable:

- 1) An assessment of impact within the mixing zone (limited use zone/avoidance zone) for existing and projected future conditions as laid out under section 3.4 of the Bluebook and chapter 2.4 of the Greenbook.
- 2) The dilution ratio flows proposed for the months of January and February are not acceptable. While the Ministry and the municipality have been working to generate a reasonable dilution for treated effluent as evidenced in section 9(1) of the current ECA, the proposed ratios of 7.6:1 and 6.7:1 must be revised. The database is not robust enough to justify that minimal dilution for new months; the assessment is done solely on ammonia with grouping of environmental data because of the lack of winter-time data. The fact that December has a dilution of 6.1:1 is not attributable to acceptability but is related to the fact that sometime during the year Drayton had to discharge 273,750 m³ of treated effluent during a calendar year and this was assigned to December (at maximum discharge) simply because there was no capacity in October and November and discharges during March and April would likely be impounded in the Conestogo reservoir for the summer recreational period. Although the December discharge has been in place for some time, there is scant information to demonstrate that adverse impact has not occurred or does not continue to occur. The Ministry may be prepared to consider a staging of flow limits once it is demonstrated that a more conservative ratio causes no adverse effect to the aquatic environment (through adequate field studies).
- 3) The assessment of aquatic health is through assessment of the Dissolved Oxygen (DO) regime in lakes and rivers. The majority of aquatic species require dissolved oxygen to sustain their

presence. The Ministry regulates DO in the Bluebook PWQO as a minimum parameter, unlike other chemicals which are regulated as contaminants. DO is a dynamic entity affected by light, turbulence and interactions with chemical contaminants. The DO regime must be assessed over 24-hour cycles as the variation in DO is diurnal. The diurnal P&R cycle is depleted by oxygen-demanding substances either in the water column or discharged to the water column. In cases where new or expanded discharges are proposed, the current regime must be evaluated and deemed acceptable. Following that, the future scenario must be modeled to predict the changes (if any) that will occur from the addition of oxygen-demanding contaminant load to the receiver. For the largest part of the Grand River system, GRCA runs the Grand River Simulation Model to determine current and future impacts. Unfortunately, GRSM does not extend up the Conestogo River, so the consultant must employ another (similar) model to show the current level of impact on the system and predict the additional impact from the proposed future load. The consultant will have to determine the appropriateness of a lentic or lotic model (or some combination) given the presence of the residual pool in the Conestogo Reservoir. GRCA may be able to provide guidance into what would be appropriate, given their control of the reservoir and expertise with the GRSM tool.

It is suggested that questions or requests for clarification of these comments be made directly to Paul Odom at Paul.Odom@ontario.ca.

Regards,



Barbara Slattery
EA/Planning Coordinator

Copies to (via email only)

Ms Manpreet Dhesi (MOECC)
Mr. Mark Anderson (GRCA)
Mr. Brad McRoberts (Centre Wellington)

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: June-28-16 2:08 PM
To: 'Slattery, Barbara (MOECC)'; 'paul.odom@ontario.ca'
Cc: Dhesi, Manpreet (MOECC); Mark Anderson (manderson@grandriver.ca); Brad McRoberts (BMcRoberts@mapleton.ca); 'Arun Jain' (Arun.Jain@exp.com); Hui Wang; Jesse Newton
Subject: RE: Comments for Drayton Assimilative Capacity Assessment

Tracking:	Recipient	Delivery
	'Slattery, Barbara (MOECC)'	
	'paul.odom@ontario.ca'	
	Dhesi, Manpreet (MOECC)	
	Mark Anderson (manderson@grandriver.ca)	
	Brad McRoberts (BMcRoberts@mapleton.ca)	
	'Arun Jain' (Arun.Jain@exp.com)	Delivered: 28/06/2016 2:08 PM
	Hui Wang	Delivered: 28/06/2016 2:08 PM
	Jesse Newton	Delivered: 28/06/2016 2:08 PM

Hi Paul and Barb,

Thank you for your comments of June 22, 2016 on the Drayton WPCP Receiving Water Impact Assessment update (RWIA).

We have reviewed your comments and have a few questions of clarification. These are included below.

1. MOECC's comment (f) reads:

In Table 5, the monthly column needs to be replaced. The monthly flows were generally > 10:1 because the limit is a monthly average, measured weekly. The "dampening" therefore does not address individual variations and exceedances so the ratio needs to be conservative.

Can you please clarify? Table 5: Mapleton WPCP Current Permitted Effluent Discharge on Page 12 is a duplication of the approved final effluent discharge rate as presented in Section 9 of the WPCP's ECA. Is MOECC referring to a different table in the RWIA?

2. MOECC's comment (j):

MOECC's comment (j) notes that "the current proposal would result in poorer conditions for longer time periods" and that "The intent cannot be to drive completely mixed concentrations of un-ionized ammonia up to the PWQO and potentially make the Conestogo River full-width toxic, if and when 7Q20 conditions occur". Exp wishes to clarify that the MOECC understands that Section 6.2 describes the current (baseline) conditions and not the proposed, and that the proposed is presented in Section 8.

Also, just to clarify further, the resulting NH3 concentrations based on the proposed limits are presented in Table 14 (Section 8.2.1), which shows that the completely mixed concentrations of un-ionized ammonia are *not* being driven up

to PWQO and would not make the Conestogo River full-width toxic during 7Q20 conditions. On the contrary, Table 13 shows that, for months where discharge is currently allowed to occur, our current proposal reduces concentrations of un-ionized ammonia. Further, for the months of January and February where new discharge is proposed, concentrations of un-ionized ammonia would still be well below the PWQO.

With respect to the mathematical errors, we have reviewed these upon receiving GRCA's comments and have updated the tables (for the next release). The errors were minor, and while the resulting values have changed slightly (a few percentage points of % PWQO), the conclusion has not – the proposed discharge and limits improve river conditions with respect to un-ionized ammonia compared to existing.

3. MOECC'S comment (q) reads, in part:

An attempt has been made to maximize the discharge of the Drayton WPCP to the exclusion of any other dischargers to the system certainly at minimal dilution ratios and anticipation of discharge limits with fine tolerances.

Can MOECC please clarify? The current proposal is not being made to the exclusion of other dischargers, in that it does not maximize the PWQO for un-ionized ammonia under 7Q20 conditions. Also, as noted above, concentrations of un-ionized ammonia improve compared to the existing discharge scenario (this applies to the updated corrected tables as well).

4. MOECC'S comment (r) reads:

In table 11, the approach is not conservative. I/I will occur within the re-calculated 7Q20 limits for March, April and October. These limits shall not increase to allow I/I.

Can MOECC please clarify the comment? The proposed discharge limits would include I/I from Mapleton's wastewater collection system, and an allowance for precipitation into the lagoons is also accounted for. Is MOECC suggesting that the discharge limits not include I/I or precipitation?

Thank you once again for your comments on the RWIA, and we look forward to your clarifications.

Regards,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator

t: +1.905.793.9809 x2344 | e: jeanlouis.gaudet@exp.com

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Brampton, ON L6T 4V1

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From: Slattery, Barbara (MOECC) [<mailto:barbara.slattery@ontario.ca>]

Sent: June-22-16 12:47 PM

To: Dhesi, Manpreet (MOECC) <manpreet.dhesi@ontario.ca>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Brad McRoberts (BMcRoberts@mapleton.ca) <BMcRoberts@mapleton.ca>

Subject: Comments for Drayton Assimilative Capacity Assessment

Best regards to all,

Barb Slattery, EA/Planning Coordinator
Ministry of the Environment and Climate Change
West Central Region
(905) 521-7864

Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: July-18-16 10:17 AM
To: Odom, Paul (MOECC); Jean Louis Gaudet; Slattery, Barbara (MOECC)
Cc: Dhesi, Manpreet (MOECC); Brad McRoberts (BMcRoberts@mapleton.ca); Arun Jain; Hui Wang; Jesse Newton
Subject: RE: Comments for Drayton Assimilative Capacity Assessment

Hi, Paul

Just a follow up comment on your last point about net precipitation accumulating in the lagoons. As part of the CPE, we estimated the potential impact of net precipitation to be 149 m3/d on an annual average basis using data from Environment Canada Climate Normals. The actual amount of precipitation that may accumulate in any given year may be more or less depending on the conditions, e.g. the lagoons may accumulate more than 149 m3/d during cool, wet years or less than 149 m3/d during a hot, dry year. The impact of precipitation also has a seasonal affect where it is expected that the lagoons will lose water during the summer (e.g. gain storage capacity as a result of evaporation). Accumulation of net precipitation is expected to occur primarily during the cold weather months from October/November through April/May.

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge ON N1R 5W6
(519) 621-2761 ext 2226
www.grandriver.ca

From: Odom, Paul (MOECC) [<mailto:Paul.Odom@ontario.ca>]
Sent: Friday, July 15, 2016 2:08 PM
To: Jean Louis Gaudet; Slattery, Barbara (MOECC)
Cc: Dhesi, Manpreet (MOECC); Mark Anderson; Brad McRoberts (BMcRoberts@mapleton.ca); Arun Jain; Hui Wang; Jesse Newton
Subject: RE: Comments for Drayton Assimilative Capacity Assessment

Good Day Jean Louis,

I don't have the same numbering of MOECC comments in my memo as you (I don't have a copy of Barb's memo and she's off today) but I shall try to answer the questions **directly in the e-mail below.**

Paul

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]
Sent: July 13, 2016 7:00 AM
To: Slattery, Barbara (MOECC); Odom, Paul (MOECC)
Cc: Dhesi, Manpreet (MOECC); Mark Anderson (manderson@grandriver.ca); Brad McRoberts (BMcRoberts@mapleton.ca); Arun Jain; Hui Wang; Jesse Newton
Subject: Re: Comments for Drayton Assimilative Capacity Assessment

Hi Paul and Barb,

Just to follow-up, could we please have clarification to the MOECC's comments on the Mapleton RWIA, as per the e-mail included below?

Thank you,

Jean-Louis Gaudet
exp Services Inc.

Sent from my iPhone

On Jun 28, 2016, at 3:08 PM, Jean Louis Gaudet <jeanlouis.gaudet@exp.com> wrote:

Hi Paul and Barb,

Thank you for your comments of June 22, 2016 on the Drayton WPCP Receiving Water Impact Assessment update (RWIA).

We have reviewed your comments and have a few questions of clarification. These are included below.

1. MOECC's comment (f) reads:

In Table 5, the monthly column needs to be replaced. The monthly flows were generally > 10:1 because the limit is a monthly average, measured weekly. The "dampening" therefore does not address individual variations and exceedances so the ratio needs to be conservative.

Can you please clarify? Table 5: Mapleton WPCP Current Permitted Effluent Discharge on Page 12 is a duplication of the approved final effluent discharge rate as presented in Section 9 of the WPCP's ECA. Is MOECC referring to a different table in the RWIA?

Table 5 in this version is table 3 in the previous version which displayed a third column with m3/month. In the last draft, this column was removed. I'm just asking that this column be restored because it shows the information of exactly how much the facility had to discharge on an annual basis. While the m3/d is factual, the 3rd column showed a perspective.

2. MOECC's comment (j):

MOECC's comment (j) notes that "*the current proposal would result in poorer conditions for longer time periods*" and that "*The intent cannot be to drive completely mixed concentrations of un-ionized ammonia up to the PWQO and potentially make the Conestogo River full-width toxic, if and when 7Q20 conditions occur*". Exp wishes to clarify that the MOECC understands that Section 6.2 describes the current (baseline) conditions and not the proposed, and that the proposed is presented in Section 8.

Also, just to clarify further, the resulting NH₃ concentrations based on the proposed limits are presented in Table 14 (Section 8.2.1), which shows that the completely mixed concentrations of un-ionized ammonia are *not* being driven up to PWQO and would not make the Conestogo River full-width toxic during 7Q20 conditions. On the contrary, Table 13 shows that, for months where discharge is currently allowed to occur, our current proposal reduces concentrations of un-ionized ammonia.

Further, for the months of January and February where new discharge is proposed, concentrations of un-ionized ammonia would still be well below the PWQO.

With respect to the mathematical errors, we have reviewed these upon receiving GRCA's comments and have updated the tables (for the next release). The errors were minor, and while the resulting values have changed slightly (a few percentage points of % PWQO), the conclusion has not – the proposed discharge and limits improve river conditions with respect to un-ionized ammonia compared to existing.

Not sure where the first line comes from exactly. Exp's proposal is conceptually to discharge as much as possible without driving the fully mixed UIA concentration over the PWQO limit (with maybe a little leeway). So the design appears to be whatever flow at the design concentration results in a fully mixed UIA concentration of 0.0156 mg/l of ammonia as N₂.

The second quote comes from the point commencing "Section 6.2 discusses..." There is little data to statistically validate the concentrations in the river in the winter period and no data for the effluent (since it is kept in the cells) so the assessment is pure mass balance. With mathematical errors within table 7 its difficult to assess; however, taking it at face value, the assessment indicates that October (115%PWQO) and December (112% PWQO) are currently potentially toxic and close in April (96% PWQO). Given the potential variability in the existing dataset, these may be off. In the proposal from exp, the expected full-width, completely mixed concentrations (Table 9) are predicted to be 100%PWQO for October and November. Although these concentrations are mathematically predicted to be lower, given the database available, they may in reality be similar. The data from the winter should be lower intuitively because of the lower temperatures; however, there is not a statistically valid database to generate these % estimates with any certainty.

3. MOECC'S comment (q) reads, in part:

An attempt has been made to maximize the discharge of the Drayton WPCP to the exclusion of any other dischargers to the system certainly at minimal dilution ratios and anticipation of discharge limits with fine tolerances.

Can MOECC please clarify? The current proposal is not being made to the exclusion of other dischargers, in that it does not maximize the PWQO for un-ionized ammonia under 7Q20 conditions. Also, as noted above, concentrations of un-ionized ammonia improve compared to the existing discharge scenario (this applies to the updated corrected tables as well).

The assessment of assimilation goes beyond ammonia. Many parameters are dynamic and either dissipate or change forms over time and distance. Notwithstanding this, it cannot be assumed that the background concentrations will remain static for Mapleton at the Drayton discharge. The Conestogo River and its limited flow also has to accommodate expansions/possible expansions or new discharges elsewhere in the basin (the Greenbook's reserve capacity), particularly upstream of the reservoir. At this time, All-treat Farms and the Town of Arthur both have authorization to discharge contaminants to the Conestogo upstream of Drayton. While the data used in this study are valid for the current balance, Arthur is also planning expansion and increase of the discharge from its WPCP. This may increase the background concentrations above the Drayton outfall. Whatever capacity is claimed by Drayton will likely approach the maximum carrying capacity in the Conestogo and either provide no room for Arthur or

the combined discharges may cause or exacerbate water quality conditions below Drayton.

4. MOECC'S comment (r) reads:

In table 11, the approach is not conservative. I/I will occur within the re-calculated 7Q20 limits for March, April and October. These limits shall not increase to allow I/I.

Can MOECC please clarify the comment? The proposed discharge limits would include I/I from Mapleton's wastewater collection system, and an allowance for precipitation into the lagoons is also accounted for. Is MOECC suggesting that the discharge limits not include I/I or precipitation?

Table 11 is not conservative – the difference in ratios from current to proposed reduces the dilution. The low ratios of November and December are maintained but all others are to be reduced. For example, October (which has a hard time anyway), will be reduced from 13.1:1 to 10.2:1. What I tried to say was that excess precipitation generally occurs through the winter-spring period so the majority of the extraneous input will likely be discharged in the March-April timeframe and to lower ratios than at present. While the precipitation should not add contaminants, it has always been a portion of the existing discharge, as diluting water. I agree with exp that it has to be accounted for in the discharge. I just want to ensure we don't have to deal with any other "overcapacity" issues in the future. I presume that under a new operational scenario, any spring excess (above the discharge flows) can be kept in the cells and evaporated and/or discharged the following season without building up storage. From Table 11, the discharge is 528790 m³/y which is the equivalent of 1300 m³/d raw sewage plus 149 m³/d precipitation, etc. I haven't seen the CPE report but I presume GRCA has developed and supports this estimate.

Thank you once again for your comments on the RWIA, and we look forward to your clarifications.

Regards,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator
t: +1.905.793.9809 x2344 | e: jeanlouis.gaudet@exp.com
1595 Clark Boulevard
Brampton, ON L6T 4V1
Canada

exp.com | [legal disclaimer](#)

keep it green, read from the screen

From: Slattery, Barbara (MOECC) [<mailto:barbara.slattery@ontario.ca>]

Sent: June-22-16 12:47 PM

To: Dhesi, Manpreet (MOECC) <manpreet.dhesi@ontario.ca>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Brad McRoberts (BMcRoberts@mapleton.ca) <BMcRoberts@mapleton.ca>

Subject: Comments for Drayton Assimilative Capacity Assessment

Best regards to all,

Barb Slattery, EA/Planning Coordinator
Ministry of the Environment and Climate Change
West Central Region
(905) 521-7864

Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: August-26-16 3:30 PM
To: Jean Louis Gaudet
Subject: Environment Canada links

Hi, Jean Louis

As promised, here are the links to Environment Canada's climate normal. I would suggest using precipitation data from Glen Allen (very close to Drayton).

http://climate.weather.gc.ca/climate_normals/results_1981_2010_e.html?searchType=stnName&txtStationName=glen+allan&searchMethod=contains&txtCentralLatMin=0&txtCentralLatSec=0&txtCentralLongMin=0&txtCentralLongSec=0&stnID=4765&dispBack=1

The only evaporation data that I'm aware of is from the Waterloo Regional Airport. You should be aware that the precipitation data is given in mm/month, whereas the evaporation rates are given in mm/d (not sure why they do this, it just adds confusion). Click on the title for "Evaporation" and it will give you the metadata that describes how the data is reported and the period that was measured.

http://climate.weather.gc.ca/climate_normals/results_1981_2010_e.html?searchType=stnName&txtStationName=waterloo&searchMethod=contains&txtCentralLatMin=0&txtCentralLatSec=0&txtCentralLongMin=0&txtCentralLongSec=0&stnID=4832&dispBack=1

I recommend looking at the water balance on a monthly basis. As mentioned, this involves looking at the total input to the system (e.g. sewage + total precipitation) minus any withdrawal (e.g. discharge to the river or evaporation). This will tell you the net change in volume within the storage lagoons in any given month (e.g. will be negative during months when the effluent is being discharged and positive during months when it is being stored).

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge ON N1R 5W6
(519) 621-2761 ext 2226
www.grandriver.ca

Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: September-08-16 4:16 PM
To: Jean Louis Gaudet; Brad McRoberts
Cc: Arun Jain; Hui Wang; Jesse Newton
Subject: RE: Mapleton - RWIA update - Draft for Friday's meeting - Email 2 of 2
Attachments: Upper conestogo loads - summary of findings.docx; Mapleton WPCP RWIA Update v2016-08-23 Interim Draft_MAndersonComments.docx; reservoir operating policy - February 2004.pdf; Conestogo Operations Brief.doc

Hi, Jean Louis

I have attached a marked up version of the draft RWIA with some comments and suggested changes based on our discussions with Paul Odom in July. One other thing that he would like to see is a discussion of the potential impact (or lack thereof) on the Conestogo Reservoir but I have not had time to work on this yet. I have included a couple of references that may help to provide some context around how the reservoir is operated (e.g. filled with snow melt and runoff in the spring, slowly released through the summer and fall to maintain downstream flow).

I have also included a draft memo on total phosphorus loads to the Conestogo Reservoir. In my opinion, total phosphorus is the parameter of concern for impacts on the reservoir and this can be dealt with by comparing the estimated maximum TP load from the WWTP with the load from non-point sources (e.g. the WWTP loads are insignificant compared to approximately 17,000 kg/year coming from upstream sources).

Please note I will be out of the office next week. If you have any questions, give me a call tomorrow morning.

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge ON N1R 5W6
(519) 621-2761 ext 2226
www.grandriver.ca

From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: Tuesday, August 23, 2016 5:21 PM
To: Brad McRoberts
Cc: Mark Anderson; Arun Jain; Hui Wang; Jesse Newton
Subject: Mapleton - RWIA update - Draft for Friday's meeting - Email 2 of 2

Hi Brad,

Email 2 of 2

As noted in the previous e-mail, please find attached are the word documents: clean and with changes tracked (to see where major changes were made – minor changes are not tracked to keep the file readable).

Best regards,

Jean-Louis



Jean-Louis Gaudet

Project Coordinator

t: +1.905.793.9809 x 2344 | e: jeanlouis.gaudet@exp.com

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Brampton, ON L6T 4V1

CANADA

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Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: September-09-16 10:21 AM
To: Brad McRoberts; Arun Jain; Jean Louis Gaudet; Dave Chapman
(dchapman@cpoinc.on.ca); Jamie Morgan; Scott Craggs; Mohsen Karizmeh
Subject: RE: Wastewater Optimization
Attachments: 2016-09-19 MapletonWPCP_Agenda.docx

Hi, all

Here is a brief agenda for the meeting on September 19th.

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge ON N1R 5W6
(519) 621-2761 ext 2226
www.grandriver.ca

-----Original Appointment-----

From: Brad McRoberts [<mailto:BMcRoberts@mapleton.ca>]

Sent: Friday, September 9, 2016 8:36 AM

To: Brad McRoberts; Mark Anderson; Arun Jain; Jean Louis Gaudet; Dave Chapman (dchapman@cpoinc.on.ca); Jamie Morgan; Scott Craggs; Mohsen Karizmeh

Subject: Wastewater Optimization

When: Monday, September 19, 2016 1:00 PM-5:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Mapleton Council Chambers

Agenda

GRAND RIVER WATERSHED-WIDE WASTEWATER OPTIMIZATION PROGRAM

POTENTIAL TO RE-RATE MAPLETON WPCP

Monday, 19 September 2016

1:00 – 5:00 pm

Mapleton Council Chambers


7275 Sideroad 16

Drayton, ON

Objectives: Review background information and discuss an approach to determine the potential to re-rate the existing Mapleton WPCP to treat higher influent flow

Agenda:

1. Wastewater Optimization Program Mark Anderson
2. Review of December 2014 CPE study: Mark Anderson
 - updated information on plant performance
 - Performance Potential Graph
 - CPE Factors
3. Next steps/approach to define potential to re-rate the Mapleton WPCP All
4. Other business




Potential Rerating of Mapleton WPCP
Township of Mapleton | Class EA for Mapleton Wastewater Servicing

September 19, 2016

Outline

- Interim and long term objectives for plant rerating / expansion
- Rerating
 - BOD removal
 - TAN removal
 - TP removal
- Potential costs
- Required changes to ESR
- Timelines
- Next Steps



Potential Rerating of Mapleton WPCP | Sept 19, 2016
Township of Mapleton | Class EA for Mapleton Wastewater Servicing | exp ref. BRM-00605325-A0

2

Objectives

Interim: Rerate WPCP from 750 to ~900 m³/d

- Revise ESR to reflect interim phasing
- ECA amendment
- Rerating Report to support ECA amendment
- Minor capital works to facilitate rerating to ~900 m³/d

Ultimate: Upgrade WPCP to 1300 m³/d

- Additional environmental monitoring (Town / GRCA)
- **RWIA update (exp) + Mixing zone study (Town) to support 1300 m³/d rated capacity**
- ECA amendment
- Upgrade WPCP (All required capital works)

**To be discussed*



Understanding

Drivers

- Development – need increased WPCP capacity
- Financial – need cost effective, interim, phased solution

Approach

- Interim rerating from 750 to 900 m³/d
- Rerate existing plant with minimal capital works
- Additional environmental monitoring (Town/GRCA)



Background

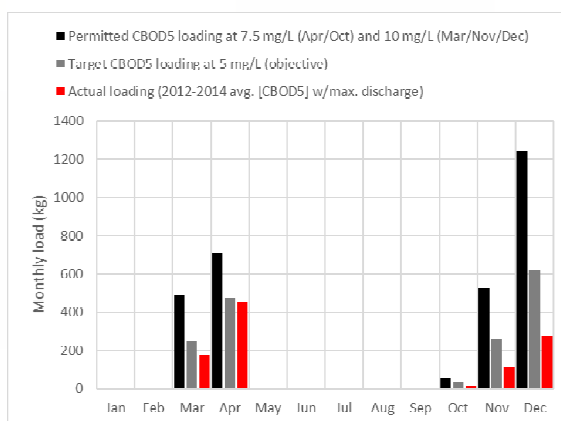
- Mapleton WPCP
 - Recent upgrades to effluent storage capacity
 - Current plant design intended for 950 m³/d (Phase 2B upgrades not undertaken)
 - ECA amended in January 2016, rated for 750 m³/d influent

- **exp's work**
 - Condition Assessment (final submission June 26, 2016)
 - Site visit on November 18, 2015
 - Preliminary Design Report (final submission June 27, 2016)
 - Upgrade plant capacity to 1300 m³/d
 - RWIA Update (latest draft August 23, 2016)
 - Rerating analysis
 - Initiated after meeting with Town/GRCA on August 26, 2016



Rerating – CBOD₅ load

Current (750 m³/d): Permitted vs. actual CBOD₅ effluent loading



Annual totals

Limit 3020 kg
Objective 1637 kg
Actual 1035 kg (2012-2014)
Actual 866 kg (2015)

Annual buffer ('12-'14)

Limit 1985 kg (66% left)
Obj. 602 kg (37% left)

Adequate buffer to allow BOD discharge at 900 m³/d (load=1242 kg/yr based on 2012-2014 performance)



Rerating – BOD removal

Blower capacity

- Existing blower capacity
 - One* at 680 m³/h at 45 kPa
(*three installed, one functional)
- Proposed equipment for 1300 m³/d
 - Three **blowers** at 1068 m³/h at 40 kPa
(2 duty, 1 standby)
- OCWA proposal
 - Air capacity of 1460 m³/hr (preliminary)
 - Design TBD
 - Standby provision not clear



Rerating – BOD removal

Blower capacity – OCWA proposal

- OCWA's proposal (March 24, 2016)
 - One 50 HP blower, or
Two 30 HP blower with VFD
 - Sizing TBD during design
- Is OCWA's proposal adequate to treat 900 m³/d influent?
 - Yes, blower capacity proposed by OCWA is adequate to treat 900 m³/d
 - **exp** recommends installing two blowers configuration for contingency
 - **exp** recommends leaving existing functioning blower as backup **if necessary**
- Is OCWA's proposal adequate to treat 1300 m³/d influent?
 - Yes, blower capacity proposed by OCWA is adequate to treat 1300 m³/d
 - **exp** recommends three blower configuration



Blower requirements

Physical scope	900 m ³ /d	1300 m ³ /d
Existing blowers.	<ul style="list-style-type: none"> - Remove the 2 out of service blowers. - Keep existing functioning blower as standby (?) 	<ul style="list-style-type: none"> - Removal all 3.
New blowers.	<ul style="list-style-type: none"> - Install 2 new with VFDs. 	<ul style="list-style-type: none"> - Install additional blower (2 duty, 1 standby).
Air piping inside blower building.	<ul style="list-style-type: none"> - Maintain. 	<ul style="list-style-type: none"> - Modify if necessary.
Exterior 200 mm dia. air supply pipe.	<ul style="list-style-type: none"> - Likely maintain (verify capacity). 	<ul style="list-style-type: none"> - Maintain existing, additional pipe may be required.
Laterals and diffusers.	<ul style="list-style-type: none"> - <i>To be verified (need existing drawings from Town).</i> 	<ul style="list-style-type: none"> - Install new laterals and fine bubble diffusers.



Blower requirements

exp's preliminary design for 1300 m³/d upgrade

Table 4-2 Proposed Treatment Lagoon Aeration System

Parameter	Value	Unit
Actual Oxygen Demand (AOR)	516	kg/d
Air requirement	35.6	m ³ /min
Number of blowers	3 (one standby)	units
<u>Blower capacity (each)</u>		
- Air flow	17.8 (1068)	m ³ /min (m ³ /hr)
- Pressure	40	kPa
- Motor HP	25	HP
- Power supply	600 v/60 Hz/3 ph	
Type of air diffusers	Fine bubble	



Blower sizing – 1300 m³/d

Page 1/2 – Calculate standard oxygen demand

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Sizing of aeration blowers													
4	Calculation of standard oxygen demand (SOD)													
5														
6	$RO_2 = \frac{AOR}{SOR} = \alpha DE \left(\frac{\beta(C_{i20} - C_1)}{C_{i20}} \right) 1.024^{(T-20)}$													
7	$C_{i20} = C_{i20} \frac{PS + 9.75 \times EODF \times (TWL - HSD)}{PS}$													
8														
9	$C_{i20} = C_{i20} \frac{PS + 9.75 \times EODF \times (TWL - HSD)}{PS}$													
10														
12	where AOR = Actual Oxygen Demand													
13	α (ALFA) = ALFA factor													
14	β (BETA) = BETA factor													
15	T = Design temperature													
16	DE = Efficiency of diffusers (0.8 - 1.0)													
17	C ₁ = Dissolved oxygen to be maintained in the mixed liquor													
18	C _{i20} = DO saturation concentration in clear water under standard condition (20°C, 1 atm, see Table 1)													
19	C ₁₂ = DO saturation concentration in clear water at 1 atm and design temperature (see Table 1)													
20	PS = Barometric pressure under standard condition (20°C, 1atm)													
21	PB = Barometric pressure under site condition (See Table 2)													
22	EODF = Effective depth factor (0.2 - 0.4)													
23	TWL = Top Water Level (m)													
24	HSD = Distance from the diffusers to basin bottom (m)													
25	C ₁₂₀ = DO saturation concentration in mix liquor under design temperature													
26	C ₁₂ = DO saturation concentration in clear water at 20°C, 1 atm and actual water depth													
27	RO2 = AOR/SOR ratio													
28	SOD = Calculated SOD													
											Summer	Winter		
											510.8	570.8	kg O ₂ /d	
											0.8	0.8		
											0.95	0.95		
											20	1.0 °C		
											0.9	0.9		
											2.0	2.0	mg/L	
											9.17	9.17	mg/L	
											9.17	14.23	mg/L	
											101.3	101.3	kPa	
											99.9	99.9	kPa	
											0.3	0.3	m	
											2.4	2.4	m	
											0.3	0.3	m	
											9.65	14.95	mg/L	
											9.73	9.73	mg/L	
											0.40	0.40		
											1.304	877	kg O ₂ /d	

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Blower sizing – 1300 m³/d

Page 2/2 – HP, air requirement, main air pipe size

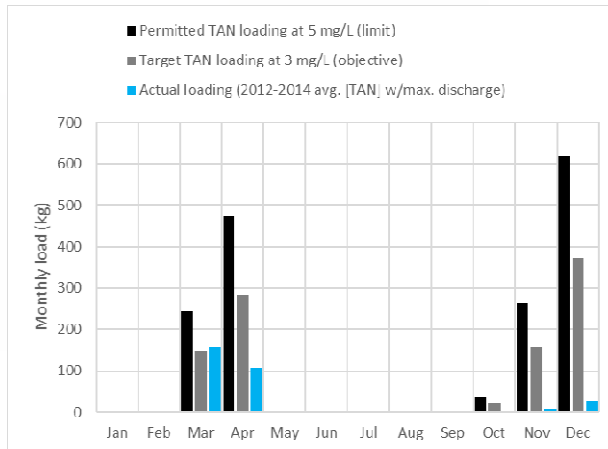
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Sizing of aeration blowers													
30	Calculation of air requirement and blower HP													
31														
32	D _{air} = Densité de l'air													
33	EFDif = Efficacité des diffuseurs													
34	OTE = Taux de transfert d'O ₂													
35	Ot = O ₂ à la surface													
36	OXT = Effective duration of aeration													
37														
38	Q _{air} = Air flow													
39														
40														
41														
42														
43	P _{blower} = Blower pressure													
44														
45														
46	E _{blower} = Efficacité de soufflante													
47	HP _{blower} = Blower HP													
48														
49	Sizing of main air pipe													
50	Pipe diameter													
51	Cross-sectional area													
52	Air flow velocity													
53														
54														
											1.205	1.205	kg/m ³	
											80%	80%		
											14%	14%		
											19%	19%		
											24	24	hr/d	
											36.20	24.33	m ³ /min	
											2.172	1.460	m ³ /hr	
											1.277	859	scfm	
											52.126		m ³ /d	
											4.94	4.94	psi	
											341	341	milibars	
											70%	70%		
											39.39	26.48	HP	
											200	200	mm	
											0.0314	0.0314	m ²	
											1.152	0.774	m/min	
											19.20	12.91	m/s	



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Rerating – TAN load

Current (750 m³/d): Permitted vs. actual effluent load



Annual totals
 Limit 1637 kg
 Objective 982 kg
 Actual 303 kg
 (2012-2014)
 Actual 46 kg (2015) (?)

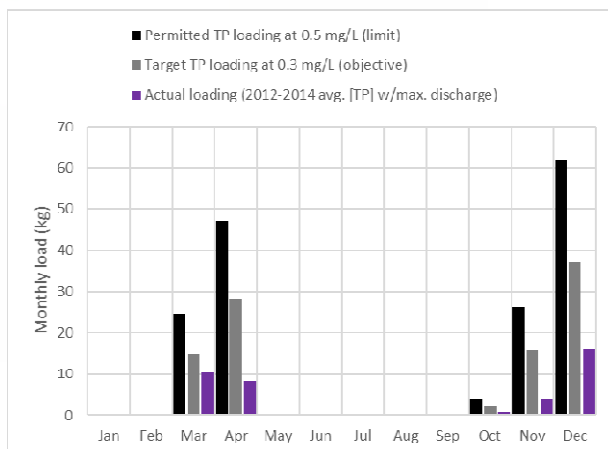
Annual buffer ('12-'14)
 Limit 1335 kg (82% left)
 Obj. 680 kg (69% left)

Adequate buffer to allow
 TAN discharge at 900 m³/d
 (364 kg/yr based on 2012-
 2014 performance)



Rerating – TP load

Current (750 m³/d): Permitted vs. actual effluent load



Annual totals
 Limit 164 kg
 Objective 98 kg
 Actual 39 kg
 (2012-2014)
 Actual 41 kg (2015)

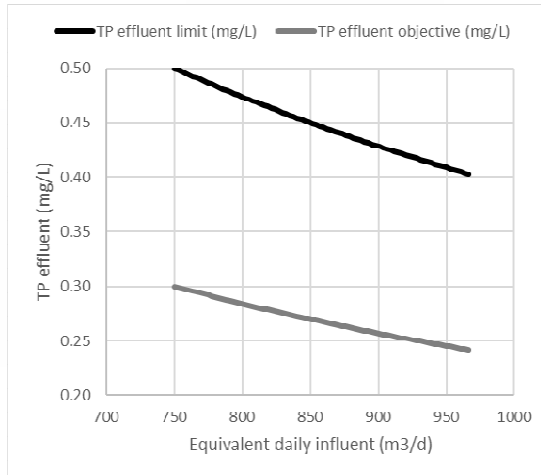
Annual buffer ('12-'14)
 Limit 125 kg (76% left)
 Obj. 59 kg (60% left)

Adequate buffer to allow
 TP discharge at 900 m³/d
 (49 kg/yr based on 2015
 performance)



Rerating – TP limit

TP effluent limit vs. rated capacity (annual TP effluent load = constant)

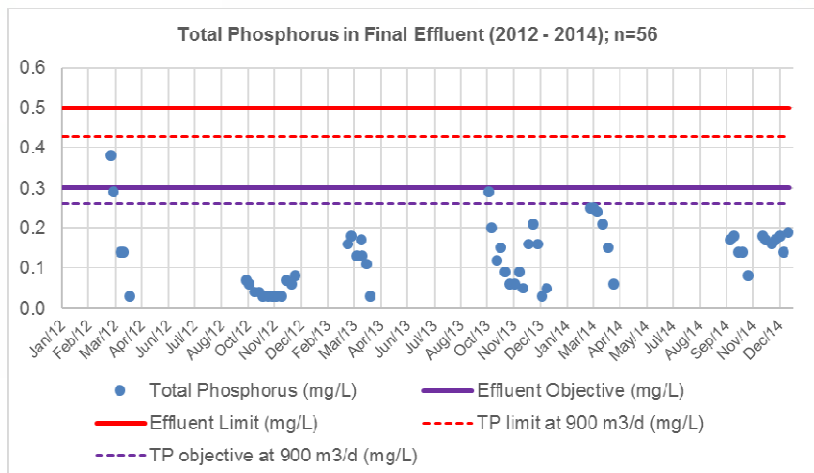


@ 900 m³/d influent
 Limit = 0.43 mg/L
 Objective = 0.26 mg/L

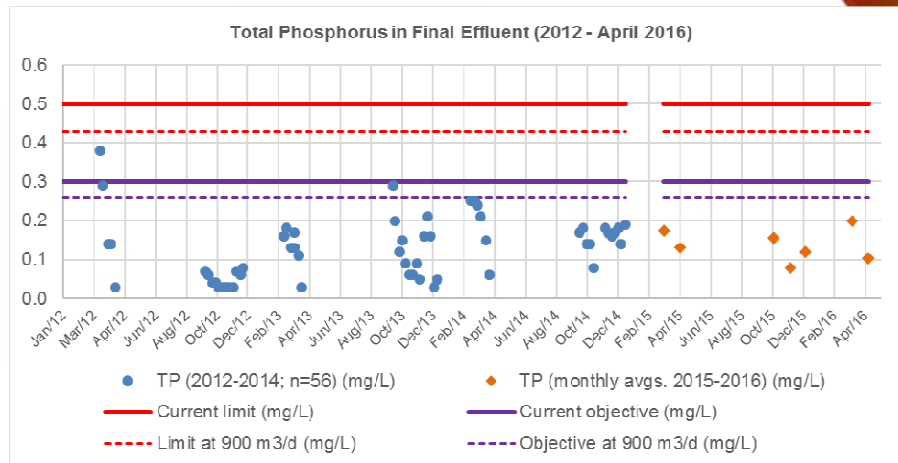
@ 950 m³/d influent
 Limit = 0.41 mg/L
 Objective = 0.25 mg/L



Rerating – TP removal



Rerating – TP removal



Rerating – TP removal

- Alum system → adequate capacity for 900 m³/d influent based on preliminary review.
- Currently, TP removal occurs via alum addition in the lagoons. P is precipitated and settles within lagoon. **This requires high dosing of alum at 113 mg/L (2015) as opposed to estimated required 50 mg/L.**
- Proposed TP Removal @ 900 m³/day:
 - Continue adding alum in lagoons
 - Potentially add alum before filters?
- Proposed TP Removal @ 1300 m³/day:
 - Alum should be dosed post-lagoons, and pre-filtration, to ensure maximum P suspension and subsequent removal
 - Potential to continue adding alum into lagoons as a safety factor



Capital costs – 750 to 900 m³/d

	A	B	C	D	E	F	I	J	K	L	M	N
1	Mapleton WWTP upgrades											
2	Cost estimation											
4	REVISED											
5	1. General and civil works						175,000 \$	Notes				
6	- Mobilization and demobilization						5,000 \$					
7	- Site office						5,000 \$					
11	Settling lagoon pumping station						100,000 \$	Proposed, at Town's discretion				
12	Repair existing flow control chambers						30,000 \$					
13	Ground leveling + clean up						10,000 \$					
14	Grass						5,000 \$					
17	Temporary works & piping during construction						20,000 \$					
19	2. Aerated lagoon aeration system						140,000 \$					
20	3 blowers						130,000 \$	Two blowers per OCWA proposal				
25	Remove existing blowers						10,000 \$	Remove two ex. Blowers that are not functioning.				
30	3. SAGR Reactor						0 \$					
43	4. Other mechanical works						0 \$					
49	5. New blower building + concrete works						0 \$					
50	Foundation						0 \$					
51	Building						0 \$					
52	Rapid mixing tank						0 \$					
53	Alum retention tank						0 \$					
54	7. Ventilation						0 \$					
55	8. Plumbing						0 \$					
57	6. Electrical works						50,000 \$					
59	7. Drayton SPS						0 \$					
60	replacing 2 submersible pumps											
62	Total						365,000 \$					

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- ## Required ESR Updates
- Section 1 Introduction – Minor edits
 - Section 2 Project Background - Update with 2015 data
 - Section 3 Problem/Opportunity Statement
 - Section 4 Alternative Solutions
 - Section 5.1 Alternative Treatment Designs
 - Section 5.2 Effluent Discharge – Describe proposed phasing
 - Section 6 Preferred Design Concept - Update with phasing approach
 - Section 7 Potential Impacts and Mitigation Measures – Minor edits
 - Section 8 Monitoring - Update with monitoring commitments related to phasing. Note mixing zone study and GRCA monitoring.
 - Section 9 Future Approval Requirements - Update with future steps including two step approval process
 - Section 10 Consultation Activities - Update to reflect ongoing MOECC/GRCA consultation as required
- Potential Rerating of Mapleton WPCP | Sept 19, 2016
Township of Mapleton | Class EA for Mapleton Wastewater Servicing | exp ref. BRM-00605325-A0

Workplan and Timeline

- | | |
|---|---------------|
| • Complete RWIA (exp) | October 2016 |
| • MOECC signoff on RWIA | November 2016 |
| • Update and file ESR (exp) | November 2016 |
| • Complete mixing zone study (Town) | Nov-Dec 2016 |
| • Rerating report (exp) | Oct-Nov 2016 |
| • File ECA amendment (900 m ³ /d) | Nov-Dec 2016 |
| ----- | |
| • Environmental monitoring | 2016-ongoing |
| • RWIA verification | TBD |
| • Detailed design for 1300 m ³ /d | TBD |
| • File ECA amendment (1300 m ³ /d) | TBD |



Potential Rerating of Mapleton WPCP | Sept 19, 2016
Township of Mapleton | Class EA for Mapleton Wastewater Servicing | exp ref. BRM-00605325-A0

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Next steps


- **Exp** – Prior to compiling report, present results to MOECC to come to preliminary agreement on approach.
 - **1:** Determine discharge volume based on river data (JL and Hui)
 - **2:** Determine plant process capacities, showing that 900+ is possible.
 - **Town:** Provide following data:
 - Shop drawings for diffusers and other sections (Hui to provide)
 - Lagoon modelling
 - Meet with MOECC in late October
- **Exp** – Complete RWIA as planned for 1300 m³/d, with new section with interim phasing to 900 m³/d.



Potential Rerating of Mapleton WPCP | Sept 19, 2016
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– Extra slides...




Potential Rerating of Mapleton WPCP | Sept 19, 2016
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– Update on exp's action items

Post August 26, 2016 meeting with Town, GRCA, exp

- Calculations, units have been re-checked
- GRCA's 2016 data has been processed
- Water budget
 - Precipitation and evaporation considerations...
- Phasing approach – Effluent limit and load calculations
- Optimization opportunities



Potential Rerating of Mapleton WPCP | Sept 19, 2016
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Optimization – Flow

Effluent flow limits per existing ECA (2016)

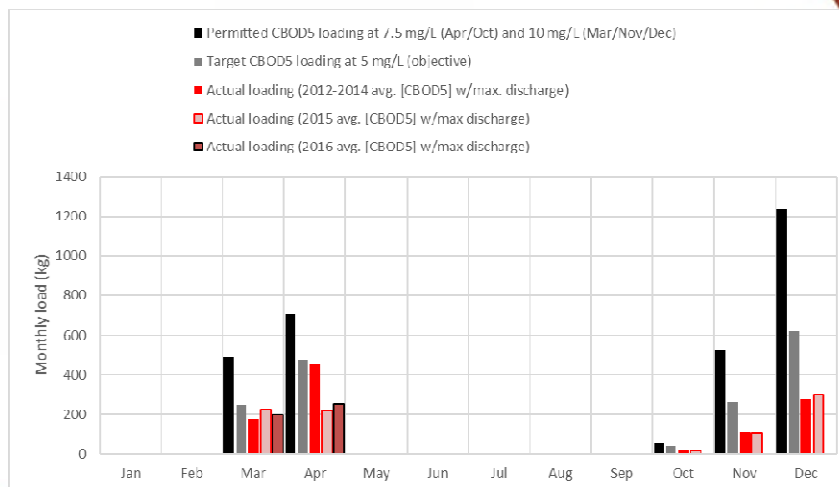
	Daily max. effluent flow (m3/d)	# days per month	Monthly max. effluent flow (m3)
Jan		0	31
Feb		0	28
Mar	1,581	31	49,011
Apr	3,154	30	94,620
May	0	31	0
Jun	0	30	0
Jul	0	31	0
Aug	0	31	0
Sep	0	30	0
Oct	233	31	7,223
Nov	1,754	30	52,620
Dec	4,000	31	124,000
Annual flow (m3/yr)			327,474
Equivalent daily average effluent (m3/d)			897
Rated capacity per Jan. 2016 ECA (m3/d)			750



Potential Rerating of Mapleton WPCP | Sept 19, 2016
Township of Mapleton | Class EA for Mapleton Wastewater Servicing | exp ref. BRM-00605325-A0

Rerating – CBOD₅ load

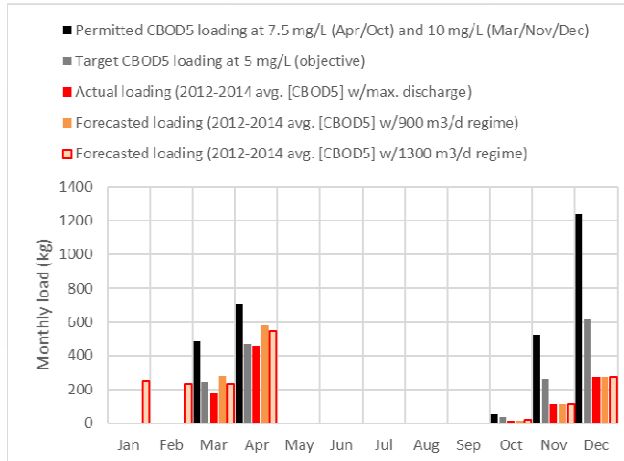
Current (750 m³/d): Permitted vs. actual CBOD₅ effluent loading



Potential Rerating of Mapleton WPCP | Sept 19, 2016
Township of Mapleton | Class EA for Mapleton Wastewater Servicing | exp ref. BRM-00605325-A0

Rerating/Upgrade – CBOD₅ load

Future: Permitted (750 m³/d) vs. est. actual CBOD₅ effluent load



Annual totals

Limit 3020 kg

Objective 1637 kg

Actual 1035 kg
(2012-2014)

Estimated load under 900 m³/d regime (using 2012-2014 concentrations):

1757 kg/yr

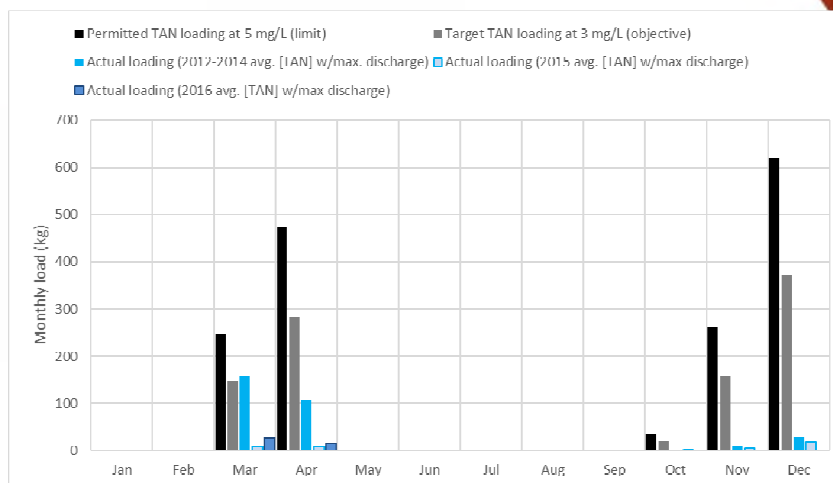
Estimated load under 1300 m³/d regime (using 2012-2014 concentrations):

1671 kg/yr



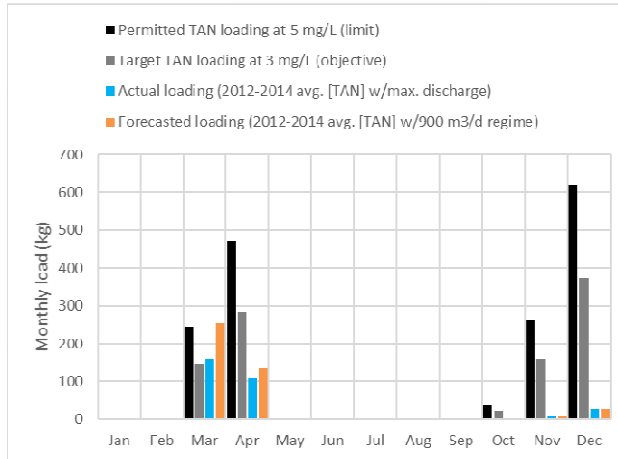
Rerating – TAN load

Current (750 m³/d): Permitted vs. actual effluent load



Rerating – TAN load

Future: Permitted (750 m³/d) vs. est. actual loading (900 m³/d)



Annual totals

Limit 1637 kg
 Objective 982 kg
 Actual 303 kg
 (2012-2014)

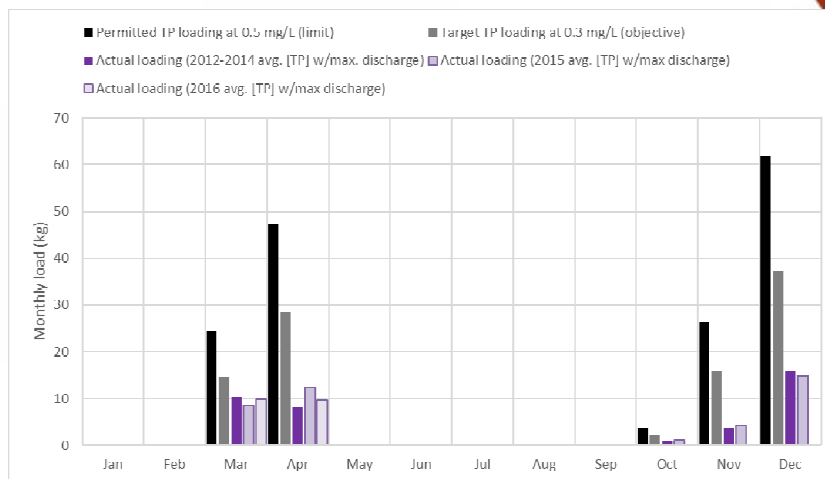
Estimated load under 900 m³/d regime (using 2012-2014 concentrations):
 426 kg/yr

→ Therefore, propose discharging modest flows in Jan and Feb (e.g. 900 m³/d)



Rerating – TP load

Current (750 m³/d): Permitted vs. actual effluent load





Projet Mapleton WPCP Class EA
Objet Wastewater Optimization Meeting

Dossier
Date Sept 19, 2016
Par

Sign-In

Jean-Louis Gaudet	exp
Mohsen Karizmeh	GRCA
David Chapman	CPO INC.
SCOTT CRAIGGS	OCWA.
Mark Anderson	GRCA.
Jamie Morgan	Mapleton
Brad McRoberts	Mapleton
Arun Jain	Exp
Hui WANG	Exp
Jesse Newton	exp

Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: September-19-16 6:21 PM
To: Hui Wang; Jesse Newton; Jean Louis Gaudet; Arun Jain
Cc: Brad McRoberts (bmcroberts@mapleton.ca); Jamie Morgan (jmorgan@mapleton.ca); Dave Chapman (dchapman@cpoinc.on.ca); Mohsen Karizmeh
Subject: RE: follow up from Mapleton WPCP meeting
Attachments: 131206 OM Manual for Drayton WWTP (rev 1).pdf

Hi, all

Here is a copy of the O&M manual that I had from the 2014 CPE project.

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge ON N1R 5W6
(519) 621-2761 ext 2226
www.grandriver.ca

From: Mark Anderson
Sent: Monday, September 19, 2016 5:30 PM
To: Hui Wang (hui.wang@exp.com); Jesse Newton (Jesse.Newton@exp.com); Jean Louis Gaudet (jeanlouis.gaudet@exp.com); Arun Jain (Arun.Jain@exp.com)
Cc: Brad McRoberts (bmcroberts@mapleton.ca); Jamie Morgan (jmorgan@mapleton.ca); Dave Chapman (dchapman@cpoinc.on.ca); Mohsen Karizmeh
Subject: follow up from Mapleton WPCP meeting

Hi, all

Here is a copy of the presentation that I gave today. I have also included some references for your information.

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Water Quality Engineer

Grand River Conservation Authority

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Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: September-19-16 5:33 PM
To: Hui Wang; Jesse Newton; Jean Louis Gaudet; Arun Jain
Cc: Brad McRoberts (bmcroberts@mapleton.ca); Jamie Morgan (jmorgan@mapleton.ca); Dave Chapman (dchapman@cpoinc.on.ca); Mohsen Karizmeh
Subject: follow up from Mapleton WPCP meeting
Attachments: 2016-09-12 MapletonWWTP_CPE_Presentation.pptx; 2011 EPA lagoon-pond-treatment.pdf

Hi, all

Here is a copy of the presentation that I gave today. I have also included some references for your information.

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority

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www.grandriver.ca

Jean Louis Gaudet

From: Arun Jain
Sent: November-16-16 2:41 PM
To: Mark Anderson (manderson@grandriver.ca)
Cc: 'bmcroberts@mapleton.ca'; Jamie Morgan (JMorgan@mapleton.ca); Jean Louis Gaudet; Jesse Newton
Subject: Mapleton WPCP - Proposed Interim Plant Rerating Memo
Attachments: 605325 Mapleton - Proposed Interim Rating Memo v2016-11-16.pdf; 605325 Mapleton WPCP Optimization 2016-09-19 (v04) Final.pdf

Mark,

Please find attached Proposed Interim Plant Rerating Memo for review by GRCA. We have already sent it to Township earlier today.

This memo provides a basis for an interim Phase 1 rerating of the Mapleton WPCP. In this memo, we analyze constraints related to (1) effluent discharge dilution ratio, and (2) lagoon storage capacity. Based on our analysis, an interim rerating capacity of up to 950 m³/d can be discussed.

Exp's Presentation slides from the September 19 Optimization Meeting are also attached for your ready reference. A quick recap of the proposed next step discussed at the meeting are as noted below:

1. Proposed Interim Plant Rerating Memo
 - a. Exp to determine interim plant rerating capacity based on analysis of total seasonal river flow volumes and precipitation from the historical record including possible discharge volumes Town / GRCA to circulate memo to MOECC and arrange for a meeting.
 - b. Town/GRCA / Exp to attend the MOECC meeting and get a path forward on achieving proposed interim plant rerating
2. Other:
 - a. Exp to revise ESR after consultation with MOECC.
 - b. Town/GRCA to complete mixing zone study; and provide to exp when complete.
 - c. Town to provide shop drawings for diffusers to exp
 - d. Town to provide previously completed lagoon modelling/treatment study to exp

Jean will also be in touch with you regarding the RWIA changes.

Regards,

Arun



Arun P. Jain, P.Eng., M.Eng.

Practice Lead - Linear Infrastructure, Central Ontario

exp Services Inc.

t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com

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Brampton, ON L6T 4V1

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Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: November-23-16 1:26 PM
To: Jesse Newton; Arun Jain
Cc: 'bmcroberts@mapleton.ca'; Jamie Morgan (JMorgan@mapleton.ca); Jean Louis Gaudet
Subject: RE: Mapleton WPCP - Proposed Interim Plant Rerating Memo
Attachments: AmmoniaRemovalEquation.xlsx; 2011 EPA lagoon-pond-treatment.pdf

Hi, all

Here is the spreadsheet that I used to create a simple model of ammonia removal in the lagoons, as described on page 26 of the Drayton CPE report (2015). The equations used in this spreadsheet were taken from the 2011 US EPA lagoon design manual (see pages 6-7 and Appendix C [note: some calculation errors have been noted in the appendix on page C-52]).

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority

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Cambridge ON N1R 5W6
(519) 621-2761 ext 2226
www.grandriver.ca

From: Jesse Newton [mailto:Jesse.Newton@exp.com]
Sent: Thursday, November 17, 2016 12:05 PM
To: Mark Anderson; Arun Jain
Cc: 'bmcroberts@mapleton.ca'; Jamie Morgan (JMorgan@mapleton.ca); Jean Louis Gaudet
Subject: RE: Mapleton WPCP - Proposed Interim Plant Rerating Memo

Hi Mark,

Yes, Item 2d. was in reference to the ammonia removal modelling/study.

Thanks very much.

Jesse Newton

Linear Infrastructure, Central Ontario
exp Services Inc.
t: +1.905.793.9800 | t: +1.905.573.4000 ext. 5034 | e: jesse.newton@exp.com
80 Bancroft Street, Hamilton, ON L8E 2W5 CANADA
exp.com | [legal disclaimer](#) | keep it green, read from the screen

From: Mark Anderson [mailto:manderson@grandriver.ca]
Sent: Thursday, November 17, 2016 11:42 AM
To: Arun Jain <Arun.Jain@exp.com>
Cc: 'bmcroberts@mapleton.ca' <bmcroberts@mapleton.ca>; Jamie Morgan (JMorgan@mapleton.ca) <JMorgan@mapleton.ca>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com>; Jesse Newton <Jesse.Newton@exp.com>
Subject: RE: Mapleton WPCP - Proposed Interim Plant Rerating Memo

Thanks, Arun

I should have some time next week to take a look at this and get back to you with any comments. Regarding the last action item listed below (2d.), is this referring to the ammonia removal modelling that was prepared as part of the 2015 CPE? If so, I can provide the spreadsheet that I put together using some basic design equations from the US EPA lagoon manual (2011).

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority

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PO Box 729
Cambridge ON N1R 5W6
(519) 621-2761 ext 2226
www.grandriver.ca

From: Arun Jain [<mailto:Arun.Jain@exp.com>]
Sent: Wednesday, November 16, 2016 2:41 PM
To: Mark Anderson
Cc: 'bmcroberts@mapleton.ca'; Jamie Morgan (JMorgan@mapleton.ca); Jean Louis Gaudet; Jesse Newton
Subject: Mapleton WPCP - Proposed Interim Plant Rerating Memo

Mark,

Please find attached Proposed Interim Plant Rerating Memo for review by GRCA. We have already sent it to Township earlier today.

This memo provides a basis for an interim Phase 1 rerating of the Mapleton WPCP. In this memo, we analyze constraints related to (1) effluent discharge dilution ratio, and (2) lagoon storage capacity. Based on our analysis, an interim rerating capacity of up to 950 m³/d can be discussed.

Exp's Presentation slides from the September 19 Optimization Meeting are also attached for your ready reference. A quick recap of the proposed next step discussed at the meeting are as noted below:

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 - b. Town/GRCA / Exp to attend the MOECC meeting and get a path forward on achieving proposed interim plant rerating
2. Other:
 - a. Exp to revise ESR after consultation with MOECC.
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 - c. Town to provide shop drawings for diffusers to exp
 - d. Town to provide previously completed lagoon modelling/treatment study to exp

Jean will also be in touch with you regarding the RWIA changes.

Regards,

Arun



Arun P. Jain, P.Eng., M.Eng.

Practice Lead - Linear Infrastructure, Central Ontario

exp Services Inc.

t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com

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Brampton, ON L6T 4V1

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Jean Louis Gaudet

From: Brad McRoberts <BMcRoberts@mapleton.ca>
Sent: May-16-17 10:59 AM
To: Arun Jain; Jean Louis Gaudet
Subject: FW: Mapleton Wastewater Capacity Environmental Assessment

Please forward the documents to Barbara and to Michael.

From: Slattery, Barbara (MOECC) [mailto:barbara.slattery@ontario.ca]
Sent: May-16-17 10:56 AM
To: Brad McRoberts <BMcRoberts@mapleton.ca>
Subject: RE: Mapleton Wastewater Capacity Environmental Assessment

Hello Brad,

Here is the contact information that you require:

Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
Hamilton, ON L8P 4Y7
Ph (905) 521-7734

The reports should be submitted now, then they will be assigned to a SW reviewer and will be reviewed as we get to them. After the reports have been reviewed and comments provided, the need for a meeting can be determined at that time.

From: Brad McRoberts [mailto:BMcRoberts@mapleton.ca]
Sent: May 16, 2017 8:29 AM
To: Slattery, Barbara (MOECC)
Cc: Arun Jain; Jean Louis Gaudet; Sam Mattina; Mark Anderson (manderson@grandriver.ca)
Subject: Mapleton Wastewater Capacity Environmental Assessment
Importance: High

Good Morning Barb,

Our consultants, exp, have completed the Environmental Assessment (EA) and Receiving Water Impact Assessment (RWIA) which now includes a Dye Tracer Study as per Paul Odom suggestion. We are aware that Paul Odom is no longer with the Ministry and we are looking to connect with his replacement.

We would like to set up an introductory meeting to submit the final EA and RWIA documents and to continue discussions regarding the opportunity to obtain some interim capacity which we were last discussing with Paul Odom before his departure.

Can you please provide me with a contact such that I can begin to arrange a date and time to meet with them and provide them with the background documents.

Any help would be much appreciated.

Brad McRoberts, MPA, P.Eng

CAO Clerk
Township of Mapleton
P.O. Box 160
7275 Sideroad 16
Drayton, Ontario
N0G 1P0

Phone (519) 638-3313 Ext 24
Toll Free 1-800-385-7248
Fax (519) 638-5113



www.mapleton.ca

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: May-17-17 11:05 AM
To: 'barbara.slattery@ontario.ca'; 'michael.spencer@ontario.ca'
Cc: 'Brad McRoberts'; 'Arun Jain' (Arun.Jain@exp.com); Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger
Subject: Mapleton WPCP EA - draft ESR
Attachments: Mapleton WPCP RWIA Update v2017-04 26 (reduced).pdf

Hi Barbara and Michael,

As per Barbara's correspondence with Brad, please find attached the RWIA for the Mapleton wastewater class EA.

The updated ESR will follow in a subsequent e-mail.

Regards,

JL



Jean-Louis Gaudet

Project Coordinator
t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com
80 Bancroft Street
Hamilton, ON L8E 2W5
CANADA

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Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: May-17-17 11:25 AM
To: 'barbara.slattery@ontario.ca'; 'michael.spencer@ontario.ca'
Cc: 'Brad McRoberts'; 'Arun Jain' (Arun.Jain@exp.com); Mark Anderson (manderson@grandriver.ca); 'Sam Mattina'; 'Paul Hinsperger'
Subject: RE: Mapleton WPCP EA - draft ESR
Attachments: 2017 04 03_Mapleton WW Servicing Class EA_ESR (DRAFT) V5.pdf

Hi Barbara and Michael,

Please find attached the draft ESR for the Mapleton wastewater class EA.

The appendices will follow in subsequent e-mails due to filesize.

Regards,

JL

Jean-Louis Gaudet | exp

Project Coordinator
t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com
80 Bancroft Street
Hamilton, ON L8E 2W5
Canada

exp.com | [legal disclaimer](#)

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From: Jean Louis Gaudet
Sent: May-17-17 11:05 AM
To: 'barbara.slattery@ontario.ca' <barbara.slattery@ontario.ca>; 'michael.spencer@ontario.ca' <michael.spencer@ontario.ca>
Cc: 'Brad McRoberts' <BMcRoberts@mapleton.ca>; 'Arun Jain' (Arun.Jain@exp.com) <Arun.Jain@exp.com>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>
Subject: Mapleton WPCP EA - draft ESR

Hi Barbara and Michael,

As per Barbara's correspondence with Brad, please find attached the RWIA for the Mapleton wastewater class EA.

The updated ESR will follow in a subsequent e-mail.

Regards,

JL



Jean-Louis Gaudet

Project Coordinator

t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com

80 Bancroft Street

Hamilton, ON L8E 2W5

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Jean Louis Gaudet

From: Arun Jain
Sent: June-13-17 8:55 AM
To: Spencer, Michael (MOECC); Jean Louis Gaudet; Slattery, Barbara (MOECC)
Cc: Brad McRoberts; Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC)
Subject: RE: Mapleton WPCP EA - draft ESR

Michael,

Thanks for your response. Jean would provide the required copies.

Township and us would however appreciate a meeting to discuss the any comments and close out of the Class EA so that the project can move into design and implementation phase.

Your thoughts on that possibility would be greatly appreciated.

Regards,

Arun



Arun P. Jain, P.Eng., M.Eng.

Practice Lead - Linear Infrastructure, Central Ontario
exp Services Inc.
t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
CANADA

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From: Spencer, Michael (MOECC) [mailto:Michael.Spencer@ontario.ca]
Sent: Tuesday, June 13, 2017 8:40 AM
To: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>
Cc: Brad McRoberts <BMcRoberts@mapleton.ca>; Arun Jain <Arun.Jain@exp.com>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>
Subject: RE: Mapleton WPCP EA - draft ESR

Hi Jean-Louis,

Thank you for the email. Can you please send hard copies of the reports to this office? We'll try to provide comments back sometime in July, if possible. Thanks.

Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
Hamilton, ON L8P 4Y7
Ph (905) 521-7734

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]
Sent: June 12, 2017 11:09 AM
To: Slattery, Barbara (MOECC); Spencer, Michael (MOECC)
Cc: Brad McRoberts; Arun Jain; Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger
Subject: RE: Mapleton WPCP EA - draft ESR

Good morning Barbara and Michael,

We wanted to touch base with you – how is your review of the Mapleton RWIA proceeding? Did you have any questions?

Would you be able to advise when we can expect to receive your comments?

Thank you,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator
t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com
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From: Jean Louis Gaudet
Sent: May-17-17 11:05 AM
To: 'barbara.slattery@ontario.ca' <barbara.slattery@ontario.ca>; 'michael.spencer@ontario.ca' <michael.spencer@ontario.ca>
Cc: 'Brad McRoberts' <BMcRoberts@mapleton.ca>; 'Arun Jain' (Arun.Jain@exp.com) <Arun.Jain@exp.com>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>
Subject: Mapleton WPCP EA - draft ESR

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The updated ESR will follow in a subsequent e-mail.

Regards,

JL



Jean-Louis Gaudet

Project Coordinator

t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com

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Jean Louis Gaudet

From: Spencer, Michael (MOECC) <Michael.Spencer@ontario.ca>
Sent: June-13-17 12:32 PM
To: Arun Jain; Jean Louis Gaudet; Slattery, Barbara (MOECC)
Cc: Brad McRoberts; Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC)
Subject: RE: Mapleton WPCP EA - draft ESR

Hi Arun, we can attend a meeting after our comments are completed to discuss further. Thanks.

Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
Hamilton, ON L8P 4Y7
Ph (905) 521-7734

From: Arun Jain [mailto:Arun.Jain@exp.com]
Sent: June 13, 2017 8:55 AM
To: Spencer, Michael (MOECC); Jean Louis Gaudet; Slattery, Barbara (MOECC)
Cc: Brad McRoberts; Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC)
Subject: RE: Mapleton WPCP EA - draft ESR

Michael,

Thanks for your response. Jean would provide the required copies.

Township and us would however appreciate a meeting to discuss the any comments and close out of the Class EA so that the project can move into design and implementation phase.

Your thoughts on that possibility would be greatly appreciated.

Regards,

Arun



Arun P. Jain, P.Eng., M.Eng.
Practice Lead - Linear Infrastructure, Central Ontario
exp Services Inc.
t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com
1595 Clark Blvd.

Brampton, ON L6T 4V1
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From: Spencer, Michael (MOECC) [<mailto:Michael.Spencer@ontario.ca>]
Sent: Tuesday, June 13, 2017 8:40 AM
To: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>
Cc: Brad McRoberts <BMcRoberts@mapleton.ca>; Arun Jain <Arun.Jain@exp.com>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>
Subject: RE: Mapleton WPCP EA - draft ESR

Hi Jean-Louis,

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Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
Hamilton, ON L8P 4Y7
Ph (905) 521-7734

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]
Sent: June 12, 2017 11:09 AM
To: Slattery, Barbara (MOECC); Spencer, Michael (MOECC)
Cc: Brad McRoberts; Arun Jain; Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger
Subject: RE: Mapleton WPCP EA - draft ESR

Good morning Barbara and Michael,

We wanted to touch base with you – how is your review of the Mapleton RWIA proceeding? Did you have any questions?

Would you be able to advise when we can expect to receive your comments?

Thank you,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator
t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com
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Canada

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From: Jean Louis Gaudet
Sent: May-17-17 11:05 AM

To: 'barbara.slattery@ontario.ca' <barbara.slattery@ontario.ca>; 'michael.spencer@ontario.ca' <michael.spencer@ontario.ca>

Cc: 'Brad McRoberts' <BMcRoberts@mapleton.ca>; 'Arun Jain' (Arun.Jain@exp.com) <Arun.Jain@exp.com>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>

Subject: Mapleton WPCP EA - draft ESR

Hi Barbara and Michael,

As per Barabara's correspondence with Brad, please find attached the RWIA for the Mapleton wastewater class EA.

The updated ESR will follow in a subsequent e-mail.

Regards,

JL



Jean-Louis Gaudet

Project Coordinator

t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com

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Hamilton, ON L8E 2W5

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June 16, 2017

Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Floor
Hamilton, ON L8P 4Y7

Re: 605325 Mapleton Wastewater Class EA
Receiving Water Impact Assessment

Dear Mr. Spencer:

As requested, please find enclosed hard copies of the Receiving Water Impact Assessment, prepared for the Mapleton Wastewater Class EA (2 bound copies, 1 unbound).

Sincerely,

Jean-Louis Gaudet
Project Coordinator

exp Services Inc.

enc.

Jean Louis Gaudet

From: Brad McRoberts <BMcRoberts@mapleton.ca>
Sent: July-25-17 7:53 AM
To: Spencer, Michael (MOECC); Jean Louis Gaudet
Cc: Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC); Arun Jain; Slattery, Barbara (MOECC)
Subject: RE: Mapleton WPCP EA - Revised RWIA

Michael,

Thanks!

From: Spencer, Michael (MOECC) [mailto:Michael.Spencer@ontario.ca]
Sent: July-25-17 7:44 AM
To: Brad McRoberts <BMcRoberts@mapleton.ca>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com>
Cc: Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>; Arun Jain <Arun.Jain@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>
Subject: RE: Mapleton WPCP EA - Revised RWIA

Hi Brad and Jean-Louis, thank you for the emails. I will be starting the review this week. Thanks.

Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
Hamilton, ON L8P 4Y7
Ph (905) 521-7734

From: Brad McRoberts [mailto:BMcRoberts@mapleton.ca]
Sent: July 21, 2017 11:01 AM
To: Jean Louis Gaudet; Spencer, Michael (MOECC)
Cc: Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC); Arun Jain; Slattery, Barbara (MOECC)
Subject: RE: Mapleton WPCP EA - Revised RWIA

Michael,

I recognize political environments are not your concern but Township staff and even our Council are getting a lot of pressure to move this project forward. Any efforts to provide a timely response on your thoughts on the EA and RWIA would be greatly appreciated.

From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: July-21-17 10:38 AM
To: Spencer, Michael (MOECC) <Michael.Spencer@ontario.ca>
Cc: Brad McRoberts <BMcRoberts@mapleton.ca>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>; Arun Jain <Arun.Jain@exp.com>; Slattery, Barbara (MOECC)

<barbara.slattery@ontario.ca>

Subject: Mapleton WPCP EA - Revised RWIA

Good morning, Michael,

I thought I would follow-up with you regarding your review of the RWIA report prepared in support of the Mapleton Wastewater Class EA.

As per your request, we sent you hard copies of the RWIA back in June, and we were wondering if MOECC had completed its review and if a meeting to discuss the report can be scheduled.

Thanks Michael,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator

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From: Spencer, Michael (MOECC) [<mailto:Michael.Spencer@ontario.ca>]

Sent: June-13-17 12:32 PM

To: Arun Jain <Arun.Jain@exp.com>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>

Cc: Brad McRoberts <BMcRoberts@mapleton.ca>; Mark Anderson (manderson@grandriver.ca)

<manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>

Subject: RE: Mapleton WPCP EA - draft ESR

Hi Arun, we can attend a meeting after our comments are completed to discuss further. Thanks.

Michael Spencer

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Ph (905) 521-7734

From: Arun Jain [<mailto:Arun.Jain@exp.com>]

Sent: June 13, 2017 8:55 AM

To: Spencer, Michael (MOECC); Jean Louis Gaudet; Slattery, Barbara (MOECC)

Cc: Brad McRoberts; Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC)

Subject: RE: Mapleton WPCP EA - draft ESR

Michael,

Thanks for your response. Jean would provide the required copies.

Township and us would however appreciate a meeting to discuss the any comments and close out of the Class EA so that the project can move into design and implementation phase.

Your thoughts on that possibility would be greatly appreciated.

Regards,

Arun



Arun P. Jain, P.Eng., M.Eng.

Practice Lead - Linear Infrastructure, Central Ontario

exp Services Inc.

t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com

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From: Spencer, Michael (MOECC) [<mailto:Michael.Spencer@ontario.ca>]

Sent: Tuesday, June 13, 2017 8:40 AM

To: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>

Cc: Brad McRoberts <BMcRoberts@mapleton.ca>; Arun Jain <Arun.Jain@exp.com>; Mark Anderson <manderson@grandriver.ca> <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>

Subject: RE: Mapleton WPCP EA - draft ESR

Hi Jean-Louis,

Thank you for the email. Can you please send hard copies of the reports to this office? We'll try to provide comments back sometime in July, if possible. Thanks.

Michael Spencer

Surface Water Group Leader

Ministry of Environment and Climate Change

119 King Street West, 12th Flr

Hamilton, ON L8P 4Y7

Ph (905) 521-7734

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]

Sent: June 12, 2017 11:09 AM

To: Slattery, Barbara (MOECC); Spencer, Michael (MOECC)

Cc: Brad McRoberts; Arun Jain; Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger

Subject: RE: Mapleton WPCP EA - draft ESR

Good morning Barbara and Michael,

We wanted to touch base with you – how is your review of the Mapleton RWIA proceeding? Did you have any questions?

Would you be able to advise when we can expect to receive your comments?

Thank you,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator
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From: Jean Louis Gaudet

Sent: May-17-17 11:05 AM

To: 'barbara.slattery@ontario.ca' <barbara.slattery@ontario.ca>; 'michael.spencer@ontario.ca' <michael.spencer@ontario.ca>

Cc: 'Brad McRoberts' <BMcRoberts@mapleton.ca>; 'Arun Jain' (Arun.Jain@exp.com) <Arun.Jain@exp.com>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>

Subject: Mapleton WPCP EA - draft ESR

Hi Barbara and Michael,

As per Barbara's correspondence with Brad, please find attached the RWIA for the Mapleton wastewater class EA.

The updated ESR will follow in a subsequent e-mail.

Regards,

JL



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Jean Louis Gaudet

From: Spencer, Michael (MOECC) <Michael.Spencer@ontario.ca>
Sent: August-09-17 7:49 AM
To: Brad McRoberts; Jean Louis Gaudet
Cc: Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC); Arun Jain; Slattery, Barbara (MOECC)
Subject: RE: Mapleton WPCP EA - Revised RWIA

Hi Brad, thank you for your email. I have started my review but have not finished it yet. I will provide comments once my review is complete. I have been out of the office recently since I was chosen as a juror for a criminal trial and the trial started immediately on that day. It was unexpected since as Provincial Officers we generally don't get chosen. I will get back to you when my review is completed. Thanks.

Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
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Ph (905) 521-7734

From: Brad McRoberts [mailto:BMcRoberts@mapleton.ca]
Sent: August 08, 2017 3:34 PM
To: Spencer, Michael (MOECC); Jean Louis Gaudet
Cc: Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC); Arun Jain; Slattery, Barbara (MOECC)
Subject: RE: Mapleton WPCP EA - Revised RWIA

Michael,

Wondering how your review is progressing and if we could start scheduling a meeting between the parties before the end of August to discuss any comments and to further continue our previous discussions with Paul Odom on interim capacity approval.

Please let us know what dates might work for you and we will attempt to find a common date with our team.

Thanks

Brad McRoberts, MPA, P.Eng

CAO Clerk
Township of Mapleton
P.O. Box 160
7275 Sideroad 16
Drayton, Ontario
N0G 1P0

Phone (519) 638-3313 Ext 24

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Fax (519) 638-5113



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From: Spencer, Michael (MOECC) [<mailto:Michael.Spencer@ontario.ca>]

Sent: July-25-17 7:44 AM

To: Brad McRoberts <BMcRoberts@mapleton.ca>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com>

Cc: Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>; Arun Jain <Arun.Jain@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>

Subject: RE: Mapleton WPCP EA - Revised RWIA

Hi Brad and Jean-Louis, thank you for the emails. I will be starting the review this week. Thanks.

Michael Spencer

Surface Water Group Leader

Ministry of Environment and Climate Change

119 King Street West, 12th Flr

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Jean-Louis Gaudet | exp

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Ministry of Environment and Climate Change

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Cc: Brad McRoberts; Arun Jain; Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger
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From: Jean Louis Gaudet

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To: 'barbara.slattery@ontario.ca' <barbara.slattery@ontario.ca>; 'michael.spencer@ontario.ca' <michael.spencer@ontario.ca>

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Subject: Mapleton WPCP EA - draft ESR

Hi Barbara and Michael,

As per Barabara's correspondence with Brad, please find attached the RWIA for the Mapleton wastewater class EA.

The updated ESR will follow in a subsequent e-mail.

Regards,

JL



Jean-Louis Gaudet

Project Coordinator
t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com
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Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: August-14-17 9:43 AM
To: Jean Louis Gaudet; 'barbara.slattery@ontario.ca'; michael.spencer@ontario.ca
Cc: Brad McRoberts; Arun Jain; Sam Mattina; Paul Hinsperger; Jason Wagler; Sandra Cooke
Subject: RE: Mapleton WPCP EA - draft ESR
Attachments: 2017-08-12 MEM CommentsOnMapletonWastewaterESR.DOCX

Hi, all

I apologize for not providing these comments earlier, here are my thoughts on the draft ESR.

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge ON N1R 5W6
(519) 621-2761 ext 2226
www.grandriver.ca

From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: May 17, 2017 11:25 AM
To: 'barbara.slattery@ontario.ca'; michael.spencer@ontario.ca
Cc: Brad McRoberts; Arun Jain; Mark Anderson; Sam Mattina; Paul Hinsperger
Subject: RE: Mapleton WPCP EA - draft ESR

Hi Barbara and Michael,

Please find attached the draft ESR for the Mapleton wastewater class EA.

The appendices will follow in subsequent e-mails due to filesize.

Regards,

JL

Jean-Louis Gaudet | exp

Project Coordinator
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Grand River Conservation Authority - Memorandum

File Number: Mapleton Wastewater Servicing Class EA

Date: 12 August 2017

To: Michael Spencer, MOECC West Central Region

From: Mark Anderson

Cc: Sandra Cooke, Jason Wagler

Re: Comments on Draft Environmental Study Report for Mapleton Wastewater Servicing Class EA

The following comments are based on a review of the draft report entitled "Mapleton Wastewater Servicing Class EA Environmental Study Report" prepared by exp Services Inc., dated 3 April 2017.

- The Conestogo River at Drayton is a Policy 2 receiver for total phosphorus. The ESR and supporting Receiving Water Impact Assessment (Appendix B) provide potential solutions to maintain or reduce the loading of phosphorus from the Mapleton Water Pollution Control Plant (WPCP) that are affordable for the community. From a watershed perspective, the Mapleton WPCP is only one of many sources of total phosphorus loading to the Conestogo River and reservoir. Future efforts should consider a more holistic look at the cumulative stresses on the upper Conestogo watershed. This may allow other, more cost-effective solutions to address water quality issues, for example by focusing effort on reducing non-point source pollution rather than spending large amounts of money on wastewater treatment to achieve a small reduction in phosphorus loading.
- The capacity of the existing sewage pumping stations is based on a peak hour factor of 4 (see page 21). It is unclear where this number came from but it appears to be too low. Based on data presented in Tables 4 and 5, the recorded peak day flow in 2013 was 2,622 m³/d but the calculated peak hour is only 2,497 m³/d. In the absence of measured hourly peak flows, it is difficult to assess the capacity of the existing pump station but it is likely that the Drayton sewage pumping station will need to be expanded in the near future. Based on the recent flood event in Drayton on June 23, 2017, it would be interesting to know if the Drayton pump station experienced any problems or overflows due to extreme high flows which would suggest an existing lack of peak capacity at this pump station. It would also be important to start measuring and recording hourly flows in Drayton to determine appropriate peaking factors for future design of an expanded pump station.
- The preferred alternative is to install two SAGR units in the existing Cell 1. There is no discussion of how the loss of volume in Cell 1 may impact the performance of this cell.

There is no discussion of the current performance of Cell 1 or how this may change in the future with a reduced volume.

- The alternative treatment designs presented refer to a new alum mixing tank but this is not shown on any of the concept diagrams. It is assumed that the detailed design would consider options to optimize the use of existing infrastructure, e.g. adding additional mixing at the existing alum injection site in the inlet chamber to Flow Control Structure A, before constructing additional tankage.
- The preferred alternative includes a phased approach to increase capacity in the interim by optimizing the existing plant and process. In addition to the items listed on page 62, optimizing the treatment system should include enhancing operating procedures and process control monitoring to ensure that the plant operator has the information available to make sound operating decisions to maintain compliance and produce a high quality effluent.
- On a similar note, Section 8.3 on page 66 refers to maintaining plant operational monitoring according to the existing ECA. The monitoring requirements outlined in the ECA are considered the minimum required and it is recommended that process control monitoring be reviewed to determine if there are opportunities for the plant operator to be collecting more comprehensive information on the process on which to make sound operating decisions.

Jean Louis Gaudet

From: Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>
Sent: August-23-17 9:41 AM
To: Arun Jain; Spencer, Michael (MOECC); Brad McRoberts; Jean Louis Gaudet
Cc: Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC)
Subject: RE: Mapleton WPCP EA - Revised RWIA
Attachments: Drayton WPCP 16015.docx

Good Day to all,

We have completed our review of the most recent submission, specifically the *Receiving Water Impact Assessment* prepared by exp Services Inc. and have prepared the following comments outlining our remaining concerns. As you may be aware, Paul Odom has retired after many years of distinguished service with this Region so to provide context, we have prefaced our comments on the 2017 submission by including a brief review of Paul's comments as they served as the basis for the 2017 work.

June 22, 2016 Ministry Correspondence

The Ministry had previously reviewed the following report:

Mapleton WPCP EA, *Receiving Water Impact Assessment*, exp Services Inc., April 20, 2016.

and provided comments on this report in a June 22, 2016 letter, RE: Drayton WPCP April 2016 Receiving Water Impact Assessment, from Barbara Slattery, Environmental Assessment and Planning Coordinator and based on the technical review by Paul Odom.

The last Ministry correspondence contained a Comments section and a Conclusions and Recommendations section. We reviewed the April 2017 report to determine whether the previously identified concerns/comments had been adequately addressed. For your information, the complete June 22, 2016 correspondence is attached to this email. For ease, comments which are either unresolved, or which require some form of action have been **bolded**.

June 22, 2016 Comments

Our review of the April 2017 report, concludes the following with respect to the resolution of concerns raised following the review of the April 2016 RWIA:

- a) This comment has been addressed since an allowance for precipitation was incorporated into the assessment.
- b) No further comment is required.
- c) This comment has been addressed since un-ionized ammonia was consistently referenced.

- d) This comment has been addressed in Table 3 using “>=” and “passing” for dissolved oxygen instead of the 75th percentile.
- e) No further comment is required.
- f) No further comment is required.
- g) This comment has been addressed in Section 7.3 with a precipitation allowance.
- h) This comment has been addressed in Section 6.1 using the rated capacity.
- i) No further comment is required.
- j) The comment concerning the point of complete mixing was addressed in Section 8.7 with the dye tracer study.

The comment about mixed concentrations of un-ionized ammonia up to the PWQO was addressed in Table 15 (and when compared to Table 8) with un-ionized ammonia concentrations after mixing being less than the PWQO.

- k) In regards to potentially toxic conditions within the mixing zone, historically the Ministry has procedurally used an un-ionized ammonia concentration of 0.1 mg/L as an end of pipe non-toxic value for effluent. Table 15 identifies end of pipe effluent concentrations for un-ionized ammonia in April at 0.1236 mg/L and in October at 0.1308 mg/L which exceed the Ministry’s procedural non-toxic value. As such, a non-toxic un-ionized ammonia effluent concentration not exceeding 0.1 mg/L should be incorporated into the report.**
- l) This comment has been addressed in Section 6.3 as the effluent quality data was updated to April 2016.
- m) No further comment is required.
- n) This comment has been addressed in Section 6.3.3 with an explanation of the exceedances.
- o) This comment was not addressed in Section 6.3.8 as it did not identify if there is data that demonstrates the absence of H₂S since the installation of the cascade aerator (2008).**
- p) This comment has been addressed in Section 7.1 in regards to ammonia.
- q) No further comment is required.
- r) This comment has been addressed with the precipitation allowance.
- s) This comment has been addressed in Section 8 with the proposed discharge regime assessment.
- t) Similar to comment k) above, historically the Ministry has procedurally used an un-ionized ammonia concentration of 0.1 mg/L as an end of pipe non-toxic value for effluent. Table 15 identifies end of pipe effluent concentrations for un-ionized ammonia**

in April at 0.1236 mg/L and in October at 0.1308 mg/L which exceed the Ministry's procedural non-toxic value. As such, a non-toxic un-ionized ammonia effluent concentration not exceeding 0.1 mg/L should be incorporated into the report.

- u) This comment has been addressed since Table 15 identified that the 75th percentile un-ionized ammonia was calculated using individual total ammonia nitrogen with observed field pH and field temperature.
- v) This comment has been addressed in Section 8.7 in regards to mixing zone.
- w) This comment has been addressed since the report incorporated a precipitation allowance.
- x) This comment has been addressed in Section 8.4 with a total oxygen demand assessment and discussion.

In summary, based on the review of the April 2017 report in comparison to the Comments section in the June 22, 2016 Ministry correspondence, comment o) was not addressed, and comments k) and t) should be further addressed with the additional guidance provided. All other comments have been addressed.

June 22, 2016 Conclusions and Recommendations

Based on the review of the April 2017 report, we offer the following comments in order of the Conclusions and Recommendations section in the June 22, 2016 Ministry correspondence. Again, outstanding items are in **bold**:

- 1) This comment has been addressed in Section 8.7 in regards to limited use zone/avoidance zone.
- 2) **This comment has not been addressed since the April 2017 report still contains dilution ratios for January and February that were identified as unacceptable in the June 22, 2016 Ministry correspondence. Procedurally, the Ministry has accepted minimum dilution ratios of 10:1 at other sites dependent on the site specific assimilative capacity assessment. It is our understanding that the GRCA is undertaking a monitoring program to fill in the winter water quality data gaps and may be able to provide additional direction to address this.**
- 3) This comment has been addressed in Section 8.4 in regards to dissolved oxygen.

Additional Comments on April 2017 Report

We also offer the following additional comments as items which require further work:

- 1. The April 2017 report assessed the total phosphorus effluent limit concentrations and loadings (compliance criteria) to the Ministry's surface water quality Policy 2. The report should also assess the total phosphorus effluent objective concentrations and loadings (conformance criteria) to verify that Policy 2 is also met for design purposes.

2. The April 2017 report provided a summary of the completed dye tracer study completed by Hutchinson Environmental Sciences Ltd. in Section 8.7. The full study report should be included as an appendix for review.
3. Section 9 Interim Phasing of the April 2017 report proposed an interim phasing plan due to the limited river water quality data for January and February.
 - (a) Phase 1 proposed an interim rating of about 900 m³/day to be achieved by rerating the existing Mapleton WPCP by optimization. This would meet the Township's current need and provide additional winter river water quality monitoring to be completed by the GRCA. The Phase 1 proposal is conceptionally acceptable provided it is confirmed that the Ministry Surface Water Policies 1 and 2 are met as outlined in the Ministry document "*Water Management Policies, Guidelines, PWQO of the MOEE, July 1994*".
 - (b) Phase 2 proposed an increase of the Mapleton WPCP rated capacity to 1300 m³/day with the preferred design and once sufficient data has been collected to assess the potential impact of a January and February discharge. The acceptance of the Receiving Water Impact Assessment is dependent upon whether the outstanding comments from the June 21, 2016 Ministry correspondence are addressed and whether the additional comments in this review are addressed.

This concludes our comments. Technical questions and points of clarifications should be directed to Michael Spencer, who will now have carriage of this file. Michael is available either at (905) 521-7734 or at Michael.Spencer@ontario.ca.

Barb Slattery, EA/Planning Coordinator
Ministry of the Environment and Climate Change
West Central Region
(905) 521-7864

From: Arun Jain [mailto:Arun.Jain@exp.com]
Sent: August 22, 2017 5:07 PM
To: Spencer, Michael (MOECC); Brad McRoberts; Jean Louis Gaudet
Cc: Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC); Slattery, Barbara (MOECC)
Subject: RE: Mapleton WPCP EA - Revised RWIA

Michael,

Hope your review is going well.

Please let us know if you any questions.

Regards,

Arun



Arun P. Jain, P.Eng., M.Eng.

Practice Lead - Linear Infrastructure, Central Ontario

exp Services Inc.

t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com

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Brampton, ON L6T 4V1

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From: Spencer, Michael (MOECC) [<mailto:Michael.Spencer@ontario.ca>]

Sent: Wednesday, August 09, 2017 7:49 AM

To: Brad McRoberts <BMcRoberts@mapleton.ca>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com>

Cc: Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>;

Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>; Arun Jain

<Arun.Jain@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>

Subject: RE: Mapleton WPCP EA - Revised RWIA

Hi Brad, thank you for your email. I have started my review but have not finished it yet. I will provide comments once my review is complete. I have been out of the office recently since I was chosen as a juror for a criminal trial and the trial started immediately on that day. It was unexpected since as Provincial Officers we generally don't get chosen. I will get back to you when my review is completed. Thanks.

Michael Spencer

Surface Water Group Leader

Ministry of Environment and Climate Change

119 King Street West, 12th Flr

Hamilton, ON L8P 4Y7

Ph (905) 521-7734

From: Brad McRoberts [<mailto:BMcRoberts@mapleton.ca>]

Sent: August 08, 2017 3:34 PM

To: Spencer, Michael (MOECC); Jean Louis Gaudet

Cc: Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC); Arun Jain;

Slattery, Barbara (MOECC)

Subject: RE: Mapleton WPCP EA - Revised RWIA

Michael,

Wondering how your review is progressing and if we could start scheduling a meeting between the parties before the end of August to discuss any comments and to further continue our previous discussions with Paul Odom on interim capacity approval.

Please let us know what dates might work for you and we will attempt to find a common date with our team.

Thanks

Brad McRoberts, MPA, P.Eng

CAO Clerk
Township of Mapleton
P.O. Box 160
7275 Sideroad 16
Drayton, Ontario
N0G 1P0

Phone (519) 638-3313 Ext 24
Toll Free 1-800-385-7248
Fax (519) 638-5113



www.mapleton.ca

From: Spencer, Michael (MOECC) [<mailto:Michael.Spencer@ontario.ca>]

Sent: July-25-17 7:44 AM

To: Brad McRoberts <BMcRoberts@mapleton.ca>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com>

Cc: Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>;

Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>; Arun Jain

<Arun.Jain@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>

Subject: RE: Mapleton WPCP EA - Revised RWIA

Hi Brad and Jean-Louis, thank you for the emails. I will be starting the review this week. Thanks.

Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
Hamilton, ON L8P 4Y7
Ph (905) 521-7734

From: Brad McRoberts [<mailto:BMcRoberts@mapleton.ca>]

Sent: July 21, 2017 11:01 AM

To: Jean Louis Gaudet; Spencer, Michael (MOECC)

Cc: Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC); Arun Jain; Slattery, Barbara (MOECC)

Subject: RE: Mapleton WPCP EA - Revised RWIA

Michael,

I recognize political environments are not your concern but Township staff and even our Council are getting a lot of pressure to move this project forward. Any efforts to provide a timely response on your thoughts on the EA and RWIA would be greatly appreciated.

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]

Sent: July-21-17 10:38 AM

To: Spencer, Michael (MOECC) <Michael.Spencer@ontario.ca>

Cc: Brad McRoberts <BMcRoberts@mapleton.ca>; Mark Anderson (manderson@grandriver.ca)

<manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>; Arun Jain <Arun.Jain@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>

Subject: Mapleton WPCP EA - Revised RWIA

Good morning, Michael,

I thought I would follow-up with you regarding your review of the RWIA report prepared in support of the Mapleton Wastewater Class EA.

As per your request, we sent you hard copies of the RWIA back in June, and we were wondering if MOECC had completed its review and if a meeting to discuss the report can be scheduled.

Thanks Michael,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator

t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com

80 Bancroft Street

Hamilton, ON L8E 2W5

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From: Spencer, Michael (MOECC) [<mailto:Michael.Spencer@ontario.ca>]

Sent: June-13-17 12:32 PM

To: Arun Jain <Arun.Jain@exp.com>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>

Cc: Brad McRoberts <BMcRoberts@mapleton.ca>; Mark Anderson (manderson@grandriver.ca)

<manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>

Subject: RE: Mapleton WPCP EA - draft ESR

Hi Arun, we can attend a meeting after our comments are completed to discuss further. Thanks.

Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
Hamilton, ON L8P 4Y7
Ph (905) 521-7734

From: Arun Jain [<mailto:Arun.Jain@exp.com>]
Sent: June 13, 2017 8:55 AM
To: Spencer, Michael (MOECC); Jean Louis Gaudet; Slattery, Barbara (MOECC)
Cc: Brad McRoberts; Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC)
Subject: RE: Mapleton WPCP EA - draft ESR

Michael,

Thanks for your response. Jean would provide the required copies.

Township and us would however appreciate a meeting to discuss the any comments and close out of the Class EA so that the project can move into design and implementation phase.

Your thoughts on that possibility would be greatly appreciated.

Regards,

Arun



Arun P. Jain, P.Eng., M.Eng.
Practice Lead - Linear Infrastructure, Central Ontario
exp Services Inc.
t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com
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Brampton, ON L6T 4V1
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From: Spencer, Michael (MOECC) [<mailto:Michael.Spencer@ontario.ca>]
Sent: Tuesday, June 13, 2017 8:40 AM
To: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>
Cc: Brad McRoberts <BMcRoberts@mapleton.ca>; Arun Jain <Arun.Jain@exp.com>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>
Subject: RE: Mapleton WPCP EA - draft ESR

Hi Jean-Louis,

Thank you for the email. Can you please send hard copies of the reports to this office? We'll try to provide comments back sometime in July, if possible. Thanks.

Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
Hamilton, ON L8P 4Y7
Ph (905) 521-7734

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]
Sent: June 12, 2017 11:09 AM
To: Slattery, Barbara (MOECC); Spencer, Michael (MOECC)
Cc: Brad McRoberts; Arun Jain; Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger
Subject: RE: Mapleton WPCP EA - draft ESR

Good morning Barbara and Michael,

We wanted to touch base with you – how is your review of the Mapleton RWIA proceeding? Did you have any questions?

Would you be able to advise when we can expect to receive your comments?

Thank you,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator
t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com
80 Bancroft Street
Hamilton, ON L8E 2W5
Canada

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From: Jean Louis Gaudet
Sent: May-17-17 11:05 AM
To: 'barbara.slattery@ontario.ca' <barbara.slattery@ontario.ca>; 'michael.spencer@ontario.ca' <michael.spencer@ontario.ca>
Cc: 'Brad McRoberts' <BMcRoberts@mapleton.ca>; 'Arun Jain' (Arun.Jain@exp.com) <Arun.Jain@exp.com>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>
Subject: Mapleton WPCP EA - draft ESR

Hi Barbara and Michael,

As per Barbara's correspondence with Brad, please find attached the RWIA for the Mapleton wastewater class EA.

The updated ESR will follow in a subsequent e-mail.

Regards,

JL



Jean-Louis Gaudet

Project Coordinator

t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com

80 Bancroft Street

Hamilton, ON L8E 2W5

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Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: August-29-17 5:02 PM
To: Arun Jain
Cc: Brad McRoberts; Slattery, Barbara (MOECC); Spencer, Michael (MOECC); Jean Louis Gaudet; Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC)
Subject: Re: Mapleton WPCP EA - Revised RWIA
Attachments: image001.png; image002.jpg; image003.jpg

Hi Brad
No issues sharing the email conversation from my perspective.

Mark Anderson, P.Eng.
Water Quality Engineer

Grand River Conservation Authority
400 Clyde Road
Cambridge ON N1R 5W6
(519) 621-2761 ext 2226
www.grandriver.ca<<http://www.grandriver.ca>>

On Aug 29, 2017, at 3:46 PM, Arun Jain <Arun.Jain@exp.com<<mailto:Arun.Jain@exp.com>>> wrote:

Brad,

We are Ok with the complete e-mail chain being shared.

Regards,

Arun

<image001.png>

Arun P. Jain, P.Eng., M.Eng.
Practice Lead - Linear Infrastructure, Central Ontario exp Services Inc.
t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com<<mailto:arun.jain@exp.com>>
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From: Brad McRoberts [<mailto:BMcRoberts@mapleton.ca>]
Sent: Tuesday, August 29, 2017 3:43 PM
To: Arun Jain <Arun.Jain@exp.com<<mailto:Arun.Jain@exp.com>>>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca<<mailto:barbara.slattery@ontario.ca>>>; Spencer, Michael (MOECC)

<Michael.Spencer@ontario.ca<mailto:Michael.Spencer@ontario.ca>>; Jean Louis Gaudet
<jeanlouis.gaudet@exp.com<mailto:jeanlouis.gaudet@exp.com>>
Cc: Mark Anderson (manderson@grandriver.ca<mailto:manderson@grandriver.ca>)
<manderson@grandriver.ca<mailto:manderson@grandriver.ca>>; Sam Mattina
<SMattina@mapleton.ca<mailto:SMattina@mapleton.ca>>; Paul Hinsperger
<PHinsperger@mapleton.ca<mailto:PHinsperger@mapleton.ca>>; Neubrand, Rick (MOECC)
<Rick.Neubrand@ontario.ca<mailto:Rick.Neubrand@ontario.ca>>
Subject: RE: Mapleton WPCP EA - Revised RWIA

As it was generated by the MOECC I would need their approval to provide it to the requestor. I am considering that the email chain is also a possible relevant piece of info that would or could fall within the realm of the request would everyone be ok with it being included.

From: Arun Jain [mailto:Arun.Jain@exp.com]
Sent: August-29-17 3:31 PM
To: Brad McRoberts <BMcRoberts@mapleton.ca<mailto:BMcRoberts@mapleton.ca>>; Slattery, Barbara (MOECC)
<barbara.slattery@ontario.ca<mailto:barbara.slattery@ontario.ca>>; Spencer, Michael (MOECC)
<Michael.Spencer@ontario.ca<mailto:Michael.Spencer@ontario.ca>>; Jean Louis Gaudet
<jeanlouis.gaudet@exp.com<mailto:jeanlouis.gaudet@exp.com>>
Cc: Mark Anderson (manderson@grandriver.ca<mailto:manderson@grandriver.ca>)
<manderson@grandriver.ca<mailto:manderson@grandriver.ca>>; Sam Mattina
<SMattina@mapleton.ca<mailto:SMattina@mapleton.ca>>; Paul Hinsperger
<PHinsperger@mapleton.ca<mailto:PHinsperger@mapleton.ca>>; Neubrand, Rick (MOECC)
<Rick.Neubrand@ontario.ca<mailto:Rick.Neubrand@ontario.ca>>
Subject: RE: Mapleton WPCP EA - Revised RWIA

Brad,

As such we have no objections to sharing the e-mail noted below, as this e-mail would also be part of the ESR.

The only concern that we have is that it should not lead to sharing of all the draft versions of the documents associated with this RWIA work as that would be onerous for us to comply with.

Please copy us on this correspondence as it should also be included in the record of consultation in the ESR.

Regards,

Arun

<image001.png>

Arun P. Jain, P.Eng., M.Eng.
Practice Lead - Linear Infrastructure, Central Ontario exp Services Inc.
t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com<mailto:first.last@exp.com>
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From: Brad McRoberts [mailto:BMcRoberts@mapleton.ca]
Sent: Tuesday, August 29, 2017 3:11 PM
To: Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca<mailto:barbara.slattery@ontario.ca>>; Arun Jain <Arun.Jain@exp.com<mailto:Arun.Jain@exp.com>>; Spencer, Michael (MOECC) <Michael.Spencer@ontario.ca<mailto:Michael.Spencer@ontario.ca>>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com<mailto:jeanlouis.gaudet@exp.com>>
Cc: Mark Anderson (manderson@grandriver.ca<mailto:manderson@grandriver.ca>) <manderson@grandriver.ca<mailto:manderson@grandriver.ca>>; Sam Mattina <SMattina@mapleton.ca<mailto:SMattina@mapleton.ca>>; Paul Hinsperger <PHinsperger@mapleton.ca<mailto:PHinsperger@mapleton.ca>>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca<mailto:Rick.Neubrand@ontario.ca>>
Subject: RE: Mapleton WPCP EA - Revised RWIA

I have a difficult resident who has ask for this correspondence. He must have somehow heard that it had been generated. Does anyone have any objections in me forwarding on this correspondence.

Please respond with the next 24 hours.

From: Slattery, Barbara (MOECC) [mailto:barbara.slattery@ontario.ca]
Sent: August-23-17 9:41 AM
To: Arun Jain <Arun.Jain@exp.com<mailto:Arun.Jain@exp.com>>; Spencer, Michael (MOECC) <Michael.Spencer@ontario.ca<mailto:Michael.Spencer@ontario.ca>>; Brad McRoberts <BMcRoberts@mapleton.ca<mailto:BMcRoberts@mapleton.ca>>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com<mailto:jeanlouis.gaudet@exp.com>>
Cc: Mark Anderson (manderson@grandriver.ca<mailto:manderson@grandriver.ca>) <manderson@grandriver.ca<mailto:manderson@grandriver.ca>>; Sam Mattina <SMattina@mapleton.ca<mailto:SMattina@mapleton.ca>>; Paul Hinsperger <PHinsperger@mapleton.ca<mailto:PHinsperger@mapleton.ca>>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca<mailto:Rick.Neubrand@ontario.ca>>
Subject: RE: Mapleton WPCP EA - Revised RWIA

Good Day to all,

We have completed our review of the most recent submission, specifically the Receiving Water Impact Assessment prepared by exp Services Inc. and have prepared the following comments outlining our remaining concerns. As you may be aware, Paul Odom has retired after many years of distinguished service with this Region so to provide context, we have prefaced our comments on the 2017 submission by including a brief review of Paul's comments as they served as the basis for the 2017 work.

June 22, 2016 Ministry Correspondence

The Ministry had previously reviewed the following report:

Mapleton WPCP EA, Receiving Water Impact Assessment, exp Services Inc., April 20, 2016.

and provided comments on this report in a June 22, 2016 letter, RE: Drayton WPCP April 2016 Receiving Water Impact Assessment, from Barbara Slattery, Environmental Assessment and Planning Coordinator and based on the technical review by Paul Odom.

The last Ministry correspondence contained a Comments section and a Conclusions and Recommendations section. We reviewed the April 2017 report to determine whether the previously identified concerns/comments had been

adequately addressed. For your information, the complete June 22, 2016 correspondence is attached to this email. For ease, comments which are either unresolved, or which require some form of action have been bolded.

June 22, 2016 Comments

Our review of the April 2017 report, concludes the following with respect to the resolution of concerns raised following the review of the April 2016 RWIA:

1. This comment has been addressed since an allowance for precipitation was incorporated into the assessment.

1. No further comment is required.

1. This comment has been addressed since un-ionized ammonia was consistently referenced.

1. This comment has been addressed in Table 3 using “>=” and “passing” for dissolved oxygen instead of the 75th percentile.

1. No further comment is required.

1. No further comment is required.

1. This comment has been addressed in Section 7.3 with a precipitation allowance.

1. This comment has been addressed in Section 6.1 using the rated capacity.

1. No further comment is required.

1. The comment concerning the point of complete mixing was addressed in Section 8.7 with the dye tracer study.

The comment about mixed concentrations of un-ionized ammonia up to the PWQO was addressed in Table 15 (and when compared to Table 8) with un-ionized ammonia concentrations after mixing being less than the PWQO.

1. In regards to potentially toxic conditions within the mixing zone, historically the Ministry has procedurally used an un-ionized ammonia concentration of 0.1 mg/L as an end of pipe non-toxic value for effluent. Table 15 identifies end of pipe effluent concentrations for un-ionized ammonia in April at 0.1236 mg/L and in October at 0.1308 mg/L which exceed the Ministry’s procedural non-toxic value. As such, a non-toxic un-ionized ammonia effluent concentration not exceeding 0.1 mg/L should be incorporated into the report.

1. This comment has been addressed in Section 6.3 as the effluent quality data was updated to April 2016.

1. No further comment is required.

1. This comment has been addressed in Section 6.3.3 with an explanation of the exceedances.

1. This comment was not addressed in Section 6.3.8 as it did not identify if there is data that demonstrates the absence of H₂S since the installation of the cascade aerator (2008).

1. This comment has been addressed in Section 7.1 in regards to ammonia.

1. No further comment is required.

1. This comment has been addressed with the precipitation allowance.

1. This comment has been addressed in Section 8 with the proposed discharge regime assessment.

1. Similar to comment k) above, historically the Ministry has procedurally used an un-ionized ammonia concentration of 0.1 mg/L as an end of pipe non-toxic value for effluent. Table 15 identifies end of pipe effluent concentrations for un-ionized ammonia in April at 0.1236 mg/L and in October at 0.1308 mg/L which exceed the Ministry's procedural non-toxic value. As such, a non-toxic un-ionized ammonia effluent concentration not exceeding 0.1 mg/L should be incorporated into the report.

1. This comment has been addressed since Table 15 identified that the 75th percentile un-ionized ammonia was calculated using individual total ammonia nitrogen with observed field pH and field temperature.

1. This comment has been addressed in Section 8.7 in regards to mixing zone.

1. This comment has been addressed since the report incorporated a precipitation allowance.

1. This comment has been addressed in Section 8.4 with a total oxygen demand assessment and discussion.

In summary, based on the review of the April 2017 report in comparison to the Comments section in the June 22, 2016 Ministry correspondence, comment o) was not addressed, and comments k) and t) should be further addressed with the additional guidance provided. All other comments have been addressed.

June 22, 2016 Conclusions and Recommendations

Based on the review of the April 2017 report, we offer the following comments in order of the Conclusions and Recommendations section in the June 22, 2016 Ministry correspondence. Again, outstanding items are in bold:

1. This comment has been addressed in Section 8.7 in regards to limited use zone/avoidance zone.

1. This comment has not been addressed since the April 2017 report still contains dilution ratios for January and February that were identified as unacceptable in the June 22, 2016 Ministry correspondence. Procedurally, the Ministry has accepted minimum dilution ratios of 10:1 at other sites dependent on the site specific assimilative capacity assessment. It is our understanding that the GRCA is undertaking a monitoring program to fill in the winter water quality data gaps and may be able to provide additional direction to address this.

1. This comment has been addressed in Section 8.4 in regards to dissolved oxygen.

Additional Comments on April 2017 Report

We also offer the following additional comments as items which require further work:

1. The April 2017 report assessed the total phosphorus effluent limit concentrations and loadings (compliance criteria) to the Ministry's surface water quality Policy 2. The report should also assess the total phosphorus effluent objective concentrations and loadings (conformance criteria) to verify that Policy 2 is also met for design purposes.

1. The April 2017 report provided a summary of the completed dye tracer study completed by Hutchinson Environmental Sciences Ltd. in Section 8.7. The full study report should be included as an appendix for review.

1. Section 9 Interim Phasing of the April 2017 report proposed an interim phasing plan due to the limited river water quality data for January and February.

1. Phase 1 proposed an interim rating of about 900 m³/day to be achieved by rerating the existing Mapleton WPCP by optimization. This would meet the Township's current need and provide additional winter river water quality monitoring to be completed by the GRCA. The Phase 1 proposal is conceptionally acceptable provided it is confirmed that the Ministry Surface Water Policies 1 and 2 are met as outlined in the Ministry document "Water Management Policies, Guidelines, PWQO of the MOEE, July 1994".

1. Phase 2 proposed an increase of the Mapleton WPCP rated capacity to 1300 m³/day with the preferred design and once sufficient data has been collected to assess the potential impact of a January and February discharge. The acceptance of the Receiving Water Impact Assessment is dependent upon whether the outstanding comments from the June 21, 2016 Ministry correspondence are addressed and whether the additional comments in this review are addressed.

This concludes our comments. Technical questions and points of clarifications should be directed to Michael Spencer, who will now have carriage of this file. Michael is available either at (905) 521-7734 or at Michael.Spencer@ontario.ca<mailto:Michael.Spencer@ontario.ca>.

Barb Slattery, EA/Planning Coordinator

Ministry of the Environment and Climate Change West Central Region
(905) 521-7864

From: Arun Jain [mailto:Arun.Jain@exp.com]
Sent: August 22, 2017 5:07 PM
To: Spencer, Michael (MOECC); Brad McRoberts; Jean Louis Gaudet
Cc: Mark Anderson (manderson@grandriver.ca<mailto:manderson@grandriver.ca>); Sam Mattina; Paul Hinsperger;
Neubrand, Rick (MOECC); Slattery, Barbara (MOECC)
Subject: RE: Mapleton WPCP EA - Revised RWIA

Michael,

Hope your review is going well.

Please let us know if you any questions.

Regards,

Arun

<image001.png>

Arun P. Jain, P.Eng., M.Eng.
Practice Lead - Linear Infrastructure, Central Ontario exp Services Inc.
t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com<mailto:first.last@exp.com>
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Brampton, ON L6T 4V1
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From: Spencer, Michael (MOECC) [mailto:Michael.Spencer@ontario.ca]
Sent: Wednesday, August 09, 2017 7:49 AM
To: Brad McRoberts <BMcRoberts@mapleton.ca<mailto:BMcRoberts@mapleton.ca>>; Jean Louis Gaudet
<jeanlouis.gaudet@exp.com<mailto:jeanlouis.gaudet@exp.com>>
Cc: Mark Anderson (manderson@grandriver.ca<mailto:manderson@grandriver.ca>)
<manderson@grandriver.ca<mailto:manderson@grandriver.ca>>; Sam Mattina
<SMattina@mapleton.ca<mailto:SMattina@mapleton.ca>>; Paul Hinsperger
<PHinsperger@mapleton.ca<mailto:PHinsperger@mapleton.ca>>; Neubrand, Rick (MOECC)
<Rick.Neubrand@ontario.ca<mailto:Rick.Neubrand@ontario.ca>>; Arun Jain
<Arun.Jain@exp.com<mailto:Arun.Jain@exp.com>>; Slattery, Barbara (MOECC)
<barbara.slattery@ontario.ca<mailto:barbara.slattery@ontario.ca>>
Subject: RE: Mapleton WPCP EA - Revised RWIA

Hi Brad, thank you for your email. I have started my review but have not finished it yet. I will provide comments once my review is complete. I have been out of the office recently since I was chosen as a juror for a criminal trial and the trial started immediately on that day. It was unexpected since as Provincial Officers we generally don't get chosen. I will get back to you when my review is completed. Thanks.

Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
Hamilton, ON L8P 4Y7
Ph (905) 521-7734

From: Brad McRoberts [mailto:BMcRoberts@mapleton.ca]
Sent: August 08, 2017 3:34 PM
To: Spencer, Michael (MOECC); Jean Louis Gaudet
Cc: Mark Anderson (manderson@grandriver.ca<mailto:manderson@grandriver.ca>); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC); Arun Jain; Slattery, Barbara (MOECC)
Subject: RE: Mapleton WPCP EA - Revised RWIA

Michael,

Wondering how your review is progressing and if we could start scheduling a meeting between the parties before the end of August to discuss any comments and to further continue our previous discussions with Paul Odom on interim capacity approval.

Please let us know what dates might work for you and we will attempt to find a common date with our team.

Thanks

Brad McRoberts, MPA, P.Eng

CAO Clerk
Township of Mapleton
P.O. Box 160
7275 Sideroad 16
Drayton, Ontario
N0G 1P0

Phone (519) 638-3313 Ext 24
Toll Free 1-800-385-7248
Fax (519) 638-5113

<image002.jpg>

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From: Spencer, Michael (MOECC) [mailto:Michael.Spencer@ontario.ca]

Sent: July-25-17 7:44 AM

To: Brad McRoberts <BMcRoberts@mapleton.ca<mailto:BMcRoberts@mapleton.ca>>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com<mailto:jeanlouis.gaudet@exp.com>>
Cc: Mark Anderson (manderson@grandriver.ca<mailto:manderson@grandriver.ca>) <manderson@grandriver.ca<mailto:manderson@grandriver.ca>>; Sam Mattina <SMattina@mapleton.ca<mailto:SMattina@mapleton.ca>>; Paul Hinsperger <PHinsperger@mapleton.ca<mailto:PHinsperger@mapleton.ca>>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca<mailto:Rick.Neubrand@ontario.ca>>; Arun Jain <Arun.Jain@exp.com<mailto:Arun.Jain@exp.com>>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca<mailto:barbara.slattery@ontario.ca>>
Subject: RE: Mapleton WPCP EA - Revised RWIA

Hi Brad and Jean-Louis, thank you for the emails. I will be starting the review this week. Thanks.

Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
Hamilton, ON L8P 4Y7
Ph (905) 521-7734

From: Brad McRoberts [mailto:BMcRoberts@mapleton.ca]
Sent: July 21, 2017 11:01 AM
To: Jean Louis Gaudet; Spencer, Michael (MOECC)
Cc: Mark Anderson (manderson@grandriver.ca<mailto:manderson@grandriver.ca>); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC); Arun Jain; Slattery, Barbara (MOECC)
Subject: RE: Mapleton WPCP EA - Revised RWIA

Michael,

I recognize political environments are not your concern but Township staff and even our Council are getting a lot of pressure to move this project forward. Any efforts to provide a timely response on your thoughts on the EA and RWIA would be greatly appreciated.

From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: July-21-17 10:38 AM
To: Spencer, Michael (MOECC) <Michael.Spencer@ontario.ca<mailto:Michael.Spencer@ontario.ca>>
Cc: Brad McRoberts <BMcRoberts@mapleton.ca<mailto:BMcRoberts@mapleton.ca>>; Mark Anderson (manderson@grandriver.ca<mailto:manderson@grandriver.ca>) <manderson@grandriver.ca<mailto:manderson@grandriver.ca>>; Sam Mattina <SMattina@mapleton.ca<mailto:SMattina@mapleton.ca>>; Paul Hinsperger <PHinsperger@mapleton.ca<mailto:PHinsperger@mapleton.ca>>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca<mailto:Rick.Neubrand@ontario.ca>>; Arun Jain <Arun.Jain@exp.com<mailto:Arun.Jain@exp.com>>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca<mailto:barbara.slattery@ontario.ca>>
Subject: Mapleton WPCP EA - Revised RWIA

Good morning, Michael,

I thought I would follow-up with you regarding your review of the RWIA report prepared in support of the Mapleton Wastewater Class EA.

As per your request, we sent you hard copies of the RWIA back in June, and we were wondering if MOECC had completed its review and if a meeting to discuss the report can be scheduled.

Thanks Michael,

Jean-Louis

Jean-Louis Gaudet | exp
Project Coordinator
t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com<mailto:jeanlouis.gaudet@exp.com>
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From: Spencer, Michael (MOECC) [mailto:Michael.Spencer@ontario.ca]
Sent: June-13-17 12:32 PM
To: Arun Jain <Arun.Jain@exp.com<mailto:Arun.Jain@exp.com>>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com<mailto:jeanlouis.gaudet@exp.com>>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca<mailto:barbara.slattery@ontario.ca>>
Cc: Brad McRoberts <BMcRoberts@mapleton.ca<mailto:BMcRoberts@mapleton.ca>>; Mark Anderson (manderson@grandriver.ca<mailto:manderson@grandriver.ca>) <manderson@grandriver.ca<mailto:manderson@grandriver.ca>>; Sam Mattina <SMattina@mapleton.ca<mailto:SMattina@mapleton.ca>>; Paul Hinsperger <PHinsperger@mapleton.ca<mailto:PHinsperger@mapleton.ca>>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca<mailto:Rick.Neubrand@ontario.ca>>
Subject: RE: Mapleton WPCP EA - draft ESR

Hi Arun, we can attend a meeting after our comments are completed to discuss further. Thanks.

Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
Hamilton, ON L8P 4Y7
Ph (905) 521-7734

From: Arun Jain [mailto:Arun.Jain@exp.com]
Sent: June 13, 2017 8:55 AM
To: Spencer, Michael (MOECC); Jean Louis Gaudet; Slattery, Barbara (MOECC)
Cc: Brad McRoberts; Mark Anderson (manderson@grandriver.ca<mailto:manderson@grandriver.ca>); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC)
Subject: RE: Mapleton WPCP EA - draft ESR

Michael,

Thanks for your response. Jean would provide the required copies.

Township and us would however appreciate a meeting to discuss the any comments and close out of the Class EA so that the project can move into design and implementation phase.

Your thoughts on that possibility would be greatly appreciated.

Regards,

Arun

<image001.png>

Arun P. Jain, P.Eng., M.Eng.
Practice Lead - Linear Infrastructure, Central Ontario exp Services Inc.
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From: Spencer, Michael (MOECC) [mailto:Michael.Spencer@ontario.ca]
Sent: Tuesday, June 13, 2017 8:40 AM
To: Jean Louis Gaudet <jeanlouis.gaudet@exp.com<mailto:jeanlouis.gaudet@exp.com>>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca<mailto:barbara.slattery@ontario.ca>>
Cc: Brad McRoberts <BMcRoberts@mapleton.ca<mailto:BMcRoberts@mapleton.ca>>; Arun Jain <Arun.Jain@exp.com<mailto:Arun.Jain@exp.com>>; Mark Anderson (manderson@grandriver.ca<mailto:manderson@grandriver.ca>) <manderson@grandriver.ca<mailto:manderson@grandriver.ca>>; Sam Mattina <SMattina@mapleton.ca<mailto:SMattina@mapleton.ca>>; Paul Hinsperger <PHinsperger@mapleton.ca<mailto:PHinsperger@mapleton.ca>>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca<mailto:Rick.Neubrand@ontario.ca>>
Subject: RE: Mapleton WPCP EA - draft ESR

Hi Jean-Louis,

Thank you for the email. Can you please send hard copies of the reports to this office? We'll try to provide comments back sometime in July, if possible. Thanks.

Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
Hamilton, ON L8P 4Y7
Ph (905) 521-7734

From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: June 12, 2017 11:09 AM
To: Slattery, Barbara (MOECC); Spencer, Michael (MOECC)

Cc: Brad McRoberts; Arun Jain; Mark Anderson (manderson@grandriver.ca<mailto:manderson@grandriver.ca>); Sam Mattina; Paul Hinsperger
Subject: RE: Mapleton WPCP EA - draft ESR

Good morning Barbara and Michael,

We wanted to touch base with you – how is your review of the Mapleton RWIA proceeding? Did you have any questions?

Would you be able to advise when we can expect to receive your comments?

Thank you,

Jean-Louis

Jean-Louis Gaudet | exp
Project Coordinator
t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com<mailto:jeanlouis.gaudet@exp.com>
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From: Jean Louis Gaudet
Sent: May-17-17 11:05 AM
To: 'barbara.slattery@ontario.ca<mailto:barbara.slattery@ontario.ca>' <barbara.slattery@ontario.ca<mailto:barbara.slattery@ontario.ca>>; 'michael.spencer@ontario.ca<mailto:michael.spencer@ontario.ca>' <michael.spencer@ontario.ca<mailto:michael.spencer@ontario.ca>>
Cc: 'Brad McRoberts' <BMcRoberts@mapleton.ca<mailto:BMcRoberts@mapleton.ca>>; 'Arun Jain' (Arun.Jain@exp.com<mailto:Arun.Jain@exp.com>) <Arun.Jain@exp.com<mailto:Arun.Jain@exp.com>>; Mark Anderson (manderson@grandriver.ca<mailto:manderson@grandriver.ca>) <manderson@grandriver.ca<mailto:manderson@grandriver.ca>>; Sam Mattina <SMattina@mapleton.ca<mailto:SMattina@mapleton.ca>>; Paul Hinsperger <PHinsperger@mapleton.ca<mailto:PHinsperger@mapleton.ca>>
Subject: Mapleton WPCP EA - draft ESR

Hi Barbara and Michael,

As per Barabara's correspondence with Brad, please find attached the RWIA for the Mapleton wastewater class EA.

The updated ESR will follow in a subsequent e-mail.

Regards,

JL

<image003.jpg>

Jean-Louis Gaudet
Project Coordinator
t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com<mailto:jeanlouis.gaudet@exp.com>
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Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: September-01-17 4:38 PM
To: Brad McRoberts; Slattery, Barbara (MOECC); Arun Jain; Spencer, Michael (MOECC); Jean Louis Gaudet
Cc: Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC)
Subject: RE: Mapleton WPCP EA - Revised RWIA

Hi, Brad

Right now, I'm only available Monday, September 18th (after 1:30 pm) or Tuesday, September 19th (any time).

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge ON N1R 5W6
(519) 621-2761 ext 2226
www.grandriver.ca

From: Brad McRoberts [mailto:BMcRoberts@mapleton.ca]
Sent: September 1, 2017 3:52 PM
To: Slattery, Barbara (MOECC); Arun Jain; Spencer, Michael (MOECC); Jean Louis Gaudet
Cc: Mark Anderson; Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC)
Subject: RE: Mapleton WPCP EA - Revised RWIA

Thank you all. Now that we have your comments can we schedule and meeting for the week of September 18. If everyone could identify what dates and time slots they are available I will attempt to find a common date time for that week.

thanks

From: Slattery, Barbara (MOECC) [mailto:barbara.slattery@ontario.ca]
Sent: August-23-17 9:41 AM
To: Arun Jain <Arun.Jain@exp.com>; Spencer, Michael (MOECC) <Michael.Spencer@ontario.ca>; Brad McRoberts <BMcRoberts@mapleton.ca>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com>
Cc: Mark Anderson (<manderson@grandriver.ca> <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>
Subject: RE: Mapleton WPCP EA - Revised RWIA

Good Day to all,

We have completed our review of the most recent submission, specifically the *Receiving Water Impact Assessment* prepared by exp Services Inc. and have prepared the following comments outlining our remaining concerns. As you may be aware, Paul Odom has retired after many years of distinguished service with this Region so to provide context, we have prefaced our comments on the 2017 submission by including a brief review of Paul's comments as they served as the basis for the 2017 work.

June 22, 2016 Ministry Correspondence

The Ministry had previously reviewed the following report:

Mapleton WPCP EA, *Receiving Water Impact Assessment*, exp Services Inc., April 20, 2016.

and provided comments on this report in a June 22, 2016 letter, RE: Drayton WPCP April 2016 Receiving Water Impact Assessment, from Barbara Slattery, Environmental Assessment and Planning Coordinator and based on the technical review by Paul Odom.

The last Ministry correspondence contained a Comments section and a Conclusions and Recommendations section. We reviewed the April 2017 report to determine whether the previously identified concerns/comments had been adequately addressed. For your information, the complete June 22, 2016 correspondence is attached to this email. For ease, comments which are either unresolved, or which require some form of action have been **bolded**.

June 22, 2016 Comments

Our review of the April 2017 report, concludes the following with respect to the resolution of concerns raised following the review of the April 2016 RWIA:

- a. This comment has been addressed since an allowance for precipitation was incorporated into the assessment.
- b. No further comment is required.
- c. This comment has been addressed since un-ionized ammonia was consistently referenced.
- d. This comment has been addressed in Table 3 using “>=” and “passing” for dissolved oxygen instead of the 75th percentile.
- e. No further comment is required.
- f. No further comment is required.
- g. This comment has been addressed in Section 7.3 with a precipitation allowance.
- h. This comment has been addressed in Section 6.1 using the rated capacity.
- i. No further comment is required.
- j. The comment concerning the point of complete mixing was addressed in Section 8.7 with the dye tracer study.

The comment about mixed concentrations of un-ionized ammonia up to the PWQO was addressed in Table 15 (and when compared to Table 8) with un-ionized ammonia concentrations after mixing being less than the PWQO.

- k. **In regards to potentially toxic conditions within the mixing zone, historically the Ministry has procedurally used an un-ionized ammonia concentration of 0.1 mg/L as an end of pipe non-toxic value for effluent. Table 15 identifies end of pipe effluent concentrations for un-ionized ammonia in April at 0.1236 mg/L and in October at 0.1308 mg/L which exceed the Ministry's procedural non-toxic value. As such, a non-toxic un-ionized ammonia effluent concentration not exceeding 0.1 mg/L should be incorporated into the report.**
- l. This comment has been addressed in Section 6.3 as the effluent quality data was updated to April 2016.
- m. No further comment is required.
- n. This comment has been addressed in Section 6.3.3 with an explanation of the exceedances.
- o. **This comment was not addressed in Section 6.3.8 as it did not identify if there is data that demonstrates the absence of H₂S since the installation of the cascade aerator (2008).**
- p. This comment has been addressed in Section 7.1 in regards to ammonia.
- q. No further comment is required.
- r. This comment has been addressed with the precipitation allowance.
- s. This comment has been addressed in Section 8 with the proposed discharge regime assessment.
- t. **Similar to comment k) above, historically the Ministry has procedurally used an un-ionized ammonia concentration of 0.1 mg/L as an end of pipe non-toxic value for effluent. Table 15 identifies end of pipe effluent concentrations for un-ionized ammonia in April at 0.1236 mg/L and in October at 0.1308 mg/L which exceed the Ministry's procedural non-toxic value. As such, a non-toxic un-ionized ammonia effluent concentration not exceeding 0.1 mg/L should be incorporated into the report.**
- u. This comment has been addressed since Table 15 identified that the 75th percentile un-ionized ammonia was calculated using individual total ammonia nitrogen with observed field pH and field temperature.
- v. This comment has been addressed in Section 8.7 in regards to mixing zone.
- w. This comment has been addressed since the report incorporated a precipitation allowance.
- x. This comment has been addressed in Section 8.4 with a total oxygen demand assessment and discussion.

In summary, based on the review of the April 2017 report in comparison to the Comments section in the June 22, 2016 Ministry correspondence, comment o) was not addressed, and comments k) and t) should be further addressed with the additional guidance provided. All other comments have been addressed.

June 22, 2016 Conclusions and Recommendations

Based on the review of the April 2017 report, we offer the following comments in order of the Conclusions and Recommendations section in the June 22, 2016 Ministry correspondence. Again, outstanding items are in **bold**:

1. This comment has been addressed in Section 8.7 in regards to limited use zone/avoidance zone.
2. **This comment has not been addressed since the April 2017 report still contains dilution ratios for January and February that were identified as unacceptable in the June 22, 2016 Ministry correspondence. Procedurally, the Ministry has accepted minimum dilution ratios of 10:1 at other sites dependent on the site specific assimilative capacity assessment. It is our understanding that the GRCA is undertaking a monitoring program to fill in the winter water quality data gaps and may be able to provide additional direction to address this.**
3. This comment has been addressed in Section 8.4 in regards to dissolved oxygen.

Additional Comments on April 2017 Report

We also offer the following additional comments as items which require further work:

1. The April 2017 report assessed the total phosphorus effluent limit concentrations and loadings (compliance criteria) to the Ministry's surface water quality Policy 2. The report should also assess the total phosphorus effluent objective concentrations and loadings (conformance criteria) to verify that Policy 2 is also met for design purposes.
2. The April 2017 report provided a summary of the completed dye tracer study completed by Hutchinson Environmental Sciences Ltd. in Section 8.7. The full study report should be included as an appendix for review.
3. Section 9 Interim Phasing of the April 2017 report proposed an interim phasing plan due to the limited river water quality data for January and February.
 - a. Phase 1 proposed an interim rating of about 900 m³/day to be achieved by rerating the existing Mapleton WPCP by optimization. This would meet the Township's current need and provide additional winter river water quality monitoring to be completed by the GRCA. The Phase 1 proposal is conceptionally acceptable provided it is confirmed that the Ministry Surface Water Policies 1 and 2 are met as outlined in the Ministry document "*Water Management Policies, Guidelines, PWQO of the MOEE, July 1994*".
 - b. Phase 2 proposed an increase of the Mapleton WPCP rated capacity to 1300 m³/day with the preferred design and once sufficient data has been collected to assess the potential impact of a January and February discharge. The acceptance of the Receiving Water Impact Assessment is dependent upon whether the outstanding comments from the June 21, 2016 Ministry correspondence are addressed and whether the additional comments in this review are addressed.

This concludes our comments. Technical questions and points of clarifications should be directed to Michael Spencer, who will now have carriage of this file. Michael is available either at (905) 521-7734 or at Michael.Spencer@ontario.ca.

Barb Slattery, EA/Planning Coordinator
Ministry of the Environment and Climate Change
West Central Region
(905) 521-7864

From: Arun Jain [<mailto:Arun.Jain@exp.com>]
Sent: August 22, 2017 5:07 PM
To: Spencer, Michael (MOECC); Brad McRoberts; Jean Louis Gaudet
Cc: Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC); Slattery, Barbara (MOECC)
Subject: RE: Mapleton WPCP EA - Revised RWIA

Michael,

Hope your review is going well.

Please let us know if you any questions.

Regards,

Arun



Arun P. Jain, P.Eng., M.Eng.
Practice Lead - Linear Infrastructure, Central Ontario
exp Services Inc.
t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com
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Brampton, ON L6T 4V1
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From: Spencer, Michael (MOECC) [<mailto:Michael.Spencer@ontario.ca>]
Sent: Wednesday, August 09, 2017 7:49 AM
To: Brad McRoberts <BMcRoberts@mapleton.ca>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com>

Cc: Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>; Arun Jain <Arun.Jain@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>
Subject: RE: Mapleton WPCP EA - Revised RWIA

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Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
Hamilton, ON L8P 4Y7
Ph (905) 521-7734

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Sent: August 08, 2017 3:34 PM
To: Spencer, Michael (MOECC); Jean Louis Gaudet
Cc: Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC); Arun Jain; Slattery, Barbara (MOECC)
Subject: RE: Mapleton WPCP EA - Revised RWIA

Michael,

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Please let us know what dates might work for you and we will attempt to find a common date with our team.

Thanks

Brad McRoberts, MPA, P.Eng

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Township of Mapleton
P.O. Box 160
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N0G 1P0

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From: Spencer, Michael (MOECC) [<mailto:Michael.Spencer@ontario.ca>]
Sent: July-25-17 7:44 AM
To: Brad McRoberts <BMcRoberts@mapleton.ca>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com>
Cc: Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>; Arun Jain <Arun.Jain@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>
Subject: RE: Mapleton WPCP EA - Revised RWIA

Hi Brad and Jean-Louis, thank you for the emails. I will be starting the review this week. Thanks.

Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
Hamilton, ON L8P 4Y7
Ph (905) 521-7734

From: Brad McRoberts [<mailto:BMcRoberts@mapleton.ca>]
Sent: July 21, 2017 11:01 AM
To: Jean Louis Gaudet; Spencer, Michael (MOECC)
Cc: Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC); Arun Jain; Slattery, Barbara (MOECC)
Subject: RE: Mapleton WPCP EA - Revised RWIA

Michael,

I recognize political environments are not your concern but Township staff and even our Council are getting a lot of pressure to move this project forward. Any efforts to provide a timely response on your thoughts on the EA and RWIA would be greatly appreciated.

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]
Sent: July-21-17 10:38 AM
To: Spencer, Michael (MOECC) <Michael.Spencer@ontario.ca>
Cc: Brad McRoberts <BMcRoberts@mapleton.ca>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>;

Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>; Arun Jain <Arun.Jain@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>

Subject: Mapleton WPCP EA - Revised RWIA

Good morning, Michael,

I thought I would follow-up with you regarding your review of the RWIA report prepared in support of the Mapleton Wastewater Class EA.

As per your request, we sent you hard copies of the RWIA back in June, and we were wondering if MOECC had completed its review and if a meeting to discuss the report can be scheduled.

Thanks Michael,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator

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From: Spencer, Michael (MOECC) [<mailto:Michael.Spencer@ontario.ca>]

Sent: June-13-17 12:32 PM

To: Arun Jain <Arun.Jain@exp.com>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>

Cc: Brad McRoberts <BMcRoberts@mapleton.ca>; Mark Anderson (manderson@grandriver.ca)

<manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>;

Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>

Subject: RE: Mapleton WPCP EA - draft ESR

Hi Arun, we can attend a meeting after our comments are completed to discuss further. Thanks.

Michael Spencer

Surface Water Group Leader

Ministry of Environment and Climate Change

119 King Street West, 12th Flr

Hamilton, ON L8P 4Y7

Ph (905) 521-7734

From: Arun Jain [<mailto:Arun.Jain@exp.com>]

Sent: June 13, 2017 8:55 AM

To: Spencer, Michael (MOECC); Jean Louis Gaudet; Slattery, Barbara (MOECC)

Cc: Brad McRoberts; Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC)

Subject: RE: Mapleton WPCP EA - draft ESR

Michael,

Thanks for your response. Jean would provide the required copies.

Township and us would however appreciate a meeting to discuss the any comments and close out of the Class EA so that the project can move into design and implementation phase.

Your thoughts on that possibility would be greatly appreciated.

Regards,

Arun



Arun P. Jain, P.Eng., M.Eng.

Practice Lead - Linear Infrastructure, Central Ontario

exp Services Inc.

t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com

1595 Clark Blvd.

Brampton, ON L6T 4V1

CANADA

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From: Spencer, Michael (MOECC) [<mailto:Michael.Spencer@ontario.ca>]

Sent: Tuesday, June 13, 2017 8:40 AM

To: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>

Cc: Brad McRoberts <BMcRoberts@mapleton.ca>; Arun Jain <Arun.Jain@exp.com>; Mark Anderson <manderson@grandriver.ca> <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>

Subject: RE: Mapleton WPCP EA - draft ESR

Hi Jean-Louis,

Thank you for the email. Can you please send hard copies of the reports to this office? We'll try to provide comments back sometime in July, if possible. Thanks.

Michael Spencer

Surface Water Group Leader

Ministry of Environment and Climate Change

119 King Street West, 12th Flr

Hamilton, ON L8P 4Y7

Ph (905) 521-7734

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]

Sent: June 12, 2017 11:09 AM

To: Slattery, Barbara (MOECC); Spencer, Michael (MOECC)

Cc: Brad McRoberts; Arun Jain; Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger

Subject: RE: Mapleton WPCP EA - draft ESR

Good morning Barbara and Michael,

We wanted to touch base with you – how is your review of the Mapleton RWIA proceeding? Did you have any questions?

Would you be able to advise when we can expect to receive your comments?

Thank you,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator
t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com
80 Bancroft Street
Hamilton, ON L8E 2W5
Canada

exp.com | [legal disclaimer](#)

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From: Jean Louis Gaudet

Sent: May-17-17 11:05 AM

To: 'barbara.slattery@ontario.ca' <barbara.slattery@ontario.ca>; 'michael.spencer@ontario.ca' <michael.spencer@ontario.ca>

Cc: 'Brad McRoberts' <BMcRoberts@mapleton.ca>; 'Arun Jain' (Arun.Jain@exp.com) <Arun.Jain@exp.com>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>

Subject: Mapleton WPCP EA - draft ESR

Hi Barbara and Michael,

As per Barbara's correspondence with Brad, please find attached the RWIA for the Mapleton wastewater class EA.

The updated ESR will follow in a subsequent e-mail.

Regards,

JL



Jean-Louis Gaudet

Project Coordinator
t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com
80 Bancroft Street
Hamilton, ON L8E 2W5
CANADA

exp.com | [legal disclaimer](#)

keep it green, read from the screen

Jean Louis Gaudet

From: Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>
Sent: September-11-17 8:51 AM
To: Slattery, Barbara (MOECC); Brad McRoberts; Spencer, Michael (MOECC)
Cc: Jean Louis Gaudet; Sam Mattina; Paul Hinsperger; Mark Anderson; Arun Jain
Subject: RE: Mapleton WPCP EA - Revised RWIA

Hi – Was away last week so am just catching up on these emails now.

I am available on the 18th.

Rick

Rick Neubrand
Senior Environmental Officer / Inspector
Ministry of the Environment and Climate Change
Guelph District Office
One Stone Road West
Guelph , Ontario
N1G 4Y2
Tel : 519 826-4255
Fax : 519 826-4286
E-mail: rick.neubrand@ontario.ca

NOTE:

This e-mail, including any accompanying attachments, may contain confidential information that is privileged and / or exempt from disclosure under applicable law. If you are not the intended recipient or their authorized representative, any use, replication, disclosure or dissemination of any part of this communication is strictly prohibited. If you have received this communication in error immediately and permanently delete the e-mail, including any attachments, and contact me via return e-mail.

Thank you.



Please consider the environment before printing this email note.

From: Slattery, Barbara (MOECC)
Sent: September 7, 2017 9:26 AM
To: Brad McRoberts <BMcRoberts@mapleton.ca>; Spencer, Michael (MOECC) <Michael.Spencer@ontario.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>
Cc: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Mark Anderson <manderson@grandriver.ca>; Arun Jain <Arun.Jain@exp.com>
Subject: RE: Mapleton WPCP EA - Revised RWIA

Good morning to all,

We have booked Boardroom 403 at 1 Stone Road, Guelph for our meeting on September 18th, 3-5:00 p.m. Michael Spencer will be there in person, and I may have to call in.

Please note that all floors in this building are only accessible by building employees. Please meet at the reception desk near the sign-in desk and when all are present Rick Neubrand will take us up to the Boardroom.

From: Brad McRoberts [<mailto:BMcRoberts@mapleton.ca>]
Sent: September 06, 2017 3:25 PM
To: Slattery, Barbara (MOECC); Spencer, Michael (MOECC); Neubrand, Rick (MOECC)
Cc: Jean Louis Gaudet; Sam Mattina; Paul Hinsperger; Mark Anderson; Arun Jain
Subject: RE: Mapleton WPCP EA - Revised RWIA

We can do either so which ever is most convenient for you.

From: Slattery, Barbara (MOECC) [<mailto:barbara.slattery@ontario.ca>]
Sent: September-06-17 3:20 PM
To: Brad McRoberts <BMcRoberts@mapleton.ca>; Spencer, Michael (MOECC) <Michael.Spencer@ontario.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>
Cc: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Mark Anderson <manderson@grandriver.ca>; Arun Jain <Arun.Jain@exp.com>
Subject: RE: Mapleton WPCP EA - Revised RWIA

Just to be clear – are we talking about the Hamilton MOECC office where Mike and I are, or the Guelph Ministry office where Rick resides?

From: Brad McRoberts [<mailto:BMcRoberts@mapleton.ca>]
Sent: September 06, 2017 3:07 PM
To: Slattery, Barbara (MOECC); Spencer, Michael (MOECC); Neubrand, Rick (MOECC)
Cc: Jean Louis Gaudet; Sam Mattina; Paul Hinsperger; Mark Anderson; Arun Jain
Subject: RE: Mapleton WPCP EA - Revised RWIA

We will put you offices as the tentative location. Close to the date we ill provide an outline of the items we wish to discuss. Our biggest focus will be on MOECC requirements for interim discharge.

From: Slattery, Barbara (MOECC) [<mailto:barbara.slattery@ontario.ca>]
Sent: September-06-17 1:09 PM
To: Spencer, Michael (MOECC) <Michael.Spencer@ontario.ca>; Brad McRoberts <BMcRoberts@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>
Cc: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Mark Anderson <manderson@grandriver.ca>; Arun Jain <Arun.Jain@exp.com>
Subject: RE: Mapleton WPCP EA - Revised RWIA

Hello, I am also available on the 18th but only able to participate by T/C if the meeting is not here at MOECC offices. Is there interest in having the meeting in the Ministry's Guelph district office? Rick, would you be able to see about the availability of a boardroom there on the 18th?

Also, I think that it would benefit all participants if we had a sense of exactly which of the comments in our correspondence of August 23rd that you wish to discuss?

From: Spencer, Michael (MOECC)
Sent: September 06, 2017 1:01 PM
To: Slattery, Barbara (MOECC); Brad McRoberts; Neubrand, Rick (MOECC)
Cc: Jean Louis Gaudet; Sam Mattina; Paul Hinsperger; Mark Anderson; Arun Jain
Subject: RE: Mapleton WPCP EA - Revised RWIA

Hi all, I am available on the 18th.

Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
Hamilton, ON L8P 4Y7
Ph (905) 521-7734

From: Slattery, Barbara (MOECC)
Sent: September 05, 2017 9:09 AM
To: Brad McRoberts; Spencer, Michael (MOECC); Neubrand, Rick (MOECC)
Cc: Jean Louis Gaudet; Sam Mattina; Paul Hinsperger; Mark Anderson; Arun Jain
Subject: RE: Mapleton WPCP EA - Revised RWIA

Folks, Mike Spencer is off today but back in tomorrow so I will get back to you then.

From: Brad McRoberts [<mailto:BMcRoberts@mapleton.ca>]
Sent: September 05, 2017 8:53 AM
To: Spencer, Michael (MOECC); Slattery, Barbara (MOECC); Neubrand, Rick (MOECC)
Cc: Jean Louis Gaudet; Sam Mattina; Paul Hinsperger; Mark Anderson; Arun Jain
Subject: RE: Mapleton WPCP EA - Revised RWIA

Michael, Barbara, and Rick,

If we can make the afternoon of the 18th work (say 2:30 or 3 pm) it would be greatly appreciated. We are flexible on location to suit your convenience.

From: Arun Jain [<mailto:Arun.Jain@exp.com>]
Sent: September-02-17 12:04 PM
To: Mark Anderson <manderson@grandriver.ca>
Cc: Brad McRoberts <BMcRoberts@mapleton.ca>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>; Spencer, Michael (MOECC) <Michael.Spencer@ontario.ca>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>
Subject: Re: Mapleton WPCP EA - Revised RWIA

Brad

I am available on Monday afternoon and Tuesday in the AM.

Regards,

Arun

On Sep 1, 2017, at 4:39 PM, Mark Anderson <manderson@grandriver.ca> wrote:

Hi, Brad

Right now, I'm only available Monday, September 18th (after 1:30 pm) or Tuesday, September 19th (any time).

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge ON N1R 5W6
(519) 621-2761 ext 2226
www.grandriver.ca

From: Brad McRoberts [<mailto:BMcRoberts@mapleton.ca>]
Sent: September 1, 2017 3:52 PM
To: Slattery, Barbara (MOECC); Arun Jain; Spencer, Michael (MOECC); Jean Louis Gaudet
Cc: Mark Anderson; Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC)
Subject: RE: Mapleton WPCP EA - Revised RWIA

Thank you all. Now that we have your comments can we schedule and meeting for the week of September 18. If everyone could identify what dates and time slots they are available I will attempt to find a common date time for that week.

thanks

From: Slattery, Barbara (MOECC) [<mailto:barbara.slattery@ontario.ca>]
Sent: August-23-17 9:41 AM
To: Arun Jain <Arun.Jain@exp.com>; Spencer, Michael (MOECC) <Michael.Spencer@ontario.ca>; Brad McRoberts <BMcRoberts@mapleton.ca>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com>
Cc: Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>
Subject: RE: Mapleton WPCP EA - Revised RWIA

Good Day to all,

We have completed our review of the most recent submission, specifically the *Receiving Water Impact Assessment* prepared by exp Services Inc. and have prepared the following comments outlining our remaining concerns. As you may be aware, Paul Odom has retired after many years of distinguished service with this Region so to provide context, we have prefaced our comments on the 2017 submission by including a brief review of Paul's comments as they served as the basis for the 2017 work.

June 22, 2016 Ministry Correspondence

The Ministry had previously reviewed the following report:

Mapleton WPCP EA, *Receiving Water Impact Assessment*, exp Services Inc.,
April 20, 2016.

and provided comments on this report in a June 22, 2016 letter, RE: Drayton WPCP April 2016 Receiving Water Impact Assessment, from Barbara Slattery, Environmental Assessment and Planning Coordinator and based on the technical review by Paul Odom.

The last Ministry correspondence contained a Comments section and a Conclusions and Recommendations section. We reviewed the April 2017 report to determine whether the previously identified concerns/comments had been adequately addressed. For your information, the complete June 22, 2016 correspondence is attached to this email. For ease, comments which are either unresolved, or which require some form of action have been **bolded**.

June 22, 2016 Comments

Our review of the April 2017 report, concludes the following with respect to the resolution of concerns raised following the review of the April 2016 RWIA:

- a. This comment has been addressed since an allowance for precipitation was incorporated into the assessment.
- b. No further comment is required.
- c. This comment has been addressed since un-ionized ammonia was consistently referenced.
- d. This comment has been addressed in Table 3 using “>=” and “passing” for dissolved oxygen instead of the 75th percentile.
- e. No further comment is required.
- f. No further comment is required.
- g. This comment has been addressed in Section 7.3 with a precipitation allowance.
- h. This comment has been addressed in Section 6.1 using the rated capacity.
- i. No further comment is required.
- j. The comment concerning the point of complete mixing was addressed in Section 8.7 with the dye tracer study.

The comment about mixed concentrations of un-ionized ammonia up to the PWQO was addressed in Table 15 (and when compared to Table 8) with un-ionized ammonia concentrations after mixing being less than the PWQO.

- k. **In regards to potentially toxic conditions within the mixing zone, historically the Ministry has procedurally used an un-ionized ammonia concentration of 0.1 mg/L as an end of pipe non-toxic value for effluent. Table 15 identifies end of pipe effluent concentrations for un-ionized ammonia in April at 0.1236 mg/L and in October at 0.1308 mg/L which exceed the Ministry’s procedural non-toxic value. As such, a non-toxic un-ionized ammonia effluent concentration not exceeding 0.1 mg/L should be incorporated into the report.**

- l. This comment has been addressed in Section 6.3 as the effluent quality data was updated to April 2016.
- m. No further comment is required.
- n. This comment has been addressed in Section 6.3.3 with an explanation of the exceedances.
- o. **This comment was not addressed in Section 6.3.8 as it did not identify if there is data that demonstrates the absence of H₂S since the installation of the cascade aerator (2008).**
- p. This comment has been addressed in Section 7.1 in regards to ammonia.
- q. No further comment is required.
- r. This comment has been addressed with the precipitation allowance.
- s. This comment has been addressed in Section 8 with the proposed discharge regime assessment.
- t. **Similar to comment k) above, historically the Ministry has procedurally used an un-ionized ammonia concentration of 0.1 mg/L as an end of pipe non-toxic value for effluent. Table 15 identifies end of pipe effluent concentrations for un-ionized ammonia in April at 0.1236 mg/L and in October at 0.1308 mg/L which exceed the Ministry's procedural non-toxic value. As such, a non-toxic un-ionized ammonia effluent concentration not exceeding 0.1 mg/L should be incorporated into the report.**
- u. This comment has been addressed since Table 15 identified that the 75th percentile un-ionized ammonia was calculated using individual total ammonia nitrogen with observed field pH and field temperature.
- v. This comment has been addressed in Section 8.7 in regards to mixing zone.
- w. This comment has been addressed since the report incorporated a precipitation allowance.
- x. This comment has been addressed in Section 8.4 with a total oxygen demand assessment and discussion.

In summary, based on the review of the April 2017 report in comparison to the Comments section in the June 22, 2016 Ministry correspondence, comment o) was not addressed, and comments k) and t) should be further addressed with the additional guidance provided. All other comments have been addressed.

June 22, 2016 Conclusions and Recommendations

Based on the review of the April 2017 report, we offer the following comments in order of the Conclusions and Recommendations section in the June 22, 2016 Ministry correspondence. Again, outstanding items are in **bold**:

1. This comment has been addressed in Section 8.7 in regards to limited use zone/avoidance zone.
2. **This comment has not been addressed since the April 2017 report still contains dilution ratios for January and February that were identified as unacceptable in the June 22, 2016 Ministry correspondence. Procedurally, the Ministry has accepted minimum dilution ratios of 10:1 at other sites dependent on the site specific assimilative capacity assessment. It is our understanding that the GRCA is undertaking a monitoring program to fill in the winter water quality data gaps and may be able to provide additional direction to address this.**
3. This comment has been addressed in Section 8.4 in regards to dissolved oxygen.

Additional Comments on April 2017 Report

We also offer the following additional comments as items which require further work:

1. The April 2017 report assessed the total phosphorus effluent limit concentrations and loadings (compliance criteria) to the Ministry's surface water quality Policy 2. The report should also assess the total phosphorus effluent objective concentrations and loadings (conformance criteria) to verify that Policy 2 is also met for design purposes.
2. The April 2017 report provided a summary of the completed dye tracer study completed by Hutchinson Environmental Sciences Ltd. in Section 8.7. The full study report should be included as an appendix for review.
3. Section 9 Interim Phasing of the April 2017 report proposed an interim phasing plan due to the limited river water quality data for January and February.
 - a. Phase 1 proposed an interim rating of about 900 m³/day to be achieved by rerating the existing Mapleton WPCP by optimization. This would meet the Township's current need and provide additional winter river water quality monitoring to be completed by the GRCA. The Phase 1 proposal is conceptionally acceptable provided it is confirmed that the Ministry Surface Water Policies 1 and 2 are met as outlined in the Ministry document "*Water Management Policies, Guidelines, PWQO of the MOEE, July 1994*".
 - b. Phase 2 proposed an increase of the Mapleton WPCP rated capacity to 1300 m³/day with the preferred design and once sufficient data has been collected to assess the potential impact of a January and February discharge. The acceptance of the Receiving Water Impact Assessment is dependent upon whether the outstanding comments from the June 21, 2016 Ministry

correspondence are addressed and whether the additional comments in this review are addressed.

This concludes our comments. Technical questions and points of clarifications should be directed to Michael Spencer, who will now have carriage of this file. Michael is available either at (905) 521-7734 or at Michael.Spencer@ontario.ca.

Barb Slattery, EA/Planning Coordinator
Ministry of the Environment and Climate Change
West Central Region
(905) 521-7864

From: Arun Jain [<mailto:Arun.Jain@exp.com>]
Sent: August 22, 2017 5:07 PM
To: Spencer, Michael (MOECC); Brad McRoberts; Jean Louis Gaudet
Cc: Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC); Slattery, Barbara (MOECC)
Subject: RE: Mapleton WPCP EA - Revised RWIA

Michael,

Hope your review is going well.

Please let us know if you any questions.

Regards,

Arun

<image001.png>

Arun P. Jain, P.Eng., M.Eng.
Practice Lead - Linear Infrastructure, Central Ontario
exp Services Inc.
t: +1.905.793.9800 x2373 | m: +1.647.248.9104 | e: arun.jain@exp.com
1595 Clark Blvd.
Brampton, ON L6T 4V1
CANADA

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From: Spencer, Michael (MOECC) [<mailto:Michael.Spencer@ontario.ca>]
Sent: Wednesday, August 09, 2017 7:49 AM
To: Brad McRoberts <BMcRoberts@mapleton.ca>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com>
Cc: Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC)

<Rick.Neubrand@ontario.ca>; Arun Jain <Arun.Jain@exp.com>; Slattery, Barbara (MOECC)
<barbara.slattery@ontario.ca>

Subject: RE: Mapleton WPCP EA - Revised RWIA

Hi Brad, thank you for your email. I have started my review but have not finished it yet. I will provide comments once my review is complete. I have been out of the office recently since I was chosen as a juror for a criminal trial and the trial started immediately on that day. It was unexpected since as Provincial Officers we generally don't get chosen. I will get back to you when my review is completed. Thanks.

Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
Hamilton, ON L8P 4Y7
Ph (905) 521-7734

From: Brad McRoberts [<mailto:BMcRoberts@mapleton.ca>]
Sent: August 08, 2017 3:34 PM
To: Spencer, Michael (MOECC); Jean Louis Gaudet
Cc: Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC); Arun Jain; Slattery, Barbara (MOECC)
Subject: RE: Mapleton WPCP EA - Revised RWIA

Michael,

Wondering how your review is progressing and if we could start scheduling a meeting between the parties before the end of August to discuss any comments and to further continue our previous discussions with Paul Odom on interim capacity approval.

Please let us know what dates might work for you and we will attempt to find a common date with our team.

Thanks

Brad McRoberts, MPA, P.Eng

CAO Clerk
Township of Mapleton
P.O. Box 160
7275 Sideroad 16
Drayton, Ontario
N0G 1P0

Phone (519) 638-3313 Ext 24
Toll Free 1-800-385-7248
Fax (519) 638-5113

<image002.jpg>

www.mapleton.ca

From: Spencer, Michael (MOECC) [<mailto:Michael.Spencer@ontario.ca>]
Sent: July-25-17 7:44 AM
To: Brad McRoberts <BMcRoberts@mapleton.ca>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com>
Cc: Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>; Arun Jain <Arun.Jain@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>
Subject: RE: Mapleton WPCP EA - Revised RWIA

Hi Brad and Jean-Louis, thank you for the emails. I will be starting the review this week. Thanks.

Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
Hamilton, ON L8P 4Y7
Ph (905) 521-7734

From: Brad McRoberts [<mailto:BMcRoberts@mapleton.ca>]
Sent: July 21, 2017 11:01 AM
To: Jean Louis Gaudet; Spencer, Michael (MOECC)
Cc: Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC); Arun Jain; Slattery, Barbara (MOECC)
Subject: RE: Mapleton WPCP EA - Revised RWIA

Michael,

I recognize political environments are not your concern but Township staff and even our Council are getting a lot of pressure to move this project forward. Any efforts to provide a timely response on your thoughts on the EA and RWIA would be greatly appreciated.

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]
Sent: July-21-17 10:38 AM
To: Spencer, Michael (MOECC) <Michael.Spencer@ontario.ca>
Cc: Brad McRoberts <BMcRoberts@mapleton.ca>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>; Arun Jain <Arun.Jain@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>
Subject: Mapleton WPCP EA - Revised RWIA

Good morning, Michael,

I thought I would follow-up with you regarding your review of the RWIA report prepared in support of the Mapleton Wastewater Class EA.

As per your request, we sent you hard copies of the RWIA back in June, and we were wondering if MOECC had completed its review and if a meeting to discuss the report can be scheduled.

Thanks Michael,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator
t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com
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Hamilton, ON L8E 2W5
Canada

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From: Spencer, Michael (MOECC) [<mailto:Michael.Spencer@ontario.ca>]

Sent: June-13-17 12:32 PM

To: Arun Jain <Arun.Jain@exp.com>; Jean Louis Gaudet <jeanlouis.gaudet@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>

Cc: Brad McRoberts <BMcRoberts@mapleton.ca>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>

Subject: RE: Mapleton WPCP EA - draft ESR

Hi Arun, we can attend a meeting after our comments are completed to discuss further. Thanks.

Michael Spencer
Surface Water Group Leader
Ministry of Environment and Climate Change
119 King Street West, 12th Flr
Hamilton, ON L8P 4Y7
Ph (905) 521-7734

From: Arun Jain [<mailto:Arun.Jain@exp.com>]

Sent: June 13, 2017 8:55 AM

To: Spencer, Michael (MOECC); Jean Louis Gaudet; Slattery, Barbara (MOECC)

Cc: Brad McRoberts; Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger; Neubrand, Rick (MOECC)

Subject: RE: Mapleton WPCP EA - draft ESR

Michael,

Thanks for your response. Jean would provide the required copies.

Township and us would however appreciate a meeting to discuss the any comments and close out of the Class EA so that the project can move into design and implementation phase.

Your thoughts on that possibility would be greatly appreciated.

Regards,

Arun

<image001.png>

Arun P. Jain, P.Eng., M.Eng.

Practice Lead - Linear Infrastructure, Central Ontario

exp Services Inc.

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From: Spencer, Michael (MOECC) [<mailto:Michael.Spencer@ontario.ca>]

Sent: Tuesday, June 13, 2017 8:40 AM

To: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>

Cc: Brad McRoberts <BMcRoberts@mapleton.ca>; Arun Jain <Arun.Jain@exp.com>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>

Subject: RE: Mapleton WPCP EA - draft ESR

Hi Jean-Louis,

Thank you for the email. Can you please send hard copies of the reports to this office? We'll try to provide comments back sometime in July, if possible. Thanks.

Michael Spencer

Surface Water Group Leader

Ministry of Environment and Climate Change

119 King Street West, 12th Flr

Hamilton, ON L8P 4Y7

Ph (905) 521-7734

From: Jean Louis Gaudet [<mailto:jeanlouis.gaudet@exp.com>]

Sent: June 12, 2017 11:09 AM

To: Slattery, Barbara (MOECC); Spencer, Michael (MOECC)

Cc: Brad McRoberts; Arun Jain; Mark Anderson (manderson@grandriver.ca); Sam Mattina; Paul Hinsperger

Subject: RE: Mapleton WPCP EA - draft ESR

Good morning Barbara and Michael,

We wanted to touch base with you – how is your review of the Mapleton RWIA proceeding? Did you have any questions?

Would you be able to advise when we can expect to receive your comments?

Thank you,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator

t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com

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Hamilton, ON L8E 2W5
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From: Jean Louis Gaudet

Sent: May-17-17 11:05 AM

To: 'barbara.slattery@ontario.ca' <barbara.slattery@ontario.ca>; 'michael.spencer@ontario.ca' <michael.spencer@ontario.ca>

Cc: 'Brad McRoberts' <BMcRoberts@mapleton.ca>; 'Arun Jain' (Arun.Jain@exp.com) <Arun.Jain@exp.com>; Mark Anderson (manderson@grandriver.ca) <manderson@grandriver.ca>; Sam

Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>

Subject: Mapleton WPCP EA - draft ESR

Hi Barbara and Michael,

As per Barabara's correspondence with Brad, please find attached the RWIA for the Mapleton wasterwater class EA.

The updated ESR will follow in a subsequent e-mail.

Regards,

JL

<image003.jpg>

Jean-Louis Gaudet

Project Coordinator

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Meeting Agenda

Date:	Monday September 18, 2017 ----- 3:00-5:00 PM		
Project Name:	Mapleton Wastewater EA	Project #:	BRM-00605325-A0
Subject:	Meeting with MOECC RE: RWIA comments and Interim Phasing		
Participants:	Brad McRoberts (Township of Mapleton) Sam Mattina (Township of Mapleton) Paul Hinsperger (Township of Mapleton) Mark Anderson (GRCA) Barbara Slattery (MOECC) Michael Spencer (MOECC) Rick Neubrand (MOECC) Arun Jain (exp) Jean Louis Gaudet (exp)		
Location:	Boardroom 403 MOECC Offices 1 Stone Road Guelph, ON	Prepared By:	JLG
Distribution:	Participants		

1. Meeting objectives
2. Background
3. Responses to MOECC, Aug. 23/2017 comments
 - 3.1. End-of-pipe UIA concentrations / mixing zone
 - 3.2. H₂S
 - 3.3. Dilution ratios
 - 3.4. TP objective loadings
 - 3.5. Dye tracer study
4. Proposed interim phasing plan
5. Next steps – Class EA Closure
6. Next steps – Interim Re-rating




Meeting with MOECC

Township of Mapleton | Class EA for Mapleton Wastewater Servicing

September 18, 2017

Outline

- Meeting objectives
- Background
- Responses to MOECC, Aug. 23/2017 comments
 - End-of-pipe UIA concentrations / mixing zone
 - H₂S
 - Dilution ratios
 - TP objective loadings
 - Dye tracer study
- Proposed interim phasing plan
- Next steps – Class EA Closure
- Next steps – Interim Re-rating



RWIA Review Meeting with MOECC | Sept 18, 2017
Township of Mapleton | Class EA for Mapleton Wastewater Servicing | exp ref. BRM-00605325-A0

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Meeting Objectives

1. Review responses to MOECC comments and closure to Class EA
2. Confirm with the MOECC a clear path forward to the interim re-rating to 900 m³/d.



Background

Mapleton WPCP

- Recent upgrades to effluent storage capacity
- Current plant design flow is 950 m³/d
 - 1997 design flow is 950 m³/d
 - Passed through 650 and 750 m³/d phasing based on no adverse impacts
 - Intent in CG&S 1996 ESR was to rate WPCP at 950 m³/day contingent upon demonstrated lack of impact at interim rate of 750 m³/day
 - Source: MOECC (Paul Odom, June 22, 2016 comments)
- ECA amended in January 2016, rated for 750 m³/d influent
 - "Discharges in excess of these daily discharges is allowed if the minimum 10:1 of the streamflow to daily discharge rate for the applicable period of that that design streamflow occurs, based on actual measurements of flow rate in the Conestoga River." (Section 9(1))
- New blowers installed in 2017



Background

EXP's work

- Condition Assessment
 - Final submission June 26, 2016
 - Site visit on November 18, 2015

- Preliminary Design Report
 - Final submission June 27, 2016
 - Upgrade plant capacity to 1300 m³/d

- RWIA Update
 - Latest draft April 26, 2017



RWIA Review Meeting with MOECC | Sept 18, 2017
Township of Mapleton | Class EA for Mapleton Wastewater Servicing | exp ref. BRM-00605325-A0

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End-of-Pipe UIA Concentrations

MOECC comment, August 23, 2017

k) In regards to potentially toxic conditions within the mixing zone, historically the Ministry has procedurally used an un-ionized ammonia concentration of 0.1 mg/L as an end of pipe non-toxic value for effluent. Table 15 identifies end of pipe effluent concentrations for un-ionized ammonia in April at 0.1236 mg/L and in October at 0.1308 mg/L which exceed the Ministry's procedural non-toxic value. As such, a non-toxic un-ionized ammonia effluent concentration not exceeding 0.1 mg/L should be incorporated into the report.



RWIA Review Meeting with MOECC | Sept 18, 2017
Township of Mapleton | Class EA for Mapleton Wastewater Servicing | exp ref. BRM-00605325-A0

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End-of-Pipe UIA Concentrations

MOECC comment, August 23, 2017

t) **Similar to comment k) above**, historically the Ministry has procedurally used an un-ionized ammonia concentration of 0.1 mg/L as an end of pipe non-toxic value for effluent. Table 15 identifies end of pipe effluent concentrations for un-ionized ammonia in April at 0.1236 mg/L and in October at 0.1308 mg/L which exceed the Ministry's procedural non-toxic value. As such, **a non-toxic un-ionized ammonia effluent concentration not exceeding 0.1 mg/L should be incorporated into the report.**



RWIA Review Meeting with MOECC | Sept 18, 2017
Township of Mapleton | Class EA for Mapleton Wastewater Servicing | exp ref. BRM-00605325-A0

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End-of-Pipe UIA Concentrations

EXP response

- **Our previous rationale:**
UIA effluent calcs were based on Conestoga River data (pH, temp) to reflect after-mixing conditions.
- **What we've changed:**
Updated the UIA effluent calculations using effluent pH and temp. (2012-2015), and proposed TAN effluent limit of 3.0 mg/L
- **Conservative assumptions:**
 - Used worst-case (i.e. largest) measured temp. and pH, per month
 - For Jan/Feb, used worst-case (i.e. largest) pH/temp. for Dec. as proxy




RWIA Review Meeting with MOECC | Sept 18, 2017
Township of Mapleton | Class EA for Mapleton Wastewater Servicing | exp ref. BRM-00605325-A0

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End-of-Pipe UIA Concentrations

EXP response

Calculated end-of-pipe UIA



Month	pH	Temp (deg C)	TAN (Prop. effluent limit mg/L as N)	End-of-pipe UIA (mg/L as NH ₃)
Jan*	7.9	6.1	3	0.039
Feb*	7.9	6.1	3	0.039
Mar	8.1	8.6	3	0.075
Apr	7.6	9.5	3	0.026
Oct	8.1	13.1	3	0.105
Nov	7.6	8.7	3	0.024
Dec	7.9	6.1	3	0.039



RWIA Review Meeting with MOECC | Sept 18, 2017
Township of Mapleton | Class EA for Mapleton Wastewater Servicing | exp ref. BRM-00605325-A0

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End-of-Pipe UIA Concentrations

EXP response


Proposals to resolve the October end-of-pipe UIA effluent concentration

OPTION A)

- Use:
 - [UIA end-of-pipe] = 0.2 mg/L NH₃ effluent *limit*
 - [UIA end-of-pipe] = 0.1 mg/L NH₃ effluent *objective*
 - (This was done similarly for the 2013 Arthur WWTP EA)

- Still stricter than the federal effluent toxicity limit.
 - 1.25 mg/L UIA at 15 °C; as per Wastewater Systems Effluent Regulations under the Fisheries Act.
 - Could insert table to show proposed TAN effluent objectives do not exceed 0.1 mg/L NH₃.

- At TAN objective of 1 mg/L N, the UIA end-of-pipe concentrations range from 0.013 mg/L NH₃ (Dec) to 0.035 mg/L NH₃ (Oct).



RWIA Review Meeting with MOECC | Sept 18, 2017
Township of Mapleton | Class EA for Mapleton Wastewater Servicing | exp ref. BRM-00605325-A0

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End-of-Pipe UIA Concentrations

EXP response

OPTION B)

- For October, reduce TAN effluent limit to 2.5 mg/L N.
- This would reduce end of pipe UIA concentration for October to 0.088 mg/L NH₃.



H₂S

MOECC comments

o) It is understood that the purpose of the cascade aerator is to volatilize the H₂S, is there above and below data which demonstrates this or at least data from the outfall showing the absence of H₂S since 2008? --- June 22, 2016

o) [The June 22, 2016] comment was not addressed in Section 6.3.8 as it did not identify if there is data that demonstrates the absence of H₂S since the installation of the cascade aerator (2008). --- August 23, 2017



H₂S

EXP response

- Appears to be a previous operational concern than a Class EA issue.
- Cascade aerators were installed in response to this concern, since no further concerns have been noted.
 - No reports of operator detection via smell.
 - No documented complaints from local residents (per WPCP Annual Reports, from 2012-2015)
- Future treatment proposed under the EA uses high levels of aerations in the SAGR® treatment
- Therefore, we have no concerns related to H₂S for the proposed treatment.



Dilution Ratios

MOECC comment, August 23, 2017

2) This comment has not been addressed since the April 2017 report still contains dilution ratios for January and February that were identified as unacceptable in the June 22, 2016 Ministry correspondence. Procedurally, the Ministry has accepted minimum dilution ratios of 10:1 at other sites dependent on the site specific assimilative capacity assessment. It is our understanding that the GRCA is undertaking a monitoring program to fill in the winter water quality data gaps and may be able to provide additional direction to address this.



Dilution Ratios

EXP response

- Typically, 10:1 dilution ratio is used as a rule-of-thumb / safety factor in absence of any support data / analysis.
- However, in this case, we will be installing SAGR® system that is capable of producing TAN levels below 1 mg/L.
- Further, through our analysis, based on TAN limit of 3 mg/L, we've been able to demonstrate that PWQO will be met effectively through the proposed discharge regime in January/February.
- Based on a strong treatment technology and detailed analysis, we do not see an environmental risk. However, GRCA is assisting in collecting background data for winter months.



RWIA Review Meeting with MOECC | Sept 18, 2017
Township of Mapleton | Class EA for Mapleton Wastewater Servicing | exp ref. BRM-00605325-A0

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TP Effluent Limit and Objective

MOECC Comment, August 23, 2017

Additional Comments on April 2017 Report

1. The April 2017 report assessed the total phosphorus effluent limit concentrations and loadings (compliance criteria) to the Ministry's surface water quality Policy 2. The report should also assess the total phosphorus effluent objective concentrations and loadings (conformance criteria) to verify that Policy 2 is also met for design purposes.



RWIA Review Meeting with MOECC | Sept 18, 2017
Township of Mapleton | Class EA for Mapleton Wastewater Servicing | exp ref. BRM-00605325-A0

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TP Effluent Limit and Objective

EXP response

Policy 2 is met for TP effluent limit concentrations and loadings,

Policy 2 would also be met for TP effluent objective concentrations and loadings,

We can include this information as needed.



RWIA Review Meeting with MOECC | Sept 18, 2017
Township of Mapleton | Class EA for Mapleton Wastewater Servicing | exp ref. BRM-00605325-A0


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Dye Tracer Study

MOECC Comment, August 23, 2017

Additional Comments on April 2017 Report

2. The April 2017 report provided a summary of the completed dye tracer study completed by Hutchinson Environmental Sciences Ltd. in Section 8.7. The full study report should be included as an appendix for review.



RWIA Review Meeting with MOECC | Sept 18, 2017
Township of Mapleton | Class EA for Mapleton Wastewater Servicing | exp ref. BRM-00605325-A0

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Dye Tracer Study

EXP response

- EXP will provide the study as an appendix.



Interim Phasing to 900 m³/d

MOECC Comment, August 23, 2017

Additional Comments on April 2017 Report

3. Section 9 Interim Phasing of the April 2017 report proposed an interim phasing plan due to the limited river water quality data for January and February.

(a) Phase 1 proposed an interim rating of about 900 m³/day to be achieved by rerating the existing Mapleton WPCP by optimization. This would meet the Township's current need and provide additional winter river water quality monitoring to be completed by the GRCA. The Phase 1 proposal is conceptionally acceptable provided it is confirmed that the Ministry Surface Water Policies 1 and 2 are met as outlined in the Ministry document "Water Management Policies, Guidelines, PWQO of the MOEE, July 1994".



Interim Phasing to 900 m³/d


EXP response

CBOD (Policy 1)

- Blowers were installed in 2017 to aid CBOD removal

TP (Policy 2)

- Proposed to add additional chemical dosing point upstream of the sand filters
- Also proposed to optimize existing lagoon chemical dosing

 RWIA Review Meeting with MOECC | Sept 18, 2017
Township of Mapleton | Class EA for Mapleton Wastewater Servicing | exp ref. BRM-00605325-A0 21

Interim Phasing to 900 m³/d


EXP response

TAN (Policy 1)

- Current actual TAN loading is significantly below that which is permitted based on TAN objective and limit
 - Actual (2012-2014): 303 kg/yr
 - Current limit (5 mg/L): 1637 kg/yr
 - Current objective (3 mg/L): 982 kg/yr

Overall

- EXP and Township will demonstrate that Policy 1 and 2 objectives are met for the proposed 900 m³/d interim re-rating

 RWIA Review Meeting with MOECC | Sept 18, 2017
Township of Mapleton | Class EA for Mapleton Wastewater Servicing | exp ref. BRM-00605325-A0 22

– Interim Phasing to 900 m³/d

MOECC Comment, August 23, 2017

(b) Phase 2 proposed an increase of the Mapleton WPCP rated capacity to 1300 m³/day with the preferred design and once sufficient data has been collected to assess the potential impact of a January and February discharge. The acceptance of the Receiving Water Impact Assessment is dependent upon whether the outstanding comments from the June 21, 2016 Ministry correspondence are addressed and whether the additional comments in this review are addressed.



– Next Steps – Class EA Closure

- Revise the RWIA and submit to MOECC
- Township would like RWIA to include 2016-17 winter data.
- EA will refer to two stage upgrades with the interim upgrade to 900 m³/day. It will include a commitment in the EA to revisit the RWIA through an EA Addendum to enable proposed discharge for 1300 m³/d capacity.






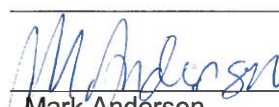

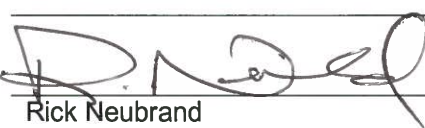


Next Steps – Interim Re-rating

- Have a pre-consultation meeting with MOECC Approvals branch to be coordinated by Rick
- Use existing 1:10 discharge criteria for future 900m³/day discharge (Michael to check Cof A)



Sign-in sheet

Project Title:	Mapleton Wastewater EA		
Subject:	Meeting with MOECC RE: RWIA comments and Interim Phasing	Project File No:	BRM-00605325-A0
Location:	Boardroom 403 MOECC Offices 1 Stone Road Guelph, ON	Date of Meeting:	Monday Sept. 18, 2017 3:00 pm - 5:00 pm

Name & Signature	Affiliation
 Brad McRoberts	Township of Mapleton
 Sam Mattina	Township of Mapleton
 Paul Hinsperger	Township of Mapleton
 Mark Anderson	GRCA
by telephone Barbara Slattery	MOECC
 Michael Spencer	MOECC
 Rick Neubrand	MOECC
 Arun Jain	exp
 Jean Louis Gaudet	exp





Meeting Minutes

Date:	Oct. 6, 2017	Meeting Date:	Sept. 18, 2017
Project Name:	Mapleton Wastewater Class EA	Project #:	BRM-605325-A0
Subject:	RWIA Review Meeting with MOECC		
Participants:	Brad McRoberts - Township of Mapleton Sam Mattina - Township of Mapleton Paul Hinsperger - Township of Mapleton Mark Anderson - Grand River Conservation Authority Barbara Slattery - Ministry of Environment and Climate Change Michael Spencer - Ministry of Environment and Climate Change Rick Neubrand - Ministry of Environment and Climate Change Arun Jain - EXP Jean-Louis Gaudet - EXP		
Location:	MOECC Offices Boardroom 403 1 Stone Road, Guelph, ON	Prepared By:	JL Gaudet
Distribution:	All Present		

Minutes of Meeting		
Item No.	Discussions	Action
1.	Introductions <ul style="list-style-type: none"> • Arun Jain (AJ) and Brad McRoberts (BM) welcomed everyone to the meeting and thanked them for their time. • Everyone introduce themselves and their affiliations. Barbara Slattery attended via teleconference. 	
2.	Meeting Objectives <ul style="list-style-type: none"> • AJ reviewed the meeting objectives, which were to: <ul style="list-style-type: none"> ○ Review responses to Ministry of Environment and Climate Change (MOECC) comments and closure to Class Environmental Assessment (EA); and ○ Confirm with the MOECC a clear path forward to the interim re-rating to 900 m³/d. 	

3.	<p>Background</p> <ul style="list-style-type: none"> JLG provided a high-level background review of the Mapleton Water Pollution Control Plant (WPCP), including improvements made to the WPCP in recent years and investigations completed as part of the Class EA process. 	
4.	<p>Review of MOECC Comments</p> <ul style="list-style-type: none"> JLG led a review and discussion of the MOECC's outstanding comments (August 23, 2017) on the April 20, 2017 Mapleton Class EA Receiving Water Impact Assessment (RWIA). <p><i>Comments k) and t) re: UIA End-of-Pipe Concentration to not exceed 0.1 mg/L</i></p> <ul style="list-style-type: none"> JLG noted that the RWIA's Un-ionized Ammonia (UIA) effluent calculations were based on Conestoga River data (pH, temperature) to reflect after-mixing conditions. He explained that the UIA effluent calculations have been recalculated using the WPCP's reported effluent pH and temperature for 2012 to 2015 and the proposed Total Ammonia Nitrogen (TAN) effluent limit of 3.0 mg/L. Worst-case scenarios were assumed by using the highest measured temperature and pH for each month in question. For January and February, data for December was used. Based on the revised calculations, the End-of-Pipe UIA values were all under 0.1 mg/L, with the one exception being a value of 0.105 mg/L in October. Michael Spencer (MS) advised that the value of 0.105 mg/L for October is acceptable. EXP will update the RWIA to present the calculated end-of-pipe UIA effluent concentrations. <p><i>Comment o) re: Availability of Data regarding H₂S in Effluent</i></p> <ul style="list-style-type: none"> JLG observed that the legacy issue of H₂S appeared to be more of an operational concern rather than an EA issue. He noted that cascade aerators were previously installed in response to this concern and since then no further evidence of H₂S has been observed by operators or otherwise documented. MS asked when the cascade aerator was installed. BM said he would confirm [update: BM reports that the cascade aerators were installed in 2010]. AJ also noted that the future Submerged Activated Growth Reactor (SAGR) treatment proposed in the EA uses a high level of aeration and therefore the conditions required for H₂S are even less likely. MS agreed that, based on the discussion, H₂S should not be an issue and that the rationale discussed should be included in the RWIA. EXP will update the RWIA to reflect the points above. <p><i>Conclusion and Recommendation #2) re: Dilution Ratios for January and February</i></p> <ul style="list-style-type: none"> AJ and JLG reviewed how the RWIA analysis shows that, based on a TAN limit of 3 mg/L, the Provincial Water Quality Objectives (PWQO) will be met 	<p>EXP</p> <p>EXP</p>

	<p>effectively by the proposed discharge regime in January/February. They acknowledged that lack of river water quality data in January and February; however, they also noted that the Grand River Conservation Authority (GRCA) is collecting background river water quality data for the winter months, which can be used to validate the analysis prior to moving from the interim-phasing to full expansion to 1,300 m³/day.</p> <ul style="list-style-type: none"> MS commented that MOECC would like the analysis to include data from another year or two. <p><i>Additional Comment #1: Total Phosphorus Effluent Objective Concentrations and Loadings</i></p> <ul style="list-style-type: none"> JLG noted that the MOECC Policy 2 is met for Total Phosphorus (TP) effluent limit concentrations and loadings, and therefore Policy 2 would also be met for TP effluent objective concentrations and loadings. JLG confirmed that a table presenting this can be added to the RWIA. <p><i>Additional Comment #2: Dye Tracer Study Report</i></p> <ul style="list-style-type: none"> JLG confirmed that the Dye Tracer Study Report will be included as an appendix in the RWIA. <p><i>Additional Comment #3: Interim Phasing</i></p> <ul style="list-style-type: none"> JLG and AJ described what improvements might be completed at the WPCP to ensure it performs adequately at an interim-phasing of 900 m³/day, including: <ul style="list-style-type: none"> New blowers installed in 2017, to aid in cBOD removal; and Adding an additional chemical dosing point upstream of the sand filters and optimizing the existing lagoon chemical dosing system to improve the removal of TP. AJ also reviewed how the existing measured TAN loading is significantly lower than the current TAN effluent limit and objective, concluding that the measured WPCP performance demonstrates it would be able to meet its TAN effluent limits and objectives at the interim rating. MS agreed that the limits for cBOD and TAN will likely be able to remain the same, but he noted that the TP limit will need to be reduced accordingly. AJ agreed that the EXP and the Township will commit in the ESR that the MOECC's Policy 1 and Policy 2 water quality objectives are to be met for the proposed 900 m³/day interim rating. 	<p>EXP</p> <p>EXP</p> <p>EXP</p>
5.	<p>Next Steps - Class EA Closure</p> <ul style="list-style-type: none"> AJ summarized the next steps for closing the EA: <ul style="list-style-type: none"> EXP to revise the RWIA as discussed and submit to MOECC. Township suggested that the RWIA be updated to include the 2016-17 winter data from Grand River Conservation Authority (GRCA). MS 	<p>EXP</p>

	<p>noted that MOECC would not be reviewing it for this submission and would still need data from an additional year or two.</p> <ul style="list-style-type: none"> ○ The ESR will refer to upgrades in two stages, with the interim upgrade being to 900 m³/day. The ESR will include a commitment to revisit the RWIA through an EA Addendum to enable the proposed discharge to 1,300 m³/day. The updated RWIA would incorporate the additional data gathered up to that point. 	EXP
6.	<p>Next Steps - Interim Re-rating</p> <ul style="list-style-type: none"> ● AJ summarized the next steps for obtaining the interim re-rating: <ul style="list-style-type: none"> ○ Have a pre-consultation meeting with MOECC Approvals branch, which would be coordinated by Rick Neubrand. ○ The existing 1:10 discharge criteria would be used for the future 900m³/day discharge. MS will review the current ECA for the 1:10 criteria. 	<p>MOECC</p> <p>MOECC</p>

This communication constitutes our understanding of the items discussed and any conclusions reached. If there are any clarifications or corrections, please advise this author, in writing within four (4) working days of receipt.

Submitted by:

Jean-Louis Gaudet, exp. Services Inc.

Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: September-19-17 4:38 PM
To: Jean Louis Gaudet
Cc: Brad McRoberts (bmcroberts@mapleton.ca); Arun Jain
Subject: additional water quality data for winter 2016 and 2017
Attachments: 2017sep19-mapleton ea-data agreement.pdf; 2017-09-19
DraytonWinterWaterQuality.xlsx

Hi, Jean Louis

Here is a file containing additional water quality data collected by GRCA in the winter of 2016 and 2017 and the signed data license agreement that accompanies the data. We were scrambling a little bit in 2016 as this was the first year of winter sampling. I would be cautious with the data from March 7th and 8th, 2016 as these are probably not representative of winter conditions. Based on a quick look back at historical weather records for those dates, it appears that there was some warming conditions and likely higher flows due to snowmelt. Let me know if you have any questions.

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
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Cambridge ON N1R 5W6
(519) 621-2761 ext 2226
www.grandriver.ca

Jean Louis Gaudet

From: Mark Anderson <manderson@grandriver.ca>
Sent: September-19-17 4:34 PM
To: Jean Louis Gaudet
Subject: RE: data license for water quality data

Thanks!

Mark Anderson, P. Eng.
Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road
PO Box 729
Cambridge ON N1R 5W6
(519) 621-2761 ext 2226
www.grandriver.ca

From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: September 19, 2017 4:33 PM
To: Mark Anderson
Subject: RE: data license for water quality data

Thanks Mark,

Here you go,

JL

Jean-Louis Gaudet | exp

Project Coordinator
t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com
80 Bancroft Street
Hamilton, ON L8E 2W5
Canada

exp.com | [legal disclaimer](#)

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From: Mark Anderson [<mailto:manderson@grandriver.ca>]
Sent: September-19-17 3:07 PM
To: Jean Louis Gaudet <jeanlouis.gaudet@exp.com>
Subject: data license for water quality data

Hi, Jean Louis

I pulled together the additional sampling data that GRCA collected. It turns out we sampled in the winter of 2016 and 2017, although our winter sampling program in 2016 had some challenges due to a late start. Here is a copy of the standard data license that we require before releasing our data. Can you please read it, sign it and return to me? Once I have the completed form, I can release the water quality data that we collected on the Conestogo River upstream and downstream of Drayton in 2016 and 2017. Thanks,

Mark Anderson, P. Eng.

Water Quality Engineer

Grand River Conservation Authority

400 Clyde Road

PO Box 729

Cambridge ON N1R 5W6

(519) 621-2761 ext 2226

www.grandriver.ca

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: October-16-17 4:34 PM
To: Brad McRoberts; Sam Mattina; Paul Hinsperger; Mark Anderson; Arun Jain; Slattery, Barbara (MOECC); Spencer, Michael (MOECC); Neubrand, Rick (MOECC)
Subject: RE: Mapleton Wastewater EA & MOECC
Attachments: MOECC RWIA Meeting 2017-09-18_slides for minutes.pdf; 2017 09 18_Mapleton EA_MOECC Meeting Minutes_DRAFT.DOCX

Hello all,

Please find attached the draft minutes and slides from our meeting on September 18, 2017, regarding the Mapleton Wastewater Class EA.

Please review and advise of any errors or omissions within 5 business days.

Regards,

Jean-Louis

Jean-Louis Gaudet | exp

Project Coordinator
t: +1.905.573.4000 x 5031 | e: jeanlouis.gaudet@exp.com
80 Bancroft Street
Hamilton, ON L8E 2W5
Canada

exp.com | [legal disclaimer](#)

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-----Original Appointment-----

From: Brad McRoberts [mailto:BMcRoberts@mapleton.ca]
Sent: September-06-17 3:10 PM
To: Brad McRoberts; Sam Mattina; Paul Hinsperger; Mark Anderson; Arun Jain; Jean Louis Gaudet; Slattery, Barbara (MOECC); Spencer, Michael (MOECC); Neubrand, Rick (MOECC)
Subject: Mapleton Wastewater EA & MOECC
When: September-18-17 3:00 PM-5:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Boardroom 403, 1 Stone Road, Guelph

Jean Louis Gaudet

From: Jean Louis Gaudet
Sent: October-16-17 4:34 PM
To: Brad McRoberts; Sam Mattina; Paul Hinsperger; Mark Anderson; Arun Jain; Slattery, Barbara (MOECC); Spencer, Michael (MOECC); Neubrand, Rick (MOECC)
Subject: RE: Mapleton Wastewater EA & MOECC
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When: September-18-17 3:00 PM-5:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Boardroom 403, 1 Stone Road, Guelph

Jean Louis Gaudet

From: Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>
Sent: October-23-17 12:09 PM
To: Jean Louis Gaudet; Brad McRoberts; Sam Mattina; Paul Hinsperger; Mark Anderson; Arun Jain; Slattery, Barbara (MOECC); Spencer, Michael (MOECC)
Subject: RE: Mapleton Wastewater EA & MOECC

I have no concerns with the minutes.

Rick

Rick Neubrand
Senior Environmental Officer / Inspector
Ministry of the Environment and Climate Change
Guelph District Office
One Stone Road West
Guelph , Ontario
N1G 4Y2
Tel : 519 826-4255
Fax : 519 826-4286
E-mail: rick.neubrand@ontario.ca

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Thank you.



Please consider the environment before printing this email note.

From: Jean Louis Gaudet [mailto:jeanlouis.gaudet@exp.com]
Sent: October 16, 2017 4:34 PM
To: Brad McRoberts <BMcRoberts@mapleton.ca>; Sam Mattina <SMattina@mapleton.ca>; Paul Hinsperger <PHinsperger@mapleton.ca>; Mark Anderson <manderson@grandriver.ca>; Arun Jain <Arun.Jain@exp.com>; Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca>; Spencer, Michael (MOECC) <Michael.Spencer@ontario.ca>; Neubrand, Rick (MOECC) <Rick.Neubrand@ontario.ca>
Subject: RE: Mapleton Wastewater EA & MOECC

Hello all,

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