Addendum #1 to:
Application for an
Environmental Act Licence for
an Additional Secondary Cell
to the Existing Adam Lake
Campground Wastewater
Treatment Lagoon in Turtle
Mountain Provincial Park





Certificate of Authorization

Stantec Consulting Ltd.
No. 1301



Winnipeg MB R3C 1A5

Manitoba Conservation and Water Stewardship Environmental Assessment and Licencing Branch Suite 160, 123 Main Street

Proponent: Manitoba Conservation and Water Stewardship Parks and Protected Spaces

Prepared by: Stantec Consulting Ltd. 500–311 Portage Avenue, Winnipeg MB R3B 2B9

Project No. 111217030

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Question 1 June 9, 2016

Addendum #1 is submitted to clarify, and provide additional information, with respect to the questions asked in the April 29, 2016, letter; and May 27, 2016 email, from Barsha Sagan, P.Eng., of Environmental Approvals Branch, Manitoba Conservation and Water Stewardship.

The following information is presented to match the question numbers contained within that letter. The letter and email are located in Appendix A of this Addendum.

## **QUESTION 1**

a) The treated effluent drainage route is shown on attached Figure No.1.0. There is no ditch or drain in the receiving wetland. The discharged treated effluent goes to this approximately 20 hectare large wetland and is absorbed. When the wetland as a whole reaches a high enough water level, it would overflow into Bower Lake at the location shown on the Figure. This is the discharge method for the existing lagoon and we understand there have been no concerns in the past.

## **QUESTION 2**

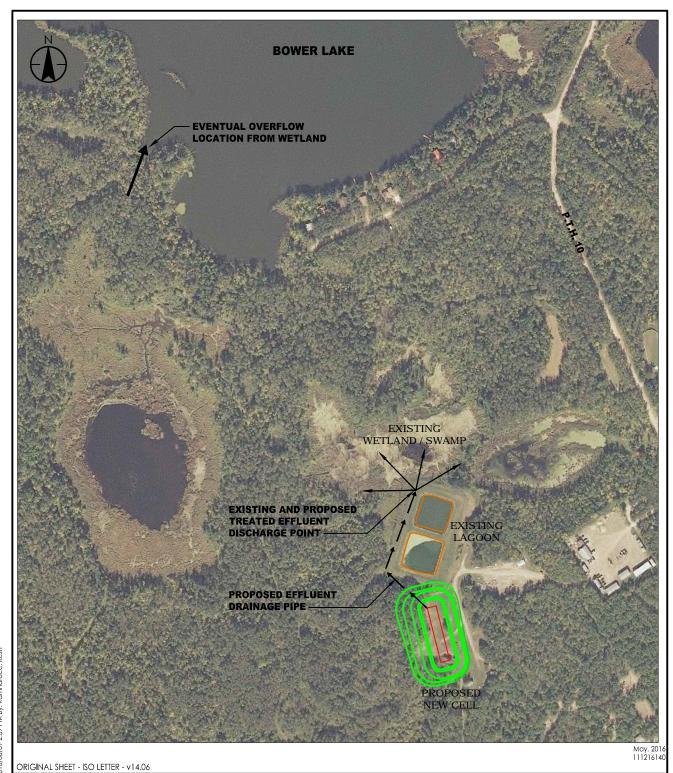
a) The legal description and location plan are shown on Drawing C-101. Figure No. 2.0 shows the aerial view of the sections of land in the general area.

b, c and d) The engineering design is shown on attached Drawing No. C-101. The drawing details the lagoon plan and cell sizes, dimensions, typical cross section, access ramp for vehicles, clearing and grubbing limits, treated effluent drainage route, legal description of site, compacted clay liner, clay disposal site, perimeter ditching on all sides, notes, and related data.

## **QUESTION 3**

The interconnecting dike clay disposal site is shown on Drawing No. C-101. The existing interconnecting dike would have the organic top materials removed and then the approximately 1500 m³ of clay would be disposed of on the west side (wetland side) of the new cell. This disposal site would be cleared and grubbed, stripped to clay, compacted, and clay would be deposited in compacted maximum 300 mm lifts. The clay disposal site will be approximately 2 m in thickness x 100 m x 7.5 m and upon completion 3:1 sideslopes will be constructed. The entire clay disposal site will be covered with 100 mm of select site organic material, and seeded. The new lagoon cell is designed to have a cut/fill balance.







Stantec Consulting Ltd.
Suite 500, 311 Portage Avenue
Winnipeg MB Canada R3B 2B9
Tel. 204.489.5900 Fax. 204.453.9012
www.stantec.com

Client/Project

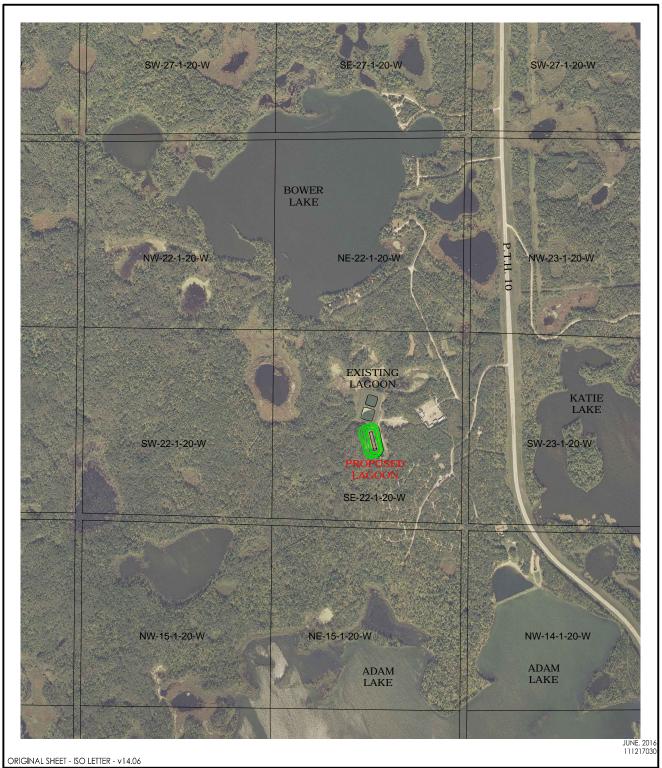
THE MANITOBA WATER SERVICES BOARD ADAM LAKE CAMPGROUND LAGOON UPGRADING STUDY TURTLE MOUNTAIN PROVINCIAL PARK

Figure No.

1.0

Title

EXISTING/PROPOSED TREATED EFFLUENT DRAINAGE ROUTE ADDENDUM NO. 1





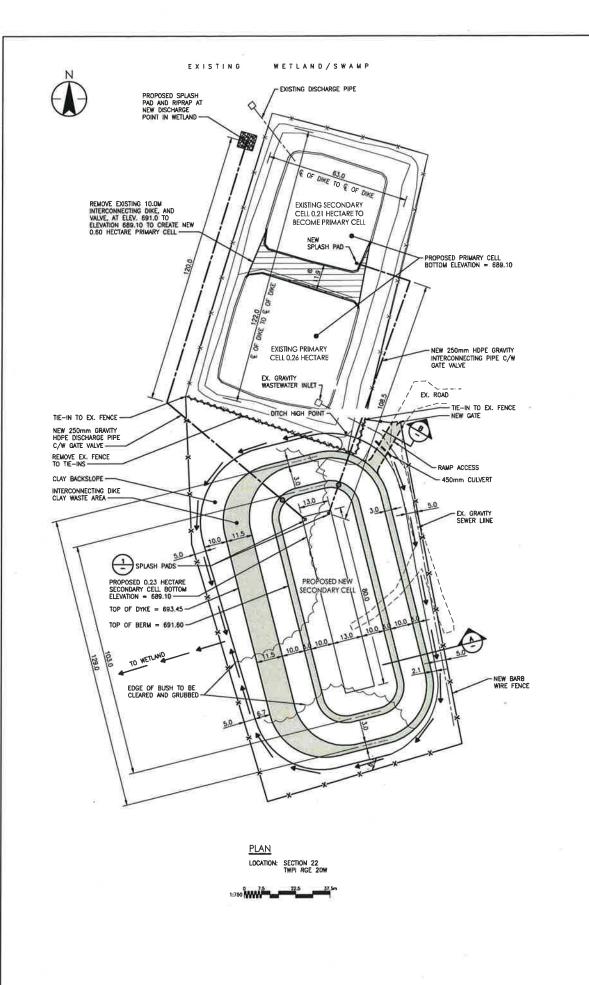
Stantec Consulting Ltd. Suite 500, 311 Portage Avenue Winnipeg MB Canada R3B 2B9 Tel. 204.489.5900 Fax. 204.453.9012 www.stantec.com

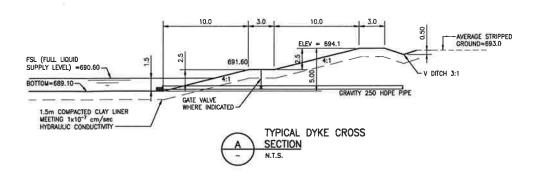
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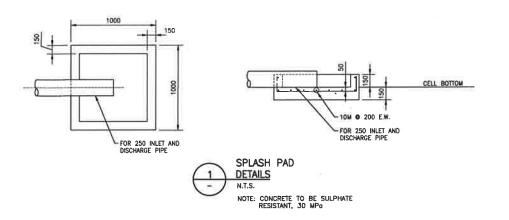
THE MANITOBA WATER SERVICES BOARD ADAM LAKE CAMPGROUND WASTEWATER LAGOON UPGRADING STUDY

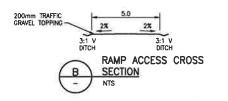
Figure No.

SITE LEGAL DESCRIPTION ADDENDUM NO. 1











KEY PLAN



Stantec Consulting Ltd.
Suile 500, 311 Porlage Avenue
Winnipeg MB Canada R3B 289
Tel. 204.489,5900 Fax. 204.453,9012
www.stanter.com

#### Copyright Reserved

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entire or on use for any purpose other than that obtained by 
Stanler is foreigned.

#### Leger

EXISTING	LEGEND	PROPOSED
Daorino	V. DITCH	-
	GATE VALVE	0
x	FENCE	
	HOPE DISCHARGE PIPE	I
	DISCHARGE PIPE	
	CULVERT	
	BUSH	

#### Note

 FOUR STRAND BARB WIRE FENCE AND GATE WILL BE AS PER MANITOBA WATER SERVICES BOARD STANDARD CONSTRUCTION SPECIFICATIONS, SECTION 027110

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Permit-Seal





#### Client/Project

THE MANITOBA WATER SERVICES BOARD

ADAM LAKE CAMPGROUND LAGOON UPGRADING STUDY TURTLE MOUNTAIN PROVINCIAL PARK MB. Canada

#### \_\_\_\_

SITE PLAN AND DETAILS ADDENDUM NO. 1

Project No.	Scale	
111216140	AS NOTE	)
Drawing No.	Sheet	Revision
C-101	1 of 1	0

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General Adherence Confirmation Requested June 9, 2016

## GENERAL ADHERENCE CONFIRMATION REQUESTED

### a) Manitoba Guidelines, Objectives and Bulletins

The following Province of Manitoba Guidelines, Objectives and Bulletins will be adhered to in design and construction.

- 1. Information Bulletin Environment Act Proposal Report Guidelines
- 2. Information Bulletin Design Objectives for Wastewater Treatment Lagoons
- 3. Information Bulletin Facility Classification
- 4. Wastewater Treatment Form Supplemental Information

## b) Application for Wastewater Treatment Facility Classification

The completed form for the Application for Wastewater Treatment Facility Classification is located in Appendix B. The Adam Lake Wastewater Lagoon is classified as a "Small System" as it treats wastewater for a population of less than 500 people and has no mechanical treatment processes, as per the "Wastewater Treatment Form Supplemental Information". Both spring and fall treated effluent discharge are requested.

## c) Executive Summary

Adam Lake Campground, in Section 22, TWP 1 RGE 20W, in Turtle Mountain Provincial Park, has a two cell facultative wastewater treatment lagoon for seasonal service, and for accommodating trucked wastewater from other campsites. The lagoon is classified as a Small System as it serves a population of less than 500 and has no mechanical treatment processes.

The existing two cell lagoon is currently hydraulically and organically overloaded. It is proposed that the existing two cells be converted to a single 0.60 hectare primary cell and that a new 0.23 hectare secondary cell be constructed adjacent to the existing cells, as shown on Drawing No. C-101. The proposed new system would meet both hydraulic and organic loading requirements as currently set out by Manitoba Conservation and Water Stewardship, Environmental Assessment and Licencing Branch. The sludge in the existing primary cell does not require removal at this time.

The new secondary cell would provide 2,075 m³ of hydraulic storage for the Campground. The secondary and primary cells discharge process would be as per the procedures noted in the appended Study. The discharge would normally occur annually after Campground closure, which occurs approximately mid-September, Parks would also like the ability for a spring discharge in case required.



General Adherence Confirmation Requested June 9, 2016

Nineteen test holes were drilled over the lagoon site. There is suitable clay that was tested and met the required 1 x 10<sup>-7</sup> cm/sec hydraulic conductivity to a depth of at least 6 m below existing grade, which was hole termination depth. The existing dikes meet hydraulic conductivity requirements. Therefore, the existing clay is suitable to provide the required 1 m lagoon liner which would be compacted during construction. Treated effluent would discharge from the new secondary cell by pipe to the same general location as the lagoon existing discharge point in a natural wetland/swamp. The wetland would absorb the treated effluent. When the wetland reaches a high enough level it would overflow into Bower Lake as shown on Figure No. 1.0.

There will be no adverse environmental impacts associated with the project as outlined in Section 3.0, "Environmental Impact and Management Practices". The project will have a net improved environmental impact as the discharged effluent will be of a higher organic treatment quality and emergency discharges will not be required. Silt that could be generated by construction will be caught by silt fences.

The estimated project cost is \$635,000 and will be funded by the Province of Manitoba. Construction is scheduled for September 2016.

In conclusion, the proposed new secondary cell will provide organic wastewater treatment to approved standards, and will provide the necessary hydraulic storage for the 20 year design period.



## **APPENDIX A**

**Environmental Approvals Branch** 

- 1. Letter of April 29, 2016
- 2. Email of May 27, 2016



## Conservation and Water Stewardship

Environmental Stewardship Division
Environmental Approvals Branch
123 Main Street, Suite 160, Winnipeg, Manitoba R3C 1A5
T 204 945-8321 F 204 945-5229
www.gov.mb.ca/conservation/eal

File: 457.10

April 29, 2016

Tim Stratton, P.Eng., FEC Senior Engineer, Associate Stantec Consulting Ltd. 500-311 Portage Avenue, Winnipeg, MB R3B 2B9

Dear Mr. Stratton:

# Re: Adam Lake Wastewater Treatment Lagoon Upgrade, Turtle Mountain Provincial Park- Environment Act Proposal

A preliminary internal review of the Environment Act Proposal (EAP) for the Adam Lake Wastewater Treatment Lagoon Upgrade at the Turtle Mountain Provincial Park has been completed. Upon completion of this review, it has been determined that the EAP report does not contains all the information required for the review process.

There is a guideline document prepared by Manitoba Conservation and Water Stewardship which prescribe the requirements in any EAP under *the Environment Act* which can found below:

## http://www.gov.mb.ca/conservation/eal/publs/info\_eap.pdf.

An Information Bulletin for design objectives for wastewater treatment lagoons is also available on our website to assist with the design and submission of detailed drawings and the preparation of an EAP which can found:

## http://www.gov.mb.ca/conservation/eal/publs/lagoon.design.guidelines.pdf

The EAP report does not contain the following required key components or information:

- 1. Please clearly identify the drainage route from the lagoon discharge location to the final receiving stream which is Bower Lake.
- 2. Please provide engineering drawings of the proposed lagoon design indicating the following items:
  - legal address/description, project region and location plan of the lagoon;
  - sizing of the lagoon cells;

- lagoon cross sections;
- cross section of lagoon liner and clearly displaying the location of the minimum 1 meter thick continuous soil liner as well as whether or not the clay soil liner would be compacted as a specific component of construction;
- entire drainage route from the lagoon discharge outlet to the final receiving stream.
- 3. Please include more details on how and where the materials from the existing dike would be disposed.

On a directly related matter, classification is required for wastewater collection and treatment facilities pursuant to Manitoba Regulation 77/2003. Please read for more details: http://www.gov.mb.ca/conservation/eal/certification/info\_fac.pdf

You are requested to please complete the appropriate form(s) for the facilities identified in the Environment Act Proposal and submit the form(s) to us as a component(s) of the EAP. You may follow the web link below to access the form(s).

http://www.gov.mb.ca/conservation/eal/certification/wwtfacilityclass.pdf

Please address and respond to these requests and the EAP review process may be initiated upon receipt of your responses. If you have any questions or would like to discuss further, please contact me at 204-945-5234.

Yours sincerely,

Barsha Sagan, P. Eng. Environmental Engineer

c:, JP Perreault, James Lockie,

## Stratton, Tim

From:

Sagan, Barsha (CWS) < Barsha.Sagan@gov.mb.ca>

Sent:

Friday, May 27, 2016 5:46 PM

To:

Stratton, Tim

Subject:

RE: Attached Image

### Good Afternoon Tim,

Hope you are doing well. MSD has couple of comments:

- 1. It would be preferred if you would change the numbering of the addendum heading such that they would directly reflect the additional information request letter item numbers.
- 2. For advertising purpose and possible TAC requirement, we require specific characteristics such as cross section details of the drainage route of the treated effluent from the discharge point to the Bower Lake since the EAP indicated that the treated effluent from the lagoon would discharge to a large wetland area immediately to the north of the lagoon (12 meters) which ultimately connected to Bower Lake located approximately 380 meters further north. The drainage route shown in the addendum did not provide information on the characteristics of the drainage route and did not indicate whether it would be a well defined drain or not. Usually rural municipality lagoons discharge into a well defined municipal drain or ditch, whereas, this lagoon appears to have the potential to discharge to a larger area.
- 3. We may choose to include a figure/drawing showing legal section lines and property lines of the lagoon and adjacent surrounding properties in the licence. Please provide a drawing showing the legal section lines and property lines relative to the proposed expanded lagoon.
- 4. Is there any plan of constructing a perimeter ditch around the proposed secondary cell? The dyke cross section indicates that the land on the east side of the proposed lagoon is off higher elevation side and a proposed perimeter ditch would be constructed on that side. Where will the planned perimeter ditch drain to? Is it possible to provide more information on that item?
- 5. Please provide the dimensions of the altered primary cell.
- 6. Show location and provide characteristics of fence and gate(s).

Thank you so much. Please let me now if you want to meet us for further clarification.

## Regards,

Barsha Sagan, MASc.; P.Eng.| Environmental Engineer | Municipal and Industrial Section | Environment Approvals Branch | Manitoba Sustainable Development | Regular Mail - 160-123 Main Street (BOX 80), Winnipeg MB R3C 1A5 | Couriers - 2<sup>nd</sup> Floor 123 Main Street, Winnipeg MB R3C 1A5 | Phone: 204.945.5234 | Email: barsha.sagan@gov.mb.ca

From: Stratton, Tim [mailto:tim.stratton@stantec.com]

Sent: May-24-16 12:12 PM To: Sagan, Barsha (CWS) Subject: FW: Attached Image

### Hi Barsha:

Attached is the proposed draft Addendum # 1 for the Adam Lake Wastewater Treatment Lagoon Upgrade EAP. If the attached answers all your questions from your letter of April29, 2016, I'll issue this formally. Hopefully you have time to address this quickly as the client hopes to construct the lagoon upgrade this fall. Thanks. Tim

From: 311 portage 4floor@stantec.com [mailto:311 portage 4floor@stantec.com]

Sent: Tuesday, May 24, 2016 10:55 AM

## **APPENDIX B**

# Water & Wastewater Facility Operators Certification Program



## **Application for Wastewater Treatment Facility Classification**

also available online at http://www.manitoba.ca/certification

Please print clearly or type and follow the instructions on the application form.

NOTE: If using Adobe Reader text can be inserted into form and tab between fields.

This application is pursuant to the Water and Wastewater Facility Operators Regulation issued under The Environment Act.

Name of Facility:  Adam Lake Campground Wastewater Lagoon in Turtle Mountain Provincial Park				
Name of Facility Owner: (Municipality/Commission/ Company/Individual/etc)  Manitoba Conservation & Water Stewardship, Parks and Protected Spaces				
Railway St., Boissevain, MB R0K 0E0				
on, Box 53, 200 Saulteaux Crescent, MB				
Telephone: (204) 981-3805				
Position: Park Capital Planner				
Email: jp.perreault@gov.mb.ca				
Please complete the following. The information provided will be used to classify the wastewater treatment facility under the Water and Wastewater Facility Operators Regulation. In some cases actual numbers or answers must be supplied, but in most cases it will only be necessary to check the appropriate criteria.				
Please direct questions to:				
Certification Program Coordinator Phone: (204) 945-7065 Fax: (204) 945-5229				
FOR MANITOBA CONSERVATION USE ONLY				
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SYST	EM (choose all that apply)	F G C C C C C C C C C C C C C C C C C C		W. 5-1
6	New or proposed Facility seeking classification			35
	Proposed start of operations (month / year)			e indicate i
1	Existing Facility seeking classification (in operation prior	r to December 31, 2005)	<b>✓</b>	
	Facility has been in operation since (approximate	month/year) 05/01/1975		
2.	The facility WILL employ mechanical treatment process	ses	0	
2.	The facility WILL NOT employ mechanical treatment pr	ocesses	•	
SIZE	(refer to Supplemental Information for point designation)	(2 point minimum to 20 point	t maximum)	24.11
1.:	Maximum population	# 50 people per year		1-10
2.	Design flow average day (Circle volume option & units)  OR Peak month's flow average day  Estimated or Actual Estimated or Actual	28.5		1-10
	0 0	O gal/day		
VARI	ATION IN RAW WASTE <sup>1</sup> (choose all that apply) (0 point i	minimum to 6 point maximun	<i>າ</i> )	
1,	Variations do not exceed those normally or typically exp	pected	<b>✓</b>	0
	Recurring deviations or excessive variations of 100-200% in strength			
2.	Recurring deviations or excessive variations of 100-200% in flow			2
	Recurring deviations or excessive variations of 100-200% in strength and flow			satis a
	Recurring deviations or excessive variations of more than 200% in strength			
3.	Recurring deviations or excessive variations of more than 200% in flow			4
,	Recurring deviations or excessive variations of more than 200% in strength and flow			
	Raw wastes subject to toxic waste discharges		The state of	
4. ***	Raw wastes subject to toxic waste discharges			6
4. •• 5.	Raw wastes subject to toxic waste discharges  Septage or truck-hauled waste discharge is accepted at	t the facility.		6 0 - 4

PREI	PRELIMINARY TREATMENT (choose all that apply)			
1.:	Facility pumping of main flow		3	
2.	Screening or comminution		3	
3.	Grit removal		3	
4.	Equalization		1	
PRIM	ARY TREATMENT (choose all that apply)			
1.	Clarifiers		5	
2.	Anaerobic treatment with biogas flare		10	
3.	Anaerobic treatment with biogas utilization facility		15	
SECO	ONDARY TREATMENT (choose all that apply)		artifiz.	
1,,	Fixed-film reactor		10	
2.	Activated sludge		15	
3.	Stabilization ponds without aeration (esavagelagor)		5	
4.	Stabilization ponds with aeration		8	
TERT	IARY TREATMENT (choose all that apply)	se ajvi u		
1.	Polishing ponds for advanced waste treatment		2	
2.	Chemical / physical advanced waste treatment without secondary treatment		15	
3.	Chemical / physical advanced waste treatment following secondary treatment		10	
4.	Biological or chemical / biological advanced waste treatment		12	
5.	Nitrification by designed extended aeration only		5	
6.	Ion exchange for advanced waste treatment		10	
7.	Reverse osmosis, electrodialysis and other membrane filtration techniques		10	
8.	Advanced waste treatment chemical recovery, carbon regeneration		4	

9.	Media filtration		5			
ADD	ADDITIONAL TREATMENT PROCESSES (choose all that apply)					
1,	Chemical addition: (Please list chemicals used, 2 pts per chemical to max. of 6)		0 - 6			
2.	Dissolved air floatation (other than for sludge thickening)		8			
3.	Intermittent sand filter		2			
4.	Recirculating intermittent sand filter		3			
5.	Microscreens		5			
6.	Generation of oxygen		5			
SOLII	DS HANDLING (choose all that apply)	ÇCÎ BANE				
1.	Storage (other than for stabilization)		2			
2.	Stabilization by storage (including any storage afterwards)		4			
3.	Gravity thickening		2			
4.	Mechanical dewatering		8			
5.	Anaerobic digestion of solids		10			
6.	Utilization of digester gas for heating or cogeneration		5			
7.	Aerobic digestion of solids		6			
8.	Air-drying of sludge		2			
9.	Solids reduction (including incineration and wet oxidation)		12			
10.	Disposal in landfill		2			
11∞	Solids composting		10			
12.	Land application of biosolids by contractor		2			
13.	Land application of biosolids by facility personnel		10			

DISIN	DISINFECTION (choose all that apply) (0 point minimum to 10 point maximum)				
1.	Chlorination				
1.0	Ultraviolet irradiation		5		
2.	Ozonization		10		
EFFL	UENT DISCHARGE (choose all that apply) (0 point minimum to 10 point maximum)	na Albania	Y., (4.14)		
1,	Discharge to surface water (ditch or lake or)	<b>✓</b>	0		
2.	Mechanical post-aeration		2		
3.	Direct recycling and reuse		6		
4.	Land treatment and surface or subsurface disposal		4		
INST	RUMENTATION (choose one) (0 point minimum to 6 point maximum)				
1,					
	Data with no process operation	0	0		
	Data with limited process operation	0	2		
	Data with moderate process operation	0	4		
	Data with extensive or total process operation	0	6		
LABO	PRATORY CONTROL <sup>2</sup> (choose all that apply) (0 point minimum to 15 point maximum	1)			
1.	Bacteriological / Biological (0 point minimum to 5 point maximum)				
	Lab work done outside the facility	<b>V</b>	0		
	Membrane filter procedures		3		
	<ul> <li>Use of fermentation tubes or any dilution method of fecal coliform determination</li> </ul>		5		
2.	Chemical / Physical (0 point minimum to 10 point maximum)				
	Lab work done outside the facility	<b>✓</b>	0		

	(List tests)	Push button or visual methods for settleable solids	simple tests such as pH or		3
	(List tests)	Additional procedures such as DO, titration, solids content or volatile c			5
	(List tests)	More advanced determinations suc nutrients, total oils or phenols	ch as specific constituents,		7
	Highly sophisticated instrumentation such as atomic absorption or gas chromatograph  (List tests)			10	
	ICANT VERI	FICATION  RE THAT ALL INFORMATION IN TI	HIS APPLICATION IS TRUE.	44 y 28 v 19	alle jug
Name (Print)	of Applicant <sup>3</sup>	: Tim Stratton, P.Eng. of Stantec Consulting or	n behalf of Parks and Protected Spaces, Mai	nitoba Conservatio	on
Title:	Project Ma	nager		W <u>a</u>	
Telepl	Telephone: (204) 478-8997 Fax: (204) 453-9012				
Email: tim.stratton@stantec.com					
	Signature of Authorized Representative:  Date: Jule 22/16				

**Print Application Form** 

<sup>&</sup>lt;sup>1</sup>The key concepts are frequency or intensity of deviation, or excessive variation from normal or typical fluctuations. The deviations in strength, toxicity, ratio of infiltration to inflow, or shock loads.

<sup>&</sup>lt;sup>2</sup> The key concept is to credit laboratory analyses done on-site by facility personnel under the direction of an operator-in-charge with points from 0-15.

<sup>&</sup>lt;sup>3</sup> Applicant must be an authorized representative of the owner/operating authority (i.e. manager, P. Eng., or overall responsible operator).



## **Wastewater Treatment Form Supplemental Information**

This is supplemental information for completing the Application for Wastewater Treatment Facility Classification Form only.

For exact definitions and text refer to Manitoba Regulation 77/2003, Water and Wastewater Facility Operators Regulation and amendment M.R. 162/2005, under The Environment Act (C.C.S.M. c E125).

A copy of the regulation is available by following the link for Manitoba Regulations at: http://www.gov.mb.ca/conservation/envapprovals/publs/index.html

Facilities are classified as follows:

### Small system class

A wastewater treatment facility that otherwise meets the criteria of a class 1 wastewater treatment facility shall be classified in the small system class if

- a) it treats wastewater from a population of no more than 500; and
- b) no mechanical treatment processes are employed at the facility.

#### Classes 1 to 4

Wastewater treatment facilities shall be classified in classes 1 to 4 in accordance with the following table, on the basis of the number of classification points assessed under the classification point system set out in the Water and Wastewater Facility Operators Regulation.

Range of Classification Points	Classification	
0 to 30	Class 1	
31 to 55	Class 2	
56 to 75	Class 3	
76 or more	Class 4	

## Size

Points for size: (2 point minimum to 20 point maximum)

Maximum population or part served, peak day (1 point minimum to 10 point maximum). Points are assigned at 1 point per 10,000 population or part.

Design flow average day or peak month's flow average day, whichever is larger (1 point minimum to 10 point maximum). Points are assigned at 1 point per 4.5 megalitres per day or part.

#### **Authorized Representative**

Signatures for the Applicant Verification section must be an individual recognized by the Owner of the facility as able to sign official documentation (i.e. P.Eng., Manager, CAO, etc).

Revised October 2008 Page 1 of 1