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Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDED CERTIFICATE OF APPROVAL
MUNICIPAL AND PRIVATE SEWAGE WORKS
NUMBER 4908-7TQNQC
Issue Date: August 14, 2009

The Regional Municipality of Waterloo
150 Frederick St
Kitchener, Ontario
N2G 4J3

Site Location: Manitou Drive Biosolids Dewatering Facility
440 Manitou Dr
Kitchener City, Regional Municipality of Waterloo
N2C 1L3

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

constructing a new biosolids dewatering facility at the existing Regional Biosolids Management Facility located at 440 Manitou Drive, City of Kitchener, Regional Municipality of Waterloo to handle biosolids from Kitchener Wastewater Treatment Plant and other regional wastewater treatment facilities, consisting of the following:

PROPOSED WORKS:

Sludge Dewatering System

- three (3) progressive cavity centrifuge feed pumps with VFD (one-duty, two-standby) each with rated at 85.0 m^3/hr and equipped with a grinder;
- two (2) solids bowl centrifuges (one-duty, one-standby) each with a solids loading rate of 2,000 kg/hr, a hydraulic loading rate of 85.0 m^3/hr designed to produce biosolids with 20 to 30% solids content;
- three (3) biosolids cake storage hoppers each with a total storage capacity of 270 m^3 equipped with two (2) 24.0 m^3/hr cake conveyors (one-duty, one-standby);
- a polymer handling system including one (1) 25,000 L capacity liquid polymer storage tank, two (2) 48 kg/hr capacity polymer blending units (one-duty, one-standby) preparing 1% polymer solution either from dry or emulsion polymer, two (2) 7,570 m^3 capacity dual polymer mixing/aging tanks (one-duty, one-standby), three (3) 2.7 L/sec capacity polymer feed pumps (two-duty, one-standby) dosing polymer to the centrifuge at a target range of 10 to 15 kg/dry t;
- one (1) 22 m long x 21 m wide x 17 m high biosolids dewatering building; and
- including all controls and associated appurtenances.

Centrate Handling System

- one (1) 1,000 m^3 capacity centrate equalization tank equipped with two (2) 64.0 L/sec at 60 m TDH rated capacity centrate transfer pumps (one-duty, one-standby);
- two (2) centrate jokey pumps (one-duty, one-standby) each with a rated capacity of 10 L/sec at 21 m TDH to be used for initial filling of the centrate forcemain to minimize odour generation issues at air/vacuum valve chambers;
- one (1) approximately 3,000 m long 250 mm diameter centrate forcemain conveying centrate from the Manitou

Drive Facility to Kitchener WWTP; and

- including all controls and associated appurtenances.

Effluent Supply System

- one (1) 25.0 m^3/hr capacity 100 mm diameter forcemain running along the centrate forcemain installed to transfer effluent from Kitchener WWTP to the Manitou Drive Biosolids Dewatering Facility to be used for facility operational purposes; and
- one (1) 150 m^3 capacity effluent storage tank equipped with four (4) booster pumps to deliver water (effluent) for operational purposes at the dewatering facility.

Odour Control System

- one (1) 30,600 m^3/hr capacity closed bed reinforced concrete biofilter with inorganic media designed to remove odorous constituents from the existing Transfer Station loading bays, the new centrate holding tank, cake storage hoppers and transfer screw conveyors, and exhausting through a 0.76 m diameter stack, extending 9.8 m above grade;
- one (1) 1,800 m^3/hr capacity fibre reinforced plastic vessel biofilter with inorganic media designed to remove odorous constituents from the existing digested sludge holding tank and exhausting through a 0.25 m diameter stack, extending 4.0 m above grade; and
- including all controls and appurtenances.

all in accordance with the Application for Approval of Municipal and Private Sewage Works submitted by the Regional Municipality of Waterloo dated June 12, 2009, drawings and specifications prepared by Hydromantis Inc., Cambridge, Ontario.

SEWAGE WORKS APPROVED ON FEBRUARY 28, 1989:

- two (2) existing sludge storage lagoons providing a total storage capacity of 181,000 m^3(106,000 m^3 for Lagoon #1 and 75,000 m^3 for Lagoon 2) which will be decommissioned once the proposed dewatering facility commences operation;
- one (1) 1,450 m^3 active storage capacity digested sludge holding tank (with a total storage capacity of 1600 m^3);
- two (2) truck loading bays equipped with two (2) sludge transfer pumps for loading and unloading;

Sanitary sewers, sanitary forcemain, booster pumping station and appurtenances to be constructed in the City of Kitchener as follows:

SANITARY GRAVITY SEWERS

STREET	FROM	TO
Easement	Sludge Storage Facilities (Part 10, 58R-6301)	Approx. 260 m East to Schneider Trunk Sanitary Sewer

SANITARY FORCEMAIN

STREET	FROM	TO
Easement	Kitchener Wastewater Treatment Plant	Mill Park Drive
Huron Road	Mill Park Drive	Homer Watson Boulevard
Homer Watson Boulevard	Huron Road	Part 1, 58R-6301 (Approx. 490 m West of Huron Road
Part 1, 58R-6301 (owned by the Region of Waterloo)	Homer Watson Boulevard	Part 2, 58R-4715
Par 2, 58R-4715 (owned by the Region of Waterloo)	Part 1, 58R-4715	Part 10, 58R-6301
Sludge Storage Facility (Part 10k 58R-6301)	Manitou Drive	Part 2, 58R-4715

including installation of three (3) air relief/vacuum relief valves on the forcemain and odour control equipment for the exhaust air from each of the valve chambers;

SANITARY SLUDGE BOOSTER PUMPING STATION

sanitary sludge booster pumping station located at the Kitchener Wastewater Treatment Plant consisting of:

- a booster pump rated at 359 m^3/hr at 49.0 m TDH with 93.2 kW (125 hp) variable speed drive;
- forcemain cleaning device (pig launcher) c/w valves;
- Motor Control Centre;
- all piping, electrical, ventilation and appurtenances;

all in accordance with the final plans prepared by Canviro Consultants.

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

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

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

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

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

"*District Manager*" means the District Manager of the Guelph District Office of the Ministry;

"*Ministry*" means the Ontario Ministry of the Environment;

"*Owner*" means The Regional Municipality of Waterloo and includes its successors and assignees;

"*Peak Flow Rate*" means the maximum rate of sewage flow for which the plant or process unit was designed;

"Previous Works" means those portions of the sewage works previously constructed and approved under a certificate of approval;

"Proposed Works" means the sewage works described in the *Owner*'s application, this *Certificate* and in the supporting

documentation referred to herein, to the extent approved by this *Certificate*;

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

"Substantial Completion" has the same meaning as *"substantial performance*" in the Construction Lien Act; and

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

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

TERMS AND CONDITIONS

1. GENERAL PROVISIONS

(1) The *Owner* shall ensure that any person authorized to carry out work on or operate any aspect of the *Works* is notified of this *Certificate* and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

(2) Except as otherwise provided by these Conditions, the *Owner* shall design, build, install, operate and maintain the *Works* in accordance with the description given in this *Certificate*, the application for approval of the works and the submitted supporting documents and plans and specifications as listed in this *Certificate*.

(3) Where there is a conflict between a provision of any submitted document referred to in this *Certificate* and the Conditions of this *Certificate*, the Conditions in this *Certificate* shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

(4) Where there is a conflict between the listed submitted documents, and the application, the application shall take precedence unless it is clear that the purpose of the document was to amend the application.

(5) The requirements of this *Certificate* are severable. If any requirement of this *Certificate*, or the application of any requirement of this *Certificate* to any circumstance, is held invalid or unenforceable, the application of such requirement to other circumstances and the remainder of this certificate shall not be affected thereby.

2. EXPIRY OF APPROVAL

The approval issued by this *Certificate* will cease to apply to those parts of the *Proposed Works* which have not been constructed within five (5) years of the date of this *Certificate*.

3. CHANGE OF OWNER

(1) The *Owner* shall notify the *District Manager* and the *Director*, in writing, of any of the following changes within 30 days of the change occurring:

(a) change of *Owner*;
(b) change of address of the *Owner*;
(c) change of partners where the *Owner* is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c.B17 shall be included in the notification to the *District Manager*;
(d) change of name of the corporation where the *Owner* is or at any time becomes a corporation, and a copy of the most current information filed under the Corporations Information Act, R.S.O. 1990, c. C39 shall be included in the notification to the *District Manager*;

(2) In the event of any change in ownership of the *Works*, other than a change to a successor municipality, the *Owner* shall notify in writing the succeeding owner of the existence of this *Certificate*, and a copy of such notice shall be forwarded to the *District Manager* and the *Director*.

4. UPON THE SUBSTANTIAL COMPLETION OF THE WORKS

(1) Within one six (6) months of the *Substantial Completion* of the *Proposed Works*, a set of as-built drawings showing the works "as constructed" shall be prepared. These drawings shall be kept up to date through revisions undertaken from time to time and a copy shall be retained at the *Works* for the operational life of the *Works*.

5. OPERATION AND MAINTENANCE

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

(2) The *Owner* shall prepare an operations manual within six (6) months of *Substantial Completion* of the *Proposed Work*, that includes, but not necessarily limited to, the following information:

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

(b) inspection programs, including frequency of inspection, for the *Works* and the methods or tests employed to detect when maintenance is necessary;

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

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

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

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

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

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

6. MONITORING AND RECORDING

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

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

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

(a) Daily means once each day;
(b) Monthly means once every month; and
(c) Quarterly means once every three months.

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

Table 1 - Effluent (Centrate) Monitoring		
Parameters	**Sample Type**	**Frequency**
CBOD5	Grab	Quarterly
Total Suspended Solids	Grab	Quarterly
Total Phosphorus	Grab	Quarterly
Total Ammonia Nitrogen	Grab	Quarterly
pH	Grab	Quarterly
Temperature	Grab	Quarterly

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

(a) the Ministry's Procedure F-10-1, “Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only), as amended from time to time by more recently published editions;

(b) the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" (January 1999), ISBN 0-7778-1880-9, as amended from time to time by more recently published editions;

(c) the publication "Standard Methods for the Examination of Water and Wastewater" (21st edition), as amended from time to time by more recently published editions;

(5) The measurement frequencies specified in subsection (2) in respect to any parameter are minimum requirements which may, after 24 months of monitoring in accordance with this Condition, be modified by the *District Manager* in writing from time to time.

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

(7) The *Owner* shall estimate and record the volume and/or weight of the dewatered sludge sent for off-site disposal.

(8) The *Owner* shall retain for a minimum of three (3) years from the date of their creation, all records and information related to or resulting from the monitoring activities required by this *Certificate*.

7. REPORTING

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

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

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

(a) a summary and interpretation of all monitoring data, including an overview of the success and adequacy of

the *Works*;

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

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

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

(e) a tabulation of the volume of dewatered sludge generated in the reporting period and a summary of the locations to where the sludge was disposed;

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

8. APPROVAL SUBJECT TO FINAL DRAWINGS

The *Owner* shall not construct any portion of the *Proposed* Works or allow its commencement, until detailed design drawings, specifications and an engineer's report containing detailed design calculations for the *Proposed Works* have been submitted to and approved by the *Director*.

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

1. Condition 1 is imposed to ensure that the *Works* are built and operated in the manner in which they were described for review and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the *Certificate* and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review. The condition also advises the Owners their responsibility to notify any person they authorized to carry out work pursuant to this *Certificate* the existence of this *Certificate*.

2. Condition 2 is included to ensure that the *Works* are constructed in a timely manner so that standards applicable at the time of Approval of the *Works* are still applicable at the time of construction, to ensure the ongoing protection of the environment.

3. Condition 3 is included to ensure that the *Ministry* records are kept accurate and current with respect to the approved works and to ensure that subsequent owners of the *Works* are made aware of the *Certificate* and continue to operate the *Works* in compliance with it.

4. Condition 4 is included to ensure that the *Works* are constructed in accordance with the approval and that record drawings of the *Works* “as constructed” are maintained for future references.

5. Condition 5 is included to require that the *Works* be properly operated, maintained, funded, staffed and equipped such that the environment is protected and deterioration, loss, injury or damage to any person or property is prevented. As well, the inclusion of a comprehensive operations manual governing all significant areas of operation, maintenance and repair is prepared, implemented and kept up-to-date by the owner and made available to the *Ministry*.

6. Condition 6 is included to enable the *Owner* to evaluate and demonstrate the performance of the *Works*, on a continual basis, so that the *Works* are properly operated and maintained and that the *Works* does not cause any impairment to the receiving watercourse.

7. Condition 7 is included to provide a performance record for future references, to ensure that the *Ministry* is made aware of problems as they arise, and to provide a compliance record for all the terms and conditions outlined in this *Certificate,* so that the *Ministry* can work with the *Owner* in resolving any problems in a timely manner.

8. Condition 8 is included due to the provisional nature of the supporting documentation submitted by the *Owner* with the application for approval. The *Director* has only approved the *Works* in principle, and this condition will ensure that, in accordance with the provisions of the Ontario Water Resources Act, prior to the commencement of construction of any

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part of the *Works*, the *Director* will have the opportunity to review detailed design drawings, specifications and an engineer's report containing detailed design calculations for that portion of the *Works*, in order to determine the proposed works' capability to comply with the *Ministry*'s requirements stipulated in the terms and conditions of the *Certificate*.

This Certificate of Approval revokes and replaces Certificate(s) of Approval No. 3-2394-88-896 issued on March 7, 1989 and 8-2257-88-907 issued on February 6, 1990.

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

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

The Notice should also include:

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

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

This Notice must be served upon:

The Secretary* Environmental Review Tribunal 655 Bay Street, 15th Floor Toronto, Ontario M5G 1E5	AND	The Director Section 53, *Ontario Water Resources Act* Ministry of the Environment 2 St. Clair Avenue West, Floor 12A Toronto, Ontario M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

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

DATED AT TORONTO this 14th day of August, 2009

Mansoor Mahmood, P.Eng.
Director
Section 53, *Ontario Water Resources Act*

SH/
c: District Manager, MOE Guelph
Moorthy Darmalingum, Hydromantis Inc.