

WASTE MANAGEMENT OF CANADA CORPORATION

RICHMOND SANITARY LANDFILL SITE, MONITORING REPORT NO. 33

PART OF LOTS 1, 2 AND 3, CONCESSION IV,
TOWN OF GREATER NAPANEE, COUNTY OF
LENNOX AND ADDINGTON

MARCH 19, 2020





RICHMOND SANITARY LANDFILL SITE, MONITORING REPORT NO. 33

PART OF LOTS 1, 2 AND 3,
CONCESSION IV, TOWN
OF GREATER NAPANEE,
COUNTY OF LENNOX AND
ADDINGTON

WASTE MANAGEMENT OF CANADA
CORPORATION

PROJECT NO.: 081-12459-01 (8570)
DATE: MARCH 19, 2020

WSP
SUITE 101
1450, 1ST AVENUE WEST
OWEN SOUND, ON, CANADA N4K 6W2

T: +1 519 376-7612
F: +1 519 376-8008
WSP.COM



March 19, 2020

WASTE MANAGEMENT OF CANADA CORPORATION
1271 Beechwood Road
Napanea, ON
K7R 3L1

Attention: Mr. William McDonough, Senior Project Manager

Dear Mr. McDonough:

Subject: Waste Management of Canada Corporation - Richmond Landfill Site Annual Monitoring Report #33

We are pleased to provide Monitoring Report #33 in accordance with the conditions of Environmental Compliance Approval No. A371203, and Environmental Compliance Approval No. 1688-8HZNJG.

Two (2) hard copies of this report have been provided to the District Manager and Senior Environmental Officer for the Ministry of the Environment, Conservation and Parks – Kingston District Office. Additional hard copies and electronic copies have been provided to the stakeholders as described in Condition 14.2 of ECA No. A371203. We have provided an electronic copy of this document to you and to Jim Forney. If you require additional copies, please let us know.

Please note that the Ministry of Environment, Conservation and Parks' Monitoring and Screening Checklist form has been included in reports submitted by BluMetric Environmental Inc. under separate cover.

We trust the enclosed is satisfactory. However, if you have any additional questions, please do not hesitate to contact the writer.

Yours truly,

Peter S. Brodzikowski, P.Eng.
Senior Engineer, Solid Waste Management

PSB/bdl
Encl.

WSP ref.: 081-12459-01 (8570)

SUITE 101
1450, 1ST AVENUE WEST
OWEN SOUND, ON, CANADA N4K 6W2

T: +1 519 376-7612
F: +1 519 376-8008
wsp.com

SIGNATURES

PREPARED BY



Beverly D. (Leno) Minshall, C.E.T., rcji
Environmental Technologist

March 19, 2020

Date

APPROVED¹ BY



Peter S. Brodzikowski, P.Eng.
Senior Engineer, Solid Waste Management

March 19, 2020

Date

WSP Canada Inc. prepared this report solely for the use of the intended recipient, WASTE MANAGEMENT OF CANADA CORPORATION, in accordance with the professional services agreement. The intended recipient is solely responsible for the disclosure of any information contained in this report. The content and opinions contained in the present report are based on the observations and/or information available to WSP Canada Inc. at the time of preparation. If a third party makes use of, relies on, or makes decisions in accordance with this report, said third party is solely responsible for such use, reliance or decisions. WSP Canada Inc. does not accept responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken by said third party based on this report. This limitations statement is considered an integral part of this report.

The original of this digital file will be conserved by WSP Canada Inc. for a period of not less than 10 years. As the digital file transmitted to the intended recipient is no longer under the control of WSP Canada Inc., its integrity cannot be assured. As such, WSP Canada Inc. does not guarantee any modifications made to this digital file subsequent to its transmission to the intended recipient.

¹ Approval of this document is an administrative function indicating readiness for release and does not impart legal liability on to the Approver for any technical content contained herein. Technical accuracy and fit-for-purpose of this content is obtained through the review process. The Approver shall ensure the applicable review process has occurred prior to signing the document.



TABLE OF CONTENTS

1	INTRODUCTION.....	1
2	PREVIOUSLY SUBMITTED REPORTS	3
3	REPORTING REQUIREMENTS – ENVIRONMENTAL COMPLIANCE APPROVAL NO. A371203	7
3.1	Assessment of Engineering Facilities, Design and Operations of the Site, and Adequacy of, and Need to, Implement Contingency Plans.....	7
3.1.1	Landfill Mass.....	7
3.1.2	Leachate Collection System	7
3.1.3	Gas Collection System.....	7
3.1.4	Stormwater Management System.....	7
3.1.5	Leachate Holding Lagoon	8
3.1.6	Conclusions	8
3.2	Leachate Collection System Efficiency	8
3.3	Existing Site Conditions	8
3.4	2019 Landfill Operations Area.....	8
3.4.1	Equipment.....	8
3.5	2020 Landfill Operations Area.....	9
3.6	2019 Excavation Areas	9
3.7	Final and Vegetative Cover Inspections	9
3.8	Previously Existing Site Facilities	9
3.8.1	Buildings and Signage	9
3.8.2	Staff.....	10
3.8.3	Tonnage Control.....	10
3.8.4	Soil Recycling Pad	11
3.8.5	Small Vehicle Transfer Area	11
3.8.6	Landfill Gas Collection and Flaring System	11
3.8.7	Sedimentation Ponds.....	11
3.8.8	Site Access and Roads.....	12
3.9	Facilities Installed in 2019	12
3.10	Site Preparations and Facilities Planned for 2020 ...	12



3.11	Leachate Quantities	12
3.12	Toxicity Testing – Stormwater Management Ponds	15
3.13	Waste Tonnage Summaries	15
3.14	Summary of Complaints	16
3.15	Summary of Seeps/Upset Conditions/ Emergency Situations, and Remedial Actions	16
3.15.1	Clarification – Leachate Volumes to Holding Lagoon in 2018 Annual Monitoring Report.....	17
3.15.2	Addition Of Leachate Volumes To Holding Lagoon in 2017 Monitoring Report	18
3.16	Operational Problems	18
3.17	Refusal of Waste.....	18
3.18	Leachate Collection System Cleaning and Inspection	18
3.19	Financial Assurance Summary	18
3.20	Chronology of Significant Landfill Design, Operational and Land Use Changes.....	19
3.21	Statement of Compliance	19
3.22	Confirmation of Site Inspection Program	20
3.23	Operations, Equipment, Procedures Changes, and Recommendations	20
3.24	Phytoremediation System	20
4	REPORTING REQUIREMENTS – ENVIRONMENTAL COMPLIANCE APPROVAL NO. 1688-8HZNJG.....	22
4.1	Leachate Management.....	22
4.1.1	Leachate Quantities	22
4.1.2	Operational Problems and Corrective Actions.....	23
4.1.3	Maintenance Performed On Structures	23
4.1.4	Calibration and Maintenance of Leachate Monitoring Equipment.....	23
4.1.5	Summary of Complaints Received	24
4.1.6	Summary of By-Pass, Spill or Abnormal Discharge Events	24



4.2	Surface Water Management	24
4.2.1	Summary of Stormwater Monitoring Data	24
4.2.2	Operating Problems and Corrective Actions	24
4.2.3	Summary of Maintenance Activities	24
4.2.4	Summary of Complaints Received	25
4.2.5	Summary of By-pass, Spill or Abnormal Discharge Events	25
5	GENERAL	26
5.1	Clarification – Leachate Volumes Listed in 2018 Annual Monitoring Report	26
5.2	Clarification – Leachate Volumes Listed in 2017 Annual Monitoring Report	27

TABLES

TABLE 3-1	2019 WEEKLY LEACHATE QUANTITIES PUMPED FROM LANDFILL MOUND TO TANKER TRUCK.....	14
TABLE 3-2	2019 WEEKLY LEACHATE QUANTITIES PUMPED FROM LANDFILL MOUND TO LEACHATE HOLDING LAGOON	15
TABLE 4-1	2019 MONTHLY LEACHATE QUANTITIES	23

FIGURES

FIGURE 1	SITE LOCATION MAP
----------	-------------------

APPENDICES

A	ENVIRONMENTAL COMPLIANCE APPROVALS AND CERTIFICATES OF APPROVAL
A-1	AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL (WASTE DISPOSAL SITE) NO. A371203, DATED JULY 14, 2017 (CONSOLIDATION OF JANUARY 9, 2012 ECA AND 2012 TO 2016 AMENDMENTS, REVISION OF CONDITION 8.5, ADDITION OF ITEMS 66 AND 67 TO SCHEDULE “A”, AND MINOR CORRECTIONS AND REVISIONS TO VARIOUS CONDITIONS, SCHEDULE “A” ITEMS, AND REASONS FOR CONDITIONS)
A-2	ENVIRONMENTAL COMPLIANCE APPROVAL (SEWAGE WORKS) NO. 1688-8HZNJG, DATED JANUARY 10, 2012
A-3	CERTIFICATE OF APPROVAL (INDUSTRIAL SEWAGE) NO. 4 – 0129-64-956 (OIL/SEDIMENT INTERCEPTOR), DATED JANUARY 24, 1995
A-4	CERTIFICATE OF APPROVAL NO. A710003 (SOIL RECYCLING), DATED DECEMBER 20, 1993
A-4-1	AMENDMENT TO CERTIFICATE OF APPROVAL NO. A710003 DATED AUGUST 25, 1999, REGARDING NOTIFICATION OF CHANGE OF NAME

- A-4-2** AMENDMENT TO CERTIFICATE OF APPROVAL NO. A710003 DATED MARCH 26, 2004, REGARDING NOTIFICATION OF CHANGE OF NAME
- A-5** ENVIRONMENTAL COMPLIANCE APPROVAL (AIR) NO. 5970-9HKP3V (LANDFILL GAS COLLECTION AND FLARING SYSTEM, INCLUDING CANDLESTICK FLARE) DATED APRIL 29, 2014
- B** LANDFILL GAS COLLECTION SYSTEM AS BUILT DRAWING TO DECEMBER 2019
- C** MEMORANDUM: 2019 STORMWATER MANAGEMENT PONDS AND LEACHATE MONITORING RESULTS, PREPARED BY BLUMETRIC ENVIRONMENTAL INC.
- D** DETAILED CHRONOLOGY OF SIGNIFICANT LANDFILL DESIGN AND OPERATION, AND LAND USE CHANGES, AND POTENTIAL VOLATILE ORGANIC COMPOUND SOURCES AT THE SITE
- E** STATEMENT OF COMPLIANCE - 2019 ENVIRONMENTAL MONITORING AND REPORTING, PREPARED BY BLUMETRIC ENVIRONMENTAL INC.
- F** 2019 PHYTOREMEDIATION SYSTEM MONITORING RESULTS, PREPARED BY BLUMETRIC ENVIRONMENTAL INC.
- G** SITE LOCATION PLAN – PHYTOREMEDIATION SYSTEM
- H** LETTERS OF APPROVAL FOR ALTERNATE LEACHATE TREATMENT SITES

1 INTRODUCTION

Waste Management of Canada Corporation's (WM) Richmond Landfill site is located within Part of Lots 1, 2, and 3, Concession IV, Former Township of Richmond, now the Town of Greater Napanee. The landfill site consists of a 16.2 hectare waste disposal landfill site within a total site area of 138 hectares, and operates under Environmental Compliance Approval (ECA) (formerly Certificate of Approval) No. A371203, including amendments. The Richmond Landfill ceased to accept waste for final disposal on June 30, 2011, as per Condition 4.4 of the ECA.

This monitoring report for the Richmond Landfill site was prepared following site inspections and discussions with WM staff, and complies with conditions listed in ECA No. A371203, issued July 14, 2017. This version of the ECA consolidated the ECA that was originally issued January 9, 2012 and amended May 3, 2013, October 4, 2013, August 14, 2015, November 5, 2015, April 15, 2016, and June 15, 2016. The report also complies with conditions listed in ECA (Sewage Works) No. 1688-8HZNJG, issued January 10, 2012. The specific conditions in the aforementioned ECAs to which this report complies with are listed below:

- Conditions 5.11 (i through vi), 14.2 and 14.3 (i through xxiii) of ECA No. A371203; and
- Conditions 10(4) (a) (b), (c), (d), (e), (f), (g), and (h) of ECA No. 1688-8HZNJG

The amendments to the ECA No A371203 issued on January 9, 2012 were mostly related to an appeal filed on January 30, 2012 by the Concerned Citizens Committee of Tyendinaga and Environs (CCCTE) pertaining to seven (7) conditions of the ECA. On March 30, 2012, the Environmental Review Tribunal (ERT) granted CCCTE leave to appeal the seven (7) conditions, as outlined below:

- Condition 8.5 (Monitoring Programs);
- Condition 9.1 (Groundwater and Surface Water Impact Contingency Plan);
- Condition 9.2 (Leachate Collection System Contingency Plan);
- Condition 9.5 (Public Notification Plan for Contingency Plans); and
- Conditions 14.1, 14.2, and 14.3 (Monitoring Reports and Annual Reporting).

The ERT lifted the automatic stay initiated by the appeal until the ERT issued its decision or otherwise ordered.

From May 2013 through June 2016, amendments to ECA No. A371203 were issued following ERT decisions pertaining to the aforementioned conditions. Some amendments were also issued that were unrelated to the ECA appeal. The June 2016 amendment to ECA No. A371203 was based on the ERT's final decision issued December 24, 2015, which stated the ERT was no longer required to supervise or participate in the CCCTE appeal of the ECA, subject only to the ERT's determination of the final wording of the ECA conditions and EMP provisions as outlined in the order. At present, no conditions of ECA No. A371203 remain under appeal, however, additional amendments to ECA No. A371203 may be issued based on the findings of reports required in the June 2016 amendment.

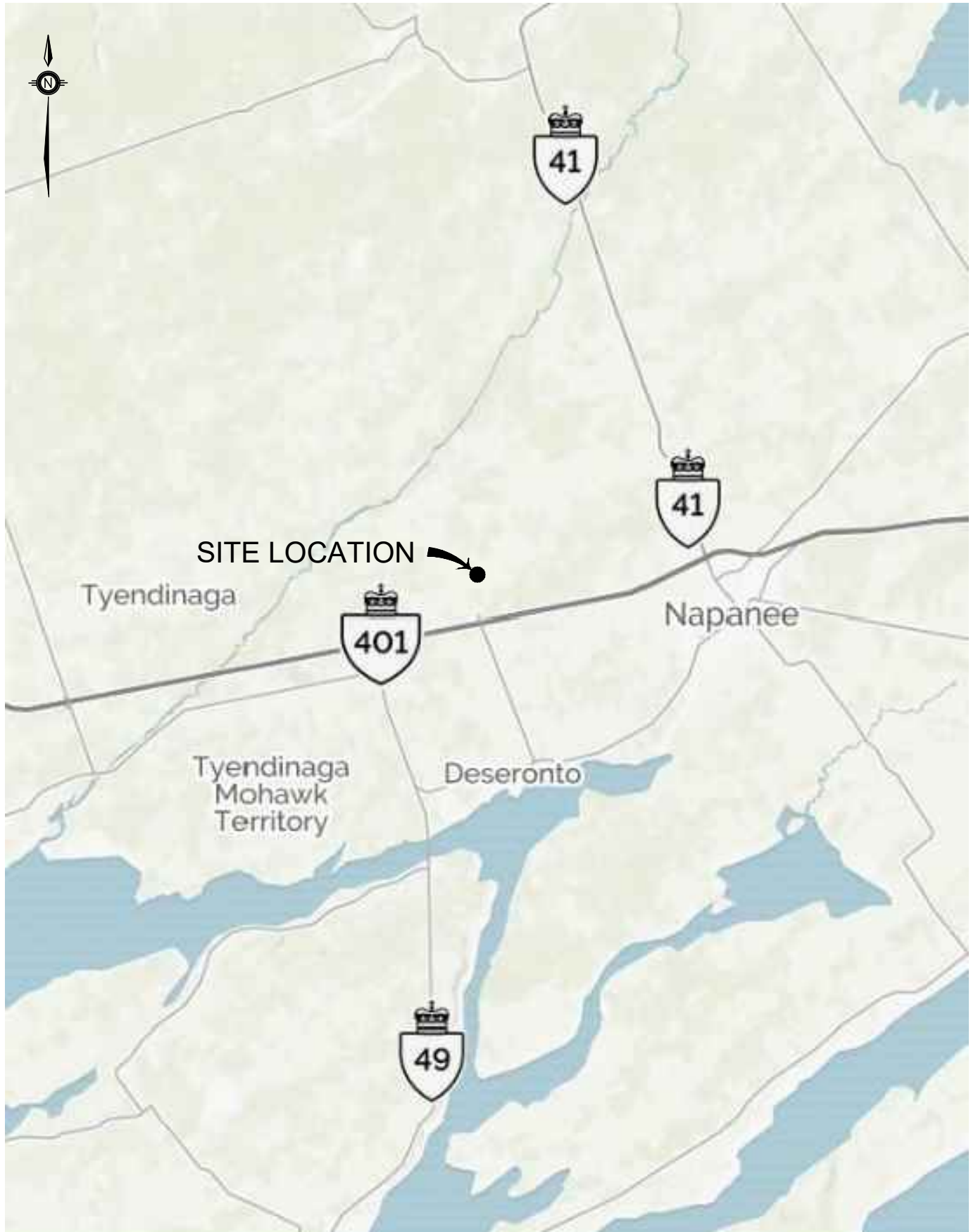
In 2017, the Ministry of Environment, Conservation and Parks (MECP) issued a consolidated ECA to reflect all amendments to the ECA that had been issued since January 2012. The consolidated ECA included the approval of an updated financial assurance re-evaluation, and approval of WM's request to discontinue surface emission surveys conducted at the landfill. The consolidated ECA also included additions and modifications to several Schedule "A" items, along with updated references to the reasons for conditions.

This report was prepared following a site inspection performed by WSP Canada Inc. (WSP) on October 29, 2019, discussions with management, and covers activities and monitoring for the 2019 calendar year.

A copy of ECA No. A371203 issued July 14, 2017 is included in **Appendix A.1** of this report. The following other Certificates of Approval (C of As) and ECA concerning the site are included in this report, as follows:

- ECA No. 1688-8HZNJG dated January 10, 2012, can be found in **Appendix A.2**. This document outlines the new requirements for the operation, maintenance, monitoring, and reporting of the leachate and stormwater management systems.
- C of A (Industrial Sewage Works) No. 4-0129-64-956 dated January 24, 1995 is located in **Appendix A.3**. This approval governs the operation of the oil/sediment interceptor at the former contaminated soil pad.
- C of A for a Waste Disposal Site No. A710003 (Soil Recycling) dated December 20, 1993 (**Appendix A.4**), with amendments, and
- Environmental Compliance Approval No. 5970-9HKP3V (Landfill Gas Collection and Flaring System), dated April 29, 2014 (**Appendix A.5**). The approval permits the operation of a candlestick flare as a contingency measure in the event the enclosed flare is shut down for repair or maintenance.

The site location can be seen in the following **Figure 1**.



G:\1985\8570\DRAWINGS\2020\FINAL_8570-F1-2019_WSP.dwg

SHEET 1	DWN BY: T C G DATE: MARCH 18, 2020
	CHK BY: P S B SCALE: N T S
	WASTE MANAGEMENT OF CANADA CORP.
DRAWING NO. 8570 - Figure 1	

SITE LOCATION PLAN
RICHMOND LANDFILL



2 PREVIOUSLY SUBMITTED REPORTS

Several reports have been completed and filed with the MECP in compliance with requirements of the conditions of the previous Provisional C of A and current ECAs. Those prepared by WSP (formerly GENIVAR Inc. and Henderson Paddon & Associates Limited.) are as follows:

Monitoring Report No. 1, March 1988

1987 Annual Monitoring - Complying with Conditions 10(b), 10(c), and 10(e) of the C of A dated August 11, 1987.

Final Design Report, September 1988

Complying with Conditions 2(a) and 11(a) of the C of A dated August 11, 1987, (Condition 2(a) and 10(a) of the C of A dated March 30, 1988).

Application for the Approval of Sewage Works for the Leachate Collection and Treatment Facilities, October 1988

Monitoring Report No. 2 to 23

1988 to 2009 Annual Monitoring Reports - Complying with Conditions 9(b), 9(c), 9(e), and 9(f) of C of A No. A371203 dated March 30, 1988, Condition 12 (3) of C of A No. 3-0975-90-916 dated October 21, 1991 (Monitoring Reports No. 5 through 22), and Conditions 10 (4) (a), (b), (c), (d), (e), (f), (g), and (h) of C of A No. 5268-7E8LJW, dated August 19, 2008 (Monitoring Reports 22 and 23).

Clay Liner – Design Construction and Testing, October 1989

Complying with Condition 2(b) of the C of A dated March 30, 1988.

Condition No. 7 Report, December 1991

This report was prepared and filed on December 31, 1991 by Laidlaw in connection with requirements of Certificate of Approval (Sewage) No. 31720-90-916.

Condition No. 29 Report, December 1991

This report was prepared and filed on December 31, 1991 by Laidlaw in connection with requirements of Certificate of Approval No. 19-371203 dated September 4, 1991.

Development & Operations Report

Report dated March 1996, to comply with Condition 2(a) of the C of A and as requested in the Amendment to the C of A on August 1, 1995.

Final Closure Plan

Final Closure Plan dated June 2007, was submitted to satisfy Condition 34 of the C of A that required a detailed closure plan pertaining to the termination of the landfill site, post closure inspection, maintenance and monitoring, and end use.

Construction Quality Assurance/Construction Quality Control (CQA/CQC) Plan for the Final Cover System

CQA/CQC Plan dated June 25, 2010, to comply with Condition 6(b) of the amended C of A issued March 31, 2010.

Odour Monitoring Plan

Submitted June 25, 2010 as part of the Environmental Monitoring Plan (EMP) prepared by Water and Earth Science Associates (WESA), to satisfy Condition 8(d) of the amended C of A issued March 31, 2010.

Financial Assurance Update

Revised Financial Assurance Plan dated June 25, 2010, to satisfy Condition 19 of the amended C of A issued March 31, 2010.

Operations and Procedures Manual

Updated Operations and Procedures Manual, dated June 25, 2010, to satisfy Condition 66 of the amended C of A issued March 31, 2010.

Leachate Collection System Contingency Plan

Dated June 25, 2010, to satisfy Condition 84 of the amended C of A issued March 31, 2010.

Landfill Gas Collection System Contingency Plan

Dated June 25, 2010, to satisfy Condition 88 of the amended C of A issued March 31, 2010.

Design of Low Permeability Surface and Low Permeability Liner for Compost Pad and Pond

Dated June 25, 2010, to satisfy Conditions 138 and 139 of the amended C of A issued March 31, 2010.

Monitoring Report No. 24

2010 Annual Monitoring Report - Complying with Conditions 9(b), 9(c), 9(e), and 9(f) of C of A No. A371203 dated March 30, 1988 (as amended), Conditions 9a and 9b (i through xxv) of Notice 5 to amend C of A No. A371203 dated March 31, 2010, and Conditions 10(4) (a through h) of C of A No. 5268-7E8LJW dated August 19, 2008.

Monitoring Report No. 25

2011 Annual Monitoring Report – Complying with Conditions 14.2 and 14.3 (i through xxiii) of ECA No. A371203 dated January 9, 2012 (as amended), and Conditions 10(4) (a through h) of ECA No. 1688-8HZNJG.

Operations and Maintenance Manual Revision No. 1 – Stormwater/Leachate Management Systems

Dated March 22, 2012, to satisfy Condition 7 (3) of ECA No. 1688-8HZNJG. This report was updated to reflect changes in site operations. This report was not required to be submitted to MECP, but is retained at the site as part of the operating records.

Operations and Procedures Manual Revision No. 1

Dated March 22, 2012, to satisfy Condition 4.3 (c) of ECA No. A371203. This report was updated to reflect changes in site operations. This report was not required to be submitted to MECP, but is retained at the site as part of the operating records.

Odour Monitoring Plan Revision No. 1

Dated March 22, 2012, to satisfy Condition 8.5 d of ECA No. A371203. This report was updated to reflect changes in site operations and to address comments from the public and MECP on the initial submission.

Stormwater Contingency and Remedial Action Plan

Dated March 22, 2012 to satisfy Condition 9 (1) of ECA No. 1688-8HZNJG. This condition required the submission of a contingency and remedial action plan pertaining to the stormwater systems within six (6) months of the date of ECA issuance. The report was required to be submitted only to the MECP District Manager for approval. Report is awaiting review by the MECP.

Public Notification Plan

Dated September 19, 2012 to satisfy Condition 9.5 of ECA No. A371203. This condition required the submission of a public notification plan to notify parties that contingency plans were implemented at the site, within 12 months of the date of issuance of the ECA.

Odour Survey Protocol

Dated February 2013. This report was submitted to address comments from the ERT hearing.

Public Notification Plan

Dated February 2013. This report was submitted to address comments from the ERT hearing.

Financial Assurance Update

Revised Financial Assurance Plan dated March 25, 2013, to satisfy Condition 2.7 of the ECA issued January 9, 2012.

Monitoring Report No. 26

2012 Annual Monitoring Report – Complying with Conditions 14.2 and 14.3 (i through xxiii) of ECA No. A371203 dated January 9, 2012 (as amended), and Conditions 10(4) (a through h) of ECA No. 1688-8HZNJG.

Monitoring Report No. 27

2013 Annual Monitoring Report – Complying with Conditions 14.2 and 14.3 (i through xxiii) of ECA No. A371203 dated January 9, 2012 (as amended), and Conditions 10(4) (a through h) of ECA No. 1688-8HZNJG.

Maintenance Schedule – Ditches, Culverts, and Leachate Collection System

Dated June 12, 2014 to satisfy Conditions 13.9 and 13.10 of ECA No. A371203. This schedule was submitted as part of a MECP application regarding maintenance on the aforementioned landfill infrastructures for the duration of the landfill's contaminating lifespan.

Addendum to Monitoring Reports No. 26 and 27

Dated September 15, 2014, to satisfy Condition 5.11 (i through iv), which was inadvertently excluded from the 2012 and 2013 annual monitoring reports. This letter report was submitted to MECP and various stakeholders as identified under Condition 14.2 of Notice 1 to amend ECA No. A371203.

Operations and Procedures Manual Revision No. 2

Dated October 28, 2014, to satisfy Condition 4.3 (b) of ECA No. A371203. This report was updated to reflect changes in site operations. This report was not required to be submitted to MECP, but is retained at the site as part of the operating records.

Odour Monitoring Plan Revision No. 2

Dated November 24, 2014. This report was submitted as part of a MECP application to request consolidation of the Odour Monitoring Plan Revision No. 1, and the Odour Survey Protocol documents identified under Condition 8.5 (d) of ECA No. A371203, and was updated to reflect changes in site operations.

Leachate Storage System Design Brief

Dated January 13, 2015. This report was submitted as part of an ECA application seeking approval to construct an onsite leachate storage facility to simplify and improve leachate removal and truck loading operations.

Monitoring Report No. 28

2014 Annual Monitoring Report – Complying with Conditions 5.11 (i through vi), 14.2 and 14.3 (i through xxiii) of ECA No. A371203 dated January 9, 2012 (as amended), and Conditions 10(4) (a through h) of ECA No. 1688-8HZNJG.

Financial Assurance Update

Revised Financial Assurance Plan dated March 30, 2016, to satisfy Condition 2.7 of the ECA issued January 9, 2012. Submission was accepted by MECP in July 2017.

Monitoring Report No. 29

2015 Annual Monitoring Report – Complying with Conditions 5.11 (i through vi), 14.2 and 14.3 (i through xxiii) of ECA No. A371203 dated January 9, 2012 (as amended), and Conditions 10(4) (a through h) of ECA No. 1688-8HZNJG.

Surface Emission Survey Frequency Reduction Application

Dated June 24, 2016. This application was prepared in regards a Condition in ECA No. A371203 which permits WM to apply for a reduction in the frequency of surface emission surveys performed in a calendar year based on the results of the 2013 and 2014 surface emission surveys. Submission was accepted by MECP in July 2017.

Odour Monitoring Plan Revision No. 3

Dated June 24, 2016. This report was prepared to accompany the Surface Emission Survey Frequency Reduction Application as referenced above. Submission was accepted by MECP in July 2017.

Monitoring Report No. 30

2016 Annual Monitoring Report – Complying with Conditions 5.11 (i through vi), 14.2 and 14.3 (i through xxiii) of ECA No. A371203 dated January 9, 2012 (as amended), and Conditions 10(4) (a through h) of ECA No. 1688-8HZNJG.

Monitoring Report No. 31

2017 Annual Monitoring Report –Complying with Conditions 5.11 (i through vi), 14.2 and 14.3 (i through xxiii) of ECA No. A371203 dated July 14, 2017, Conditions 5.11 (i through vi), 14.2 and 14.3 (i through xxiii) of ECA No. A371203 dated January 9, 2012 (as amended), and Conditions 10(4) (a through h) of ECA No. 1688-8HZNJG.

Monitoring Report No. 32

2018 Annual Monitoring Report –Complying with Conditions 5.11 (i through vi), 14.2 and 14.3 (i through xxiii) of ECA No. A371203 dated July 14, 2017, and Conditions 10(4) (a through h) of ECA No. 1688-8HZNJG.

3 REPORTING REQUIREMENTS – ENVIRONMENTAL COMPLIANCE APPROVAL NO. A371203

3.1 ASSESSMENT OF ENGINEERING FACILITIES, DESIGN AND OPERATIONS OF THE SITE, AND ADEQUACY OF, AND NEED TO, IMPLEMENT CONTINGENCY PLANS

Condition 14.3 i of the ECA requires an assessment of the operation and performance of all engineered facilities. The following describes the facilities reviewed and the assessment completed.

3.1.1 LANDFILL MASS

The existing landfill mass was reviewed for slope stability, areas of settlement, integrity of the final cover, vegetation, leachate and gas seeps, and areas requiring remediation. The landfill slopes are regularly reviewed by WM, and were inspected in the past year by WSP. No areas were discovered with slope instability, and minor amounts of settlement is occurring, mainly in the higher elevations of the landfill. The landfill final cover vegetation was reviewed and has established well, however, there are some barren areas on the northeast, east, and south sides of the landfill mound and in other isolated areas which require re-seeding, which were identified to WM during WSP's 2019 site inspection. Otherwise, we conclude no remedial work is required on the landfill mass.

3.1.2 LEACHATE COLLECTION SYSTEM

The existing leachate collection system and pump stations were reviewed to determine if they are operating as designed, and if any remedial work is required. WM staff regularly reviews the operation of the leachate system, and completes repairs as required. It is understood that leachate is being collected from the system, and that no blockages are present. High-level alarms were installed in the north chamber, and replaced in the south pump station, in 2010 as per an ECA requirement. No remedial work is currently required.

3.1.3 GAS COLLECTION SYSTEM

The existing gas collection system is regularly monitored by WM, to ensure that landfill gas is being collected and destroyed in the flare system. No new gas extraction wells were installed in 2019. The gas system was operating as required in 2019, and no additional remedial work is recommended at this time.

3.1.4 STORMWATER MANAGEMENT SYSTEM

Three (3) stormwater sedimentation ponds collect stormwater runoff from the landfill site, and remove sediment prior to discharge. Ponds are regularly inspected by WM staff. The ponds in the northwest and northeast corners of the site had no issues in 2019, and require no remedial work. The south pond was reconstructed in 2008-2009, had no issues in 2019, and currently requires no remedial work.

3.1.5 LEACHATE HOLDING LAGOON

The leachate holding lagoon was inspected, and was found to be in acceptable condition. The lagoon was decommissioned by WM in 2010, but remains in place as a contingency for leachate storage. The lagoon was utilized for periods in April and May 2019 to temporarily store leachate due to high flows experienced as a result of abnormal rainfall events. No issues were noted with the lagoon by WM during this period.

3.1.6 CONCLUSIONS

After a review of the engineered facilities at the site, it was concluded that there is currently no need to amend the design, or adjust the operation of the Richmond Landfill site.

Since all engineering works are performing as designed, and monitoring results are satisfactory, it is our conclusion that at this time, there is no need to implement any contingency plans.

3.2 LEACHATE COLLECTION SYSTEM EFFICIENCY

Condition 14.3 ii of the ECA requires an assessment of the efficiency of the leachate collection system.

A review of the leachate volume removed from the landfill site was determined to be of a reasonable volume to conclude that the leachate collection system is continuing to operate effectively, and is further discussed in **Section 3.11**. WM regularly inspects the infrastructure, and has determined that there are no blockages in the system. No cleaning or camera inspection was completed in 2019, but this activity is planned for 2020. No issues with the system were reported.

3.3 EXISTING SITE CONDITIONS

Condition 14.3 iii of the ECA requires WM to provide plans showing the existing contours of the site.

WSP completed a GPS survey on November 16, 2011 for as constructed purposes upon completion of final capping conditions. A second GPS survey was completed on June 1, 2017 to document existing conditions. No significant change has occurred in the site topography other than settlement since that survey. This information, along with an updated landfill gas collection system plan, has been combined into a single drawing, which is contained in **Appendix B** of this report.

3.4 2019 LANDFILL OPERATIONS AREA

Condition 14.3 iv of the ECA requires information regarding the areas of landfilling operations during the reporting period.

No landfilling operations took place during the reporting period. On June 30, 2011, the Richmond Landfill ceased to accept waste in accordance with Condition 4.4 of the ECA.

3.4.1 EQUIPMENT

Upon completion of landfilling activities, several pieces of equipment were removed from the site. The following equipment remains onsite to assist in performing regular maintenance activities:

- a Case International farm tractor with a rotary mower.

If additional equipment was required, it was obtained from local contractors.

3.5 2020 LANDFILL OPERATIONS AREA

Condition 14.3 v of the ECA requires information regarding the intended area of landfilling operations during the next reporting period.

Per Condition 4.4 of the ECA, no further landfilling operations will occur at the site.

3.6 2019 EXCAVATION AREAS

Condition 14.3 vi of the ECA requires information regarding areas of excavation during the reporting period.

No excavation was completed at the site in 2019.

3.7 FINAL AND VEGETATIVE COVER INSPECTIONS

Condition 14.3 vii of the ECA requires a summary of the inspection of the final cover and vegetative cover, including identification of any seepages and remedial actions taken.

The placement of the final cover system was completed on the Richmond Landfill on September 23, 2011. Inspections which took place in 2019 verified that vegetative cover has become well established. Some barren areas were identified during WSP's inspection on the northeast, east, and south sides of the landfill mound, including the areas where seeps were repaired in 2017, and re-seeding of these areas has been recommended to WM.

No leachate seeps were observed during WSP's annual inspection, however, some odour was detected while walking on the northeast slope. This location was identified to WM within the site inspection report.

3.8 PREVIOUSLY EXISTING SITE FACILITIES

Condition 14.3 viii of the ECA requires information regarding previously existing site facilities.

3.8.1 BUILDINGS AND SIGNAGE

The landfill site office is located to the south of the landfill site on the main access road. The building houses hauling division staff, record services, communications equipment, weigh scale recording devices and operating staff facilities.

Landfill equipment is serviced in the existing maintenance building. Fuel storage is located in this area and a staff room for the landfill equipment operators is attached.

Several unoccupied homes and barns on WM-owned land surrounding the landfill were demolished in 2017.

Signs are erected along the access road near Beechwood Road identify the landfill site. The main sign supplies the following information:



A sign is also present on the main gates notifying the public drop off area for local residents was closed February 28, 2014, and remains closed. Signage indicating types of waste accepted at the site have been removed.

3.8.2 STAFF

WM staff manages and operates the site. Mr. William McDonough acted as the Landfill Manager for the 2019 calendar year. The site was managed by the Environmental Legacy Management Group (ELMG) (formerly Closed Sites Management Group (CSMG)) with Mr. Jim Forney being the Director of the ELMG.

Other landfill staff presently consists of the following:

- One (1) full time operator who is responsible for site maintenance and gas field repairs.

Other monitoring staff, and equipment operators, are brought on the site for contract work as required for ongoing maintenance activities.

3.8.3 TONNAGE CONTROL

A truck weigh scale is present at the site, and was used to record daily net tonnages received when the site was accepting waste for disposal. A history of the present scale is provided as follows:

In 1998, an 80' Active Mod-U-Dec pitless truck scale with a Toledo digital weight display and printer was connected to a computer for data management. Truck traffic was controlled from the office by traffic light signals and by an air phone intercom system as trucks approach the scale.

- In 2004, electrical work was completed to allow the scale facility to be run by a generator in the event of power failure to the site. Standby power can be easily connected to the scale house facility to operate the necessities for the acceptance of waste vehicles.
- Three (3) separate calibration procedures were performed on the scale in 2012, and two (2) separate calibration procedures were performed on the scale in 2013, to ensure that weights are recorded correctly. Load cells have also been repaired as required.
- One (1) calibration procedure were performed on the scale in June 2014 to ensure that weights were recorded correctly.

In 2019, the scale was not in operation, and no calibration was performed.

3.8.4 SOIL RECYCLING PAD

A vacant area located to the east of the existing maintenance building is the former soil recycling pad and was used in the past for temporary storage of hydrocarbon-impacted soil. Upon site closure on June 30, 2011, the Richmond Landfill ceased to accept waste, including contaminated soil, for final disposal. The pad was flushed and cleaned after soil receipt ended. Surface runoff from this pad flows directly to the stormwater ponds. The oil/sediment separator is monitored for sediment buildup and cleaned as required. No buildup of sediment was noted within this structure in 2019.

3.8.5 SMALL VEHICLE TRANSFER AREA

The public drop off area was approved for operation by the MECP on January 9, 2012, subject to the conditions listed in ECA No. A371203, and opened to the public on February 1, 2012. This area was used for small vehicles offloading waste, recyclables and compostable materials. This practice facilitated the transfer of material from the smaller vehicles into the roll-off bins. A reuse centre where residents could donate and exchange reusable goods was also constructed within the public drop off area. WM participated in the Ontario Electronic Stewardship (OES) program and Ontario Tire Stewardship (OTS) programs for electronics and tire recycling, and was also a member of Stewardship Ontario's Municipal Hazardous or Special Waste (MHSW) program, and collected paint and single use batteries for disposal offsite. White goods, including those which were tagged "freon removed", and scrap metal, were separated from the waste stream and temporarily stored on the site. WM removed these materials regularly for recycling.

On February 28, 2014, WM ceased operation of the public drop off area, reuse centre, OTS, OES and white goods areas. All approvals pertaining to the operation of the facility remain in place under consolidated ECA No. A371203 issued July 14, 2017, and WM may elect to re-open the facility at a future date.

3.8.6 LANDFILL GAS COLLECTION AND FLARING SYSTEM

The landfill gas collection and flaring system (LFGCS) was implemented for odour control at the Richmond Landfill in 2000. The construction of Phase I of the system was carried out in the years 2000/2001 with the installation of a 2.1 metre diameter x 12.2 metre high enclosed flaring system, according to Certificate of Approval (C of A) (Air) No. 8-4076-99-006, issued by the MECP on December 21, 1999. In 2003, C of A (Air) No. 1355-6LRN9N was issued by the MECP, which revoked and replaced the previous C of A. On April 29, 2014, the MECP issued ECA No. 5970-9HKP3V, which revoked and replaced the previous C of A. This approval permits the operation of a candlestick flare only when the enclosed flare is shut down for maintenance and repair.

Subsequent expansions and upgrades to the LFGCS have been made since the installation of the initial system in order to burn the landfill gas produced by the decomposing waste. WM reports that the present system collects gas from five (5) leachate clean-outs, four (4) leachate collection manholes and 42 vertical gas wells, of the 62 wells installed. 20 decommissioned wells are also present. Please refer to the drawing in **Appendix B** for the gas collection system as built drawing.

Regular operation and maintenance of the landfill gas collection and flare system was carried out in 2018. The landfill gas flare has been effective at reducing odour around the landfill site. In the rare occurrence of flare shutdown, operators, who are automatically notified by a paging system, attend the site to restart the flare or correct any alarm situations. The flare has operated successfully to date.

3.8.7 SEDIMENTATION PONDS

The three sedimentation ponds were operational in 2019. Prior to 2012, pond discharge was controlled and not permitted without prior testing and approval from MECP District staff. On January 10, 2012, the MECP issued

ECA No. 1688-8HZNJG, which revoked and replaced the previous C of A for sewage works. The ECA allows WM to operate the discharge outlet valves on the sedimentation ponds in the open position, thereby permitting the ponds to operate as designed in a free flowing state. Revised maintenance, monitoring, and reporting programs are also listed in the ECA.

3.8.8 SITE ACCESS AND ROADS

The site entrance and roads were inspected by WSP during the annual site inspection. Aside from recommendations for re-grading the road surfaces on the southcentral, east and northeast access roads, no significant issues were identified by WSP during the October 2019 site inspection.

3.9 FACILITIES INSTALLED IN 2019

Condition 14.3 ix of the ECA requires information about the installation of any facilities at the site during the reporting period.

In 2019, additional field work was completed regarding the Contaminant Attenuation Zone (CAZ). Information regarding this work can be found under **Section 3.21** of this report.

3.10 SITE PREPARATIONS AND FACILITIES PLANNED FOR 2020

Condition 14.3 x of the ECA requires information regarding any site preparation or installation of facilities planned for the next reporting period.

In early 2015, WM submitted an application to the MECP to request approval for a leachate storage tank at the site to improve the efficiency of the leachate collection and removal system. Approval to construct the leachate storage tank was granted in Notice 6 to amend ECA No. A371203, dated June 15, 2016. WM is planning to install the tank, along with associated forcemains and pumps, in 2020.

In January 2020, WM will submit an Environmental Compliance Approval application to request several amendments to conditions within ECA No. A371203, to better reflect a landfill site operating in the post-closure period.

By March 31, 2020, WM will submit an updated financial assurance re-evaluation, as required by Condition 2.7 of ECA No. A371203.

No other site preparations or facilities are planned to be installed in 2020.

3.11 LEACHATE QUANTITIES

Condition 14.3 xi of the ECA requires a summary of the quantity of any leachate or pre-treated leachate removed from the north and south pumping stations at the site during each operating week.

In 2019, leachate continued to be hauled to the Town of Greater Napanee for treatment. Loads are collected from the site, manifested, and then discharged at the septage receiving facility located at Enviro Park Lane and West Street. In the event the /town of Greater Napanee is unable to receive leachate, WM has approval for disposal at the Ravensview septage receiving facility in Kingston, ON. Leachate continues to be extracted at the lowest portions on Phases 2 and 4 and hauled as required for treatment off-site. Additional details are provided in **Section 4.1**.

WM inspects the site each day for leachate seeps and problem areas in the final cap. If leachate seeps are encountered, they are promptly repaired to avoid any surface water contamination. Generally, leachate seeps are excavated and granular material and dry clay are replaced and packed. When cracks develop in other areas of the

final cap and the potential for gas migration is present, the final cap is scarified or re-compacted and additional clay may be placed in the area to prevent gas migration. Through the continuous removal of leachate to the leachate treatment facilities and the extraction of landfill gas through the landfill gas collection and disposal system, the potential for leachate seeps and gas outbreaks are minimized and the potential for any off-site impact is reduced. As discussed in **Section 3.7**, no leachate seeps were detected on the landfill mound slopes in 2019. Odour was detected on the northeast slope during WSP's annual inspection in October 2019. Some barren areas were identified on the northeast, east, and south sides of the landfill mound, including the areas where seeps were repaired in 2017. These areas were identified to WM. Re-seeding of these areas have been recommended by WSP.

Table 3.1, located on the following page, details the weekly quantity of leachate removed from the Richmond Landfill into tanker truck and removed from the site. The volumes presented in the table were converted from the tonnage determined in the tanker truck and converted using $1 \text{ tonne} = 1 \text{ m}^3$.

Table 3-1 2019 Weekly Leachate Quantities Pumped from Landfill Mound to Tanker Truck

WEEK ENDING	TOTAL LEACHATE REMOVED (m ³)	WEEK ENDING	TOTAL LEACHATE REMOVED (m ³)
1/5/2019	151.75	7/13/2019	460.27
1/12/2019	234.53	7/20/2019	571.18
1/19/2019	544.65	7/27/2019	493.29
1/26/2019	378.22	8/3/2019	519.44
2/2/2019	289.81	8/10/2019	230.94
2/9/2019	335.21	8/17/2019	458.59
2/16/2019	465.15	8/24/2019 ³	390.35
2/23/2019	467.49	8/31/2019 ³	353.62
3/2/2019	464.28	9/7/2019	123.40
3/9/2019	582.78	9/14/2019	185.10
3/16/2019	467.52	9/21/2019	185.10
3/23/2019	409.09	9/28/2019	107.97
3/30/2019	318.88	10/5/2019	61.70
4/6/2019	165.54	10/12/2019	137.94
4/13/2019	584.40	10/19/2019	41.39
4/20/2019 ¹	116.92	10/26/2019	151.76
4/27/2019 ²	0	11/2/2019	233.76
5/4/2019 ¹	421.26	11/9/2019	494.34
5/11/2019 ¹	467.52	11/16/2019	354.77
5/18/2019 ²	0	11/23/2019	508.89
5/25/2019 ¹	467.52	11/30/2019	639.58
6/1/2019	520.38	12/7/2019	582.77
6/8/2019	344.12	12/14/2019	522.70
6/15/2019	456.06	12/21/2019	701.28
6/22/2019	581.14	12/28/2019	584.40
6/29/2019	467.52	12/31/2019 ⁴	0
7/6/2019	350.64	TOTAL	19,146.91

¹ Town of Greater Napanee Utilities was not accepting leachate for disposal on select days in period. Refer to **Table 3.2** for volumes of leachate removed from the landfill mound and pumped to the lagoon for the period.

² Town of Greater Napanee Utilities was not accepting leachate for disposal for the entire period. Refer to **Table 3.2** for volumes of leachate removed from the landfill mound and pumped to the lagoon for the period.

³ Includes periods where tanker truck removed leachate from the holding lagoon (previously moved to the lagoon in April/May 2019), and from the landfill mound.

⁴ No leachate removal took place.

In the event that leachate cannot be hauled from the site due to conditions at the Town of Greater Napanee or City of Kingston plants, leachate or leachate-impacted water will be temporarily stored in the leachate-holding lagoon located to the north of the site. Once leachate treatment resumes at the receiving plant, this liquid would then be

hauled to the plant for treatment and disposal. Storage of leachate in the holding lagoon is a temporary, last resort measure, and is outlined in the leachate management plan submitted to the MECP. In 2010, this pond was dewatered, and allowed to drain freely in future rainfall events. However, in the event that the pond is required for temporary storage of leachate, the pond remains capable of being used for this contingency.

In 2019, the lagoon was utilized for periods in April and May for temporary leachate storage, due to high flows experienced during a period of abnormal rainfall events. Refer to **Table 3.2** below for details on the weekly quantity of leachate removed from the landfill mound and stored in the lagoon. The volumes presented in the table are based on the number of hours leachate was pumped from the landfill mound to the leachate holding lagoon, using a pumping rate of 200 US gallons per minute, and a conversion factor of 1 US gallon = 3.785 litres.

Table 3-2 2019 Weekly Leachate Quantities Pumped from Landfill Mound to Leachate Holding Lagoon

WEEK ENDING	TOTAL LEACHATE REMOVED (m ³)	WEEK ENDING	TOTAL LEACHATE REMOVED (m ³)
4/20/2019	363.36	5/11/2019	772.14
4/27/2019	1,112.79	5/18/2019	1,589.70
5/4/2019	862.98	5/25/2019	181.68
		TOTAL	4,882.65

Additional details regarding these events are provided in **Section 3.15**.

It is noted that the volumes listed on **Table 3.1** in the weeks ending August 24, 2019 and August 31, 2019 include approximately 130,000 US gallons of leachate that had been pumped from the landfill mound to the lagoon in April/May 2019. Using a conversion factor of 1 US gallon = 3.785 litres, a volume of 492,050 litres (492.05 m³) of leachate was determined to have been removed from the lagoon. This volume is then subtracted from the total volume of leachate shown in **Table 3.2** to avoid double counting of this quantity.

Therefore, the total amount of leachate removed from the site is calculated as follows:

- $19,146.91 \text{ m}^3 + 4,882.65 \text{ m}^3 - 492.05 \text{ m}^3 = \mathbf{23,357.51 \text{ m}^3}$

3.12 TOXICITY TESTING – STORMWATER MANAGEMENT PONDS

Condition 14.3 xii of the ECA requires a discussion of the results of the toxicity testing of the landfill stormwater management ponds which includes potential impacts to the groundwater by the ponds.

BluMetric Environmental Inc. (BluMetric) has provided a memorandum regarding the results of toxicity testing of the stormwater ponds, and potential impacts to the groundwater by the ponds. The memorandum can be found in **Appendix C** of this report.

3.13 WASTE TONNAGE SUMMARIES

Condition 14.3 xiii of the ECA requires the weekly, maximum daily, and total annual quantity (tonnes) of waste received at the site.

No waste was received at the site in 2019.

The public drop off area is also permitted on 25 occasions per year to have a “Large Waste Day” and receive up to 100 tonnes per day. In 2019, no Large Waste Days were utilized.

3.14 SUMMARY OF COMPLAINTS

Condition 14.3 xiv of the ECA requires a summary of any complaints received and the responses made.

In 2019, there were no complaints received by WM regarding odours.

Over the years, a few immediate neighbours have occasionally contacted WM regarding odours from the landfill site. The normal decomposition of waste generates odours and is contained in landfill gas. WM implemented the operation of a landfill gas recovery system in 2001 to control the escape of landfill gas. Gas wells were drilled in the waste mound, and collection piping withdraws landfill gas from the wells and all leachate manholes to reduce the odour emitted from the landfill site. Landfill gas is flared off via an enclosed flare to the south of the landfill footprint. The landfill flare was commissioned in April 2001 and successfully reduces landfill gas odours.

In June and July 2009, the consulting group RWDI, accompanied by a representative from the MECP, conducted a three (3) week long odour survey, and found no negative impacts on the local air quality. In addition, the MECP used their TAGA (Trace Atmospheric Gas Analyzer) unit to evaluate the local air quality, and concluded that the air quality was similar to any rural air quality in Ontario.

WM staff also tour the surrounding area and concession roads regularly to monitor for odour, litter and illegally dumped waste. Observations are recorded and corrective measures taken as required. A weather station is located north of the office area, which monitors wind speed, wind direction, temperature, rainfall, solar radiation and relative humidity. Recorded local weather patterns help in addressing odour complaints.

If an odour complaint is received at the landfill site, WM staff is dispatched to investigate the source of the odour and record the conditions that may have influenced the odour. WM is able to complete this response plan if complaints are received directly by WM. If complaints are delayed or not directed towards WM, the potential odour source cannot be investigated nor can corrective action be taken if the odour was potentially landfill related. A sign is posted near the front entrance, directing residents with questions, concerns and complaints to contact the Landfill Manager or WM Help Line. Phone numbers for both contacts are provided on the sign.

In June 2016, WM submitted an application to the MECP requesting a reduction in the frequency of surface emission surveys performed at the site, based on the results of the 2013 and 2014 surface emission surveys. Included in the application was a revised Odour Monitoring Plan, updated to reflect current site conditions and eliminated the use of surface emission surveys. WM requested that surface emission surveys be performed only in the event of confirming final cover system repairs to areas of the landfill mound, if the landfill mound was confirmed to be a source of odour at an off-site receptor identified in the Odour Monitoring Plan. On July 14, 2017, the MECP approved WM's request, and issued revised Conditions 8.5.3(a), (b) and (c) in consolidated ECA No. A371203. In 2019, no surface emission surveys were completed.

3.15 SUMMARY OF SEEPS/UPSET CONDITIONS/ EMERGENCY SITUATIONS, AND REMEDIAL ACTIONS

Condition 14.3 xv of the ECA requires a discussion of any seeps, upset conditions or emergency situations and/or corrective/remedial actions taken.

As described under **Section 3.1.5** and **Section 3.11**, the leachate holding lagoon was utilized for temporary leachate storage on the following dates:

- April 18, 2019, for a period of five (5) hours (60,000 US gallons);
- April 20, 2019, for a period of three (3) hours (36,000 US gallons);
- April 22 through 27, 2019, for a period of 24.5 hours (294,000 US gallons);
- April 29, 2019, for a period of five (5) hours (60,000 US gallons);

- April 30, 2019, for a period of five (5) hours (60,000 US gallons);
- May 1 and 2, 2019, for a period of nine (9) hours (108,000 US gallons);
- May 8 through 11, 2019, for a period of 17 hours (204,000 US gallons);
- May 13 through 18, 2019, for a period of 35 hours (420,000 US gallons); and
- May 21, 2019, for a period of four (4) hours (48,000 US gallons).

Overall for 2019, approximately 1,290,000 US gallons of leachate was pumped to the leachate holding lagoon over a period of 107.5 hours. An actual pumping rate of 200 US gallons per minute, as determined by BluMetric during summer 2019 field activities, was used to determine volumes of leachate removed from the landfill. Using a conversion factor of 1 US gallon = 3.785 litres, a total of 4,882,650 litres of leachate (4,882.65 m³) was moved to the lagoon in 2019.

There were no issues with the operation of the lagoon during this time, nor were any complaints received by the site from the general public during this period. In the latter half of August 2019, 34 loads of leachate, consisting of an estimated volume of 130,000 US gallons or 492,050 litres (492.05 m³), were removed from the lagoon and hauled to the sewage treatment plant in Napanee. The remaining volume of leachate (4,390.60 m³) was left in the lagoon.

No other seeps, upset conditions or emergency situations were reported at the site in 2019.

3.15.1 CLARIFICATION – LEACHATE VOLUMES TO HOLDING LAGOON IN 2018 ANNUAL MONITORING REPORT

In Monitoring Report No. 32, an estimated pumping rate of 300 US gallons per minute was used to calculate the volume of leachate moved from the landfill mound to the leachate holding lagoon in April and November 2018. During 2018, approximately 1,386,000 US gallons (5,246 m³) of leachate was pumped to the leachate holding lagoon over a period of 77 hours.

In August 2019, field testing was conducted by BluMetric to verify the estimated flow rate used to calculate the volume of leachate moved from the landfill mound to the lagoon. A “clamp on” ultrasonic flowmeter calibrated to the discharge pipe characteristics (75mm diameter pipe) was used, and the measured flow rate was determined to be 200 US gallons per minute.

As a result of the 2019 field testing, the 2018 leachate volumes pumped from the landfill mound to the lagoon, as listed in Section 3.15 of Monitoring Report No. 32, are revised as follows:

- April 4, 2018, for a period of six (6) hours (72,000 US gallons);
- April 13, 2018, for a period of three (3) hours (36,000 US gallons);
- April 17 through 27, 2018, for a period of 50.5 hours (606,000 US gallons); and
- November 28 through 30, 2018, for a period of 17.5 hours (210,000 US gallons).

Overall for 2018, approximately 924,000 US gallons of leachate was pumped to the leachate holding lagoon over a period of 77 hours. Using a conversion factor of 1 US gallon = 3.785 litres, a total of 3,497,340 litres of leachate (3,497.30 m³) was moved to the lagoon in 2018.

Refer to **Section 5.0** of this report to the revised overall leachate volume removed from the landfill in 2018.

3.15.2 ADDITION OF LEACHATE VOLUMES TO HOLDING LAGOON IN 2017 MONITORING REPORT

In Monitoring Report No. 31, Section 3.15 indicated the following:

*As described under **Section 3.1.5** and **Section 3.11**, the leachate holding lagoon was utilized for temporary leachate storage during late winter and early spring 2017 due to high flows experienced at the site. There were no issues with the operation of the lagoon during this time, nor were any complaints received by the site from the general public during this period. The leachate eventually evaporated from the lagoon.*

No volume of leachate moved from the landfill mound to the lagoon was included in the report.

WM has advised the volume of leachate moved from the landfill mound to the lagoon during the late winter and early spring of 2017 was 756,000 US gallons. Using a conversion factor of 1 US gallon = 3.785 litres, a total of 2,861,460 litres of leachate (2,861.46 m³) was moved to the lagoon in 2017.

Refer to **Section 5.0** of this report to the revised overall leachate volume removed from the landfill in 2017.

3.16 OPERATIONAL PROBLEMS

Condition 14.3 xvi of the ECA requires a discussion of any operational problems encountered at the site, and corrective action taken.

In 2019, the need for additional onsite leachate storage was identified at the site. The leachate storage tank that was approved by the MECP in June 2016 will be constructed in 2020.

No other operational problems occurred at the site in 2019.

3.17 REFUSAL OF WASTE

Condition 14.3 xvii of the ECA requires a summary of any waste that was refused for disposal at the site, the reasons for refusal, and the carrier who brought the waste to the site.

In 2019, there were no incidents where waste was brought to the site and refused.

3.18 LEACHATE COLLECTION SYSTEM CLEANING AND INSPECTION

Condition 14.3 xviii of the ECA requires a summary of the leachate collection system cleaning and inspection activities.

In 2019, WM regularly inspected the leachate pumps and system each day that hauling of leachate occurred. No issues with the equipment or system were noted.

A condition within the July 14, 2017 consolidated ECA No. A371203 requires the leachate collection system to be camera inspected every two (2) years after five (5) years of site closure, with cleaning as required. No camera inspection or flushing was required in 2019, but is planned for 2020.

3.19 FINANCIAL ASSURANCE SUMMARY

Condition 14.3 xix of the ECA requires an update summary of the amount of financial assurance which has been provided to the Director.

For 2019, an amount of \$12,685,305 was provided to the Director as per the amount listed under Condition 2.6 (ii) of ECA No. A371203.

It is noted that an updated financial assurance report is required to be submitted for approval to the MECP by March 31, 2020, as per Condition 2.7 of ECA No. A371203.

3.20 CHRONOLOGY OF SIGNIFICANT LANDFILL DESIGN, OPERATIONAL AND LAND USE CHANGES

Condition 14.3 xx of the ECA requires a table detailing the chronology of significant landfill design, operational, and land use changes for the landfill, and any other information with respect to the site which the District Manager or Regional Director may require from time to time.

Please refer to **Appendix D** for a table which lists the aforementioned information. The table also lists the potential sources of Volatile Organic Compounds at the site.

3.21 STATEMENT OF COMPLIANCE

Condition 14.3 xxi of the ECA requires a statement of compliance with all conditions of the ECA and other relevant Ministry groundwater and surface water requirements.

As a result of the inspection completed in 2019, to the best of our knowledge, WSP certifies that WM has complied with the conditions outlined in the various Environmental Compliance Approvals and Certificates of Approval for the site, with respect to site operations. BluMetric has provided a memorandum regarding compliance with the environmental monitoring and reporting requirements of the ECA, which can be found in **Appendix E**.

Monitoring programs have identified elevated levels of some monitoring parameters at locations to the south of the landfill. Detailed explanation of sample results, and work completed prior to 2017, can be found in the spring and fall semi-annual monitoring reports prepared by BluMetric, and in previous annual reports completed by WSP.

In the spring of 2015, the ERT held a hearing on the appeal filed in 2012 by the CCCTE. The decision, with an accompanying order, was issued on December 24, 2015. The ERT ordered that additional field work be completed and a report prepared and provided to all Parties (as defined in the ECA). The report was completed by April 15, 2016.

After review of the April 2016 report, with review and comment from all Parties, the MECP determined that additional field work was required to further define the east and southwest boundaries of the proposed CAZ. That work began in the summer of 2016 and has been continuing since then. The MECP ordered that the report based on this additional field work be submitted by May 31, 2017. As per the ECA, the Parties were to convene a meeting to discuss the report's contents. After reviewing input from all Parties, the MECP was to determine if the CAZ has been adequately defined. If the MECP agreed the CAZ has been adequately defined, WM was to submit the CAZ application. If the MECP did not agree the CAZ has been adequately defined, more field work would be ordered.

The report due May 31, 2017 was submitted by July 20, 2017. The report was delayed while additional field work was being completed. In November of 2017, the MECP indicated that the plume had been adequately defined but requested some additional field work to further define the shallow aquifer within the defined plume. Subsequently, in February 2018, the MECP decided additional field work was required in the northwest area of the CAZ. A work plan was submitted to MECP for approval.

In 2018, the field work in the northwest area of the CAZ was completed and a report was submitted to the MECP. The MECP reviewed the report, and requested an additional well be installed.

In 2019, additional wells were installed in the northwest area of the CAZ. All wells were dry. Additional investigation was completed on the east side of the proposed CAZ, just south of Beechwood Road. This well was also dry. Also in late 2019, additional work was being done to confirm the leachate lagoon was not leaking.

3.22 CONFIRMATION OF SITE INSPECTION PROGRAM

Condition 14.3 xxii of the ECA requires confirmation that the site inspection program as required by this ECA has been complied with by the Owner.

WM has confirmed to WSP that the site inspection program that is required by the Environmental Compliance Approvals, the Certificates of Approval, and by the various reports that address the site operations and monitoring, have been complied with.

3.23 OPERATIONS, EQUIPMENT, PROCEDURES CHANGES, AND RECOMMENDATIONS

Condition 14.3 xxiii of the ECA requires documentation of any changes in operations, equipment, or procedures employed at the site, and recommendations regarding any proposed changes in operations of the site.

As part of ECA No. 1688-8HZNJG, issued January 10, 2012, WM was required to submit a Stormwater Contingency and Remedial Action Plan to the MECP District Manager within six (6) months of the date of issuance for the ECA. On March 22, 2012, WM submitted this plan. To date, WM has not received any comments from the MECP regarding this plan.

On September 14, 2012, WM submitted an application to amend ECA No. A371203, regarding the operation of the public drop off area. WM requested an amendment to Condition 5.18 (1), to reduce the frequency of waste removal from the public drop off area from twice per week, to once every two (2) weeks. To date, WM has not received comments from the MECP regarding the status of this application.

In 2018, a MECP provincial officer toured the site with WM personnel. No report was provided from the MECP pertaining to this visit.

In August 2019, WM requested and received approval from the City of Kingston to dispose leachate at the Ravensview sewage treatment plant as a contingency measure. This facility replaces the contingency leachate disposal approval previously in place at the sewage treatment plant in Cobourg, ON.

3.24 PHYTOREMEDIATION SYSTEM

Condition 5.11 of the ECA lists the reporting requirements for the phytoremediation system at the Richmond Landfill, which includes the following:

- (i) Results and an analysis of the results of the monitoring programs for the phytoremediation system;
- (ii) Assessment of the results of the phytoremediation system as related to the stated objectives for the existing and proposed phytoremediation system;
- (iii) Assessment of the need to change the monitoring program for the phytoremediation system and a recommendation of the required changes;
- (iv) A report on operational problems identified during the operation of the phytoremediation system and a discussion of each problem and what was done to rectify each problem;
- (v) Assessment of the need for operational changes for the phytoremediation system and a recommendation of the required changes; and
- (vi) A Site plan which shows the location of the phytoremediation system and any changes made to the phytoremediation system.

The approval for the phytoremediation system was initially issued by the MECP on May 2, 2011 through Notice 8 to amend C of A No. A371203. As noted in previous annual monitoring reports, the system was installed in late May 2011 in the northwest corner of the landfill property. No monitoring results or assessment of the system's operation were available for 2011 as the trees required time to establish in their environment. In late September 2012, the entire plantation was plowed under due to poor growth and wet site conditions.

In April 2013, the ground within the entire phytoremediation area was disked, and low areas were drained to remove standing water. All planting areas were frost seeded with white clover and barley at this time. In May 2013, under the direction of Mr. Steve Shaw from Landscape Rehab Tree and Turf, approximately 6,700 dogwoods and willows were planted, and the area was sprayed with the chemical "Round Up" to retard weed growth. WM monitored the growth of the plantation throughout late spring, and by July 2013 reported a tree growth rate of 100 millimetres to 200 millimetres. Grass was mowed between the rows to promote continued growth. In October 2013, "Round Up" was again sprayed for weed control in the planted areas, and grass was mowed between tree rows. WM reported a live tree plantation of approximately 60%, with an average tree height between 250 millimetres to 350 millimetres.

In June 2014, under the direction of Mr. Steve Shaw of Landscape Rehab Tree and Turf, the herbicide Simazine was applied at a rate of seven (7) kilograms per hectare. A post emergent herbicide was also applied to areas where vegetation was already starting to re-establish. Gromoxone was used to burn down re-established grass and weeds and was applied at a rate of two (2) litres per hectare. A tree height of 50 centimetres to 100 centimetres was also reported.

In 2015, WM reported the plantation experienced good growth, with willows measuring approximately 1.5 metres to 2.4 metres in height, and the dogwoods measuring 0.9 metres to 1.2 metres in height. Approximately five (5) to 10 percent more shrubs that were not visible previously due to weeds also showed signs of growth.

For 2016, WM reported the plantation maintained vegetation, with the willows measuring 1.5 metres to 2.4 metres in height, and the dogwoods measuring between 0.9 metres to 1.2 metres in height. Additional shrubs that were not previously visible due to weeds exhibited signs of growth.

In 2017 and 2018, WM reported the plantation continued to develop and no operational issues were noted.

To address Condition 5.11 for 2019, the following is noted:

- For Condition 5.11 (i, ii, and iii), please refer to **Appendix F** for the results of the 2019 monitoring program for the phytoremediation area, as provided by BluMetric;
- In regards to Conditions 5.11 (iv and v) inclusive, WM reports growth continues to develop, and no operational issues were noted. In the October 2019 site inspection memorandum, WSP recommended pruning of vegetation in the phytoremediation area to ensure vegetation does not extend beyond a height of 12 feet, as per a condition of ECA No. A371203. All plant life will continue to be monitored for any signs of impairment. No other operational recommendations nor changes to the system are presented at this time.
- Please refer to the site plan located in **Appendix G** of this report, which shows the location of the phytoremediation system area as required by Condition 5.11 (vi).

4 REPORTING REQUIREMENTS – ENVIRONMENTAL COMPLIANCE APPROVAL NO. 1688-8HZNJG

On January 10, 2012, the MECP issued Environmental Compliance Approval No. 1688-8HZNJG, which revoked and replaced the previous Certificate of Approval. The ECA removed the requirement to operate the ponds in a closed manner, thereby allowing the ponds to operate as designed, subject to quarterly toxicity testing to confirm no adverse effects to species listed in the ECA.

Since the ECA is the most recent version of the approval regarding the operation and management of the stormwater and leachate management systems at the Richmond Landfill, this section of the annual monitoring report is submitted in accordance with Conditions 10 (4) (a) (b), (c), (d), (e), (f), (g), and (h) of this document. An overview of the leachate management system present at the Richmond Landfill is provided below.

4.1 LEACHATE MANAGEMENT

Leachate haulage from the site to the Town of Greater Napanee sewage system began in 1996. Leachate is regularly hauled from the landfill by Sutcliffe Sanitation Services Ltd. and discharged directly to the sewage system. Close communication between the Town, WM and Sutcliffe Sanitation is maintained to determine if leachate may be accepted for treatment. Sutcliffe Sanitation is the common hauler of sludge from the sewage treatment plant and leachate from the landfill site. Before picking up a load of leachate, WM confirms with the Town that leachate can be hauled on that particular day. In the event that the Town is operating on high flows, the Town will notify WM that no leachate can be accepted until levels are reduced. WM will in turn notify Sutcliffe Sanitation.

During the winter of 2003/2004, WM constructed a leachate/septage dumping facility within the Town of Greater Napanee. The dumping facility is located at Enviro Park Lane and West Street within the Town of Greater Napanee on municipally owned property. The dumping facility was commissioned in April 2004, after which time all leachate was deposited at the dumping station. Station users are recorded by PIN numbers that uniquely identify each station user and log the quantity of material discharged to the dumping facility. Users are then billed on a user pay basis by the Napanee Utilities. Ownership, operation and maintenance of the facility are the responsibility of the Greater Napanee Utilities. WM has a usage contract, which allows WM to use the facility for a specified period of time as long as Napanee Utilities does not have a restriction on dumping due to treatment conditions at the sewage treatment plant. The dumping facility contains dumped loads and slowly discharges wastewater into the Napanee sewage system. Napanee Utilities has a C of A for this site.

It is a requirement of the landfill site's ECA that alternative leachate treatment options are available should the facility in the Town of Greater Napanee be unable to treat leachate. Approval was given to discharge leachate at the Ravensview Sewage Treatment Plant in 2019, and this approval is presented in **Appendix H** of this report. No leachate was hauled from the Richmond Landfill to Kingston for treatment in 2019.

4.1.1 LEACHATE QUANTITIES

Condition 10(4) (b) of the ECA requires a summary of the monthly quantity of leachate disposed offsite and corresponding leachate average quality.

Table 4.1 indicates the leachate quantities trucked from the site to the Town of Greater Napanee sewage treatment plant in 2019. The average rate of removal for treatment was 52.46 m³/day. It is recommended that leachate removal continue.

Table 4-1 2019 Monthly Leachate Quantities

Month	Napanee (m ³)	Kingston (m ³)	TOTAL
January	1,537.26	0	1,537.26
February	1,676.95	0	1,676.95
March	1,895.15	0	1,895.15
April	1,085.21	0	1,085.17
May	1,658.33	0	1,658.33
June	1,848.84	0	1,848.84
July	2,165.46	0	2,165.46
August	1,662.86*	0	1,662.86*
September	663.27	0	663.27
October	564.85	0	564.85
November	1,997.58	0	1,997.58
December	2,391.15	0	2,391.15
Total	19,146.91	0	19,146.91

*includes 492.05 m³ quantity removed from leachate holding lagoon.

Please refer to **Appendix C** for information regarding monthly average leachate quality data, provided by BluMetric.

4.1.2 OPERATIONAL PROBLEMS AND CORRECTIVE ACTIONS

Condition 10(4) (c) of the ECA requires a description of any operating problems encountered and corrective actions taken.

No operating problems were encountered or corrective actions taken for the leachate management system in 2019. No issues from the treatment of the leachate at the sewage treatment plant have arisen that have been communicated to WM.

4.1.3 MAINTENANCE PERFORMED ON STRUCTURES

Condition 10(4) (d) of the ECA requires a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism, or thing forming part of the Works.

In 2019, regular inspection of the leachate pumps and system took place each day that leachate was hauled from the site. No other issues were noted.

4.1.4 CALIBRATION AND MAINTENANCE OF LEACHATE MONITORING EQUIPMENT

Condition 10(4) (e) of the ECA requires a summary of the calibration and maintenance carried out on all leachate monitoring equipment.

In 2019, no calibration procedures were performed on any structures or equipment.

4.1.5 SUMMARY OF COMPLAINTS RECEIVED

Condition 10(4) (f) of the ECA requires a summary of any complaints received during the reporting period, and any steps taken to address the complaints.

In 2019, no odour complaints were received.

4.1.6 SUMMARY OF BY-PASS, SPILL OR ABNORMAL DISCHARGE EVENTS

Condition 10(4) (g) of the ECA requires a summary of all By-pass, spill, or abnormal discharge events.

In 2018, there were no leachate events that were a by-pass, spill, or abnormal discharge event.

4.2 SURFACE WATER MANAGEMENT

Surface water quality management is also operated under ECA No. 1688-8HZNJG, which revoked and replaced the previous C of A on January 10, 2012. The new approval permits the ponds to be free flowing, subject to toxicity testing to verify no adverse effects are caused to species listed in the ECA. This section is intended to satisfy the requirements outlined in Condition 10(4) (a), (c), (d), (f) and (g) of the ECA.

4.2.1 SUMMARY OF STORMWATER MONITORING DATA

Condition 10(4) (a) of the ECA requires a summary and interpretation of all stormwater monitoring data and a comparison to the Provincial Water Quality Objectives (PWQO), including an overview of the success and adequacy of the Works.

BluMetric has prepared a memorandum to satisfy this section of the ECA. The reader is directed to **Appendix C** of this report for further information.

4.2.2 OPERATING PROBLEMS AND CORRECTIVE ACTIONS

Condition 10(4) (c) of the ECA requires a description of any operating problems encountered and corrective actions taken.

In 2019, there were no operating problems encountered or corrective actions taken for the stormwater management system.

4.2.3 SUMMARY OF MAINTENANCE ACTIVITIES

Condition 10 (4) (d) of the ECA requires a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism, or thing forming part of the Works.

The two (2) northerly sedimentation ponds and the south sedimentation pond operated in 2019 without any maintenance required on the ponds. The ponds are regularly inspected to ensure their operation meets the ECA, and no remedial work was required in 2019.

No maintenance activities were undertaken in 2019.

4.2.4 SUMMARY OF COMPLAINTS RECEIVED

Condition 10(4) (f) of the ECA requires a summary of any complaints received during the reporting period, and any steps taken to address the complaints.

In 2019, there were no complaints received regarding the ponds.

4.2.5 SUMMARY OF BY-PASS, SPILL OR ABNORMAL DISCHARGE EVENTS

Condition 10(4) (g) of the ECA requires a summary of all By-pass, spill, or abnormal discharge events.

In 2019, there were no stormwater events that were a by-pass, spill, or abnormal discharge event.

5 GENERAL

In 2019, WM completed ongoing maintenance and operation of the landfill site. Active litter control, gas management, leachate treatment and active monitoring of the landfill site resulted in no operational impacts on the surrounding area. The continued use of the landfill gas collection and flaring system, and system maintenance and upgrades, has reduced any potential landfill gas odours. WM has been very active in monitoring all aspects of the site, both on and off site, ensuring that no impacts were caused on the surrounding areas. The entire landfill mound has had final cover in place since September 2011, and is regularly inspected. Odour was detected on the northeast landfill mound in late October 2018, and barren areas were identified on the northeast, east, and south sides of the landfill mound, including the areas where seeps were repaired in 2017. These areas were identified to WM.

Leachate extraction and treatment continues at the landfill site, and 19,146.91 m³ of leachate has been removed and disposed offsite during the past year, or approximately 52.46 m³/day. An additional 4,882.65 m³ of leachate was moved to the leachate storage lagoon due to high flows at the site in April and May 2019. Approximately 492.05 m³ of this leachate was removed from the lagoon and disposed offsite in August 2019, while the remaining volume of 4,390.60 m³ was left in the lagoon. The overall amount of leachate produced at the site for 2019 was 23,537.51 m³, or approximately 64.49 m³/day. It is recommended that leachate removal for treatment off site continue. In January 2015, WM submitted an application for approval to construct a leachate holding tank at the site, which was approved by the MECP in June 2016. WM will install the tank and associated infrastructure in 2020, and has identified the need for additional onsite leachate storage at the site.

The landfill gas extraction and flaring system successfully collected and flared the landfill gas generated from the site. Continued operation and maintenance of this system will be completed in the coming years to ensure that odours are minimized around the landfill site. Additional wells may be installed to replace non-functioning wells. In 2014, WM received approval for the installation of a backup flare, which would operate in the event the enclosed flare is down for maintenance or repairs.

Neighbours with concerns are always invited to visit the landfill with their concerns, which are addressed by the site manager.

We conclude the landfill is managed and operated in an environmentally sound and orderly manner in the post-closure period.

5.1 CLARIFICATION – LEACHATE VOLUMES LISTED IN 2018 ANNUAL MONITORING REPORT

In Monitoring Report No. 32, Section 5 paragraph 2 stated the following:

Leachate extraction and treatment continues at the landfill site, and 16,397.30 m³ of leachate has been removed and disposed offsite during the past year, or approximately 44.92 m³/day. An additional 5,247 m³ of leachate was moved to the leachate storage lagoon due to high flows at the site in April and late November 2018, which eventually evaporated. The overall amount of leachate produced at the site for 2018 was 21,644.30 m³, or approximately 59.30 m³/day...

As discussed in **Section 3.15.1** of this 2019 report, a revision to the quantity of leachate removed from the landfill mound to the lagoon was noted as a result of a reduction in the pumping rate from 300 US gallons per minute to 200 US gallons per minute. Section 5, paragraph 2 of Monitoring Report No. 32 is therefore revised as follows:

“Leachate extraction and treatment continues at the landfill site, and 16,397.30 m³ of leachate has been removed and disposed offsite during the last year, or approximately 44.92 m³/day. An additional 3,497.34 m³ of leachate was moved to the leachate storage lagoon due to high flows at the site in April and late November 2018, which eventually evaporated. The overall amount of leachate produced at the site for 2018 was 19,894.64 m³ or approximately 54.51 m³/day...”

5.2 CLARIFICATION – LEACHATE VOLUMES LISTED IN 2017 ANNUAL MONITORING REPORT

In Monitoring Report No. 31, Section 5 paragraph 2 stated the following:

Leachate extraction and treatment continues at the landfill site, and 20,848.27 m³ of leachate has been removed during the past year, or approximately 57.12 m³/day. It is recommended that leachate removal for treatment off site continue...

As discussed in **Section 3.15.2** of this 2019 report, there was no mention of the leachate volume that was removed from the landfill mound to the holding lagoon during late winter and early spring 2017. Section 5, paragraph 2 of Monitoring Report No. 31 is therefore revised as follows:

“Leachate extraction and treatment continues at the landfill site, and 20,848.27 m³ of leachate has been removed during the past year, or approximately 57.13 m³/day. WM advised that an additional 2,861.46 m³ of leachate was moved from the leachate mound to the holding lagoon due to high flows at the site in late winter and early spring 2017, which eventually evaporated. The overall amount of leachate produced at the site for 2017 was 23,709.73 m³ or approximately 64.96 m³/day....”

APPENDIX

A ENVIRONMENTAL COMPLIANCE APPROVALS AND CERTIFICATES OF APPROVAL



APPENDIX

A-1

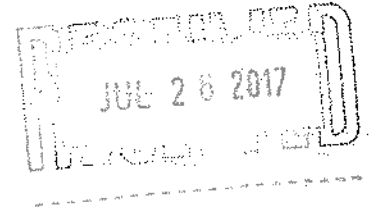
AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL (WASTE DISPOSAL SITE) NO. A371203, DATED JULY 14, 2017 (CONSOLIDATION OF JANUARY 9, 2012 ECA AND 2012 TO 2016 AMENDMENTS, REVISION OF CONDITION 8.5, ADDITION OF ITEMS 66 AND 67 TO SCHEDULE "A", AND MINOR CORRECTIONS AND REVISIONS TO VARIOUS CONDITIONS, SCHEDULE "A" ITEMS, AND REASONS FOR CONDITIONS)

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER A371203

Issue Date: July 14, 2017

Waste Management of Canada Corporation
851 Robinson Rd E
Rural Route, No. 6
Erie, Pennsylvania
USA 16509



Site Location: Richmond Landfill Site
Lot Pt 1, 2, 3, Concession 4
Greater Napanee Town, County of Lennox and Addington
K7R 3L1

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

the use, operation, and closure of a 16.2 hectare waste disposal landfill site including a landfill gas collection system and landfill gas flare within a total site area of 138 hectares

For the purpose of this environmental compliance approval, the following definitions apply:

"Contaminating Lifespan" or "CLS" refers to the period of time, after closure until the Site finally produces contaminants at concentrations below levels which have unacceptable health or environmental effects;

"Director" means any Ministry employee appointed in writing by the Minister pursuant to section 5 of the EPA as a Director for the purposes of Part V of the EPA;

"District Manager" refers to the District Manager in the Ministry of the Environment's Kingston District Office;

"District Office" refers to the Ministry of the Environment Kingston District Office ;

"EAB" refers to the Environmental Approvals Branch of the Ministry of the Environment;

"EMP" refers to the Environmental Monitoring Plan;

"Environmental Compliance Approval" or "ECA" means this entire provisional Environmental Compliance Approval document, issued in accordance with Section 20.2 of the *EPA*, and includes any schedules to it, the application and the supporting documentation listed in Schedule "A";

"EPA " means *Environmental Protection Act*, R.S.O. 1990, c. E. 19, as amended from time to time;

"Major Works " are those works that have an engineering component.

"MOECC " or **"Ministry "** refers to the Ontario Ministry of the Environment and Climate Change;

"Operator " has the same meaning as "Operator" as defined in s.25 of the *EPA* ;

"Owner " means Waste Management of Canada Corporation and its successors and assigns;

"O. Reg. 101/94" means Ontario Regulation 101/94 as amended from time to time;

"PA " means the *Pesticides Act*, R.S.O. 1990, c. P-11, as amended from time to time;

"Parties" mean Concerned Citizens Committee of Tyendinaga and Environs; Director, Ministry of the Environment and Climate Change; Waste Management of Canada Corporation; Mohawks of the Bay of Quinte; and Tom Touzel on behalf of Napanee Green Lights.

"Provincial Officer " means any person designated in writing by the Minister as a provincial officer pursuant to Section 5 of the *OWRA* or Section 5 of the *EPA* or Section 17 of *PA*;

"Regional Director" refers to the Director of the Ministry of the Environment's Eastern Regional Office;

"Regulation 232 " or **"Reg. 232"** or **"O. Reg. 232/98"** means Ontario Regulation 232/98 (New Landfill Standards) made under the *EPA*, as amended from time to time;

"Regulation 347 " or **"Reg. 347 "** means Regulation 347, R.R.O. 1990, made under the *EPA*, as amended from time to time; and

"Site " means the Richmond Landfill Site.

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

TERMS AND CONDITIONS

1.0 GENERAL

Compliance

- 1.1 The *Owner* shall ensure that any person authorized to carry out work on or operate any aspect of the *Site* is notified of the *ECA* and the conditions herein and shall take all reasonable measures to ensure the person complies with the same.
- 1.2 Any person authorized to carry out work on or operate any aspect of the *Site* shall comply with the conditions of this *ECA* .

In Accordance

- 1.3 Except as otherwise provided for in this *ECA* , the *Site* shall be designed, developed, constructed, operated and maintained in accordance with the supporting documentation listed in Schedule "A".

Other Legal Obligations

- 1.4 The issuance of, and compliance with, this *ECA* does not:
 - a. relieve any person of any obligation to comply with any provision of the *EPA* or any other applicable statute, regulation or other legal requirement; or
 - b. limit in any way the authority of the *Ministry* to require certain steps be taken or to request that any further information related to compliance with this *ECA* be provided to the *Ministry* .

unless a provision of this *ECA* specifically refers to the other requirement or authority and clearly states that the other requirement or authority is to be replaced or limited by this *ECA* .

Adverse Effect

- 1.5 The *Owner* or *Operator* remain responsible for any contravention of any other condition of this *ECA* or any applicable statute, regulation, or other legal requirement resulting from any act or omission that caused the adverse effect or impairment of air and/or water quality.

Furnish Information

- 1.6 Any information requested by the *Director* or a *Provincial Officer* concerning the *Site* and its operation under this *ECA* , including but not limited to any records required to be kept by this *ECA* shall be provided in a timely manner.
- 1.7 The receipt of any information by the *Ministry* or the failure of the *Ministry* to prosecute any person or to require any person to take any action, under this *ECA* or under any statute, regulation or subordinate legal instrument, in relation to the information, shall not be construed as:

- i. an approval, waiver, or justification by the *Ministry* of any act or omission of any person that contravenes any condition of this *ECA* or any statute, regulation or other subordinate legal requirement; or
- ii. acceptance by the *Ministry* of the information's completeness or accuracy.

1.8 Any information related to this *ECA* and contained in *Ministry* files may be made available to the public in accordance with the provisions of the Freedom of Information and Protection of Privacy Act, RSO 1990, CF-31.

Interpretation

1.9 This *ECA* revokes and replaces the previous *ECA* and all subsequent amendments.

1.10 Where there is a conflict between a provision of any document, including the application, referred to in this *ECA*, and the conditions of this *ECA*, the conditions in this *ECA* shall take precedence.

1.11 Where there is a conflict between the application and a provision in any documents listed in Schedule "A", the application shall take precedence, unless it is clear that the purpose of the document was to amend the application and that the *Ministry* approved the amendment in writing.

1.12 Where there is a conflict between any two documents listed in Schedule "A", other than the application, the document bearing the most recent date shall take precedence.

1.13 The conditions of this *ECA* are severable. If any condition of this *ECA*, or the application of any condition of this *ECA* to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this *ECA* shall not be affected thereby.

Certificate of Requirement

1.14 Pursuant to Section 197 of the *EPA*, no person having an interest in the *Site* shall deal with the *Site* in any way without first giving a copy of this *Certificate* to each person acquiring an interest in the *Site* as a result of the dealing.

1.15 The Certificate of Requirement shall be registered in the appropriate land registry office on title to the *Site* and a duplicate registered copy shall be submitted to the *Director* within ten (10) calendar days of receiving the Certificate of Requirement signed by the *Director*.

No Transfer or Encumbrance

1.16 No portion of this *Site* shall be transferred or encumbered prior to or after closing of the *Site* unless the *Director* is notified in advance and is satisfied with the arrangements made to ensure that all conditions of this *ECA* will be carried out and that sufficient financial assurance is

deposited with the *Ministry* to ensure that these conditions will be carried out.

Change of Owner

- 1.17 The *Owner* shall notify the *Director* , in writing, and forward a copy of the notification to the *District Manager* , within 30 days of the occurrence of any changes in the following information:
- i. the ownership of the *Site* ;
 - ii. the *Operator* of the *Site* ;
 - iii. the address of the *Owner* or *Operator* ;
 - iv. the partners, where the *Owner* or *Operator* 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. B.17, shall be included in the notification;
 - v. the name of the corporation where the *Owner* or *Operator* is or at any time becomes a corporation, other than a municipal corporation, and a copy of the most current information filed under the *Corporations Information Act* , R. S. O. 1990, c. C.39, shall be included in the notification.
- 1.18 In the event of any change in the ownership of the *Site* , other than a change to a successor municipality, the *Owner* shall notify in writing the succeeding owner of the existence of this *ECA* , and a copy of such notice shall be forward to the *Director* and *District Manager* .

Inspections

- 1.19 No person shall hinder or obstruct a *Provincial Officer* from carrying out any and all inspections authorized by the *EPA* , or the *PA* , of any place to which this *ECA* relates, and without limiting the foregoing:
- i. to enter upon the premises where the approved works are located, or the location where the records required by the conditions of this *ECA* are kept;
 - ii. to have access to, inspect, and copy any records required to be kept by the conditions of this *ECA* ;
 - iii. to inspect the *Site*, related equipment and appurtenances;
 - iv. to inspect the practices, procedures, or operations required by the conditions of this *ECA* ; and
 - v. to sample and monitor for the purposes of assessing compliance with the terms and conditions of this *ECA* or the *EPA* , or the *PA* .

2.0 FINANCIAL ASSURANCE

Overview

- 2.1 Financial assurance shall be provided as required by the *Director* , in an amount that is sufficient to pay for compliance with and performance of any action specified in this *ECA* , including

closure, monitoring and maintenance of the *Site* , maintenance of all required contaminant control systems including leachate management systems, contaminant monitoring for the contaminating lifespan of the *Site* and contingency plans for the *Site* in accordance with this *ECA*.

- 2.2 Financial assurance may be provided in one or more of the following forms: cash, irrevocable letter of credit, surety bond, or some other form, all satisfactory to the *Director* .

Inflation Rate

- 2.3 The *Owner* shall ensure the methodology used to determine the inflation rate for the financial assurance re-evaluation calculation is the current approach deemed acceptable by the *Ministry* .

Interest (Discount) Rate

- 2.4 The *Owner* shall ensure the methodology used to determine the interest rate for the financial assurance re-evaluation calculation is the current approach deemed acceptable by the *Ministry* .

Proposed Payment Schedule

- 2.5 Within twenty (20) days of issuance of this *ECA* , the *Owner* shall submit an updated financial assurance, as defined in Section 131 of the *EPA* , for the amount of **\$13,659,912.00** to the *Director* . This Financial Assurance shall be in a form acceptable to the *Director* and shall provide sufficient funds for the closure, contingency, post-closure operation, monitoring and maintenance of the *Site* .
- 2.6 The total amount of financial assurance shall be updated as follows for the following years:
- i. March 31, 2018 - **\$13,172,376.00**;
 - ii. March 31, 2019 - **\$12,685,305.00**; and
 - iii. March 31, 2020 - **\$12,171,802.00**.

Updated Review Report

- 2.7 A revised or new financial assurance program shall be submitted to the *Director* by no later than **March 31, 2020** and then at an interval no greater than a period of every three (3) years thereafter. The report shall include:
- a. updates of the discount, interest and inflation rates associated with the requirements for financial assurance in this *ECA* including justifications and sources of the proposed rates; and
 - b. a report prepared by a qualified Professional Engineer which updates the cost estimates on which the amounts associated with the requirements for financial assurance in this *ECA* are based.

- 2.8 No waste shall be received, accepted, disposed or transferred at the *Site* unless appropriate financial assurance is received.
- 2.9 If any financial assurance is scheduled to expire or notice is received, indicating financial assurance will not be renewed, and satisfactory methods have not been made to replace the financial assurance at least sixty (60) days before the financial assurance terminates, the financial assurance shall forthwith be replaced by cash.

3.0 CONSTRUCTION, INSTALLATION and PLANNING

Major Works

- 3.1 (1) The final detailed design of *Major Works* shall include the following:
- a. design drawings and specifications;
 - b. a detailed quality assurance / quality control (QA/QC) program for construction of the major work, including necessary precautions to avoid disturbance to the underlying soils; and
 - c. details on the monitoring, maintenance, repair and replacement of the engineered components of the major work, if any.
- (2) Maintenance or replacing components (i.e. piping for the gas collection system) related to existing *Major Works* are not considered *Major Works* under Section 3.0 of the *ECA*
- 3.2 Any design optimization or modification that is inconsistent with the conceptual design shall be clearly identified, along with an explanation of the reasons for the change.
- 3.3 Each major work shall be constructed in accordance with the approved final detailed design and the QA/QC procedures shall be implemented as proposed by the *Owner* . Any significant variances from the conceptual design for the *Site* shall be subject to approval by the *Director* .
- 3.4 As-built drawings for all *Major Works* shall be retained on site and made available to *Ministry* staff for inspection.

4.0 GENERAL OPERATIONS

Proper Operation

- 4.1 The *Site* shall be properly operated and maintained at all times. All waste shall be managed and disposed of in accordance with the *EPA* and *Regulation 347* and the requirements of this *ECA*. At no time shall the discharge of a contaminant that causes or is likely to cause an adverse effect be permitted.

Operations Manual

4.2 The *Owner* shall ensure the operations and procedures manual for the *Site* includes discussions on the following items:

- a. Health and safety;
- b. Operation and maintenance of the *Site* ;
- c. Waste disposal area and development;
- d. Nuisance management;
- e. Leachate management;
- f. Landfill gas management;
- g. Surface water/Stormwater management;
- h. Inspections and monitoring;
- i. Contingency plans and emergency procedures;
- j. Complaints; and,
- k. Reporting and record keeping.

4.3 The operations and procedures manual shall be:

- a. retained at the *Site* ;
- b. reviewed on an annual basis and updated by the *Owner* as required; and
- c. be available for inspection by *Ministry* staff.

Site Closure

4.4 The *Owner* shall ensure that no waste is received for disposal at the *Site* after **June 30, 2011** and the site is capped with final cover material by **September 30, 2011**.

Capacity

4.5 The *ECA* permits disposal of waste at the *Site* to fill an air space of **2,842,700 cubic metres** (including waste, daily and interim cover material).

Yearly Waste Limit

4.6 No more than 125,000 tonnes of waste per year may be accepted at the *Site* .

Service Area

4.7 Only waste that is generated in the Province of Ontario shall be accepted at the *Site* .

Hours of Operation

4.8 Waste shall only be accepted at the *Site* during the following time periods:

- i. 8 am to 5 PM - Monday to Friday (except statutory holidays)
- ii. 8 am to 1 PM - Saturday

- 4.9 With the prior written approval of the *District Manager*, the time periods may be extended to accommodate seasonal or unusual quantities of waste.
- 4.10 The *Owner* may provide limited hours of operation provided that the hours are posted at the landfill gate and that suitable notice is provided to the public of any change in operating hours.
- 4.11 Upon reasonable notice to the *Director*, contingency actions may take place outside normal hours of operation. Emergency response may occur at any time as required.

Site Security

- 4.12 During non-operating hours, the *Site* entrance and exit gates shall be locked and the *Site* shall be secured against access by unauthorized persons.

On-Site Roads

- 4.13 *Site* roads shall be maintained in a manner approved by Item 19 of Schedule "A".

Waste Inspection Procedures

- 4.14 The *Operator* shall develop and implement a program to inspect waste to ensure that the waste is of a type approved for acceptance under this *ECA*.

Waste Inspection and Deposition

- 4.15 All loads of waste must be properly inspected by trained *Site* personnel prior to acceptance at the *Site* and waste vehicles must be diverted to appropriate areas for waste disposal.
- 4.16 The *Owner* shall deposit waste in a manner that minimizes exposure area at the landfill working face and all waste shall be compacted before cover is applied.

Litter Control:

- 4.17 All loose, windblown litter shall be collected and disposed of at an approved disposal facility.

Vermin, Scavenging, Dust, Litter, Odour, Noise, etc.

- 4.18 The *Site* shall be operated and maintained such that the vermin, vectors, dust, litter, odour, noise and traffic do not create a nuisance.
- 4.19 No scavenging is to occur at the *Site*.

Dust

- 4.20 The *Owner* shall control fugitive dust emissions from *Site* sources including but not limited to *Site* roads, stockpiled cover material and closed landfill area prior to seeding especially during times of dry weather conditions. If necessary, major sources of dust shall be treated with water and/or dust suppression materials to minimize the overall dust emissions from the *Site*.

Noise

- 4.21 The *Owner* shall comply with noise criteria in *MOECC* Guideline entitled "Noise Guidelines for Landfill Sites."

5.0 SITE OPERATIONS

Cover Material

- 5.1
- i. Intermediate Cover - In areas where landfilling has been temporarily discontinued for six (6) months or more, a minimum thickness of 300 mm of soil cover or an approved thickness of alternative cover material shall be placed.
 - ii. Final Cover - Final cover placed after the effective date of this *ECA* must meet the following specifications. In areas where landfilling has been completed to final contours, a minimum 900 mm thick layer of native silty clay till soil shall be placed having a hydraulic conductivity of 1×10^{-8} m/s or less followed by 150 mm of topsoil. The *Owner* shall construct the final cover system for the *Site* in accordance with Items 33 to 36 of Schedule "A" and this *ECA*.
 - iii. The *Owner* shall ensure that no contaminated soils are used in the final cover.

Cleaning Leachate Collection System

- 5.2 The leachate collection system piping for each stage of the landfill shall be inspected and cleaned in accordance with the schedule outlined in Condition 13.10.

Leachate Sump Pits

- 5.3 A leachate maintenance level of no greater than 0.66 metres shall be maintained in the north pumping chamber and documented each working day.
- 5.4 Appropriate alarms shall be installed to warn *Site* personnel of rising leachate levels within the sump pits so that the *Owner* can take appropriate action to prevent an overflow.

Leachate Storage System

- 5.5 Approval is hereby granted for construction of the leachate storage system, all in accordance with Items 63 and 64 in Schedule "A".
- 5.6 The *Owner* shall ensure there are no leachate spills during construction of the leachate storage system and during truck loading.

Compost Pad Area and Compost Pond

- 5.7 The *Owner* shall stop operation of the compost pad by no later than **September 30, 2011**.
- 5.8 The *Owner* shall removed all compost material (finished, curing compost, bulking material) from the *Site* by no later than **September 30, 2011**.

Construction and Operation of Phytoremediation System

- 5.9. (1) The phytoremediation system located in the northwest corner of *Site* shall be constructed and operated in accordance with Item 38 in Schedule A.
- (2) The extent of the phytoremediation system shall not extent beyond the limits as shown in Item 38 in Schedule A.
- (3) The phytoremediation system located in the northwest corner of the *Site* shall not be irrigated with any leachate.
- (4) The *Owner* shall ensure that the vegetation does not exceed a height of 12 feet.
- (5) Where vegetation reaches or exceeds a height of 12 feet, the *Owner* shall prune the vegetation forthwith.
- (6) Within seven (7) days of completion of planting of the phytoremediation system as identified in Item 38 of Schedule "A", the *Owner* shall notify the *District Manager* in writing that the planting has been completed.

Monitoring of Phytoremediation System

- 5.10 (1) The following monitor wells will be used to monitor groundwater levels around the phytoremediation system in the northwest corner of the *Site* :
- a. Shallow Zone - M27, M29, M30, M31, M38, M66-2, M67-2, M100, M101, M102 and M103
 - b. Intermediate Bedrock Zone - M3A-3, M5-3, M6-3, M74 and M75
- (2) The following monitors will be used to monitor groundwater quality around the phytoremediation system in the northwest corner of the *Site* :

- a. Shallow Zone - M29, M66-2, M67-2, M101, M102 and M103
 - b. Intermediate Bedrock Zone - M5-3, M6-3, M74 and M75
- (3) For the monitoring wells identified in Condition 5.10 (2), the *Owner* shall analyze groundwater for determining the quality of groundwater around the phytoremediation system in the northwest corner of the *Site* based on the *EMP* approved prior to this notice and any future approved changes identified in future amendments.

Reporting

- 5.11 Reporting on the phytoremediation system shall be part of the annual monitoring report for the *Site* and shall include but not be limited to the following:
- i. results and an analysis of the results of the monitoring programs for the phytoremediation system;
 - ii. assessment of the results of the phytoremediation system as related to the stated objectives for the existing and proposed phytoremediation system;
 - iii. assessment of the need to change the monitoring program for the phytoremediation system and a recommendation of the required changes;
 - iv. a report on operational problems identified during the operation of the phytoremediation system and a discussion of each problem and details of what was done to rectify each problem;
 - v. assessment of the need for operational changes for the phytoremediation system and a recommendation of the required changes;
 - vi. a *Site* plan which shows the location of the phytoremediation system and any changes made to the phytoremediation system;

Waste and Recyclable Drop-Off Facility

Compliance

- 5.12 Except as otherwise provided by these conditions, the Waste and Recyclable Drop-Off Facility shall be designed, developed, maintained and operated in accordance with the Applications for a Provisional Certificate of Approval for a Waste Disposal Site dated May 25, 2011, and the supporting documentation, plans and specifications listed in Schedule "A".

Waste Types

- 5.13 (1) The Waste and Recycling Drop-Off Facility shall accept the following types of waste:
- i. Solid Non Hazardous Waste - Domestic Waste, Construction and Demolition Waste;
 - ii. Blue Box Materials;
 - iii. Tires; and
 - iv. White Goods and Metal;

- (2) Contaminated soil shall not be accepted at the Waste and Recycling Drop Off Facility.
- (3) If the *Owner* participates in Stewardship Ontario, Ontario Tire Stewardship, or any other recycling program developed by the Province of Ontario, then the waste that has been approved for collection under the aforementioned programs will also be accepted at the public drop off area.

Waste Quantity

- 5.14
- (1) The total amount of waste and recyclable material, which may be received at the Waste and Recyclable Drop off Facility shall not exceed **50 tonnes** per day.
 - (2) On twenty-five occasions throughout a single calendar year the *Owner* is permitted to have a "Large Waste Day" where the *Owner* is permitted to accept up to **100 tonnes** per day. The *Owner* shall notify the *District Manager* in writing within 48 hours after the *Owner* has used one of the "Large Waste Days".
 - (3) The maximum amount of waste that may be stored at the Waste and Recycling Drop-Off Facility shall not exceed **50 tonnes**.
 - (4) The maximum number of waste storage containers that may be stored/utilized at the Waste and Recyclable Drop-Off Facility at any one time shall be as follows:
 - i. nine (9) - 40 yard bins for metals, tires and solid non hazardous waste consisting of domestic, construction and demolition waste;
 - ii. two (2) - 8 yard bins for blue box materials;
 - iii. three (3) - five (5) gallon pails for single use batteries.

Service Area

- 5.15 Only waste that is generated within the boundaries of the **Town of Greater Napanee, Town of Deseronto and Tyendinaga Township** which includes the **Mohawks of the Bay of Quinte** shall be accepted at the *Site*. No waste shall be received for disposal at this *Site* from outside the approved service area.

Hours of Operation

- 5.16. The operating hours of the Waste and Recycling Drop-Off Facility shall be as follows:
- i. 8 a.m. to 5 p.m. - Monday to Friday, except for statutory holidays; and
 - ii. 8 a.m. to 1 p.m. - Saturday
- 5.17 No waste shall be received at the Waste and Recycling Drop-Off Facility except during operating hours when the *Site* is under the supervision of trained personnel.

Removal Frequency

- 5.18 (1) Waste materials shall be removed from the Waste and Recycling Drop-Off Facility on a minimal frequency of twice per week with the exception of white goods and blue box materials.
- (2) White goods and blue box materials shall be removed at a frequency no less than once every six months.
- (3) Wastes which have been approved for collection under Stewardship Ontario, Ontario Tire Stewardship, or any other recycling programs developed by the Province of Ontario, shall be removed from the *Site* at the frequency as detailed in the requirements for the aforementioned programs.

Operations

- 5.19 Recycling activities shall be completed as per *Ontario Regulation 101/94*.
- 5.20 Recyclable materials shall be properly separated and each area properly identified. The areas shall be kept in a neat and tidy manner.
- 5.21 All storage containers/bins used to store waste and/or recyclable materials shall be maintained in good condition to prevent leakage. The *Owner* shall immediately remove from service any leaking container. Containers/bins used to store clean scrap metal may be equipped with drainage holes to permit the drainage of rainwater.
- 5.22 With the exception of white goods, waste may only be stored within the waste storage bins in accordance with Items 52, 53, 54 and 55 in Schedule "A".
- 5.23 All waste types shall be segregated either into bins, or in designated areas defined by barriers. All bins and designated waste storage areas shall be clearly labelled.
- 5.24 The *Owner* shall ensure that all white goods received at the Waste and Recyclable Drop-off Facility have been drained of any refrigerants, and have the appropriate paperwork (current ODP card) demonstrating that the refrigerants have been removed.

Surface Water

- 5.25 The *Owner* shall take all appropriate measures to minimize surface water from coming in contact with waste. Temporary berms and ditches shall be constructed around active waste disposal areas to prevent extraneous surface water from coming in contact with the active working face.
- 5.26 The *Owner* shall not discharge surface water to receiving water bodies without an approval under Section 53 of the *OWRA*.

6.0 TRAINING

Employees and Training

6.1 A training plan for all employees that operate any aspect of the *Site* shall be developed and implemented by the *Operator*. Only trained employees shall operate any aspect of the *Site* or carry out any activity required under this *ECA*. For the purpose of this *ECA* "trained" means knowledgeable either through instruction or practice in:

- i. the relevant waste management legislation including *EPA, O. Reg. 347*, regulations and guidelines;
- ii. major environmental and occupational health and safety concerns pertaining to the waste to be handled;
- iii. the proper handling of wastes;
- iv. the management procedures including the use and operation of equipment for the processes and wastes to be handled;
- v. the emergency response procedures;
- vi. the specific written procedures for the control of nuisance conditions;
- vii. the terms, conditions and operating requirements of this *ECA* and,
- viii. proper inspection, receiving and recording procedures and the activities to be undertaken during and after a load rejection.

7.0 INSPECTIONS AND RECORD KEEPING

Daily Inspections and Log Book

7.1 An inspection of the entire *Site* and all equipment on the *Site* shall be conducted each day the *Site* is in operation to ensure that the *Site* is being operated in compliance with this *ECA*. Any deficiencies discovered as a result of the inspection shall be remedied immediately, including temporarily ceasing operations at the *Site* if needed.

7.2 A record of the inspections shall be kept in a daily log book or a dedicated electronic file that includes:

- i. the name and signature of person that conducted the inspection;
- ii. the date and time of the inspection;
- iii. the list of any deficiencies discovered;
- iv. the recommendations for remedial action; and
- v. the date, time and description of actions taken.

7.3 A record shall be kept in the daily log book of all the following:

- i. the type, date and time of arrival, hauler, and quantity (tonnes) of all waste received at the *Site*; and,

- ii. a list of the refusal of waste shipments, the reason(s) for refusal, and the origin of the waste, if known.

Monthly Records

7.4 Monthly *Site* inspection records in the form of a written log or a dedicated electronic file shall include the following:

- i. a summary of wastes received and refused for disposal at the *Site* ;
- ii. the area of the *Site* in which waste disposal operations are taking place;
- iii. a calculation of the total quantity (tonnes) of waste received at the *Site* during each operating day and each operating week;
- iv. the amount of any leachate removed, or treated and discharged from the *Site* ;
- v. a record of litter collection activities and the application of any dust suppressants;
- vi. a record of the daily inspections;
- vii. a description of any out-of-service period of any control, treatment, disposal or monitoring facilities, the reasons for the loss of service, and action taken to restore and maintain service;
- viii. type and amount of daily, intermediate and final cover used;
- ix. maintenance and repairs performed on equipment employed at the *Site* ;
- x. complaints received and actions taken to resolve them;
- xi. emergency situations and actions taken to resolve them; and
- xii. any other information required by the *District Manager* .

Site Inspections

7.5 During *Site* operations, the *Owner* shall inspect the site monthly for the following items but not limited to these items:

- i. General settlement areas or depressions on the waste mound;
- ii. Shear and tension cracks on the waste mound;
- iii. Condition of surface water drainage works;
- iv. Erosion and sedimentation in surface water drainage system;
- v. Presence of any ponded water on the waste mound;
- vi. Adequacy of cover material;
- vii. Evidence of vegetative stress, distressed poplars or side slope plantings on or adjacent to the waste mound;
- viii. Condition of groundwater monitoring wells and gas wells;
- ix. Presence of insects, vermin, rodents and scavenging animals on or adjacent to the waste mound;
- x. Condition of fence surrounding the *Site* ; and,
- xi. General *Site* appearance.

7.6 The *Owner* shall inspect the waste mound and surrounding areas for the presence of leachate seeps as required by Condition No. 13.5.

Record Retention

- 7.7 Except as authorized in writing by the *Director* , all records required by this *ECA* shall be retained at the *Site* for a minimum of two (2) years from their date of creation.
- 7.8 The *Owner* shall retain all documentation listed in Schedule "A" for as long as this *ECA* is valid.
- 7.9 All monthly summary reports are to be kept at the *Site* until they are included in the Annual Report.
- 7.10 The *Owner* shall retain employee training records as long as the employee is working at the *Site* .
- 7.11 The *Owner* shall make all of the above documents available for inspection upon request of *Ministry* staff.

8.0 MONITORING

Groundwater Monitors

- 8.1 The *Owner* shall ensure all groundwater monitoring wells are properly capped, locked and protected from damage.
- 8.2. All groundwater monitoring wells whether included in the monitoring program or not shall be assessed at least every five years, and repaired, replaced or decommissioned as required in accordance with good standard practice to prevent groundwater contamination and in compliance with the requirements of Ontario Regulation 903.
- 8.3 The *Owner* shall repair or replace any monitoring well included in the monitoring program which is destroyed or in any way made inoperable for sampling such that no more than one sampling event is missed.
- 8.4 Any monitoring well included in the monitoring program that is no longer required as part of the groundwater monitoring program may be decommissioned provided its removal from the monitoring program has been approved by the *Director* . A report on the decommissioning shall be provided in the annual monitoring report for the period during which the well was decommissioned.

Monitoring Programs

- 8.5 (a) The *Owner* shall submit to the *District Manager* by no later than April 15, 2016, with copies to the *Parties* , a revised Environmental Monitoring Plan ("*EMP* "). The revised *EMP* shall implement all of the provisions of the Interim Environmental Monitoring Plan Revision No. 04,

prepared by WESA, dated August 2015, ("Interim *EMP* ") subject to the following modifications ordered by the Tribunal:

- i. The Interim *EMP* shall be further modified to implement continuous conductivity monitoring on Marysville Creek for one year, commencing May 1, 2016, with continuous conductivity loggers placed at: an appropriate location on the Creek, far enough upstream of Deseronto Road to ensure no interference from road salt; and a second location upstream of the landfill to detect background influences. The results of the continuous conductivity monitoring shall be reported in conjunction with the January and July 2017 Semi-annual reports.
 - ii. The Interim *EMP* shall be further modified to state that the need for additional nested monitoring wells in the area of Marysville Creek and the landfill shall be assessed should 1,4-dioxane or another listed parameter be detected.
 - iii. The Interim *EMP* shall be further modified to require that the domestic and agricultural wells at properties located south of Highway 401 on County Road 1 West and Belleville Road, at the addresses noted in the row entitled "Off-site Domestic Wells", Table 2, page 11 of the August 2015 Interim *EMP* , should be tested for 1,4-dioxane every two years for at least the next six years, or until the extent of the leachate contaminated groundwater is declined if that takes longer than six years, and then every five years once the delineation is complete.
 - iv. The Interim *EMP* shall be further modified to require that confirmation resampling (Step 2 under the groundwater evaluation methods and trigger mechanisms set out in Section 7.1 of the proposed revised *EMP*) is to occur at the same time as a water quality conformance assessment (Step 1).
 - v. The Interim *EMP* shall be further modified to set a Reasonable Use Limit (RUL) for 1,4-dioxane at 1 µg/L. Should Ontario amend O. Reg 169/03 to set an Ontario Drinking Water Quality Standard for 1,4-dioxane, the RUL shall be re-calculated in accordance with procedure document B-7-1, and the Interim *EMP* shall be amended as necessary to reflect the re-calculated RUL.
- (b) The *Owner* shall carry out monitoring in accordance with the revised *EMP* submitted by April 15, 2016 as of April 16, 2016.
- (c) The *Owner* shall submit a report to all the *Parties* and the *District Manager* by April 15, 2016 detailing any relevant work carried out relating to the delineation of off-site leachate impacted groundwater or surface water not otherwise described in the January 15, 2016 report submitted further to items 8.5(c) i. to iii. set out in the Tribunal's Order dated July 21, 2015 as amended on October 29, 2015 [the provisions of which are set out in Appendix A], detailing any relevant additional work carried out during this time period, and providing an assessment with necessary supporting rationale as to whether the off-site leachate impacted groundwater has been delineated. The assessment shall be conducted in accordance with the following criteria:

The extent of leachate impacted groundwater shall be delineated if it is demonstrated that groundwater quality within a sufficient number of monitoring wells at the outer extent of the impacted area that are hydraulically connected to the defined area of leachate impacted groundwater does not exceed:

- i. the reasonable use limit ("RUL") for 1,4-dioxane;
 - ii. any RUL as defined in Guideline B-7 and its corresponding procedure, B-7-1 unless the exceedance is identified as not originating from the leachate from the landfill; or
 - iii. any RUL set out in this approval for other parameters unless the exceedance is identified as not originating from the leachate from the landfill.
- (d) The following process shall be followed with respect to the report submitted under 8.5(c):
- i. CCCTE, the MBQ and NGL shall have until June 1, 2016 to provide written comments on the report to the *Owner* and the *District Manager* and specifically whether delineation has been completed in accordance with the criteria.
 - ii. After receiving the written comments from CCCTE, the MBQ and NGL, the *District Manager* will convene a meeting among all the *Parties* to obtain further input and attempt to reach a consensus on whether delineation has been completed.
 - iii. By no later than July 31, 2016, the *District Manager* shall issue a written notice to the *Owner* and copying the *Parties* indicating whether delineation has been completed in accordance with the criteria.
 - iv. If it has been determined by the *District Manager* that delineation has not been completed, the *Owner* shall submit another proposal for additional groundwater investigation that shall be considered in accordance with steps i. through iii. with timelines modified by the *District Manager* accordingly.
 - v. The procedures or deadlines set out in steps i. through iv. can be altered with the consent of all the *Parties*.
- (e) Within 90 days of the *District Manager* providing written notice to the *Owner* that delineation has been completed, the *Owner* shall submit to the *Director*, Environmental Approvals Branch, Ministry of the Environment and Climate Change an application for approval to amend the *ECA* to address any non-compliance with Condition 8.6 and Guideline B-7, including if warranted an application to incorporate a contaminant attenuation zone into the approval, and including a proposed updated *EMP*. The application to amend the *ECA* shall be treated as a standard application and be posted on the EBR Registry for public comment. The application shall outline the options that were considered for bringing the *Site* into compliance with Guideline B-7 and the rationale for the preferred option, and include all necessary supporting documentation.

- 8.5.2 The *Owner* shall conduct a comprehensive investigation of the hydrogeological implications and potential impacts of an existing pipeline which runs across the northern part of the neighbouring properties to the south of the *Site* and submit a report to the *District Manager* and the *Parties* outlining the findings by June 15, 2016.
- 8.5.3 (a) The *Owner* shall conduct odour monitoring and undertake abatement activities as described in the Odour Monitoring Plan dated June 2016, set out as Item 67 in Schedule "A".
- (b) Surface emission surveys may be discontinued upon completion of the fourth quarter surveys in 2016, provided that the total hydrocarbon vapours, expressed as methane, does not exceed 500 parts per million per each grid dimension.
- (c) In the event of odours that are three (3) intensity units (based on the scale provided on Table 3.1 of the Odour Monitoring Plan) or greater are detected at an offsite receptor over a period outlined in Section 3.3.1.2 of the Odour Monitoring Plan, and the landfill mound is confirmed to be the source of the odour, repairs shall be made to the landfill mound as soon as possible. Upon completion of repairs, a surface emission survey shall be carried out to demonstrate that total hydrocarbon vapours, expressed as methane, do not exceed 500 parts per million per each grid dimension.

Compliance Criteria

- 8.6 The *Site* shall be operated in such a way to ensure compliance with the *MOECC* 's Guideline B-7 Reasonable Use Concept at monitoring points along the property line that have the potential to be impacted by leachate from the *Site* .
- 8.6.1 For the purpose of Condition 8.6, a reasonable use limit of 1 µg/L shall be used for the parameter 1,4-dioxane unless an Ontario Drinking Water Quality Standard is established in O. Reg. 169/03 in which case the RUL for 1,4-dioxane shall be recalculated in accordance with the B-7-1 Procedure Document and the interim *EMP* or *EMP* , as the case may be, shall be amended as necessary to reflect the recalculated RUL.
- 8.6.2 Notwithstanding Condition 8.6, if a contaminant attenuation zone ("CAZ") is established, the *Site* shall be operated in such a way to ensure compliance with *MOECC* 's Guideline B-7 Reasonable Use Concept at
- i. monitoring wells that act as groundwater compliance points within the CAZ; or

- ii. along the boundary of the CAZ where it replaces the property line,

unless the non-compliance is identified as not originating from the leachate from the landfill.

- 8.7 Any off site exceedance of parameters for groundwater, surface water, or odour shall be reported to the District Manager within 48 hours of determination of the exceedance. In addition, a statement detailing which results are out of compliance with the Ministry's guidelines and objectives shall be provided at the same time as the results.
- 8.8 Any monitoring result that detects 1,4-dioxane at or above the detection limit of 1 µg/l at any groundwater well or domestic well at which 1,4-dioxane has not been detected in the past or at any surface water monitoring location shall be reported to the District Manager within 48 hours of determination of the exceedance.
- 8.9 Unless otherwise agreed to in writing by the residents of the residences listed below, unless the residence is vacant and likely to remain vacant, the *Owner* shall provide whole house replacement water supplies for the residences located at 1264, 1252, 1250, 1206, 1181, and 1144 Beechwood Road.

9.0 CONTINGENCY PLANS

Groundwater and Surface Water Impact Contingency Plan

- 9.1 (a) The *Owner* shall initiate the contingency plans outlines in section 7.4 of the revised *EMP* referenced in Condition 8.5(a), or as replaced with an updated version, when any of the identified trigger mechanisms occur.
- (b) Notwithstanding Condition 9.1(a), the *Owner* shall not use fracture trench as a Leachate Collection System contingency measure.

Leachate Collection System Contingency Plan

- 9.2 i. The *Owner* shall initiate the Leachate Collection System Contingency Plan at a minimum when the trigger mechanisms identified in Items 41, 47 and 48 of Schedule "A" have been identified as occurring.
- ii. The conceptual Leachate Collection System Contingency Plans as identified in Item Nos. 41, 47 and 48 in Schedule "A" are considered acceptable. In the event the *Owner* needs to implement the Contingency Plan, the *Owner* shall submit to the *Director* for approval prior to implementation, with copies to the *District Manager*, detailed design drawings for works or any remedial system required for the contingency plan.

Leachate Contingency Plan

- 9.3 The *Owner* shall on a biannual basis confirm that there is a suitable location available for disposal of leachate and what that location is. Confirmation shall be provided to the *District Manager* upon receipt. If a location for disposal of leachate is not available, the *Owner* shall provide an action plan for approval to the *District Manager*.

Landfill Gas Contingency Plan

- 9.4 i. The *Owner* shall initiate the Landfill Gas System Contingency Plan at a minimum when the trigger mechanisms identified in Item Nos. 42, 47 and 48 in Schedule "A" have been identified as occurring.
- ii. The conceptual Landfill Gas System Contingency Plans as identified in Item Nos. 42 and 48 in Schedule "A" are considered acceptable. In the event the *Owner* needs to implement the Contingency Plan, the *Owner* shall submit to the *Director* for approval prior to implementation, with copies to the *District Manager*, detailed design drawings for works or any remedial system required for the contingency plan.

Public Notification Plan for Contingency Plans

- 9.5 (a) The *Owner* shall provide notice to interested persons and follow the procedures set out in the Public Notification Plan dated February 2013 set out as Item 58 in Schedule "A" upon the occurrence of any event that triggers notice to be given as set out in the Plan.
- (b) Should the *Owner* wish to amend the Public Notification Plan, the *Owner* shall apply to the *Director* for an amendment to this approval and include in the Application a list of interested persons that were consulted on the proposed amendments and a summary of their comments.

10.0 PUBLIC LIAISON COMMITTEE

- 10.1 The *Owner* shall use its best efforts to establish and maintain a Public Liaison Committee (*PLC*) for the *Site*. The *PLC* shall serve as a focal point for dissemination, review and exchange of information and monitoring results relevant to the operation of the undertaking. In addition, the purpose of the *PLC* will be to provide community review of the development, operation (current and proposed) and ongoing monitoring, closure and post-closure care related to the *Site*. The *PLC* will also be provided the opportunity to review and comment on any subsequent applications for approval under the *EPA*.
- 10.2 The *Owner* shall invite representatives from the Town of Greater Napanee, the *Ministry*, the Township of Tyendinaga, the Quinte Conservation Authority and the Mohawks of the Bay of Quinte to sit on the committee.
- 10.3 The *Owner* shall, in consultation with the *PLC*, develop a terms of reference for the *PLC* that will

describe how the *PLC* shall carry out business, and the terms of reference shall include a dispute resolution strategy to resolve issues and disagreements between the *PLC* and the *Owner* . The *Owner* shall provide the terms of reference to the *Director* and the *Regional Director* for placement on the public record.

- 10.4 The general mandate of the *PLC* shall include:
- a. Review operations and provide regular input to the *Owner* with respect to all matters pertaining to landfill site operation, including issues pertaining to ongoing operations, monitoring, the need for contingency plans or remedial measures, response to community complaints, the need for changes to the *ECA* , post-closure monitoring and maintenance, and development of the proposed end use for the *Site* ;
 - b. Review operational and monitoring reports;
 - c. Consider and make recommendations to the *Owner* regarding outside consulting advice in respect of the *Site* ;
 - d. Facilitate ongoing dialogue between the *Owner* , and the community, including residents and businesses in the immediate vicinity of the *Site* ;
 - e. Provide reports regularly to the community on the activities of the *PLC* , the landfill operations and landfill related issues and seek public input on these activities and issues;
 - f. Monitor the *Owner* 's complaint response program and make recommendations to the *Owner* with respect to this program; and
 - g. Provide recommendations to the *Owner* with respect to unresolved complaints.
- 10.5 The *PLC* shall not exercise any supervisory, regulatory, approval, legal or other decision making role with respect to the operations at the *Site* .
- 10.6 The *Owner* shall provide for the administrative costs of operating the *PLC* , including the cost of meeting places and clerical services.
- 10.7 The *PLC* shall operate under a Terms of Reference of the committee. Any changes to the Terms of Reference for the *PLC* shall be made by the *PLC* . Any changes to the Terms of Reference for the *PLC* shall be provided to the *Ministry* for information purposes.
- 10.8 Community members shall be appointed by the *PLC* . The community member positions are intended to be available to individuals that are not members of groups already represented on the *PLC* and have an interest in the operation of the *Site* . The *PLC* shall encourage individuals who reside in close proximity to the *Site* to participate. A community member is defined as a taxpayer and/or resident of the Town of Greater Napanee and/or The Township of Tyendinaga.
- 10.9 The function of the *Ministry* member will be to provide advice, information and input to other members as required.
- 10.10 The *PLC* shall determine the appropriate meeting frequency and review it on an annual basis.

- 10.11 Minutes and agendas of meetings shall be printed and distributed on a timely basis.
- 10.12 The *PLC* shall have reasonable access to the *Site* and its landfill related facilities for the purpose of carrying out its objective and mandate and the *Owner* 's consultants' reports relating to *Site* operations shall be provided to the *PLC* .
- 10.13 The *Owner* shall provide the *PLC* with access to the *Owner* 's consultants as required and consultants reports in accordance with protocols agreed to between the *Owner* and the *PLC* .
- 10.14 Unless disclosure would be contrary to the Freedom of Information and Protection of Privacy Act ,the *PLC* , the Town of Greater Napanee, the Township of Tyendinaga, and the Mohawks of the Bay of Quinte are to be provided all formal submissions and correspondence related to the *Site* operations by the *Owner* at the same time as these items are submitted to the *Ministry* .
- 10.15 The *Owner* shall allow access to the *Site* during normal operating hours, to enable any individual member of the *PLC* and member of the public recommended by local representatives on the *PLC* , to observe operations. An individual member of the *PLC* must contact the *Operator* to arrange for a *Site* pass, be accompanied by an *Operators* representative at all times and follow all safety procedures.
- 10.16 All recommendations made to the *Owner* with respect to ongoing *Site* operations, monitoring and the implementation of contingency measures shall be discussed at joint meetings between representatives of the *Owner* and the *PLC* . The purpose of these meetings will be to arrive at an agreement between the *Owner* and *PLC* with respect to implementation of the recommendations.
- 10.17 The *Owner* will provide and deliver to the *PLC* , the Town of Greater Napanee, the Township of Tyendinaga and the Mohawks of the Bay of Quinte all monitoring results, reports and any other information required to be collected and/or submitted to the *MOECC* by a Condition of this *ECA* .
- 10.18 The *Owner* with approval from the *Director* and the *District Manager*, may dispense with the *PLC* if, after a period of time and after giving sufficient notice, there is no interest from the public in continuing with it. The need for a *PLC* shall be reviewed by the *Owner* on a yearly basis.

11.0 COMPLAINTS PROCEDURE

- 11.1 If at any time, the *Owner* receives complaints regarding the operation of the *Site* , the *Owner* shall respond to these complaints according to the following procedure:
- a. The *Owner* shall record and number each complaint, either electronically or in a log book, and shall include the following information: the nature of the complaint, the name, address and the telephone number of the complainant if the complainant will provide this information and the time and date of the complaint;
 - b. The *Owner* , upon notification of the complaint, shall initiate appropriate steps to

determine all possible causes of the complaint, proceed to take the necessary actions to eliminate the cause of the complaint and forward a formal reply to the complainant; and

- c. The *Owner* shall complete a report written within one (1) week of the complaint date, listing the actions taken to resolve the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the recurrence of similar incidents. A copy of the report shall be retained at the *Site* .

11.2 The *Owner* shall post *Site* complaints procedure at *Site* entrance along with the name and phone number of a suitable, local contact to receive complaints or questions related to the *Site* . All complaints and the *Owner* 's actions taken to remedy the complaints must be summarized in the Annual Report.

12.0 EMERGENCY SITUATIONS

12.1 In the event of a fire or discharge of a contaminant to the environment, *Site* staff shall contact the *MOECC* Spills Action Centre (1-800-268-6060) and the *District Office* of the *MOECC* .

12.2 The *Owner* shall submit to the *District Manager* a written report within three (3) days of the spill or incident, outlining the nature of the incident, remedial measures taken and measures taken to prevent future occurrences at the *Site* .

12.3 The Emergency Response Manual shall be updated on a regular basis and be provided to the *District Manager* within one month of the revision date.

12.4 The *Owner* shall ensure that adequate fire fighting and contingency spill clean up equipment is available and that emergency response personnel are familiar with its use and location.

13.0 SITE CLOSURE

13.1 i. The *Owner* shall construct the final cover system for the *Site* in accordance with Items 33 to 36 inclusive of Schedule "A" and this *ECA* .

ii. Prior to subgrade preparation, the *Owner* shall inspect for any evidence of leachate springs or seeps and immediately remedy any seeps or springs prior to placement of the final cover and topsoil.

13.2 If final contours are reached in any part of the *Site* then that part of the *Site* shall be closed in accordance with the closure plan, Items 19 to 30 on Schedule "A" and this amendment to the *ECA* as approved by the *Director*.

13.3 Within sixty (60) days prior to *Site* closure, the *Owner* shall notify the public via an advertisement in all local newspapers. In addition, notice shall be given to the *District Office* , the Town of Greater Napanee, the Mohawks of the Bay of Quinte and all residents and businesses

within a 1,000 metre radius of the *Site* .

13.4 The *Owner* shall update the sign at the front gate of the *Site* to indicate the following:

- a. the name of the *Site* and *Owner* ;
- b. the *ECA* number;
- c. the name of the *Operator* ;
- d. a warning against unauthorized access;
- e. the telephone number to which complaints or questions may be directed;
- f. a twenty-four (24) hour emergency telephone number;
- g. the *Site* is closed;
- h. dumping outside of the gate is illegal; and
- i. alternative locations for waste disposal.

13.5 After *Site* closure, on a weekly basis, the *Owner* shall inspect the *Site* for leachate seeps and for signs of illegal dumping of waste. Illegal waste shall be removed and disposed of within 48 hours of detection. Leachate seeps shall be repaired within 48 hours of detection.. Upon approval from the *Director* , the frequency for inspecting for leachate seeps may be reduced to quarterly.

13.6 Upon closure of the *Site* , the following features will be inspected, recorded and maintained on a quarterly (every three (3) months) basis:

- a. evidence of settlement;
- b. landfill gas collection system, landfill gas flare and related equipment;
- c. cover soil integrity;
- d. vegetative cover;
- e. gates and fencing around the *Site* ;
- f. surface water drainage works; and
- g. erosion and sediment in surface water drainage system.

13.7 Any deficiencies noted in the above items shall be repaired within one month time of notice.

13.8 Upon *Site* closure, grass on the berms and the top of the landfill shall be cut a minimum of two (2) times per year.

13.9 Upon closure of the *Site* , the ditches and culverts surrounding the *Site* shall be cleaned on an annual basis for the first five (5) years after *Site* closure. After 5 years of *Site* closure, the ditches and culverts shall be inspected on a annual basis and cleaned as required until the end of the *contaminating lifespan* .

13.10 i. The leachate collection system shall be camera inspected and cleaned on an annual basis for years 4 and 5 after *Site* closure.

ii. The leachate collection system shall be camera inspected every two years after 5 years of

Site closure, with cleaning as required.

- iii. Changes to the maintenance schedule for the leachate collection system shall be approved by the *Director*.

13.11 If weather conditions do not allow timely placement of final and vegetative cover, silt curtains shall be employed to minimize silt loadings to surface water bodies.

13.12 The following shall remain in place and be operational at the *Site* until the end of the contaminating lifespan:

- a. Leachate extraction equipment;
- b. Landfill gas extraction equipment; and
- c. Sedimentation ponds.

14.0 SEMI ANNUAL AND ANNUAL REPORTING

Semi Annual Monitoring Reporting

14.1 By **January 15** and **July 15** of each year, the *Owner* shall submit semi-annual monitoring reports to the *District Office* and post the reports on a publicly accessible website. These semi annual reports shall include:

- a. The results in tabular form and an interpretive analysis of the results from the leachate, groundwater, surface water, and landfill gas monitoring programs approved by this *ECA*, including:
 - i. an assessment of the need to amend the monitoring programs;
 - ii. an evaluation of any observations of saline upwelling in the groundwater;
 - iii. an estimation of the leachate generated at the *Site*;
 - iv. an evaluation of leachate quality, levels, and mounding within the landfill;
 - v. figure(s) showing the landfill site and contaminant attenuation zone;
 - vi. maps or figures showing groundwater concentrations of alkalinity, tritium, 1-4 dioxane, and ammonia in the shallow and intermediate aquifers;
 - vii. figure(s) showing the off-site properties suspected or confirmed of being impacted by leachate from the landfill;
 - viii. a complete inventory of the groundwater monitoring well locations;
 - ix. detailed analysis on groundwater quality trends on downgradient groundwater wells which have been impacted or are suspected of being impacted by leachate from the landfill.
- b. An assessment with regards to the compliance of the groundwater quality at the property boundary and compliance points with regards to Guideline B-7 Reasonable

Use Concept;

- c. A report on the status of any monitoring wells required to be tested pursuant to the EMP and a statement as to whether those wells are in compliance with Ontario Regulation 903;
- d. The second semi-annual report will include an Annual Summary section which describes the results from the current calendar year and any data quality changes identified from previous years, or through the current year.
- e. All surface and groundwater analytical results reported in future Semi-Annual and Annual Monitoring Reports shall be reported by groups of substances (i.e. VOCs, PAHs, inorganics, etc.) and by numeric location, and shall be posted by WMC on a publicly accessible website, with the data being posted on such website being updated annually.

Annual Reporting

- 14.2 A written report on the development, operation, and closure of the *Site* shall be completed annually (the "Annual Report"). The Annual Report shall be submitted to the *District Manager, the PLC, the Town of Greater Napanee, the Township of Tyendinaga, the Mohawks of the Bay of Quinte, and a representative of the Concerned Citizens Committee of Tyendinaga and Environs* by **March 31st** of each year and shall cover the year ending the preceding December 31st.
- 14.3 The Annual Report shall include the following:
- i. an assessment of the operation and performance of all engineered facilities, the need to amend the design or operation of the *Site*, and the adequacy of and need to implement the contingency plans;
 - ii. an assessment of the efficiency of the leachate collection system;
 - iii. *Site* plans showing the existing contours of the *Site*;
 - iv. areas of landfilling operation during the reporting period;
 - v. areas of intended operation during the next reporting period;
 - vi. areas of excavation during the reporting period;
 - vii. a summary of the inspection of the final cover and vegetative cover including identification of any seepages and remedial actions taken;
 - viii. previously existing *Site* facilities;
 - ix. facilities installed during the reporting period;
 - x. A discussion on any facilities planned for installation during the next reporting period;
 - xi. a summary of the quantity of any leachate or pre-treated leachate removed from the north and south pumping stations at the *Site* during each operating week;
 - xii. a discussion of the results of the toxicity testing of the landfill stormwater management ponds which includes potential impacts to the groundwater by the

SWMP;

- xiii. a summary of the weekly, maximum daily and total annual quantity (tonnes) of waste received at the *Site* .
- xiv. a summary of any complaints received, the responses made and corrective/remedial taken if required;
- xv. a summary of any seeps, upset conditions or emergency situations and or corrective/remedial actions taken
- xvi. a discussion of any operational problems encountered at the *Site* and corrective action taken;
- xvii. a summary of the amount of wastes refused for disposal at the *Site* , the reasons for refusal and the carrier who brought the waste to the *Site* ;
- xviii. a summary of the leachate collection system cleaning and inspection activities;
- xix. an update summary of the amount of financial assurance which has been provided to the *Director*;
- xx. a table detailing the chronology of significant landfill design, operational, and land use changes for the landfill and any other information with respect to the site which the *District Manager or Regional Director* may require from time to time;
- xxi. a statement of compliance with all conditions of this *ECA* and other relevant *Ministry* groundwater and surface water requirements;
- xxii. a confirmation that the *Site* inspection program as required by this *ECA* has been complied with by the *Owner* ;
- xxiii. any changes in operations, equipment or procedures employed at the *Site* ; and recommendations regarding any proposed changes in operations of the *Site* .

- 14.4 (a) In the event the *District Manager* requires additional information to be submitted to complete the *District Office* 's assessment on whether or not the *Site* is in compliance, the *District Manager* shall provide written notification to the *Owner* at least sixty (60) days before the submission of the next Semi-Annual or Annual Report submission date on the type of additional information to be included in the report.
- (b) In the event the *District Manager* determines that the inclusion of information in either the annual or semi-annual report annual for which notification under 14.4(a) was provided is no longer warranted or needed for the *Ministry* 's assessment of whether or not the *Site* is in compliance, the *District Manager* shall notify the *Owner* in writing of the information that is no longer required. The *District Manager* can later request the information be re-included in the report as per Condition 14.4 (a).

Schedule "A"

1. Application for a Certificate of Approval for a Waste Disposal Site (Landfill), dated January 11, 1988.
2. Report entitled "Sutcliffe Sanitation Services Ltd., Landfill Site Expansion Development and Operations Report", prepared by Henderson Paddon and Associates Limited, dated September 1985.
3. Report entitled "Addendum No. 1 Sutcliffe Sanitation Services Limited Landfill Site Expansion Development and Operations Report" prepared by Henderson Paddon and Associates Limited dated December 1986.
4. Report entitled "Hydrogeologic Study Proposed Landfill Expansion, Township of Richmond" prepared by Morrison Beatty Limited and dated September 30, 1985.
5. Report entitled "Proposed Groundwater and Surface Water Monitoring Program, Sutcliffe Sanitation Services Limited Landfill, Township of Richmond" prepared by Morrison Beatty Limited and dated August 1987.
6. Letter dated September 12, 1990 from Mr. J.R. Bray, P.Eng. to Tricil Limited (c/o Laidlaw Waste Systems Ltd.).
7. Application for Approval of a Waste Disposal Site, dated May 24, 1995 and signed by Michael Pullen, Director, Environmental Management, Laidlaw Waste Systems (Richmond) Ltd.
8. Letter from Jeff Armstrong, Henderson, Paddon & Associates Limited to I. Parrott, MOEE dated May 30, 1995 re: Development of Landfill Base of Phases IV and V (including attached drawings 8570D-400 to 406, inclusive and 8570D-94-Site).
9. Letter from Jeff Armstrong, Henderson Paddon and Associates Limited to i. Parrott, MOEE dated June 23, 1995 re: Additional information to Support Application for Provisional Certificate of Approval for a Waste Disposal Site A371203.
10. Letter from Jeff Armstrong, Henderson Paddon and Associates Limited to I. Parrott, MOEE dated July 21, 1995 re: Public Consultation on the Re-Design of the Landfill Base for Phase IV and V.
11. Application for Approval for a Waste Disposal Site dated July 25, 1996 signed by Mr. Michael Pullen, Director, Environmental Management.
12. Report entitled "Undertaking to Establish an Organic Composting Facility at the Laidlaw Waste Systems (Richmond) Ltd. Landfill Site" dated July 1996, prepared by Laidlaw Waste Systems (Richmond) Ltd.

13. Plan entitled "Richmond Township Landfill Proposed Compost Pad Expansion", revised April 12, 1996, prepared by Henderson Paddon and Associates Ltd.
14. The June 9, 1999, report entitled "Conceptual Design for a Landfill Gas Collection and Flaring System Richmond Landfill Site Napanee, Ontario" which was prepared by Comcor Environmental Limited.
15. Drawing 8570G-L1 dated May 2000- Phase I Proposed Leachate Collector, Napanee Landfill, Napanee, Ontario
16. A letter dated July 31, 2000, regarding concerns raised during review of application, to Tes Gebrezghi, MOE, from Jeff Armstrong, Henderson Paddon & Associates Limited
17. A report titled "Assessment of Napanee Water Pollution Control Plant To Treat Leachate from the Laidlaw Landfill, Richmond, Ontario, dated May 1996 and prepared by Henderson, Paddon & Associates Limited
18. A report titled "CWS Response to the Town of Greater Napanee Audit of the Richmond Landfill Operation, dated May 12, 2000, and prepared by Canadian Waste Services Inc.
19. Report entitled "Richmond Sanitary Landfill Site Final Closure Plan" and appendices dated June 2007 prepared by Henderson, Paddon and Associates Limited.
20. Memorandum dated November 30, 2007 from K. Stephenson, Hydrogeologist, Eastern Region, MOE to C. Dobiech, Kingston District, MOE.
21. Memorandum dated December 5, 2007 from Victor Castro, Surface Water Scientist, Eastern Region, MOE to Craig Dobiech, Kingston District, MOE.
22. Letter dated July 11, 2008 from Greg Washuta, Senior Waste Engineer, EAAB, MOE to Mike Walters, WMCC.
23. Letter, attachments, and Appendix B dated September 26, 2008 from Randy Harris, Site Manager, WMCC to Greg Washuta, Senior Waste Engineer, EAAB, MOE.
24. Letter dated February 23, 2009 from Greg Washuta, Senior Waste Engineer, EAAB, MOE to Randy Harris, Site Manager, WMCC.
25. Drawing number 8570-2006 entitled "June 2006 Existing Conditions Richmond Landfill Napanee, Ontario" dated March 19, 2007 prepared by Henderson Paddon and Associates Limited.
26. Drawing number 8570F-104 entitled "Richmond Landfill Site Proposed Final Contours Landfill and Borrow Areas" dated March 1995 prepared by Henderson Paddon and Associates Limited.

27. Letter dated March 2009 from Randy Harris, Site Manager, Waste Management of Canada Corporation to Greg Washuta, Senior Waste Engineer, Waste Unit, EAAB, MOE.
28. Drawing number 8570F-114 entitled "Richmond Township Landfill Sections 'A-A' and 'B-B'" created by Henderson Paddon and Associates Limited, dated March 1996.
29. Drawing number 8570F-115 entitled "Richmond Township Landfill Sections 'C-C', 'D-D', and 'E-E'" created by Henderson Paddon and Associates Limited, dated March 1996.
30. Memorandum dated February 25, 2009 from K. Stephenson, Hydrogeologist, Eastern Region, MOE to C. Dobiech, Kingston District, MOE.
31. Letter dated June 1, 2009 from Mr. Randy Harris, Site Manager, Waste Management of Canada Corporation to Application Processor, Client Services Section, Environmental Assessment and Approvals Branch, Ministry of the Environment.
32. Report entitled "Site Conceptual Model Report, WM Richmond Landfill" and attached appendices A to H inclusive by Dr. B.H. Kueper and WESA Inc., dated October 2009.
33. Report entitled "Richmond Sanitary Landfill Site OS-08-570-13-OS Construction Quality Assurance/Construction Quality Control Plan for the Final Cover System", dated June 2010, prepared by GENIVAR Consultants LP.
34. E-mail dated August 20, 2010 from Greg Washuta, Senior Waste Engineer, Waste Unit, Environmental Assessment and Approvals Branch, Ministry of the Environment to Dave White and Randy Harris, Waste Management of Canada Corporation.
35. Letter dated August 24, 2010 from Jeff E. Armstrong, Senior Environmental Engineer, GENIVAR Consultants LP to Greg Washuta, Senior Waste Engineer, Waste Unit, Environmental Assessment and Approvals Branch, Ministry of the Environment.
36. Document entitled "Richmond Sanitary Landfill Site Construction Quality Assurance/Construction Quality Control Plan for the Final Cover System ERRATA" prepared by Jeff E. Armstrong, Senior Environmental Engineer, GENIVAR Consultants LP, dated August 24, 2010.
37. Application for a Provisional Certificate of Approval for a Waste Disposal Site for Waste Management of Canada Corporation's Richmond Landfill Site, signed by Randy Harris, Site Manager on September 30, 2010.
38. Report entitled "Phytoremediation Plan - WM Richmond Landfill Town of Greater Napanee, Ontario" dated December 2010 and prepared by WESA Inc.
39. Report entitled "Richmond Sanitary Landfill Site - Operations and Procedures Manual June 25, 2010" prepared by GENIVAR Consultants LP Inc dated June 25, 2010.

40. Report entitled "Landfill Gas Collection and Flaring System Design Report - Richmond Landfill" prepared by GENIVAR Consultants LP dated June 29, 2009.
41. Report entitled "Richmond Sanitary Landfill Site - Leachate Collection System Contingency Plan" prepared by GENIVAR Consultants LP dated June 25, 2010.
42. Report entitled "Richmond Sanitary Landfill Site - Landfill Gas Collection System Contingency Plan" prepared by GENIVAR Consultants LP dated June 25, 2010.
43. Report entitled "Financial Assurance Plan" completed by GENIVAR Consultants LP and dated June 25, 2010;
44. Report entitled "Contaminating Lifespan" (Appendix D of Financial Assurance Plan) completed by GENIVAR Consultants LP and dated June 16, 2010.
45. Report entitled "Final Report - Environmental Monitoring Plan - WM Richmond Landfill" prepared for Waste Management of Canada Corporation by WESA Inc. and dated June 29, 2010.
46. Appendix "A" (Report Entitled "Odour Monitoring Plan" prepared for Waste Management of Canada Corporation by GENIVAR Consultants LP dated June 25, 2010) of the report entitled "Environmental Monitoring Plan - WM Richmond Landfill" prepared for Waste Management of Canada Corporation by WESA Inc. and dated June 29, 2010.
47. Letter dated January 14, 2011 addressed to Mr. Randy Harris, Waste Management of Canada Corporation from Mr. Greg Washuta, Ministry of the Environment providing comments on Items 39 through 46 in Schedule "A".
48. Letter dated February 28, 2011 addressed to Mr. Greg Washuta, Ministry of the Environment from Mr. Randy Harris, Waste Management of Canada Corporation providing additional information regarding financial assurance, the status of the environmental monitoring plan and various contingency plans.
49. Letter dated April 5, 2011 addressed to Mr. Randy Harris, Waste Management of Canada Corporation from Mr. Dale Gable, Ministry of the Environment requesting additional information on financial assurance, the status of the environmental monitoring plan and various contingency plans.
50. Letter dated April 20, 2011 addressed to Mr. Dale Gable, Ministry of the Environment from Mr. Jeff Armstrong, GENIVAR Inc. providing additional information on the environmental monitoring plan, financial assurance and the contaminating lifespan of the Site.
51. Letter dated August 12, 2011 and supporting documentation addressed to Mr. Tesfaye Gebrezghi, Ministry of the Environment from Mr. Reid Cleland, Waste Management of Canada Corporation requesting amendment to Condition No. 35. The supporting documentation included the following:

- i. Application for a Certificate of Approval for a Waste Disposal Site signed by Mr. Reid Cleland, Waste Management of Canada Corporation and dated August 15, 2011.
52. Letter report dated May 25, 2011 addressed to Mr. Tesfaye Gebrezghi, Ministry of the Environment from Mr. Jeff Armstrong, GENIVAR Inc. requesting an amendment to permit the approval of continued recyclables disposal at the Richmond Landfill Site. The supporting documentation included the following:
 - i. Application for a Certificate of Approval for a Waste Disposal Site signed by Mr. Reid Cleland, Waste Management of Canada Corporation and dated May 25, 2011;
 - ii. Drawing No 8570713-MT1 entitled "Site Location Map" prepared by GENIVAR INC. and dated May 17, 2011; and
 - iii. Drawing No. 8670713-MT2 entitled "Site Plan Mini-transfer Station" prepared by GENIVAR Inc. and dated May 17, 2011.
53. Letter report dated May 25, 2011 addressed to Mr. Tesfaye Gebrezghi, Ministry of the Environment from Mr. Jeff Armstrong, GENIVAR Inc. requesting an amendment to Condition No. 35 which would allow the continue use of the mini-transfer station at the Richmond Landfill Site. The supporting documentation included the following:
 - i. Application for a Certificate of Approval for a Waste Disposal Site signed by Mr. Reid Cleland, Waste Management of Canada Corporation and dated May 25, 2011;
 - ii. Development and Operations Report for a Waste Transfer Station prepared by GENIVAR Inc. (Project No. 081-12493-00) and dated May 2011.
 - iii. Drawing No 8570713-MT1 entitled "Site Location Map" prepared by GENIVAR INC. and dated May 17, 2011; and
 - iv. Drawing No. 8670713-MT2 entitled "Site Plan Mini-transfer Station" prepared by GENIVAR Inc. and dated May 17, 2011.
54. Letter dated June 20, 2011 addressed to Mr. Reid Cleland, Waste Management of Canada Corporation from Mr. Dale Gable, Ministry of the Environment requesting additional information on the continued operation of the Waste and Recycling Drop-Off Facility.
55. Letter dated June 30, 2011 addressed to Mr. Dale Gable, Ministry of the Environment from Mr. Jeff Armstrong, GENIVAR Inc. providing additional information on the operations of the Waste and Recycling Drop-Off Facility. The information included the following:
 - i. Development and Operations Report for a Waste Transfer Station prepared by GENIVAR Inc. (Project No. 081-12493-00) and dated June 2011.
56. Environmental Review Tribunal Order for Case No. 12-033 issued on April 26, 2013.
57. Report entitled "Richmond Sanitary Landfill Site- Odour Monitoring Plan - Revision No. 2" prepared for WMCC by WSP Canada and dated November 25, 2014.

58. Report entitled "Richmond Sanitary Landfill Site (081-12459-00) - Public Notification Plan - February 2013" prepared for WMCC by GENIVAR Inc. and dated February 2013.
59. Environmental Review Tribunal Order for Case No. 12-033 issued on July 21, 2015.
60. Environmental Review Tribunal Order for Case No. 12-033 issued on August 13, 2015.
61. Environmental Review Tribunal Order for Case No. 12-033 issued on October 29, 2015.
62. Environmental Compliance Approval Application dated June 10, 2014 signed by Reid Cleland, Waste Management of Canada Corporation.
63. Environmental Compliance Approval Application dated January 13, 2015 signed by Reid Cleland, Waste Management of Canada Corporation, and the supporting documentation including the Design Brief - Leachate Storage System Richmond Landfill Site dated January 2015 prepared by WSP Canada Inc.
64. Environmental Review Tribunal Order for Case No. 12-033 issued on December 24, 2015.
65. Email dated May 13, 2016 from Peter Brodzikowski, WSP Canada to Rick Li, Ministry of the Environmental and Climate Change providing a response to the Ministry' review comments on the leachate storage system and the maintenance schedule.
66. Environmental Review Tribunal Order for Case No. 12-033 issued on April 14, 2016.
67. Report entitled "Odour Monitoring Plan - Revision No. 3 Richmond Sanitary Landfill Site" prepared for WMCC by WSP Canada and dated June 2016.

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

- 1. The reason for Conditions 1.1 and 1.2 is to ensure that the Site is designed, operated, monitored and maintained in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider.*
- 2. The reason for Conditions 1.3, 1. 4. 1. 5, 1.9, 1.10, 1.11, 1.12, 1.13, 3.1, 3.2, 3.3 and 8.6 is to clarify the legal rights and responsibilities of the Owner under this ECA.*
- 3. Conditions 1.6, 1.7 and 1.8 are included to ensure that the appropriate Ministry staff have ready access to information and the operations of the Site, which are approved under this Certificate.*
- 4. Conditions 1.14 and 1.15 are included, pursuant to subsection 197(1) of the EPA, to provide that any persons having an interest in the Site are aware that the land has been*

approved and used for the purposes of waste disposal.

5. *The reasons for Condition 1.16 are to restrict potential transfer or encumbrance of the Site without the approval of the Director and to ensure that any transfer of encumbrance can be made only on the basis that it will not endanger compliance with this ECA.*
6. *The reasons for Conditions 1.17 and 1.18 are to ensure that the Site is operated under the corporate name which appears on the application form submitted for this approval and to ensure that the Director is informed of any changes.*
7. *The reason for Condition 1.19 is to ensure that appropriate Ministry staff have ready access to the Site for inspection of facilities, equipment, practices and operations required by the conditions in this ECA. This condition is supplementary to the powers of entry afforded a Provincial Officer pursuant to the EPA and OWRA.*
8. *The reasons for Conditions 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, and 2.9 are to ensure that sufficient funds are available to the Ministry to close the landfill, and to carry out all expected post-closure care activities and any contingencies. Failure to include requirements for financial assurance would not be in the public interest and may result in a hazard or nuisance to the natural environment or any person.*
9. *The reason for Condition 3.4 is to ensure the availability of as-built drawings for inspection and information purposes.*
10. *The reasons for Conditions 4.1, 4.2 and 4.3 are to ensure the Owner operates the Site in an environmentally safe manner. This to is ensure the environment and public health are protected.*
11. *The reason for Condition 4.4 is to establish a closure date for the Site.*
12. *The reasons for Conditions 4.5, 4.6 and 4.7 is to specify the approved areas from which waste may be accepted at the Site and the types and amounts of waste that may be accepted for disposal at the Site, based on the Owner's application and supporting documentation.*
13. *The reasons for Conditions 4.8, 4.9, 4.10 and 4.11 are to specify the normal hours of operation for the landfill Site and a mechanism for amendment of the hours of operation.*
14. *The reasons for Condition 4.12 are to specify Site access to/from the Site and to ensure the controlled access and integrity of the Site by preventing unauthorized access when the Site is closed and no Site attendant is on duty.*
15. *The reason for Condition 4.13 is to ensure the on-site roads are well maintained to provide access to the site operation and maintenance works.*

16. *The reason for Condition 4.14 is to ensure that only waste types approved by this ECA is accepted at the Site.*
17. *The reason for Conditions 4.15 to 4.18 and 4.20 is to ensure that nuisance such as odour, litter, and dust are minimized during landfilling.*
18. *The reasons for Condition 4.19 are the protection of public health and safety and minimization of the potential for damage to environmental control, monitoring and other works at the landfill Site. Scavenging is the uncontrolled removal of material from waste at a landfill Site.*
19. *The reason for Condition 4.21 is to ensure that noise from or related to the operation of the landfill is kept to within Ministry limits and does not result in a hazard or nuisance to any person.*
20. *The reason for Condition 5.1 is to ensure that landfilling operations are conducted in an environmentally acceptable manner. Daily and intermediate cover is used to control potential nuisance effects, to facilitate vehicle access on the Site, and to ensure an acceptable Site appearance is maintained. The proper closure of a landfill Site requires the application of a final cover which is aesthetically pleasing, controls infiltration, and is suitable for the end use planned for the Site.*
21. *The reasons for Conditions 5.2, 5.3 and 5.4 are to ensure proper operation of the leachate collection system. This is to ensure the protection of the environment and public health.*
22. *The reason for Conditions 5.5 and 5.6 is to approve the proposed leachate storage system for improvement to the leachate handling and trucking.*
23. *The reasons for Condition 5.7 and 5.8 is to ensure the Owner is aware that the composting operation will cease by the given date.*
24. *The reason for Condition 5.9 is to approve the proposed phytoremediation system as applied and established operations conditions for the phytoremediation system.*
25. *The reason for Conditions 5.10 and 5.11 is to clarify the responsibilities of the Owner, the requirements of the Ministry, the authority of the Ministry and protects the natural environment and human health.*
26. *The reason for Condition 5.12 is to approve the continued operation of the Waste and Recycling Drop-Off Facility as per the submitted information.*
27. *The reason for Conditions 5.13, 5.14, 5.15 and 5.18 is to ensure the type of waste, the quantity of waste service and removal frequency are clearly identified.*

28. *The reasons for Condition 5.16 and 5.17 is to specify the normal hours of operation for the landfill Site and a mechanism for amendment of the hours of operation and ensure trained staff are present to accept waste*
29. *The reasons for Conditions 5.19 through 5.24 is to ensure the operation is done in a manner that will not cause a nuisance or an adverse effect. This is to ensure the long-term protection of the environment and human health.*
30. *The reason for Conditions 5.25 and 5.26 are to ensure surface water at the site is not impacted by landfill operations. This is to ensure the environment and public health are protected.*
31. *The reason for Condition 6.1 is to ensure that the Site is supervised and operated by properly trained staff in a manner which does not result in a hazard or nuisance to the natural environment or any person.*
32. *The reasons for Conditions 7.1, 7.2 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 7.10, 7.11 and 14.1 are to provide for the proper assessment of effectiveness and efficiency of Site design and operation, their effect or relationship to any nuisance or environmental impacts, and the occurrence of any public complaints or concerns. Record keeping is necessary to determine compliance with this ECA, the EPA and its regulations*
33. *The reasons for Conditions 8.1, 8.2, 8.3, and 8.4 are to ensure protection of the natural environment and the integrity of the groundwater monitoring network.*
34. *The reason for Condition 8.5 is to demonstrate that the landfill Site is performing as designed and the impacts on the natural environment are acceptable. Regular monitoring allows for the analysis of trends over time and ensures that there is an early warning of potential problems so that any necessary remedial/contingency action can be taken.*
35. *The reason for Conditions 8.6.1, 8.6.2, 8.9, and 9.1 is to incorporate the Environmental Review Tribunal Order dated April 14, 2016.*
36. *The reason for Conditions 8.7 and 8.8 is to incorporate the interim orders issued by the Environmental Review Tribunal on July 21, 2015 and August 13, 2015.*
37. *The reason for Conditions 9.2, 9.3, 9.4, 11.1 and 11.2 is to ensure that the Owner follows a plan with an organized set of procedures for identifying and responding to unexpected but possible problems at the Site. A remedial action / contingency plan is necessary to ensure protection of the natural environment.*
38. *The reasons for Condition 9.5 are to ensure there is a public notification plan in the event that any contingency plan is activated or engaged, and to reflect the interim order*

issued by the ERT on April 26, 2013.

39. *The reason for Conditions 10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 10.7, 10.8, 10.9, 10.10, 10.11, 10.12, 10.13, 10.14, 10.15, 10.16, 10.17 and 10.18 is to establish a forum for the exchange of information and public dialogue on activities carried out at the landfill Site. Open communication with the public and local authorities is important in helping to maintain high standards for site operation and environmental protection.*
40. *The reasons for Conditions 12.1 and 12.2 are to ensure that the Ministry is informed of any spills or fires at the Site and to provide public health and safety and environmental protection.*
41. *The reason for Condition 12.3 is to ensure the Emergency Response Manual is updated regularly.*
42. *The reasons for Condition 12.4 are to guarantee that appropriate measures are taken by the Owner to prevent future occurrences of spills or fires at the site and to protect public health and safety and the environment.*
43. *The reasons for Conditions 13.1, 13.2, 13.3, 13.4, 13.5, 13.6, 13.7, 13.8, 13.9, 13.10, 13.11 and 13.12 are to ensure that final closure of the Site is completed in accordance with Ministry requirements, an aesthetically pleasing manner and to ensure the long-term protection of the natural environment.*
44. *Conditions 14.1 and 14.4 is included in the ECA to reflect the interim order issued by the ERT on April 26, 2013.*
45. *The reasons for Conditions 14.2 and 14.3 are to reflect the interim order issued by the ERT on April 26, 2013, and to ensure that regular review of Site development, operations and monitoring data is documented and any possible improvements to Site design, operations or monitoring programs are identified. An annual report is an important tool used in reviewing Site activities and for determining the effectiveness of Site design.*

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). A371203 issued on March 20, 1988

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, 1993, S.O. 1993, c. 28 (Environmental Bill of Rights), the Environmental Commissioner, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

- a. The portions of the environmental compliance approval or each term or condition in the environmental compliance

- approval in respect of which the hearing is required, and;
- b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

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, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Environmental Commissioner
1075 Bay Street, Suite 605
Toronto, Ontario
M5S 2B1

AND

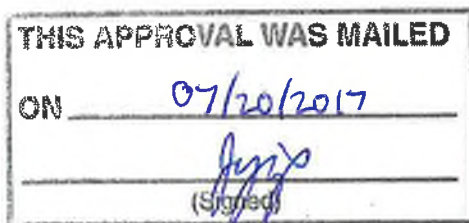
The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment and
Climate Change
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

This instrument is subject to Section 38 of the Environmental Bill of Rights, 1993, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at www.ebr.gov.on.ca, you can determine when the leave to appeal period ends.

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 14th day of July, 2017



Dale D. Gable

Dale Gable, P.Eng.

Director

appointed for the purposes of Part II.1 of the
Environmental Protection Act

RL/

c: District Manager, MOECC Kingston - District
Beverly Leno/ Peter Brodzikowski, WSP Canada Inc.

APPENDIX

A-2

*ENVIRONMENTAL COMPLIANCE
APPROVAL (SEWAGE WORKS) NO.
1688-8HZNJG, DATED JANUARY 10,
2012*

AMENDED ENVIRONMENTAL COMPLIANCE APPROVALNUMBER 1688-8HZNJG
Issue Date: January 10, 2012

Waste Management Canada Corporation
1271 Beechwood Rd
Rural Route, No. 6
Napanea, Ontario
K7R 3L1

Site Location: Richmond Landfill Site
1271 Beechwood Road, Parts of Lots 1,2, &3, Concession 4, Richmond
Greater Napanea Town, County of Lennox and Addington

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

leachate collection and disposal facility and stormwater management facility to service the Richmond Landfill Site located on Parts of Lots 1, 2 and 3, Concession 4, in the Town of Greater Napanea as follows:

SEWAGE WORKS APPROVED ON AUGUST 19, 2008:**Stormwater Management Pond - SWM Pond No. 3**

a new stormwater management facility located south of the approved landfill footprint and north of Beechwood Road to service 20 ha drainage area of the Richmond Landfill Site, designed to provide quantity and quality control of stormwater runoff from storm events up to 1:100 return frequency consisting of the following:

- two (2) extended wet detention ponds interconnected by two (2) 750 mm diameter culverts providing a permanent pool storage capacity (including sediment storage) of 19,642 m³ between the elevations of 122.4 m ASL and 124.4 m ASL and active storage capacity of 7,620 m³ between the elevations of 124.4 m ASL and 124.73 m ASL (overall total storage capacity of 27,262 m³);
- each detention pond equipped with a rip rap lined inlet structure, a forebay, and cattails planted in the shallow areas surrounding the permanent pool;

- an outlet structure consisting of one (1) 600 mm x 600 mm precast concrete catch basin equipped with a 100 mm diameter inlet orifice, one (1) 300 mm diameter PVC discharge pipe equipped with one (1) 300 mm diameter gate valve, discharging through a drainage ditch to the Beechwood Road side ditch eventually flowing to Marysville Creek;
- one (1) 3.0 m wide rip rap lined emergency spillway with an invert elevation of 124.73 m ASL, discharging through a drainage ditch to the Beechwood Road side ditch; and
- including all controls and associated appurtenances.

all in accordance with the Application for Approval of Industrial Sewage Works submitted by Waste Management of Canada Corporation dated April 11, 2008, drawings and design specification prepared by Henderson Paddon & Associates Limited, Owen Sound, Ontario and the document listed in Schedule 'B'.

EXISTING LEACHATE MANAGEMENT FACILITY:

- one (1) approximately 504 m long 200 mm diameter perforated PVC or HDPE perimeter leachate collector pipe, installed in a 50 mm clear stone bedding wrapped in geotextile, extending through seven (7) 1200 mm diameter pre-cast concrete service manholes (MH12, MH11, MH10, MH9, MH8, MH7 and MH1) along the west side and north side of landfill footprint discharging to a 22.3 m³ capacity North Concrete Pumping Chamber which is not equipped with pumps;
- one (1) approximately 429 m long 150 mm diameter perforated PVC perimeter leachate collector pipe, installed in a 50 mm clear stone bedding wrapped in geotextile, extending through six (6) 1200 mm diameter pre-cast concrete service manholes (MH6, MH5, MH4, MH3, MH2 and MH1) along the east side and north side of landfill footprint discharging to a 22.3 m³ capacity North Concrete Pumping Chamber which is not equipped with pumps;
- one (1) approximately 393 m long 200 mm diameter perforated PVC perimeter leachate collector pipe, installed in a 50 mm clear stone bedding wrapped in geotextile, extending along the west side and south side of landfill footprint discharging to a leachate pumping station described below;
- one (1) approximately 296 m long 200 mm diameter perforated PVC perimeter leachate collector pipe, installed in a 50 mm clear stone bedding wrapped in geotextile, extending along the east side and south side of landfill footprint discharging to a leachate pumping station described below;
- one (1) side slope riser leachate pumping station equipped with two (2) 80 USGPM capacity submersible pumps and a sump with bottom dimension of 2 m x 2 m filled with 50 mm gravel, discharging to a leachate lagoon described below;

- one (1) 16,245 m³ storage capacity leachate lagoon, lined with clay and HDPE synthetic liner, located north of the landfill footprint used for temporary storage of leachate or leachate contaminated stormwater until disposed off site to a pre-approved sewage treatment plant;
- one (1) leachate storage lagoon located west of the landfill footprint used for collecting leachate and stormwater runoff from a composting facility until it is used for composting operations or disposed off-site to a pre-approved sewage treatment plant;
- including all controls and associated appurtenances.

SEWAGE WORKS APPROVED ON OCTOBER 21, 1991:

Stormwater Management Pond - SWM Pond No. 1

A stormwater management pond constructed on a site approximately 750 m north of Beechwood Road and north of the fill area for a 25 year design storm having a minimum storage volume of 228 m³ to retain surface runoff from an area of 3.38 ha (consisting of fill area) and to discharge at a rate of 70 L/s via a 375 mm diameter outlet pipe (fitted to a drop inlet pipe structure) to a Headwater Tributary of Marysville Creek (Intermittent), together with a drawdown structure, a 1200 mm diameter drop inlet pipe, a 3.5 m wide emergency spill-way channel, rock baffle, erosion and silt control protection;

Stormwater Management Pond - SWM Pond No. 2

A stormwater management pond constructed on a site approximately 750 m north of Beechwood Road and northwest of the fill area for a 25 year design storm having a minimum storage volume of 332 m³ to retain surface runoff from an area of 4.94 ha (consisting of fill area) and to discharge at a rate of 103 L/s via a 375 mm diameter outlet pipe (fitted to a drop inlet pipe structure) to a Headwater Tributary of Marysville Creek (Intermittent), together with a drawdown structure, a 1200 mm diameter drop inlet pipe, a 3.5 m wide emergency spill-way channel, rock baffle, erosion and silt control protection;

all in accordance with the information submitted by Henderson Paddon and Associates Limited Consulting Engineers and the following documents listed in Schedule 'A'.

For the purpose of this environmental compliance approval, the following definitions apply:

“*Approval*” means this Environmental Compliance Approval and any schedules attached to it, and the application .

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

"*Director*" means a person appointed by the Minister pursuant to section 5 of the *EPA* for the purposes of Part II.1 of the *EPA*.

"*District Manager*" means the District Manager of the Kingston District Office;

"*EPA*" means the Environmental Protection Act, R.S.O. 1990, c.E.19, as amended.

"*Ministry*" means the ministry of the government of Ontario responsible for the *EPA* and *OWRA* and includes all officials, employees or other persons acting on its behalf.

"*Owner*" means Waste Management of Canada Corporation and its successors and assignees;

"*OWRA*" means the Ontario Water Resources Act, R.S.O. 1990, c. O.40, as amended.

"*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 *Approval* and in the supporting documentation referred to herein, to the extent approved by this *Approval*.

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

TERMS AND CONDITIONS

I - GENERAL

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 *Approval* 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 *Approval*, the application for approval of the works and the submitted supporting documents and plans and specifications as listed in this *Approval*.
- (3) Where there is a conflict between a provision of any submitted document referred to in this *Approval* and the Conditions of this *Approval*, the Conditions in this *Approval* 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 *Approval* are severable. If any requirement of this *Approval* , or the application of any requirement of this *Approval* to any circumstance, is held invalid or unenforceable, the application of such requirement to other circumstances and the remainder of this *Approval* shall not be affected thereby.

2. EXPIRY OF APPROVAL

The approval issued by this *Approval* will cease to apply to those parts of the *Works* which have not been constructed by August 19, 2013.

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 *Approval* , 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 year of the *Substantial Completion* of the *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* or at operational office of the *Owner* for the operational life of the *Works* .

5. BY-PASSES

- (1) Any *By-pass* of sewage from any portion of the *Works* is prohibited, except where:
 - (a) it is necessary to avoid loss of life, personal injury, danger to public health or severe property damage;
 - (b) the *District Manager* agrees that it is necessary for the purpose of carrying out essential maintenance and the *District Manager* has given prior written acknowledgment of the *By-pass* ; or
- (2) The *Owner* shall maintain a logbook of all *By-pass* events which shall include, at a minimum, the time, location, duration, quantity of *By-pass* , the authority for *By-pass* pursuant to subsection (1), and the reasons for the occurrence.

II - LEACHATE COLLECTION AND DISPOSAL SYSTEM

6. LEACHATE MONITORING AND RECORDING

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

- (1) All samples and measurements taken for the purposes of this *Approval* are to be taken at a time and in a location characteristic of the quality and quantity of the leachate stream over the time period being monitored.
- (2) For the purposes of this condition, the following definitions apply:
 - (a) Monthly means once every month;
 - (b) Quarterly means once every three months;
 - (c) Semi-annually means once every six months; and
 - (d) Annually means once every twelve months;
- (3) **Leachate grab samples** shall be collected from a designated sampling location at the indicated

monitoring frequency and analyzed for each parameter listed in Table 1 and all results recorded:

Table 1		
Leachate Monitoring		
Sampling Location: North Pumping Chamber		
Sampling Frequency: Quarterly		Sampling Frequency: Annually
Parameter	Parameter	Parameter
Alkalinity	Arsenic	Silver
Dissolved Organic Carbon (DOC)	Cadmium	Aluminum
Hardness	Chromium	Boron
pH	Cobalt	Barium
Total Ammonia Nitrogen	Copper	Beryllium
Nitrate Nitrogen	Mercury	Calcium
Nitrite Nitrogen	Molybdenum	Sodium
Total Kjeldahl Nitrogen	Nickel	Magnesium
Phenols	Lead	Manganese
PAHs	Selenium	Iron
BTEX	Zinc	Total Phosphorus
USEPA 624		Conductivity
		Hydrogen Sulphide
		Sulphate
		BOD5
		Total Trihalomethanes (THM)

- (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; and
 - (d) the Environment Canada publications "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout" (July 1990) and "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Daphnia

magna" (July 1990), as amended from time to time by more recently published editions.

- (5) 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 *Approval* .

7. OPERATION AND MAINTENANCE

- (1) The *Owner* shall exercise due diligence in ensuring that, at all times, the *Works* and the related equipment and appurtenances used to achieve compliance with this *Approval* are properly operated and maintained. Proper operation and maintenance shall include effective performance, adequate funding, adequate operator training, including training in all procedures and other requirements of this *Approval* and the *Act* and regulations, process controls and alarms.
- (2) By February 19, 2009, the *Owner* shall prepare an operations manual, that includes, but not necessarily limited to, the following information:
 - (a) operating procedures for routine operation of the *Works* ;
 - (b) inspection programs, including frequency of inspection, for the *Works* and the methods or tests employed to detect when maintenance is necessary;
 - (c) repair and maintenance programs, including the frequency of repair and maintenance for the *Works* ;
 - (d) procedures for the inspection and calibration of monitoring equipment;
 - (e) a spill prevention control and countermeasures plan, consisting of contingency plans and procedures for dealing with equipment breakdowns, potential spills and any other abnormal situations, including notification of the *District Manager* ; and
 - (f) procedures for receiving, responding and recording public complaints, including recording any follow up actions taken.
- (3) The *Owner* shall maintain the operations manual current and retain a copy at the *Works* or *Owner* 's Head Office for the operational life of the *Works* . Upon request, the *Owner* shall make the manual available to *Ministry* staff.
- (4) The *Owner* shall maintain a logbook to record and report the volume of leachate disposed off-site, the date, and the name of the receiving sewage treatment plant;

III - STORMWATER MANAGEMENT FACILITY

8. MONITORING AND RECORDING

The *Owner* shall carry out the following monitoring program:

- (1) All samples and measurements taken for the purposes of this *Approval* are to be taken at a time and in a location characteristic of the quality and quantity of the effluent stream over the time period being monitored.
- (2) The *Owner* shall collect stormwater grab samples from the following designated sampling locations at a **monthly** sampling frequency during spring and fall (**March, April, May, September, October, and November**) and analyse for the parameters listed in Table 2;

Table 2		
Stormwater and Surface Water Monitoring		
Sampling Location: SWM Ponds No. 1, No. 2, and No. 3		
Parameter	Parameter	Field Parameter
pH	Aluminum	pH
Alkalinity	Arsenic	Temperature
Hardness	Barium	Conductivity
Biological Oxygen Demand (CBOD5)	Boron	
Un-ionized Ammonia	Cobalt	
Total Ammonia Nitrogen	Beryllium	
Total Kjeldahl Nitrogen	Cadmium	
Nitrate Nitrogen	Chromium	
Total Phosphorus	Copper	
Total Suspended Solids	Iron	
Total Dissolved Solids	Mercury	
Total Organic Carbon	Nickel	
Chloride	Potassium	
Chemical Oxygen Demand (COD)	Sodium	
Phenols	Selenium	
BTEX	Silver	
Naphthalene	Zinc	

- (3) The *Owner* shall collect stormwater grab samples from **SWM Ponds No. 1, No. 2, and No. 3** sampling locations at a **Quarterly** frequency and conduct acute lethality tests for *Daphnia magna* and Rainbow Trout;
- (4) The methods and protocols for sampling, analysis and recording shall conform, in order of

precedence, to the methods and protocols specified in Condition 6 (4);

- (5) The measurement frequencies specified in subsection (2) in respect to any parameter are minimum requirements which may, after two (2) years of monitoring in accordance with this Condition, be modified by the *District Manager* in writing from time to time.
- (6) 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 *Approval* at the *Works* or *Owner*'s Head Office.

9. OPERATION AND MAINTENANCE

- (1) Within six (6) months of the issuance date of this *Approval*, the *Owner* shall prepare a "Stormwater Contingency and Remedial Action Plan" for the *Works* and submit to the *District Manager* for approval.
- (2) The *Owner* shall operate the *Works* (**SWM Pond No. 1, SWM Pond No. 2, and SWM Pond No. 3**) in a **normally open position**.
- (3) Using the monitoring results obtained under Condition 8 (3), the *Owner* shall ensure that the stormwater runoff discharged from the *Works* (**SWM Pond No. 1, SWM Pond No. 2, and SWM Pond No. 3**) is not acutely lethal to *Daphnia magna* and Rainbow Trout.
- (4) In the event that monitoring results obtained under Condition 8 (3) show that the stormwater is acutely lethal either to *Daphnia magna* or Rainbow Trout, then, the *Owner* shall resample within two (2) weeks period after receiving the lab results to confirm the toxicity results.
- (5) In the event that the toxicity results **are not confirmed** during the second round of sampling conducted under Condition 9 (4), then, normal stormwater monitoring shall be resumed.
- (6) In the event that the toxicity results **are confirmed** after the second round of sampling conducted under Condition 9 (4), the *Owner* shall operate the *Works* in a **normally closed position**, notify the *District Manager* forthwith, and conduct acute lethality tests for *Daphnia magna* and Rainbow Trout at a **monthly frequency**.
- (7) While operating the *Works* in a **normally closed position**, the *Owner* shall implement the "Stormwater Contingency and Remedial Action Plan" prepared under Condition 9 (1) and continue conducting the toxicity monitoring program required under Condition 9 (6).
- (8) The *Owner* shall resume operating the *Works* in a **normally open position** if toxicity monitoring results from **two (2) consecutive sampling events** conducted under Condition 9(6) show that the stormwater is not acutely lethal to *Daphnia magna* and Rainbow Trout.

- (9) Discharge of contaminated stormwater from the *Works* to storm sewer/surface water is prohibited, except where it is necessary to avoid loss of life, personal injury, danger to public health or severe property damage;
- (10) The *Owner* shall prepare an operations manual prior to the commencement of operation of the *Works* , 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
- (10) The *Owner* shall maintain the operations manual current and retain a copy at the *Works* or *Owner* 's Head Office for the operational life of the *Works* . Upon request, the *Owner* shall make the manual available to *Ministry* staff.
- (11) The *Owner* shall maintain a record of the date and the estimated volume of leachate contaminated stormwater disposed off site under the approved "Stormwater Contingency and Remedial Action Plan" for the *Works* .
- (12) The *Owner* shall notify the *District Manager* orally, as soon as possible, and in writing within seven days of any discharge of leachate contaminated stormwater to receiving surface water including an assessment of the relative extent of leachate contamination, estimated volume of stormwater discharged, and proposed or completed remedial actions.
- (13) The *Owner* shall inspect the *Works* (**SWM Ponds**) at least once a year and, if necessary, clean and maintain the *Works* to prevent the excessive build-up of sediments and/or vegetation.
- (14) The *Owner* shall maintain a logbook to record the results of these inspections and any cleaning and maintenance operations undertaken, and shall keep the logbook at the site and/or *Owner's* operational headquarter for inspection by the *Ministry* . The logbook shall include the following:
 - (a) the name of the *Works* ;

- (b) the date and results of each inspection, maintenance and cleaning, including an estimate of the quantity of any materials removed; and
- (c) the volume of contaminated stormwater disposed off-site, the date, and the name of the receiving sewage treatment plant;

IV - GENERAL

10. REPORTING

- (1) Ten (10) days prior to the date of a planned *By-pass* being conducted pursuant to Condition 5 and as soon as possible for an unplanned *By-pass*, the *Owner* shall notify the *District Manager* (in writing) of the pending start date, in addition to an assessment of the potential adverse effects on the environment and the duration of the *By-pass*.
- (2) 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, oils, solvents, 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.
- (3) The *Owner* shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to *Ministry* staff.
- (4) The *Owner* shall prepare on an annual basis, and submit upon request, a performance report within ninety (90) days following the end of the calendar year being reported upon. The first such report shall cover the period following the commencement of operation of the *Works* and subsequent reports shall be prepared to cover successive calendar years following thereafter. The reports shall contain, but shall not be limited to, the following information:
 - (a) a summary and interpretation of all stormwater monitoring data and a comparison to the Provincial Water Quality Objectives (PWQO), including an overview of the success and adequacy of the *Works* ;
 - (b) a summary of the monthly quantity of leachate disposed off site and corresponding average leachate quality;
 - (c) a description of any operating problems encountered and corrective actions taken;
 - (d) a summary of all maintenance carried out on any major structure, equipment,

- apparatus, mechanism or thing forming part of the *Works* ;
- (e) a summary of the calibration and maintenance carried out on all leachate monitoring equipment; and
 - (f) a summary of any complaints received during the reporting period and any steps taken to address the complaints;
 - (g) a summary of all *By-pass* , spill or abnormal discharge events; and
 - (h) any other information the *District Manager* requires from time to time.

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

1. Condition 1 is imposed to ensure that the *Works* are built and operated in the manner in which they were described for review and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the *Approval* 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 *Approval* the existence of this *Approval* .
2. Condition 2 is included to ensure that, when the *Works* are constructed, the *Works* will meet the standards that apply 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 *Approval* 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 indicate that by-passes of untreated sewage to the receiving watercourse is prohibited, save in certain limited circumstances where the failure to *By-pass* could result in greater injury to the public interest than the *By-pass* itself where a *By-pass* will not violate the approved leachate requirements, or where the *By-pass* can be limited or otherwise mitigated by handling it in accordance with an approved contingency plan. The notification and documentation requirements allow the *Ministry* to take action in an informed manner and will ensure the *Owner* is aware of the extent and frequency of *By-pass* events.
6. Conditions 6 and 8 are included to enable the *Owner* to evaluate and demonstrate the performance of the *Works* , on a continual basis, so that the *Works* are properly operated and maintained at a level which is consistent with the design objectives specified in the *Approval* and that the *Works* does not cause any impairment to the receiving watercourse.

7. Conditions 7 and 9 are included to require that the *Works* be properly operated, maintained, funded, staffed and equipped such that the environment is protected and deterioration, loss, damage to any property or injury to any person 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* .
8. Condition 10 is included to provide a performance record for future references, to ensure that the *Ministry* is made aware of problems as they arise, and to provide a compliance record for all the terms and conditions outlined in this *Approval*, so that the *Ministry* can work with the *Owner* in resolving any problems in a timely manner.

SCHEDULE 'A'

1. Application for the sewage works dated March 20, 1990, signed by 171496 Canada Inc., F.C. Ford, P. Eng., Henderson, Paddon and Associates and Township of Richmond.
2. Report entitled "Tricil Limited Landfill site parts of Lots 1, 2 and 3, Concession IV, Township of Richmond, County of Lennox and Addington" dated September 1988, prepared by Henderson Paddon and Associates Limited.
3. Letter dated July 19, 1990, signed by Dick Van Wyck, Legal Counsel, Laidlav Waste System, addressed to Ranee Mahalingam, Review Engineer, Ministry of the Environment.
4. Letter dated September 6, 1990, signed by J. M. Tomlinson. P.Eng., Henderson Paddon and Associates Limited, addressed to Ranee Mahalingam, Approvals Branch, Ministry of the Environment, together with revised section entitled "Stormwater management facilities" of the report entitled "Tricil Limited Landfill Site Parts of Lots 1, 2 and 3, Concession IV, Township of Richmond, County of Lennox and Addington" dated September 1988, prepared by Henderson Paddon and Associates Limited.
5. Letter dated September 6, 1990, signed by Jay Clark, P.Eng., Henderson Paddon and Associates Limited, addressed to Ranee Mahalingam, P. Eng., Review Engineer, Approvals Branch, Ministry of the Environment.
6. Letter dated April 29, 1991, signed by Ranee Mahalingam. P.Eng., Review Engineer, Approvals Branch, Ministry of the Environment, addressed to J. K. Tomlinson. P.Eng., Henderson Paddon and Associates Limited.
7. Letter dated May 23, 1991, signed by Jay Clark, P.Eng., Henderson Paddon and Associates Limited, addressed to Ranee Mahalingam, P.Eng., Review Engineer, Approvals Branch, Ministry of the Environment.

8. Minutes of the meeting held at Ministry of the Environment, 250 Davisville Avenue, Toronto, on June 25, 1991.
9. Letter dated July 24, 1991, signed by J. M. Tomlinson, P.Eng., Henderson Paddon and Associates Limited, addressed to Bruce W. Metcalfe, Surface Water Technologist, Southeastern Region, Ministry of the Environment.
10. Letter dated July 25, 1991, signed by Bruce W. Metcalfe, Surface Water Technologist, Southeastern Region, Ministry of the Environment, addressed to J. M. Tomlinson, P.Eng., Henderson Paddon and Associates Limited.
11. Letter dated July 29, 1991, signed by J. M. Tomlinson, P. Eng., Henderson Paddon and Associates Limited, addressed to Rane Mahalingan, Approvals Branch, Ministry of the Environment, enclosing a copy of the revised application and revised drawings No. 8570A (1, 2, 3, 4) and 8570 -7.
12. Application for Approval of Sewage Works dated May 19, 2011, submitted by Waste Management of Canada and prepared by Genivar Inc., Owen Sound, Ontario.

SCHEDULE 'B'

1. "Final Report - 2007 Annual Monitoring Report, Waste Management of Canada Richmond Landfill, Town of Napanee, Ontario" dated March 2008, prepared by Water and Earth Science Associates Ltd. (WESA), Kingston, Ontario.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 5268-7E8LJW issued on August 19, 2008

In accordance with Section 139 of the Environmental Protection Act, 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 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance 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.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

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, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of
Part II.1 of the Environmental Protection 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) 212-6349, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 10th day of January, 2012



Ian Parrott, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

SH/

c: District Manager, MOE Kingston - District
Jeff Armstrong, GENIVAR Inc.

APPENDIX

A-3

*CERTIFICATE OF APPROVAL
(INDUSTRIAL SEWAGE) NO. 4 – 0129-
64-956 (OIL/SEDIMENT
INTERCEPTOR), DATED JANUARY
24, 1995*



Ministry of
Environment
and Energy

Ministère de
l'Environnement
et de l'Énergie

CERTIFICATE OF APPROVAL
INDUSTRIAL SEWAGE
NUMBER 4-0129-94-956

Page 1 of 3

Laidlaw Waste Systems (Canada) Ltd.
3410 South Service Road
Burlington, Ontario
L7R 3Y8

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

Establishment of sewage works for the collection, transmission, treatment and disposal of stormwater from Laidlaw Landfill, Richmond Township, Ontario, consisting of the following:

- collection and transmission of stormwater and other drainage from a petroleum hydrocarbon contaminated soils storage area of 3,200 square metres, with collected drainage discharging at a maximum rate of 15,000 Litres per hour, via a catch basin and 150 millimetre diameter piping to a three chambered oil/sediment interceptor,
- one oil interceptor with three interconnected chambers, with each chamber having dimensions of 1.15 metres length, 1.34 metre width, and a liquid depth of 0.925 metres, discharging via 150 millimetre diameter piping to the sediment control ditch leading to the downstream sedimentation pond,
- all other controls, electrical equipment, instruments, piping, pumps, valves and appurtenances essential for the proper operation of the aforementioned sewage works,

all in accordance with the Application for Approval of Industrial Sewage Works dated November 11, 1994 signed by J. Pullen, P.Eng. (Regional Manager, Engineering and Compliance), Laidlaw Waste Systems (Canada) Ltd. ("the Owner"), and all supporting documentation and information.

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

TERMS AND CONDITIONS

1. OPERATION

- (1) The Owner shall prepare a draft operations manual prior to the commencement of operation of the works and shall revise and implement the operations manual within six (6) months of the commencement of operation of the works.



Ministry of
Environment
and Energy

Ministère de
l'Environnement
et de l'Énergie

CERTIFICATE OF APPROVAL
INDUSTRIAL SEWAGE
NUMBER 4-0129-94-956

Page 2 of 3

- (2) The Owner shall ensure that both the draft and revised manuals include as a minimum:
- (a) operating procedures for routine operation of the works, including but not limited to, routine inspection of the oil interceptor chambers, and removal of accumulating solid and liquid wastes;
 - (b) operating procedures for operation of the works during spills, fires, equipment malfunction, power outages, and other emergency or abnormal operating conditions, including notification procedures for the Ministry;
 - (c) best management practices to minimize contaminant discharges to the oil interceptor; and,
 - (d) any other procedures the Owner deems necessary for the proper operation of the works.
- (3) The Owner shall maintain the operations manual, as revised from time to time, at the location of the works for so long as it is in operation, and shall make the manual available to Ministry personnel for inspection and copying, upon request.
- (4) The Owner shall keep the operations manual up to date through revisions undertaken from time to time, so as to reflect any changes in described operation and maintenance procedures for the works or any newly introduced operation and maintenance procedures made necessary by good engineering practice, this certificate or the requirements of the Ministry.

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

1. Condition No. 1 is included to ensure certain operation procedures are followed to prevent deleterious effects on the environment.

You may by written notice served upon me and the Environmental Appeal Board within 15 days after receipt of this Notice, require a hearing by the Board. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, Chapter O.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.



Ministry of
Environment
and Energy

Ministère de
l'Environnement
et de l'Énergie

Ontario

CERTIFICATE OF APPROVAL
INDUSTRIAL SEWAGE
NUMBER 4-0129-94-956
Page 3 of 3

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 sewage works are located;

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

This Notice must be served upon:

The Secretary,
Environmental Appeal Board,
112 St. Clair Avenue West,
Suite 502,
Toronto, Ontario.
M4V 1N3

AND

The Director,
Section 53, Ontario Water Resources Act,
Ministry of Environment and Energy,
250 Davisville Avenue, 3rd Floor,
Toronto, Ontario.
M4S 1H2

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

DATED AT TORONTO this 24th day of January 1995

R. P. Cornelius
R. P. Cornelius, P. Eng.
Director
Section 53
Ontario Water Resources Act

AA/pm

cc District Manager, MOEE Kingston District Office

APPENDIX

A-4

*CERTIFICATE OF APPROVAL NO.
A710003 (SOIL RECYCLING), DATED
DECEMBER 20, 1993*



PROVISIONAL CERTIFICATE OF APPROVAL
FOR A WASTE DISPOSAL SITE

CERTIFICAT D'AUTORISATION PROVISOIRE
DE DÉCHARGE

Provisional Certificate Number A710003
Certificat provisoire no.

Page 1 of 13
de

Under the Environmental Protection Act and Regulations, and subject to the limitations thereof, this Provisional Certificate of Approval is issued to:
Aux termes de la Loi sur la protection de l'environnement et des règlements et sous réserve des restrictions qui y sont stipulées, le présent certificat provisoire d'autorisation est délivré à:

Laidlaw Waste Systems (Canada) Ltd.
3410 South Service Road
BURLINGTON, Ontario
L7R 3Y8

the use and operation of a waste processing facility

..ll in accordance with the plans and specifications:

1. Application for a Certificate of Approval for a Waste Disposal Site (Processing) dated August 30, 1993.
2. Letter from Laidlaw Waste Systems Ltd. to the Ministry of Environment and Energy, dated July 12, 1993, briefly describing the proposal for recycling petroleum contaminated soils and listing supporting documentation.
3. Letter from Laidlaw Waste Systems Ltd. to the Ministry of Environment and Energy, dated July 12, 1993, explaining the soil recycling process. Supporting information includes District Office Notification Form - Mobile Soil Reclamation, Certificate of Insurance, letter of credit, site plan and layout drawings, and detail drawings of sediment/oil interceptor system for quality control of leachate run-off.
4. Letter and supporting documentation from Laidlaw Waste Systems Ltd. to the Ministry of Environment and Energy dated November 5, 1993 providing additional information on emergencies and contingencies, public information (including public notice and newspaper advertisement), hours of operation, and a monitoring plan for the soil storage pad at the Laidlaw landfill site in Richmond Township.

PROVISIONAL CERTIFICATE OF APPROVAL
FOR A WASTE DISPOSAL SITE

CERTIFICAT D'AUTORISATION PROVISOIRE
DE DÉCHARGE

Provisional Certificate Number A710003
Certificat provisoire no.

Page 2 of 13
de

5. Memo to the Ministry of Environment and Energy from Laidlaw Waste Systems Ltd. dated November 9, 1993, providing list of property owners which received a hand delivered public notice explaining the proposal.
6. Letter from the Richmond-Tyendinaga Environmental Association to the Ministry of Environment and Energy dated September 23, 1993 providing support for the soil recycling proposal.
7. Letter from the Township of Richmond to the Ministry of Environment and Energy dated October 8, 1993 and Resolution No. 316/93, dated October 4, 1993, providing Council's support for the proposal.

Ontario Ministry of Environment and Energy Provisional Certificate of Approval for a Waste Disposal Site A210222 dated September 18, 1992, or as amended.

8. Ontario Ministry of Environment and Energy Provisional Certificate of Approval for a Waste Management System A840681 dated March 18, 1992, or as amended.
9. Ontario Ministry of Environment and Energy Certificate of Approval (Air) Number 8-3212-88-919 dated April 23, 1992, or as amended.

located in: Township of Richmond
Part of Lot 2, Concession IV
(Beechwood Road)

and is subject to the following definitions and conditions:

definitions:

"certificate" means the entire certificate of approval including its schedules, if any, issued in accordance with Section 27, Part V of the Environmental Protection Act;

PROVISIONAL CERTIFICATE OF APPROVAL
FOR A WASTE DISPOSAL SITE

CERTIFICAT D'AUTORISATION PROVISOIRE
DE DÉCHARGE

Provisional Certificate Number A710003
Certificat provisoire no.

Page 3 of 13
de

"Director" means Director of the Southeastern Region of the Ministry or his appointee;

"District Manager" means the District Manager of Kingston District Office, Southeastern Region of the Ministry;

"Ministry" means the Ontario Ministry of Environment and Energy;

"Owner" means Laidlaw Waste Systems (Richmond) Ltd.;

"Operator" means Laidlaw Waste Systems (Canada) Ltd.; its officers, employees, agents or contractors;

"Site" means the area(s) on landfill site, Certificate of Approval No. .371203, to be used by the processing facility described in this Certificate.

General Conditions

1. The requirements of this Certificate are imposed pursuant to Part V of the Environmental Protection Act. The issuance of this Certificate in no way abrogates the operator's legal obligations to take all reasonable steps to avoid violating other applicable provisions of this legislation and other legislation and regulations.
2. (1) 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, the application of such requirement to other circumstances and the remainder of this Certificate shall not be affected thereby.

(2) In all matters requiring the interpretation and implementation of this Certificate, the conditions of the certificate shall take precedence, followed in descending order by the application and the documentation, referred to in this Certificate, which is submitted in support of the application.

PROVISIONAL CERTIFICATE OF APPROVAL
FOR A WASTE DISPOSAL SITE

CERTIFICAT D'AUTORISATION PROVISOIRE
DE DÉCHARGE

Provisional Certificate Number A710003
Certificat provisoire no.

Page 4 of 13
de

3. The operator must ensure compliance with all the terms and conditions of this Certificate. Non-compliance constitutes a violation of the Environmental Protection Act and is grounds for enforcement.
4.
 - (1) The operator shall, forthwith upon the request of the Director or District Manager, furnish any information requested concerning compliance with this Certificate including any records required to be kept by this Certificate.
 - (2) In the event the operator provides to the Ministry information, records, documentation of notification in accordance with this Certificate,
 - (a) the receipt of said information by the Ministry;
 - (b) the acceptance by the Ministry of the information's completeness or accuracy; or,
 - (c) the failure of the Ministry to prosecute the operator, or to require the operator to take any action, under this Certificate of any statute or regulation in relation to said information;

shall not be construed as the approving, excusing or justifying by the Ministry of any act or omission of the operator relating to said information, amounting to non-compliance with this Certificate or any statute or regulation.

 - (3) All records referred to in this Certificate shall be retained on file in a secure manner for a period not less than two years.
5. The owner/operator shall allow Ministry personnel, or a Ministry authorized representative(s) to:
 - (1) carry out any and all inspections authorized by Section 156, 157 or 158 of the Environmental Protection Act, as amended from time to time, of any place to which this Certificate relates; and, without restricting the generality of the foregoing, to:

PROVISIONAL CERTIFICATE OF APPROVAL
FOR A WASTE DISPOSAL SITE

CERTIFICAT D'AUTORISATION PROVISOIRE
DE DÉCHARGE

Provisional Certificate Number A710003
Certificat provisoire no.

Page 5 of 13
de

- (a) enter at reasonable times upon the premises, or the location where the records required by the conditions of this Certificate are kept;
 - (b) have access to and copy, at reasonable times, any records required by the conditions of this Certificate;
 - (c) inspect at reasonable times any facilities, equipment, practices, or operations required by the conditions of this Certificate; and
 - (d) sample and monitor at reasonable times for the purpose of assuring compliance with the conditions of this Certificate.
6. (1) The owner/operator shall notify the District Manager in writing of any change in ownership, name of corporation, the operator, or termination of the facility within 30 days of the change occurring.
- (2) In the event the facility is permanently closed a Provincial Officer shall inspect the site and the site shall not be used for any other purpose prior to the inspection and written clearance by the District Manager.
- (3) The operator shall ensure that all communications made pursuant to this condition will refer to this Certificate's number.
7. (1) In accordance with Section 19(4) of the Environmental Protection Act this Certificate, the application filed to obtain and documentation referred to in the certificate which may be reasonably necessary for a proper reading and understanding of it, with the exclusion of those documents marked "confidential" by the operator shall be made available for public inspection at the request of any person.
- (2) Additional information to that set out in subcondition (1) relating to this Certificate and contained in Ministry files may be made available to the public in accordance with the provisions of the Freedom of Information and Protection of Privacy Act.

PROVISIONAL CERTIFICATE OF APPROVAL
FOR A WASTE DISPOSAL SITE

CERTIFICAT D'AUTORISATION PROVISOIRE
DE DÉCHARGE

Provisional Certificate Number A710003
Certificat provisoire no.

Page 6 of 13
de

8. Except as specified in this Certificate the site shall be operated in accordance with the application for this Provincial Certificate of Approval dated August 30, 1993 and its supporting information described in items 1 to 10 on pages 1 and 2 of this Certificate.
9. (1) The operation of this site is limited to the storage and processing of non hazardous waste soils contaminated with petroleum hydrocarbons, liquid waste classes 211, 212, 213; 221, 222, 251, 252, 253 and 254 as defined in the Ministry of the Environment "New Ontario Waste Classes" document, dated January, 1986 from the Province of Ontario.

(2) No wastes other than those listed in subcondition (1) shall be collected and stored at this site without amendment to this Certificate.

(3) No wastes contaminated with halogenated organics, including PCBs, with concentrations greater than two (2) micrograms per grams shall be accepted at this site.

(4) No waste mixing or diluting with uncontaminated soil shall occur at the site. No waste mixed or diluted with uncontaminated soil shall be accepted at the site.

(5) No users outside the areas listed in subcondition (1) shall use this site without amendment to this Certificate.
10. (1) The operator shall ensure that site personnel, trained in contingency measures are on duty at all times during normal operating hours or during any additional hours the facility may be open. Public access to the site shall be restricted.

PROVISIONAL CERTIFICATE OF APPROVAL
FOR A WASTE DISPOSAL SITE

CERTIFICAT D'AUTORISATION PROVISOIRE
DE DÉCHARGE

Provisional Certificate Number A710003
Certificat provisoire no.

Page 7 of 13
de

(2) All site personnel shall have practical knowledge of the waste material to be handled under this Certificate and shall be fully trained and knowledgeable about all aspects of the site operation including the requirements of this Certificate which relate to the work they are doing and their safety on the site.

(3) Prior to operating the site the operator shall prepare an operation manual for use by site personnel which shall contain, but not necessarily be limited to the following:

- (a) an outline of the responsibilities of site personnel;
- (b) operation and receiving procedures;
- (c) storage, handling, sorting and shipping procedures;
- (d) contingency procedures to be followed by personnel in the event of fire and other emergencies.

(4) A copy of the manual shall be placed in a central location on the site and this manual shall be accessible to all site personnel during operating hours.

(5) Within 30 days of the issuance date of this Certificate a copy of the operation manual shall be submitted to the District Manager.

11. (1) The operator shall establish a record system for all waste received at the site which shall include, but not necessarily be limited to, the documentation of quantities received and processed at the site each month; source of generation; receiving and shipping dates and volumes of wastes or processed soils shipped to approved markets, transfer/processing facilities and waste landfill sites; and documentation of environmental and other problems experienced in operating this site.

PROVISIONAL CERTIFICATE OF APPROVAL
FOR A WASTE DISPOSAL SITE

CERTIFICAT D'AUTORISATION PROVISOIRE
DE DÉCHARGE

Provisional Certificate Number A710003
Certificat provisoire no.

Page 8 of 13
de

(2) The information collected under subcondition (1) shall be submitted in a report to the District Manager on or before the first day of December during each year of operation or until the Director or the District Manager has given notice in writing that these submissions are no longer required.

12. (1) The operator shall ensure that the site is operated in a safe and secure manner; that the operation of this site does not impede or is impeded by the landfilling operation on which this site is located; and that the wastes are properly handled, contained, stored, tested and processed at the site; so as not to pose a threat to the general public, site personnel and the environment.

(2) The operator shall ensure that wastes received at the facility are processed and moved from the site to approved markets, processing facilities and landfill sites on a regular basis; and that waste processing does not exceed 5,000 tonnes per day and waste storage on site does not exceed 40,000 tonnes.

(3) Notwithstanding Condition 1 the operator shall ensure that the processing operation is in compliance with noise, hours of operation, fire regulations and any other applicable by-laws of the local municipality/regional governments; and the requirements of Ontario Provisional Certificate of Approval for a Waste Disposal Site A210222; and Ontario Provisional Certificate of Approval for a Waste Management System A840681 described in items 8 and 9 on page 2 of this Certificate.

(4) The operator shall take all necessary measures possible to contain and minimize all emissions, including air emissions caused by the operation of the processing equipment, waste storage and the processed soil storage; and shall comply with Ontario Certificate of Approval (Air) 8-3212-88-919 described in item 10 on page 2 of this Certificate; and all other applicable legislation governing emissions.

(5) Any waste water collected in the catchment basin for the soil storage pad described in item 3 on page 1 of this Certificate shall be disposed of in a proper manner under Section 53 of the Ontario Water Resources.

PROVISIONAL CERTIFICATE OF APPROVAL
FOR A WASTE DISPOSAL SITE

CERTIFICAT D'AUTORISATION PROVISOIRE
DE DÉCHARGE

Provisional Certificate Number A710003
Certificat provisoire no.

Page 9 of 13
de

- (6) Only waste processing equipment as approved under Certificates of Approval A210222 and 8-3212-88-919 described in items 8 and 10 on page 2 of this Certificate shall be used at this site.
13. The local fire department shall be informed of the processing facility and this Certificate.
14. (1) Processed waste which contains Total Volatile Hydrocarbons above (100) micrograms per gram which are not reprocessed or soil waste which is not processed shall be taken from the site for disposal to approved landfill sites or to approved transfer or processing sites for further processing shall be transported under a approved waste management system.
- (2) Testing of waste soils and processed soils on this site shall be carried out as specified in Certificates of Approval A210222 and 8-3212-88-919 described in items 8 and 10 on page 2 of this Certificate.
15. This Certificate expires with the termination of the site; when all the wastes have been removed from the site; and the restoration of the site has been approved, in writing, by the District Manager.
16. (1) Within 90 days of the date of this Certificate the operator shall provide financial security for the closure of the site in an amount acceptable to the Director. The security can be in the form of a fund, bond, an irrevocable letter of credit or any other form as may be acceptable to the Director. The amount of financial assurance shall be established based on current costs for cleaning up the site and the assessed value of the fund, bond, or letter of credit shall be approved by the Director, in writing, before being submitted to the Ministry. The assessed value submitted to the Director for approval shall be an independent estimate which shall include, but not necessarily be limited to:

PROVISIONAL CERTIFICATE OF APPROVAL
FOR A WASTE DISPOSAL SITE

CERTIFICAT D'AUTORISATION PROVISOIRE
DE DÉCHARGE

Provisional Certificate Number A710003
Certificat provisoire no.

Page 10 of 13
de

- i) trucking, disposal and labour costs for removal of all waste from the site;
- ii) costs of equipment dismantling and cleaning on the site.
- iii) any legal and contractual costs associated with the closure of the site.

(2) In the event the financial assurance is scheduled to expire or notice is received that it will not be renewed and a replacement in a form satisfactory to the Director is not received at least 60 days before the expiry or renewal date, the operator shall forthwith replace it with a cash deposit.

(3) The operator shall review the closure costs as specified in subcondition (1) on a yearly basis and shall increase, or may decrease the financial assurance when instructed, in writing, by the Director. A copy of the review assessment shall be provided in the report specified in Condition 11(2).

(4) The operator shall at all times while the site is operating maintain the ten million dollars (\$10,000,000) third party liability insurance described in item 3 on page 1 of this Certificate and a copy of the policy shall be submitted to the Director within 30 days of the date of this Certificate.

17. The obligations imposed by the terms and conditions of this Certificate of Approval are obligations of due diligence.

The reasons for the imposition of these condition are as follows:

1. Conditions 1, 2, 3, 4 and 7 are to clarify the legal rights and obligations of this Provisional Certificate of Approval.

PROVISIONAL CERTIFICATE OF APPROVAL
FOR A WASTE DISPOSAL SITE

CERTIFICAT D'AUTORISATION PROVISOIRE
DE DÉCHARGE

Provisional Certificate Number A710003
Certificat provisoire no.

Page 11 of 13
de

2. Condition 5 is to ensure that the appropriate Ministry staff have ready access to the waste disposal site to inspect the operations that are approved under this Provisional Certificate of Approval. The condition is supplementary to the powers of entry afforded a Provincial Manager pursuant the Environmental Protection Act, as amended.
3. Conditions 6, 8 and 15 are to ensure that the waste disposal site is operated in accordance with the application for this Certificate and supporting information and not under any name or in any way which the Director has not been asked to consider; and to ensure the property is cleaned up and restored to the satisfaction of the Ministry prior to closure.
4. Condition 9 is to ensure that this site is used only to collect, handle and transport waste within the limitations approved under this Provisional Certificate of Approval.
5. Conditions 10 and 12 are to ensure that the waste recycling site is properly managed in an organized manner by adequately trained persons, in order to prevent environmental detriment; and to ensure the safety of the general public and site personnel.
6. Condition 11 is to provide both the operator and the Ministry of Environment and Energy with an assessment of the waste recycling site.
7. Condition 13 is to ensure fire personnel are informed of the this waste processing site and the type of waste which is stored on this site.
8. Condition 14 is to ensure that the collection, handling, and transportation of all waste materials are conducted in an environmentally acceptable manner in accordance with provincial regulations.

PROVISIONAL CERTIFICATE OF APPROVAL
FOR A WASTE DISPOSAL SITE

CERTIFICAT D'AUTORISATION PROVISOIRE
DE DÉCHARGE

Provisional Certificate Number A710003
Certificat provisoire no.

Page 12 of 13
de

9. Condition 16 is to ensure funds are available from the operator for site closure in the event the site needs to be closed and the operator is not able to do the work; and to clean up any environmental impairment should the operator be unable or refuse to do so. The use and operation of the site without this condition would not be in the public interest.
10. Condition 17 is required to clarify that the terms and conditions of this Certificate of Approval impose a standard of due diligence and not absolute liability.

You may, by written notice served upon me and the Environmental Appeal Board within 15 days after receipt of this Certificate, require a hearing by the Board. Section 142 of the Environmental Protection Act, R.S.O. 1990 c. E-19, as amended, provides that the notice requiring the hearing shall state:

1. The portion 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.

In addition to these legal requirements, the notice should 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.

PROVISIONAL CERTIFICATE OF APPROVAL
FOR A WASTE DISPOSAL SITE

CERTIFICAT D'AUTORISATION PROVISOIRE
DE DÉCHARGE

Provisional Certificate Number A710003
Certificat provisoire no.


Page 13 of 13
de

This notice should be served upon:

The Secretary
Environmental Appeal Board
112 St. Clair Avenue West
5th Floor
TORONTO, Ontario
M4V 1N3

AND The Director
Section 39, E.P.A.
Ministry of Environment and Energy
133 Dalton Avenue, Box 820
KINGSTON, Ontario
K7L 4X6

ated at Kingston this 20th day of December, 1993.



Director
Section 39, E.P.A.
Ministry of Environment and Energy

(Pour obtenir une copie du present document certificat en francais,
communiquer le Ministère de l'Environnement et de l'Énergie 613
549-4000.)

APPENDIX

A-4-1 *AMENDMENT TO CERTIFICATE OF APPROVAL NO. A710003 DATED AUGUST 25, 1999, REGARDING NOTIFICATION OF CHANGE OF NAME*



Ministry of the Environment
Ministère de l'Environnement

NOTICE
Page 1 of 2

Canadian Waste Services Inc.
1275 North Service Road, Suite 700
Oakville, Ontario
L6M 3G4

You are hereby notified that the Provisional Certificate of Approval No. A 710003, dated December 20, 1993, which was issued to Laidlaw Waste Systems (Canada) Ltd., as amended, is further amended as follow:

The Name and Address of the Company have changed:

FROM: Laidlaw Waste Systems (Canada) Ltd.
3410 South Service Road
Burlington, Ontario
L7R 3Y8

TO: Canadian Waste Services Inc.
1275 North Service Road, Suite 700
Oakville, Ontario
L6M 3G4

The following definitions in "Definitions" are revoked and replaced with:

"Operator" means Canadian Waste Services Inc.; its officers, employees, agents or contractors; and

"Owner" means Canadian Waste Services Inc.

The list of Plans and Specifications is hereby amended, by adding the following:

1. Letter and its attachment dated June 22, 1999, from Michael J. Pullen, Director, Canadian Waste Services Inc., to Geoff Carpentier, Ministry of the Environment (MOE), notifying the Ministry of a change in Corporate name, address and providing list of their officers.

The reason for the imposition of these conditions is as follows:

1. The reason for the above changes is to acknowledge the letter regarding the notification of name and address change, dated June 22, 1999.

All other conditions on the original Certificate and as amended, not affected by this amendment, remain in effect.



In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990 c. E-19, you may by written notice served upon me and the Environmental Appeal Board within 15 days after receipt of this Notice, require a hearing by the Board. Section 142 of the Environmental Protection Act, as amended provides that the Notice requiring a 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.

In addition to these legal requirements, 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 waste disposal site is located;

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

This Notice must be served upon:

The Secretary,*
Environmental Appeal Board,
2300 Yonge St., 12th Floor,
P.O. Box 2382
Toronto, Ontario.
M4P 1E4

AND

The Director,
Section 39, Environmental Protection Act,
Ministry of the Environment,
250 Davisville Avenue, 3rd Floor,
Toronto, Ontario.
M4S 1H2

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

DATED AT TORONTO this 25th day of August, 1999.

A. Dominski, P. Eng.
Director
Section 39
Environmental Protection Act

MK/lf
c: District Manager, Kingston

APPENDIX

A-4-2 *AMENDMENT TO CERTIFICATE OF APPROVAL NO. A710003 DATED MARCH 26, 2004, REGARDING NOTIFICATION OF CHANGE OF NAME*

Ministry of the Environment
 Environmental Assessment and
 Approvals Branch
 Floor 12A
 2 St Clair Ave W
 Toronto ON M4V 1L5
 Fax: (416)314-8452
 Telephone: (416) 314-7902

Ministère de l'Environnement
 Direction des évaluations et des
 autorisations environnementales
 Étage 12A
 2 av St Clair O
 Toronto ON M4V 1L5
 Télécopieur: (416)314-8452
 Téléphone : (416) 314-7902



March 26, 2004

Jessica Campbell, Director, Regulatory Affairs & Environmental Compliance
 Waste Management of Canada Corporation
 5045 South Service Road, Suite 300
 Burlington, Ontario
 L7L 5Y7

Dear Sir/Madam:

Re: Notification of Change of Name
MOE Reference Number 9673-5XFSHB

The Ministry of the Environment (the "Ministry") acknowledges receipt of your letter dated February 2, 2004 requesting a change in company name:

FROM: Canadian Waste Services Inc.

TO: Waste Management of Canada Corporation

By this letter, the Ministry advises you that your notification of change in company name has been registered in our records for the following Certificate(s) of Approval:

Certificate(s) of Approval for Waste Disposal Sites, Section 27, EPA:

A230901 East Gwillimbury
 A230701 Hwy 48
 A230201 Aurora
 A032006 Blackwell LF
 A380103 Kingston - St. Remy Place
 A100144 Brant St. Hamilton
 A620042 Sarina MacGregor Rd.
 A210237 Mavis, Mississauga
 A031810 LaSalle LF
 A021601 Ridge LF
 8602-4HQQZW Trenton, Chester Rd.
 A253001 Tecumseth LF
 A100130 Lottridge - Hamilton

A440109 California Ave. - Brockville
A120138 Cushman Rd. - St. Catharines
A030309 Petrolia MRF
A140327 Conrad Place, Waterloo
A580730 Timmins - De Loro
A580731 Timmins - Ogden
A580732 Timmins - German
A170404 Mount Forest - Sligo Rd.
A100139 Lansdowne Ave - Hamilton
A450707 Carleton Place
A010128 Maidstone
A230615 Bowes Rd.
A680243 Esandar
A210622 Brydon
A461002 Ottawa LF
A032203 Warwick LF
A030303 Petrolia LF
A021603 Blenheim LF
A040213 Exeter Rd. - London
A280229 Unwin
A210328 New Toronto
4458-5QTLS3 Timmins MRF
A250111 Saunders Rd - Barrie
1308-5HNR6 Wentworth - Brampton
A371203 Richmond LF
A710003 Richmond LF

The Ministry will not be providing you with an amended certificate(s) to reflect the change in company name. Therefore, this letter must be appended to its corresponding Certificate(s) of Approval. The name change will be included in any future amended Certificate(s) of Approval.

If you have any questions regarding the above, please contact me at the above phone number.

Yours truly,

Sanja Jankovic
Sanja Jankovic
Application Processor

cc: District Manager, MOE York-Durham
District Manager, MOE, Sarnia
District Manager, MOE Kingston
District Manager, MOE Hamilton
District Manager, MOE Halton-Peel
District Manager, MOE Peterborough

District Manager, MOE Barrie
District Manager, MOE Niagara
District Manager, MOE Guelph
District Manager, MOE Timmins
District Manager, MOE Ottawa
District Manager, MOE Toronto
District Manager, MOE London
Area Manager, MOE Windsor
Area Manager, MOE Belleville

File Storage Number: 230901, 230701, 230201, 032006, 380103, 100144, 620042, 210237,
031810, 021601, 0209, 253001, 100130, 440109, 120138, 030309, 140327, 580730, 580731,
580732, 170404, 100139, 450707, 010128, 230615, 680243, 210622, 461002, 032203, 030303,
021603, 040213, 280229, 210328, 0822, 250111, 0611, 371203

APPENDIX

A-5

*ENVIRONMENTAL COMPLIANCE
APPROVAL (AIR) NO. 5970-9HKP3V
(LANDFILL GAS COLLECTION AND
FLARING SYSTEM, INCLUDING
CANDLESTICK FLARE) DATED APRIL
29, 2014*


AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

 NUMBER 5970-9HKP3V
 Issue Date: April 29, 2014

 Waste Management of Canada Corporation
 117 Wentworth Crt
 Brampton, Ontario
 L6T 5L4

Site Location: Richmond Landfill
 1271 Beechwood Road, RR #6 Lots 1,2 and 3, Conc.4, Reference Plan 29R-6605, Geo. Twp. of Richmond
 Greater Napanee Town, County of Lennox and Addington
 K7R 3L1

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

- one (1) enclosed flare used to incinerate the landfill gases from an expanded landfill gas collection system to include landfill gas collection from a maximum of 54 landfill gas wells, 12 leachate manhole and 9 cleanouts, having a landfill gas burning capacity of 0.61 standard cubic metre per second with the combustible levels ranging from 30 to 55 percent by volume. The flare has a maximum heat input of 41 gigajoules per hour, exhausting into the atmosphere through a stack, having an exit diameter of 2.1 metres, extending 12.2 metres above grade;
- one (1) backup candlestick flare used to incinerate the landfill gases from an expanded landfill gas collection system, having a landfill gas burning capacity of 0.354 cubic metres per second with the combustible levels ranging from 30 to 50 percent by volume, exhausting into the atmosphere through a stack, having an exhaust tip diameter of 0.15 metres, extending 6.7 metres above grade;

all in accordance with the Application for Approval (Air & Noise) submitted by Waste Management of Canada Corporation, dated August 5, 2011 and signed by Reid Cleland, Director of Disposal Operations; and the supporting information, including the Emission Summary and Dispersion Modelling Report, submitted by Comcor Environmental Limited, dated September 16, 2011 and signed by Jonathan Petsch, and additional information provided by Comcor Environmental Limited, dated March 21, 2014, and signed by Jonathan Petsch.

For the purpose of this environmental compliance approval, the following definitions apply:

1. "Approval" means this Environmental Compliance Approval, including the application and supporting documentation listed above.
2. "CEM System" means the continuous monitoring and recording system used to optimize the operation of the Equipment to minimize the emissions from the Equipment, as described in the Company's application, this Approval, including Schedule "A", and in the supporting documentation referred to herein, to the extent approved by this Approval;
3. "Company" means Waste Management of Canada Corporation that is responsible for the construction or operation of the Facility and includes any successors and assigns.
4. "District Manager" means the District Manager of the appropriate local district office of the Ministry, where the Facility is geographically located.
5. "EPA" means the Environmental Protection Act, R.S.O. 1990, c.E.19, as amended.
6. "Equipment" means the equipment and processes described in the Company's application, this Approval and in the

CONTENT COPY OF ORIGINAL

supporting documentation referred to herein, to the extent approved by this Approval.

7. "Facility" means the entire operation on the property where the Equipment is located.

8. "Manual" means a document or a set of documents that provides written instructions to staff of the Company.

9. "Ministry" means the ministry of the government of Ontario responsible for the EPA and includes all officials, employees or other persons acting on its behalf.

10. "Publication NPC-232" means the Ministry Publication NPC-232, "Sound Level Limits for Stationary Sources in Class 3 Areas (Rural)", October, 1995, as amended.

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

TERMS AND CONDITIONS

PERFORMANCE REQUIREMENTS

1. The Company shall ensure that the noise emissions from the Facility comply with the limits determined in accordance with Publications NPC-232.

2. The Company shall operate the Equipment in such a manner that the minimum temperature shall be 900 degrees Celsius at a point representing a minimum retention time of 0.75 second, at all times the landfill gases are flowing to the enclosed flare system.

3. The Company shall operate the Equipment in such a manner that a flame is present at all times when landfill gases are flowing to the candlestick flare system.

OPERATION AND MAINTENANCE

4. The Company shall ensure that the Facility and the Equipment, including the CEM System, is properly operated and maintained at all times. The Company shall:

(1) prepare, not later than three (3) months after the date of this Approval, and update, as necessary, a Manual outlining the operating procedures and a maintenance program for the Facility and the Equipment, including:

(a) routine operating and maintenance procedures in accordance with good engineering practices, and as recommended by the Equipment and CEM System supplier;

(b) emergency procedures;

(c) procedures for any record keeping activities relating to the operation and maintenance of the Facility and the Equipment, including the CEM System;

(d) all appropriate measures to minimize noise and odourous emissions from all potential sources;

(e) periodic inspection of the Equipment which is to be conducted by individuals experienced with the Equipment; and timetables for work to be carried out;

(f) procedures for recording and responding to environmental complaints relating to the operation of the Facility; and

(g) operator training which is to be provided by an individual experienced with the Equipment; and,

(2) implement the recommendations of the Manual;

RECORD RETENTION

5. The Company shall retain, for a minimum of two (2) years from the date of their creation, all records and information related to or resulting from the recording activities required by this Approval, and make these records available for review by staff of the Ministry upon request. The Company shall retain:

- (1) all records on maintenance, repair and inspection of the Facility, the Equipment, and the CEM System;
- (2) all records produced by the CEM System;
- (3) all records on operator training;
- (4) all records on the environmental complaints, including:
 - (a) a description, time and date of the incident;
 - (b) wind direction and other weather conditions at the time of the incident; and,
 - (c) a description of the measures taken to address the cause of the incident and to prevent a similar occurrence in the future, and the outcome of the measures taken; and,
- (5) all records of any upset conditions associated with the operation of the Equipment;

NOTIFICATION OF COMPLAINTS

6. The Company shall notify the District Manager, in writing, of each environmental complaint within two (2) business days of the complaint. The notification shall include:

- (1) a description of the nature of the complaint;
- (2) the time, date and location of the incident; and,
- (3) the wind direction and other weather conditions at the time of the incident;

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

- 1. Condition Nos. 1 to 3 inclusively are included to provide the minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the Facility.
- 2. Condition No. 4 is included to emphasize that the Facility must be maintained and operated according to a procedure that will result in compliance with the EPA, the regulations and this Approval.
- 3. Condition No. 5 is included to require the Company to keep records and to provide information to the Ministry so that compliance with the EPA, the regulations and this Approval can be verified.
- 4. Condition No. 6 is included to require the Company to notify/report to the Ministry so that compliance with the EPA, the regulations and this Approval can be verified.

SCHEDULE "A"

This Schedule "A" forms part of this Approval.

CONTENT COPY OF ORIGINAL

PARAMETER:	Temperature (enclosed flare system)						
LOCATION:	The sample point for the continuous temperature monitoring and recording system shall be located at a location in the combustion chamber where the minimum retention time of the combustion gases at a minimum temperature of 900 degrees Celsius for at least 0.75 second is achieved.						
PERFORMANCE:	The continuous temperature monitoring and recording system shall meet the following minimum performance specifications for the following parameters.						
	<table border="1"> <thead> <tr> <th>PARAMETERS</th> <th>SPECIFICATION</th> </tr> </thead> <tbody> <tr> <td>Type:</td> <td>shielded "K" type thermocouple, or equivalent</td> </tr> <tr> <td>Accuracy:</td> <td>±1.5 percent of the minimum gas temperature</td> </tr> </tbody> </table>	PARAMETERS	SPECIFICATION	Type:	shielded "K" type thermocouple, or equivalent	Accuracy:	±1.5 percent of the minimum gas temperature
PARAMETERS	SPECIFICATION						
Type:	shielded "K" type thermocouple, or equivalent						
Accuracy:	±1.5 percent of the minimum gas temperature						
DATA RECORDER:	The data recorder must be capable of registering continuously the measurement of the monitoring system without a significant loss of accuracy and with a time resolution of 1 minute or better.						
RELIABILITY:	The monitoring system shall be operated and maintained so that accurate data is obtained during a minimum of 95 percent of the time for each calendar quarter.						

PARAMETER:	Temperature (candlestick flare system)						
LOCATION:	The sample point for the continuous temperature monitoring and recording system shall be located as close to the combustion zone of the candlestick flare as possible.						
PERFORMANCE:	The continuous temperature monitoring and recording system shall meet the following minimum performance specifications for the following parameters.						
	<table border="1"> <thead> <tr> <th>PARAMETERS</th> <th>SPECIFICATION</th> </tr> </thead> <tbody> <tr> <td>Type:</td> <td>shielded "K" type thermocouple, or equivalent</td> </tr> <tr> <td>Accuracy:</td> <td>±1.5 percent of the minimum gas temperature</td> </tr> </tbody> </table>	PARAMETERS	SPECIFICATION	Type:	shielded "K" type thermocouple, or equivalent	Accuracy:	±1.5 percent of the minimum gas temperature
PARAMETERS	SPECIFICATION						
Type:	shielded "K" type thermocouple, or equivalent						
Accuracy:	±1.5 percent of the minimum gas temperature						
DATA RECORDER:	The data recorder must be capable of registering continuously the measurement of the monitoring system without a significant loss of accuracy and with a time resolution of 2 minutes or better.						
RELIABILITY:	The monitoring system shall be operated and maintained so that accurate data is obtained during a minimum of 95 percent of the time for each calendar quarter.						

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 1355-5LRN9N issued on May 8, 2003

CONTENT COPY OF ORIGINAL

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, 1993, S.O. 1993, c. 28 (Environmental Bill of Rights), the Environmental Commissioner, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance 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.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

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, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Environmental Commissioner
1075 Bay Street, Suite 605
Toronto, Ontario
M5S 2B1

AND

The Director appointed for the purposes of Part II.1 of
the Environmental Protection 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) 212-6349, Fax: (416) 314-4506 or www.ert.gov.on.ca**

This instrument is subject to Section 38 of the Environmental Bill of Rights, 1993, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at www.ebr.gov.on.ca, you can determine when the leave to appeal period ends.

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 29th day of April, 2014

Ian Greason, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

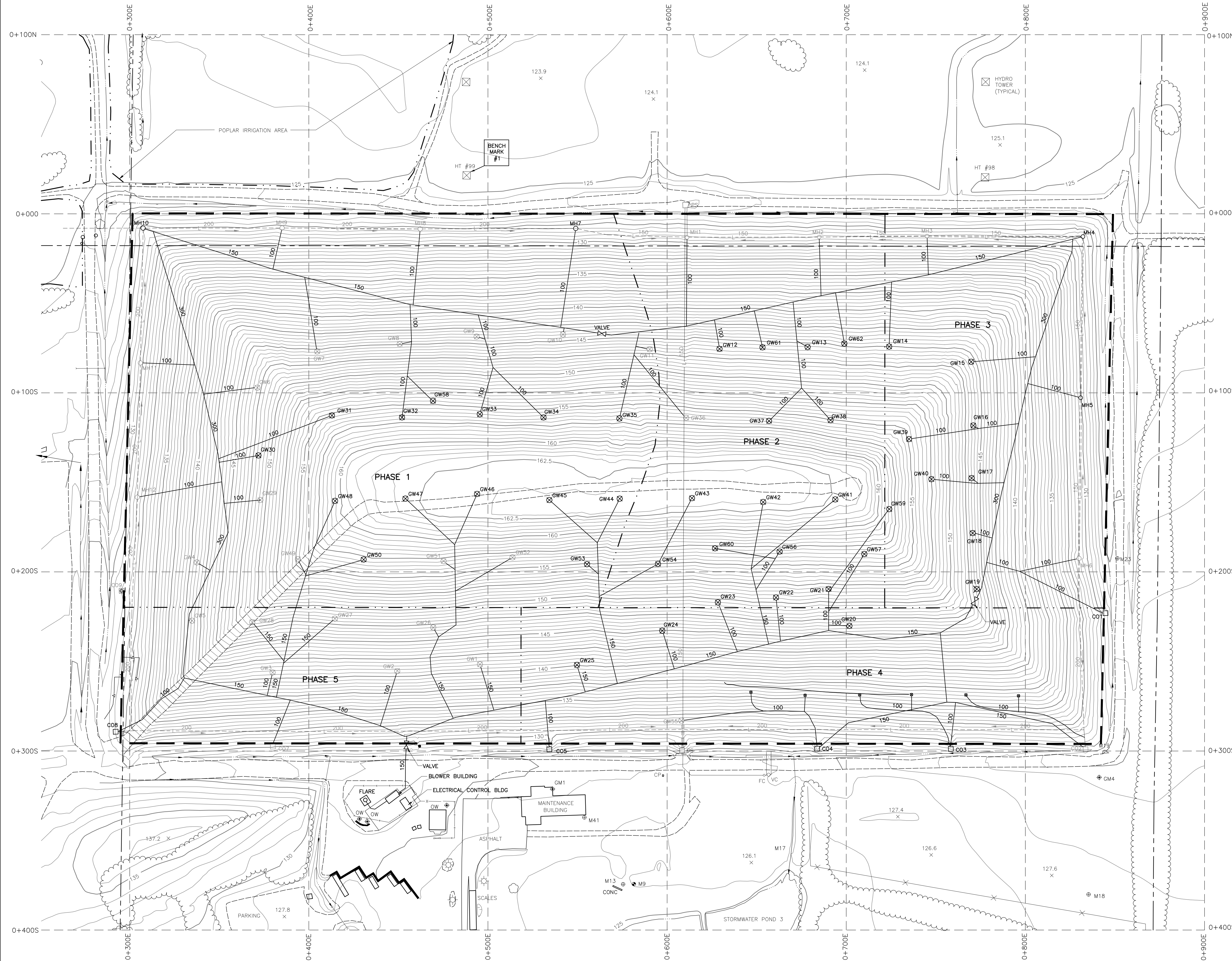
AB/
c: District Manager, MOE Kingston - District
Jonathan Petsch, Comcor Environmental Limited

APPENDIX

B

LANDFILL GAS COLLECTION
SYSTEM AS BUILT DRAWING
TO DECEMBER 2019

G:\1985\8570\DRAWINGS\2020\FINAL_8570_GAS_AS-BUILT to December 2019.dwg Mar 18, 2020 - 6:22am



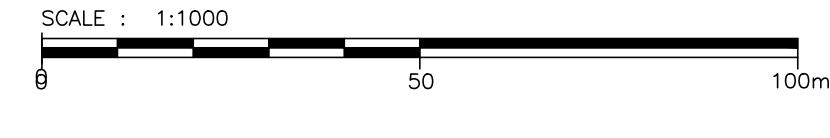
LEGEND:

- 125— EXISTING GROUND
- INTERIOR CONTOURS
- - - REFERENCE GRID LINE
- - - LEGAL BOUNDARIES
- - - APPROVED LIMIT OF LANDFILL
- - - EXISTING DRAINAGE DITCH
- - - EXISTING FENCE LINE
- - - EXISTING TREE LINE
- EXISTING TREE
- ⊗ HT #98 EXISTING HYDRO TOWER (ID #)
- EXISTING HYDRO POLE
- - - EXISTING ROAD EDGE
- MH3 EXISTING LEACHATE MANHOLE
- 150 EXISTING GAS HEADER & DIAMETER (mm)
- 100 EXISTING GAS LATERAL & DIAMETER (mm)
- ⊕ GAS MONITOR
- ⊙ GROUNDWATER MONITOR
- ⊗ GW62 ACTIVE VERTICAL EXTRACTION GAS WELL
- ⊗ GW52 NON-ACTIVE VERTICAL EXTRACTION GAS WELL
- MH4 ACTIVE GAS EXTRACTION MANHOLE
- MH3 NON-ACTIVE GAS EXTRACTION MANHOLE
- CO4 ACTIVE GAS EXTRACTION CLEANOUT
- CO2 NON-ACTIVE GAS EXTRACTION CLEANOUT

- NOTES:**
- EXISTING GROUND CONTOURS AND TOPOGRAPHIC FEATURES SHOWN ON THIS PLAN ARE BASED ON INFORMATION OBTAINED FROM AERIAL PHOTOGRAPHY FLOWN ON JUNE 27, 2009 BY BASE MAPPING AND FIELD SURVEY DATA BY SMC TO JUNE 1, 2017.
 - CONTOUR INTERVAL SHOWN IS 0.5m.
 - THE LOCAL SITE GRID IS BASED ON 0+0000 BEING THE NORTH LANDFILL LIMIT. THE NORTH-WEST CORNER OF THE LANDFILL LIMIT IS 0+300E AND IS PERPENDICULAR TO THE EAST/WEST GRID LINE. THE WEST LIMIT OF THE LANDFILL IS LOCATED ALONG THE LOT LINE BETWEEN LOTS 1 AND 2, CONCESSION 4.
 - ASBUILT INFORMATION SHOWN FOR HDPE GAS PIPING WAS PROVIDED BY WM AND IS APPROXIMATE ONLY. THE LOCATION OF ALL THE GAS WELLS SHOWN ON THIS PLAN ARE BASED ON FIELD SURVEY DATA OBTAINED BY WSP (FORMERLY GENIWAR INC) ON NOVEMBER 17, 2011. LOCATION OF GAS WELLS 59 THROUGH 62 AND ASSOCIATED LATERALS WAS PROVIDED BY WM AND IS APPROXIMATE ONLY.
 - WM REPORTS NO GAS COLLECTION WELLS WERE INSTALLED IN 2019. WM ALSO REPORTS THAT THE PRESENT SYSTEM COLLECTS GAS FROM FIVE (5) LEACHATE CLEANOUTS, FOUR (4) LEACHATE COLLECTION MANHOLES AND 42 VERTICAL GAS WELLS. 20 DECOMMISSIONED VERTICAL GAS WELLS ARE ALSO PRESENT ON THE LANDFILL MOUND.

B.M. #1 ELEV. = 124.667
 TOP OF BRACKET, NORTH WEST LEG OF HYDRO TOWER No. 99, LOCATED ±25m NORTH AND ±180m EAST OF NORTH WEST CORNER OF APPROVED LANDFILL LIMIT.

B.M. #2 ELEV. = 125.146
 TOP OF BRACKET, NORTH WEST LEG OF HYDRO TOWER No. 100, LOCATED ±25m NORTH AND ±80m WEST OF NORTH WEST CORNER OF APPROVED LANDFILL LIMIT.



DATE	DESCRIPTION	APP BY

wsp
 101-160 14 AVENUE W
 OWEN SOUND (ONTARIO) CANADA, N4K 6W2
 TEL.: 519-376-8152 FAX: 519-376-8088 WWW.WSPGROUP.COM

WASTE MANAGEMENT

LANDFILL GAS COLLECTION SYSTEM
 AS BUILT DRAWING TO DECEMBER 2019
 RICHMOND LANDFILL
 NAPANEE, ONTARIO

WASTE MANAGEMENT OF CANADA CORP.
 DRAWING NO. 8570 - 2019 GAS AS BUILT

SHEET
 2019GAB

APPENDIX

C

MEMORANDUM: 2019
STORMWATER
MANAGEMENT PONDS AND
LEACHATE MONITORING
RESULTS, PREPARED BY
BLUMETRIC
ENVIRONMENTAL INC.



MEMORANDUM

Date: 18 March 2020
To: Bill McDonough, Waste Management (WMCC)
Cc: Chris Prucha and Jim Forney (WMCC) and Beverly Leno, WSP Canada Inc.
From: François Richard and Madeleine Corriveau, BluMetric Environmental Inc.
Project No: 200172-03
Re: 2019 Stormwater Management Ponds and Leachate Monitoring Results
WMCC Richmond Landfill, Town of Greater Napanee, Ontario

The purpose of this memorandum is to provide a summary and interpretation of the stormwater and leachate monitoring data collected from the Waste Management of Canada Corporation (WMCC) Richmond Landfill in 2019, in accordance with Conditions 6 and 8 of Environmental Compliance Approval (ECA) No. 1688-8HZNJG issued January 10, 2012. This memorandum is prepared in accordance with Conditions 10(4)(a) and (b) of the ECA.

STORMWATER MANAGEMENT PONDS

A summary of the stormwater monitoring results is attached in **Table 1**. Samples were collected during six events in 2019, conducted in March, April, May, September, October and November, from the discharge points of each of the three stormwater management ponds: Northeast (NE) Pond, Northwest (NW) Pond and Southwest (SW) Pond. No samples were collected from the NE Pond during the September or October 2019 sampling events because it was dry.

The results of the chemical analyses are compared to the Provincial Water Quality Objectives (PWQO) in **Table 1** and were consistent with historical results. The concentrations of the following parameters exceeded the PWQO on occasion: aluminum, cobalt, copper, iron and total phosphorus.

The results from the surface water monitoring program of the receiving waters for these ponds (Marysville Creek and Beechwood Ditch), as reported in the 2019 Semi-Annual Monitoring Reports, indicate that there are no measurable impacts to water quality from landfill-related activities, including operation of the stormwater management ponds.

Samples were also collected from the stormwater management ponds and analyzed for acute lethality of Rainbow Trout (RBT) and Daphnia magna (DM) on a quarterly frequency, as per Condition 8.(3) of the ECA. Condition 14.3(xii) of ECA No. A371203 for the waste disposal site requires that the Annual Report includes a discussion of the results of the toxicity testing which includes potential impacts to the groundwater by the stormwater management ponds. The results are summarized below; there was no mortality of any test organisms observed in the samples.

Percent Mortality of Rainbow Trout (RBT) and Daphnia Magna (DM) in Stormwater Management Pond Samples, 2019

	March 27, 2019		June 24, 2019		Sept. 10, 2019		December 6, 2018	
	RBT	DM	RBT	DM	RBT	DM	RBT	DM
SW Pond	0	0	0	0	0	0	0	0
NE Pond	0	0	0	0	Dry – not sampled		0	0
NW Pond	0	0	0	0	0	0	0	0

The acute lethality results from the 2019 samples indicate that the stormwater management ponds were operating as designed, and discharging non-lethal effluent to the receiving waters. The data do not indicate any potential impacts to shallow groundwater from the stormwater management ponds.

Based on the 2019 stormwater management data, as well as the results from the semi-annual surface water monitoring program, it is our opinion that the stormwater management ponds at the WMCC Richmond Landfill are adequate.

LEACHATE MONITORING

The requirements for leachate monitoring under ECA No. 1688-8HZNJG are presented in Condition 6 and Table 1 of the ECA. The leachate monitoring results for 2019 are presented in the attached Table 2. The results are indicative of the leachate quality that is disposed off-site.

We trust you will find this evaluation of the 2019 stormwater and leachate monitoring data for the WMCC Richmond Landfill site to be satisfactory. If you have any questions regarding the above information, please contact the undersigned anytime.

Respectfully submitted,
BluMetric Environmental Inc.



François A. Richard, P.Geo., Ph.D
Senior Hydrogeologist



Madeleine Corriveau, M.Sc., P.Geo.
Senior Geoscientist

Ref: 2019 Ponds-Leachate Memo_FINAL.docx

TABLES



Table 1: 2019 Pond Sampling Results

Parameter	Units	PWQO	NE Pond 2019-03-29	NW Pond 2019-03-29	SW Pond 2019-03-29	NE Pond 2019-04-30	NW Pond 2019-04-30	SW Pond 2019-04-30	NE Pond 2019-05-24	NW Pond 2019-05-24	SW Pond 2019-05-24
Alkalinity	mg/L		99	33	74	340	250	200	310	230	200
Aluminum	mg/L	0.075	0.26	0.039	0.05	0.058	< 0.02	0.033	< 0.02	0.069	0.039
Ammonia	mg/L		0.29	0.25	< 0.15	0.2	0.23	0.27	< 0.15	< 0.15	< 0.15
Unionized Ammonia	mg/L	0.02	< 0.00061	< 0.00061	< 0.00061	0.0034	0.0048	0.003	< 0.0031	< 0.0022	< 0.0015
Arsenic	mg/L	0.1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Barium	mg/L		0.028	0.011	0.019	0.07	0.03	0.038	0.057	0.013	0.041
Benzene	mg/L	0.1	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Beryllium	mg/L	1.1	< 0.0006	< 0.0006	< 0.0006	< 0.0006	< 0.0006	< 0.0006	< 0.0006	< 0.0006	< 0.0006
Biochemical Oxygen Demand	mg/L		2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Boron	mg/L	0.2	< 0.02	< 0.02	< 0.02	0.12	0.083	0.03	0.15	0.092	0.039
Cadmium	mg/L	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Chemical Oxygen Demand	mg/L		20	14	18	27	30	22	19	32	17
Chloride	mg/L		6.5	3.7	7.9	31	34	18	25	30	14
Chromium (III)	mg/L	0.0089	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Chromium (Total)	mg/L		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Chromium (VI)	mg/L	0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Cobalt	mg/L	0.0009	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Copper	mg/L	0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Dissolved Oxygen	mg/L		6.25	3.88	5.75	9.95	7.21	7.98	5.41	5.21	7.85
Ethylbenzene	mg/L	0.008	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Field Conductivity	µS/cm		140	190	140	620	540	390	700	580	460
Field Temperature	°C		2.3	3.3	5.8	9.3	9.9	9.1	17.6	16.4	16.5
Hardness	mg/L		90	30	71	320	230	210	290	210	210
Iron	mg/L	0.3	0.29	0.11	0.16	0.12	< 0.1	0.11	< 0.1	0.15	0.21
m+p-Xylene	mg/L	0.002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Mercury	mg/L	0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Naphthalene	mg/L	0.007	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Nickel	mg/L	0.025	< 0.001	< 0.001	< 0.001	0.003	0.002	< 0.001	0.003	0.005	0.001
Nitrate	mg/L		< 0.1	< 0.1	< 0.1	< 0.1	0.12	< 0.1	< 0.1	< 0.1	< 0.1
o-Xylene	mg/L	0.04	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
pH (Field)	-	6.5-8.5	6.51	6.35	6.65	7.9	7.97	7.72	7.72	7.6	7.42
pH (Lab)	-	6.5-8.5	7.68	7.51	7.46	8.11	8.18	8.12	8.09	8.18	7.92
Phenols	mg/L	0.001	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Phosphorus (total)	mg/L	0.03	0.069	0.13	0.037	0.034	0.036	0.031	< 0.03	0.035	0.047
Potassium	mg/L		3.7	2.6	2.6	6.9	6.4	3.5	5.2	4.4	3.3
Selenium	mg/L	0.1	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Silver	mg/L	0.0001	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Sodium	mg/L		5	2.6	5.7	38	41	16	39	46	15
Toluene	mg/L	0.0008	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.00027
Total Dissolved Solids	mg/L		135	75	115	425	375	255	340	350	235
Total Kjeldahl Nitrogen	mg/L		0.9	< 0.7	< 0.7	0.8	0.8	< 0.7	< 0.7	0.8	< 0.7
Total Organic Carbon	mg/L		8	5.4	5.9	10	11	8.1	11	15	8.7
Total Suspended Solids	mg/L		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Total Xylenes	mg/L		< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Zinc	mg/L	0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

PWQO: Provincial Water Quality Objectives
 Highlighted values indicate PWQO exceeded

Table 1: 2019 Pond Sampling Results

Parameter	Units	PWQO	NE Pond 2019-09-10	NW Pond 2019-09-10	SW Pond 2019-09-10	NE Pond 2019-10-22	NW Pond 2019-10-22	SW Pond 2019-10-22	NE Pond 2019-11-14	NW Pond 2019-11-14	SW Pond 2019-11-14
Alkalinity	mg/L			280	140		240	160	240	190	180
Aluminum	mg/L	0.075		0.37	0.026		0.93	0.18	0.065	0.1	0.096
Ammonia	mg/L			< 0.15	< 0.15		< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
Unionized Ammonia	mg/L	0.02		< 0.00061	< 0.00029		< 0.0031	< 0.00061	< 0.00061	< 0.00061	< 0.00061
Arsenic	mg/L	0.1		0.001	< 0.001		0.002	< 0.001	< 0.001	< 0.001	< 0.001
Barium	mg/L			0.079	0.03		0.086	0.052	0.067	0.036	0.047
Benzene	mg/L	0.1		< 0.0002	< 0.0002		< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Beryllium	mg/L	1.1		< 0.0006	< 0.0006		< 0.0006	< 0.0006	< 0.0006	< 0.0006	< 0.0006
Biochemical Oxygen Demand	mg/L			4	< 2		< 2	3	< 2	3	< 2
Boron	mg/L	0.2		0.12	0.036		0.1	0.036	0.091	0.07	0.038
Cadmium	mg/L	0.0002		< 0.0001	< 0.0001		< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Chemical Oxygen Demand	mg/L			78	32		69	36	44	31	27
Chloride	mg/L			77	20		74	20	25	31	23
Chromium (III)	mg/L	0.0089		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Chromium (Total)	mg/L			< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Chromium (VI)	mg/L	0.001		0.0006	0.00055		< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Cobalt	mg/L	0.0009		< 0.0005	< 0.0005		0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Copper	mg/L	0.005		< 0.002	< 0.002		< 0.002	< 0.002	0.007	0.002	< 0.002
Dissolved Oxygen	mg/L			1.47	8.02		3.96	4.1	7.66	6.91	7.99
Ethylbenzene	mg/L	0.008		< 0.0002	< 0.0002		< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Field Conductivity	µS/cm			890	350		720	390	570	490	450
Field Temperature	°C			14.6	20.1		8.83	4	4.48	3.86	1.93
Hardness	mg/L		DRY	220	120	DRY	190	150	270	200	200
Iron	mg/L	0.3		0.62	0.11		1.4	0.32	< 0.1	0.2	0.17
m+p-Xylene	mg/L	0.002		< 0.0002	< 0.0002		< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Mercury	mg/L	0.0002		< 0.0002	< 0.0002		< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Naphthalene	mg/L	0.007		< 0.00005	< 0.00005		< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Nickel	mg/L	0.025		0.003	< 0.001		0.003	< 0.001	0.003	0.002	0.001
Nitrate	mg/L			< 0.1	< 0.1		< 0.1	< 0.1	0.1	< 0.1	< 0.1
o-Xylene	mg/L	0.04		< 0.0002	< 0.0002		< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
pH (Field)	-	6.5-8.5		6.8	7.6		8.01	7.27	6.52	6.9	7.32
pH (Lab)	-	6.5-8.5		8.02	8.79		7.83	8.08	8.04	8.31	7.98
Phenols	mg/L	0.001		< 0.004	< 0.004		< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Phosphorus (total)	mg/L	0.03		0.076	0.033		0.082	0.051	0.062	0.082	0.04
Potassium	mg/L			18	4.4		17	4.8	9.3	7.9	5.1
Selenium	mg/L	0.1		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Silver	mg/L	0.0001		< 0.0004	< 0.0004		< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Sodium	mg/L			74	23		65	20	30	34	26
Toluene	mg/L	0.0008		0.00024	< 0.0002		< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Total Dissolved Solids	mg/L			530	240		420	245	325	305	255
Total Kjeldahl Nitrogen	mg/L			1.6	0.8		1.4	0.7	1.2	0.8	0.8
Total Organic Carbon	mg/L			25	11		24	10	14	11	11
Total Suspended Solids	mg/L			15	< 10		310	14	< 10	13	< 10
Total Xylenes	mg/L			< 0.0002	< 0.0002		< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Zinc	mg/L	0.03		< 0.01	< 0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

PWQO: Provincial Water Quality Objectives
 Highlighted values indicate PWQO exceeded

Table 2: 2019 Leachate Sampling Results

Quarterly List					
Reading Name	Units	North Chamber 2019-04-10	North Chamber 2019-07-03	North Chamber 2019-10-21	North Chamber 2019-12-03
1,1,1,2-Tetrachloroethane	mg/L	< 0.01	< 0.004	< 0.005	< 0.005
1,1,1-Trichloroethane	mg/L	< 0.005	< 0.002	< 0.0025	< 0.0025
1,1,2,2-Tetrachloroethane	mg/L	< 0.01	< 0.004	< 0.005	< 0.005
1,1,2-Trichloroethane	mg/L	< 0.01	< 0.004	< 0.005	< 0.005
1,1-Dichloroethane	mg/L	< 0.005	< 0.002	< 0.0025	< 0.0025
1,1-Dichloroethylene	mg/L	< 0.005	< 0.002	< 0.0025	< 0.0025
1,2-Dibromoethane	mg/L	< 0.01	< 0.004	< 0.005	< 0.005
1,2-Dichlorobenzene (o)	mg/L	< 0.01	< 0.004	< 0.005	< 0.005
1,2-Dichloroethane	mg/L	< 0.01	< 0.004	< 0.005	< 0.005
1,2-Dichloropropane	mg/L	< 0.005	< 0.002	< 0.0025	< 0.0025
1,3,5-Trimethylbenzene	mg/L	< 0.01	< 0.004	< 0.005	< 0.005
1,3-Dichlorobenzene (m)	mg/L	< 0.01	< 0.004	< 0.005	< 0.005
1,4-Dichlorobenzene (p)	mg/L	< 0.01	0.0072	< 0.005	0.0068
1-Methylnaphthalene	mg/L	0.00054	0.00048	0.0001	0.00044
2-Methylnaphthalene	mg/L	0.00075	0.00063	0.00013	0.0006
Acenaphthene	mg/L	0.00051	0.00053	0.0001	0.0005
Acenaphthylene	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Alkalinity	mg/L	1600	1900	3600	1500
Ammonia	mg/L	164	229	463	145
Anthracene	mg/L	< 0.00005	< 0.0002	< 0.00005	0.000079
Arsenic	mg/L	0.003	0.002	0.005	0.002
Benzene	mg/L	0.0057	0.0065	< 0.0025	0.0057
Benzo(a)anthracene	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Benzo(a)pyrene	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Benzo(b)fluoranthene	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Benzo(e)pyrene	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Benzo(g,h,i)perylene	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Benzo(k)fluoranthene	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Biphenyl	mg/L	0.00018	0.00017	< 0.00005	0.00013
Bromodichloromethane	mg/L	< 0.005	< 0.002	< 0.0025	< 0.0025
Bromoform	mg/L	< 0.01	< 0.004	< 0.005	< 0.005
Bromomethane	mg/L	< 0.025	< 0.01	< 0.013	< 0.013
Cadmium	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Carbon Tetrachloride	mg/L	< 0.005	< 0.002	< 0.0025	< 0.0025
Chlorobenzene	mg/L	< 0.005	0.0056	< 0.0025	0.0038
Chloroethane	mg/L	< 0.01	< 0.004	< 0.005	< 0.005
Chloroform	mg/L	< 0.005	< 0.002	< 0.0025	< 0.0025
Chloromethane	mg/L	< 0.025	< 0.01	< 0.013	< 0.013
Chromium	mg/L	0.012	0.013	0.031	0.009
Chrysene	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Cis-1,2-Dichloroethylene	mg/L	< 0.005	< 0.002	< 0.0025	< 0.0025
Cis-1,3-Dichloropropylene	mg/L	< 0.01	< 0.004	< 0.005	< 0.005
Cobalt	mg/L	0.0055	0.0073	0.022	0.005
Copper	mg/L	0.063	0.005	0.016	0.005
Dibenzo(a,h)anthracene	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Dibromochloromethane	mg/L	< 0.01	< 0.004	< 0.005	< 0.005
Dichloromethane	mg/L	< 0.025	< 0.01	< 0.013	< 0.013
Dissolved Organic Carbon	mg/L	70	95	240	66
Ethylbenzene	mg/L	0.011	0.017	0.0066	0.0087
Fluoranthene	mg/L	0.000053	0.000085	< 0.00005	0.000053
Fluorene	mg/L	0.00025	0.00024	0.000074	0.00029
Hardness	mg/L	830	840	840	810
Indeno(1,2,3-cd)pyrene	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Lead	mg/L	0.0029	0.0009	0.0015	0.0009
m+p-Xylene	mg/L	0.032	0.054	0.024	0.032
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Molybdenum	mg/L	< 0.002	< 0.002	0.003	< 0.002
Naphthalene	mg/L	0.0065	0.0077	0.0016	0.0065
Nickel	mg/L	0.029	0.033	0.092	0.022
Nitrate	mg/L	< 0.1	< 0.1	< 1	< 0.1

Table 2: 2019 Leachate Sampling Results

Quarterly List					
Reading Name	Units	North Chamber 2019-04-10	North Chamber 2019-07-03	North Chamber 2019-10-21	North Chamber 2019-12-03
Nitrite	mg/L	0.054	0.011	< 0.1	< 0.01
o-Xylene	mg/L	0.0089	0.014	0.0082	0.008
Perylene	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.00005
pH (Lab)	unitless	6.98	7.12	7.58	6.95
Phenanthrene	mg/L	0.00026	0.00026	0.000082	0.00027
Phenols	mg/L	< 0.04	0.01	< 0.02	0.005
Pyrene	mg/L	0.00005	0.00007	< 0.00005	0.00005
Selenium	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Styrene	mg/L	< 0.01	< 0.004	< 0.005	< 0.005
Tetrachloroethylene	mg/L	< 0.005	< 0.002	< 0.0025	< 0.0025
Toluene	mg/L	0.014	< 0.004	< 0.005	< 0.005
Total Kjeldahl Nitrogen	mg/L	150	210	480	140
Total Xylenes	mg/L	0.041	0.068	0.032	0.04
Trans-1,2-dichloroethylene	mg/L	< 0.005	< 0.002	< 0.0025	< 0.0025
Trans-1,3-dichloropropylene	mg/L	< 0.01	< 0.004	< 0.005	< 0.005
Trichloroethylene	mg/L	< 0.005	< 0.002	< 0.0025	< 0.0025
Trichlorofluoromethane	mg/L	< 0.01	< 0.004	< 0.005	< 0.005
Vinyl Chloride	mg/L	< 0.01	< 0.004	< 0.005	< 0.005
Zinc	mg/L	0.03	0.019	0.04	0.015

Annual List		
Reading Name	Units	North Chamber 2019-07-03
Aluminum	mg/L	0.088
Barium	mg/L	0.26
Beryllium	mg/L	< 0.0006
Biochemical Oxygen Demand	mg/L	29
Boron	mg/L	1.8
Calcium	mg/L	200
Conductivity	µS/cm	4700
Iron	mg/L	13
Magnesium	mg/L	86
Manganese	mg/L	0.73
Phosphorus (total)	mg/L	0.98
Silver	mg/L	< 0.0004
Sodium	mg/L	400
Sulphate	mg/L	< 1
Sulphide	mg/L	0.35
Total Trihalomethanes	mg/L	< 0.002

APPENDIX

D DETAILED CHRONOLOGY OF SIGNIFICANT LANDFILL DESIGN AND OPERATION, AND LAND USE CHANGES, AND POTENTIAL VOLATILE ORGANIC COMPOUND SOURCES AT THE SITE

**Detailed Chronology of Significant Landfill Design & Operation,
and Land Use Changes
Richmond Landfill Site**

8570

Date	Description
1954	• Landfill operations began at the site under Sutcliffe Sanitation Services Limited.
1971	• Service area expanded to include the Town of Napanee and Desoronto.
1971	• Ministry of the Environment (MOE) issued Provisional Certificate of Approval (C of A) No. A371203 for a 10.1 hectare landfill footprint.
1974	• Burning operations ceased at the site.
1979	• Service area increased to include the Town of Picton, Richmond Township, Township of Tyendinaga, North Fredericksburg, Adolphustown and Sophiasburgh. Waste tonnage was also increased.
August 11, 1987	• Landfill site expansion approved to 16.2 hectares and to include the site service area with the Counties of Lennox and Addington, Prince Edward, Hastings and Frontenac.
January 1988	• Tricil Limited purchased the landfill site from Sutcliffe Sanitation Services Limited.
September 1989	• From Aerial photography - landfilling in Phase 1. Sewage lagoon is present and located in Phase 4. All farm buildings exist.
1990	• The site came under ownership of Laidlaw as a result of the acquisition of Tricil Limited.
December 1990	• Landfill operations began in the Phase 2 cell area on prepared clay base.
1991	• Leachate holding lagoon was constructed north of the hydro corridor.
Summer 1993	• Contaminated soil pad constructed to the east of the maintenance building.
1993	• Phase 3 landfill base was constructed during the summer with waste placed in the fall.
September 2, 1994	Notice to amend C of A (Waste) No. A371203 was issued by MOE. The amendment approved the construction and operation of a composting facility.
December 1994	• From aerial photography - landfilling is being completed in Phase 3. Compost pad and sedimentation pond in the northeast (Pond 1) and south (Pond 3) is being constructed; northwest is not constructed and soil stockpile exists on top of Phase 1.
January 24, 1995	C of A (Industrial Sewage No. 4-0129-94-956) issued by MOE. Approval was granted for the oil/water separator at the contaminated soil stockpile.
1995	• Phase 4 Cell was constructed in the summer/fall of 1995 with landfilling commencing in the summer of 1996.
August 1, 1995	Notice to amend C of A (Waste) No. A371203 was issued by MOE. The amendment prohibited leachate recirculation in Phases 1, 2, and 3.
December 1995	• From Aerial photography - landfilling is occurring on the top of Phase 3. Phase 4 recently constructed. Soil stockpile is being constructed on top of Phase 1.
September 1996	• Leachate haulage to Napanee started.
September 11, 1996	Notice to amend C of A (Waste) No. A371203 was issued by MOE. The amendment approved the expansion of the leaf and yard waste facility to an organic waste composting facility.
November 1996	• From Aerial mapping - active area is Phase 4 with soil stockpiled on Phases 1, 2 and 3.
1997	Change in ownership - Canadian Waste Services Inc.
January 1997	• North Leachate Pump chamber installed.
February 1997	• First phase of leachate recirculation system installed in Phase 4.
November 1997	• Landfilling is occurring on the top portion of Phase 4. Contaminated soil stockpile on top of Phase 1 is in place. Sedimentation pond in northwest corner (Pond 2) is not yet constructed.
1998	• Last level of recirculation piping installed in Phase 4.
Summer 1998	• Phase 5 constructed.
Fall 1998	• Installation of temporary gas collection and flaring system to establish gas generation rates - two (2) temporary vertical gas extraction wells, a temporary gas collection trench, and temporary flaring/mechanical system.
November 5, 1998	• Small landfill fire in Phase 5 waste. Soil sampling of adjacent properties indicated no impact to surrounding environment.
December 1998	• From aerial photography - Phase 5 has been constructed and waste placement has begun in Phase 5. Soil is being stockpiled on top of Phases 1, 2 and 3.
1999	• Two (2) levels of leachate recirculation installed in Phase 5
Summer 1999	• Northwest sedimentation pond (Pond 2) constructed.
November 1999	• From Aerial photography - landfilling is occurring in Phase 5. Northwest sedimentation pond (Pond 2) has been constructed. Landfill flare is not in place.
December 21, 1999	C of A (Air) No. 8-4076-99-006 issued by MOE. The certificate was issued for a permanent, enclosed flare.

**Detailed Chronology of Significant Landfill Design & Operation,
and Land Use Changes
Richmond Landfill Site**

8570

Date	Description
2000	<ul style="list-style-type: none"> • First loads of biosolids received at compost pad for composting.
April to May 2000	<ul style="list-style-type: none"> • Installation of 24 vertical gas extraction wells in landfill mound. Throughout the year, connection of 12 cleanouts and nine (9) leachate manholes, along with the landfill gas wells, to the system occurred.
August 29, 2000	<ul style="list-style-type: none"> • C of A issued by MOE, approving installation of the Phase 1 leachate collection system.
Fall 2000	<ul style="list-style-type: none"> • Leachate collector installed on north and west sides of Phase 1.
December 2000	<ul style="list-style-type: none"> • From aerial photography - landfilling on top of Phase 3. Soil stockpile on top of Phase 1 is being depleted. The peripheral leachate collector on Phase 1 has been constructed. Sedimentation pond in northwest corner (Pond 2) is in place. Flare has been installed.
February 2001	<ul style="list-style-type: none"> • Landfill gas collection and flaring started.
Summer 2001	<ul style="list-style-type: none"> • Leachate collector replaced between Manhole 1 to 4.
July 10, 2001	<ul style="list-style-type: none"> • Landfilling on the north slope of Phase 2.
2002	<ul style="list-style-type: none"> • Condensate drain traps were installed at low points in the gas collection system to reduce the amount of moisture at the flare.
Summer 2002	<ul style="list-style-type: none"> • Leachate collector replaced between Manhole 1 and 7.
July 2002	<ul style="list-style-type: none"> • Landfilling is occurring on the north face of Phase 1. Contaminated soil stockpile on top of Phase 1 is nearly completed.
2003	<ul style="list-style-type: none"> • Change in ownership - Waste Management of Canada Corporation.
2003	<ul style="list-style-type: none"> • High pressure odour misting system installed.
2003	<ul style="list-style-type: none"> • 10 new vertical gas collection well installed.
May 8, 2003	<ul style="list-style-type: none"> • C of A (Air) No. 1355-5LRN9N issued, which revoked the previous C of A. The notice approved the operation of the flare and gas collection system, comprising of a maximum of 54 wells, 12 leachate manholes and 9 cleanouts.
2004	<ul style="list-style-type: none"> • Six (6) new vertical gas collection wells installed.
Spring 2004	<ul style="list-style-type: none"> • Leachate receiving station was constructed in Napanee.
2006	<ul style="list-style-type: none"> • Final year of odour spray system operation.
June 18, 2007	<ul style="list-style-type: none"> • Submission of final closure plan to MOE
2007	<ul style="list-style-type: none"> • three (3) new vertical gas collection wells installed, and five (5) vertical gas collection wells were redrilled. Pumps were also placed in select wells to lower leachate levels and improve gas collection.
Summer 2008	<ul style="list-style-type: none"> • Five (5) vertical gas collection wells were redrilled, and the gas header pipe on the east and west slopes was upgraded from 150mm diameter to 300mm diameter to improve flow and decrease friction loss. Isolation valves were also added at various locations on the gas header.
August 19, 2008	<ul style="list-style-type: none"> • C of A (Industrial Sewage Works) No. 5268-7E8LJW issued, approving upgrades/construction to the south sedimentation pond (Pond 3).
Fall 2008 through Summer 2009	<ul style="list-style-type: none"> • Upgrades/construction of south sedimentation pond (Pond 3).
2009	<ul style="list-style-type: none"> • Landfilling in old access road area - south slope.
July through September 2009	<ul style="list-style-type: none"> • Installation of seven (7) vertical gas extraction wells over the crest of the landfill mound, and redrilling of 12 wells on the upper north, east, and south slopes.
2010	<ul style="list-style-type: none"> • Decommissioning of leachate holding lagoon north of landfill mound.
March 31, 2010	<ul style="list-style-type: none"> • Notice 5 to C of A No. A371203, issued by MOE. The amendment approved the final closure plan, listed a date of closure for the landfill, and dates for completion of final cover installation for various phases of the landfill. The notice also requested the submission of a revised financial assurance calculation, contingency plans, design for the final cover system, design for low permeability liner for compost pad and pond, and revised environmental monitoring plan, by June 30, 2010.
June 25, 2010	<ul style="list-style-type: none"> • Submission of financial assurance plan, final cover construction quality assurance plan, contingency plans for the leachate and landfill gas collection systems, design for low permeability liner for compost pad and pond, and odour monitoring plan, to MOE to satisfy various conditions from March 31, 2010 C of A amendment.
June 29, 2010	<ul style="list-style-type: none"> • Submission of environmental monitoring plan and groundwater/surface water contingency plan, to MOE to satisfy various conditions from March 31, 2010 C of A amendment.
August 25, 2010	<ul style="list-style-type: none"> • Notice 6 to C of A No. A371203, issued by MOE. The amendment approved the construction quality assurance plan for the final cover system.
August 27, 2010	<ul style="list-style-type: none"> • Start of installation of final cover system on Phase 1.

**Detailed Chronology of Significant Landfill Design & Operation,
and Land Use Changes
Richmond Landfill Site**

8570

Date	Description
October 28, 2010	<ul style="list-style-type: none"> Completion date of final cover placed on entire Phase 1 portion of landfill.
December 2010	<ul style="list-style-type: none"> Submission of phytoremediation plan for northwest corner of property.
Spring 2011	<ul style="list-style-type: none"> Installation of three (3) vertical gas extraction wells.
May 2, 2011	<ul style="list-style-type: none"> Notice 8 to C of A No. A371203, issued by MOE. The amendment approved the construction/operation of the phytoremediation system in the northwest corner of the property.
May 25, 2011	<ul style="list-style-type: none"> Application submitted to MOE requesting continued operation of the public drop off facility.
May 25, 2011	<ul style="list-style-type: none"> Application submitted to MOE requesting that the operation of the stormwater ponds be as designed (free flowing).
June 30, 2011	<ul style="list-style-type: none"> Last load of waste accepted and disposed in landfill mound. Closure of the public drop off facility. Decommissioning of contaminated soil pad.
July 4, 2011	<ul style="list-style-type: none"> Start of installation of final cover system on Phases 2, 3, 4, and 5.
August 2011	<ul style="list-style-type: none"> Decommissioning of compost pad and pond completed.
September 23, 2011	<ul style="list-style-type: none"> Final cover system over entire Phases 2, 3, 4, and 5 completed.
January 9, 2012	<ul style="list-style-type: none"> MOE issues Environmental Compliance Approval (ECA) No. A371203, consolidating the previous C of A and amendments. The permit also approved several submissions from June 2010, subject to various conditions. MOE issues amendment to ECA No. A371203, approving the re-opening of the public drop off facility, subject to conditions.
January 10, 2012	<ul style="list-style-type: none"> MOE issues ECA No. 1688-8HZNJG, consolidating the previous C of As and amendments for Industrial Sewage Works. Approval also granted to allow the stormwater management ponds to operate in a free flowing manner.
February 1, 2012	<ul style="list-style-type: none"> The public drop off facility re-opened to the public, subject to the conditions listed under the amendment to ECA A371203 issued January 9, 2012.
May 3, 2013	<ul style="list-style-type: none"> MOE issues amendment to ECA No. A371203, reflecting the Environmental Review Tribunal (ERT) settlement of five (5) of the seven (7) conditions of the January 9, 2012 ECA that were appealed by the Concerned Citizens' Committee of Tyendinaga and Environs (CCCTE). The notice amended and added conditions regarding the assessment of groundwater monitoring wells, odour monitoring and abatement activities (including frequency of surface emission surveys after 2014), public notification plan, semi-annual and annual monitoring reporting, additional information pertaining to site compliance, and removal of information from the annual monitoring report. Odour monitoring and reporting will follow the "Odour Monitoring Plan - Revision No. 1" and "Odour Survey Protocol" submitted in March 2012 and February 2013, respectively, while implementation of the Public Notification Plan will occur in accordance with the "Public Notification Plan - February 2013".
October 4, 2013	<ul style="list-style-type: none"> MOE issues amendment to ECA No. A371203, approving the March 2013 financial assurance submission, as revised in July 2013. Conditions regarding the amounts of financial assurance to be posted through 2016 were amended.
February 28, 2014	<ul style="list-style-type: none"> The public drop off facility was closed by WM. All approvals remain in place should WM elect to re-open the facility in the future.
April 29, 2014	<ul style="list-style-type: none"> MOE issues ECA (Air) No. 5970-9HKP3V, approving the operation of a candlestick flare. The candlestick flare installation addresses a contingency plan for the landfill gas collection system, in that it would be operational only when the enclosed flare is shut down for maintenance or repair.
June 12, 2014	<p>Application to amend ECA No. A371203 is submitted by WM, for the approval of a cleaning and maintenance schedule for the ditches, culverts, and leachate collection system at the landfill.</p>
January 2015	<ul style="list-style-type: none"> Application to amend ECA No. A371203 is submitted by WM, for the approval of a leachate storage tank to be constructed onsite.
August 14, 2015	<ul style="list-style-type: none"> Ministry of Environment and Climate Change (MOECC) issues Notice 3 to amend ECA No. A371203 reflecting the ERT interim order regarding one of the conditions of the January 9, 2012 ECA that was appealed by the CCCTE. The notice amended the former Environmental Monitoring Plan (EMP) condition, and also Conditions 8.5 (a) i, ii, and iii (EMP and Replacement/Installation/Testing of Monitoring Wells), and adding two (2) conditions to the ECA for protocols of reporting exceedances to the MOECC District Manager, and the reporting of 1,4-dioxane levels.

**Detailed Chronology of Significant Landfill Design & Operation,
and Land Use Changes
Richmond Landfill Site**

8570

Date	Description
November 5, 2015	<ul style="list-style-type: none"> • MOECC issues Notice 4 to amend ECA No. A371203, reflecting the ERT interim order to amend of the conditions of the January 9, 2012 ECA that was appealed by the CCCTE. The notice amended the date of completion of testing of groundwater monitoring wells M-187 through M-190 to December 1, 2015.
December 24, 2015	<ul style="list-style-type: none"> • The ERT issues a decision with an accompanying order regarding the appeal of the January 9, 2012 ECA No. A371203 by the CCCTE. The ERT has ordered that additional field work be completed and a report prepared that is to be provided to all parties to the hearing. The report is to be completed by April 15, 2016. After the report is reviewed, the parties will meet to discuss the contents. After reviewing input from all parties, the MOECC will determine if the Contaminant Attenuation Zone (CAZ) has been adequately defined. If the MOECC agrees the CAZ has been adequately defined, WM will submit the CAZ application. If the MOECC does not agree the CAZ has been adequately defined, more field work will be ordered. The ERT also found that it is unnecessary to maintain a further supervisory role in the matter once the wording of the ECA conditions and EMP provisions has been finalized.
April 14, 2016	<ul style="list-style-type: none"> • The ERT issues a decision with an accompanying order regarding the appeal of the January 9, 2012 ECA No. A371203 by the CCCTE. The order included the ERT's acceptance of the final wording of the remaining appealed ECA conditions and EMP provisions that was proposed on consent of all parties. The ERT concluded that it was not necessary to include one additional sentence that was proposed by the CCCTE. The ERT granted a request by WM to extend the date set out in Condition 8.5(e) from April 15, 2016 to June 15, 2016 to allow WM to complete the work required under that condition without being out of compliance. The ERT also directed the MOECC Director to make amendments to the ECA in accordance with the ERT's decision.
April 15, 2016	<ul style="list-style-type: none"> • MOECC issues Notice 5 to amend ECA No. A371203. This Notice revoked and replaced Conditions 8.2 (groundwater well assessment) and 8.5 d (odour monitoring plan references). The Notice also replaces Items 56, 57, and 58 in Schedule 'A' with Items 56 (November 2014 Odour Monitoring Plan) and Item 57 (February 2013 Odour Monitoring Plan).
June 15, 2016	<ul style="list-style-type: none"> • MOECC issues Notice 6 to amend ECA No. A371203. This Notice is based on the ERT order issued on April 14, 2016, and addresses the remaining conditions in the appeal of the January 9, 2012 ECA No. A371203 by the CCCTE. The Notice includes the submission of a revised EMP based on the August 2015 Interim EMP and updated to include (1) one year conductivity monitoring of Marysville Creek; (2) if specified parameters listed in the EMP are detected, assessment of the need to install additional nested monitoring wells in the vicinity of Marysville Creek; (3) the need for testing of domestic and agricultural wells on properties south of Highway 401 at locations and for paraters listed in the EMP; (4) a revision in the timing of confirmation resampling as listed under groundwater trigger mechanisms in the EMP; and (5) the establishment of a Reasonable Use Limit for 1,4-dioxane. Monitoring of the site now follows the schedule listed in the Interim EMP. Along with conditions outlining the process of delineating offsite leachate impacted groundwater or surface water, and meetings and timeframes with the MOECC and interested parties to discuss the delineation process, a condition was included ordering WM to complete a study on the hydrogeological impacts of a pipeline running under the northern part of the properties present south of the site and the submission of a report of the findings by June 15, 2016. The Notice also address compliance criteria, water supply to specified residences, approves groundwater and surface water contingency plans, and denies the use of a fracture trench as listed in the Leachate Collection System Contingency Plan. Finally, the notice stated the ERT was no longer required to supervise or participate in the CCCTE appeal of the ECA, subject only to the ERT's determination of the final wording of the ECA conditions and EMP provisions as outlined in the order. • MOECC issues Notice 6 to amend ECA No. A371203. In addition to the order issued by the ERT as listed above, the Notice also addressed the approval of two (2) ECA applications pertaining to cleaning of the leachate collection system, ditches and culverts, and the proposed leachate storage tank construction. The Notice includes the approval of a leachate storage tank, revises the cleaning and inspection frequency of the leachate collection system along with ditches and culverts, and updates the condition number pertaining to odour monitoring. Several items were also added to Schedule 'A', including the ERT order.

**Detailed Chronology of Significant Landfill Design & Operation,
and Land Use Changes
Richmond Landfill Site**

8570

Date	Description
June 24, 2016	Application to amend ECA No. A371203 is submitted by WM, requesting a reduction in the frequency of surface emission events conducted at the site. The request is permitted under a condition of the aforementioned ECA, so long as readings from 2013 and 2014 surface emission survey events do not exceed 500 parts per million by volume of methane.
July 14, 2017	<ul style="list-style-type: none"> • MOECC issues consolidated ECA No. A371203. This ECA consolidates all amendments issued since January 9, 2012, and revoked/replaced the previous ECA. The ECA also approved the financial assurance re-evaluation submitted by WM on March 30, 2016, and revised Conditions 2.5, 2.6, and 2.7, pertaining to amounts of financial assurance to be posted within 20 days of ECA issuance and for calendar years 2018, 2019 and 2020, and also revised the condition which specifies the date of submission for the next updated financial assurance re-evaluation. • MOECC issues consolidated ECA No. A371203. In addition to the items listed previously under this date, the MOECC issues approval of the June 24, 2016 application to reduce the frequency of surface emission events conducted at the site. The consolidated ECA includes the addition of "Odour Monitoring Plan - Revision No. 3" (included as part of the June 2016 application package) to Schedule "A" items, and permits WM to no longer perform surface emission events three (3) times per calendar year. A condition was added to the ECA that in the event of odour detection at or greater than three (3) "intensity units" (based on the scale listed in the Odour Monitoring Plan), and the landfill mound is determined to be the source of the odour, repairs will be undertaken and a surface emission event will be performed to confirm there are no exceedances of the 500 ppmv methane threshold emitting from the repaired area.
August 2019	<ul style="list-style-type: none"> • WM receives approval to discharge leachate at the Ravensview sewage treatment plant in Kingston, ON. This facility will be used as a contingency should the Napanee sewage treatment plant not be available.

The potential sources of Volatile Organic Compounds (VOCs) on the landfill site include the following:

- The unlined Phase 1 area of the landfill, operated since 1954 until site closure in 2011;
- Maintenance shop located south of the landfill footprint (date of initial operation unknown);
- Sewage lagoon operated by Sutcliffe Sanitation, located on the south side of the landfill in the area now covered by Phase 4 (date of initial operation unknown, but decommissioned in 1990 prior to Phase 2 construction of the landfill);
- Stormwater runoff from the contaminated soil pad constructed in 1993, located to the east of the maintenance shop;
- Historic sporadic leachate seep breakouts (typically along the south and northwest sides of the landfill);
- Septic sewage systems with distribution tile fields, located east of the scalehouse and maintenance shop (dates of installation unknown); and
- Former abattoir located immediately south of the site (operated from the mid-1960s to early 2000s).

During 2019, work continued to define the off-site leachate plume with the MECP to establish a Contaminant Attenuation Zone.

APPENDIX

E

STATEMENT OF
COMPLIANCE - 2019
ENVIRONMENTAL
MONITORING AND
REPORTING, PREPARED BY
BLUMETRIC
ENVIRONMENTAL INC.



MEMORANDUM

Date: 18 March 2020
To: Bill McDonough, Waste Management (WMCC)
Cc: Chris Prucha and Jim Forney (WMCC) and Beverly Leno, WSP Canada Inc.
From: François Richard and Madeleine Corriveau, BluMetric Environmental Inc.
Project No: 200172-03
Re: Statement of Compliance, 2019 Environmental Monitoring and Reporting
WMCC Richmond Landfill, Town of Greater Napanee, Ontario

Condition 14.3 paragraph xxi of Environmental Compliance Approval (ECA) No. A371203 dated July 14, 2017 for the Waste Management of Canada Corporation (WMCC) Richmond Landfill requires that the Annual Report includes a statement of compliance with all conditions of the ECA and other relevant Ontario Ministry of Environment, Conservation and Parks (MECP) groundwater and surface water requirements. BluMetric Environmental Inc. is contracted by WMCC to complete the environmental monitoring program at the landfill, and to prepare the Semi-Annual Monitoring Reports as required by Condition 14.1 of the ECA. The purpose of this memorandum is to provide a statement of compliance with the environmental monitoring and reporting requirements of the ECA.

During the 2019 calendar year, the environmental monitoring program was conducted in accordance with the Environmental Monitoring Plan (EMP) for the site (Interim EMP revision 05, dated April 15, 2016). Any specific exceptions to the sampling program (i.e., dry or damaged monitoring wells, dry surface water locations, etc.) are described in the Spring and Fall 2019 Semi-Annual Monitoring Reports dated July 2019 and January 2020, respectively.

Both 2019 Semi-Annual Monitoring Reports were submitted to MECP and other stakeholders in compliance with Condition 14.1 of the ECA. The reports were also posted by WMCC on a publicly accessible website.

The Semi-Annual Monitoring Reports include an assessment with regard to the compliance of groundwater quality in comparison to MECP Guideline B-7. The reports also include a statement of compliance of the monitoring well conditions to Ontario Regulation 903.



Tel. 613-531-2725
Fax. 613-531-1852

BluMetric Environmental Inc.

The Tower, The Woolen Mill, 4 Cataragui Street, Kingston, Ontario, Canada K7K 1Z7

www.blumetric.ca

We trust you will find this statement of compliance with the environmental monitoring and reporting requirements of ECA No. A371203 to be satisfactory. If you have any questions regarding the above information, please contact the undersigned anytime.

Respectfully submitted,
BluMetric Environmental Inc.



François A. Richard, P.Geo., Ph.D.
Senior Hydrogeologist



Madeleine Corriveau, M.Sc., P.Geo.
Senior Geoscientist

Ref: 2019 Statement of Compliance Memo_FINAL.docx

APPENDIX

F

2019 PHYTOREMEDIATION
SYSTEM MONITORING
RESULTS, PREPARED BY
BLUMETRIC
ENVIRONMENTAL INC.



MEMORANDUM

Date: 18 March 2020
To: Bill McDonough, Waste Management (WMCC)
Cc: Chris Prucha and Jim Forney (WMCC) and Beverly Leno, WSP Canada Inc.
From: François Richard and Madeleine Corriveau, BluMetric Environmental Inc.
Project No: 200172-03
Re: 2019 Monitoring Results, Phytoremediation System
WMCC Richmond Landfill, Town of Greater Napanee, ON

Condition 5.11 of Amended Environmental Compliance Approval (ECA) No. A371203, dated July 14, 2017, for the Waste Management of Canada Corporation (WMCC) Richmond Landfill requires that the Annual Report includes an assessment of the results from the phytoremediation system as related to the stated objectives for the existing and proposed phytoremediation system, as well as an assessment of the need to change the monitoring program for the phytoremediation system and a recommendation of the required changes.

BluMetric Environmental Inc. is contracted by WMCC to complete the environmental monitoring program at the landfill, and to prepare the Semi-Annual Monitoring Reports as required by Condition 14.1 of the ECA. The purpose of this memorandum is to provide the monitoring results for the phytoremediation system and related assessments required by Condition 5.11 of the ECA.

During the 2019 calendar year, the results from the environmental monitoring program, conducted in accordance with the latest Environmental Monitoring Plan (Interim EMP (rev. 05) dated April 2016), were also used to monitor groundwater levels and quality around the phytoremediation system in the northwest corner of the Site.

To address ECA Condition 5.11 (i), groundwater levels were recorded from monitoring wells specified in Condition 5.10 (1) which includes monitors installed in the Shallow Groundwater Flow Zone (M27, M29, M30, M31, M38, M66-2, M67-2, M100, M101, M102 and M103) as well as the Intermediate Bedrock Groundwater Flow Zone (M3A-3, M5-3, M6-3, M74 and M75). Similarly, Condition 5.10 (2) lists wells for quality monitoring and includes locations from the Shallow Flow Zone (M66-2, M67-2, M101, M102 and M103) and Intermediate Bedrock Flow Zone (M5-3, M6-3, M74 and M75). Groundwater elevation and quality results are presented in Tables 1 and 2, respectively.

It should be noted that some of the wells listed in ECA Conditions 5.10 (1) and 5.10 (2) have been removed from the EMP since the fall 2015 monitoring event (groundwater flow directions and quality can be adequately characterized in this area of the site using other nearby monitoring wells). As a result, water levels at M29, M30, M31 or M38, as well as groundwater samples at M102, were not collected in 2019. Additional details related to the 2019 monitoring results are available in the Spring and Fall 2019 Semi-Annual Monitoring Reports.

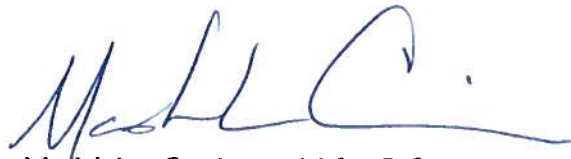
The phytoremediation system was initially planted in May 2011, and following some start-up issues was completely removed in 2012. The ground was reworked and 6,700 dogwoods and willows were planted in May 2013. Since the plantation has yet to become fully established, no trends are apparent from the monitoring results in relation to the operation of the phytoremediation system. No information is available to address Conditions 5.11 (ii and iii), as the system continues to establish itself. These conditions will be addressed in future monitoring reports.

We trust you will find this statement of compliance with the environmental monitoring and reporting requirements of ECA No. A371203 to be satisfactory. If you have any questions regarding the above information, please contact the undersigned anytime.

Respectfully submitted,
BluMetric Environmental Inc.



François A. Richard, P.Geo., Ph.D.
Senior Hydrogeologist



Madeleine Corriveau, M.Sc., P.Geo.
Senior Geoscientist

Ref: 2019 Phytoremediation_Memo_FINAL.docx

TABLES



WM-Richmond Landfill

ECA A371203

Table 1: 2019 Phytoremediation System Monitoring Results (Water Levels)

Monitoring Well	Water Level masl	Monitoring Well	Water Level masl	Monitoring Well	Water Level masl
29-Apr-19		11-Sep-19		28-Oct-19	
Shallow Groundwater Flow Zone					
M27	126.36	M27	124.62	M27	126.36
M29	NM	M29	NM	M29	NM
M30	NM	M30	NM	M30	NM
M31	NM	M31	NM	M31	NM
M38	NM	M38	NM	M38	NM
M66-2	123.26	M66-2	122.05	M66-2	122.05
M67-2	122.75	M67-2	122.03	M67-2	122.11
M100	125.51	M100	123.60	M100	125.54
M101	124.07	M101	122.40	M101	123.97
M102	124.18	M102	122.15	M102	124.15
M103	123.94	M103	122.19	M103	123.80
Intermediate Bedrock Groundwater Flow Zone					
M3A-3	123.93	M3A-3	124.25	M3A-3	124.41
M5-3	122.87	M5-3	123.28	M5-3	123.26
M6-3	123.63	M6-3	122.39	M6-3	123.38
M74	123.76	M74	122.83	M74	123.00
M75	122.95	M75	123.18	M75	123.31

NM: Not measured

WM-Richmond Landfill
 ECA A371203

Table 2a: 2019 Phytoremediation System Monitoring Results (Spring Groundwater Quality)

Name	Date	Alkalinity mg/L	Ammonia mg/L	Boron mg/L	Calcium mg/L	Chloride mg/L	Conductivity mS/cm	Dissolved Organic Carbon mg/L	Iron mg/L	Magnesium mg/L	Manganese mg/L	Nitrate mg/L	Nitrite mg/L	Potassium mg/L	Sodium mg/L	Sulphate mg/L	Total Dissolved Solids mg/L
Shallow Groundwater Flow Zone																	
M66-2	2019-04-30	220	< 0.15	0.3	110	99	1200	1.6	< 0.1	34	< 0.002	0.27	< 0.01	3.8	91	260	820
M67-2	2019-04-30	370	0.31	0.77	59	5.4	720	2.1	1	31	0.062	< 0.1	0.024	7.8	51	21	410
M101	2019-05-02	440	< 0.15	0.046	160	60	1100	2.3	< 0.1	44	0.006	< 0.1	< 0.01	3	15	61	675
M103	2019-04-30	660	< 0.15	0.22	140	180	1800	4.1	< 0.1	89	< 0.002	0.31	< 0.01	5.6	140	57	1110
Intermediate Bedrock Groundwater Flow Zone																	
M5-3	2019-04-30	440	1.38	1.2	35	42	960	1.4	< 0.1	27	< 0.002	< 0.1	< 0.01	13	150	< 1	600
M6-3	2019-04-30	380	2.42	1.3	64	1700	5700	68	< 0.1	270	0.008	< 0.1	< 0.01	20	810	91	3910
M74	2019-05-02	310	1.29	0.79	29	25	670	2.9	0.12	16	0.032	< 0.1	0.017	11	87	8.8	410
M75	2019-04-30	390	1.43	0.69	54	44	940	2.9	0.11	28	0.067	< 0.1	< 0.01	12	110	42	550

Name	Date	1,1,1,2-Tetrachloroethane mg/L	1,1,1-Trichloroethane mg/L	1,1,2,2-Tetrachloroethane mg/L	1,1,2-Trichloroethane mg/L	1,1-Dichloroethane mg/L	1,1-Dichloroethylene mg/L	1,2-Dichlorobenzene (o) mg/L	1,2-Dichloroethane mg/L	1,3,5-Trimethylbenzene mg/L	1,3-Dichlorobenzene (m) mg/L	1,4-Dichlorobenzene (p) mg/L	1,4-Dioxane mg/L	Benzene mg/L	Chlorobenzene mg/L	Chloroethane mg/L	Chloromethane mg/L	Cis-1,2-Dichloroethylene mg/L	Dichloromethane mg/L	Ethylbenzene mg/L	m+p-Xylene mg/L	o-Xylene mg/L	Styrene mg/L	Tetrachloroethylene mg/L	Toluene mg/L	Total Xylenes mg/L	Trans-1,2-dichloroethylene mg/L	Trichloroethylene mg/L	Vinyl Chloride mg/L		
Shallow Groundwater Flow Zone																															
M66-2	2019-04-30	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.001	< 0.0001	< 0.0001	< 0.0004	< 0.0005	< 0.0001	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0001	< 0.0002	
M67-2	2019-04-30	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.001	< 0.0001	< 0.0001	< 0.0004	< 0.0005	< 0.0001	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0001	< 0.0002	
M101	2019-05-02	< 0.0002	< 0.0001	< 0.0002	< 0.0002	0.00047	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0061	< 0.0001	< 0.0001	< 0.001	< 0.0005	< 0.0001	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0001	< 0.0002	
M103	2019-04-30	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.014	< 0.0001	< 0.0001	< 0.0004	< 0.0005	< 0.0001	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0001	< 0.0002	
Intermediate Bedrock Groundwater Flow Zone																															
M5-3	2019-04-30	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.001	0.0002	< 0.0001	< 0.002	< 0.0005	< 0.0001	< 0.0005	< 0.0001	0.00012	0.00019	< 0.0002	< 0.0001	< 0.0002	0.00031	< 0.0001	< 0.0001	< 0.0001	< 0.0002	
M6-3	2019-04-30	< 0.0005	< 0.0025	< 0.0005	< 0.0005	< 0.0025	< 0.0025	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.3	< 0.0025	< 0.0025	< 0.01	< 0.013	< 0.0025	< 0.013	< 0.0025	< 0.0025	< 0.0025	< 0.0005	< 0.0025	< 0.0005	< 0.0025	< 0.0005	< 0.0025	< 0.0005		
M74	2019-05-02	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.001	< 0.0001	< 0.0001	< 0.001	< 0.0005	< 0.0001	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0001	< 0.0002	
M75	2019-04-30	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.001	< 0.0001	< 0.0001	< 0.001	< 0.0005	< 0.0001	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0001	< 0.0002	

WM-Richmond Landfill
 ECA A371203
 Table 2b: 2019 Phytoremediation System Monitoring Results (Fall Groundwater Quality)

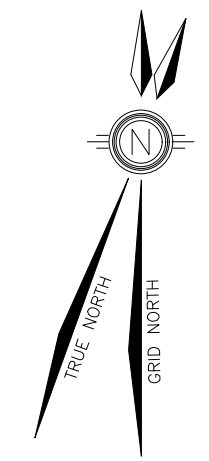
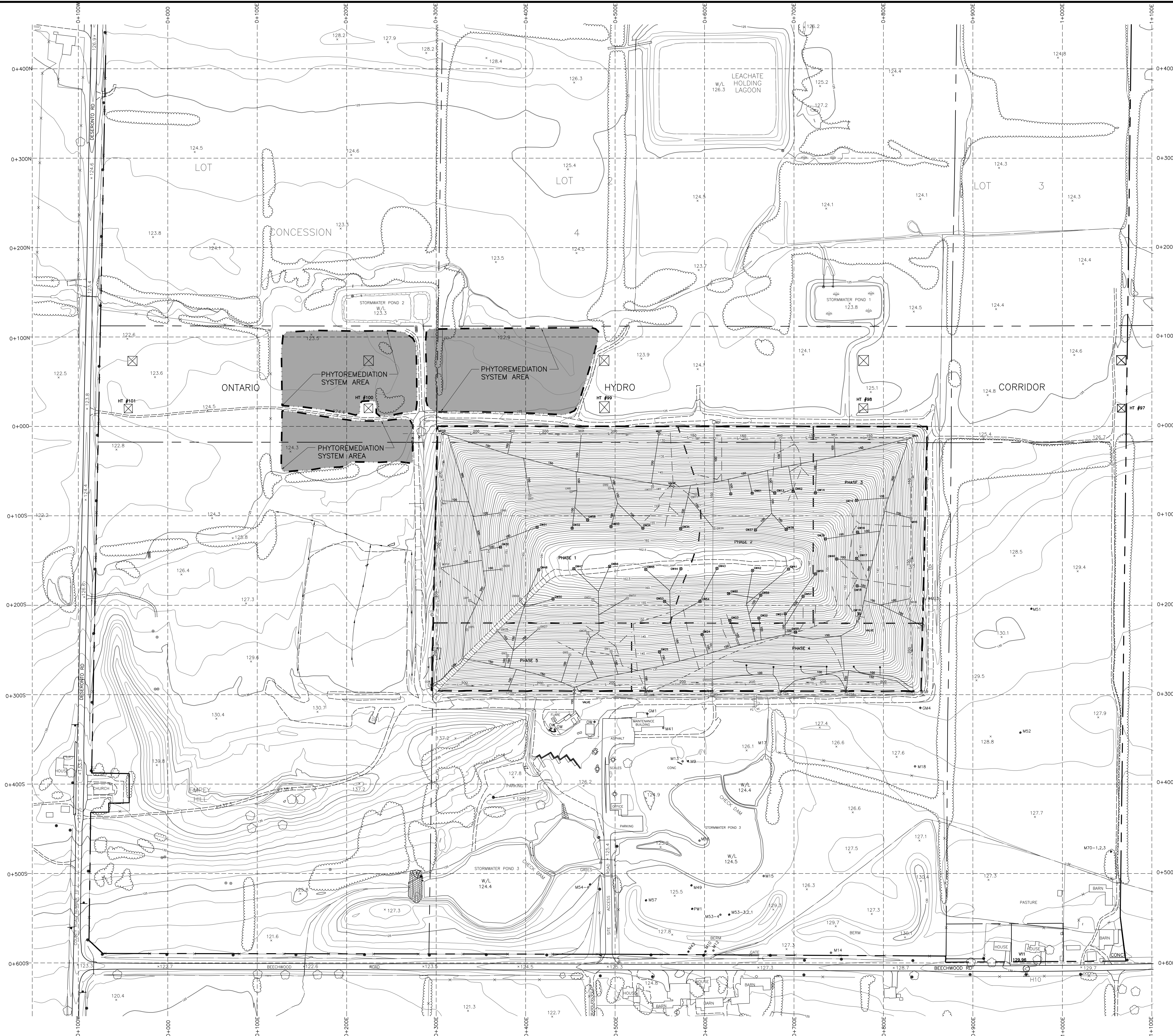
Name	Date	Alkalinity mg/L	Ammonia mg/L	Boron mg/L	Calcium mg/L	Chloride mg/L	Conductivity mS/cm	Dissolved Organic Carbon mg/L	Iron mg/L	Magnesium mg/L	Manganese mg/L	Nitrate mg/L	Nitrite mg/L	Potassium mg/L	Sodium mg/L	Sulphate mg/L	Total Dissolved Solids mg/L
Shallow Groundwater Flow Zone																	
M66-2	2019-10-29	360	< 0.15	1.2	73	120	1400	2.5	< 0.1	27	0.013	< 0.1	< 0.01	7.6	190	190	845
M67-2	2019-10-29	350	0.69	0.84	47	5.2	660	0.92	0.61	28	0.058	< 0.1	0.01	9	47	3.1	375
M101	2019-10-30	480	< 0.15	0.057	160	49	1100	2.6	< 0.1	45	0.008	< 0.1	< 0.01	3.2	16	55	625
M103	2019-10-30	690	< 0.15	0.25	150	170	1800	4	< 0.1	88	0.008	< 0.1	< 0.01	6.5	130	53	1040
Intermediate Bedrock Groundwater Flow Zone																	
M5-3	2019-10-29	450	1.42	1.1	35	49	960	0.56	< 0.1	25	0.002	< 0.1	< 0.01	13	140	< 1	570
M6-3	2019-10-29	49	2.48	1.3	62	1600	5100	54	0.88	220	0.005	< 0.1	< 0.01	20	810	91	2920
M74	2019-10-30	300	1.17	0.83	33	11	610	1.8	< 0.1	21	0.022	< 0.1	< 0.01	11	65	21	345
M75	2019-10-29	370	1.5	1	42	47	960	2.6	< 0.1	25	0.032	< 0.1	< 0.01	13	140	60	550

Name	Date	1,1,1,2-Tetrachloroethane mg/L	1,1,1-Trichloroethane mg/L	1,1,2,2-Tetrachloroethane mg/L	1,1,2-Trichloroethane mg/L	1,1-Dichloroethane mg/L	1,1-Dichloroethylene mg/L	1,2-Dichlorobenzene (o) mg/L	1,2-Dichloroethane mg/L	1,3,5-Trimethylbenzene mg/L	1,3-Dichlorobenzene (m) mg/L	1,4-Dichlorobenzene (p) mg/L	1,4-Dioxane mg/L	Benzene mg/L	Chlorobenzene mg/L	Chloroethane mg/L	Chloromethane mg/L	Cis-1,2-Dichloroethylene mg/L	Dichloromethane mg/L	Ethylbenzene mg/L	m+p-Xylene mg/L	o-Xylene mg/L	Styrene mg/L	Tetrachloroethylene mg/L	Toluene mg/L	Total Xylenes mg/L	Trans-1,2-dichloroethylene mg/L	Trichloroethylene mg/L	Vinyl Chloride mg/L		
Shallow Groundwater Flow Zone																															
M66-2	2019-10-29	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.001	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0001	< 0.0002	
M67-2	2019-10-29	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.001	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0001	< 0.0002	
M101	2019-10-30	< 0.0002	< 0.0001	< 0.0002	< 0.0002	0.00063	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0067	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0001	< 0.0002	
M103	2019-10-30	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.015	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0001	< 0.0002	
Intermediate Bedrock Groundwater Flow Zone																															
M5-3	2019-10-29	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.001	0.00042	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0005	< 0.0001	0.00014	0.00023	< 0.0002	< 0.0001	< 0.0002	0.00038	< 0.0001	< 0.0001	< 0.0002		
M6-3	2019-10-29	< 0.0002	< 0.0001	< 0.0002	< 0.0002	0.00022	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.33	0.00044	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0005	< 0.0001	0.00056	0.0002	< 0.0002	< 0.0001	0.0019	0.00076	< 0.0001	< 0.0001	< 0.0002		
M74	2019-10-30	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.001	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0001	< 0.0002	
M75	2019-10-29	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.001	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0001	< 0.0002	

APPENDIX

G

**SITE LOCATION PLAN –
PHYTOREMEDIATION
SYSTEM**



LEGEND:

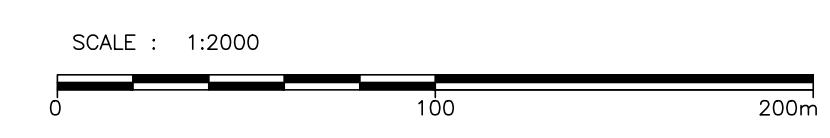
- INDEX CONTOURS
- INTERVAL CONTOURS
- REFERENCE GRID LINE
- LEGAL BOUNDARIES
- APPROVED LIMIT OF LANDFILL
- PHASING LIMITS
- EXISTING DRAINAGE DITCH
- EXISTING WEEPER
- EXISTING GAS LATERAL
- EXISTING FENCE LINE
- EXISTING TREE LINE
- EXISTING TREE
- HT #98 EXISTING HYDRO TOWER (ID #)
- EXISTING HYDRO POLE
- EXISTING ROAD EDGE
- BEDROCK WELL LOCATION
- GAS MONITOR LOCATION
- OVERBURDEN WELL LOCATION
- MH3 EXISTING LEACHATE MANHOLE
- GW EXISTING VERTICAL EXTRACTION GAS WELL
- GW NON-ACTIVE VERTICAL EXTRACTION GAS WELL

NOTES:

- 1) EXISTING GROUND CONTOURS AND TOPOGRAPHIC FEATURES SHOWN ON THIS PLAN ARE BASED ON INFORMATION OBTAINED FROM AERIAL PHOTOGRAPHY FLOWN ON JUNE 27, 2009 BY BASE MAPPING AND FIELD SURVEY DATA BY SMC TO JUNE 1, 2017.
- 2) CONTOUR INTERVAL SHOWN IS 0.5m
- 3) THE LOCAL SITE GRID IS BASED ON 0+000M BEING THE NORTH LANDFILL LIMIT. THE NORTH WEST CORNER OF THE LANDFILL LIMIT IS 0+300E AND IS PERPENDICULAR TO THE EAST/WEST GRID LINE. THE WEST LIMIT OF THE LANDFILL IS LOCATED ALONG THE LOT LINE BETWEEN LOTS 1 AND 2, CONCESSION 4.
- 4) THE PHYTOREMEDIATION SYSTEM IN THE NORTHWEST CORNER OF THE LANDFILL WAS PLANTED IN THE SPRING OF 2011. DUE TO WET CONDITIONS AND POOR GROWTH, ALL AREAS WERE PLOWED UNDER IN SEPTEMBER 2012, AND GROUND CONDITIONS WERE REWORKED. ALL AREAS WERE REPLANTED IN SPRING 2013. IN 2014, WM REPORTED THAT VEGETATION HAD RE-ESTABLISHED WELL. VARIOUS CHEMICALS WERE USED TO PROMOTE GROWTH AND REMOVE GRASS AND WEEDS. THE HEIGHT OF PLANTS VARIES FROM 50 CM TO 100 CM.
- 5) IN 2015 AND 2016, WM REPORTED THE PLANTATION EXPERIENCED GOOD GROWTH. THE WILLOWS ARE APPROXIMATELY 1.5m TO 2.4m IN HEIGHT, AND THE DOGWOODS ARE APPROXIMATELY 0.9m TO 1.2m IN HEIGHT. APPROXIMATELY FIVE (5) TO TEN (10) PERCENT MORE SHRUBS THAT WERE NOT ABLE TO BE SEEN PREVIOUSLY IN THE WEEDS, HAVE SHOWN SIGNS OF GROWTH.
- 6) IN 2017 AND 2018, WM REPORTED NO OPERATIONAL PROBLEMS OR CHANGES. GROWTH CONTINUES TO DEVELOP, AND ALL PLANT LIFE WILL CONTINUE TO BE MONITORED FOR ANY SIGN OF IMPAIRMENT.
- 7) IN 2019, WM REPORTED NO OPERATIONAL PROBLEMS OR CHANGES. WSP RECOMMENDED PRUNING OF VEGETATION TO ENSURE THE HEIGHT DOES NOT EXCEED 12 FEET, AS PER A CONDITION OF ECA NO. A371203. GROWTH CONTINUES TO DEVELOP, AND ALL PLANT LIFE WILL CONTINUE TO BE MONITORED FOR ANY SIGN OF IMPAIRMENT.

B.M. #1 ELEV. = 124.667
 TOP OF BRACKET, NORTH WEST LEG OF HYDRO TOWER No. 99, LOCATED ±25m NORTH AND ±180m EAST OF NORTH WEST CORNER OF APPROVED LANDFILL LIMIT.

B.M. #2 ELEV. = 125.146
 TOP OF BRACKET, NORTH WEST LEG OF HYDRO TOWER No. 100, LOCATED ±25m NORTH AND ±80m WEST OF NORTH WEST CORNER OF APPROVED LANDFILL LIMIT.



APPENDIX

H LETTERS OF APPROVAL FOR ALTERNATE LEACHATE TREATMENT SITES

From: McDonough, William <wmcdonou@wm.com>
Sent: February 10, 2020 3:44 PM
To: Leno, Bev
Subject: FW: Landfill Leachate Disposal from Waste Management Richmond Landfill
Attachments: Septage Facility Usage Agreement.pdf

Bev,
This is the leachate disposal approval from Kingston.

Bill McDonough
Senior Project Manager
wmcdonou@wm.com

Waste Management
8039 Zion Line
Watford ON N0M 2S0
Cell: 226 280-1795

From: Dickerson, Troy <tdickerson@utilitieskingston.com>
Sent: Tuesday, August 13, 2019 1:52 PM
To: McDonough, William <wmcdonou@wm.com>
Cc: Runions, Julie <jrunions@utilitieskingston.com>; Patenaude, James <jpatenaude@utilitieskingston.com>
Subject: [EXTERNAL] RE: Landfill Leachate Disposal from Waste Management Richmond Landfill

Hello Bill,
I have had a look at the test results and nothing is in there for us to disallow it from being brought to Ravensview septage facility to dispose of.
We will allow the leachate to be discharged at Ravensview Sewage Treatment Plant septage facility.
However, If there is a problem with the facility or we find that the leachate is affecting the treatment process, we will stop future discharge.
Attached is the form to be filled out and brought to 85 Lappan's Ln. At Lappen's Lane you can pick up a FOB.
We charge \$16.71 per cubic meter (leachate is considered industrial waste), charged at 90% capacity. Loads are pre-paid and loaded on to the key fob that they swipe at Ravensview. Transponder and fob key is \$60 +HST for new truck.

Any questions, please feel free to contact me.

Kind Regards,



Troy Dickerson

Quality Assurance Operator Water/wastewater Operations
P.O. Box 790, Kingston, ON K7L 4X7
P: 613-546-1181 x.2190 C: 613-532-3048
tdickerson@utilitieskingston.com

From: McDonough, William [<mailto:wmcdonou@wm.com>]
Sent: 08-6-2019 2:59 PM
To: Dickerson, Troy
Subject: RE: Landfill Leachate Disposal from Waste Management Richmond Landfill

Troy,

At this point its vac truck loads hauled by Sutcliffe. They haul our leachate using the same trucks they haul septage. I think they haul about 15 m3 loads.

Next year we are constructing an onsite storage tank that would allow us to haul larger loads but until the tank is built we have not looked into how much larger the loads might be.

Bill McDonough
Senior Project Manager
wmcdonou@wm.com

Waste Management
8039 Zion Line
Watford ON N0M 2S0
Cell: 226 280-1795

From: Dickerson, Troy <tdickerson@utilitieskingston.com>
Sent: Tuesday, August 6, 2019 1:23 PM
To: McDonough, William <wmcdonou@wm.com>
Subject: [EXTERNAL] RE: Landfill Leachate Disposal from Waste Management Richmond Landfill

Would the 100m3 come in a couple of tankers or a bunch of vac truck loads?
We have a dumping facility for septage and if we allow you to discharge here it is first come first serve to dumping.
Do you have your own tanker truck or is it another company that hauls the leachate?



Troy Dickerson

Quality Assurance Operator Water/wastewater Operations
P.O. Box 790, Kingston, ON K7L 4X7
P: 613-546-1181 x.2190 C: 613-532-3048
tdickerson@utilitieskingston.com

From: McDonough, William [<mailto:wmcdonou@wm.com>]
Sent: 08-6-2019 10:03 AM
To: Dickerson, Troy
Subject: RE: Landfill Leachate Disposal from Waste Management Richmond Landfill

Troy,

On average we dispose of about 100 cubic meters per day into the Napanee sewer system. As we get into August and September that can crop to half that amount. Our problem is right after rain events when our volume increases significantly and at the same time Napanee is experiencing high flows due to infiltration and shuts us off. We are wondering if Kingston can handle 100 cubic meters per day when we get shut off from Napanee. Any amount would help us. Thanks for giving this consideration.

Bill McDonough
Senior Project Manager
wmcdonou@wm.com

Waste Management
8039 Zion Line
Watford ON N0M 2S0
Cell: 226 280-1795

From: Dickerson, Troy <tdickerson@utilitieskingston.com>
Sent: Tuesday, August 6, 2019 8:40 AM
To: McDonough, William <wmcdonou@wm.com>
Subject: [EXTERNAL] RE: Landfill Leachate Disposal from Waste Management Richmond Landfill

Thank you Bill,
What is the time frame on when you would like to bring to dispose of?
What are the volumes? Is it a truck per day? Per week?

Cheers,



Troy Dickerson

Quality Assurance Operator Water/wastewater Operations
P.O. Box 790, Kingston, ON K7L 4X7
P: 613-546-1181 x.2190 C: 613-532-3048
tdickerson@utilitieskingston.com

From: McDonough, William [<mailto:wmcdonou@wm.com>]
Sent: 08-6-2019 7:21 AM
To: Dickerson,Troy
Subject: RE: Landfill Leachate Disposal from Waste Management Richmond Landfill

Troy,
Attached are the results of the monthly leachate testing that we do for Napanee. Please let me know if you need anything else. Thanks for your help.

Bill McDonough
Senior Project Manager
wmcdonou@wm.com

Waste Management
8039 Zion Line
Watford ON N0M 2S0
Cell: 226 280-1795

From: Dickerson,Troy <tdickerson@utilitieskingston.com>
Sent: Friday, August 2, 2019 1:59 PM
To: McDonough, William <wmcdonou@wm.com>
Cc: Runions,Julie <jrunions@utilitieskingston.com>
Subject: [EXTERNAL] RE: Landfill Leachate Disposal from Waste Management Richmond Landfill

Good after noon Bill,
I was sent this email to touch base with you about possibly allowing leachate from Richmond's Landfill in Napanee.
The first thing I would need is to get the latest test result of the leachate.
Once I have the results and review them I will contact you to discuss.

Cheers,



Troy Dickerson

Quality Assurance Operator Water/wastewater Operations

P.O. Box 790, Kingston, ON K7L 4X7

P: 613-546-1181 x.2190 C: 613-532-3048

tdickerson@utilitieskingston.com



From: Runions,Julie
Sent: 07-12-2019 1:12 PM
To: Dickerson,Troy
Cc: Emon,Philip; Hannah,Kevin; Patenaude,James
Subject: FW: Landfill Leachate Disposal from Waste Management Richmond Landfill

Hi Troy,
See the email below.
Can you please review and reply to Bill McDonough?
If you think a meeting is appropriate, I can attend.

Thank you,
Julie



Julie Runions, P.Eng.

Manager, Water and Wastewater Treatment Operations

P.O. Box 790, Kingston, ON K7L 4X7

P: 613-546-1181 x.2172

jrunions@utilitieskingston.com



From: McDonough, William [<mailto:wmcdonou@wm.com>]
Sent: 07-11-2019 12:08 PM
To: Runions,Julie
Subject: Landfill Leachate Disposal from Waste Management Richmond Landfill

Ms. Runions,
I manage Waste Management's closed Richmond landfill near Napanee. We manage most of our landfill leachate by trucking it into Napanee. Like many communities, Napanee has infiltration/inflow problems after rainstorms and occasionally after storms cannot accept our leachate. We are looking for additional waste water treatment plants that could handle some our leachate. MECP staff has given me your name and suggested Kingston might be able help us.

Would you be willing to meet with me to discuss whether Kingston can help us?

Bill McDonough
Senior Project Manager
wmcdonou@wm.com

Waste Management
8039 Zion Line
Watford ON N0M 2S0
Cell: 226 280-1795

Recycling is a good thing. Please recycle any printed emails.

This E-mail contains confidential information intended only for the individual or entity named in the message. If the reader of this message is not the intended recipient, or the agent responsible to deliver it to the intended recipient, you are hereby notified that any review, dissemination, distribution or copying of this communication is prohibited. If this communication was received in error, or if you wish to stop receiving communications from the City of Kingston, please notify us by reply E-mail and delete the original message.



Septage Facility Usage Agreement

Utilities Kingston – Receptionist 613-546-1181 ext.2337
85 Lappan's Lane
P.O. Box 790
Kingston, ON, K7L 4X7

Transceiver No. original application: _____

Proximity Key No. original application: _____

Fill out Part 1 and 2, and submit this form, in person, to register and obtain a *Transceiver and Proximity Key* for each truck.

PART 1 – CUSTOMER INFORMATION

Company: _____

Primary Contact: _____

Email Address: _____

Phone#: _____

Cell #: _____

Address: _____

City: _____

Postal Code: _____

Truck Make: _____ Cab Colour: _____

Type/Model: _____

No. Of Axles: _____ Tank Volume: _____ liters or gallons – (circle one)

MOE Approval #: _____ Your Truck ID/Name: _____

PART 2 – TERMS OF AGREEMENT / INFORMATION

Each customer (company) will fully complete an agreement for each truck requiring access to septage receiving, and for which a Transceiver and Proximity Key will be required. These will enable site access and use of the Cataraqui Bay Wastewater Treatment Plant Septage Receiving Station, subject to the activation of the *Transceiver and Proximity Key*.

Access may be restricted for any of the following reasons;

- Failure to keep accounts current
- Failure to provide proper manifest information, providing false manifest information. Transponders and Keys may only be used for the truck they were originally assigned to.
- Failure to abide by the terms of the sewer use bylaw. Random samples of dumped waste may be collected and analyzed to ensure the material dumped is within acceptable limits.

This agreement is a one-time application and provides the customer **one Transceiver** and **one Proximity Key** for each truck for a fee of \$60.00 + HST per truck.

Transceiver/Proximity Key:

- The Transceiver and Key are assigned to a specific truck, and are obtained from the Receptionist at Utilities Kingston, 85 Lappan's Lane, Kingston, ON.
- The customer will prepay for loads which the clerk will credit to the Proximity Key. Payments may be made by cheque, debit or credit card. The proximity key does not have to accompany payment when loads are purchased and credited to the key. (You do need to know which truck the purchased loads are to be applied to.)
- The Transceiver permits access to the site during permitted hours, when the terms of use are met.
- The Key activates the dumping system when one or more prepaid loads remain, and when the terms of use are met.

