

2025 Annual Report – Waste Resource Innovation Centre

Environmental Compliance Approval #A170128 & 9496-9NFKJ9

City of Guelph

60779742

March 2026

Statement of Qualifications and Limitations

The attached Report (the “Report”) has been prepared by AECOM Canada ULC (“AECOM”) for the benefit of the Client (“Client”) in accordance with the agreement between AECOM and Client, including the scope of work detailed therein (the “Agreement”).

The information, data, recommendations and conclusions contained in the Report (collectively, the “Information”):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the “Limitations”);
- represents AECOM’s professional judgement in light of the Limitations and industry standards for the preparation of similar reports;
- may be based on information provided to AECOM which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context;
- was prepared for the specific purposes described in the Report and the Agreement; and
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

AECOM shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. AECOM accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

AECOM agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but AECOM makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

Without in any way limiting the generality of the foregoing, any estimates or opinions regarding probable construction costs or construction schedule provided by AECOM represent AECOM’s professional judgement in light of its experience and the knowledge and information available to it at the time of preparation. Since AECOM has no control over market or economic conditions, prices for construction labour, equipment or materials or bidding procedures, AECOM, its directors, officers and employees are not able to, nor do they, make any representations, warranties or guarantees whatsoever, whether express or implied, with respect to such estimates or opinions, or their variance from actual construction costs or schedules, and accept no responsibility for any loss or damage arising therefrom or in any way related thereto. Persons relying on such estimates or opinions do so at their own risk.

Except (1) as agreed to in writing by AECOM and Client; (2) as required by-law; or (3) to the extent used by governmental reviewing agencies for the purpose of obtaining permits or approvals, the Report and the Information may be used and relied upon only by Client.

AECOM accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information (“improper use of the Report”), except to the extent those parties have obtained the prior written consent of AECOM to use and rely upon the Report and the Information. Any injury, loss or damages arising from improper use of the Report shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

Authors

Report Prepared By:



Patty Wong, B.Sc., P.Geo.
Senior Geologist



Manisha Balasundaram, B.Sc., GIT
Environmental Scientist

Report Reviewed By:



Kelly Ali, M.A.Sc. P.Eng.
Hydrogeologist



Prepared for:

City of Guelph
Solid Waste Resources
Infrastructure, Development and Enterprise
1 Carden Street
Guelph, Ontario N1H 3A1

Prepared by:

AECOM Canada ULC
105 Commerce Valley Drive West, 8th Floor
Markham, ON L3T 7W3
Canada

T: 905.886.7022

F: 905.538.8076

aecom.com

Executive Summary

The City of Guelph Solid Waste Transfer Station, Materials Recovery Facility and Organic Waste Processing Facility are adjacent facilities that operate under a combined Amended Provisional Certificate of Approval/Environmental Compliance Approval issued by the Ministry of Environment, Conservation and Parks, dated February 10, 2011 (Certificate of Approval #A170128) and an amended Environmental Compliance Approval dated January 7, 2015 (Environmental Compliance Approval #9496-9NFKJ9). On August 11, 2023, an Amended Environmental Compliance Approval was issued by the Ministry of Environment, Conservation and Parks (Environmental Compliance Approval #A170128) which updated the structure of the Environmental Compliance Approval and therefore changed the references for various conditions. The references used in this report are from the most recent consolidated Environmental Compliance Approval #A170128 issued on January 7, 2025.

Table A. Amended Environmental Compliance Approval #A170128 presents a summary of the 2025 Annual Report for the City of Guelph Waste Resource Innovation Centre. The Environmental Compliance Approval specifies annual reporting requirements. These have been outlined in the left-hand column below, while the right-hand column provides a reference to the section of this report where the reader will find further details. **Table B. Amended Environmental Compliance Approval #9496-9NFKJ9** presents a similar summary specific to elements from the amended Environmental Compliance Approval dated January 7, 2015 (Environmental Compliance Approval #9496-9NFKJ9).

Table A. Amended Environmental Compliance Approval #A170128

Environmental Compliance Approval Annual Report Requirement		Report Reference and Summary
22(1) The Owner shall submit an annual report on the operation of the Site for the previous calendar year to the District Manager by March 31st of each year. This report will include the information required as follows: a. the information required by Condition 33.9 of the Approval dealing with the Composting Site; 33(9) By March 31st following the end of each operating year, the Owner shall prepare and submit to the District Manager, an Annual Report summarizing the operation of the Composting Site covering the previous calendar year. This Annual Report shall include, as a minimum, the following information: 33(9)(a) a monthly mass balance of the Organic Waste received, processed and transferred from this Composting Site, including waste type, quantity, sources and/or disposal destinations;		■ Table 2 (Section 2.1) provides details on the organic materials received, processed and transferred from the site. The compost facility received 31,277 tonnes of material. Of the materials received, source separated organic materials constituted 30,054 tonnes and amendment/mulch made up the remaining 1,224 tonnes. During 2025, the site accepted source separated organic material from the City of Guelph and the Region of Waterloo. Amendment material was received from the City of Guelph in the form of wood chips from the City of Guelph Parks and Recreation Department and the Region of Waterloo. A total of 6,130 tonnes of finished compost was removed from the facility in 2025. The finished compost was shipped to locations in Guelph, Huron County, Simcoe, Eramosa, Clinton and Blyth. The compost distribution/market for 2025 was focused on agricultural customers. This included large row crop farmers and a grain crop input supply company. A total of 563 tonnes of screening, residual compost waste and organic rejected material were shipped to the Transfer Station and then Waste Management Twin Creeks Landfill in Sarnia, Ontario.
33(9)(b) an annual summary mass balance of the Organic Waste, the Wood Waste, the Waste Wood and the Amendment Material received, processed and transferred from this Composting Site, including waste type, quantity, sources and/or disposal destination;		■ Table 2 (Section 2.1) provides details on the organic materials received, processed and transferred from the site including amendment material.
33(9)(c) an annual summary of any deficiencies, items of non-compliance or process aberrations that occurred at this Composting Site and any remedial / mitigative action taken to correct them;		■ As reported in Section 2.5, there were no deficiencies, or process aberrations in 2025.
33(9)(d) a descriptive summary of any spills, Incidents or other emergency situations which have occurred at this Composting Site, any remedial measures taken, and the measures taken to prevent future occurrences;		■ As reported in Section 2.2, there was a spill in August 2025 at the compost facility that was reported and cleaned. No other reportable spills occurred in 2025 at the composting site.
3(9)(e) a summary describing any Rejected Waste including quantity, waste type, reasons for rejection and origin of the Rejected Waste;		■ As reported in Section 2.2, there were 19 tonnes of rejected material from the organics plant due to contamination. The contaminated material usually consists of curbside recyclable collection (blue cart) material that is either inadvertently placed in with the organics (green cart) by the homeowner or the blue cart material is inadvertently placed in the wrong area of the split box collection trucks. The rejected material was sent to the transfer station and then onto Twin Creeks landfill for final disposal.
33(9)(f) the quantity, by weight and volume of Compost and residues produced and the quantity of Compost and residues removed from the facility;		■ Table 2 (Section 2.1) shows that 6,130 tonnes of finished compost was removed from the facility. 563 tonnes of screening and residual compost waste from the composting process were shipped to the Transfer Station and then the Waste Management Twin Creeks Landfill in Sarnia, Ontario or to various other locations.
33(9)(g) any environmental and operational problems, that could negatively impact the environment, encountered during the operation of the Composting Site or identified during the facility inspections and any mitigative actions taken;		■ As reported in Section 2.2, there were no environmental or operational problems that could negatively impact the environment, encountered during the operation of the composting site or identified during the facility inspections in 2025. The facility is operating as designed.
33(9)(h) any changes to the WRIC Environmental Emergency Plan, the Operations Manual or the Closure Plan that have been approved by the Director since the last Annual Report;		■ As reported in Section 2.2, there were no changes to the, the Operations Manual or the Closure Plan since the last annual report. The Waste Resource Innovation Centre Emergency Response and Contingency Plan was updated December 2, 2025 for routine improvements to emergency action plans.
33(9)(i) any recommendations to minimize environmental impacts from the operation of the Composting Site and to improve Composting Site operations and monitoring programs in this regard;		■ As discussed in Section 2.4, there were no deficiencies/non-compliance or environmental/operational issues related to the compost facility in 2025. The facility is operating as designed.
33(9)(j) a summary of any complaints received and the responses made, as required by the Air/Noise Approval for the Composting Site;		■ Section 2.2.1 discusses the 15 odour complaints received in 2025 at the Waste Resources Innovation Centre. The complaints and remedial actions were reported to the Ministry, and a response letter was provided to each complainant. Four of the complaints were confirmed attributable to the Waste Resource Innovation Centre, though seven were considered possibly attributable, but could not be confirmed. Remedial measures were undertaken, where required.

Environmental Compliance Approval Annual Report Requirement	Report Reference and Summary
33(9)(k) a description of the Compost distribution/markets;	■ As reported in Section 2.1, all compost produced at the site was shipped to locations in Guelph, Huron County, Simcoe, Eramosa, Clinton and Blyth in 2025. The compost distribution/market for 2025 was focused on agricultural customers. This included large row crop farmers and a grain crop input supply company.
33(9)(l) conclusions from the pathogen testing as the results relate to the pasteurization temperature monitoring; and	■ Section 2.3 reports samples taken from the maturation hall of the compost stream indicate that all compost that has been shipped off the site has passed the conditions for a Class AA or A compost under the Canadian Council of Ministers of the Environment Guidelines and the conditions within the Certificate of Approval/Environmental Compliance Approval. ■ Results from pathogen testing included in comprehensive laboratory analysis from third party accredited laboratory remain within allowed parameters or below detectable levels. ■ Temperature monitoring logs of the tunnels at the composting facility show that pasteurisation at 55 degrees Celsius was maintained for 72 hours, as required.
33(9)(m)a condition-by-condition analysis of compliance with all Conditions of this Approval.	■ Section 2.5 reports that based on a review of the 2025 information provided by the City, there are no non-compliance issues for 2025.
22(1)(b) a monthly summary of the waste and/or recyclable materials received at the Site, including quantity, source and Regulation 347 waste classes;	■ Table 3 (Section 5.1) provides details of the incoming materials. 83,278 tonnes of material were received by the site. The compost facility received 30,054 tonnes of organics; 36% of the total materials received at the site. Recyclables and mixed dry materials constituted 9,842 tonnes (12%). Non-recyclable materials (mixed solid waste and organic rejected materials) constituted the remaining 49,212 tonnes (59%) of solid waste materials received by the transfer station in 2025 including materials transferred from the Public Drop Off, Materials Recovery Facility, and Organic Waste Processing Facility. ■ Recyclables accepted by the Waste Resource Innovation Centre originated mainly from the City of Guelph and the remaining sources from other areas in Ontario.
22(1)(c) a monthly summary of the wastes and/or recyclable materials processed at the Site including quantity and Regulation 347 waste classes;	■ Table 6 (Section 5.2) provides details on processed waste at the site. There were 2,152 tonnes of marketable processed material was transferred off the site from the Waste Resource Innovation Centre (Public Drop Off) facility.
22(1)(d) a monthly summary of the waste and/or recyclable materials transferred off-Site including quantity, destination and Regulation 347 waste classes;	■ Table 6 (Section 5.2) provides details on the outgoing materials. Of the 45,087 tonnes of non-processed outgoing materials from the Transfer Station, 45,087 tonnes (100% of the outgoing materials) was sent to the Waste Management Twin Creeks Landfill in Lambton County. ■ Of the 67,709 tonnes of outgoing material, 2,152 tonnes (3%) is processed on-site through the Public Drop Off Facility and 6,130 tonnes of finished compost was produced. 9,403 tonnes of residual compost waste and overs from the organic compost plant was generated in 2025. In 2025, the municipal hazardous special waste facility received and diverted a total of about 170,189 Litres and 30,469 kilograms of municipal and household special wastes, in addition to 612 (1,223 feet) of fluorescent tubes. ■ 2,152 tonnes of marketable un-processed material were transferred off the site from the Waste Resource Innovation Centre (Public Drop Off) facility. These items were recyclable materials such as paper-based goods (cardboard and newsprint), plastics, aluminum, steel cans, glass, shingles, drywall, concrete, wood, and scrap metal.
22(1)(e) an annual summary of the analytical results from the groundwater monitoring program and from surface water monitoring required in Sewage Approval, including an interpretation of the results and any remedial/mitigative action undertaken;	■ Section 8 discusses groundwater quality. Groundwater monitoring results indicate road salt effects at some up-gradient groundwater monitoring locations (5-96, 14b-01, 18b-14, 19b-08, 20b-08, 23b-12). These are related to off-site winter road salting of the adjacent major roadways. Road salt effects are detected in some on-site downgradient groundwater monitors (6b-96, 7-96, 11b-00, 13b-01, 15b-01, 17b-08). Monitors 5-96 exceeded Ontario Drinking Water Standards for sodium and/or chloride in 2025 as a result of road salt effects. The chloride Ontario Drinking Water Standards was also exceeded at 17a-08 in June 2025. There were no apparent leachate impacts observed in the groundwater at the site boundary. ■ There were no other exceedances of the nitrate Ontario Drinking Water Standards in 2025. Historically, elevated nitrate concentrations were prevalent across the site at all locations prior to development of the site and have shown a decreasing trend over the past several years. Generally, elevated nitrates on site are most likely a result of surrounding and historic land use in the area and are not a result of site operations. The 2024 elevated nitrates may also be partially due to the breakdown of ammonia, which was elevated in 2023 following a spill, water quality at impacted locations is improving and will continue to be monitored.

Environmental Compliance Approval Annual Report Requirement	Report Reference and Summary
22(1)(e) an annual summary of the analytical results from the groundwater monitoring program and from surface water monitoring required in Sewage Approval, including an interpretation of the results and any remedial/mitigative action undertaken; (continued)	■ Exceedances of the iron Ontario Drinking Water Standards occurred at many of the monitoring locations during the December 2011 and also continue to be noted in 2025. The cause of the overall increase in iron concentrations is unknown. These elevated iron concentrations will continue to be investigated further in future monitoring events. In 2023, the sulphate and/or alkalinity Ontario Drinking Water Standards was exceeded during at least one of the monitoring events at downgradient bedrock monitor 6a-96 and shallow outwash downgradient monitor 22b-11. These monitor locations, in the vicinity of Stormwater Detention Pond 2, where a spill occurred in May 2023. It appears that these locations were affected by the release but the effects are now dissipating. Further monitoring will confirm if parameter concentrations continue to improve. Aside from the exceedances discussed above, there were no other exceedances of the Ontario Drinking Water Standards in 2025 for the groundwater monitors sampled for the site monitoring programs. ■ As the shallow outwash water quality is not affected by site operations, no effects to the deeper bedrock groundwater would be expected. No leachate effects were detected in the bedrock monitors sampled in 2025. ■ Section 8.5 discusses organic groundwater results. The 2025 organic sampling showed that there was a detection of chloroform at some of the on-site monitors. However, based on the historic detections of occasional low levels of volatile organic compounds throughout the site in both upgradient and downgradient monitors, the 2025 volatile organic compound detections are not considered to be related to site operations. There are no sources of volatile organic compounds on the Waste Resource Innovation Centre or Transfer station property as waste is handled within the covered buildings, truck boxes are covered when outside (preventing contact between the waste and precipitation) and no waste processing occurs outdoors on-site. ■ Section 8.7 discusses the Guideline B-7 assessment for monitor nest 22-11, located along the western property boundary. The iron concentration at monitor 22a-11 and 22b-11 exceeded Guideline B-7 limits during both 2025 monitoring events. As previously discussed, iron concentrations at some of the monitor locations have been unusually high since the December 2011 monitoring event. The elevated iron concentrations occurred in both upgradient and downgradient monitors and therefore, do not appear to be related to site operations. Nitrate at 22b-11 did exceed the B-7 allowable limit in June 2025 as a result of the 2023 release however did not exceed in December 2025. ■ Of the 10 sets of samples collected in 2025 at EPTS-01 (the existing background on-site surface water pond, East Pond), the Provincial Water Quality Objectives for zinc was exceeded during all of the 2025 monitoring events. Zinc has consistently exceeded Provincial Water Quality Objectives in the past at this location. All the leachate indicator parameters concentrations were within background overburden ranges. ■ Surface water organic sampling in June 2025 showed a low concentration of chloroform and bromodichloromethane at the background surface water station, EPTS-01. Low chloroform levels have historically occasionally been detected at this location. ■ Section 8.7 discusses surface water quality results. Monthly monitoring of the stormwater management pond in the northwest corner of the site was conducted, with samples collected at the discharge at the north end of the pond (TP1 (out)) on 10 occasions in 2025. SWM pond samples exceeded the Provincial Water Quality Objectives for zinc, iron, total phosphorus and phenols during two or more 2025 sampling events each. The elevated total phosphorus is a result of surrounding land use and not a result of operations at the site. Elevated zinc, total phosphorus and iron concentrations appear to be related to external factors since background surface water have also exceeded Provincial Water Quality Objectives for these parameters. Metals are a common contaminant from roadway runoff. Elevated phosphorus is typical in rural and urbanized areas. No volatile organic compounds were detected at TP1 (out) during June 2025. Low April 2019 volatile organic compound detections may have been related to the fire at the waste transfer station three days prior to this monitoring event. Water from fire fighting efforts was directed to the SWM Pond where TP1 (out) is located. As expected, volatile organic compound concentrations quickly dissipated such that they were below the laboratory detection limits during the subsequent monitoring events since late 2019. ■ The SW 1 (Stormwater Detention Area 2) was and not sampled in 2025 since the pond was dry and the water level in the detention pond was never above the trigger level of 0.46 m. No discharge was required from the Detention Pond 2 in 2025. ■ As previously discussed, the design and operation of the Waste Resource Innovation Centre and compost facility minimizes the potential for leachate generation from site activities.
22(1)(f) an annual summary of any deficiencies, items of non-compliance or process aberrations that occurred and remedial/mitigative action taken to correct them;	■ Section 4 of the report briefly discusses site compliance. As reported by the City, there were no deficiencies or items of non-compliance in 2025.

Environmental Compliance Approval Annual Report Requirement	Report Reference and Summary
22(1)(g) a summary of any changes to the Design and Operations Report that have been approved by the Director since the last annual report;	■ As stated in Section 4.2, there have been no changes to the Engineer’s Report since the last annual report. However, an Environmental Compliance Approval application for amendment was submitted to the Ministry of Environment, Conservation and Parks in November 2024, which included an updated Design and Operations report. The application and updated Design and Operations Report was approved with the issuance of amended Environmental Compliance Approval A170128 on January 8, 2025.
22(1)(h) a summary of any changes to the Design and Operations Report and the WRIC Environmental Emergency Plan that were made in accordance with Condition 36 of this Approval;	■ As stated in Section 4.2, there have been no changes to the Engineer’s Report since the last annual report. An updated Design and Operations Report was submitted to the Ministry of Environment, Conservation and Parks with the Environmental Compliance Approval application for amendment in November 2024. The application and updated Design and Operations Report was approved with the issuance of amended Environmental Compliance Approval #A170128 on January 8, 2025. The Waste Resource Innovation Centre Emergency Response and Contingency Plan was updated on December 2, 2025 for routine improvements to emergency action plans.
22(1)(i) a summary of any changes to the Design and Operations Report that have been approved by the Director since the last annual report;	■ As stated in Section 4.2, there have been no changes to the Engineer’s Report since the last annual report. However, an updated Design and Operations Report was submitted to the Ministry of Environment, Conservation and Parks with the Environmental Compliance Approval application for amendment on November 7, 2024. Changes included the additional functions for the Material Recovery Facility.
22(1)(j) update on activities of the PLC; and	■ Section 9 summarizes the 2025 Public Liaison Committee activities, as provided by the City.
22(1)(k) all measurement units shall be reported in consistent metric units.	■ All measurements in this report are in metric units.
*In the updated ECA it is noted that the condition numbering restarts at 1. GENERAL – NUISANCES following 9. GENERAL - WASTE STORAGE AND RECEIPT, the condition number quoted in Table A is based on the numbering being consecutive. For example, in the ECA Condition 13. ANNUAL REPORT is referred to in this Table as Condition 22 (9 +13 = 22)	

B. Amended Environmental Compliance Approval #9496-9NFKJ9

Environmental Compliance Approval Monitoring and Reporting (Condition 5)		Report Reference and Summary
5(1) The Owner shall implement a groundwater and surface water sampling program to ensure early detection of contaminants in the event that such contaminants escape the Waste Resources Innovation Centre site, as follows:	5(2) Groundwater and surface water shall be sampled and analyzed for the following parameter suite (see Section 1.1 for table of parameters)	■ The results of the groundwater monitoring program at the Waste Resource Innovation Centre is discussed in Section 8. There were no observable effects attributed to the Waste Resource Innovation Centre operations on the groundwater quality beneath the site. No effects were observed at the site boundaries. Road salt effects continue to be observed at monitoring locations both upgradient of the site and on-site. ■ The results of the surface water monitoring program are discussed in Section 8.7. SWM pond samples exceeded the Provincial Water Quality Objectives for zinc, iron, total phosphorus and phenols during two to 11 of the 2024 sampling events each. The elevated total phosphorus is a result of surrounding land use and not a result of operations at the site. Elevated zinc, total phosphorus and iron concentrations appear to be related to external factors since background surface water have also exceeded Provincial Water Quality Objectives for these parameters. Metals are a common contaminant from roadway runoff. Elevated phosphorus is typical in rural and urbanized areas. No volatile organic compounds were detected at TP1 (out) during June 2024. Low April 2019 volatile organic compound detections may have been related to the fire at the waste transfer station three days prior to this monitoring event. Water from fire fighting efforts was directed to the SWM Pond where TP1(out) is located. As expected, volatile organic compound concentrations quickly dissipated such that they were below the laboratory detection limits during the subsequent monitoring events since late 2019.
5(3) The surface water monitoring shall include obtaining grab samples at the discharge locations of the final surface water off the Waste Resources Innovation Centre site, for at least three (3) wet events per year (a wet event is defined as a minimum of 15 mm of rain in the previous 24 hours), and tested for Total Suspended Solids (milligrams per Litre), ant the results recorded. Two (2) of the events must occur within the May to September time period.		■ Section 8.8.1 provides details on the three wet event samples collected from TP1(out) in May, August and September 2024. ■ TSS concentrations from the four wet events ranged from 3 milligrams per Litre to 5 milligrams per Litre. ■ No discharge occurred during any of the wet events or throughout the year.
5(4) The Owner shall annually review and update the groundwater and surface water sampling programs, designed to detect and quantify any impacts originating from the Waste Resources Innovation Centre site.		■ As reported in Section 8.7.2, the results of the groundwater and surface water sampling program are reviewed annually with the results presented herein.
5(5) Sampling frequency and parameters for analysis may be adjusted upon the written approval of the Water Supervisor, from time to time, as groundwater and surface water information becomes available.		■ As reported in Section 8.8, no changes to the current monitoring program are recommended at this time.
5(6) All groundwater monitoring wells which form part of any monitoring program shall be protected from damage. Any groundwater monitoring wells that are damaged shall be repaired or replaced forthwith or properly abandoned in accordance with Ontario Regulation 903.		■ As reported in Section 6.1, groundwater monitors are inspected during each of the monitoring events and their condition recorded by field staff. If any monitor is found to be damaged or in need of maintenance, a work order is submitted for repairs and repairs are completed as soon as possible.
5(7) The Owner shall annually review and update, if required, the detailed maintenance schedules for the stormwater management facilities on the Waste Resources Innovation Centre site.		■ As discussed in Section 4.1, The City undertakes daily inspections of the stormwater (SWM) facilities on site and completes maintenance, as needed. Inspection and cleaning of the stormwater facilities was conducted by City staff on October 9, 2025. The Ministry inspected the stormwater facilities in 2020, The inspection report is included in Appendix F. The Spill Plan was updated as per the recommendation in the Ministry inspection report
5(8) The Owner shall submit to the Water Supervisor, every year, a copy of the test results as per Condition 5, Subsection (2) and Subsection (3), above.		■ As reported in Section 13, the Water Supervisor is provided a copy of the annual report each year, containing the test results.
5(9) The Owner shall submit to the Water Supervisor, an annual report on the groundwater and surface water sampling and monitoring program described herein, and shall include an interpretation of the results prepared by a qualified hydrogeologist, engineer or scientist, and shall identify any remedial/mitigative action taken.		■ As reported in Section 13, the Water Supervisor is provided a copy of the annual report each year, which includes an interpretation of the groundwater and surface water results. ■ This report is prepared by a qualified professional engineer and reviewed by a professional geoscientist and a professional engineer.

Table of Contents

1.	Introduction and Background	1
1.1	Annual Reporting Requirements	4
2.	Composting Facility	9
2.1	Material Received, Processed and Transferred	9
2.2	Deficiencies / Non-Compliance and Environmental / Operational Issues	11
2.2.1	Public Complaints	12
2.3	Enhanced Pathogen Testing and Operations Summary	13
2.4	Site Operation Recommendations	13
2.5	Compliance with the Conditions of the Certificate of Approval	14
3.	Municipal Hazardous and Special Waste Operations	15
4.	Waste Transfer Station Operations	16
4.1	Facility Inspection and Routine Maintenance	16
4.2	Contaminant Sources	16
4.2.1	Site Design and Operations	16
5.	Incoming and Outgoing Waste and/or Recyclables	18
5.1	Summary of Incoming Materials	18
5.2	Summary of Wastes/Recyclables Processed and Outgoing	22
6.	Groundwater and Surface Water Monitoring Program	26
6.1	Groundwater Monitoring Program	26
6.2	Surface Water Monitoring Program	30
7.	Leachate Quality	32
7.1	Leachate Indicators	32
7.2	Petroleum Indicators	33
8.	Groundwater, Leachate and Surface Water	34
8.1	Groundwater Elevation and Flow Directions	34
8.2	Groundwater Monitoring	38
8.2.1	Transfer Station Area	38
8.2.2	Waste Resource Innovation Centre	38
8.3	Background Groundwater Quality	40

8.3.1	Background Outwash Water Quality _____	40
8.3.2	Background Bedrock Water Quality _____	42
8.4	Downgradient Groundwater Quality _____	47
8.4.1	Shallow Outwash Groundwater Quality _____	47
8.4.2	Downgradient Bedrock Groundwater Quality _____	53
8.5	Groundwater Organics Results _____	53
8.6	General Groundwater Quality Discussion _____	54
8.7	Guideline B-7 Assessment _____	56
8.8	Surface Water Monitoring _____	60
8.8.1	Transfer Station Area _____	60
8.8.2	Waste Resource Innovation Centre _____	64
8.9	Adequacy of Program and Proposed Changes _____	67
9.	Public Liaison Committee Activities _____	70
10.	Environmental Management System – ISO 14001 Certification Progress _____	71
10.1	Emergency Management Training and Test Exercise _____	71
11.	Waste Resource Innovation Centre Contingency Plans _____	72
11.1	Spills _____	72
11.2	Fire or Similar Emergency _____	73
11.3	Composting Facilities _____	73
11.4	Power or Equipment Failure _____	73
11.5	Odour _____	74
11.6	Aircraft Hazards/Bird Control _____	74
11.7	Un-Authorized Waste _____	74
11.8	Groundwater/Surface Water Contamination _____	75
11.9	Quality/Fungal Contamination _____	75
12.	Current Health & Safety Program & Staff Training Program _____	76
13.	Summary of Site Operational Changes and Compliance _____	78
14.	Conclusions _____	80
14.1	The Composting Site _____	80
14.2	Operations _____	81

14.3	Groundwater Elevations and Flows	81
14.4	Groundwater	82
14.5	Surface Water Monitoring	83
15.	Recommendations	85
16.	References	88

Figures

Figure 1:	Groundwater Monitor Location Map	2
Figure 2:	Bedrock Groundwater Flow (June 2025)	36
Figure 3:	Shallow Groundwater Flow (June 2025)	37

Tables

Table 1:	Parameters for Analysis	7
Table 2:	2025 Monthly Summary of Incoming and Outgoing Material, Composting Facility	10
Table 3:	2025 Monthly Summary of Incoming Material	19
Table 4:	2025 Monthly Summary	20
Table 5:	2025 Monthly Summary of the Amounts of Municipal Hazardous Special Waste (separated by waste class) received by Paint Plus Re-Use Program	21
Table 6:	2025 Monthly Summary of Outgoing Materials	24
Table 7:	Summary of Incoming, Outgoing and Processed Quantities	24
Table 8:	Waste Receivers	25
Table 9:	Major Buyers of Dry Recyclable Processed Materials	25
Table 10:	Groundwater Monitoring Program	27
Table 11:	Analytical Parameter List	28
Table 12:	Organic Compound Parameters	29
Table 13:	Summary of Leachate Quality from the Waste Monitors, Eastview Landfill	32
Table 14:	Monitoring Wells and Target Units	35
Table 15:	2025 Background Outwash Water Quality (in parts per million)	41
Table 16:	Bedrock Water Quality (in parts per million)	44
Table 17:	Shallow Outwash Groundwater Quality (in milligrams per Litre)	49
Table 18:	Guideline B-7 Calculated Maximum Parameter Concentrations – Overburden	57

Table 19:	Guideline B-7 Calculated Maximum Parameter Concentrations – Bedrock _____	58
Table 20:	Summary of 2025 Ministry of Environment, Conservation and Parks Guideline B-7 (Reasonable Use) Calculations at the Northwest Boundary _____	59
Table 21:	Sampling Conditions at TP1(Out) _____	60
Table 22:	Transfer Station Surface Water Quality (in parts per million) _____	62
Table 23:	Conditions at SW1 _____	65
Table 24:	Monitoring Parameter List _____	85
Table 25:	Monitoring Program Summary _____	86

Appendices

Appendix A.	Groundwater Elevations and Hydrographs
Appendix B.	Groundwater Chemistry and Time-Concentration Plots – Routine and Organics
Appendix C.	Surface Water Chemistry – Routine and Organics
Appendix D.	2025 Laboratory Reports
Appendix E.	Certificate of Approval – Waste Resource Innovation Centre and Transfer Station
Appendix F.	Ministry of the Environment, Conservation and Parks Correspondence

Selected Definitions

Note: additional definitions are also found in the site Certificate of Approval/ Environmental Compliance Approval, Appendix E

“Amendment material” means materials added to the Organic Waste to assist in the performance of the process and/or ameliorate the quality of the Marketable Product.

“Clean Wood” means wood that is not painted wood, treated wood or laminated wood. Clean Wood does not include wood waste or waste wood

“Compost” means the material produced by an aerobic composting process which can be used as soil amendment or for other similar uses, and which meets:

- (i) the quality requirements for metals, non-biodegradable particulate matter, and organic chemicals contained in the most recent version of the Ministry of the Environment’s “Interim Guidelines for the Production and Use of Aerobic Compost in Ontario”, dated November, 2004; and,
- (ii) the Category A quality criteria for sharp foreign matter, stability/maturity, and pathogen reduction contained in the Canadian Council of Ministers of the Environment’s “Guidelines for Compost Quality” dated October, 2005.

“Contaminant” means the term as defined in the *Environmental Protection Act*.

“Food Waste” means all edible and non-edible food products including, but not limited to: baked goods, animal bones, cereal and grains, dairy products, coffee filters and grounds, dough, eggs and eggshells, fish and fish parts, flour, fruit and vegetables, herbs and spices, jams and jellies, mayonnaise and condiments, meat and meat products, nuts and nut shells, pasta, peanut butter, pizza, popcorn, pumpkins, shellfish, sugar, tea bags.

“Leaf and Yard Waste” includes, but is not limited to, leaves, grass clippings, brush and branches and tree limbs up to 10 cm (4 inches) in diameter, twigs, plants, hedge clippings, woody plants including vines, rose bushes and the like, flowers and weeds and other types of organic yard and garden waste that is collected by the City separately from the wet fraction, either at curbside or through City drop-off depots.

“Material Recovery Facility” means the material recovery facility located at the Waste Resource Innovation Centre.

“Organic Waste” means any compostable material delivered to the Facility either from sources outside the City’s geographical limits or from sources within the City’s geographical limits, which is delivered to the Facility for processing at the Facility. For certainty, Organic Waste includes SSO and Third-Party Organic Waste, but does not include Amendments or Leaf and Yard Waste provided by the City for use as an Amendment.

“Overs” means oversized particles that have been through the composting process and provide structure and porosity to the composting mix.

“Rejected Waste” means the load of incoming waste received at the Composting Site and deemed by Owner to contain waste that does not meet the incoming Organic Waste quality criteria set out in this Certificate or that cannot be Composted;

“Residual Compost Waste” means a type of residue created during the composting process.

“Residual Waste” means any solid non-hazardous waste resulting from the processing of organic waste accepted at the Facility by the Operator, and that requires disposal by the Operator.

“Source Separated Organics” or “SSO” means the components of the solid waste stream that are separated by residential households into the "Wet" fraction of the City’s "Wet-Dry+ program" and are separately collected by the City. SSO generally includes any organic material that is compostable, including but not limited to fruit and vegetable peelings, food scraps, meat, bones, fish and shell fish, pasta, eggs and shells, vegetable oil and fat, dairy products, pumpkins, and wood shavings. SSO also includes tissues and other soiled paper, and feces, ashes, and pet litter as described in the Certificates of Approval. For certainty, SSO does not include Leaf and Yard Waste unless it is collected as part of wet stream.

“Spill” has the meaning ascribed thereto under the *Environmental Protection Act*, R.S.O. 1990, c. E.19, as amended from time to time.

1. Introduction and Background

In June 2000, Guelph's City Council made the decision to seek future solid waste disposal capacity through an agreement with a landfill owner outside of the City's corporate boundaries. Since the potential disposal site was to be distant from Guelph, the City needed a Transfer Station to facilitate waste bulking from small collection vehicles into larger transport vehicles. The City constructed the Solid Waste Transfer Station adjacent to the existing Waste Resource Innovation Centre, formerly the Wet-Dry Recycling Centre. The Waste Resource Innovation Centre was designed as a composting and multi-material recovery operation for the County of Wellington and the City of Guelph. The 29.54 hectare site is located at 110 Dunlop Drive in the southeast part of Guelph. **Figure 1** shows the location and layout of the Transfer Station and Waste Resource Innovation Centre.

The Transfer Station has been designed to manage up to 299 tonnes/day of waste, calculated on a weekly average (six days), including municipal, industrial, commercial, and institutional wastes. The Transfer Station began receiving waste on October 14, 2003.

The City carries out a number of waste management operations at the Waste Resources Innovation Centre. These operations have historically included processing of recyclables from the City's "dry" waste stream, as well as transfer of non-compostable materials and non-recyclable waste residues to disposal off-site, a public waste drop-off area, and a municipal hazardous special waste depot. The City's current composting operations have been active since 2011. As of January 1, 2025 the City no longer accepts recycling from residential, industrial, commercial, and institutional customers at the Waste Resource Innovation Centre as per the Ontario Blue Box regulation. Recycling is now collected and managed by Waste Management of Canada Corporation, the collection contractor for Circular Materials. Both the Transfer Station and Waste Resources Innovation Centre facility operate under a combined Ministry of the Environment Amended Provisional Certificate of Approval/Environmental Compliance Approval #A170128, dated February 10, 2011 and amended Environmental Compliance Approval #9496-9NFKJ9, dated January 7, 2015.

Amended Provisional Certificate of Approval/ Environmental Compliance Approval #A170128, Notice Number 1, dated September 22, 2011, amended Condition 58(1) with respect to the composting operation to add item 58(1)(c) on cross-contamination prevention and to add supporting reference documents to Schedule A.

Figure 1: Groundwater Monitor Location Map



Amended Provisional Certificate of Approval/Environmental Compliance Approval, Notice Number 2, dated November 2, 2012, provided additions to Condition 54(1) regarding the service area, approved waste types, rates and storage. Amended Provisional Certificate of Approval/Environmental Compliance Approval, Notice Number 3, dated January 24, 2013, was an amendment to condition 29(4) of the Certificate of Approval/Environmental Compliance Approval that provided the Public Liaison Committee to serve as a forum for their mandate for the whole site and not just for the composting site. Notice Number 3 also expanded the site service area to include New York and Michigan State.

Amendment to Environmental Compliance Approval #A170128, Notice Number 4, dated January 9, 2015, provided minor changes to the Environmental Compliance Approval (i.e., amended the pre-amble of the Environmental Compliance Approval and a few of the definitions, etc.) and removed the references to the groundwater and surface water monitoring program from the waste disposal site Environmental Compliance Approval #A170128 and transferred them to the Municipal and Private Sewage Works Environmental Compliance Approval #9496-9NFKJ9, issued January 7, 2015.

A Public Drop Off facility was added to the site in 2015. A Ministry of Environment, Conservation and Parks amendment was granted in support of this change and included an updated Design and Operations Report.

Notice Number 5, dated May 3, 2016, provided clarification on the definition of the Organic Waste Processing Facility and prohibits recyclable material from being stored in the former Organic Waste Processing Facility. On July 5, 2022, a Notification of Modifications was submitted to the Ministry of Environment, Conservation and Parks District Manager by the City to provide notification of construction of a small building, and on August 11, 2022, an application for administrative amendment of the Environmental Compliance Approval was submitted to facilitate construction of support infrastructure on the site that will not be used for receipt, storage, processing, or transfer of waste. This application included the development and submission of a new Design and Operations Report. The application and updated Design and Operations Report was approved with the issuance

On August 11, 2023, an Amended Environmental Compliance Approval (Environmental Compliance Approval #A170128) was issued to update the structure and organization of the Environmental Compliance Approval, the conditions referenced in this report use the numbering in the August 2023 Environmental Compliance Approval of Environmental Compliance Approval #A170128 on August 11, 2023. These amendments are included in **Appendix E**.

On November 7, 2024, an application for amendment of the Environmental Compliance Approval was submitted to approve additional functions of the Material Recovery Facility as a result of regulatory changes to collection and management of Blue Box material. This application included submission of an updated Design and Operations Report. The application and new Design and Operations Report was approved with the issuance of Environmental Compliance Approval #A170128 on January 7, 2025.

As part of the requirements to develop and design the Waste Resource Innovation Centre, a hydrogeological assessment was conducted in 1991¹. Further groundwater sampling at the proposed site was completed in 1992, 1994 and 1995 prior to the construction of the site².

The main conclusions of these reports were:

- a) Groundwater flow in the shallow subsurface is towards the northeast to the Correctional Centre pond and Clyde Creek.
- b) Background groundwater quality in the area is considered hard with calcium, magnesium, and alkalinity the dominant ions. The concentrations of the other major ions (i.e., sodium, potassium, sulphate and chloride) were found for the most part to be low. The exception to this was the 1995 sample collected from monitor 5-91, which exhibited higher than background concentrations of sodium and chloride. The source of the sodium and chloride was considered unknown at that time. The only other parameter of concern was nitrate. This was found at consistently elevated levels at monitors 1a-91, 1b-91, 2b-91 and 3-91, from 1991 until locations 1a-91, 1b-91 and 3-91 were destroyed due to construction activities.

1.1 Annual Reporting Requirements

Condition 33 (9) of the August 2023 Amended Environmental Compliance Approval states that:

Composting Site

- 33 (9) By March 31st following the end of each operating year, the Owner shall prepare and submit to the District Manager, an Annual Report

1. Jagger Hims Limited; Hydrogeological Assessment, Proposed Wet/Dry Facility, Guelph, Ontario; Report prepared for the City of Guelph, October 1991.

2. Jagger Hims Limited; Groundwater Monitoring Program; Guelph Wet/Dry Recycling Facility; Draft Report completed for the City of Guelph, September 1995.

summarizing the operation of the Composting Site covering the previous calendar year. This Annual Report shall include, as a minimum, the following information:

- a. a monthly mass balance of the Organic Waste received, processed and transferred from this Composting Site, including waste type, quantity, sources and/or disposal destinations;
- b. an annual summary mass balance of the Organic Waste, the Wood Waste, the Waste Wood and the Amendment Material received, processed and transferred from this Composting Site, including waste type, quantity, sources and/or disposal destination;
- c. an annual summary of any deficiencies, items of non-compliance or process aberrations that occurred at this Composting Site and any remedial / mitigative action taken to correct them;
- d. a descriptive summary of any spills, Incidents or other emergency situations which have occurred at this Composting Site, any remedial measures taken, and the measures taken to prevent future occurrences;
- e. a summary describing any Rejected Waste including quantity, waste type, reasons for rejection and origin of the Rejected Waste;
- f. the quantity, by weight and volume of Compost and residues produced and the quantity of Compost and residues removed from the facility;
- g. any environmental and operational problems, that could negatively impact the environment, encountered during the operation of the Composting Site or identified during the facility inspections and any mitigative actions taken;
- h. any changes to the Waste Resources Innovation Centre Environmental Emergency Plan, the Operations Manual or the Closure Plan that have been approved by the Director since the last Annual Report;
- i. any recommendations to minimize environmental impacts from the operation of the Composting Site and to improve Composting Site operations and monitoring programs in this regard;
- j. a summary of any complaints received and the responses made, as required by the Air/Noise Approval for the Composting Site;
- k. a description of the Compost distribution/markets;

- l. conclusions from the pathogen testing as the results relate to the pasteurization temperature monitoring; and
- m. a condition-by-condition analysis of compliance with all Conditions of this Approval.

Transfer/ Waste Resource Innovation Centre Site

- 22(1). The Owner shall submit an annual report on the operation of the Site for the previous calendar year to the District Manager by March 31st of each year. This report will include the information required as follows:
- a. the information required by Condition 33.9 of the Approval dealing with the Composting Site;
 - b. a monthly summary of the waste and/or recyclable materials received at the Site, including quantity, source and Regulation 347 waste classes;
 - c. a monthly summary of the wastes and/or recyclable materials processed at the Site including quantity and Regulation 347 waste classes;
 - d. a monthly summary of the waste and/or recyclable materials transferred off-Site including quantity, destination and Regulation 347 waste classes;
 - e. an annual summary of the analytical results from the groundwater monitoring program and from surface water monitoring required in Sewage Approval, including an interpretation of the results and any remedial/mitigative action undertaken;
 - f. an annual summary of any deficiencies, items of non-compliance or process aberrations that occurred and remedial/mitigative action taken to correct them;
 - g. a summary of any changes to the Design and Operations Report that has been approved by the Director since the last annual report;
 - h. a summary of any changes to the Design and Operations Report and the Waste Resources Innovation Centre Environmental Emergency Plan that were made in accordance with Condition 36 of this Approval;
 - i. a summary of any changes to the Design and Operations Report that have been approved by the Director since the last annual report;

- j. update on activities of the Public Liaison Committee; and
- k. all measurement units shall be reported in consistent metric units.

Condition 5 on Monitoring and Reporting under amended Environmental Compliance Approval #9496-9NFKJ9, issued January 7, 2015, states that:

- 5(1) The Owner shall implement a groundwater and surface water sampling program to ensure early detection of contaminants in the event that such contaminants escape the Waste Resources Innovation Centre site, as follows:
- 5(2) Groundwater and surface water shall be sampled and analyzed for the following parameter suite:

Table 1: Parameters for Analysis

Analysis Groups	Parameters
Parameters (sampled semi-annually in the spring and fall)	■ Biological Oxygen Demand (BOD) ■ Chemical Oxygen Demand (COD) ■ Total Kjeldahl Nitrogen (TKN) ■ Ammonia as Nitrogen (NH₃-N) ■ Total Phosphorus (Total P) ■ Total Sulphate (SO₄) ■ Phenols ■ Nitrate (NO₃) and Nitrite (NO₂) Chloride (Cl) ■ Sodium (Na) ■ Calcium (ca) ■ Boron (B) ■ Total Iron (Fe) ■ Phosphorus (P) ■ Zinc (Zn)
General Parameters (semi-annually)	■ pH ■ Conductivity ■ Alkalinity ■ Magnesium (Mg) ■ Potassium (K)
Organics (sampled annually)	■ EPA 624, 625 (ATG 16+17+18) & ATG (19+20)
Field Parameters	■ pH, Conductivity, Temperature

- 5(3) The surface water monitoring shall include obtaining grab samples at the discharge locations of the final surface water off the Waste Resources Innovation Centre site, for at least three wet events per year (a wet event is defined as a minimum of 15 millimetres of rain in the previous 24 hours) and tested for Total Suspended Solids (in milligrams per Litre), and the

results recorded. Two of the events must occur within the May to September time period.

- 5(4) The Owner shall annually review and update the groundwater and surface water sampling programs, designed to detect and quantify any impacts originating from the Waste Resources Innovation Centre site.
- 5(5) Sampling frequency and parameters for analysis may be adjusted upon the written approval of the Water Supervisor, from time to time, as groundwater and surface water information becomes available.
- 5(6) All groundwater monitoring wells which form part of any monitoring program shall be protected from damage. Any groundwater monitoring wells that are damaged shall be repaired or replaced forthwith or properly abandoned in accordance with Ontario Regulation 903.
- 5(7) The Owner shall annually review and update, if required, the detailed maintenance schedules for the stormwater management facilities on the Waste Resources Innovation Centre site.
- 5(8) The Owner shall submit to the Water Supervisor, every year, a copy of the test results as per Condition 5, Subsection (2) and Subsection (3), above.
- 5(9) The Owner shall submit to the Water Supervisor, an annual report on the groundwater and surface water sampling and monitoring program described herein, and shall include an interpretation of the results prepared by a qualified hydrogeologist, engineer or scientist, and shall identify any remedial/mitigative action taken.

The current Certificate of Approval/Environmental Compliance Approvals for the site are included in **Appendix E**.

Annual reports are submitted to the Ministry of the Environment, Conservation and Parks (formerly the Ministry of the Environment and Climate Change, MOECC), as required by the Certificate of Approval/ Environmental Compliance Approval. The last Ministry of Environment, Conservation and Parks review was completed on the 2014 Annual Monitoring Report (Ministry of Environment, Conservation and Parks Memorandums dated April 15, 2015, and August 13, 2015, included in **Appendix F**). These comments were addressed in the 2015 Annual Monitoring Report (AECOM, 2016). No further Ministry of Environment, Conservation and Parks review comments have been received to-date.

2. Composting Facility

The original compost facility was shut down in 2006. The City commissioned a new compost facility design, which was completed by the summer of 2011. The composting facility is fully enclosed with all processing and finished product remaining indoors.

2.1 Material Received, Processed and Transferred

As per Condition 33(9) (a) and (b), **Table 2** presents a summary of the waste volumes received, processed and transferred from the site. 31,277 tonnes of material were received by the composting facility in 2025. Of the materials received, source separated organic materials constituted 30,054 tonnes (amendment/mulch made up 1,224 tonnes). During 2025, the site accepted organic material from the City of Guelph and the Region of Waterloo. Amendment material was received from the City of Guelph or in the form of wood chips from the City of Guelph Parks and Recreation Department and the Region of Waterloo. No clean wood was received at the composting facility.

A total of 6,130 tonnes of finished compost was removed from the facility in 2025. The compost distribution/market for 2025 was focused on agricultural customers (including turf, lawns, mulch, corn, apples, grains, soybeans, cherries, berries, nuts and oilseeds applications). Customers are within a two-hour radius of the Guelph Compost Facility and either require third-party hauling or have their own trucks. A total of 544 tonnes of screening, residual compost and organic rejected material from the composting process were shipped to the Transfer Station and then to the Waste Management Twin Creeks Landfill in Sarnia, Ontario.

Table 2: 2025 Monthly Summary of Incoming and Outgoing Material, Composting Facility

Incoming Material	January Tonnes	February Tonnes	March Tonnes	April Tonnes	May Tonnes	June Tonnes	July Tonnes	August Tonnes	September Tonnes	October Tonnes	November Tonnes	December Tonnes	Total YR
Source Separated Organics	2,609	2,188	1,453	2,466	2,606	2,515	2,688	2,550	2,845	2,968	2,677	2,487	30,054
Amendment/ Mulch	0	0	0	103	107	81	199	53	0	340	340	0	1,224
Total Month	2,609	2,188	1,453	2,569	2,714	2,596	2,887	2,603	2,845	3,309	3,017	2,487	31,277

Outgoing Mixed Waste	January Tonnes	February Tonnes	March Tonnes	April Tonnes	May Tonnes	June Tonnes	July Tonnes	August Tonnes	September Tonnes	October Tonnes	November Tonnes	December Tonnes	Total YR
Finished Compost	0	1,136	420	436	542	905	301	712	0	943	64	671	6,130
Overs	66	106	37	131	303	275	460	924	756	3,224	2,245	334	8,859
Residual Compost Waste	54	48	51	45	38	38	51	41	82	53	25	18	544
Organic Rejected Load	0	3	0	2	14	0	0	0	0	0	0	0	19
Total Month	120	1,290	508	612	883	1,217	813	1,677	838	4,220	2,334	1,023	15,552

Notes: Overs = oversized particles that have been through the composting process and provide structure and porosity to the composting mix.

2.2 Deficiencies / Non-Compliance and Environmental / Operational Issues

There was one spill at the Organic Waste Processing Facility in 2025. On August 22, 2025, Organic Waste Processing Facility equipment leaked oil outside the facility on the asphalt, which was cleaned and reported to the Ministry as reference number 1-PEIKR1.

In November 2021, an arc flash occurred in the electrical room and resulted in damage to components of the SCADA system. Since then, SCADA has experienced periods with loss of data or automated control, with complications noted in the quarterly biofilter reports to the MECP. Repair work was conducted in 2021 and periodic additional replacement of parts has improved operations. Instances of periodic loss of negative pressure are notably lower in 2023, 2024 and 2025 compared to 2022. The City has completed design of a replacement SCADA system and has issued a tender for the construction/installation of the new system. Construction is ongoing and expected to be complete in 2026

Despite the need for this type of capital work, the biofilter continues to operate as designed, which is demonstrated by the monitoring results provided to the MECP quarterly.

No other reportable spills, incidents or emergency situations occurred in 2025 at the composting site.

There were 19 tonnes of rejected material from the organics plant due to contamination. The contaminated material consists of curbside recyclable collection (blue cart) material that is either inadvertently placed in with the organics (green cart) by the homeowner or the blue cart material is inadvertently placed in the wrong area of the split box collection trucks. The rejected material was sent to the transfer station for final disposal.

An updated Design and Operations Report was submitted to the Ministry of Environment, Conservation and Parks with the application for Environmental Compliance Approval amendment on November 7, 2024. Changes included the additional functions for the Material Recovery Facility. The WRIC Emergency Response and Contingency Plan was updated December 2, 2025 for routine improvements to emergency action plans.

There were no changes to the Waste Resource Innovation Centre Operations Manual or Closure Plan in 2025.

2.2.1 Public Complaints

City staff received 15 odour complaints in 2025. These complaints were investigated by City staff which included, a visit to the complainant's location by the City Environmental Protection Officers, inspection of the area in the vicinity of the complaint, inspection of the WRIC facilities, a data check with the organics facility contractor, and, in the event that an odour source at the site was identified that could be potentially attributable to the complaint, completion of any necessary remedial measures.

Four of the complaints were confirmed attributable to the WRIC, and seven were considered possibly attributable, but could not be confirmed. Remedial measures taken included:

- Continued monitoring of biofilter health and performance monthly, along with monitoring of leachate tank levels following events described in 2023 Annual Report.
- Additional inspection of biofilter by manufacturer
- Removal of excess leachate from holding tanks
- Flushing of air and water piping in compost tunnels to improve airflow and moisture loss

The MECP was provided with a written report of all complaint response findings. Each complainant was provided with a formal response, provided they gave their address.

On August 2, 2025, an odour complaint was received by the City's after hours call service but was not forwarded to the Environmental Protection Officer in accordance with City procedure and was therefore not reported immediately to the Spills Action Centre. On August 5, 2025, City staff identified that an odour complaint was received and initiated investigation, including reporting to the MECP District office and following up with the complainant.

No other deficiencies, items of non-compliance, or process aberrations occurred in 2025.

2.3 Enhanced Pathogen Testing and Operations Summary

Samples taken from the maturation hall of the compost stream indicate that all compost that has been shipped off the site has passed the conditions for a Class AA or A³ compost under the Canadian Council of Ministers of the Environment⁴ Guidelines and the conditions within the Environmental Compliance Approval. Results from pathogen testing included in comprehensive laboratory analysis from third party accredited laboratory remain within allowed parameters or below detectable levels.

To reduce the health risks of pathogenic organisms, pasteurization continued to be monitored to ensure that 55°Celsius was maintained for a minimum 72 hours using in-vessel composting methods. The compost material goes through a series of tunnels to get to its finished state. There are seven tunnels at the facility. When material is in a tunnel the temperature in each of those tunnels is measured every five minutes and the logs are stored within a supervisory control and data acquisition system. The operator provides a weekly report which contains a snap-shot of the tunnel temperatures. The Operator also takes readings of the curing piles that are maturing in the maturation building. The spreadsheet for the weekly readings of the compost temperatures and all the weekly reports for the snapshots of tunnel temperatures are available upon request. Temperature monitoring logs of the tunnels at the composting facility show that pasteurisation at 55°Celsius was maintained for 72 hours.

2.4 Site Operation Recommendations

There were no confirmed deficiencies/non-compliance or environmental/operational issues related to the compost facility in 2025 as per Condition 33(9)(c) and 22(1)(f). The facility is operating as designed.

-
3. Category A = Unrestricted use. Compost that can be used in any application (i.e., agricultural, residential gardens, horticultural operations, nursery industry, other businesses. AA type of compost is more restrictive with regard to contamination by foreign matter.
 4. Canadian Council of Ministers of the Environment, 2005: Guidelines for Compost Quality, PN 1340.

2.5 Compliance with the Conditions of the Certificate of Approval

Condition 33(9) refers to reporting requirements associated with the Composting site. Condition 33(9)(m) of this Section requires:

a condition-by-condition analysis of compliance with all Conditions of this Approval.

Based on a review of the 2025 information provided by the City, there are no non-compliance issues for 2024.

The City provided the following statement with respect to this condition:

The Deputy CAO of Infrastructure, Development and Enterprise Services, the General Manager of Environmental Services and the Division Manager of Solid Waste Resources continue to put a very high priority on compliance with applicable laws. Staff training continues to be provided both in-house and by external providers, and included inspections, reporting, due diligence, environmental regulations, competent person, contingency plans, emergency procedures, Environmental Compliance Approval conditions, spills, TDGA, laboratory packing, site specific Health and Safety and other relevant topics.

3. Municipal Hazardous and Special Waste Operations

The Municipal Hazardous Special Waste screening procedures and acceptance criteria has been fully discussed in the 2015 Annual Report (AECOM, 2016). As required by the City, all municipal hazardous special waste employees must be trained in WHMIS, TDG, Spills Response, Competent Person, and First Aid.

The Annual Review for 2025, has shown that all operations at the Municipal Hazardous and Special Waste Transfer Station were done in accordance with Condition 17 of the ECA. Only wastes outlined in the Environmental Compliance Approval, 17(2)(a), were collected and transferred and the site did not store more than 15 tonnes of materials. The City ensured that a competent person was on duty at all times during operating hours and inspections were completed daily. As per the requirement of Condition 17(8), a fire and explosion prevention inspection was carried out on November 17, 2025 which included checking all fire extinguishers on site and revising the fire safety plan such that Conditions 17(6) and 17(7) were met.

4. Waste Transfer Station Operations

4.1 Facility Inspection and Routine Maintenance

The following information was reported by the City of Guelph. The facility is inspected on an ongoing basis by site employees. Corrective maintenance is carried out as required. There were no environmental or operational problems reported during 2025.

A log of all security and grounds inspections are recorded daily. Routine maintenance is conducted at the site that includes litter pick-up, dust control, rodent control and clean-up of external roads within 1 km of the facility. The compactor is cleaned and inspected monthly when in use. Inspection of the inside floor drains, oil and grit separator, etc., are conducted weekly. The floor drain in the loading ramp is pumped and cleaned as required. Maintenance was conducted on the holding tanks, floor drains and oil and grit separator as required. The overhead doors are oiled monthly. All preventative maintenance performed on equipment are filed under the equipment number (hard copy) as well as recorded electronically in the Oracle WAM program to indicate that the required maintenance has been completed.

A logbook recording the daily inspection of the detention ponds, ditches and facility inspections is kept on-site. Daily inspections were recorded in 2025. The City undertakes daily inspections of the stormwater (SWM) facilities on site and completes maintenance, as needed. City has confirmed that maintenance schedules for the SWM facilities on the Waste Resource Innovation Centre site are reviewed annually and updated as needed (Condition 5(7)). Inspection and cleaning of the stormwater facilities was conducted by City staff on October 9, 2025. The Ministry conducted an inspection of the storm facilities in 2020, the report of which is included in **Appendix F**.

4.2 Contaminant Sources

4.2.1 Site Design and Operations

To determine if the site is having an impact on the ground and surface water in the area, it is important to examine what are the potential sources of impact. The site has been designed to minimize the possible sources of impacts and limit the risk of their emission to the environment, as discussed below.

Waste is dumped from incoming collection vehicles onto an indoor tipping floor located within the transfer building. The transfer building is a steel framed, metal clad building with a reinforced, surface-hardened slab-on-grade floor. The tipping floor is curbed such that liquid discharges onto the floor cannot readily flow off the floor to the building

exterior. It is drained by floor drains and routed through an oil-water separator, with the provision to divert flows to holding tanks prior to reaching the pumping station through the sanitary sewer. Spill cleanup materials (e.g., sorbents) are kept on hand and any liquid spills on the tipping floor are cleaned up immediately. Washing of spilled materials into the floor drain system is avoided to the greatest degree possible. In the event of any potential for leachate or liquid discharge from the building, the shut-off valve for the stormwater management pond will be closed to prevent any off-site discharge.

No waste processing is undertaken in the Transfer Station, with the exception of removal of recyclable material that arrives in incoming wastes (i.e., metal, wood, cardboard). Truck boxes (both incoming waste and transfers out) are tarped when outside of the transfer building to prevent odour and dust emissions as well as to prevent contact between the waste and precipitation that could potentially produce impacted runoff.

The Transfer Station building, and the scale house are serviced with a connection to the City sanitary sewer. Domestic sewage from the washrooms in the transfer building and the scale house are discharged directly to the sewage pumping station. The stormwater management pond has a valved connection to the pumping station, which will permit any stormwater that becomes impacted to be discharged to the sanitary sewer system. The site is graded such that all runoff drains to the stormwater management pond. As all waste handling occurs within the Transfer Station building, runoff from the site will be initially considered to be unimpacted.

Ditches are located on both sides of the driveway to collect road runoff and to convey upstream runoff to the pond. A culvert conveys flow from the ditch on the west side of the driveway to the ditch on the east side and ultimately to the pond. Ministry of Environment, Conservation and Parks approved dust suppressant and road salt for the internal paved areas may be used occasionally.

A Public Drop Off facility was added to the site in 2015. There have been no changes to the Engineer's Report since the last annual report.

On August 11, 2022, an application for administrative amendment of the Environmental Compliance Approval was submitted to facilitate construction of support infrastructure on the site that will not be used for receipt, storage, processing or transfer of waste. This application included the development and submission of a new Design and Operations Report. The application and updated Design and Operations Report was approved with the issuance of amended Environmental Compliance Approval #170128 on August 11, 2023.

5. Incoming and Outgoing Waste and/or Recyclables

5.1 Summary of Incoming Materials

As per Condition 22(1)(b) of the amended Environmental Compliance Approval **Table 3** is a monthly summary of the incoming materials received at the site during 2025, based on data recorded by City staff.

As shown on **Table 3**, 83,278 tonnes of material were received by the site. The compost facility received 30,054 tonnes of organics as well as 1,224 tonnes of amendment/mulch, less 544 tonnes of residuals transferred to the Transfer Station, totalling 36% of the incoming material. The Transfer Station received 45,090 tonnes of mixed waste combined both directly (36,680 tonnes) and from internal transfers from Public Drop Off, Materials Recovery Facility and Organic Waste Processing Facility (8,410 tonnes) constituting 54% of incoming material. The Public Drop Off received 5,481 tonnes of leaf and yard waste (12% of incoming material).

Table 3: 2025 Monthly Summary of Incoming Material

Incoming Material to Site	January Tonnes	February Tonnes	March Tonnes	April Tonnes	May Tonnes	June Tonnes	July Tonnes	August Tonnes	September Tonnes	October Tonnes	November Tonnes	December Tonnes	Total YR
Inbound Material to Site	6,159	4,970	5,788	7,348	8,152	7,150	8,061	6,984	7,492	7,996	7,471	5,707	83,278
Total Month	6,159	4,970	5,788	7,348	8,152	7,150	8,061	6,984	7,492	7,996	7,471	5,707	83,278

Transfer Station Incoming Material	January Tonnes	February Tonnes	March Tonnes	April Tonnes	May Tonnes	June Tonnes	July Tonnes	August Tonnes	September Tonnes	October Tonnes	November Tonnes	December Tonnes	Total YR
Inbound to Transfer Station ⁽¹⁾	3,599	2,822	4,243	4,099	4,339	3,788	4,352	3,783	4,074	3,877	3,213	2,902	45,090
Total Month	3,599	2,822	4,243	4,099	4,339	3,788	4,352	3,783	4,074	3,877	3,213	2,902	45,090

Materials Recovery Facility Recycling / Public Drop Off Facility Incoming Material	January Tonnes	February Tonnes	March Tonnes	April Tonnes	May Tonnes	June Tonnes	July Tonnes	August Tonnes	September Tonnes	October Tonnes	November Tonnes	December Tonnes	Total YR
Inbound Material to Materials Recovery Facility ⁽²⁾													
Inbound to Public Drop Off ⁽³⁾	498	400	1,021	1,013	1,132	905	1,041	934	811	766	772	549	9,842
Inbound to Lawn and Yard Waste pad	16	2	48	520	912	610	583	411	434	679	1014	250	5479
Total Month	513	402	1,069	1,534	2,045	1,516	1,624	1,344	1,244	1,444	1,786	799	15,321

Organics Compost Facility Incoming Material	January Tonnes	February Tonnes	March Tonnes	April Tonnes	May Tonnes	June Tonnes	July Tonnes	August Tonnes	September Tonnes	October Tonnes	November Tonnes	December Tonnes	Total YR
Source Separated Organics	2,609	2,188	1,453	2,466	2,606	2,515	2,688	2,550	2,845	2,968	2,677	2,487	30,054
Paper Fiber Sludge													-
Brush													-
Amendment/Mulch	0	0	0	103	107	81	199	53	0	340	340	0	1,224
Total Month	2,609	2,188	1,453	2,569	2,714	2,596	2,887	2,603	2,845	3,309	3,017	2,487	31,277

Totals													Total YR
Facility Totals													91,688
Internal Transfers (Materials Recovery Facility, Public Drop Off, Organic Waste Processing Facility to Transfer Station; Public Drop Off to Materials Recovery Facility)													8,410
Overall Site Total													83,278

Notes: All volumes in tonnes
Single Stream = all recyclable products mixed together (bottles, cans, paper, cardboard, etc.)
Overs or residual compost waste = a type of residue created during the composting process.
(1) Includes materials transferred from Public Drop Off, Materials Recovery Facility, Organic Waste Processing Facility
(2) Includes material transferred from Public Drop Off to Materials Recovery Facility
(3) All mixed materials dropped off at Public Drop Off. Materials from Public Drop Off may be transferred to Materials Recovery Facility, Transfer Station, Organic Waste Processing Facility (amendment), or shipped directly off site to recycling markets

The on-site Municipal Hazardous Special Waste depot serves residents of the City of Guelph. The depot accepted 14,585 drop offs of materials during 2025. A monthly summary of the 2025 drop off numbers are shown on the **Table 4**.

Table 4: 2025 Monthly Summary

Public	Drop Offs
January	732
February	515
March	1032
April	1246
May	1593
June	1,396
July	1,747
August	1,531
September	1,394
October	1,407
November	1,361
December	631
Totals	14,585

Incoming municipal hazardous special waste is sent to hazardous waste haulers for disposal or recycling. The City's Paint Plus Re-Use Program was conducted between April 22 and October 11, 2025, accepting 2,046 Litres and 574 kilograms of materials from 262 clients. A monthly summary of the amounts of municipal hazardous special waste (separated by waste class) received at the site for the Paint Plus Re-Use Program for 2025 are tabulated in **Table 5**.

A total of about 170,189 Litres and 30,469 kilograms of municipal and household special wastes were received in 2025. In addition, 612 (1,223 feet) fluorescent tubes were received in 2025. All materials accepted at the municipal hazardous special waste depot are re-used, recycled, or shipped off-site for disposal. As shown on **Table 3**, the source of the bulk of the materials received was primarily mixed solid waste of domestic origin. Recyclables accepted by the Materials Recovery Facility/Public Drop Off originated mainly from the City of Guelph and the remaining sources from other areas in Ontario. Materials accepted at the Transfer Station were mainly from the City of Guelph, consisting mainly of mixed solid waste.

There were no rejected and no suspect loads received during 2025.

Table 5: 2025 Monthly Summary of the Amounts of Municipal Hazardous Special Waste (separated by waste class) received by Paint Plus Re-Use Program

Material/Month	April	May	June	July	August	September	October	Total
Paints and Coatings Non-aerosol; #145	98.5 Litres	180.5 Litres	157 Litres	246.5 Litres	195 Litres	206.5 Litres	93 Litres	1177 Litres
Paints and Coatings Aerosol; #331	21 kilograms	37 kilograms	40 kilograms	73 kilograms	42 kilograms	54 kilograms	20 kilograms	287 kilograms
Solvents #213	6 Litres	17 Litres	17 Litres	27 Litres	30 Litres	20 Litres	8 Litres	125 Litres
Antifreeze	17 Litres	18 Litres	8 Litres	3 Litres	9 Litres	8 Litres	2 Litres	65 Litres
Propane Cylinders	0 kilograms	0 kilograms	0 kilograms	0 kilograms	0 kilograms	0 kilograms	0 kilograms	0 kilograms
Cleaners/Detergents #148	12 Litres	37 Litres	26 Litres	41 Litres	50 Litres	43 Litres	15 Litres	224 Litres
Car products #213	30 Litres	40 Litres	31 Litres	22 Litres	57 Litres	27 Litres	5 Litres	212 Litres
Non-paint Aerosols #331	16 kilograms	34 kilograms	29 kilograms	46 kilograms	34 kilograms	35 kilograms	10 kilograms	204 kilograms
Motor Oil	30 Litres	45 Litres	23 Litres	43 Litres	34 Litres	58 Litres	10 Litres	243 Litres
Plaster/Cement/Grout	8 kilograms	24 kilograms	0 kilograms	8 kilograms	18 kilograms	21 kilograms	4 kilograms	83 kilograms
Client Count	25	37	46	70	33	39	12	262

5.2 Summary of Wastes/Recyclables Processed and Outgoing

Materials that are accepted by the site are either processed (composted), diverted to be re-used or sent to the Waste Transfer Station for disposal. Condition 22(1)(c) requires monthly reporting of processed materials from the site, which are presented on **Table 6**.

Of the 67,709 tonnes of outgoing material, 6,130 tonnes of finished compost was produced. 9,403 tonnes of residual compost waste and overs from the organic compost plant were generated in 2025, 544 tonnes of which is included in the outbound from the transfer station. 5,481 tonnes of yard waste and brush, 45,087 tonnes of non-recyclable materials and 2,152 tonnes of unprocessed recyclables received at the PDO were shipped off-site from the transfer station. In 2025, the municipal hazardous special waste facility received and diverted a total of about 170,189 Litres and 30,469 kilograms of municipal and household special wastes, in addition to 612 (1,223 feet) of fluorescent tubes.

For 2025, we have based the incoming, outgoing and processed quantities on the 2025 weigh scale readings. Outbound residual compost waste and the organic rejected load from the organic's facility (563 tonnes) was included in the outbound tonnage from the transfer station. **Table 7** is an estimated reconciliation of the incoming and outgoing materials and materials processed from the site in 2025. It is noted that the Overall Site totals do not reflect the sum of the individual facility totals as some material moves internally; therefore, a sum would double count material that moves between the facilities while onsite

There is a difference of about 15,569 tonnes between incoming and outgoing wastes/materials calculated for 2025. About 80% of that is within the compost facility and is consistent with an average loss of 20,985 per year since 2017 due to moisture loss, additional difference is attributed margin of error as well as a net difference in onsite material at the beginning and end of the reporting period. Materials received at the organics compost facility are much heavier due to moisture retention compared to when it leaves the site in a processed, dry and degraded state.

Table 6 shows a monthly summary of the outgoing materials shipped off-site during 2025 as per Condition 22(1)(d) of the amended Environmental Compliance Approval. Of the 45,087 tonnes of non-processed outgoing materials from the Transfer Station, 45,087 tonnes (100% of the outgoing materials) were sent to the Waste Management Twin Creeks Landfill in Lambton County.

As of January 1, 2026 the City can no longer accept recycling from industrial, commercial, and institutional customers at the Waste Resource Innovation Centre as per the Ontario Blue Box regulation. The City transitioned to a collection contractor being responsible for Blue Box materials in January 2025 in advance of the regulatory change. Thus in 2025 no blue box materials were received at the Materials Recovery Facility as recycling is now collected and managed by Waste Management of Canada Corporation, a collection contractor for Circular Materials.

In 2025, 2,152 tonnes of marketable processed material were transferred off the site from the Waste Resource Innovation Centre (Public Drop Off) facility. Public Drop Off items were recyclable materials such as paper-based goods such as cardboard and newsprint, plastics, aluminum, steel cans, glass, shingles, drywall, concrete, wood, and scrap metal.

The Waste Resource Innovation Centre achieved a 46% overall diversion rate⁵ in 2025.

Outgoing municipal and household hazardous waste materials were manifested to Aevitas Inc., Ayr (the waste removal contractor for 2025) and disposed of by the companies identified in **Table 8** for recycling and re-use.

5. Diversion rate = Incoming Material to site (83,310 tonnes) – Total outgoing mixed waste (45,087 tonnes) / Incoming Material to site (83,310 tonnes) x 100 = 45.9%

Table 6: 2025 Monthly Summary of Outgoing Materials

Transfer Station Outgoing Mixed Waste	January Tonnes	February Tonnes	March Tonnes	April Tonnes	May Tonnes	June Tonnes	July Tonnes	August Tonnes	September Tonnes	October Tonnes	November Tonnes	December Tonnes	Total YR
Mixed Solid Waste	3,570	2,593	4,217	4,221	4,318	3,720	4,367	3,713	4,036	3,848	3,528	2,956	45,087
Total Month	3,570	2,593	4,217	4,221	4,318	3,720	4,367	3,713	4,036	3,848	3,528	2,956	45,087

Materials Recovery Facility Recycling / Public Drop Off Facility Outgoing Mixed Waste	January Tonnes	February Tonnes	March Tonnes	April Tonnes	May Tonnes	June Tonnes	July Tonnes	August Tonnes	September Tonnes	October Tonnes	November Tonnes	December Tonnes	Total YR
Brush & Yard Waste	18	0	45	391	935	611	569	401	471	684	1,019	336	5,481
Outbound Recyclables from Materials Recovery Facility	0	0	0	0	0	0	0	0	0	0	0	0	0
Outbound Recyclables from Public Drop Off (1)	141	46	143	115	326	69	307	188	313	180	126	200	2,152
Public Drop Off to Materials Recovery Facility	0	0	0	0	0	0	0	0	0	0	0	0	0
Public Drop Off to Transfer Station	508	391	926	806	893	712	750	705	589	582	522	463	7,847
Total Month	668	437	1,113	1,312	2,154	1,392	1,626	1,294	1,373	1,445	1,667	998	15,480

Organics Compost Facility Outgoing Material	January Tonnes	February Tonnes	March Tonnes	April Tonnes	May Tonnes	June Tonnes	July Tonnes	August Tonnes	September Tonnes	October Tonnes	November Tonnes	December Tonnes	Total YR
Finished Compost	0	1,136	420	436	542	905	301	712	0	943	64	671	6,130
Overs	66	106	37	131	303	275	460	924	756	3,224	2,245	334	8,859
Residual Compost Waste	54	48	51	45	38	38	51	41	82	53	25	18	544
Organic Rejected Load	0	3	0	2	14	0	0	0	0	0	0	0	19
Total Month	120	1,290	508	612	883	1,217	813	1,677	838	4,220	2,334	1,023	15,552

Totals													Total YR
Facility Totals													76,119
Internal Transfers													563
Overall Site Total													75,556

Note: (1) Includes shingles, drywall, concrete, wood, scrap metal

Table 7: Summary of Incoming, Outgoing and Processed Quantities

2025	Inbound Tonnage	Outbound Tonnage	Difference Between Inbound and Outbound Tonnage plus tonnage Remaining On-site
Transfer Station	45,090	45,087	2
Materials Recovery Facility Recycling	-	-	-
Public Drop Off Facility	15,321	15,480	-159
Compost Facility	31,277	15,552	15,726
2025 Overall Site Total*	83,278	75,556	7,722

Note: * Overall Site totals do not reflect the sum of the individual facility totals as some material moves internally

Table 8: Waste Receivers

Waste Types	List of Intended Receivers
Paints	Loop Recycled Products Inc.
Oil Filters	Safety Kleen, Breslau, Ontario
Bulk Oil/Antifreeze	Safety Kleen, Breslau, Ontario
Pesticides	GFL, Ottawa, Ontario
Pharmaceuticals	Miller Environmental
Oxidizers/Acids/Bases	Miller Environmental
Pathological Wastes/Syringes	Stericycle, Toronto, Ontario
Car Batteries	Benmet Steel & Metal/Interstate Batteries
Fluorescent Tubes/Compact Fluorescent Lights	Greentec
Household Batteries/Mercury	Call 2 Recycle
Propane Tanks	1 pound - GFL Hamilton, 20 pound – Tank Traders
Aerosols	CRI Environment
Organics/Flammables	GFL
Compressed Gases	Recycle Systems

Destinations/buyers for dry recyclable processed materials are listed in **Table 9**.

Table 9: Major Buyers of Dry Recyclable Processed Materials

Material Type	Destinations/Major Buyers
Mixed Solid Waste	Twin Creeks Landfill, Watford
Bagged Yard Waste and Brush	Try Recycling
Single stream recycling	Waste Management
Corrugated Cardboard	Circular Materials
Scrap Metal/White Goods	Triple M Metals
Electronics	Greentec
Used Clothing	Canadian Diabetes Society
Shingles	Try Recycling
Clean Wood (lumber)	Try Recycling
Drywall	New West Gypsum
Concrete/Brick/Rubble/Toilets	D&J Lockhart Excavators Ltd. Various Locations
Finished Compost	Guelph, Huron County, Simcoe, Eramosa, Clinton and Blyth

6. Groundwater and Surface Water Monitoring Program

6.1 Groundwater Monitoring Program

Groundwater levels are measured at all monitoring locations on a quarterly basis each year. During 2025, groundwater level measurements were conducted on; April 25, June 2, September 18 and December 1. As per Condition 5 of the Environmental Compliance Approval #9496-9NFKJ9, groundwater sampling was conducted on a semi-annual basis in the spring and fall in 2025; in June (dry period, late spring) and in December (wet period, late fall). Each of the 2025 sampling events included analyses for leachate indicator parameters, general chemistry and organics. **Table 10** and **Table 11** summarize the groundwater monitoring program and analytical parameters, respectively.

The organic compound parameter list for the ATG MISA Groups are shown in **Table 12**.

Groundwater monitoring was conducted at all locations in June and December 2025. The results of the groundwater monitoring are discussed in Sections 8.4 to 8.7.

Groundwater monitors are inspected during each of the monitoring events and their condition recorded by field staff. If any monitor is found to be damaged or in need of maintenance, a work order is submitted for repairs and repairs are completed as soon as possible. Despite attempts to protect the well casings during the demolition of the Subor building, BH12A-00 and 12B-00 were damaged. Both monitors were subsequently decommissioned by a licensed well driller and replacement monitors BH21A-13 and BH21B-13 were installed approximate 40 meters to the southwest.

Table 10: Groundwater Monitoring Program

Location	April	June	September	December
13a-01	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
13b-01	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
14a-01	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
14b-01	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
15a-01	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
15b-01	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
16a-08	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
16b-08	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
17a-08	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
17b-08	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
18a-14⁽¹⁾	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
18b-14	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
19a-08	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
19b-08	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
20a-08	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
20b-08	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
21-08	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
21-13A⁽²⁾	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
21-13B⁽²⁾	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
22a-11	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
22b-11	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
23a-12	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels
23b-12	Water Levels Only	Sampling and Water Levels	Water Levels Only	Sampling and Water Levels

Notes: 1 = BH18-08 was replaced in 2014 therefore was re-named 18-14

2 = BH12-00 was replaced with BH21-13

Table 11: Analytical Parameter List

Analysis Groups	Parameters
Leachate Indicator Parameters	■ Biological Oxygen Demand (BOD) ■ Chemical Oxygen Demand (COD) ■ Total Kjeldahl Nitrogen (TKN) ■ Ammonia as Nitrogen (NH₃-N) ■ Total Phosphorus (Total P) ■ Total Suspended Solids (TSS) for surface water and leachate only ■ Total Sulphate (SO₄) ■ Phenols ■ Chloride (Cl) ■ Sodium (Na) ■ Calcium (Ca) ■ Boron (B) ■ Total Iron (Fe) ■ Phosphorus (P) ■ Zinc (Zn) ■ Nitrate (NO₃) and Nitrite (NO₂)
General Parameters	■ pH ■ Conductivity ■ Alkalinity ■ Magnesium (Mg) ■ Potassium (K)
Field Parameters	■ pH ■ Conductivity ■ Temperature
Organics	■ EPA 624,625 (ATG 16+17+18 & ATG 19+20)

Table 12: Organic Compound Parameters

Misa Group 16	Misa Group 19	Misa Group 17	Misa Group 18	Misa Group 20
■ 1,1,2,2-Tetrachloroethane ■ 1,1,2-Trichloroethane ■ 1,1-Dichloroethane ■ 1,1-Dichloroethylene ■ 1,2-Dichlorobenzene ■ 1,2-Dichloroethane ■ 1,2-Dichloropropane ■ 1,3-Dichlorobenzene ■ 1,4-Dichlorobenzene ■ Bromodichloromethane ■ Bromoform ■ Bromomethane ■ Carbon Tetrachloride ■ Chlorobenzene ■ Chloroform ■ Chloromethane ■ Cis-1,3-Dichloropropylene ■ Dibromochloromethane ■ 1,2-Dibromoethane ■ Methylene Chloride ■ Tetrachloroethylene ■ trans-1,2-Dichloroethylene ■ Trans-1,3-Dichloropropylene ■ Trichloroethylene ■ Trichlorofluoromethane ■ Vinyl chloride	■ Acenaphthene ■ 5-Nitroacenaphthene ■ Acenaphthylene ■ Anthracene ■ Benzo(a)anthracene ■ Benzo(a)Pyrene ■ Benzo(b)Fluoranthene ■ Benzo(g,h,i)perylene ■ Benzo(k)Fluoranthene ■ Biphenyl ■ Camphene ■ 1-Chloronaphthalene ■ 2-Chloronaphthalene ■ Chrysene ■ Dibenzo(a,h)Anthracene ■ Fluoranthene ■ Fluorene ■ Indeno(1,2,3-cd)Pyrene ■ Indole ■ 1-Methylnaphthalene ■ 2-Methylnaphthalene ■ Naphthalene ■ Perylene ■ Phenanthrene ■ Pyrene ■ Benzyl Butyl Phthalate ■ bis(2-ethylhexyl)Phthalate ■ Di-N-butylPhthalate ■ Di-N-octylPhthalate ■ 4-Bromophenyl phenyl Ether ■ 4-Chlorophenyl Phenyl Ether ■ bis(2-chloroisopropyl)Ether ■ bis(2-Chloroethyl)Ether ■ Diphenyl ether ■ 2,4-Dinitrotoluene ■ 2,6-Dinitrotoluene ■ bis(2-chloroethoxy)Methane ■ Diphenylamine ■ N-Nitrosodiphenylamine ■ N-Nitrosodi-N-propylamine	■ Benzene ■ Ethylbenzene ■ Styrene ■ Toluene ■ o-Xylene ■ m-Xylene and p-Xylene ■ Xylene (Total)	■ Acrolein ■ Acrylonitrile	■ 2,3,4,5-Tetrachlorophenol ■ 2,3,4,6-Tetrachlorophenol ■ 2,3,5,6-Tetrachlorophenol ■ 2,3,4-Trichlorophenol ■ 2,3,5-Trichlorophenol ■ 2,4,5-Trichlorophenol ■ 2,4,6-Trichlorophenol ■ 2,4-Dimethylphenol ■ 2,4-Dinitrophenol ■ 2,4-Dichlorophenol ■ 2,6-Dichlorophenol ■ 4,6-Dinitro-o-Cresol ■ 2-Chlorophenol ■ 4-Chloro-3-methylphenol (4,6-Dinitro-2-methylphenol) ■ 4-Nitrophenol ■ m-,p-Cresol ■ o-Cresol ■ Pentachlorophenol ■ Phenol

6.2 Surface Water Monitoring Program

The surface water monitoring program for the site is outlined in the Environmental Compliance Approval in Conditions 5 (2) (parameter list) and Condition 5 (3) of Environmental Compliance Approval #9496-9NFKJ9, for the final off-site surface water station (stormwater management pond - TP1(Out)) and in the Follow-up Response to Ministry of the Environment Comments on the Surface Water Monitoring Program and Proposed Action Plan, dated December 3, 2013 (**Appendix E**) for the Wet/Dry property. These monitoring programs are discussed below.

As requested by the Ministry of Environment, Conservation and Parks, a revised surface monitoring program was recommended for the Waste Resource Innovation Centre in December 2013. A summary of the response to the Ministry of Environment, Conservation and Parks, including the revised monitoring are provided in Section 8.9. On March 6, 2014, the City met with the Ministry of Environment, Conservation and Parks to discuss the Public Drop off facility application. It was agreed that sampling at the Waste Resource Innovation Centre Detention Pond 1 (SW 2 and SW 3) would be discontinued. Detention Pond 2 (SW 1) would only be sampled once the levels in the pond reached 0.46 m above the pond invert and that the SWM pond (TP1(out)) would continue to be sampled monthly. The pond was dry in 2025, therefore the pond level never reached the 0.46 m trigger and was not sampled in 2025. No discharge from Detention Pond 2 occurred in 2025. The results of the surface water monitoring are discussed in Section 8.8.

Surface water sampling is undertaken on a monthly basis in the East Pond (SWM) for the parameters (excluding organics) shown in **Table 1**. Organic sampling of the East Pond surface water station was conducted on June 25, 2025. During each month, sampling was undertaken. Measurements of discharge, surface water runoff events and overall conditions of the detention ponds (e.g., dry, or stagnant water) is documented on a weekly basis throughout each month. One surface water station in the SWM pond was monitored by the City staff in 2025; TP1(out), located at the discharge at the north end of the pond. 2025 monthly inorganic monitoring was conducted at TP1(out) (12 events). Organic sampling was conducted at TP1(out) on June 25, 2025. As per condition 5 (3), TP1(out) surface water sampling is also to include at least three wet events per year (as defined by 15 millimetres of rain in the previous 24 hours) of which two must occur within May to September for Total Suspended Solids (TSS). This sampling was completed during the May 23, August 20 and September 5, 2025 monitoring events.

The existing surface water pond (“East Pond” in **Figure 1**) was sampled monthly (12 events) (for inorganic parameters shown on **Table 1**). The East Pond setting is

similar to the other on-site ponds (influenced by road salting) though it is within a different catchment area. As suggested by the Ministry of Environment, Conservation and Parks, surface water quality from the samples collected in the East Pond (designated EPTS-01) can be considered as background surface water quality as it is upstream of both facilities⁶ and is used as comparison to the on-site surface water features.

A ditch located between the stormwater management pond and the East Pond is designed to receive pond overflow and direct it in a northwesterly direction beneath Dunlop Drive.

6. Memorandum from Lynnette Latulippe (MOECC) to Bill Shields (City of Guelph), Re: Annual Monitoring Report – 2009 Guelph Wet-Dry Recycling Centre and Waste Transfer Station, dated February 7, 2011.

7. Leachate Quality

7.1 Leachate Indicators

To determine the potential leachate quality that may be generated from the site, the leachate quality from the City of Guelph closed Eastview Road Landfill was examined. Prior to closure in 2003, this landfill accepted a similar mix of waste at the Transfer Station. Groundwater monitoring has been routinely conducted on this site since 1991. Leachate quality is measured by a series of groundwater monitors in the waste and in the outwash layer beneath the waste. In general, the leachate quality is characterized by elevated concentrations of chloride, boron, phenols (critical leachate parameters), sodium, potassium, magnesium, iron, manganese, ammonia and alkalinity (leachate indicator parameters). Though monitoring continues at the site, leachate quality up to 2009 was only considered since leachate strength is expected to decrease over time with closure of the landfill. **Table 13** provides a summary of the historic leachate concentrations (1997 to 2009) for the leachate monitors.

Table 13: Summary of Leachate Quality from the Waste Monitors, Eastview Landfill

Parameter Groups	Parameters	Average	Minimum	Maximum
General	■ pH	7.68	7.09	8.63
General	■ Conductivity (mS)	14,364	3,880	21,500
General	■ Alkalinity (milligrams per Litre)	6,195	2,900	9,050
General	■ Hardness (milligrams per Litre)	2,161	1,010	2,900
Critical Indicators	■ Chloride (milligrams per Litre)	1,841	101	2,660
Critical Indicators	■ Boron (milligrams per Litre)	22.8	6.22	47
Critical Indicators	■ Phenol (milligrams per Litre)	100	0.72	830
Leachate Indicators	■ Calcium (milligrams per Litre)	96	33	221
Leachate Indicators	■ Sodium (milligrams per Litre)	1,468	424	2,300
Leachate Indicators	■ Magnesium (milligrams per Litre)	468	144	661
Leachate Indicators	■ Potassium (milligrams per Litre)	794	149	1,410
Leachate Indicators	■ Iron (milligrams per Litre)	11	1.1	41.4
Leachate Indicators	■ Manganese (milligrams per Litre)	0.10	0.027	0.688
Leachate Indicators	■ Ammonia (milligrams per Litre)	583	0.05	1,200

With regard to the site, downgradient water quality is compared to background water quality for the critical leachate indicator parameters, as identified above, to determine potential impacts from site operations.

The site operation is not expected to generate any significant quantities of leachate because all waste handling operations are conducted in an indoor environment. The Design and Operations plan incorporates a number of features to protect the groundwater and surface water resources. This includes features such as a completely contained waste tipping floor and collection system, and operating procedures that ensure that waste is handled indoors in a closed environment and is not stored on-site for any length of time. Nevertheless, it is still appropriate to examine water quality at the site for indicators of leachate affects to confirm that all of the safeguards are functioning.

7.2 Petroleum Indicators

The site operations do not involve the use, storage or handling of significant quantities of potential contaminants, other than machine fuel/lubricants. If these are handled with normal, reasonable precaution (according to the regulations) then the risk of groundwater contamination is very low. Established procedures for spills response and contingency are in place. BTEX analysis results are examined to determine if there is any indication of hydrocarbon contamination. Downgradient organic water quality is discussed in Section 8.5.

8. Groundwater, Leachate and Surface Water

A ground and surface water monitoring program is conducted at the site as outlined in **Section 3**.

8.1 Groundwater Elevation and Flow Directions

The Environmental Compliance Approval requires collection of water levels four times per year. Groundwater levels were collected in April, June, September and December during 2025. Groundwater elevations were measured at 19 locations that included a total of 32 monitors. The monitors are outlined in **Table 14** with the geological unit they are measuring. Groundwater elevations are appended. Hydrographs for each location are presented in **Appendix A**.

The bedrock groundwater flow is discussed first as the understanding of the geology controlling this flow is important to the shallow water table flow. In general, the groundwater flow is similar to previous years (**Figure 2**). Groundwater flow is generally from southwest to northeast (bedrock high) and northeast to southwest (from Watson Road) coming into the site from both directions. It is expected that flow would ultimately merge and be directed northerly based on the assessment of the bedrock surface topography, which suggests that the bedrock is deepening to the north. This is important as previous hydrogeological assessments in the area suggest that the bedrock low observed in this area is a former paleo river valley (incised bedrock low) that trends to the north. Therefore, it would be expected that the groundwater flow would follow this feature. The 2008 monitoring nests (bedrock and overburden) were placed to the east of the facility (BH18-08, BH19-08 and BH20-08) to confirm the geology and groundwater flow in this area. Southeast of the Transfer Station, the bedrock elevation is generally highest at BH20-08, sloping to the northwest towards the paleo river valley. A more detailed assessment of the geology in the area incorporating the 2008 borehole data was provided in the 2009 Annual Report (AECOM, 2010), which confirms that there is a pronounced incised bedrock low that trends through the site to the north. The addition of the BH23-12 location on Stone Road, also suggests that the flow in the incised bedrock low is generally to the north.

In general, the shallow groundwater flow beneath the site in 2025 is similar to previous years (**Figure 3**), though flows have been refined and confirmed based on the groundwater elevation information from the monitors installed in 2008 and the updated geological model assessment in 2009. Shallow groundwater flow in the sandy outwash is expected to follow the bedrock topography and be similar to the bedrock groundwater flow. Overall, the

shallow flow is similar, directed into the site from the bedrock high on the southwest area of the site and from along Watson Service Road. It is also expected that flow would ultimately merge and be directed northerly within the alignment of the incised bedrock low. The 2008 drilling also identified a bedrock high (similar to the high to the west) southeast of the site in the vicinity of BH20a-08, between which the bedrock trends.

Table 14: Monitoring Wells and Target Units

Monitor	Geological Unit	Groundwater Zone
5-96	Dolostone Bedrock	Water Table/ Bedrock
6a-96	Dolostone Bedrock	Bedrock
6b-96	Sandy Outwash	Water Table
7-96	Sandy Outwash	Water Table
8-96	Dolostone Bedrock	Water Table/ Bedrock
9-96	Sandy Outwash	Water Table
10-00⁽¹⁾	Dolostone Bedrock	Bedrock
11a-01⁽¹⁾	Dolostone Bedrock	Bedrock
11b-00⁽¹⁾	Gravelly Outwash	Water Table
12a-00/21-13A⁽²⁾	Dolostone Bedrock	Bedrock
12b-00/21-13B⁽²⁾	Gravelly Outwash	Water Table
13a-01⁽³⁾	Dolostone Bedrock	Bedrock
13b-01⁽³⁾	Gravelly Outwash	Water Table
14a-01⁽³⁾	Dolostone Bedrock	Bedrock
14b-01⁽³⁾	Gravelly Outwash	Water Table
15a-01⁽³⁾	Dolostone Bedrock	Bedrock
15b-01⁽³⁾	Gravelly Outwash	Water Table
16a-08⁽³⁾	Dolostone Bedrock	Bedrock
16b-08⁽³⁾	Gravelly Outwash	Water Table
17a-08⁽³⁾	Dolostone Bedrock	Bedrock
17b-08⁽³⁾	Gravelly Outwash	Water Table
18a-08/18a-14⁽³⁾	Dolostone Bedrock	Bedrock
18b-08/18b-14⁽³⁾	Gravelly Outwash	Water Table
19a-08⁽³⁾	Dolostone Bedrock	Bedrock
19b-08⁽³⁾	Gravelly Outwash	Water Table
20a-08⁽³⁾	Dolostone Bedrock	Bedrock
20b-08⁽³⁾	Gravelly Outwash	Water Table
21-08	Dolostone Bedrock	Water Table/ Bedrock
22a-11⁽³⁾	Dolostone Bedrock	Bedrock
22b-11⁽³⁾	Gravelly Outwash	Water Table
23a-12	Dolostone Bedrock	Bedrock
23b-12	Gravelly Outwash	Water Table

Notes: (1) Locations recommended by Ministry of Environment, Conservation and Parks.

(2) 12a-00 replaced 3-97; 21-13 replaces 12-00

(3) Locations in Transfer Station Area.

Figure 2: Bedrock Groundwater Flow (June 2025)

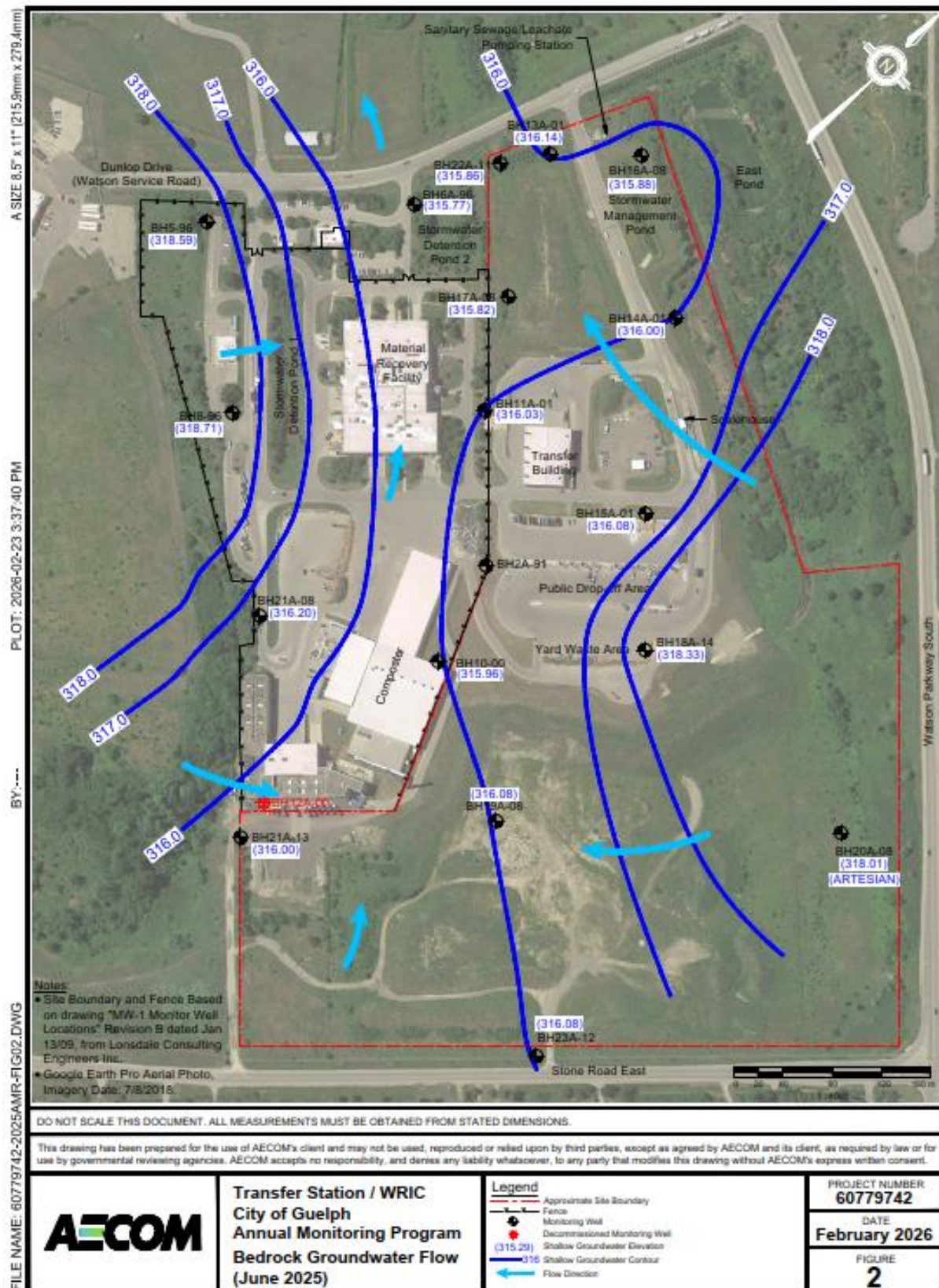


Figure 3: Shallow Groundwater Flow (June 2025)



The shallow water table elevation is generally similar to BH19b-08 (BH19b-08 and BH23b-12 show variance generally less than 0.05 m) in the southern area of the site. The slight difference is most likely related to the actual positioning in the bedrock low as the new location intercepted the bedrock at a deeper elevation than at BH19 indicating that BH19 is most likely higher up on the edge of the bedrock low. Though this is the case, the overall trend of the bedrock low is to the northwest.

8.2 Groundwater Monitoring

8.2.1 Transfer Station Area

The original monitoring program for the site included three overburden monitors (in outwash materials) 13b-01, 14b-01 and 15b-01 and three bedrock monitors 13a-01, 14a-01 and 15a-01. The Ministry of Environment, Conservation and Parks completed a review of the 2004 and 2005 Annual Monitoring Reports for the Eastview Landfill and the Transfer Station. The Ministry of Environment, Conservation and Parks recommended installation of additional monitoring locations to better address the geological setting with respect to the groundwater flow. Based on the Ministry of Environment, Conservation and Parks review comments, six monitoring nest locations (BH16-08 to BH21-08) were completed in 2008, at the locations shown on **Figures 1 to 3**. These monitors consist of overburden outwash (16b-08, 17b-08, 18b-08, 19b-08, 20b-08) and bedrock monitors (16a-08, 17a-08, 18a-08, 19a-08, 20a-08, 21-08). These monitors were incorporated into the routine monitoring program in 2008. Based on the confirmation of groundwater flow at the site, the Ministry of Environment, Conservation and Parks recommended that a new monitoring location be established at the northerly boundary to serve as a Guideline B7 (RUP) boundary compliance point. This location was completed in 2011 and consists of a deep bedrock and shallow overburden outwash monitor (22a-11 and 22b-11). A further location along Stone Road was completed in the summer of 2012, as recommended to the Ministry of Environment, Conservation and Parks, to better assess the potential effects, if any, from the soils that had been stored on site. This location also consists of a deep bedrock and shallow overburden outwash monitor (23a-12 and 23b-12).

8.2.2 Waste Resource Innovation Centre

Baseline groundwater monitoring was conducted from 1991 to 1995, prior to construction at the Waste Resource Innovation Centre site (monitor locations 1a-91, 1b-91, 2a-91, 2b-91, 3-91 and 5-91). Monitoring of the groundwater at the Waste Resource Innovation Centre Facility commenced in April 1996 at the remaining monitoring locations that were not destroyed during construction (**Figure 1**). In late 1996, replacements for the monitors that were destroyed were completed and added to the

program. The present monitoring program, initiated in 1999 after Ministry of Environment, Conservation and Parks approval, is twice per year (June and December).

The City commenced construction of the Public Drop Off area in the late summer of 2014 (**Figures 1 to 3**). Monitoring nests BH18-08a/b (within the pad area) and BH2a/b-91 (on the berm between the Wet/Dry and transfer properties) were found to be within the construction area. The Ministry of Environment, Conservation and Parks was contacted to discuss the decommissioning and need for replacement of these monitoring nests. It was decided that monitoring nest 18-08 would be decommissioned and re-located just to the south of the Public Drop Off pad, between the pad and the new pond.

As for BH2-91, this location was the only one with a deep monitor in the till. Water quality had generally remained similar since about 1991 in the deep till and shallow groundwater (when sampled as it generally had very little water). A slight change (around 2011) in quality did occur in the deep monitor at the time of construction of the compost facility, which may suggest that the monitor was compromised. This was an old monitor installation (1991) and probably only had a surface seal and seal above sand pack. Although this was the case, based on the overall long term historical water quality and the difficulty in sampling the shallow well, it was recommended that this location was to be decommissioned and not replaced. The Ministry of Environment, Conservation and Parks hydrogeologist, confirmed through e-mail correspondence on September 8, 2014 that he was in agreement with the re-location of monitoring nest 18 as well as the elimination of BH2a/b-91 from the current monitoring program.

Monitoring nest BH2a/b-91 and 18-08 (consisting of bedrock monitor 18a-08 and water table monitor 18b-08) were decommissioned in September 2014 as per O. Reg. 903 to accommodate expansion of the Public Drop Off pad. A new monitoring nest (18a-14 and 18b-14) was installed by the City in September 2014 with a mud-rotary drill rig and screened to the same depth/within the same formations as 18a-08 and 18b-08. These new monitors were located about 15 m northeast of the former 18-08 location, just off the Public Drop Off pad and were incorporated into the monitoring program for the site.

Despite attempts to protect the well casings, BH12A-00 and 12B-00 were damaged during the course of demolition of the Subor building. Both monitors were subsequently decommissioned by a licensed well driller and replacement monitors BH21A-13 and BH21B-13 were installed approximate 40 meters to the southwest. All work was completed in accordance with O. Reg. 903.

8.3 Background Groundwater Quality

Groundwater sampling was conducted for the site in June and December 2025.

Groundwater quality results are in **Appendix B**. Trends for select parameters at select monitors are in **Appendix B**.

8.3.1 Background Outwash Water Quality

Background outwash groundwater quality was historically measured at locations 14 and 15 on the adjacent eastern property. Location 15 is now considered a downgradient location due to the construction of the compost pad and Public Drop Off area to the south. Groundwater flow is directed towards the site from these areas. Monitors BH18b-14, BH19b-08 and BH20b-08, located southeast of the Transfer Station, and 16b-08, located north of the Transfer Station are also representative of background outwash conditions based on the groundwater flow patterns in this area. Water quality for the indicator parameters are summarized in **Table 15**.

Monitors 18b-08/14, 19b-08, 20b-08 and 23b-12 have chemistry generally within the range of concentrations observed at monitor 14b-01, located northeast of the Waste Resource Innovation Centre though a few parameters at 19b-08 and 18b-14 were notably higher than the other overburden background monitors. Monitor 19b-08 showed elevated concentrations of alkalinity, and potassium. Sulphate concentrations at 19b-08, which were previously elevated prior to 2013, continued to decrease to 49 milligrams per Litre in 2025 such that it is still slightly elevated compared to overburden background monitors 14b-01 (2025 average 23.5 milligrams per Litre), 18b-14 (2025 average of 18.5 milligrams per Litre) and 23b-12 (26.5 milligrams per Litre) but at a lower concentration compared to 16b-08 (2025 average of 53.0 milligrams per Litre). Sulphate at 14b-01 spiked in December 2022 at 100 milligrams per Litre but has subsequently returned to lower concentrations in 2024 (average of 42 milligrams per Litre) and 2025 (average of 23.5 milligrams per Litre). Alkalinity appeared to be showing a slight increasing trend over time at 19b-08, but concentrations have stabilized and declined since about 2015. Elevated iron previously noted at this location, related to the drilling mud that is still present in the monitor, is decreasing and has stabilized such that it is at an average concentration of 0.33 milligrams per Litre in June 2025.

The 2020 results from 18b-14 show elevated concentrations for conductivity, potassium, sodium, chloride and calcium compared to historic results from 18b-08/18b-14 then generally returned to historical levels in 2021. In December 2022, conductivity, alkalinity, potassium, magnesium, chloride, sodium, and calcium were elevated to their highest concentrations, but all decreased in 2023 and decreased further in 2024. The 2025 results show results more similar to 2023 than 2024 in these parameters. Monitor 18b-14 is located at the eastern edge of the Public Drop Off and yard waste area. Based on the parameters and the recent variable change in concentrations, these impacts seem to be likely due to localized salt impacts.

Table 15: 2025 Background Outwash Water Quality (in parts per million)

Monitor	Alkalinity	Chloride	Sodium	Calcium	Magnesium	Potassium
14b-01: Historical Range	250 to 570	22.3 to 460	0.1 to 250	0.2 to 280	0.05 to 80	0.2 to 2.9
14b-01: 2025 Average	390	185	120	130	25	1.55
16b-08: 2008-2024 Range	250 to 597	10 to 260	17 to 150	89 to 170	26 to 51	1.1 to 3.1
16b-08: 2025 Average	295	43.5	39.5	95.5	27	2.55
18b-08: 2008-2014 Range⁽¹⁾	260 to 424	8 to 19	6.2 to 270	29 to 65	12 to 26	0.73 to 5.5
18b-14: 2015-2024 Range	180 to 290	19 to 1200	4.6 to 750	11 to 160	3.1 to 30	1 to 6.2
18b-14: 2025 Average	265	295	265	72	9.2	5.45
19b-08: 2008-2024 Range	289 to 700	7 to 64	73 to 480	23 to 120	10 to 36	4.5 to 12
19b-08: 2025 Average	480	8.6	64	110	32	5
20b-08: 2008-2024 Range	235 to 360	7 to 170	3.5 to 97	78 to 125	23 to 41	1.1 to 3.3
20b-08: 2025 Average	295	46.5	27	97.5	29.5	1.35
23b-12: 2012-2024 Range	280 to 400	100 to 270	42 to 200	96 to 380	21 to 150	1.4 to 5.4
23b-12: 2025 Average	340	150	97	115	28.5	1.95

Note: (1) Only three historic samples were collected from monitor 18b-08: March 2008, June 2011 and May 2014

(2) Historical Ranges include all data up to and including 2024, except where specified

Elevated concentrations of alkalinity, calcium and magnesium compared to historic concentrations at 20b-08 were observed in 2020 and have declined in 2022, 2023 and 2024. The 2025 results at 20b-08 show slightly elevated concentrations of calcium and magnesium, and a slightly lower concentration of alkalinity in comparison to 2024 concentrations. Concentrations at most of the background monitors were generally similar to previous years however, at 19b-08, the June 2025 sodium concentration of 64 milligrams per Litre is lower than its historic minimum of 79 milligrams per Litre. All other 2025 concentrations for the indicator parameters are within their historic ranges.

Elevated iron at 14b-01, 16b-08, 19b-08 and 20b-08 were noted since December 2011 but decreased in 2013 with the iron concentrations at these monitors below the laboratory detection limits in December 2013. However, the 2015 iron concentration at 14b-01, 19b-08 and 20b-08 was again elevated (averages of 22 milligrams per Litre, 3.4 milligrams per Litre and 4.1 milligrams per Litre, respectively). In 2025, the iron concentration at 14b-01, 16b-08, 19b-08 and 20b-08 remained elevated compared to pre-2011 concentrations when iron was generally below the laboratory detection limits but were not as high as 2012 concentrations. The cause of the increase in iron concentrations is unknown. As these elevated concentrations were apparent in the background monitors, it is concluded that they are not a result of site operations.

The 2025 parameter concentrations at monitor 14b-01 were within the historic range of concentrations at this monitor for both sampling events, with no trends noted. Zinc concentrations, which were generally elevated at concentrations of more than 1 milligram per Litre between 2011 and 2016 subsequently decreased such that current 2025 concentrations are similar to pre-2011 concentrations. COD concentrations at 14b-01 were showing a decreasing trend since high concentrations were detected in 2003-2004 but have been variable in recent years. The COD concentrations have fluctuated between less than 4 milligrams per Litre to 46 milligrams per Litre since 2012 and were less than 4 milligrams per Litre during 2025.

Monitor 16b-08 is located near the northwest corner of the of the Transfer Station area by the stormwater management pond. Indicator parameter concentrations are within the range of concentrations for the other background overburden monitors and are within the historic ranges for this location. This location appears to exhibit a seasonal increase in road salt effects (based on chloride and sodium concentrations).

8.3.2 Background Bedrock Water Quality

Background bedrock groundwater quality is measured at locations 5-96 (northwest) and 8-96 (west) on the bedrock high along the western portion of the Waste Resource Innovation Centre site from where groundwater flows into the immediate area of the Waste Resource Innovation Centre. As well, groundwater quality in the bedrock below

the site was measured at location 6a-96, 14a-01, 16a-08, 18a-08/18a-14, 19a-08 and 20a-08, as well as the upgradient monitor 23a-12. Background bedrock groundwater quality is typically hard with more elevated concentrations of the major ions, most noticeably alkalinity and calcium. These types of concentrations are associated with dolostone, which is made up of calcium and magnesium carbonate. The average concentrations of these parameters observed in 2025 along with the historical ranges at these locations are provided below.

Also, provided in **Table 16** are the 2025 averages from the downgradient bedrock Waste Resource Innovation Centre site monitors (10-00, 11a-01) and Solid Waste Transfer Station area bedrock monitors (13a-01, 15a-01, 17a-08, 22a-11).

The average 2025 indicator parameter concentrations fall within the historical ranges at the background locations, with the following exceptions.

The 2025 average concentration of sodium and chloride at background monitor 5-96 continue to show significant road salt impacts as they have previously. The average 2025 sodium and chloride concentrations at 5-96 were 670 milligrams per Litre and 905 milligrams per Litre, respectively, similar to 2024 concentrations and both showing an overall increasing trend over time. Prior to 2003, concentrations were less than 264 milligrams per Litre and 474 milligrams per Litre, respectively. The effects are found to generally be seasonal with the dry weather (June) sampling period usually showing higher sodium and chloride concentrations as compared to the wet weather sampling periods. Sodium and chloride concentrations at 5-96 exceeded Ontario Drinking Water Standards during both 2025 sampling events. As well, there have been historical road salt effects observed at location 6a-96 and 8-96. Sodium and chloride was elevated at 6a-96 in 2025, with the December 2025 chloride concentration of 350 milligrams per Litre, higher than the pre-2023 maximum concentration, and chloride at the high end of the range at this location.

High 2023 alkalinity, magnesium, calcium and potassium concentrations at 6a-96 decreased to concentrations similar to historic levels in 2024. In general, concentrations in 2025 remained similar to the historic levels in 2024. In addition, elevated 2023 total kjeldahl nitrogen and ammonia concentrations declined in 2024 and further declined in 2025, though remain elevated compared to historic concentrations. 2023 COD and BOD at 6a-96 had elevated concentrations of 20 milligrams per Litre and 5 milligrams per Litre, respectively, increased to higher concentrations in December 2024 to 140 milligrams per Litre and 24 milligrams per Litre, respectively. 2025 COD and BOD at 6a-96 had further reduced concentrations of 4.6 milligrams per Litre and 7 milligrams per Litre, respectively. These water quality changes are discussed further below.

Table 16: Bedrock Water Quality (in parts per million)

Monitor Group	Monitor ID	Range and Dates	Alkalinity (parts per million)	Chloride (parts per million)	Sodium (parts per million)	Calcium (parts per million)	Magnesium (parts per million)	Potassium (parts per million)
-	-	Ontario Drinking Water Standards	30-500 (OG) ⁽⁴⁾	250(AO) ⁽³⁾	200 (AO) ⁽³⁾	500 (OG) ⁽⁴⁾	-	-
Background	5-96	Historical Range ⁽¹⁾⁽²⁾	278 - 380	112 - 474	71.9 - 263	83.7 - 134	24.2 - 38.4	3.9 - 6
Background	5-96	2025 Average ⁽²⁾	325	905	670	120	23.5	4.7
Background	8-96	Historical Range ⁽²⁾	264 - 356	37.2 - 332	17.6 - 171	87 - 123	30 - 43.4	1.73 - 3.1
Background	8-96	2025 Average ⁽²⁾	300	135	85	92	32	2.2
Background	14a-01	Historical Range - 2019	215 - 263	4.8 - 28	9.1 - 29	63.5 - 86	22.4 - 29	0.97 - 2
Background	14a-01	2025 Average	275	28	60.5	63	23	1.35
Background	16a-08	2008-2024 Range	220 - 270	27 - 100	1.9 - 48	73 - 120	24 - 30	1.6 - 3.6
Background	16a-08	2025 Average	240	26	2.1	83.5	27.5	1.85
Background	18a-08/18a-14	2008-2024 Range	210 - 260	3.2 - 81	4.2 - 168	12 - 89	2.4 - 29	0.95 - 2.9
Background	18a-08/18a-14	2025 Average	260	17.5	5.3	83.5	28	1.1
Background	19a-08	2008-2024 Range	230 - 260	27 - 87	12 - 47	94 - 110	32 - 37	1.2 - 1.9
Background	19a-08	2025 Average	250	87.5	40.5	110	34.5	1.65
Background	20a-08	2008-2024 Range	236 - 270	15 - 37	3.9 - 56	72 - 93	26 - 31	0.99 - 1.8
Background	20a-08	2025 Average	255	20	6.05	85	28.5	1.1
Background	21a-08	2008-2024 Range	260 - 320	3.9 - 54	5.5 - 34	70 - 87	23 - 32	0.78 - 1.2
Background	21a-08	2025 Average	275	5.65	6.95	75	24	0.965
Background	23a-12	2012-2024 Range	230 - 250	24 - 76	11 - 37	84 - 97	28 - 34	0.95 - 1.3
Background	23a-12	2025 Average	250	26.5	13.5	87.5	29.5	1.2
Downgradient	6a-96	Historical Range ⁽²⁾	206 - 420	140 - 345	70 - 210	89 - 158	23 - 42	2 - 16.4
Downgradient	6a-96	2025 Average ⁽²⁾	285	350	190	155	41.5	2.55
Downgradient	10-00	Historical Range	230 - 267	17 - 44.9	7.7 - 14	79 - 95.1	27 - 32	1 - 2
Downgradient	10-00	2025 Average	240	34.5	14	91.5	29.5	1.2
Downgradient	11a-01	Historical Range	220 - 263	4 - 28	4.3 - 25.9	62 - 83.2	23 - 28	1 - 3
Downgradient	11a-01	2025 Average	240	25.5	6.05	77	26	1.8
Downgradient	13a-01	Historical Range	240 - 272	83.9 - 120	38 - 54	90 - 112	31 - 38.8	2 - 2.9
Downgradient	13a-01	2025 Average	250	110	57	105	35	2.75
Downgradient	15a-01	Historical Range	220 - 271	42 - 390	7.7 - 160	88 - 160	29 - 45	1 - 2
Downgradient	15a-01	2025 Average	260	85.5	32	105	34	1.25
Downgradient	17a-08	2008-2024 Range	200 - 320	27 - 210	10 - 140	64 - 150	18 - 33	0.92 - 2.2
Downgradient	17a-08	2025 Average	355	255	145	145	32.5	1.55
Downgradient	22a-11	2011-2024 Range	212 - 260	47 - 130	15 - 78	88 - 110	20 - 36	1.3 - 2.3
Downgradient	22a-11	2025 Average	240	72.5	33	103	33.5	1.5

Notes: (1) Historical Ranges only include data from 1997 up to 2003 due to continued increasing chloride and sodium values after 2003.
(2) Road salt impact.
(3) AO indicates an aesthetic objective in the Ontario Drinking Water Standards
(4) OG indicates an operational guideline in the Ontario Drinking Water Standards, the objective is based on impacts to distribution equipment using the water
(5) Historical Ranges include all data up to and including 2024 except where specified.

As well as the elevated sodium previously discussed at 6a-96 and 2023 elevated calcium, magnesium, alkalinity, potassium, total kjeldahl nitrogen ammonia, and sulphate show notable increases in 2023 compared to previous years though all parameter concentrations decreased in 2024. In 2025, calcium, , alkalinity, potassium, have returned to be comparable to pre 2023 concentration; magnesium, TKN ammonia and sulphate concentrations remain slightly elevated. This location is in a downgradient location between an internal access road and Stormwater Detention Pond 2. As further discussed in Section 8.3.1, downgradient shallow overburden monitor 22b-11 also showed unexpected 2023 water quality results. City staff noted that there was a spill from the sanitary station at the northeast corner of the Stormwater Detention Pond on May 14, 2023. The effluent from this release flowed from an excavation exposing the wet well at the pumping station along the north edge of the pond to the ditch; therefore, the release occurred between 6a-96 and 22b-11. The spill was reported to the Ministry of Environment, Conservation and Parks (1-3GLKQK), investigated and the source of the leak was repaired.

Future monitoring results will be examined to determine if these elevated concentrations persist. In 2024, 6a-96 was inspected to confirm that the surface seal appeared undamaged. The monitor pipe appeared to be leaning slightly but did not appear damaged. Field staff noted that there was an odour to the sample water in 2023 that had disappeared in 2024 and the colour of the water changed back to clear from the blackish colour that accompanied the odour. To confirm no organic impacts, a microbiology sample was collected at 6a-96 in January 2024 with results showing parameter concentrations less than the laboratory detection limits. The 2023 change in water quality was significant at this monitor and was relatively consistent over both sampling events however, since there was improvement in 2024, this suggests that 6a-96 was temporarily affected by the release but is in the process of recovery

Magnesium and potassium have been showing a slight decreasing trend at 5-96 though these concentrations have stabilized in recent years. The average 2025 magnesium and potassium concentrations for monitor 5-96 are similar to the historic concentrations. Pre-2006 average magnesium and potassium concentrations were about 31.3 milligrams per Litre and 5.6 milligrams per Litre, decreasing to about 26.8 milligrams per Litre and 4.5 milligrams per Litre between 2006 and 2015, to 23.5 milligrams per Litre and 4.7 milligrams per Litre in 2025.

At location 8-96, the 2025 sodium and chloride concentrations are elevated but within Ontario Drinking Water Standards. Calcium at 8-96 has shown a slow decreasing trend over time which has stabilized in recent years. The calcium concentration at 8-96 showed an average of 106 milligrams per Litre up to 2004 to an average of 95 milligrams per Litre from 2005 to 2015, an average of 92 milligrams per Litre from 2016 to 2021 and an average of 95 milligrams per Litre from 2023 to 2025.

In June 2022, monitor 23a-12 had chloride and sodium concentrations elevated above its historical range, more than double the historical maximum however, subsequent results since December 2022 have shown chloride and sodium concentrations decreased to more typical historic concentrations. 23a-12 is located adjacent to Stone Road East and is likely showing impacts from road salt. Though average 2024 and 2025 concentrations were slightly above the historical range at 18a-14 (chloride), 11a-01 (chloride) and 20a-08 (alkalinity), these elevated averages were only marginally above the historical range and do not appear to indicate a shift in overall water quality.

The average 2021 concentrations of leachate indicator parameters alkalinity, chloride, sodium and calcium at background monitor 14a-01 were elevated compared to the historic range of concentrations in 2020; therefore, the historical range has not been updated to include 2020 data. The 2025 calcium concentration was within the historical range for this monitor, and the 2025 alkalinity concentration was slightly elevated compared to the historical range for this monitor. The 2025 average 14a-01 sodium and chloride concentrations of 60.5 milligrams per Litre and 28 milligrams per Litre, respectively, were higher than the 29 milligrams per Litre and the same for the 28 milligrams per Litre maximum historic concentrations at this location, though similar to sodium and chloride concentrations observed since December 2020. In July 2025 the COD at 14a-01 was significantly elevated at 100 milligrams per litre well above the typical below reportable detection limit of 4 milligrams per litre; however, the concentration in December 2025 was below detection and therefore the reported concentration appears to be anomalous.

Background monitor 18a-14 showed variable leachate indicator concentrations in June 2019 with some parameters showing higher than historic concentrations (total phosphorus, sodium, chloride, iron) and some showing lower than historic concentrations (magnesium, nitrate). These parameter concentrations returned to pre-June 2019 ranges during the 2020 to 2025 monitoring events. However, chloride and sodium concentration were again elevated in June 2021 but subsequently returned to historic concentrations since that time. As monitor 18a-14 is a background location, site activities did not cause this change.

Downgradient monitor 17a-08 showed higher than historic parameter concentration in June 2019 for many parameters including total phosphorus, alkalinity, chloride, sodium, iron, zinc and nitrate. Total phosphorus has returned to pre-2011 concentrations but 2025 alkalinity concentrations have remained high and are higher in 2025 compared to June 2019. Iron concentrations have declined since June 2019 but remain elevated. The June 2025 sodium, chloride, zinc and nitrate concentrations are higher than they were in June 2019. Average 2025 leachate indicator parameter concentrations for alkalinity, chloride, sodium, calcium and potassium were higher than their historic maximums. The chloride, sodium and calcium concentrations at 17a-08 have been

increasing since 2021. The June 202 chloride concentration of 430 milligrams per Litre and the June 2025 chloride concentration of 290 milligrams per Litre exceeds Ontario Drinking Water Standards. Elevated concentrations at 17a-08 do not appear to be related to site operations since the shallow monitor (17b-08) has shown no impacts. Location 17a-08 will continue to be monitored to assess these changes.

Elevated iron concentrations were observed starting in 2011 in several monitors across the site (background and downgradient) and still persist at most locations in 2025 though generally decreasing. Downgradient monitor 6a-96 showed an elevated iron concentration of 1.7 milligrams per Litre in December 2021 compared to the previous maximum iron concentration of 0.22 milligrams per Litre in December 2019 and 0.78 milligrams per Litre in June 2020. The iron was again elevated in December 2023 and 2024 at 0.72 milligrams per Litre and 1.6 milligrams per Litre, after showing a concentration of 0.08 milligrams per Litre and 0.03 milligrams per Litre in June 2023 and 2024 which was consistent with historical results. In December 2025, the iron concentration slightly decreased to 0.63 milligrams per Litre, after showing a concentration of 0.55 milligrams per Litre in June 2025, also consistent with historical results. The iron concentrations at 6a-96 have been showing a seasonal trend since 2020 with higher concentrations in December and lower concentrations in June. As has been concluded previously these iron concentrations are not related to site operations.

When the water quality from the monitors located along the eastern boundary of the Waste Resource Innovation Centre (10-00, 11a-01) and in the Transfer Station area (13a-01, 14a-01, 15a-01, 16a-08, 17a-08) are compared to the historical monitors to the west, there is a difference in bedrock water quality observed. With the exception of alkalinity, the concentrations of the major ions are generally lower indicating a less mineralized water. This difference in water quality is attributed to the bedrock units they are screened in. As stated earlier, there is a bedrock high to the west of the site. This high is dominated by the dolostone units of the Guelph Formation. The bedrock topography dips steeply from this high, across the Waste Resource Innovation Centre site, towards a deeply incised bedrock valley low. This valley cuts into the underlying Gasport Formation (formerly the Amabel). Monitors are installed in this formation or at the contact of this formation at the eastern boundary of the Waste Resource Innovation Centre facility. Overall, water quality from this lower formation is found to be less mineralized, which is confirmed by sampling of these monitors.

8.4 Downgradient Groundwater Quality

8.4.1 Shallow Outwash Groundwater Quality

Monitors along the eastern property boundary of the Waste Resource Innovation Centre and within the paleo-valley in this same area are downgradient of site operations based

on shallow groundwater flows (**Figure 3**). **Table 17** compares downgradient water quality at monitors 6b-96, 7-96, 9-96, 11b-00, 13b-01, 15b-01, 17b-08 and 22b-11 to the Ontario Drinking Water Standards, leachate quality (from the Closed Eastview Road Landfill) and background outwash water quality from monitors BH14b-01, 16b-08, 18b-14, 19b-08, 20b-08 and 23b-12.

Background monitor 18b-14 was installed in September 2014 to replace 18b-08. 18b-08 was sampled on three occasions. 18b-14 has been sampled on 20 occasions. Several parameters during the June 2019 event showed higher (alkalinity, sulphate, calcium, zinc, nitrate) or lower (sodium, chloride, iron) concentrations compared to historic results. At the time, it was expected that variations in parameter concentrations were due to the limited dataset and are a result of natural variability or may be due to mud used during the drilling process, which is slowly cleaning out. However, during 2020, 2022 and 2023, average leachate indicator parameter concentrations of alkalinity, chloride, sodium and potassium exceeded historic maximums with conductivity also showing high concentrations in 2020 and 2022. Most of the indicator parameter concentrations (alkalinity, chloride, sodium, calcium, magnesium and potassium) that peaked in December 2022 are lower in 2024 and in 2025 and all 2025 average concentrations are within historic ranges.

Though this monitor location is hydraulically upgradient from site operations, it is located at the periphery of the yard waste area and may be influenced by these activities. In 2025, the leachate indicators were similar to other background monitors, indicating no impacts. Further monitoring results from this location will be assessed to examine possible influences from the yard waste area.

As shown in **Table 17**, indicator parameter concentrations observed in the background and downgradient outwash monitors on the site are considerably lower than typical leachate concentrations from the closed Eastview Road Landfill, except for calcium, which has background and downgradient concentrations similar to the Eastview Landfill. Sodium and chloride concentrations at 11b-00 had shown a subtle increasing trend over the years', peaking in 2014 at concentrations of 220 milligrams per Litre and 290 milligrams per Litre, but have now generally shown a decline, since this time to 2024 average concentrations of 89 milligrams per Litre and 78.5 milligrams per Litre. In 2025, there has been a subtle increase in average concentrations of 105 milligrams per Litre and 119 milligrams per Litre, respectively. 17b-08 has shown variable chloride and sodium concentrations over time but is generally showing a downward trend with higher concentrations between 2008 and 2017 and lower concentrations since 2017. Chloride and sodium concentrations at 17b-08 have now declined to 2024 average concentrations of 34.5 milligrams per Litre and 15.5 milligrams per Litre, respectively.

Table 17: Shallow Outwash Groundwater Quality (in milligrams per Litre)

Monitor Group	Monitor ID	Range and Dates	Critical Leachate Indicators Boron (milligrams per Litre)	Critical Leachate Indicators Phenols (micrograms per Litre)	Critical Leachate Indicators Alkalinity (milligrams per Litre)	Critical Leachate Indicators Chloride (milligrams per Litre)	Other Leachate Indicators Sodium (milligrams per Litre)	Other Leachate Indicators Calcium (milligrams per Litre)	Other Leachate Indicators Magnesium (milligrams per Litre)	Other Leachate Indicators Potassium (milligrams per Litre)
-	-	Ontario Drinking Water Standards	5		30 – 500	250	200			
Leachate	-	Historical Range (1997-2009)	6.22 – 47	0.72 – 830	2,900 – 9,050	101 – 2,660	424 – 2,300	33 – 221	144 – 661	149 – 1,410
Leachate	-	Average (1997-2009)	22.8	100	6,195	1,841	1,468	96	468	794
Downgradient	6b-96	Historical Range ⁽²⁾	0.018 - 0.078	0.72 - 11	246 - 412	68 - 815	53.1 - 467	68 - 217	16 - 47	2.3 - 18
Downgradient	6b-96	2025 Average	0.021	31	300	110.5	98	88	19	3.75
Downgradient	9-96	Historical Range	0.01 - 0.1	0.001 - 4	80 - 348	2.4 - 83.7	1.48 - 34	26 - 100	3.2 - 34	0.3 - 17
Downgradient	9-96	2025 Average	0.0865	< 1	105	3.3	9.35	42.5	5.25	8.05
Downgradient	7-96	Historical Range	0.03 - 0.102	0.001 - 12	224 - 393	54.3 - 397	28.7 - 240	95.1 - 226	23 - 52.7	7.4 - 27
Downgradient	7-96	2025 Average	0.0365	< 1	320	155	111	110	24.5	6.95
Downgradient	11b-00	Historical Range	0.035 - 1.9	0.001 - 7	185 - 330	47 - 290	26.8 - 220	44 - 110	10-30	1 - 2.2
Downgradient	11b-00	2025 Average	0.044	< 1	265	119.5	105	74.5	16	1.5
Downgradient	13b-01	Historical Range	0.01 - 0.1	0.001 - 12	230 - 506	7 - 230	2 - 150	75 - 160	24 - 45	1 - 2.6
Downgradient	13b-01	2025 Average	0.023	< 1	390	150	112.5	130	30	2.1
Downgradient	15b-01	Historical Range ⁽²⁾	0.01 - 0.18	0.001 - 110	130 - 544	4 - 580	2 - 450	17 - 210	0.97 - 53	0.89 - 29
Downgradient	15b-01	2025 Average	0.05	< 1	250	109.5	165	30.05	2.52	1.505
Downgradient	17b-08	2008-2024 Range	0.015 - 0.03	0.001 - 1.7	240 - 357	33 - 620	15 - 330	75 - 190	19 - 48	0.91 - 3.1
Downgradient	17b-08	2025 Average	0.026	< 1	235	40	16.5	83	29.5	1.4
Downgradient	22b-11	Range 2011-2024	0.013 - 0.031	0.001 - 1	230 - 390	33 - 180	13 - 110	84 - 190	18 - 48	1.1 - 3.1
Downgradient	22b-11	2025 Average	0.0215	< 1	345	137	82	150	35	2.45
Background	14b-01	Historical Range	0.01 - 0.05	0.001 - 13	267 - 460	22.3 - 460	0.1 - 250	0.2 - 280	0.05 - 80	0.2 - 2.9
Background	14b-01	2025 Average	0.0155	<1	390	185	120	130	25	1.55
Background	16b-08	2008-2024 Range	0.01 - 0.047	0.001 - 5	280 - 597	10 - 260	17 - 150	89 - 170	26 - 51	1.1 - 3.1
Background	16b-08	2025 Average	0.0135	<1	295	43.5	39.5	95.5	27	2.55
Background	18b-08	2008-2014 Range ⁽¹⁾	0.01 – 0.10	< 1	260 - 424	8 - 19	6.2 - 270	29 - 65	12 - 26	0.73 – 5.5
Background	18b-14	2014 -2024 Range	0.01 - 0.03	0.001 - 1	180 - 340	19 - 1200	4.6 - 750	11 - 160	3.1 - 28	1 - 11
Background	18b-14	2025 Average	0.017	<1	265	295	265	72	9.2	5.45
Background	19b-08	2008-2024 Range	0.066 - 0.27	0.001 - 1	289 - 700	7 - 64	73 - 480	23 - 110	10 - 34	4.5 - 12
Background	19b-08	2025 Average	0.028	<1	480	8.6	64	110	32	5
Background	20b-08	2008-2024 Range ⁽²⁾	0.01 - 0.018	0.001 - 8.9	235 - 360	7 - 170	3.5 - 97	78 - 125	23 - 41	1.1 - 2.2
Background	20b-08	2025 Average	0.0125	<1	295	46.5	27	97.5	29.5	1.35
Background	23b-12	2012-2024 Range	0.035 - 0.71	0.001 - 1	320 - 400	100 - 270	76 - 200	96 - 380	26 - 150	1.8 - 5.4
Background	23b-12	2025 Average	0.074	<1	340	150	97	115	28.5	1.95

Note: (1) Only three historic samples have been collected from 18b-08; March 2008, June 2011 and May 2014.
(2) Dec 2021 20b-08 (B, Cl, Na, Ca, Mg) and 6b-96 (B, Cl, Na, Ca, Mg, K) and Dec 2020 at 15b-01 (Cl, K) showed anomalous values, and were excluded from the ranges
(3) Historical Ranges includes all data up to and including 2024, except where specified.

There has been a subtle increase in 2025 average concentrations of 40 milligrams per Litre and 16.5 milligrams per litre, respectively, however, these average concentrations continue to be much lower than their 2009 peak concentrations of 620 milligrams per Litre and 330 milligrams per Litre, and lower than the historic minimums for this location. The 17b-08 calcium concentrations have shown similar fluctuations as the chloride and sodium concentrations with a 2025 average concentration of 83 milligrams per Litre, which is also higher than the minimum concentration. Other leachate indicator parameter concentrations are within background outwash ranges for the Transfer Station indicating no impacts.

At monitor 9-96 potassium concentrations had been showing an increasing trend but have stabilized in recent years. The 9-96 potassium concentrations were generally less than 1 milligram per Litre up to 2005. From 2006 to 2011, the potassium concentrations were stable, averaging 1.2 milligrams per Litre. Potassium concentrations at 9-96 started to increase from a 2012-2013 average of 4.5 milligrams per Litre to a 2014-2019 average of 9.4 milligrams per Litre, then have continued to slowly decrease to a 2020-2025 average of 6.95 milligrams per Litre. Alkalinity, magnesium and calcium concentrations have decreased and stabilized in recent years. Alkalinity concentrations from 1997 to 2008 averaged 242 milligrams per Litre and peaked in 2009 at a concentration of 348 milligrams per Litre. Since 2012, alkalinity concentrations have stabilized and are lower than pre-2009 concentrations, less than 150 milligrams per Litre with the 2025 average alkalinity concentration slightly higher than the historic minimum. Magnesium and calcium concentrations at 9-96 showed similar concentration patterns as potassium. Magnesium and calcium both showed gradual concentration increases peaking in 2009 and then decreasing to concentrations lower than pre-2009 from 2012 to 2024 with both showing stable concentrations since 2012 and a 2025 average concentration slightly higher than the historic minimum. The 2025 average boron concentration is slightly lower than the maximum range. This location is downgradient and adjacent to the compost facility. The compost facility was constructed and became operational in 2012, around the same time that the above concentration changes occurred. All compost operations are fully enclosed so these changes are not due to site operations.

Though nitrate concentrations at monitor 7-96 historically had regularly exceeded the Ontario Drinking Water Standards (10 milligrams per Litre) prior to 2013, they were within Ontario Drinking Water Standards in recent years' with 2025 concentrations of 7.21 milligrams per Litre and 5.94 milligrams per Litre. Elevated nitrate has occurred historically, including prior to the start-up of the Waste Resource Innovation Centre facility and is most likely a result of past land use.

At 13b-01, both sodium and chloride have shown increasing trends since 2004, peaking in 2008 and then slowly declining. However, since about 2017 through to 2025, concentrations have been variable for both parameters with low June concentrations and higher December concentrations. The average 2025 sodium and chloride concentrations at 13b-01 are 112.5 milligrams per Litre and 150 milligrams per Litre, respectively, and are within the range of concentrations observed at this location. Elevated sodium and chloride concentrations are likely due to road salt effects as this monitor is located adjacent to the access road to the Transfer Station and Dunlop Road. Since indicator parameter concentrations at monitor 13b-01 remain within background concentrations, it has been concluded that there are no leachate impacts.

Downgradient monitor 22b-11 showed unusual 2023 water quality results with elevated sulphate, ammonia, alkalinity, magnesium, potassium, TKN and calcium. These parameters were also unusually elevated in 2023 at bedrock monitor 6a-96, located south of 22b-11 in the vicinity of Stormwater Detention Pond 2. A spill from the pumping station at the northeast corner of the storm retention pond did occur and is presumed to be the source of the water quality impacts. Parameter concentrations at monitor 22b-11 decreased in 2024 and 2025 from its peak in June 2023 suggesting that impacts from the release are dissipating. The June 2024 nitrate concentration of 14 milligrams per litre exceeded the Ontario Drinking Water Standards of 10 milligrams per Litre for the first time since monitoring at 22b-11 commenced. The December 2024 nitrate concentration at this monitor was 4.19 milligrams per Litre, slightly elevated compared to the historic maximum in 2014 (4.13 milligrams per Litre). The June and December 2025 nitrate concentrations at this location were 4.16 milligrams per Litre and 1.27 milligrams per Litre, respectively, and are within historic ranges. The cause of the variable nitrate concentration is uncertain; however, it is likely a combination of sources impacting the site as a whole along with a breakdown of ammonia released during the 2023 spill. Previously, the highest nitrate concentration at this location was 4.13 milligrams per Litre in May 2014. Future monitoring results will continue to be examined to determine if there are any on-going long-term effects.

Parameter concentrations at 15b-01 have historically been variable, affected by activities in the vicinity. Monitor 15b-01 had previously been considered an upgradient background location due to its location east of the Waste Resource Innovation Centre and south of the Transfer Station. However, in the mid-2000s, a large, paved pad was constructed southeast of this monitor location. The pad was sloped such that surface water runoff was captured by a catch basin located near the middle of the pad and directed to the storm sewer. This pad was originally intended for storage of leaf compost but was being used to store construction and demolition material (roofing shingles, clean wood, drywall, rubble). The overall change in water quality at this location, at that time may be due to a combination of road runoff impacts from the Transfer Station

access road to the northwest, a reduction of infiltration (and therefore, dilution) with the installation of the paved pad as well as the road salt from the south, as observed in the background monitors and now the more recent construction activities in the area. Construction activities in the vicinity of this location appears to have affected the groundwater quality, starting in late 2015. Changes in this area have included installation of a drainage ditch/culvert beneath internal access entrance to this area, installation of a permanent water line adjacent to the monitor location and placement of bin storage on the pad adjacent to the monitors to hold construction waste like drywall and wood.

Construction of a trench excavated very close to location 15b-01 resulted in a spike in several parameters (potassium, sulphate, sodium, chloride, conductivity, COD, boron, nitrate) in December 2015 to June 2016 at 15b-01. During the December 2019 monitoring event, City field staff noted an odour to the monitor water, similar to rotten eggs / sewage. As a result, additional sampling was conducted at this location for an expanded list of parameters, including sulphates and microbiology. Microbiology results at 15b-01 were elevated, and below detection in 15a-01. Investigation to confirm the continued applicability of sampling 15b-01 and to confirm the pathway of impacts were completed. No lasting impacts have been observed and continued use is warranted. The high BOD and COD concentrations observed in the December samples in 2018, 2019, and 2020 did not occur in the December samples of 2021, 2022, 2023, 2024 or 2025.

Ontario Drinking Water Standards were exceeded by background monitor 14b-01 for chloride during both 2024 monitoring events but have now decreased below Ontario Drinking Water Standards during both 2025 monitoring events. Ontario Drinking Water Standards was exceeded in 2024 at downgradient monitor 22b-11 for nitrate in June but have decreased well below the Ontario Drinking Water Standards in 2025. 18b-14 exceeded Ontario Drinking Water Standards for sodium and chloride in June and December 2025. There were no other exceedances of Ontario Drinking Water Standards for the shallow groundwater monitors in 2025 for the parameters tested.

6b-96 had a significantly elevated phenol concentration of 62 ug/L in June 2025, however the concentration was reported at <1 ug/L in December 2025. The elevated concentration is therefore assumed to be anomalous either in the well water or some type of cross contamination occurred in the sampling handling on or off the site.

We conclude from this assessment, there have been no leachate impacts to the shallow groundwater in the vicinity of the site as a result of site operations in 2025.

8.4.2 Downgradient Bedrock Groundwater Quality

The interpreted bedrock groundwater flow directions (**Figure 2**) indicate that monitors 6a-96, 10-00, 11a-01, 13a-01, 15a-01, 17a-08 and 22a-11 are downgradient of the active site area, within or on the edge of the paleo-valley trending through the site.

The bedrock groundwater quality was compared to Ontario Drinking Water Standards, as applicable. Monitor 15a-01 exceeded the chloride Ontario Drinking Water Standards in June 2018, June 2019 and June 2020, possibly due to influences from an installation of a water line in the immediate area. The 2025 average chloride concentration at 15a-01 was 85.5 milligrams per Litre, well within the Ontario Drinking Water Standards. In addition, Location 6a-96 exceeded Ontario Drinking Water Standards for chloride during both monitoring events. 6a-96 was inspected in 2024 to confirm that the surface seal appears undamaged. Though the monitor appeared to be leaning slightly, it did not appear to be damaged. There was a spill from the sanitary station at the northeast corner of the Stormwater detention pond on May 14, 2023, with the release impacting the area between monitors 6a-96 and 22b-11. The 2024 parameter concentrations (as well as formerly elevated parameter concentrations at 22b-11) showed a decrease at 6a-96 compared to 2023 suggesting that the location was impacted by a release and the impacts of the release are now dissipating. This location will continue to be tracked in the future to ensure that there are no long-term impacts. In June 2024, the nitrate concentration at 22b-11 exceeded the Ontario Drinking Water Standards for the first time since monitoring at this location commenced. The cause of the elevated nitrate concentration is uncertain; however, it was likely a combination of sources impacting the site as a whole along with a breakdown of ammonia released during the 2023 spill. In 2025, the nitrate concentrations at 22b-11 have decreased and are well below the Ontario Drinking Water Standards and within the historic ranges for this location. Future monitoring results will continue to be examined to determine if there are any on-going long-term effects.

There are no other exceedances of Ontario Drinking Water Standards in 2025 for the bedrock groundwater monitors for the parameters tested (except for iron, previously discussed).

As the shallow outwash water quality is not affected by site operations, no effects to the deeper bedrock groundwater would be expected nor observed.

8.5 Groundwater Organics Results

Groundwater monitors were analyzed for organics during the June 2025 monitoring event at monitoring locations 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22 and 23.

Some low-level detections of organics were reported across the site in 2024 included bromodichloromethane (0.19 micrograms per Litre at 17a-08) and chloroform (up to 7.6 g/L at 6a-96, 6b-96, 11b-00, 13b-01, 16b-08, 17a-08, 23b-12). During 2025, there were still low-level detections of organics reported including bromodichloromethane (0.14 micrograms per Litre at 17a-08), tetrachloroethylene, (0.17 micrograms per Litre at 13b-01) and chloroform (up to 4.3 micrograms per Litre at 6b-96, 11b-00, 13b-01, 16b-08, 17a-08, 23b-12). It is noted that in 2023, 21-13b had a detection of xylenes; and 18b-14 had detections of xylenes and toluene. In 2024, there was xylene detected at the laboratory detection limit at 21-13b. Low xylene concentrations were previously detected at both these locations in 2022. In addition, during 2025 there were low-level detections of xylene, m-xylene and p-xylene concentrations at 21-13b; however, the xylene and toluene concentrations at 18b-14 were below the laboratory detection limits. Although above background criteria the BTEX concentrations remain quite low. 21-13b is a recently installed monitor and therefore we recommend at this time they simply be monitored to determine if detections persist. Previous detections at 21-13a have not persisted in 2022, 2023, 2024 and 2025. In addition, of the MISA 20 Group, there were low level detections of Bis(2-ethylhexyl)phthalate at 14b-01 and Di-N-butyl phthalate at 11b-00 in June 2024, however, these concentrations were below the laboratory detection limits in June 2025. Phenol at a concentration of 62 micrograms per Litre was detected at 6b-96 in June 2025 however were non-detect in December and are therefore assumed to be anomalous. . None of the volatile organic compound concentrations detected exceeded Ontario Drinking Water Standards, where applicable. No other organics were detected at any of the monitors that are part of the Waste Resource Innovation Centre and Transfer Station monitoring program in 2025.

Historically, there have been occasional low-level detections of organics at both upgradient and downgradient monitors. Because the detection limits for organic compounds are very low, it is not unusual to have sporadic low level organic detections at sites where organic samples are frequently collected. The presence of persistent organics at one location combined with elevated indicator parameter concentrations and/or increasing trend in parameter concentrations would trigger more intense scrutiny of water quality results. This has not been the case for the organic detections at this site.

8.6 General Groundwater Quality Discussion

Overall, the groundwater chemistry during 2025 was similar to previous years.

In 2007, nitrate and nitrite analysis were re-instated into the routine monitoring program for both the sites as per the Ministry of Environment, Conservation and Parks' recommendations. Historically, nitrates were included in the monitoring program but

were removed since elevated nitrate concentrations were prevalent across the site at all locations prior to development of the site. Shallow background monitors 1b-91, 6b-96 and 7-96 historically had shown elevated nitrate concentrations in the early 1990s (up to 32 milligrams per Litre at 1b-91) and late 1990s (up to 53.5 milligrams per Litre at 7-96) indicating that the elevated nitrates were present prior to the commencement of facility operations due to historical land use. Concentrations of nitrate have significantly decreased since this time and are generally found at much lower levels reflecting current surrounding land use in the area. There were no other exceedances of the nitrate Ontario Drinking Water Standards in 2025.

Monitors 5-96 and 14b-01 exceeded Ontario Drinking Water Standards for sodium and/or chloride in 2024, as a result of apparent road salt effects. In 2025, monitor 5-96 continued to exceed Ontario Drinking Water Standards for sodium and chloride concentrations, but monitor 14b-01 chloride concentrations has decreased and are below Ontario Drinking Water Standards. The chloride concentration at bedrock monitor 17a-08 in June 2025 also exceeded Ontario Drinking Water Standards but decreased below Ontario Drinking Water Standards during December 2025. This exceedance does not appear to be a result of site operations since shallow monitor 17b-08 does not show elevated concentrations. Chloride concentrations also exceeded Ontario Drinking Water Standards at bedrock monitor 6a-96 in June and December 2025; however, shallow monitor 6b-96 does not show elevated concentrations. In 2025, elevated iron concentrations exceeding Ontario Drinking Water Standards were again detected at most monitors at the site which was first observed in late 2011. These elevated iron concentrations will continue to be evaluated further in future monitoring events. 18b-14 exceeded Ontario Drinking Water Standards for sodium and chloride . There were no other exceedances of the Ontario Drinking Water Standards in 2025.

As observed in the past, sporadic low-level detections of organics were observed in both upgradient and downgradient monitors across the site in 2025. Because the detection limits for organic compounds are very low, it is not unusual to have sporadic low level organic detections at sites where organic samples are frequently collected. These occasional detections do not appear to be related to site operations. The shallow new monitor at 21-13b also had low level detections of BTEX parameters, including xylenes in 2025 slightly above detection limits, however, as only -five samples have been collected from this monitor, further sampling is required to confirm any trends in these results. The deep monitor 21-13a had detections in 2021 which were not detected in 2022, 2023, 2024 or 2025. The presence of persistent organics at one location combined with elevated indicator parameter concentrations and/or an increasing trend in parameter concentrations would trigger more intense scrutiny of water quality results. In previous monitoring reports, we had recommended discontinuation of the organic sampling from the groundwater monitoring program for all historical locations. In the

Ministry of Environment, Conservation and Parks review of the 2009 Annual Monitoring Report (Groundwater Review), the reviewer did not support the discontinuation of the organic groundwater sampling program since an impact assessment with respect to the requirements of Guideline B-7 had not yet been completed. As recommended, organic sampling events should include a trip blank and a field blank collected with each organic monitoring event for QA/QC purposes.

In conclusion, there were no observable effects attributed to the Waste Resource Innovation Centre operations on the groundwater quality beneath the site. No effects were observed at the site boundaries. Road salt effects continue to be observed at monitoring locations both upgradient of the site and on-site.

8.7 Guideline B-7 Assessment

Ministry of Environment, Conservation and Parks Guideline B-7 (formerly Policy 15-08 referred to as the Reasonable Use Policy) applies the reasonable use approach to groundwater quality management at waste management sites. Guideline B-7 describes acceptable levels of contaminants in the groundwater at site boundaries, based on the Ontario Drinking Water Standards and natural background conditions, with respect to the protection of drinking water. In addition, it is used to determine whether any remedial action is warranted. The Guideline B-7 limits were calculated using the formula outlined in the Ministry of Environment, Conservation and Parks' Procedure B-7-1 (MOEE 1994a and 1994b).

The basic methodology to assess groundwater quality in relation to Guideline B-7 limits (reasonable use guidelines), is to compare the shallow and bedrock downgradient groundwater quality to the calculated maximum concentrations. The leachate indicator parameters used in the assessment are either health related or aesthetic parameters specified in the Ontario Drinking Water Standards. Based on the Ministry of Environment, Conservation and Parks reasonable use approach from Guideline B-7, the maximum concentrations (**C_m**) allowed at the site boundaries are calculated from the drinking water quality criteria (**C_r**), and background concentrations (**C_b**) based on the formula provided in Procedure B-7-1. Guideline B-7 allows for some incremental impact to occur on the neighbouring property, relative to background. Input for a given chemical parameter includes the background concentration, the Ontario Drinking Water Standards (MOE, 2003), and a safety factor that was established by the Ministry of Environment, Conservation and Parks based on human health and aesthetic considerations.

As part of the Ministry of Environment, Conservation and Parks review on the 2009 Annual Monitoring Report, it was recommended that Guideline B-7 be applied to this

site as the geological model, and groundwater flow was confirmed and has generally been in the north-easterly direction. Monitor 22a-11 (bedrock) and 22b-11 (overburden) were installed at the downgradient northwestern property boundary adjacent to Dunlop Drive to be utilized for an impact assessment with respect to the requirements of Guideline B-7⁷. As recommended by the Ministry of Environment, Conservation and Parks reviewer⁸, the number of monitors considered for calculation of the median background concentrations was expanded to include the more recent monitors. The median historic concentrations up to and including 2025 data from background overburden monitors 12b-00, 14b-01, 16b-08, 18b-08, 19b-08, 20b-08 and 23b-12 and from background bedrock monitors 5-96, 8-96, 14a-01, 16a-08, 18a-08, 19a-08, 20a-08 and 23a-12 were used to calculate the maximum concentration levels presented in **Table 18** and **Table 19**, respectively.

$$C_m = C_b + F \times (C_{ODWS} - C_b)$$

where, C_m is the maximum concentration,
 C_b is the median background concentration,
 C_{ODWS} is the maximum concentration (dependant on water use),
 F is a constant – 0.5 milligrams per Litre for aesthetic parameters, 0.25 milligrams per Litre for health-related parameters.

Table 18: Guideline B-7 Calculated Maximum Parameter Concentrations – Overburden

Parameter	Median Background Concentration	Constant F	Maximum Concentration (dependant on water use)	Maximum Concentration
Nitrate (milligrams per Litre)	0.42	0.25	10	2.82
Boron (milligrams per Litre)	0.022	0.25	5	1.27
Sodium (milligrams per Litre)	98	0.5	200	149.00
Chloride (milligrams per Litre)	95.5	0.5	250	172.75
Sulphate (milligrams per Litre)	46	0.5	500	273.00
Iron (milligrams per Litre)	0.99	0.5	0.3	0.65

Note: (1) The iron C_m is calculated to be 0.65 milligrams per Litre but is limited to the Ontario Drinking Water Standards of 0.30 milligrams per Litre

7. Memorandum from Lynnette Latulippe (MOECC) to Bill Shields (City of Guelph), Re: Annual Monitoring Report – 2009 Guelph Wet-Dry Recycling Centre and Waste Transfer Station Groundwater Review, dated February 7, 2011.
8. Memorandum from Abdul Quyum (MOECC) to Kevin Noll (MOECC), Re: Annual Monitoring Report – 2012 Guelph Wet-Dry Recycling Centre and Waste Transfer Station, Guelph, Ontario, dated April 25, 2013.

Note that monitors 5-96, 8-96, 14b-01 and 19b-08 show elevated sodium and chloride concentrations due to road salt impacts, however, these conditions are representative of the background conditions of these areas.

Table 19: Guideline B-7 Calculated Maximum Parameter Concentrations – Bedrock

Parameter	Median Background Concentration	Constant F	Maximum Concentration (dependant on water use)	Maximum Concentration
Nitrate (milligrams per Litre)	0.28	0.25	10	2.71
Boron (milligrams per Litre)	0.02	0.25	5	1.27
Sodium (milligrams per Litre)	27	0.5	200	113.50
Chloride (milligrams per Litre)	32	0.5	250	141.00
Sulphate (milligrams per Litre)	44	0.5	500	272.00
Iron (milligrams per Litre)	0.11	0.5	0.3	0.21

Maximum allowable concentrations (C_m) are compared to the 2025 groundwater quality results from location 22a-11 and 22b-11 in **Table 20**.

Bold, italicized concentrations in **Table 20** exceed Guideline B-7 limits. The iron concentration exceeded Guideline B-7 limits at monitor 22a-11 during both 2025 monitoring events. As previously discussed, iron concentrations at some of the monitor locations have been unusually high since the December 2011 monitoring event. These elevated iron concentrations occurred in both upgradient and downgradient monitors and therefore, do not appear to be related to site operations. In June 2025, nitrate concentrations at 22b-11 were also above the allowable concentration, as they had been in 2024, however the concentration decreased below the allowable limit in December 2025. This location was impacted in 2023 by a spill that included elevated ammonia among other elevated parameters. The parameters in question decreased significantly in 2024 and are back to historic levels below the in December 2025. The elevated nitrate in 2024 may have been partially due to the breakdown of the ammonia and will continued to be monitored. No other indicator parameters appear to be elevated indicating that this location is not impacted by site operations.

Strictly speaking, Guideline B-7 is in place to assess groundwater impacts leaving the site for protection of downgradient users. Although, there are no downgradient well users as the surrounding area is municipally serviced, the Guideline B-7 assessment is still required to address if any potential remedial efforts may be required related to the facility.

Table 20: Summary of 2025 Ministry of Environment, Conservation and Parks Guideline B-7 (Reasonable Use) Calculations at the Northwest Boundary

Heath or Aesthetic Parameters	Parameters	Overburden Maximum Allowable Concentration (milligrams per Litre)	Overburden Monitor 22b-11 June 2025 (milligrams per Litre)	Overburden Monitor 22b-11 December 2025 (milligrams per Litre)	Bedrock Maximum Concentration (milligrams per Litre)	Bedrock Monitor 22a-11 June 2025 (milligrams per Litre)	Bedrock Monitor 22a-11 December 2025 (milligrams per Litre)
Health Related Parameters	Nitrate	2.815	4.16	1.27	2.71	<0.10	<0.10
Health Related Parameters	Boron	1.2665	0.019	0.024	1.265	0.029	0.025
Aesthetic Parameters	Sodium	149	44	120	113.5	31	35
Aesthetic Parameters	Chloride	172.75	54	220	141	72	73
Aesthetic Parameters	Sulphate	273	86	71	272	90	91
Aesthetic Parameters	Iron	0.645	0.2	0.15	0.205	1.2	0.71

Note: **Bold** indicates a concentration above the maximum allowable based on unit

8.8 Surface Water Monitoring

8.8.1 Transfer Station Area

In 2025, monthly inorganic surface water sampling of the stormwater management pond (SWM) for the parameters shown on **Table 1** occurred when water was present. The SWM pond was routinely checked during 2025. When water was present, samples were collected at the discharge at the north end of the pond (TP1 (out) on **Figure 1**) on a monthly basis. TP1 (out) was sampled from March to December in 2025. During January and February 2025 TP1 (out) was frozen and therefore, sampling did not occur.

City field staff make note of discharge conditions at the surface water stations at the time of sample collection. Below is a summary of the discharge conditions observed at TP1 (out) (**Table 21**).

Table 21: Sampling Conditions at TP1(Out)

Month	Discharge Events	Conditions	Sampling Date
January	-	Pond frozen – unable to sample	28-Jan-2025
February	-	Pond frozen – unable to sample	25-Feb-2025
March	No Discharge	Clear – water in pond	18-Mar-2025
April	No Discharge	Clear – minimal water in pond	22-Apr-2025
May	Yes Discharge	Clear – water in pond. 15-millimetre rain event sampling	23-May-2025
June	No Discharge	Stagnant water – water in pond, volatile organic compounds and Semi-volatile organic compounds	25-Jun-2025
July	No Discharge	Stagnant water – water is yellow in colour	29-Jul-2025
August	Yes Discharge	Full of vegetation – water in pond, 15-millimetre rain event sampling	20-Aug-2025
September	Yes Discharge	Full of vegetation – water in pond, 15-millimetre rain event sampling	5-Sep-2025
October	No Discharge	Clear – minimal water in pond	24-Oct-2025
November	No Discharge	Clear – minimal water in pond	25-Nov-2025
December	No Discharge	Clear – pond one-third ice covered	19-Dec-2025

In the Ministry of Environment, Conservation and Parks review comments of the 2013 Annual Report, the Ministry of Environment, Conservation and Parks acknowledged that sampling the SWM pond when it is not flowing does not provide useful information. AECOM advised field staff to continue to monitor surface water levels monthly to note conditions but only collect samples during discharging conditions. City staff continued to collect the monthly samples at TP1 (out) during 2025 (except during January and

February 2025). Discharge occurred during three (May, August and September) of the 12 sampling events.

As now required under the current amended Environmental Compliance Approval, surface water samples are to be collected under a rain event of greater than 15 millimetres three times per year, for TSS, of which two must be between May and September. Rain event sampling at TP1 (out) was conducted in May, August and September 2025. Full samples including TSS were collected during all sampling events.

The existing on-site surface water pond (“East Pond” on **Figure 1**) is also included in the monitoring program. Water quality from the East Pond is considered representative of background surface water quality as it does not receive any inputs from the facilities. It was recommended in the 2011 Annual Monitoring Report that the monitoring frequency of the East Pond be increased to monthly to coincide with those occasions when samples are collected from the on-site SWM ponds. If no samples are collected from any of the SWM pond locations, no sample from the East Pond for that month is required. East Pond surface water samples (designated EPTS-01) were collected monthly in 2025, except in January and February 2025 as the pond was frozen, therefore no samples were obtained. The 2025 surface water results for the leachate indicator parameters are tabulated below, and the testing results are presented in **Appendix C**.

Surface water results were compared to Provincial Water Quality Objectives, background surface water quality (EPTS-01) and background overburden water quality. At EPTS-01, the Provincial Water Quality Objectives for zinc (0.020 milligrams per Litre) was exceeded during all 12 of the monitoring events in 2025. Zinc has consistently exceeded Provincial Water Quality Objectives in the past at this location. There were no other exceedances of Provincial Water Quality Objectives at EPTS-01 in 2025. Chloride concentrations remained within historical range in 2025, with concentrations between 38 milligrams per Litre and 81 milligrams per Litre. All other parameter concentrations (including indicator parameters) were within the range of background surface water concentrations at EPTS-01.

Table 22: Transfer Station Surface Water Quality (in parts per million)

Criteria Type	Critical Leachate Indicator <i>Boron</i>	Critical Leachate Indicator <i>Phenols</i>	Critical Leachate Indicator <i>Chloride</i>	Other Leachate Indicator <i>Alkalinity</i>	Other Leachate Indicator <i>Sodium</i>	Other Leachate Indicator <i>Calcium</i>	Other Leachate Indicator <i>Magnesium</i>	Other Leachate Indicator <i>Potassium</i>
Provincial Water Quality Objectives/	0.2	0.001	-	-	-	-	-	-
Background Overburden ⁽¹⁾	0.005 - 0.063	<0.001 - 2.8	2 - 460	84 - 570	0.1 - 250	0.2 - 280	0.05 - 80	0.2 - 17
Background Overburden ⁽²⁾	<0.01 - 0.71	<0.001 - 1	1 - 1200	21 - 700	3.5 - 750	11 - 380	3.1 - 150	0.73 - 12

Location	Date	Critical Leachate Indicator <i>Boron</i>	Critical Leachate Indicator <i>Phenols</i>	Critical Leachate Indicator <i>Chloride</i>	Other Leachate Indicator <i>Alkalinity</i>	Other Leachate Indicator <i>Sodium</i>	Other Leachate Indicator <i>Calcium</i>	Other Leachate Indicator <i>Magnesium</i>	Other Leachate Indicator <i>Potassium</i>
TP1(out)	18-Mar-25	0.021	< 0.001	270	160	190	66	5.7	2.7
TP1(out)	22-Apr-25	0.039	< 0.001	230	220	190	78	7.7	3.2
TP1(out)	23-May-25	0.034	< 0.001	54	120	47	46	3.4	1.8
TP1(out)	25-Jun-25	0.093	< 0.001	43	150	43	68	7.1	4.3
TP1(out)	29-Jul-25	0.072	0.0016	48	150	42	63	6.6	2.6
TP1(out)	20-Aug-25	0.054	< 0.001	20	99	19	42	4.6	1.5
TP1(out)	5-Sep-25	0.044	< 0.001	14	92	13	35	3.6	1.1
TP1(out)	24-Oct-25	0.03	< 0.001	17	110	18	36	4	1.4
TP1(out)	25-Nov-25	0.022	< 0.001	530	160	320	100	10	2.0
TP1(out)	19-Dec-25	0.022	< 0.001	870	110	560	77	7.7	2.3
TP1(out)	Historic Range	<0.01 - 0.11	<0.001 - 0.019	4.8 - 3500	4.5 – 1300	5.4 - 2200	16 - 160	0.8 - 29	0.97 - 45
EPTS-01	18-Mar-25	0.015	< 0.001	81	290	47	94	25	1.7
EPTS-01	22-Apr-25	0.013	< 0.001	59	230	37	84	21	1.4
EPTS-01	23-May-25	0.012	< 0.001	48	270	33	81	21	1.3
EPTS-01	25-Jun-25	0.016	< 0.001	48	270	37	82	23	1.5
EPTS-01	29-Jul-25	0.016	< 0.001	43	270	33	84	23	1.6
EPTS-01	20-Aug-25	0.013	< 0.001	38	260	28	78	22	1.5
EPTS-01	5-Sep-25	0.015	< 0.001	44	270	28	84	24	1.4
EPTS-01	24-Oct-25	0.013	< 0.001	47	290	31	90	23	1.7
EPTS-01	25-Nov-25	0.015	< 0.001	58	280	34	93	25	1.8
EPTS-01	19-Dec-25	< 0.010	< 0.001	44	210	23	66	16	1.2
EPTS-01	Historic Range	<0.01 - 0.19	<0.001 - 0.0052	23 - 334	19 - 300	13 - 120	16 - 160	3.5 - 27	1 – 3.1

Note: (1) Range of background overburden water quality from 1997 to 2023 for monitors 2b-91, 9-96 and 14b-01.
(2) Range of background overburden water quality from 2008-2024 for monitors 12b-00, 21-13b, 16b-08, 18b-08, 19b-08, 20b-08 and 23b-12.
Dec 2021 20b-08 (B, Cl, Na, Ca, Mg) showed anomalous concentrations, therefore, were excluded from the ranges.

For the SWM pond samples at TP1 (out), the Provincial Water Quality Objectives was exceeded for total phosphorus for 9 of the 10 events in 2025, iron for five monitoring events, zinc for one event and phenols for one monitoring event. The Provincial Water Quality Objectives for total phosphorus, iron, phenols and zinc have routinely to occasionally been exceeded at this location in the past. The elevated total phosphorus is a result of former surrounding land use and not a result of operations at the site. Elevated zinc, total phosphorus and iron concentrations appear to be related to external factors since background surface water have also exceeded Provincial Water Quality Objectives for these parameters. Metals are a common contaminant from roadway runoff. Elevated phosphorus is typical in rural and urbanized areas. All 2025 indicator parameter concentrations were within overburden background ranges and within historic concentration observed at this location. Comparing indicator parameter water quality at TP1 (out) to EPTS-01 per 2025 sampling event, TP1 (out) concentrations were variable; higher than background EPTS-01 concentrations were observed for boron (all events), potassium (seven events), sodium (seven events), chloride (six events) and calcium (two events) and phenols (one event). Alkalinity and magnesium concentrations at TP1(out) were lower than background EPTS-01 at all 12 monitoring events completed in 2025.

Baseline water quality information collected prior to building the Waste Resource Innovation Centre had historically shown elevated total phosphorus concentrations and occasional elevated phenols, sodium, magnesium and potassium concentrations. Therefore, the elevated parameter results appear to be due to the effects of former land use and not a result of operations at the site. Elevated parameter concentrations are not attributed to the site operations as site handling and maintenance practices would deter potential surface water influences. The SWM Pond shows slightly elevated sodium and chloride concentrations suggesting road salt influences from the adjacent access road.

Discharge from Detention Pond 2 did not occur during any of the 2025 monitoring events since the pond was dry throughout 2025. TSS concentrations at TP1 (out) were between 1 milligrams per Litre and 66 milligrams per Litre. EPTS-01 TSS concentrations were generally similar compared to TP1 (out) ranging from less than the laboratory detection limit to 44 milligrams per Litre.

Organic samples were collected from the TP1 (out) and EPTS-01 surface water locations in June 2025. Chloroform (1.7 µg/L) was detected at EPTS-01 in June 2025. There is no Provincial Water Quality Objectives for chloroform. Low concentrations of chloroform (less than 2.3 µg/L) have previously been detected at this location during 20 sampling events since 2004. As these detections are at the background surface water station, they are not related to site operations.

No organics were detected at TP1 (out) 2025. Low 2019 detections of several volatile organic compounds during the April 2019 monitoring event appear to have been related to the fire at the waste transfer station on April 13, 2019. Water from fire fighting efforts was directed to the SWM Pond where TP1 (out) is located. As confirmed by subsequent organic results since, volatile organic compound concentrations have quickly dissipated such that they were below the laboratory detection limits during the subsequent monitoring events. Historically, except for one detection of bis(2-ethylhexyl)phthalate at a concentration of 2.9 µg/L in 2018 and a detection of Dimethyl Phthalate at a concentration of 2 µg/L in 2006, no other volatile organic compounds have been detected at TP1 (out) in the past.

8.8.2 Waste Resource Innovation Centre

Monitoring of surface water at the Waste Resource Innovation Centre commenced in March 1996. As required in the former Certificate of Approval/Environmental Compliance Approval, this monitoring was to be on a monthly basis for a short parameter list and on a quarterly basis for the full leachate parameter list (updated in 1999). Amended Environmental Compliance Approval #9496-9NFKJ9 required semi-annual (spring and fall) sampling of leachate indicator and general parameters, as well as annual inorganics sampling. There were two surface water sampling stations at the site, designated as SW 1 located at the off-site discharge point in Stormwater Detention Area 2 and SW 2 located in the Stormwater Detention Area 1 (**Figure 1**). Surface water runoff from the site is directed to a series of on-site stormwater catch basins. Excess water from Stormwater Detention Area 1 flows to Stormwater Detention Area 2 where it would ultimately discharge via a pond outlet structure in the northwest portion of the pond to the York-Watson Stormwater Detention Area.

On March 6, 2014, the City met with the Ministry of Environment, Conservation and Parks to discuss the Public Drop Off facility application and observed the stormwater ponds on Waste Resource Innovation Centre. It was agreed that sampling at the Waste Resource Innovation Centre Detention Pond (SW 2 and SW 3) would be discontinued. Detention Pond 2 (SW 1) would only be sampled once the levels in the pond reached 0.46 m above the pond invert and that the SWM Pond (TP1 (out)) would continue to be sampled monthly though TP1 could be discontinued. These changes to the surface water monitoring were confirmed by the Ministry of Environment, Conservation and Parks through e-mail on March 17, 2014. As a result, sampling was discontinued at SW 2 and SW 3 in March 2014.

Surface water monitoring of the staff gauge in Detention Pond 2 is still undertaken on a monthly basis at SW 1 only, and if water levels exceed the target of 0.46 m, sampling is completed to assess the water quality in the pond should discharge be required.

Detention Pond 2 was dry throughout 2025 and therefore, the water level was less than the 0.46 m target and no other samples were collected. Detailed recordings on discharge and overall conditions (such as dry or stagnant water) are undertaken.

As discussed in Section 8.7.1, in accordance with Condition 5(3) of amended Environmental Compliance Approval #9496-9NFKJ9, grab samples at the TP1 (out) discharge location for the site were collected three times in 2025 (May, August, September) following a 15 millimetre rain event and analyzed for TSS. TSS concentrations during the three rain events ranged from 1 milligrams per Litre to 3 milligrams per Litre. Discharge was observed at TP1 during the 2025 sampling events. The results of the surface water (and groundwater) sampling are reviewed annually and reported in the annual monitoring report with recommendations provided to the City, as per Condition 5(4) of the amended Environmental Compliance Approval.

Below is a discussion of the surface water monitoring at station SW 1 during 2025. No samples were collected from SW 1 in 2025. **Table 23** briefly outlines the surface water monitoring events for the past year at SW 1.

Table 23: Conditions at SW1

Month	Discharge Events	Conditions	Sampling Date
January	None	Dry – Not sampled	-
February	None	Dry – Not sampled	-
March	None	Dry – Not sampled	-
April	None	Dry – Not sampled	-
May	None	Dry – Not sampled	-
June	None	Dry – Not sampled	-
July	None	Dry – Not sampled	-
August	None	Dry – Not sampled	-
September	None	Dry – Not sampled	-
October	None	Dry – Not sampled	-
November	None	Dry – Not sampled	-
December	None	Dry – Not sampled	-

East Pond water quality serves as background surface water quality for comparison purposes. There is no baseline surface water analysis (prior to site operations), so any impacts due to runoff from the Waste Resource Innovation Centre would be difficult to determine at the discharge point SW 1, due to the potential for other sources of non-facility impacts. These sources include runoff from the surrounding lands and road systems.

The Ministry of Environment, Conservation and Parks surface water specialist provided comments on the 2013 and 2014 Annual Reports⁹. One of the comments was with respect to recent exceedances of the phenol parameter in the Provincial Water Quality Objectives at the detention pond locations. The Ministry of Environment, Conservation and Parks surface water reviewer commented that since AECOM notes that any water collected in the detention ponds quickly infiltrates into the groundwater, the Ministry of Environment, Conservation and Parks Geoscientist should assess phenol concentrations in the subsurface. Since the number of exceedances is increasing, the source of the phenols should be evaluated, and if there is a source, monitoring and treatment are recommended. AECOM responded¹⁰ that we would respond to comments that may be provided by the Ministry of Environment, Conservation and Parks Geoscientist with regard to this item, though no comments were forthcoming from the Ministry of Environment, Conservation and Parks hydrogeologist with respect to this item¹¹. Related to this item, in the body of the memorandum, the surface water reviewer notes that she disagrees with AECOM's interpretation that aside from some irregular occurrences of parameters above Provincial Water Quality Objectives, there does not appear to be a problem with surface water quality results resulting from the facility and uses phenols as an example where the majority of the samples in the detention ponds were above the Provincial Water Quality Objectives and the number of exceedances was greater than other years. While it is true that the number of exceedances of phenols in the detention ponds was more than in previous years, at that time, they are still low. Regarding the review of the 2014 Annual Report, the Ministry of Environment, Conservation and Parks surface water reviewer concedes that there is a low probability in terms of an off-site impact given the low phenol concentrations and frequency of discharge events. In 2022, phenols were less than the laboratory method detection limit at EPTS-01 during all 12 monitoring events and during 10 of the 12 monitoring events at TP1 (out). During the January and June 2023 monitoring events at TP1 (out), phenols were detected at just above the 1 milligram per Litre laboratory method detection limit at 1.8 milligrams per Litre and 1.3 milligrams per Litre, respectively. During the June and September 2024 monitoring events at TP1 (out), phenols were detected at just above

-
9. Memorandum from Krista Chomicki (MOECC) to Kevin Noll (MOECC), Re: 2013 Guelph Waste Resource Centre – City of Guelph, dated April 8, 2014. Memorandum from Craig Fowler (MOE) to Kevin Noll (MOE); Re: Guelph Waste Resource Innovation Centre – 2014 AMR, dated August 13, 2015.
 10. AECOM Letter to Bill Shields (City of Guelph); Re: Response to MOE Surface Water Review Comments. 2013 Annual Report – Solid Waste Transfer Station & Wet-Dry Recycling Centre, C of A/ECA (Waste Disposal Site) No. A170128, dated May 30, 2014.
 11. Memorandum from Abdul Quayum (MOECC) to Kevin Noll (MOECC), Re: Annual Monitoring Report – 2013, Guelph Wet-Dry Recycling Centre and Waste Transfer Station, Guelph Ontario, dated April 23, 2014. Memorandum from Abdul Quayum (MOECC) to Kevin Noll (MOECC), Re: 2014 Annual Monitoring Report Guelph Wet-Dry Recycling Centre and Waste Transfer Station, Guelph, Ontario, dated April 15, 2015.

the 1 milligram per Litre laboratory method detection limit at 1.2 milligrams per Litre. During the June and September 2025 monitoring events, phenols were less than the laboratory detection limit at TP1 (out). It should be noted that the operational practices of the site (indoor composting and waste handling, no on-site waste processing, etc.) deter surface water influences from site operation as acknowledged by the surface water reviewer within the body of the memorandum.

8.9 Adequacy of Program and Proposed Changes

In conclusion, monitors 5-96, 6a-96, and 18b-14 exceeded Ontario Drinking Water Standards for sodium and/or chloride in 2025 as a result of road salt effects. The chloride concentration at monitor 17a-08 also exceeded Ontario Drinking Water Standards during the June 2025 sampling event. In 2023, Ontario Drinking Water Standards were exceeded at 6a-96 and 22b-11 for sulphate and/or alkalinity parameters during at least one of the monitoring events. No other Ontario Drinking Water Standards exceedances were detected at either of these monitors in 2025 and most parameter concentrations decreased. Both these monitor locations are in the vicinity of Stormwater Detention Pond 2 where a spill occurred in May 2023. It appears that these locations were affected by the release, but the effects are now dissipating. As well Ontario Drinking Water Standards exceeded at shallow downgradient monitor 22b-11 for nitrate in June 2024 however, nitrate concentrations were below Ontario Drinking Water Standards during both June and December 2025 sampling events. The elevated nitrate may be partially due to the breakdown of the ammonia which was elevated in 2023 due to the spill. Further monitoring will confirm if parameter concentrations continue to improve as would be expected.

Detections included bromodichloromethane, tetrachloroethylene and chloroform at a few monitors during 2025. However, based on the historic detections of occasional low levels of volatile organic compounds throughout the site in both upgradient and downgradient monitors, the 2025 volatile organic compound detections are not considered to be a result site operations. 21-13b had a low concentration of xylenes detected in 2025. Although above background criteria, the BTEX concentrations remain quite low. 21-13b is a recently installed monitor and therefore we recommend at this time this location simply be monitored to determine if detections persist.

The Ministry of Environment, Conservation and Parks recommended installation of a well nest along the downgradient property boundary to be utilized for impact

assessment with respect to the requirements of Guideline B-7¹². Monitoring nest 22-11 with a bedrock and overburden monitor was installed in November 2011 and the Guideline B-7 analysis was completed. In 2025, the iron concentration at 22a-11 and 22b-11 exceeded Guideline B-7 limits during both sampling events. As previously discussed, iron concentrations at some of the monitor locations have been unusually high since the December 2011 monitoring event. The elevated iron concentrations occurred in both upgradient and downgradient monitors and therefore, do not appear to be related to site operations. In 2024, at 22b-11 groundwater exceeded the Guideline B-7 limit for nitrate at both sampling events, as previously discussed this is likely due primarily to the breakdown of ammonia from the spill in 2023. In 2025, 22b-11 groundwater did exceed the Guideline B-7 limit for nitrate in June, however was below the allowable limit in December 2025. The overall water quality has been improving since the release and monitoring to confirm that concentrations return to historical levels will continue. There were no other Guideline B-7 exceedances at 22a-11 and 22b-11 in 2025.

In previous monitoring reports, we had recommended discontinuation of the organic sampling from the groundwater monitoring program for all historical locations. In the Ministry of Environment, Conservation and Parks review of the 2009 Annual Monitoring Report (Groundwater Review), the reviewer did not support the discontinuation of the organic groundwater sampling program since an impact assessment with respect to the requirements of Guideline B-7 had not yet been completed. This Guideline B-7 assessment was completed (discussed above) and found that there were no impacts at the western downgradient site boundary as a result of site operations therefore, we request removal of the organic sampling from the groundwater monitoring program. Further, increased sampling for organics (twice per year) in 2012, 2013 and 2014, as a result of the dirt stock pile and addition of location 23-12, was completed by the City to better assess any potential contributions from the stock pile. These data indicated that sporadic hits of organics occur across the site (upgradient and downgradient), which are not related to any on-site activity and were most likely related to surrounding land use. At the end of 2013, all contaminated soils along with the majority of the stock pile have been removed from the site. Groundwater organic sampling was completed in May in 2014. The groundwater reviewer did not comment on removal of organics from the groundwater program in his review of the 2014 Annual Monitoring Report. We continue to recommend the discontinuation of the organic groundwater sampling program as historical data has consistently shown that low concentrations of organics not related to

12. Memorandum from Lynnette Latulippe (MOECC) to Bill Shields (City of Guelph), Re: Annual Monitoring Report – 2009 Guelph Wet-Dry Recycling Centre and Waste Transfer Station Groundwater Review, dated February 7, 2011.

the site. However, until organic sampling is discontinued, future organic sampling should include a trip and field blank for QA/QC purposes.

The East Pond setting is similar to the other on-site ponds (influenced by road salting and within similar overburden soils) though it is within a different catchment area. The East Pond will continue to be used as a background surface water station for water quality from the on-site surface water features. Monthly surface water samples were collected from the East Pond in 2025, except in January and February 2025 as the pond was frozen. As agreed by the Ministry of Environment, Conservation and Parks, the Detention Pond 2 (SW 1) would only be sampled once the levels in the pond reached 0.46 m above the pond invert and the SWM Pond (TP1 (out)) continued to be sampled monthly (except in January and February 2025 due to frozen pond conditions. SW 1 was not monitored in 2025 as it was dry. There was also no discharge from the Detention Pond 2 in 2025. If no samples are collected from the SWM Pond location (TP1 (out)), then no sample from the East Pond for that month is required, however, monthly surface water samples were collected from March to December 2025 at both surface water locations.

The 2025 surface water monitoring program shows that there have been no leachate effects to the SWM Pond as a result of site operations. The 2025 SWM Pond results from TP1 (out) showed variable results with some indicator parameter concentrations exceeding background surface water concentrations at EPTS-01 and some TP1 (out) concentrations lower than EPTS-01. Parameter concentrations at TP1 (out) were within historic concentrations for this location and within background overburden concentrations. Elevated concentrations are not attributed to the site as site handling and maintenance practices would deter potential surface water impacts. Occasional elevated sodium and chloride concentrations suggest road salt influences from the adjacent access road. No organics were detected at TP1(out). The background surface water station, EPTS-01 detected chloroform and bromodichloromethane in June 2025. As expected, these volatile organic compound concentrations have quickly dissipated such that they are below the laboratory detection limits during subsequent monitoring events. Historically, only low levels of a few organics have occasionally been detected in the surface water samples. As previously discussed, the site design and operations minimizes the potential for leachate generation from site activities.

9. Public Liaison Committee Activities

The following is a summary of the Public Liaison Committee activities in 2025, as provided by the City.

The Public Liaison Committee (PLC) continues to support the work of the WRIC site and ensures the City is actively engaging citizens and the local community related to the Site. PLC meetings were held on a quarterly basis on February 27, June 12, November 25 and December 5, 2025.

The PLC amended the Terms of Reference, which were approved by the MECP on August 20, 2025. Recruitment was then conducted by the City in accordance with the updated Terms of Reference and the PLC had seven (7) members as of October 28, 2025.

As standing items, the City reviews operations at the organic waste processing facility, any spills or fires that have taken place on the site, and any odour complaints that have been received between PLC meetings. Various other non-standing items were discussed during the 2025 PLC meetings, including capital works at the WRIC, and responses to member inquiries regarding waste management.

Copies of the Minutes and Agenda for the PLC meetings are available at <https://guelph.ca/living/environment/garbage-and-recycling/wric-plc/>

The City would like to thank all PLC members for their efforts and dedication.

10. Environmental Management System – ISO 14001 Certification Progress

Solid Waste Resources (SWR) has implemented an Environmental Management System (EMS) that is led by a cross-functional team involving representatives from top management, supervisors and technical staff. Top Management continues to meet on a quarterly basis to assess the continuing suitability, adequacy and effectiveness of the EMS; and to take actions on opportunities for improvement identified over the course of the year.

The intent of the EMS is to assist Solid Waste Resources to:

- Protects the environment
- Informs the management team to set environmental objectives
- Maintains compliance and conformance
- Maintains a culture of environmental awareness
- Clearly communicates plans, policies, procedures, objectives and results to interested parties
- Achieves continual improvement

The Environmental Policy established for the EMS describes the following commitments:

- Conserve the environment and prevent pollution
- Leverage the resource potential of waste
- Evaluate and enhance environmental objectives
- Assess and fulfill compliance requirements
- Never stop improving our management system

As of June 25, 2025, the City of Guelph Solid Waste Resources' Environmental Management System was certified to the International Standards Organization 14001:2015 standard.

10.1 Emergency Management Training and Test Exercise

In November 2025, Solid Waste Resources held an annual emergency management training and test exercise. It involved different perspectives from various roles and responsibilities at Solid Waste Resources.

The training included a mock tornado exercise at the Public Drop Off.

11. Waste Resource Innovation Centre Contingency Plans

The City has detailed contingency plans in place for the site prepared by the Environmental Services Department, Solid Waste Resources. The 2008 Emergency and Contingency Plan and the 2006 Contingency Plan documents (Waste Resource Innovation Centre Contingency Programs, Waste Resource Innovation Centre Business Continuity Plan, Waste Resource Innovation Centre Emergency Plan, Waste Resource Innovation Centre Fire Safety Plan) were reviewed by AECOM.

The Waste Resource Innovation Centre Emergency Response and Contingency Plan was updated October 6, 2023 to improve process descriptions and tools used for response to large scale emergencies. Details related to spill response were also consolidated into the Spill Contingency and Pollution Prevention Plan. Details related to communication methods, phone numbers and contacts were also updated. The Waste Resource Innovation Centre Emergency Response and Contingency Plan was further updated November 29, 2024 and December 2, 2025 for routine improvements to emergency action plans.

The pertinent items identified by the Environmental Compliance Approval are summarized below.

11.1 Spills

The WRIC has a Spill Contingency and Pollution Prevention Plan in place. This applies to all areas, employees and contractors at the WRIC. It outlines procedures and defines spills: minor, major, moderate and hazardous materials. The plan then outlines how to clean up a minor spill and who must be notified in the case of moderate or major spills.

In the event of a minor spill, the plan indicates that appropriate personal protective equipment should be worn and absorbents used to soak up the spill. Absorbed material should be transported to the Transfer Station for disposal.

The plan also covers procedures to follow in the event of a moderate or major spill. The Environmental Protection Officer at the Wastewater Treatment Plant and the MECP Spills Action Centre must be notified, also in the event of a major spill, the Fire Department, Police, Operations Department, or City of Guelph Emergency Operations Control Group may need to be notified. The plan indicates that all necessary steps should be taken to eliminate possible ignition sources and prevent the spill from leaving the area or entering a watercourse. The plan notes that an Employee Incident Report

must be completed once the cleanup is underway. Finally, the plan provides sources of additional information and applicable legislation and references.

The Spill Contingency and Pollution Prevention Plan was reviewed for update December 2, 2025.

11.2 Fire or Similar Emergency

The Waste Resource Innovation Centre has comprehensive plans in place in case of fire or similar emergency documented in the Waste Resource Innovation Centre Fire Safety Plan and the Waste Resource Innovation Centre Emergency Plan. The Fire Safety Plan includes site mapping, floor plans for each of the on-site buildings (including locations of fire alarms and extinguishers), procedures to be followed in the event of a fire/emergency, staff responsibilities and contacts in the event of a fire/emergency, procedures for fire drills, prevention and monitoring equipment maintenance.

The Emergency Plan includes many of the elements incorporated into the Fire Safety Plan plus emergency communications procedures, locations of emergency supplies, emergency equipment information and procedures related to specific emergency situations. The original Fire Safety Plan was reviewed and approved by the City Fire Department. The Fire Safety Plan is reviewed annually and the site inspected annually by the City Fire Prevention Officer.

11.3 Composting Facilities

The Organic Waste Processing Facility has been operating since September 2011. Contingency plans for the Organic Waste Processing Facility are included in the Waste Resource Innovation Centre Emergency Response and Contingency Plan.

11.4 Power or Equipment Failure

Procedures related to power failure are discussed in the Emergency and Contingency Plan and the Waste Resource Innovation Centre Emergency Plan. In the event of a minor power outage, a portable generator is available at the closed Eastview Road Landfill site. There is currently no contract for a company to supply the Waste Resource Innovation Centre with a generator in the event of a major power outage. However, arrangements are in place for an outside power generation unit for the Waste Resource Innovation Centre Administration Building if it is being used as an emergency Operation Centre. If electricity is unavailable for more than a 24-hour period, the Waste Resource Innovation Centre may be required to re-direct waste materials. Emergency procedures

have also been assessed for on-site facilities should the power failure be accompanied by flood or freezing conditions.

Procedures as a result of loss of on-site facilities are addressed in the Emergency and Contingency Plan as well as the Waste Resource Innovation Centre Business Continuity Plan. Recommended procedures associated with the loss of each of the facilities are documented. Ultimately, management will assess the course of action to restore the facilities and re-gain normal operations. A backup generator has been installed at the Organic Waste Processing Facility.

11.5 Odour

Twice daily odour monitoring is conducted by qualified Solid Waste Resources staff. Odour complaints from the public are investigated through the Solid Waste Resources Environmental Complaint Investigation Procedure in compliance with Condition 10 of the Environmental Compliance Approval. Control measures may include closing doors, cleaning up standing water and/or spills, other housekeeping measures, making changes to the processes or removal of the odour source to the landfill. If the odour persists, a portion of the operation or the entire site may be closed until the issue is resolved.

11.6 Aircraft Hazards/Bird Control

The Guelph Air Park is located within three km of the site. The most obvious aircraft hazard, as it relates to the operation of the Waste Resource Innovation Centre, is the nuisance bird population. Daily monitoring of the number of birds occurs as part of the site inspections. A maximum number of birds on-site was determined in the bird hazard evaluation referred to in the Environmental Compliance Approval. Continual housekeeping measures, such as litter pick up around the site, at the yard waste pile and compost area, occur at the site to deter the attraction of birds and vermin. Should nuisance birds become an issue at the site, trained birds-of-prey or other mitigative measures will be considered. If necessary, the site operations may cease until the issue is resolved.

Dust, steam, smoke or any airborne vapour may pose an aircraft hazard due to decreased visibility. Operations are conducted in a manner to minimize emissions.

11.7 Un-Authorized Waste

Non-compliant materials are rejected at the scale house prior to entering the site. If unauthorized, hazardous or inappropriate waste is inadvertently accepted, the material will

be loaded back on the vehicle (if it has not left the site) or the material will be placed in the appropriate bin for removal by municipal hazardous special waste staff where the material is then shipped off-site by a licensed hauler to an appropriate disposal site. The waste will be transported off-site as soon as arrangements can be made with a certified disposal company. If possible, the vehicle that brought the non-compliant materials will be charged for the disposal fee.

11.8 Groundwater/Surface Water Contamination

The site and operational procedures are designed such that there will be minimal impacts on the environment. In the event of a surface water impact, the on-site SWM detention ponds have valves that can stop off-site flow. A Spills Contingency Plan (discussed in Section 11.1) is in place to handle spills. Dry and wet waste received and handled at the site is conducted in indoor covered areas with impermeable floor surfaces and materials stored outside are covered such that impacted runoff is not generated.

Nevertheless, should water quality results suggest that there are impacts to the ground or surface water, the monitor locations/surface water stations will be re-sampled within a reasonable period of time to confirm results. As well, the area immediately adjacent and upgradient of the impacted location will be inspected for possible contaminant sources. Equipment and floor drains may also be inspected to determine if repairs are required. These repairs will be completed immediately. Should the repairs be such that normal operation is not possible, this portion of the operation will be shut down until maintenance is complete. If the contamination is a result of failure in the infrastructure that cannot be repaired under normal maintenance procedures, a remedial plan will be developed to prevent further impacts.

11.9 Quality/Fungal Contamination

If issues arise regarding air quality or fungal contamination, the appropriate qualified professional will be contracted to investigate the cause and recommend remedial measures. Remedial measures may include a change/alteration of operations or suspension of operations in the affected area(s).

All staff receive and are trained on the procedures contained within the Waste Resource Innovation Centre Emergency Plan and Waste Resource Innovation Centre Fire Safety Plan. The Waste Resource Innovation Centre Business Continuity Plan is for use only by City Management staff due to personal information within the document. Contingency Plans are available at the Waste Resource Innovation Centre for review by the Ministry.

12. Current Health & Safety Program & Staff Training Program

The Corporation of the City of Guelph and the department of Solid Waste Resources are guided by their Corporate Values and are committed to maintaining the Health and Safety of every individual: employees, contactors, volunteers and visitors.

Health, safety and environmental legislative requirements for compliance, is maintained with corporate and departmental resources. The City of Guelph has set compliant standards focusing on systematic continuous improvement in their safety management system.

At Solid Waste Resources there are *two* dedicated expert positions supporting health and safety and environmental compliance: *Health & Safety Specialist* and *Environmental Management System Specialist*.

The functions of these positions include, but are not limited to, the following:

- Implementation of the City of Guelph's Health and Safety Policy Statement and Policies.
- Analyze, design and implement Departmental Health & Safety Compliance program components with the necessary frame work to help all responsible parties attain accountability for their employees and their own responsibilities defined under the Occupational Health and Safety Act. Reduce health and safety risks to the lowest possible level through a comprehensive and continuous improvement safety management system that systematically identifies hazards and prescribes controls through risk assessment and risk mitigation.
- Schedule internal/external audits.
- Update divisional policies, procedures and Standard Operating Procedures.
- Ensure compliance with applicable laws and legislation.
- Liaise with regulatory or government officials to ensure that all related supporting documentation is accurate and regulatory response deadlines are met.
- Solicits, co-ordinates, and consolidates staff, and peer input on legislative and regulation changes, and changes to certificates, permits and licenses.
- Transfer applicable information and knowledge by; communicating and supporting employees, supervisors and managers to manage work; while ensuring due diligence in every aspect of their job relating to the operation.

- Continuously update Job Hazard Analysis, risk assessments work with the Divisional Manager, Departmental Managers, Supervisors and Lead hands to identify job hazards and eliminate, reduce and/or control risks on site and in the performance of the work.
- Investigate and determine contributing factors for all accidents and/or incidents through root cause analysis techniques and recommend prevention or corrective strategies to eliminate their re-occurrence.
- Research, review, develop, prepare and deliver or procure safety training (that meets the legislated safety program standards) identified through the safety training needs analysis completed for each job title and each area of Solid Waste Resources.
- Ensure the site personnel and all of their employees are competent by legal definition under the Occupational Health and Safety Act and are able to comply with their individual responsibilities to ensure the safety of every individual in or about this site.
- Are knowledgeable of all identified site and process hazards and the prescribed controls used to mitigate the risks and have the training, knowledge, skill and ability to work in a safe and compliant manner.
- Are able to identify health and safety hazards and understand their responsibilities under the Occupational Health and safety Act for reporting hazards and prescribing and/or using controls to mitigate the hazard and protect the health and safety of everyone in or about the worksite.
- Maintain accurate up to date records to clearly demonstrate due diligence and compliance in the event that complaints, inspections or accidents are investigated by the Ministry of Labour.
- Develop, administer, maintain and update all departmental Health & Safety, safety related documentation with regard to policies, procedures, plans, and programs.
- Monitor Health & Safety policy and procedures to assist the Solid Waste Resource Management Team in ensuring staff compliance.
- Monitors compliance and verify effectiveness of Develop, administer and report on safety audits to promote legislative compliance and due diligence.
- Identify the opportunities for continuous safety improvements through gap audits.

13. Summary of Site Operational Changes and Compliance

Based on review of available records by the City and by an annual inspection by AECOM, the City is in compliance to amended provisional Certificate of Approval #A170128 and amended Environmental Compliance Approval #9496-9NFKJ9. As reported by the City, there were no deficiencies or items of non-compliance in 2025. There were no environmental or operational problems that could negatively impact the environment, encountered during the operation of the composting site or identified during the facility inspections in 2025. The facility is operating as designed. The Water Supervisor is provided a copy of the annual report each year (Environmental Compliance Approval #9496-9NFKJ9, Condition 5(8) and 5(9)).

There have been no changes to the Engineer's Report¹³ approved by the Director since the last annual report. The Design and Operations Report¹⁴ was updated in 2010 to include the Public Drop Off. However, on July 5, 2022, a Notification of Modifications was submitted to the Ministry of Environment, Conservation and Parks District Manager by the City to provide notification of construction of a small building, and on August 11, 2022, an application for administrative amendment of the Environmental Compliance Approval was submitted to facilitate construction of support infrastructure on the site that will not be used for receipt, storage, processing, or transfer of waste. This application included the development and submission of a new Design and Operations Report. The application and updated Design and Operations Report was approved with the issuance of Environmental Compliance Approval #170128 on August 11, 2023. Changes to the Design and Operations Report included the description of new facilities to support the operation but not receive, store, process, or transfer waste.

An updated Design and Operations Report was submitted to the Ministry of Environment, Conservation and Parks with the application for administrative amendments on August 11, 2022. Changes included the description of new facilities to support the operation but not receive, store, process, or transfer waste. A further updated Design and Operations Report was submitted to the Ministry of Environment, Conservation and Parks with the Environmental Compliance Approval application for

13. Engineer's Report for the City of Guelph Waste Recycling Innovation Centre prepared by Golder Associates dated July 20, 2010.

14. The Design and Operations Report for the City of Guelph Material Recovery Facility prepared by Golder Associates, dated January 12, 2010. The Design and Operations Report for the City of Guelph Waste Transfer Station prepared by Golder Associates, dated January 12, 2010. The Design and Operations Report for the City of Guelph Waste Resource Innovation Centre Public Drop Off and Municipal Hazardous and Special Waste Facilities prepared by Golder Associates, dated January 12, 2010.

amendment on November 7, 2024. Changes included the additional functions for the Material Recovery Facility. as a result of regulatory changes to collection and management of Blue Box material. The application and new Design and Operations Report was approved with the issuance of ECA A170128 on January 8, 2025.

There were no changes to the Operations Manual or Closure Plan in 2025. As stated above, the Emergency Response and Contingency Plan was updated December 2, 2025 with routine improvements to emergency action plans.

14. Conclusions

The site operations at the Waste Resource Innovation Centre do not appear to have any negative impacts on the ground and surface water quality in the vicinity of the site.

14.1 The Composting Site

- a) The total tonnage of source separated organic waste received at the composting site in 2025 was 30,054 tonnes.
- b) A total tonnage of 6,130 tonnes of finished compost was produced and shipped to locations in Guelph, Huron County, Simcoe, Eramosa, Clinton and Blyth in 2025. The compost distribution/market for 2025 was focused on agricultural customers. Customers are within a two-hour radius of the Guelph Compost Facility and either require third-party hauling or have their own trucks. A total of 563 tonnes of screening, residual compost waste and organic rejected material were shipped to the Transfer Station and then Waste Management Twin Creeks Landfill in Sarnia, Ontario
- c) The total tonnage of amendment/mulch material received at the site in 2025 was about 1,224 tonnes. Amendment material was received from the City of Guelph or in the form of wood chips from the City of Guelph Parks and Recreation Department and the Region of Waterloo.
- d) City staff received 15 odour complaints in 2025 at the Waste Resources Innovation Centre. The complaints and remedial actions were reported to the Ministry, and a response letter was provided to each complainant. Four of the complaints were confirmed attributable to the Waste Resource Innovation Centre, though seven were considered possibly attributable, but could not be confirmed. Continual monitoring of the facility, including reporting to Ministry of Environment, Conservation and Parks and completion of annual source testing continues to be completed to identify evidence of potential process issues.
- e) Compost samples indicate that all compost that has been shipped off the site has passed the conditions for a Class A compost under the Canadian Council of Ministers of the Environment Guidelines and the conditions within the Environmental Compliance Approval. Temperature monitoring logs of the tunnels at the composting facility show that pasteurisation at 55 degrees C was maintained for 72 hours, as required.
- f) Aside from a spill that occurred at the compost facility in August 2025 that was reported and cleaned, the compost facility operated in 2025 without any other

major incidents. There were no environmental or operational problems that could negatively impact the environment, encountered during the operation of the composting site or identified during the facility inspections in 2025. The facility is operating as designed.

14.2 Operations

- a) As of January 1, 2026 the City can no longer accept recycling from industrial, commercial, and institutional customers at the Waste Resource Innovation Centre as per the Ontario Blue Box regulation. The City transitioned to a collection contractor being responsible for Blue Box materials in January 2025 in advance of the Regulatory change. Thus in 2025 no blue box materials were received at the Materials Recovery Facility as recycling is now collected and managed by Waste Management of Canada Corporation, a collection contractor for Circular Materials.
- b) The total tonnage of waste accepted by the site in 2025 was 83,278 tonnes. By the end of 2025, 67,709 tonnes were shipped off-site with 2,152 tonnes of marketable non-processed material from the Public Drop Off Facility.
- c) Of the 45,087 tonnes of non-processed outgoing materials from the Transfer Station, 45,087 tonnes (100% of the outgoing materials) were sent to the Waste Management Twin Creeks Landfill in Lambton County.
- d) In 2025, 2,152 tonnes of marketable not processed material were transferred off the site from the Waste Resource Innovation Centre (Public Drop Off) facility. These included paper-based goods such as cardboard and newsprint, plastics, shingles, drywall, concrete, wood, aluminum, steel cans, glass, tires and metal. The majority of the marketable materials sold were paper products.
- e) The Emergency and Contingency Plan for the site were reviewed and the items pertinent to the Environmental Compliance Approval are summarized in this document.
- f) No remedial or mitigative actions were required at the site in 2025 based on findings from the monitoring program.

14.3 Groundwater Elevations and Flows

- a) Shallow groundwater flow beneath the majority of the site is in a north-easterly direction. To the west of the site, groundwater flows out of a bedrock high into the outwash beneath the site before being directed to the northeast.

- b) The bedrock groundwater flow pattern is similar to the overlying shallow groundwater system. Groundwater flow is from west to east and east to west coming into the site area from both directions and ultimately to the north following the former paleo river valley (incised bedrock low) that trends to the north.

14.4 Groundwater

- a) Groundwater monitoring results indicate road salt effects at some up-gradient groundwater monitoring locations (5-96, 14b-01, 18b-14, 19b-08, 20b-08, 23b-12). These are related to off-site winter road salting of the adjacent major roadways. Road salt effects are detected in some on-site downgradient groundwater monitors (6b-96, 7-96, 11b-00, 13b-01, 15b-01, 17b-08). Monitor 5-96 exceeded Ontario Drinking Water Standards for sodium and/or chloride in 2025 as a result of road salt effects. The chloride Ontario Drinking Water Standards was also exceeded at 17a-08. There were no apparent leachate impacts observed in the groundwater at the site boundary.
- b) There were no exceedances of the nitrate Ontario Drinking Water Standards in 2025. Historically, elevated nitrate concentrations were prevalent across the site at all locations prior to development of the site. Nitrate concentrations have decreased, in some case significantly, over the years from the historical highs observed prior to the commencements the Waste Resource Innovation Centre but are still found to be elevated. The nitrate at 22b-11 may be due to historically recognized sources impacting the site as a whole and may also be partially due to the breakdown of ammonia released in the 2023 spill.
- c) Exceedances of the iron Ontario Drinking Water Standards occurred at many of the monitoring locations during the December 2011 and also continue to be noted in 2025. The cause of the overall increase in iron concentrations is unknown. These elevated iron concentrations will continue to be investigated further in future monitoring events. In 2023, the sulphate and/or alkalinity Ontario Drinking Water Standards was exceeded during at least one of the monitoring events at downgradient bedrock monitor 6a-96 and shallow outwash downgradient monitor 22b-11. These monitor locations, in the vicinity of Stormwater Detention Pond 2, where a spill occurred in May 2023. It appears that these locations were affected by the release but the effects are now dissipating. Further monitoring will confirm if parameter concentrations continue to improve. Aside from the exceedances discussed above, there were no other exceedances of the Ontario Drinking Water Standards in 2025 for the groundwater monitors sampled for the site monitoring programs.

- d) The 2025 organic sampling showed that there were detections of chloroform at one of the on-site monitors. However, based on the historic detections of occasional low levels of volatile organic compounds throughout the site in both upgradient and downgradient monitors, the 2025 volatile organic compound detections are not considered to be related to site operations. There are no sources of volatile organic compounds on the Waste Resource Innovation Centre or Transfer station property as waste is handled within the covered buildings, truck boxes are covered when outside (preventing contact between the waste and precipitation) and no waste processing occurs on-site.
- e) New monitor 21-13B had a detection of xylenes in 2025. Although above background criteria, the BTEX concentrations remain quite low. Though 21-13A also had low level BTEX detections in 2021 and 2022, there were no volatile organic compounds detected at 21-13A in 2022, 2023, 2024, or 2025. This is a relatively newly installed monitoring nest and therefore we recommend at this time they be monitored to determine if detections persist.
- f) Guideline B-7 assessment for the overburden and the bedrock was completed for monitoring nest 22-11, located along the western property boundary. The iron concentration at monitor 22a-11 and 22b-11 exceeded Guideline B-7 limits during both 2025 monitoring events. As previously discussed, iron concentrations at some of the monitor locations have been unusually high since the December 2011 monitoring event. The elevated iron concentrations occurred in both upgradient and downgradient monitors and therefore, do not appear to be related to site operations. At 22b-11 groundwater exceeded the Guideline B-7 limit for nitrate at the June sampling event, as previously discussed this is likely due primarily to the breakdown of ammonia from the spill in 2023. The overall water quality has been improving since the release and monitoring to confirm that concentrations return to historical levels will continue. There were no other Guideline B-7 exceedances at 22a-11 and 22b-11 in 2025.
- g) No observable effects were detected in the shallow outwash water quality related to site operations. Similarly, no effects related to site operation were observed in the bedrock. Further, no effects related to site operations was observed at the downgradient site boundary.

14.5 Surface Water Monitoring

- a) Of the monthly (10 sets collected, frozen pond January and February) of samples collected in 2025 at EPTS-01 (the existing background on-site surface water pond, East Pond), the Provincial Water Quality Objectives for zinc was exceeded during

all 10 of the 2025 monitoring events. Zinc has consistently exceeded Provincial Water Quality Objectives in the past at this location. All other leachate indicator parameters concentrations were within background overburden ranges. Surface water organic sampling in June 2025 showed a low concentration of chloroform and bromodichloromethane at the background surface water station, EPTS-01. Low chloroform levels have historically occasionally been detected at this location.

- b) Monthly monitoring of the stormwater management pond in the northwest corner of the site was conducted, with samples collected at the discharge at the north end of the pond (TP1 (out)) monthly (10 sets collected, frozen pond January and February) in 2025. SWM pond samples exceeded the Provincial Water Quality Objectives for total phosphorus for 9 of the 10 events in 2025, iron for five monitoring events, zinc for one event and phenols for one monitoring event of the 2025 monitoring events. The elevated total phosphorus is a result of surrounding land use and not a result of operations at the site. Elevated zinc, total phosphorus and iron concentrations appear to be related to external factors since background surface water have also exceeded Provincial Water Quality Objectives for these parameters. Metals are a common contaminant from roadway runoff. Elevated phosphorus is typical in rural and urbanized areas. No volatile organic compounds were detected at TP1 (out) during June 2025. Low April 2019 volatile organic compound detections may have been related to the fire at the waste transfer station three days prior to this monitoring event. Water from fire fighting efforts was directed to the SWM Pond where TP1 (out) is located. As expected, volatile organic compound concentrations quickly dissipated such that they were below the laboratory detection limits during the subsequent monitoring events since late 2019.
- c) SW 1 (Stormwater Detention Area 2) was not sampled in 2025 as the pond was dry and therefore, the water level in the detention pond was never above the trigger level of 0.46 m. No discharge was required from the Detention Pond 2 in 2025.

15. Recommendations

The following recommendations are provided for consideration:

- a) The approved ground and surface water monitoring program should be continued for the site during 2026. The monitoring program for both the sites is outlined in Sections 6.1 and 6.2 of this report and summarized on **Table 25**.
- b) All samples should be analyzed for the parameters listed in **Table 24**.

Table 24: Monitoring Parameter List

Analysis Groups	Leachate Indicator
Parameters	■ Biological Oxygen Demand (BOD) ■ Chemical Oxygen Demand (COD) ■ Total Kjeldahl Nitrogen (TKN) ■ Ammonia as Nitrogen (NH₃-N) ■ Total Phosphorus (Total P) ■ Total Suspended Solids (TSS) for surface water and leachate. ■ Total Sulphate (SO₄) ■ Phenols ■ Nitrate (NO₃) and Nitrite (NO₂) ■ Chloride (Cl) ■ Sodium (Na) ■ Calcium (Ca) ■ Boron (B) ■ Total Iron (Fe) ■ Phosphorus (P) ■ Zinc (Zn)
General Parameters	■ pH ■ Conductivity ■ Alkalinity ■ Magnesium (Mg) ■ Potassium (K)
Organics	■ EPA 624,625 (ATG 16+17+18 & ATG 19+20)

Table 25: Monitoring Program Summary**City of Guelph WRIC****Groundwater Monitoring Locations and Sampling Frequency**

Formation	Monitor Locations		Sampling Frequency	Water Levels *
Sandy Silt Till	7-96		Semi Annually - Inorganics (June, December)	Semi Annually (June, December)
			Annually - Organics (June)	
Sandy Outwash	6b-96	9-96	Semi Annually - Inorganics (June, December)	Semi Annually (June, December)
			Annually - Organics (June)	
Gravelly Outwash	11b-00	12b-00	Semi Annually - Inorganics (June, December)	Semi Annually (June, December)
			Annually - Organics (June)	
Dolostone Bedrock	5-96	10-00	Semi Annually - Inorganics (June, December)	Semi Annually (June, December)
	6a-96	11a-00	Annually - Organics (June)	
	8-96	12a-00		

Surface Water Monitoring Stations and Sampling Frequency

Monitor Locations	Sampling Frequency	SW Level Sampling
SW1 - Downstream outflow of Detention Pond 2 (East of Admin)	Monthly - Inorganics, if pond levels exceed the target level of 0.46 m.	Monthly - Discharge

* C of A requirements for Wet-Dry is semi-annual. Recommend quarterly water levels collected to compare to Waste Transfer Station locations, which have quarterly requirements.

City of Guelph Transfer Station**Groundwater Monitoring Locations and Sampling Frequency**

Formation	Monitor Locations		Sampling Program
Gravelly Outwash	13b-01	18b-14	Semi Annually - Inorganics (June, December) Annually - Organics (June)
	14b-01	19b-08	
	15b-01	20b-08	
	16b-08	22b-11	
	17b-08	23b-12	
Dolostone Bedrock	13a-01	19a-08	Semi Annually - Inorganics (June, December) Annually - Organics (June)
	14a-01	20a-08	
	15a-01	21a-08	
	16a-08	22a-11	
	17a-08	23a-12	
	18a-14	EPTS-01	

Groundwater Levels

Formation	Monitor Locations		Sampling Program
Gravelly	13b-01	18b-14	Quarterly (June, December)
	14b-01	19b-08	
	15b-01	20b-08	
	16b-08	22b-11	
	17b-08	23b-12	
Dolostone	13a-01	18a-14	Quarterly (June, December)
	14a-01	19a-08	
	15a-01	20a-08	
	16a-08	21a-08	
	17a-08	22a-11	
	23a-12		

Surface Water Monitoring Stations and Sampling Frequency

Monitor Locations	Sampling Program
TP1 (out)	Monthly*** - Inorganics Annually*** - Organics
East Pond (EPTS-01)	Monthly*** - Inorganics Annually*** - Organics

*** After a rain event, if no rain or stagnant conditions persist. No sampling required monitoring period

- c) Discontinuation of the organic groundwater sampling program is recommended as historical data, and increased data collected for the soil stock piling at the site, has consistently shown that low concentrations of organics are not related to the site. However, until the discontinuation of the organic sampling program is formalized by the Ministry of Environment, Conservation and Parks, QA/QC samples should be collected.
- d) The East Pond will continue to be used as a background surface water station for water quality from the on-site surface water features. To effectively compare surface water samples, monthly samples should continue to be collected on the same day. If no samples are collected from any of the SWM pond locations, no sample from the East Pond for that month is required.

16. References

AECOM Canada Ltd., 2009:

2008 Annual Report – Guelph Wet-Dry Recycling Centre (MOE Site No. A170128). Prepared for the City of Guelph, March 2009. AECOM Project 111409.

AECOM Canada Ltd., 2010:

2009 Annual Report – Solid Waste Transfer Station, #9241-5DTRD9 & Wet-Dry Recycling Centre, C of A (Waste Disposal Site) No. A170128. Prepared for the City of Guelph, March 2010. AECOM Project 60145723.

AECOM Canada Ltd., 2011:

2010 Annual Report – Solid Waste Transfer Station, #9241-5DTRD9 & Wet-Dry Recycling Centre, C of A (Waste Disposal Site) No. A170128. Prepared for the City of Guelph, March 2011. AECOM Project 60191193.

AECOM Canada Ltd., 2012:

2011 Annual Report – Solid Waste Transfer Station, #9241-5DTRD9 & Wet-Dry Recycling Centre, C of A (Waste Disposal Site) No. A170128. Prepared for the City of Guelph, March 2012. AECOM Project 60241468.

AECOM Canada Ltd., 2013:

2012 Annual Report – Solid Waste Transfer Station & Wet-Dry Recycling Centre, C of A/ECA, (Waste Disposal Site) No. A170128. Prepared for the City of Guelph, March 2013. AECOM Project 60286226.

AECOM Canada Ltd., 2014:

2013 Annual Report – Solid Waste Transfer Station & Wet-Dry Recycling Centre, C of A/ECA, (Waste Disposal Site) No. A170128. Prepared for the City of Guelph, March 2014. AECOM Project 60315291.

AECOM Canada Ltd., 2015:

2014 Annual Report – Solid Waste Transfer Station & Wet-Dry Recycling Centre, C of A/ECA, (Waste Disposal Site) No. A170128. Prepared for the City of Guelph, March 2015. AECOM Project 60339709.

AECOM Canada Ltd., 2016:

2015 Annual Report – Solid Waste Resource Innovation Centre, ECA No. A170128. Prepared for the City of Guelph, March 2016. AECOM Project 60487592.

AECOM Canada Ltd., 2017:

2016 Annual Report – Solid Waste Resource Innovation Centre, ECA No. A170128 & 9496-9NFKJ9. Prepared for the City of Guelph, March 2017. AECOM Project 60536556.

AECOM Canada Ltd., 2018:

2017 Annual Report – Solid Waste Resource Innovation Centre, ECA No. A170128 & 9496-9NFKJ9. Prepared for the City of Guelph, March 2017. AECOM Project 60565851.

AECOM Canada Ltd., 2019:

2018 Annual Report – Solid Waste Resource Innovation Centre, ECA No. A170128 & 9496-9NFKJ9. Prepared for the City of Guelph, March 2019, revised September 2019. AECOM Project 60565851.

AECOM Canada Ltd., 2020:

2019 Annual Report – Solid Waste Resource Innovation Centre, ECA No. A170128 & 9496-9NFKJ9. Prepared for the City of Guelph, March 2020. AECOM Project 60598828.

AECOM Canada Ltd., 2021:

2020 Annual Report – Solid Waste Resource Innovation Centre, ECA No. A170128 & 9496-9NFKJ9. Prepared for the City of Guelph, March 2021. AECOM Project 60650666.

AECOM Canada Ltd., 2022:

2021 Annual Report – Solid Waste Resource Innovation Centre, ECA No. A170128 & 9496-9NFKJ9. Prepared for the City of Guelph, March 2022. AECOM Project 60678269.

AECOM Canada Ltd., 2023:

2022 Annual Report – Solid Waste Resource Innovation Centre, ECA No. A170128 & 9496-9NFKJ9. Prepared for the City of Guelph, March 2023. AECOM Project 60703557.

AECOM Canada Ltd., 2024:

2023 Annual Report – Solid Waste Resource Innovation Centre, ECA No. A170128 & 9496-9NFKJ9. Prepared for the City of Guelph, March 2024. AECOM Project 60703557.

AECOM Canada ULC, 2025:

2024 Annual Report – Solid Waste Resource Innovation Centre, ECA No. A170128 & 9496-9NFKJ9. Prepared for the City of Guelph, March 2025. AECOM Project 60727772.

Gartner Lee Limited, 2002:

City of Guelph, Solid Waste Transfer Station Design and Operations Report. Prepared for the City of Guelph, January 2002. GLL Project 21-141.

Gartner Lee Limited, 2003:

2002 Annual Report Eastview Road Landfill Site. Prepared for the City of Guelph, June 2003. GLL 23-131.

Gartner Lee Limited, 2004:

2003 Groundwater, Surface Water and Leachate Annual Monitoring Requirements. Prepared for the City of Guelph, March 2004. GLL Project 40-133.

Gartner Lee Limited, 2005:

2004 Groundwater, Surface Water and Leachate Annual Monitoring Requirements. Prepared for the City of Guelph, March 2005. GLL Project 50-133.

Gartner Lee Limited, 2006:

2005 Groundwater, Surface Water and Leachate Annual Monitoring Requirements. Prepared for the City of Guelph, March 2006. GLL Project 60-133.

Gartner Lee Limited, 2007:

2006 Annual Report – Guelph Wet-Dry Recycling Centre (MOE Site No. A170128). Prepared for the City of Guelph, March 2007. GLL Project 70-133.

Gartner Lee Limited, 2008:

2007 Annual Report – Guelph Wet-Dry Recycling Centre (MOE Site No. A170128). Prepared for the City of Guelph, March 2008. GLL Project 80-133.

Ministry of the Environment and Energy (MOEE), 1994:

Water Management Policies Guidelines Provincial Water Quality Objectives of the Ministry of the Environment and Energy, July 1994, reprinted February 1999, ISBN 0-7778-8473-9 rev.

Ministry of the Environment and Energy (MOEE), 1994a:

Procedure B-7-1 “Determination of Contaminant Limits and Attenuation Zones”, MOEE, 1994.

Ministry of the Environment and Energy (MOEE), 1994b:

Guideline B-7 “Incorporation of the Reasonable Use Concept into More Groundwater Management Activities”, MOEE, 1994.

Ministry of the Environment, Conservation and Parks, 2020:

O. Reg. 169/03: Ontario Drinking Water Quality Standards under Safe Drinking Water Act, 2002, S.O. 2002, c. 32, January 1, 2020 – (e-Laws currency date)

Ontario Government, 2017:

R.R.O. 1990, Reg. 347: General - Waste Management under Environmental Protection Act, R.S.O. 1990, c. E.19.

Appendices available by request