



Land Use Compatibility and Air Quality and Odour Impact Study

Elfrida Community

Elfrida Community Builders Group Inc.

C/O TMA Law

25 Main Street, Suite 2010, Hamilton, ON L8P 1H1

Prepared by:

SLR Consulting (Canada) Ltd.

100 Stone Road West, Suite 201, Guelph, ON N1G 5L3

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Revision Record

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Executive Summary

SLR Consulting (Canada) Ltd., was retained by Elfrida Community Builders Group Inc. to conduct an air quality study focused on fugitive odour emissions related to the Green for Life (GFL) Stoney Creek Regional Facility landfill site (“the Facility”). The study included assessment of speciated sulphur compounds including total reduced sulphurs (TRS), ammonia and general mixed odours.

The study has been completed in support of a Secondary Plan application for the proposed Elfrida Community urban boundary expansion application which includes over 1,200 hectares of land in the Elfrida neighbourhood of Hamilton (“the Project site”).

A preliminary assessment was conducted in accordance with a Terms of Reference (ToR) prepared by SLR, dated January 17, 2025, and submitted to the City of Hamilton (“the City”) for review.

The results of the preliminary assessment were submitted to the City in the report entitled: Land Use Compatibility and Preliminary Air Quality and Odour Impact Study, SLR March 11, 2025.

A peer review of the March 11, 2025, SLR study was completed by EXP Services Inc. (EXP).

Based on the recommendations provided by SLR in the March 11, 2025, study and the EXP peer review, additional work associated with the quantification of potential mixed odours and total reduced sulphur compounds was conducted.

This report has been prepared as an update to the preliminary Air Quality and Odour Impact study, to respond to the EXP peer review comments and to update conclusions and recommendations related to land use compatibility between the Facility and the Project site lands.

In order to further quantify mixed odours and TRS, the following scope of work was undertaken and summarized in this document:

- Ambient air monitoring to collect quantitative mixed odour and sulphur compounds including TRS data specific to the Project site;
- Detailed analysis of real-time air monitoring for TRS concentrations provided online by the Hamilton Air Monitoring Network (HAMN) (<https://www.hamnair.ca/>) surrounding the Facility and located northwest of the Project site;
- Comparison of the HAMN data with the Project site data;
- Comprehensive review of extensive Freedom of Information (FOI) data provided by the MECP related to the Facility operations and number of odour complaints received and investigated by the MECP;
- Continued analysis of Mixed Odour Monitoring reports provided by the Facility and located online (<https://gflstoneycreek.com/>); and
- Analysis of Ammonia Monitoring reports provided by the Facility and located online (<https://gflstoneycreek.com/>).

Based on the review of the air quality and odour impact study completed by SLR, the Facility operations have the potential to generate detectable mixed odours beyond the limits of the property boundary.



The mixed odours were typically identified as unpleasant and consist primarily of sulphurous odours. The mixed odours have primarily been detected relatively close to the Facility property boundary and in alignment with the predominant wind directions.

The SLR monitoring program for speciated sulphurs and TRS identifies that speciated sulphur compounds were not detected above the method detection limits for any of the compounds for any of the days sampled. As such no compound concentrations were above the applicable AAQC guidelines and objectives.

A review of the HAMN data that corresponds to the SLR sampling days indicates 1 concentration of the TRS above the applicable AAQC. The elevated TRS concentration was detected at the GFL North HAMN station on October 10, 2025. As discussed above, TRS was not detected in the SLR sample analysis of the canisters collected on that day. Based on a review of the HAMN meteorological station data, the predominant winds on October 10, 2025, were from the south southwest. These wind conditions would create the situation wherein emissions from the Facility would be directed toward the GFL North HAMN station and away from the Project site.

Eight US States use field olfactometry limits of 7-15 D/Ts for defining selected nuisance odour conditions. Recognizing the odour from the Facility is typically identified as offensive, SLR anticipates that odour emissions above 4 D/Ts have the potential to create nuisance odour conditions. The maximum distance away from the Facility that mixed odours were detected by SLR above 4 D/T was 490 m.

The Facility is currently surrounded by low density residential uses and urban parks located closer to the Facility than the Project site. Therefore, the requirements associated with operating within the permissions of the Amended ECA are constrained by the current Urban Boundary and surrounding land uses.

Based on a review of Figure 6, the majority of the Project site is buffered from the Facility emissions by existing sensitive receptors. Further, the winds with the potential to direct Facility emissions to the closest portions of the Project site are predicted to occur less than 10% of the time.

Based on the work completed, the inclusion of the Project site lands into the Urban Boundary will not create a new condition for environmental compliance for the Facility.

Based on the Air Quality and Odour Impact Study completed, it is the opinion of SLR that residential uses are feasible on the Project site. However, it is recommended that sensitive land uses not be placed within 500 m of the Facility property boundary and that the uses in this area be limited to local and neighbourhood servicing retail and service commercial uses.

To address the potential for future complaints, it is possible to use Warning Clauses and receptor based physical mitigation measures in the architectural design of the Project land structures that are located within 500 m of the Facility. The mitigation measures that may be considered include, strategic location of fresh air intakes facing away from the Facility, installation of carbon and MERV rated filters, and if appropriate, positive pressurization of building features.



Based on the study completed, the recommendations provided, and the current existence of sensitive land uses located closer to the Facility than the Project site, it is concluded that the Project site will not create a new condition related to the ability for the Facility to obtain or maintain compliance with applicable Provincial environmental policies, regulations, approvals, authorizations, and guidelines.

With the recommendation to not place sensitive uses within 500 m of the Facility property boundary, then the requirements of MECP Guideline D-4 are met. Since the policies and guidelines are met, the Project site is:

- Unlikely to result in increased risk of complaint and nuisance claims;
- Unlikely to result in operational constraints for the Facility; and
- Unlikely to result in constraints on the Facility to reasonably expand, intensify or introduce changes to their operations.



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Acronyms and Abbreviations

AAMP	Ambient Air Monitoring Program
ASTM	American Standard for Testing and Materials
City	City of Hamilton
CLC	Community Liaison Committee
D/T	Detection Threshold
EASR	Environmental Activity and Sector Registry
ECA	Environmental Compliance Approval
ECO	Environmental Commissioner of Ontario
EPA	Ontario Environmental Protection Act
FOI	Freedom of Information
GC-SCD	Gas Chromatograph-Sulfur Chemiluminescence Detection
GFL or Facility	Green For Life Landfill Site
HAMN	Hamilton Air Monitoring Network
MECP	Ministry of the Environment, Conservation and Parks
MMAH	Ontario Ministry of Municipal Affairs and Housing
OP	Official Plan
PPS	Provincial Planning Statement
QA/QC	Quality Assurance/Quality Control
RHOP	Rural Hamilton Official Plan
ToR	Terms of Reference
TRS	Total Reduced Sulphurs
UHOP	Urban Hamilton Official Plan



1.0 Introduction

SLR Consulting (Canada) Ltd., was retained by Elfrida Community Builders Group Inc. to conduct an air quality study focused on fugitive odour emissions related to the Green for Life (GFL) Stoney Creek Regional Facility landfill site (“the Facility”). The study included assessment of speciated sulphur compounds including total reduced sulphurs (TRS), ammonia and general mixed odours.

The study has been completed in support of a Secondary Plan application for the proposed Elfrida Community urban boundary expansion application which includes over 1,200 hectares of land in the Elfrida neighbourhood of Hamilton (“the Project site”).

1.1 Background

SLR completed a preliminary assessment in accordance with a Terms of Reference (ToR) prepared by SLR, dated January 17, 2025, and submitted to the City of Hamilton for review.

This preliminary assessment considered air quality and odour emissions from the Green for Life (GFL) Stoney Creek landfill site (Facility).

In the preliminary assessment, SLR reviewed the surrounding land uses and the existing Facility with respect to the following guidelines:

- The Provincial Planning Statement;
- Ministry of the Environment, Conservation and Parks (MECP) D-Series Guidelines;
- Environmental Commission of Ontario (ECO) Odour Policy Framework, 2010; and
- Ontario Regulation 419/05: Air Pollution – Local Air Quality and its associated air quality standards and assessment requirements.

The intent of the preliminary report was to identify any existing and potential land use compatibility issues and to identify and evaluate options to achieve appropriate design, buffering and/or separation distances between the surrounding sensitive land uses, including residential uses, and nearby Employment Areas and/or major facilities.

The results of the preliminary assessment were submitted to the City of Hamilton (City) in the report entitled: Land Use Compatibility and Preliminary Air Quality and Odour Impact Study, SLR March 11, 2025.

A peer review of the March 11, 2025, SLR study was completed by EXP Services Inc. (EXP). A copy of the peer review comments and associated SLR Response is provided in Appendix A.

Based on the recommendations provided by SLR in the March 11, 2025, study and the EXP peer review, additional work associated with the quantification of potential mixed odours and total reduced sulphur compounds was conducted.

This report has been prepared as an update to the preliminary Air Quality and Odour Impact study to respond to the EXP peer review comments and to update conclusions and recommendations related to land use compatibility between the Facility and the Project site lands.



In order to further quantify mixed odours and Total Reduced Sulphurs (TRS), the following scope of work was undertaken:

- Ambient air monitoring to collect quantitative mixed odour and sulphur compounds including TRS data specific to the Project site;
- Detailed analysis of real-time air monitoring for TRS concentrations provided online by the Hamilton Air Monitoring Network (HAMN)¹ (surrounding the Facility located northwest of the Project site);
- Comparison of the HAMN data with the Project site data;
- Comprehensive review of extensive Freedom of Information (FOI) data provided by the MECP related to the Facility operations and a number of odour complaints received and investigated by the MECP;
- Continued analysis of Mixed Odour Monitoring reports provided by the Facility and located online²; and
- Analysis of Ammonia Monitoring reports provided by the Facility and located online.

Based on the completion of the above work, SLR determined the Recommended Minimum Separation Distance from the property boundary of the Facility to facilitate land use compatibility between the Facility and the Project site.

2.0 Description of Development and Surroundings

2.1 Proposed Development

The Project site includes the lands between Mud Street East and Golf Club Road in the north-south direction and between Upper Centennial Parkway and Hendershot Road/Second Road East in the east-west direction. Additionally, the Project site includes the majority of the lands between Trinity Church Road and Regional Road 56 in the east-west direction and between Rymal Road East and Golf Club Road in the north-south direction.

The majority of the Project site is currently occupied by agricultural lands, with some commercial and residential uses. The Project site is proposed to support a mixed-use residential community.

Northwest of the Project site is the Stoney Creek Landfill Facility operated by Green for Life Environmental Inc., which is permitted to receive non-hazardous municipal wastes.

The operations have the potential to release air emissions and, in particular, odour emissions including speciated sulphur compounds including total reduced sulphurs, ammonia and general mixed odours.

A location and context plan are provided in Figure 1.

¹ <https://www.hamnair.ca/>

² <https://gflstoneycreek.com/>



2.2 Surroundings

Surrounding the Project site are residential uses to the west, and agricultural lands to the north, east and south. The southeast corner of the Facility property boundary is located approximately 130 m northwest of the northwest corner of the Project site.

2.3 Land Use Designations in the Area

The sections to follow outline the current land use designations under the City of Hamilton two Official Plans (OPs) and the City of Hamilton Zoning By-Law 05-200.

2.3.1 City of Hamilton Official Plan

The sections to follow outline the current land use designations under the City of Hamiltons two OPs, the Urban Hamilton Official Plan (UHOP) adopted August 16, 2013, and the Rural Hamilton Official Plan (RHOP) adopted March 7, 2012.

An excerpt from the City of Hamilton Official Plan Maps for the area is provided in Figures 2a and 2b. The Project site is designated as Open Space, Rural and Agriculture. The Facility is designated as Neighbourhoods.

2.3.2 City of Hamilton Zoning By-Law 05-200

An excerpt from the City of Hamilton Zoning Map for the area is provided in Figure 3. The Project site is currently a mix of the following uses:

- Highway Commercial (HC);
- Open Space (OS);
- Agricultural (A);
- Rural Industrial (MR);
- Existing Rural Industrial / Rural Industrial (E2);
- Rural Commercial (RC);
- Rural Residential (RR); and
- Small Scale Institutional (IS).

The Facility is Zoned Extractive Industrial ME-1.

3.0 Assessment Framework

The intent of this report is to identify any existing and potential for mixed odours and/or sulphur compounds related issues and to identify and evaluate options to achieve appropriate design, buffering and/or separation distances between the surrounding sensitive land uses, including residential uses, and nearby Employment Areas and/or major facilities. Recommended measures intended to eliminate or mitigate negative impacts and adverse effects are provided.

The requirements of the Ontario planning regime are organized such that generic policy is informed by specific policy, guidance, and legislation, as follows:



- The Ontario Planning Act, Section 2.1 – sets the ground rules for land use planning in Ontario, whereby planning decisions have regard to matters of provincial interest including orderly development, public health, and safety; then
- The Provincial Planning Statement (PPS) sets out goals – making sure adjacent land uses are compatible from a health and safety perspective and are appropriately buffered; then
- The MECP D-series of guidelines set out methods to determine if assessments are required (Areas of Influence, Recommended Minimum Separation Distances, and the need for additional studies); then
- MECP and Municipal regulations, policies, standards, and guidelines then set out the requirements of additional air quality studies and the applicable policies, standards, guidelines, and objectives to ensure that adverse effects do not occur.

3.1 Ontario Planning Act

The Ontario Planning Act is provincial legislation that sets out the ground rules for land use planning in Ontario. It describes how land uses may be controlled, and who may control them. “The purpose of the Act is to:

- provide for planning processes that are fair by making them open, accessible, timely and efficient;
- promote sustainable economic development in a healthy natural environment within a provincial policy framework;
- provide for a land use planning system led by provincial policy;
- integrate matters of provincial interest into provincial and municipal planning decisions by requiring that all decisions be consistent with the Provincial Planning Statement and conform/not conflict with provincial plans;
- encourage co-operation and coordination among various interests;
- recognize the decision-making authority and accountability of municipal councils in planning”³

Section 2.1 of the Ontario Planning Act describes how approval authorities and Tribunals must have regard to matters of provincial interest including orderly development, public health, and safety.

3.2 Provincial Planning Statement

The PPS “provides policy direction on matters of provincial interest related to land use planning and development. As a key part of the Ontario policy-led planning system, the Provincial Planning Statement sets the policy foundation for regulating the development and use of land. It also supports the provincial goal to enhance the quality of life for all Ontarians.”

³ <https://www.ontario.ca/document/citizens-guide-land-use-planning/planning-act>



The PPS is a generic document, providing a consolidated statement of the government policies on land use planning and is issued under section 3 of the Planning Act. Municipalities are the primary implementers of the PPS through policies in their local official plans, zoning by-laws and other planning related decisions.

The Province of Ontario approved PPS came into effect on October 20, 2024. Policy direction concerning land use compatibility is provided in the following sections of the PPS.

“Policy 2.8.3: In addition to Policy 3.5, on lands within 300 metres of employment areas, development shall avoid, or where avoidance is not possible, minimize and mitigate potential impacts on the longterm economic viability of employment uses within existing or planned employment areas, in accordance with provincial guidelines.

Policy 3.5.1: Major facilities and sensitive land uses shall be planned and developed to avoid, or if avoidance is not possible, minimize and mitigate any potential adverse effects from odour, noise and other contaminants, minimize risk to public health and safety, and to ensure the long-term operational and economic viability of major facilities in accordance with provincial guidelines, standards and procedures.

Policy 3.5.2: Where avoidance is not possible in accordance with Policy 3.5.1, planning authorities shall protect the long-term viability of existing or planned industrial, manufacturing or other major facilities that are vulnerable to encroachment by ensuring that the planning and development of proposed adjacent sensitive land uses is only permitted if potential adverse affects to the proposed sensitive land use are minimized and mitigated, and potential impacts to industrial, manufacturing or other major facilities are minimized and mitigated in accordance with provincial guidelines, standards and procedures.

Policy 5.1.1: Development shall be directed away from areas of natural or human-made hazards where there is an unacceptable risk to public health or safety or of property damage, and not create new or aggravate existing hazards.”

The goals of the PPS are implemented through Municipal and Provincial policies, as discussed below. Provided the Municipal and Provincial policies, guidelines, standards, and procedures are met, the requirements of the PPS will be met.

3.3 D-Series of Guidelines

The D-series of guidelines were developed by the MECP in 1995 as a means to assess Recommended Minimum Separation Distances and other control measures for land use planning proposals in an effort to prevent or minimize ‘adverse effects’ from the encroachment of incompatible land uses where a facility either exists or is proposed. D-series guidelines address sources including sewage treatment (Guideline D-2), gas and oil pipelines (Guideline D-3), landfills (Guideline D-4), water services (Guideline D-5) and industries (Guideline D-6).⁴

For this assessment, the applicable guideline is Guideline D-4 - *Land Use on or Near Landfills and Dumps*.

⁴ <https://www.ontario.ca/page/environmental-land-use-planning-guides>



Sensitive Land Use is defined in the D-Series Guidelines as:

“A building, 'amenity area' or outdoor space where routine or normal activities occurring at reasonably expected times would experience 1 or more 'adverse effect(s)' from contaminant discharges generated by a nearby 'facility'. The 'sensitive land use' may be a part of the natural or built environment. Depending upon the particular 'facility' involved, a sensitive land use and associated activities may include one or a combination of:

- I. residences or facilities where people sleep (e.g. single and multi-unit dwellings, nursing homes, hospitals, trailer parks, camping grounds, etc.). These uses are considered to be sensitive 24 hours/day.
- II. a permanent structure for non-facility related use, particularly of an institutional nature (e.g. schools, churches, community centres, day care centres).
- III. certain outdoor recreational uses deemed by a municipality or other level of government to be sensitive (e.g. trailer park, picnic area, etc.).
- IV. certain agricultural operations (e.g. cattle raising, mink farming, cash crops and orchards).
- V. bird/wildlife habitats or sanctuaries.”

Adverse effect is a term defined in the Environmental Protection Act and “means one or more of

- impairment of the quality of the natural environment for any use that can be made of it,
- injury or damage to property or to plant or animal life,
- harm or material discomfort to any person,
- an adverse effect on the health of any person,
- impairment of the safety of any person,
- rendering any property or plant or animal life unfit for human use,
- loss of enjoyment of normal use of property, and
- interference with the normal conduct of business”.

3.3.1 Guideline D-4 Requirements

The D-4 Guideline restricts and controls land use in the vicinity of landfills and dumps. The guideline is applicable to proposals for land use on or near, operating, and non-operating landfills.

Landfill generated gases, particularly the migration of methane gas, are some of the factors listed for consideration. For land uses within 500 m of a fill area, an evaluation of the presence and impact of any adverse effects (e.g., nuisance to human) is required, and remedial measures must be taken, where necessary.

There is no methodology specified by the D-series guidelines to evaluate the impact of odour nuisances.



3.4 GFL Facility D-Series Area of Influence and Recommended Minimum Separation Distance

The Guideline D-4 potential Area of Influence and Recommended Minimum Separation Distance from the Facility in relation to the Project site are shown in Figures 4a and 4b.

In Ontario, facilities that emit significant amounts of contaminants to the environment are required to obtain and maintain an Environmental Compliance Approval from the MECP or submit an Environmental Activity and Sector Registry (EASR). ECAs/ EASRs within 1 km of the site were obtained from the MECP *Access Environment* website⁵.

The GFL waste management Facility is located approximately 130 m northwest of the Project site. The Facility operates under MECP Amended ECA Number A181008 for Waste Disposal Sites, dated October 28, 2025, and ECA Number 8268-DMFJRM, dated November 7, 2025. The Facility was issued a Provincial Officer's Order on April 10, 2024, associated, in part, with a requirement to control fugitive odour generation from the operations. Copies of the MECP permit and Provincial Officer's Order are provided in Appendix B.

Based on a review of available information, the Facility operating hours are Monday to Friday 6:30 am to 6:00 pm and closed on weekends and statutory holidays.

4.0 Air Quality and Odour Impact Study Scope of Work

In order to further evaluate speciated sulphur compounds, TRS, ammonia and mixed odours, the following scope of work was undertaken from August 2025 to November 2025:

- Ambient air monitoring program (AAMP) to collect quantitative mixed odour and sulphur compounds including TRS data specific to the Project site;
- Detailed analysis of real-time air monitoring for TRS concentrations provided online by the Hamilton Air Monitoring Network (HAMN)⁶ surrounding the Facility located northwest of the Project site;
- Comparison of the HAMN data with the Project site data;
- Comprehensive review of extensive FOI data provided by the MECP related to the Facility operations and number of odour complaints received and investigated by the MECP;
- Continued analysis of Mixed Odour Monitoring reports provided by the Facility and located online⁷; and
- Analysis of Ammonia Monitoring reports provided by the Facility and located online⁸.

The following subsections provide additional details related to the work completed.

⁵ <https://www.accessenvironment.ene.gov.on.ca/AEWeb/ae/GoSearch.action>

⁶ <https://www.hamnair.ca/>

⁷ <https://gflstoneycreek.com/>

⁸ <https://gflstoneycreek.com/>



4.1 Speciated Sulphur Compound Air Monitoring Program

SLR established three ambient air monitoring stations downwind of the Facility. Locations are illustrated as orange stars on Figure 5a. The station locations were chosen with the goal of delineating the limit of the Area of Influence of potential air emissions from the operation of the GFL Landfill site.

Data collection was conducted for 15-days between August 23 and November 15, 2025. These months were selected for monitoring based on a review of historical mixed odour monitoring and complaints reported online by the Facility which identified the late summer and fall season as having a large number of mixed odour detections as well as complaints.

SLR monitored for the following compounds every six days in alignment with the Environment and Climate Change Canada (ECCC) National Air Pollution Surveillance (NAPS⁹) Program:

- Mixed Odour Compounds;
- TRS; and
- Speciated Sulphur Compounds including Hydrogen Sulphide (H₂S).

4.1.1 24-Hour Sulphur Compound Monitoring

24-hour samples were collected for laboratory analysis of speciated sulphurs and TRS. Air samples were collected into cleaned evacuated silica-coated canisters. Each canister is equipped with a laboratory supplied flow regulator set for a sampling period of 24 hours.

Following the sampling period, the canisters were submitted to ALS Laboratories in Waterloo, Ontario, for analysis of speciated sulphurs and TRS. The analysis was performed by means of a loop system where a volume of air is transferred from the canister and cryo-focused before determining the sulfur compounds by Gas Chromatograph-Sulfur Chemiluminescence Detection (GC-SCD). The laboratory used procedures adapted from American Standard for Testing and Materials (ASTM) Method D5504.

4.1.2 Mixed Odour Monitoring

SLR collected two days of mixed odour concentrations every six days in alignment with the deployment and collection of the 24-hour sulphur compound samples. Measurements were collected from locations surrounding the Facility and at each of the Project site sample locations as illustrated in Figure 5a and Figure 5b.

A field olfactometer¹⁰ was used by SLR personnel during sampling events to quantify the magnitude of the detected mixed odours in units referred to as a detection threshold (D/T).

SLR personnel who conducted the field odour measurements completed the odour sensitivity certification program offered by St. Croix Sensory Inc. This program evaluates an individual sense of smell and ensures they are representative of the general population.

The nasal olfactometer used in this study was calibrated by St. Croix Sensory Inc.

⁹ <https://data-donnees.ec.gc.ca/data/air/monitor/national-air-pollution-surveillance-naps-program/ProgramInformation-InformationProgramme/SamplingScheduleNAPS-HoraireEchantillonnageSNPA.pdf>

¹⁰ <https://www.fivesenses.com/equipment/nasalranger/nasalranger/>



Detailed information on the calibration of the field olfactometer and the odour sensitivity certification of SLR personnel is provided in Appendix C.

4.1.3 Quality Assurance/Quality Control

A quality assurance/quality control program associated with the Project site AAMP was implemented as discussed below.

4.1.3.1 Analytic QA/QC

SLR collected sample duplicates, field blanks, and trip blanks for laboratory analysis. These samples were submitted to ALS for analysis. These samples help evaluate measurement accuracy and potential sampling and/or analysis interferences. The results of all QA/QC analysis are included with the sample results.

4.1.3.2 Field QA/QC

SLR personnel ensured that monitoring equipment used in the program was appropriately maintained and calibrated as required by specifications outlined in the manual supplied by the equipment manufacturer.

4.1.3.3 Field Notes

Detailed field notes were recorded throughout the program, including location, odour observations, odour measurements and meteorological conditions at the time of each site visit.

An example of a completed set of field notes is provided in Appendix D. The field notes in their entirety can be provided upon request.

4.2 Review and Analysis of Other Monitoring Data Collected in the Vicinity of the Project Site

In addition to the collection of Project site specific ambient air monitoring data, SLR undertook a detailed review of the following monitoring information for samples collected by others in the vicinity of the Project site:

- Real-time air monitoring for TRS concentrations provided online by the HAMN that directly aligns with the days over which SLR collected 24-hour sulphur samples, and compared the TRS concentrations between the HAMN monitoring stations and the Project site concentrations;
- Mixed Odour Monitoring reports provided by the Facility and located online¹¹; and
- Ammonia Monitoring reports provided by the Facility and located online.

Results from this analysis are discussed in Section 6.3 of the report.

¹¹ <https://gflstoneycreek.com/>



4.3 Review of Freedom of Information Data

SLR obtained FOI data regarding complaints and investigations conducted by the MECP for the Facility. Given the volume of information received, SLR conducted a detailed review and has summarized the relevant findings in Section 6.3.1.

4.4 Meteorological Data

Surface wind data was obtained to generate a wind rose from data collected by the HAMN from August 2025 through November 2025, as shown in Figure 6. As can be seen in the wind rose, predominant winds are from the northeast and southwest quadrants, while winds from the northwest and southeast quadrants may be the least frequent.

Figure 7 provides an overlay of the wind rose on the Facility. Based on a review of Figure 7, the majority of the Project site is buffered from the Facility emissions by existing sensitive receptors. Further, the winds with the potential to direct Facility emissions to the closest portions of the Project site are predicted to occur less than 10% of the time.

5.0 Ambient Air Quality Criteria

In Ontario, ambient air quality conditions are compared against the MECP AAQC. These criteria are non-regulatory reference levels used to assess emission concentrations in ambient air for the purpose of protecting human health and the environment.

As discussed on the MECP website:

“An AAQC is not a regulatory value. It is a concentration of a contaminant in air that is protective against adverse effects on health and/or the environment. AAQCs are used to assess general (ambient) air quality resulting from all sources of a contaminant to air. AAQCs are most commonly used in environmental assessments, special studies using ambient air monitoring data, assessment of general air quality in a community and annual reporting on air quality across the province.

Since AAQCs are based on a review of scientific information about the effects of contaminants on health and the environment, they may be modified from time to time based on new or relevant scientific information.”¹²

5.1 Sulphur and Ammonia Criteria

The objectives and guidelines for each compound included in the AAMP are summarized below in Table A.

¹² <https://www.ontario.ca/page/ontarios-ambient-air-quality-criteria>



Table A: Ambient Air Quality Objectives and Guidelines

Compound	Objective and Guideline (ug/m ³)	Criteria Source	Averaging Time
TRS	7	AAQC	24 Hours
	13	AAQC	10 Minutes
Ammonia	100	AAQC	24 Hours

5.2 Mixed Odour Criteria

There are a select few compounds that are provincially regulated from an odour perspective; however, there is no formal regulation with respect to mixed odours. Impacts from mixed odours produced by industrial facilities are generally only considered and regulated by the MECP in the presence of persistent complaints (ECO 2010)¹³.

The MECP assesses mixed odours, in Odour Units, following draft guidelines. One odour unit (1 OU) has been used as a default threshold. This is the concentration at which 50% of the population will just detect an odour (but not necessarily identify/recognize or object to it). Recognition of an odour will typically occur between 3 and 5 odour units. The following factors may be considered:

- **Frequency** – How often the odour occurs. The MECP typically allows odours to exceed 1 OU with a 0.5 % frequency.
- **Intensity** – The strength of the odour, in odour units. 1 OU is often used in odour assessments in Ontario.
- **Duration** – How long the odour occurs.
- **Offensiveness** – How objectionable the odour is.
- **Location** – Where the odour occurs. The MECP assesses odours where human activity is likely to occur.

The MECP has decided to apply odour-based standards to locations “where human activities regularly occur at a time when those activities regularly occur,” which is generally accepted to be places that would be considered sensitive such as residences and public meeting places.

Based on a review of the scientific literature entitled “Protocols for Reliable Field Olfactometry Odor Evaluations”¹⁴ the use of field Olfactometry achieved a 95% odour panel confidence for D/Ts less than 4. Some variability in odour panel confidence and field olfactometry was observed for D/Ts between 7 and 15. Further, this document outlines that eight US States use field olfactometry limits of 7-15 D/Ts for defining selected nuisance odour conditions.

¹³ Environmental Commissioner of Ontario (ECO, 2010), Review of Posted Decision: Developing an Odour Policy Framework, April 2010.

¹⁴ https://www.fivesenses.com/media/Brandt%20et%20al-2011_ProtocolsForReliableFieldOlfactometry_ApplEngAG.pdf



6.0 Air Quality and Odour Impact Study Results

6.1 24-Hour Sulphur Compound Monitoring Results

The results of the speciated sulphurs and TRS monitoring are summarized by date in Appendix E Table E.1.

For each sampling day, corresponding real-time air monitoring data for TRS were downloaded from the HAMN from three monitoring stations located in proximity to the GFL site:

- GFL Lagoon;
- GFL North; and
- GFL Southeast.

The HAMN data has been presented alongside the laboratory results of the samples collected by SLR during the monitoring program.

A review of the SLR monitoring data in Table D.1 identifies that speciated sulphur compounds were not detected above the method detection limits for any of the compounds for any of the days sampled. As such, no compound concentrations were above the applicable AAQC guidelines and objectives.

A review of the HAMN data that corresponds to the sampling days indicates 1 concentration of the TRS above the applicable AAQC. The elevated TRS concentration was detected at the GFL North HAMN station on October 10, 2025. As discussed above, TRS was not detected in the sample analysis of the canisters collected on that day. Based on a review of the HAMN meteorological station data, the predominant winds on October 10, 2025, were from the south southwest. The wind conditions would create the situation wherein emissions from the Facility would be directed toward the GFL North HAMN station and away from the Project site.

6.2 Mixed Odour Monitoring Results

Building on the mixed odour sampling conducted earlier in 2025 and discussed in the March 11, 2025, study, SLR personnel conducted an additional monitoring program for mixed odour emissions from August 23, 2025, to November 15, 2025.

As discussed in Section 4.1.2, SLR collected two days of mixed odour concentrations every six days in alignment with the deployment and collection of the 24-hour sulphur compound samples. Measurements were collected from locations surrounding the Facility and at each of the Project site sample locations as illustrated in Figure 5a and Figure 5b.

A field olfactometer¹⁵ was used by SLR personnel during sampling events to quantify the magnitude of the detected mixed odours in units referred to as a detection threshold (D/T). For example, a D/T value of 2 means that the sample needs to be diluted by a ratio of 2:1 to be at the level of one Odour Unit ("OU"). There are six D/T ranges available on the unit, with <2 to 4 generally considered faint odours, 7 to 15 representative of moderate odours, and 30 to 60 considered strong odours.

¹⁵ <https://www.fivesenses.com/equipment/nasalranger/nasalranger/>



The mixed odour observations were collected from sidewalks, other publicly accessible areas, and lands within the Project site.

Weather conditions during the site visits were recorded in the field notes. Potential odour concentrations at elevated receptors such as apartment buildings were not assessed.

The data collected from the mixed odour monitoring by SLR is summarized in Table 1.

Based on a review of the SLR monitoring the following is provided:

- Over 375 odour observations were made during 35 monitoring events conducted between February 10, 2025, and November 16, 2025, with most of the observations being collected between August 23, 2025, and November 16, 2025;
- Multiple odour observations were made using the field olfactometer during each sampling event;
- The majority of the maximum observed odour detections were less than 2 D/Ts;
- a D/T of 2 was observed 67 times during the 35 sampling events;
- a D/T of 4 was observed 29 times during the 35 sampling events;
- a D/T of 7 was observed 21 times during the 35 sampling events;
- a D/T 15 was observed 6 times during the 35 sampling events;
- a D/T of 30 was observed 7 times during the 35 sampling events; and
- a D/T of 60 was observed once during the 35 sampling events.

Based on a review of the data collected to date, the majority of odour detections occur near to the Facility Property Boundary and to the north and east of the Facility.

As discussed in Section 5, eight US States use field olfactometry limits of 7-15 D/Ts for defining selected nuisance odour conditions. Recognizing the odour from the Facility is typically identified as offensive, SLR anticipates that odour emissions above 4 D/Ts have the potential to create nuisance odour conditions. Table 1 provides the maximum distance away from the Facility that mixed odours were detected above 4 D/T. Based on a review of this information, the maximum distance away from the Facility at which mixed odours were observed above 4 D/Ts was 490 m.

6.3 External Data Reviews

6.3.1 Ministry of Environment, Conservation and Parks Facility Information

SLR recognizes that complaint history can be useful in evaluating land use compatibility. Therefore, SLR submitted a request related to complaint history with MECP through their Environmental Property Information (EPI) Program. The EPI results are provided in Appendix F. SLR advanced an FOI request to review relevant reports.

SLR received a database summarizing 2,750 odour complaints received by the Hamilton District Office of the MECP between September 2021 and May 2025. Included for most of the complaints was a description of the odour, the date of the incident, the duration and frequency of the odour, and the reported odour intensity.



SLR reviewed the complaints data and grouped the complaints into the following 5 general odour categories, based on the odour descriptions provided by the complainants:

- Ammonia/Cat Pee;
- Chemical/Industrial/'Toxic';
- Fishy;
- Sulphur/Rotten Eggs; and
- Not Specified/Foul/Disgusting.

Complaints that referred to the odour of a gas leak, methane, leachate, or garbage were grouped in with those that specifically identified as sulphur or rotten eggs.

Table 2 presents the complaint count for each of these odour categories, separated out by the reported intensity from 1 to 5, with 1 being 'weak' and 5 being 'strong'. By a significant margin, the odours reported could be categorized as 'Sulphur/Rotten Eggs' and were reported to have an intensity of 5 – Strong. The second most reported odour category was 'Not Specified/Foul/Disgusting'.

Many complainants noted having a strong physical reaction to the observed odours. Others commented that they could distinctly smell a strong chemical odour akin to laundry detergent that they associated with an attempt to mask the unpleasant odours in the area via chemical masking agents. Such complaints were grouped into the 'Chemical/Industrial/'Toxic' category.

SLR also reviewed the data provided for seasonal trends. Table 3 presents the complaint count broken out by year and season. For the analysis, complaints were grouped seasonally as follows:

- Fall (Complaints received from September through November)
- Winter (Complaints received from December through February)
- Spring (Complaints received from March through May)
- Summer (Complaints received from June through August)

Most of the complaints were received in 2023, with 2025 having the second highest number of complaints. Across all years, Spring was the season with the highest number of complaints followed by the fall season.

SLR notes that there are several public reports and news articles associated with the operation of the landfill site documenting anticipated actions related to reducing emissions of odour from the landfill operations.

6.3.2 GFL Annual Reporting of Odour Complaints

As required by the Amended ECA, the Facility is required to participate in and support a Community Liaison Committee (CLC) through which information related to the operation of the Facility can be shared and comments on the operations from the public participants can be received. The Terms of Reference for the CLC are in Schedule G of the Amended ECA.



Annual reports on the Facility operations are shared with the CLC and broader public through a dedicated web portal¹⁶. SLR conducted a review of the odour complaint information provided in the Annual Reports prepared by the Facility and available online¹⁷. A summary of the complaint information is provided in Table 4.

Based on a review of Table 4, odour complaints increased substantially in 2023 over previous years, with most complaints received in the fall season between September and November.

Note, that at the time of preparation of this report the Annual Report for 2025 has not been published yet, the data in Table 4 only goes to the end of 2024.

6.3.3 GFL Weekly Monitoring of Mixed Odours

In addition to the annual reports, the Facility has conducted monitoring for mixed odour emissions since June 27, 2024. The mixed odour monitoring reports are also provided on the CLC website. As with the SLR monitoring program, the mixed odour monitoring was completed using a field olfactometer.

The data from the Facility mixed odour monitoring is summarized in Table 5. The maximum detection distances presented in Table 5 were approximated by SLR based on a general map of the surrounding land uses and the location description provided by the Facility air quality consultant. Distances were measured from the active Facility property boundary, however odours from the lagoons present within the Heritage Green Sports park have the potential to generate odour.

Therefore, distances reported for odours detected within the sports park, the dog park and residential areas adjacent to the sports park are likely related to the lagoons as opposed to the active landfill Facility.

Based on a review of Table 5 the following is provided:

- 62 monitoring events were conducted between June 27, 2024, and August 25, 2025;
- Multiple odour observations were made using the field olfactometer during each sampling event;
- The majority of the maximum observed odour detections were less than 2 D/Ts;
- a D/T of 2 was observed 18 times during the 62 sampling events;
- a D/T of 4 was observed 11 times during the 62 sampling events;
- a D/T of 7 was observed 5 times during the 62 sampling events;
- a D/T 15 was observed 2 times during the 62 sampling events;
- a D/T of greater than 30 was observed only once during the 62 sampling events;
- The majority of the detections occurred within 110 m of the property boundary; and

¹⁶ <https://gflstoneycreek.com/>

¹⁷ <https://gflstoneycreek.com/document-library>



- The furthest distance from the Facility property boundary that odour was detected was approximately 815 m. However, this detection was only 475 m from the sports fields and the open leachate lagoon. The odour is described as leachate by GHD in the “Odour Monitoring Report – May 20, 2025”. Daily winds were blowing from the east through northeast, directing odour from both the facility and lagoon towards the monitoring location. Therefore, the observation on May 20, 2025, represents a combined odour impact from the Facility and the Heritage Green Sports Park lagoon. Further, the odour detection was less than 2 D/T; and
- Most odour detections occurred during the Fall season (months of September to November) followed closely by the Spring season (months of March to May).

The mixed odour detections reported by the Facility air consultant are similar to the concentrations gathered by SLR in that the majority of the maximum observed odour detections were less than 2 D/Ts.

A review of Table 5 identifies that the maximum distance away from the Facility that mixed odours were detected above 4 D/T was 215 m.

6.3.4 GFL Weekly Monitoring of Ammonia

The Facility has been conducting weekly monitoring for ammonia since June 25, 2024. The weekly monitoring reports are provided on the CLC website. As of the writing of this report, results up to September 9, 2025, have been published and a copy of the sampling results, as presented on the CLC website, is included in Appendix G.

Sample locations for the Ammonia monitoring include:

- North Station;
- Interim Leachate Pumping Station;
- Leachate Pond Station (and duplicate); and
- Off-site (monitored for 4 weeks only by request of MECP; exact location not specified in results)

Note that starting in March 2025, results were only presented for the North Station and the Leachate Pond Station.

All reported ammonia sampling results are below the applicable ammonia AAQC guideline and objective. The highest reported concentrations of ammonia occurred during the summer months of 2024, peaking at 48.7 ppb at the Leachate Pond Station the week of August 20-27, 2024.



7.0 Conclusions

Based on the review of the air quality and odour impact study completed by SLR, the Facility operations have the potential to generate detectable mixed odours beyond the limits of the property boundary.

The mixed odours were typically identified as unpleasant and consist primarily of sulphurous odours. The mixed odours have primarily been detected relatively close to the Facility property boundary and in alignment with the predominant wind directions.

The SLR monitoring program for speciated sulphurs and TRS identifies that speciated sulphur compounds were not detected above the method detection limits for any of the compounds for any of the days sampled. As such no compound concentrations were above the applicable AAQC guidelines and objectives at the Project site.

A review of the HAMN data that corresponds to the sampling days indicates 1 concentration of the TRS above the applicable AAQC. The elevated TRS concentration was detected at the GFL North HAMN station on October 10, 2025. As discussed above, TRS was not detected in the SLR sample analysis of the canisters collected on that day. Based on a review the HAMN meteorological station data, the predominant winds on October 10, 2025, were from the south southwest. The wind conditions would create the situation wherein emissions from the Facility would be directed toward the GFL North HAMN station and away from the Project site.

Eight US States use field olfactometry limits of 7-15 D/Ts for defining selected nuisance odour conditions. Recognizing the odour from the Facility is typically identified as offensive, SLR anticipates that odour emissions above 4 D/Ts have the potential to create nuisance odour conditions. The maximum distance away from the Facility that mixed odours were detected by SLR above 4 D/T was 490 m.

The Facility is currently surrounded by low density residential uses and urban parks located closer to the Facility than the Project site. Therefore, the requirements associated with operating within the permissions of the Amended ECA are constrained by the current Urban Boundary and surrounding land uses.

Based on a review of Figure 7, the majority of the Project site is buffered from the Facility emissions by existing sensitive receptors. Further, the winds with the potential to direct Facility emissions to the closest portions of the Project site are predicted to occur less than 10% of the time.

Based on the work completed, the inclusion of the Project site lands into the Urban Boundary will not create a new condition for environmental compliance for the Facility.



8.0 Recommendations

Based on the Air Quality and Odour Impact Study completed, it is the opinion of SLR that residential uses are feasible on the Project site. However, it is recommended that sensitive land uses not be placed within 500 m of the Facility property boundary and that the uses in this area be limited to local and neighbourhood servicing retail and service commercial uses.

To address the potential for future complaints, it is possible to use Warning Clauses and receptor based physical mitigation measures in the architectural design of the Project land structures that are located within 500 m of the Facility. The mitigation measures that may be considered include, strategic location of fresh air intakes facing away from the Facility, installation of carbon and MERV rated filters, and if appropriate, positive pressurization of building features.

Based on the study completed, the recommendations provided, and that existing sensitive land uses are located closer to the Facility than the Project site, it is concluded that the Project site will not create a new condition related to the ability for the Facility to obtain or maintain compliance with applicable Provincial environmental policies, regulations, approvals, authorizations, and guidelines.

With the recommendation to not place sensitive uses within 500 m of the Facility property boundary, then the requirements of MECP Guideline D-4 are met. Since the policies and guidelines are met, and the Project site is:

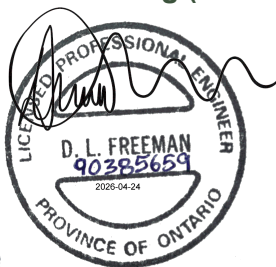
- Unlikely to result in increased risk of complaint and nuisance claims;
- Unlikely to result in operational constraints for the Facility; and
- Unlikely to result in constraints on the Facility to reasonably expand, intensify or introduce changes to their operations.

9.0 Closure

Should you have any questions or concerns regarding our results, please do not hesitate to contact us.

Regards,

SLR Consulting (Canada) Ltd.



Diane Freeman, P.Eng., FEC, FCAE
Principal, Air Quality
dfreeman@slrconsulting.com

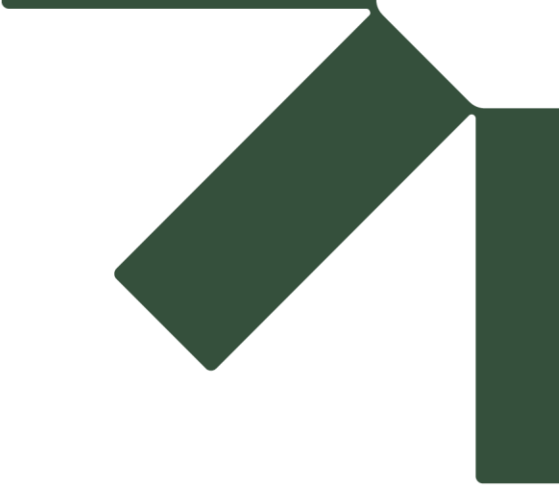
Jenny Graham, P.Eng.
Senior Air Quality Engineer
jgraham@slrconsulting.com



10.0 References

- Environmental Commissioner of Ontario (ECO, 2010), *Review of Posted Decision: Developing an Odour Policy Framework*, April 2010.
- Ontario Ministry of the Environment, Conservation & Parks (MECP, 1995),
Guideline D-1: *Land Use Compatibility*
- Ontario Ministry of the Environment, Conservation & Parks (MECP, 1994),
Guideline D-4: *Land Use on or Near Landfills and Dumps*
- Ontario Ministry of the Environment, Conservation & Parks (MECP, 2008), *Technical Bulletin, Standards Development Branch, Methodology for Modelling Assessments of Contaminants With 10-Minute Average Standards and Guidelines Under O. Reg. 419/05*, September 2016
- Ontario Ministry of Municipal Affairs and Housing (MMAH, 2024). *Provincial Planning Statement Ontario Regulation 419/05 – Local Air Quality*.
- R. C. Brandt, M. A. A. Adviento-Borbe, H. A. Elliott, E. F. Wheeler, American Society of Agricultura and Biological Engineers, 2011, ISSN 0883-8542, *Protocols For Reliable Field Olfactometry Odor Evaluations*





Tables

Land Use Compatibility and Air Quality and Odour Impact Study

Elfrida Community

Elfrida Community Builders Group Inc.

SLR Project No.: 241.032028.00002

April 24, 2026

Table 1: Summary of SLR Collected Mixed Odour Concentrations

Number and Strength of Odour Detections												
Date	D/T <2	D/T 2	D/T 4	D/T 7	D/T 15	D/T 30	D/T 60	SLR Station Number at Maximum Detection	Location where Odour was detected above 2 D/Ts	Wind Direction at Time of Maximum Detection	GFL Facility Related Emission?	Approx Max. Distance GFL odour was observed at 4 D/T or greater from Landfill Boundary (1) (m)
10-Feb-25	3	1	1					7	Centennial Pkwy/ Green Mountain Rd	WSW	Y	70
12-Feb-25	1	1						4	Dog Park	E	Y	N/A
14-Feb-25		1	1	1	1			>6	Morrisey Blvd	WSW	Y	80
18-Feb-25	1				1			7	Centennial Pkwy/ Green Mountain Rd	W	Y	70
20-Feb-25	1					1		8	Centennial Pkwy (mid-point between Green Mountain Rd and Mud St)	NW	Y	20
23-Aug-25		4	1	1				7	Centennial Pkwy/ Green Mountain Rd	SW	Y	70
24-Aug-25	1		1					8	Centennial Pkwy (mid-point between Green Mountain Rd and Mud St)	WSW	Y	20
29-Aug-25	2	2	1					11	Centennial Pkwy (Tim Horton's P Lot)	NW	Y	265
30-Aug-25	1							8	NA	WNW	Y	NA
4-Sep-25	2	5				1		8	Centennial Pkwy (mid-point between Green Mountain Rd and Mud St)	NNW	Y	20
5-Sep-25	2	2	2	1	1	1		7	Centennial Pkwy/ Green Mountain Rd	SSW	Y	490
10-Sep-25	3	2		1				6	Bradshaw Dr.	S	Y	30
11-Sep-25	3	2						2, 3	First Rd/Mud St	NNE	Y	N/A
16-Sep-25		4	2					3, >4	West of First Rd W.	NE	Y	200
17-Sep-25	3	3	2					1, >2	Penny Lane	NNE	Y	205
22-Sep-25	3	1	1	2				6, 7	Centennial Pkwy, north of Site	SSW	Y	230
23-Sep-25	2	2		1		1		7	Green Mountain Rd, west of Site	SW	Y	275
28-Sep-25	4	1		1				8	Centennial Pkwy (mid-point between Green Mountain Rd and Mud St)	NW	Y	20
29-Sep-25	2	2	2					6, >6	Crafter Cres. (south side)	SSE	Y	30
6-Oct-25	1	3	1	1				7	Crafter Cres. (north side)	SW	Y	240
7-Oct-25	6	4	1					8	Mud St. W	WNW	Y	20
10-Oct-25	5	3	2	2	2	1		10	Farmland northeast of Centennial Pkwy/Mud St.	SSW	N	480
11-Oct-25	3	4						1,4,8,11	Centennial Pkwy, south of Site	NNW	Y	N/A
16-Oct-25	9	3	1					7/8	Centennial Pkwy (mid-point between Green Mountain Rd and Mud St)	NE	N	N/A
17-Oct-25	7	1		2				7, >7	Centennial Pkwy north of site	SW	Y	210
22-Oct-25	5	1		2				7, >4	West of First Rd W.	SW	Y	70
23-Oct-25	4	2			1	1	1	7	Centennial Pkwy north of site	W	Y	205
28-Oct-25	7		3					4, >4	West of First Rd W.	E	Y	210
29-Oct-25	7	1	1	1				>2	Centennial Pkwy, south of Site	NNE	Y	230
3-Nov-25	8	2	2	1		1		7	Centennial Pkwy north of site	WSW	Y	400
4-Nov-25	7	2		2				7, 8	Centennial Pkwy north of site	WSW	Y	70
9-Nov-25	6	1						>2	Trafalgar Dr.	NE	Y	N/A
10-Nov-25	5	4	1	2				1, 11	Centennial Pkwy, south of Site	N	Y	200
15-Nov-25	4	2	2					2, 4	Centennial Pkwy, south of Site	NNE	Y	170
16-Nov-25	7	1	1					8	Farmland northeast of Centennial Pkwy/Mud St.	NW	Y	20
Total	125	67	29	21	6	7	1					

Notes:
(1) This is the maximum distance that confirmed GFL related odours (considering wind direction) above 2 D/Ts were detected from the landfill boundary. For example, commonly detected ambient odours including agricultural, commercial kitchen (Tim Hortons), vehicle exhaust emissions, were not considered to be from the GFL site.



Table 2: MECP Complaint Count by Odour Description and Odour Intensity

Odour Description	Number of Complaints Received for Reported Odour Intensity						Total Complaints
	Not Specified	1 (Weak)	2 (Weak to Moderate)	3 (Moderate)	4 (Moderate to Strong)	5 (Strong)	
Ammonia/Cat Pee	1	0	0	14	46	144	205
Chemical/Industrial/'Toxic'	0	0	7	35	87	297	426
Fishy	0	1	4	22	28	78	133
Not Specified/Foul/Disgusting	328	0	6	23	57	293	707
Sulphur/Rotten Eggs	11	4	25	119	266	854	1279



Table 3: Number of Odour Complaints Received by the MECP per Year and per Season

Year	Fall (Sept - Nov)	Spring (Mar - May)	Summer (June - Aug)	Winter (Dec-Feb)	Total
2021	3	ND	ND	ND	3
2022	0	0	1	1	2
2023	365	1670	172	1	2208
2024	11	43	14	21	89
2025	ND	440	5	3	448

ND - Data Not Provided



Table 4: Summary of GFL Annual Reporting of Odour Complaints

Year	Number of Complaints Recived by Facility	Season											
		Winter (Dec-Mar)			Spring (Apr-May)			Summer (June-August)			Fall (October-November)		
Month		December	January	February	March	April	May	June	July	August	September	October	November
2015	3			1			2						
2016	9					1	4		1	1	2		
2017	2	--	--	--	--	--	--	--	--	--	--	--	--
2018	6					1	2	1		1			1
2019	7				1	1	1		1		1		2
2020	3					1	2						
2021	7					1					4		2
2022	5						2			3			
2023	170	5				2	4	5	7	15	88	39	5
2024	467	39	39	99	22	8	36	11	19	71	67	27	29
Total	679	44	39	100	23	15	53	17	28	91	162	66	39
Seasonal Totals		183			91			136			267		

Notes

-- The full 2017 Report was not available on-line



Table 5: Summary of Reported GHD Mixed Odour Detections - July 2024 to August 2025

Date	Number and Strength of Odour Detections						Approx Max. Detection Distance from Landfill Boundary (m)	Location of Maximum Detection
	D/T <2	D/T 2	D/T 4	D/T 7	D/T 15	D/T 30		
27-Jun-24	1						120	Centennial Pkwy
4-Jul-24	4						0	Property Boundary
9-Jul-24	**	**	**	**	**	**	**	**
23-Jul-24	**	**	**	**	**	**	**	**
30-Jul-24	7						0	Property Boundary
6-Aug-24	2						100	Dog Park
13-Aug-24	**	**	**	**	**	**	**	**
20-Aug-24	**	**	**	**	**	**	**	**
4-Sep-24	4						0	Property Boundary
12-Sep-24	**	**	**	**	**	**	**	**
17-Sep-24	3	1					200	Waterbridge/Trafalgar
24-Sep-24	4						120	Centennial Pkwy
1-Oct-24	7						200	Scarletwood/Bradshaw
8-Oct-24	3						90	Hedges
9-Oct-24	4						120	Centennial Pkwy
11-Oct-24	7						540	Sports Fields Parking Lot
15-Oct-24	2						120	Centennial Pkwy
22-Oct-24	4	2					200	Scarletwood/Bradshaw
29-Oct-24	2	1					200	Scarletwood/Bradshaw
5-Nov-24	6	1					200	Scarletwood/Bradshaw
12-Nov-24	14	1				1	200	Waterbridge/Trafalgar
19-Nov-24	3	1			1		100	Dog Park
26-Nov-24	6	2					55	Utter Place
3-Dec-24	**	**	**	**	**	**	**	**
10-Dec-24	3						0	Property Boundary
17-Dec-24	**	**	**	**	**	**	**	**
24-Dec-24	4	1					100	Dog Park
31-Dec-24	2						100	Dog Park
7-Jan-25	2						0	Property Boundary
14-Jan-25	2						120	Centennial Pkwy
21-Jan-25	2						55	Utter Place
28-Jan-25	4						0	Property Boundary
4-Feb-25			2				0	Property Boundary
11-Feb-25	2						0	Property Boundary
18-Feb-25	2		1				55	Utter Place
25-Feb-25	3						35	Petro-Canada Gas Stn.
4-Mar-25	2	1					55	Utter Place
11-Mar-25	1						35	Petro-Canada Gas Stn.
18-Mar-25	3		1				55	Utter Place
25-Mar-25		1					65	Green Mntn Rd/Centennial Pkwy
1-Apr-25	2	2	1	3			125	Mud St/Centennial Pkwy
8-Apr-25	3						70	Centennial Pkwy, Commercial
15-Apr-25	2						50	Pioneer Gas Stn
22-Apr-25	1			1	1		35	Petro-Canada Gas Stn.
29-Apr-25	4		4				215	Crafter Cres.
6-May-25	3		1				55	Utter Place
13-May-25	3						80	Trafalgar Drive
20-May-25	3	1					815	Echovale Dr
27-May-25	1						0	Property Boundary
3-Jun-25	4			1			55	Utter Place
10-Jun-25	3	1					55	Hedges Crescent
17-Jun-25	**	**	**	**	**	**	**	**
24-Jun-25	4						0	Property Boundary
1-Jul-25	5	2	1				0	Property Boundary
8-Jul-25	**	**	**	**	**	**	**	**
15-Jul-25	3						0	Property Boundary
22-Jul-25	**	**	**	**	**	**	**	**
28-Jul-25	13						110	Morrissey Blvd.
5-Aug-25	**	**	**	**	**	**	**	**
11-Aug-25	10						215	Crafter Cres.
18-Aug-25	4						315	Branthaven Drive
25-Aug-25	2						0	Property Boundary
Total	185	18	11	5	2	1		
Notes								
**	No Odours Detected							





Figures

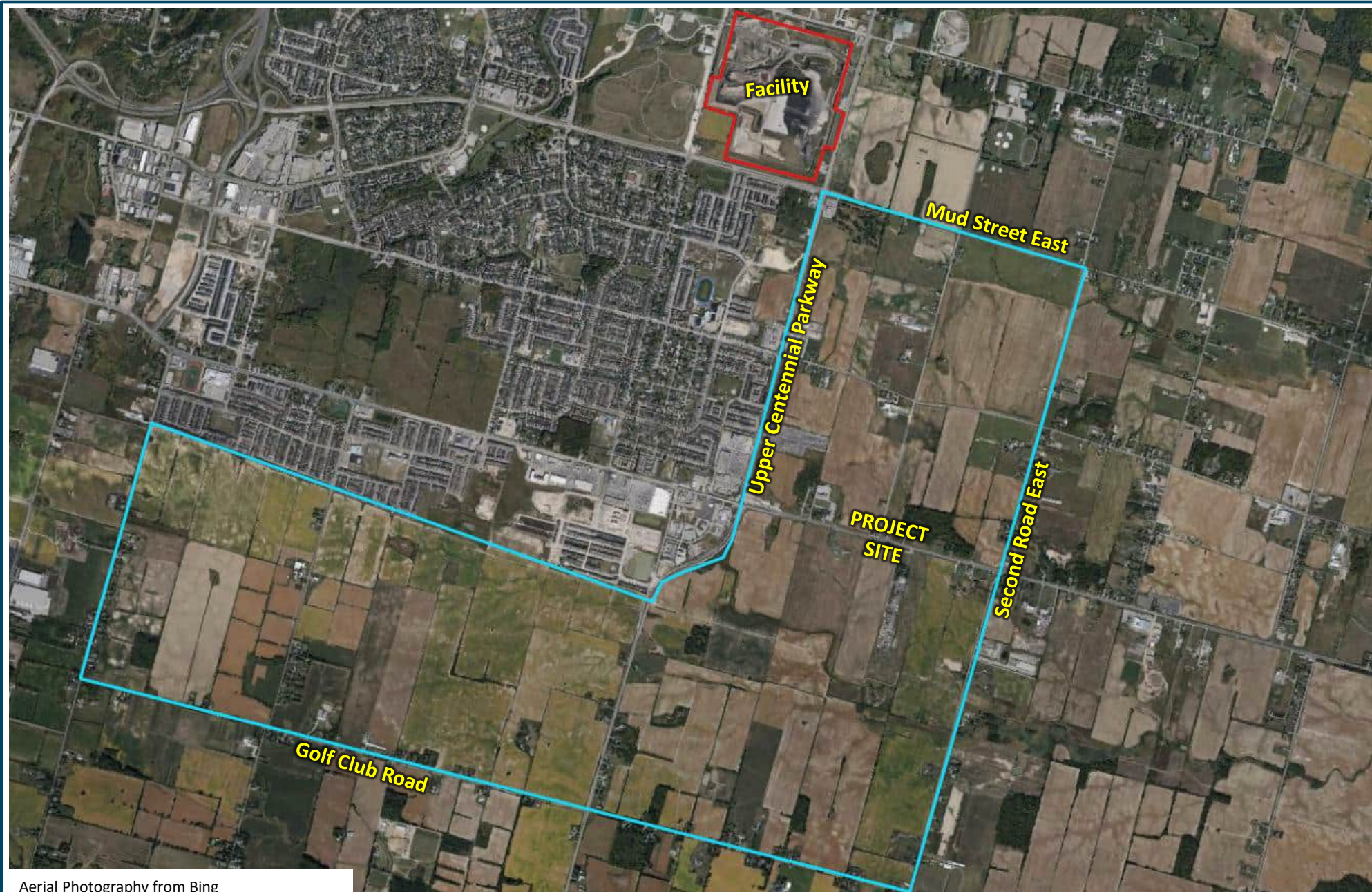
Land Use Compatibility and Air Quality and Odour Impact Study

Elfrida Community

Elfrida Community Builders Group Inc.

SLR Project No.: 241.032028.00002

April 24, 2026



Aerial Photography from Bing

ELFRIDA COMMUNITY BUILDERS GROUP INC.

ELFRIDA NEIGHBOURHOOD

SITE AND CONTEXT PLAN

True North



Scale: 1:30,000

Date: April 2026

Rev 0.0

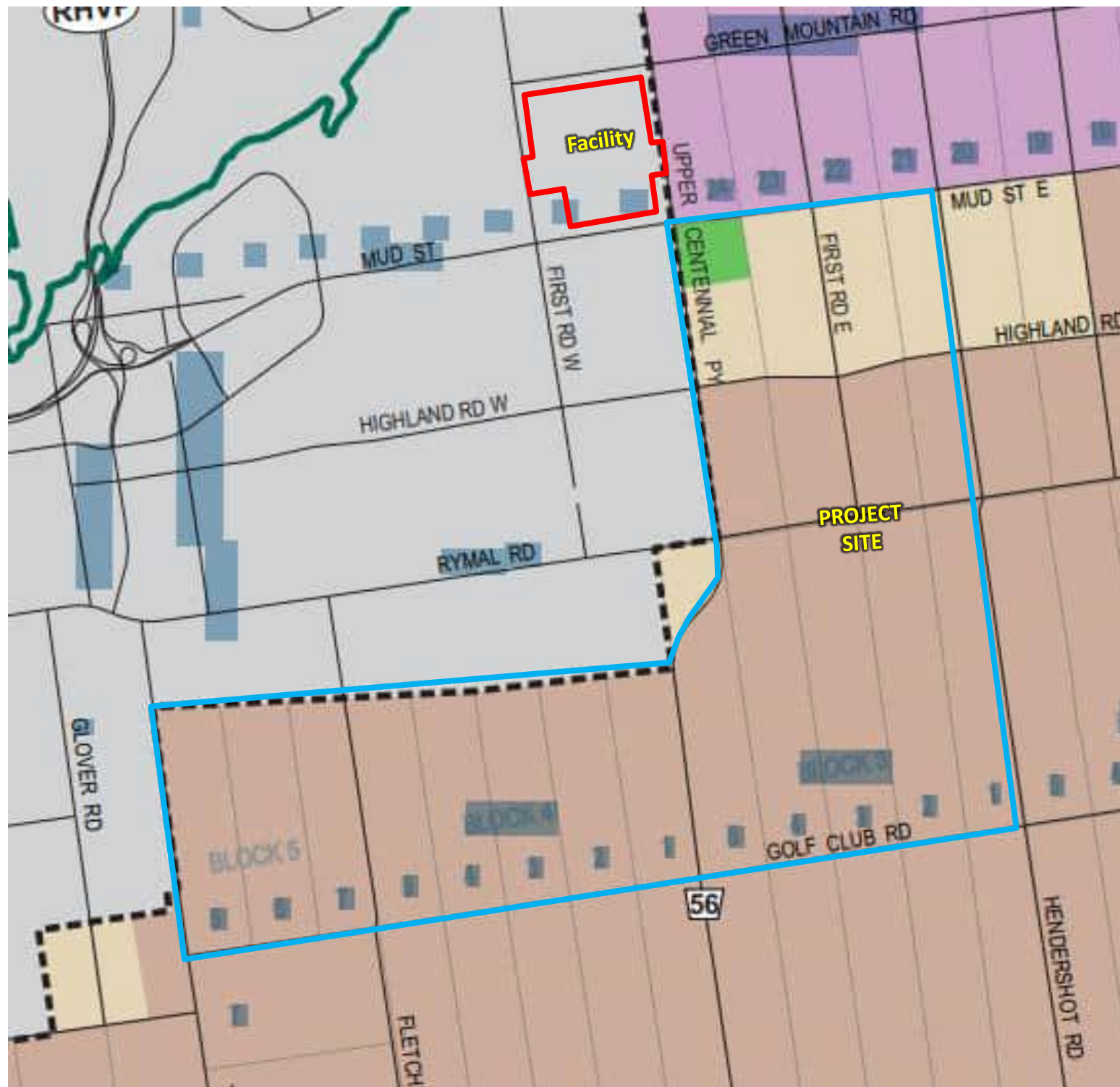
Project No. 241.032028.00001

METRES

Figure No.

1





Legend

Rural Settlement Areas

Rural Land Use Designations

Agriculture

Specialty Crop

Rural

Mineral Aggregate Resource Extraction Areas

Open Space

Utility

Other Features

Urban Area

John C. Munro Hamilton International Airport

Niagara Escarpment

Urban Boundary

Municipal Boundary

True North



ELFRIDA COMMUNITY BUILDERS GROUP INC.

ELFRIDA NEIGHBOURHOOD

EXCERPT OF RURAL
HAMILTON OFFICIAL PLAN
SCHEDULE D

Scale: n/a METRES

Date: April 2026 Rev 0.0 Figure No.

Project No.241.032028.00001

2a



Legend

Urban Structure Elements

- Neighbourhoods
- Employment Areas
- Major Activity Centres
- Major Open Space

Nodes

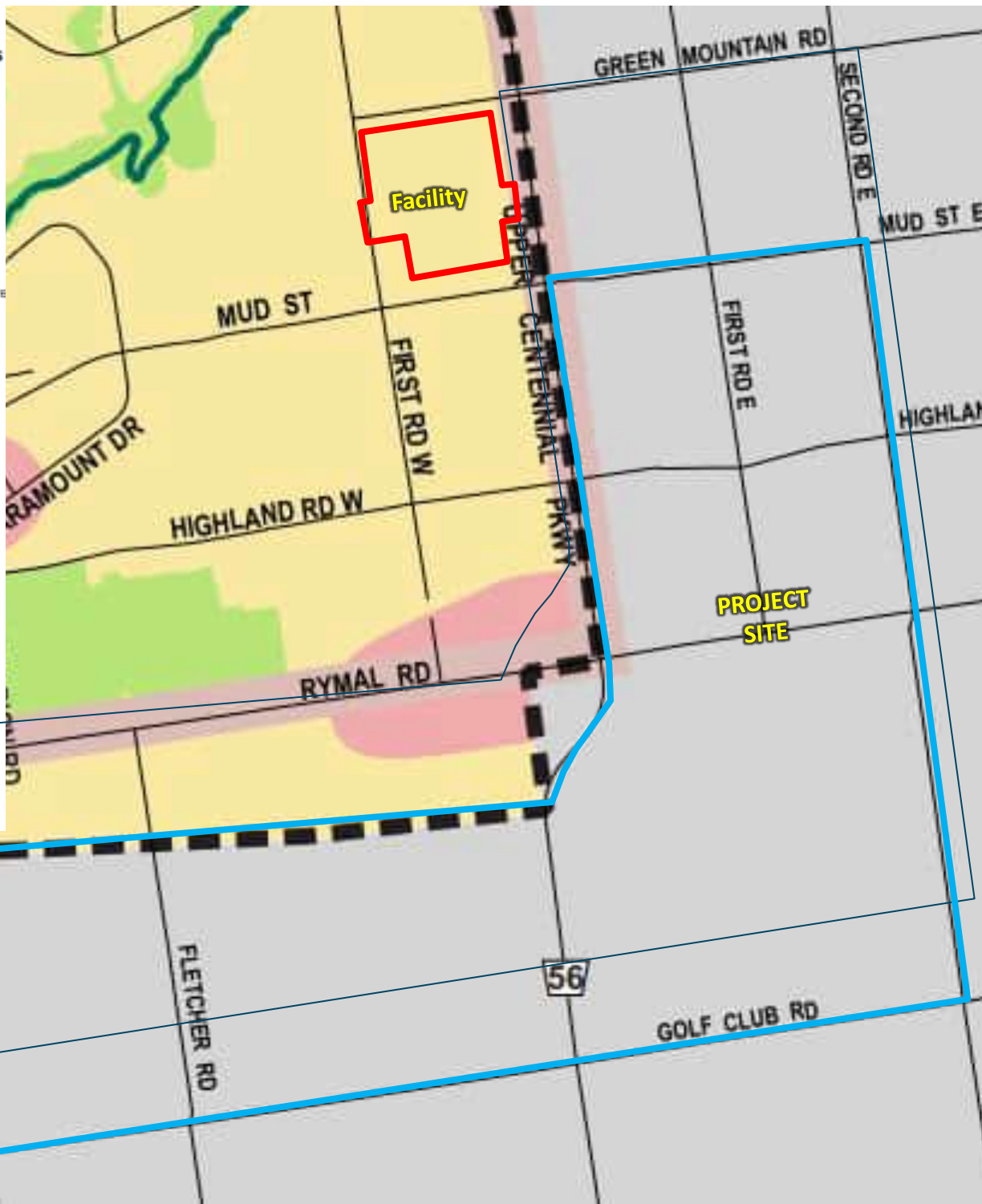
- Downtown Urban Growth Centre
- Sub Regional Service
- Community

Corridors

- Primary
- Secondary
- Priority Transit Corridor

Other Features

- Rural Area
- John C. Munro Hamilton International Airport
- Niagara Escarpment
- Urban Boundary
- Municipal Boundary
- Lands Subject to Non Decision
113 West Harbour Setting Sail



True North



ELFRIDA COMMUNITY BUILDERS
GROUP INC.

ELFRIDA NEIGHBOURHOOD

EXCERPT OF URBAN
HAMILTON OFFICIAL PLAN
SCHEDULE E

Scale:	n/a	METRES
Date: April 2026	Rev 0.0	Figure No.
Project No.241.032028.00001		2b

 **SLR**



True North



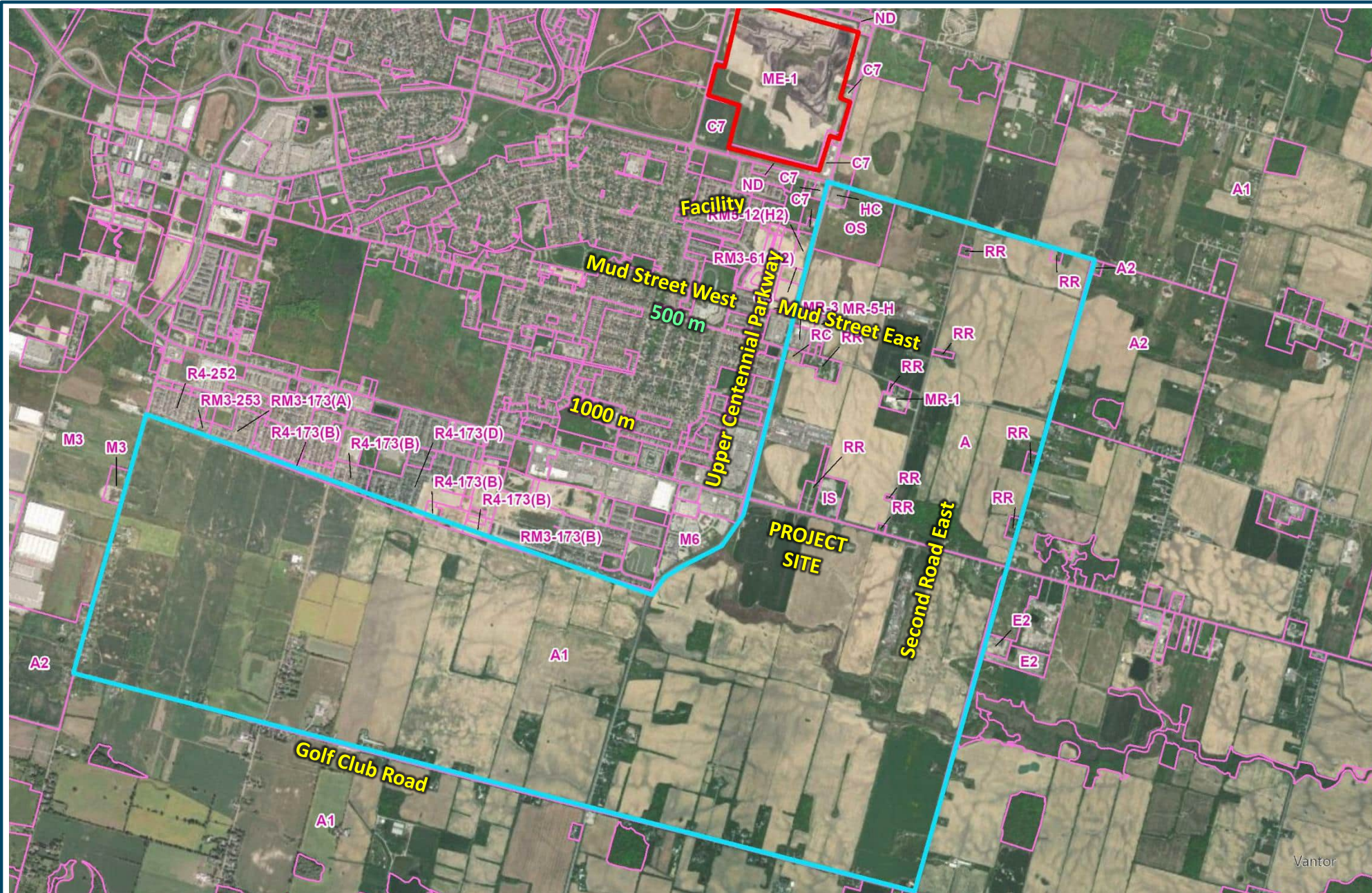
ELFRIDA COMMUNITY BUILDERS
GROUP INC.

ELFRIDA NEIGHBOURHOOD

EXCERPT FROM AREA ZONING
MAP

Scale:	n/a	METRES
Date: April 2026	Rev 0.0	Figure No.
Project No.241.032028.00001		3a





ELFRIDA COMMUNITY BUILDERS GROUP INC.

ELFRIDA NEIGHBOURHOOD

EXCERPT FROM AREA ZONING MAP

True North



Scale: 1:35,000

Date: April 2026

Project No. 241.032028.00001

METRES

Rev 0.0

Figure No.

3b





Aerial Photography from Bing

ELFRIDA COMMUNITY BUILDERS GROUP INC.

ELFRIDA NEIGHBOURHOOD

GUIDELINE D-4 SEPARATION DISTANCES TO 1000 METRES

True North



Scale: 1:35,000

Date: April 2026

Project No. 241.032028.00001

METRES

Figure No.

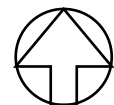
4a





Aerial Photography from Bing

True North



**ELFRIDA COMMUNITY BUILDERS
GROUP INC.**

ELFRIDA NEIGHBOURHOOD

GUIDELINE D-4 SEPARATION
DISTANCES TO 500 METRES

Scale:	1: 35,000	METRES
Date: April 2026	Rev 0.0	Figure No.
Project No. 241.032028.00001		4b





★ Speciated Sulphur Compounds Monitoring Location

ELFRIDA COMMUNITY BUILDERS GROUP INC.	True North 	Scale: 1:30,000		METRES	
ELFRIDA NEIGHBOURHOOD		Date: April 2026	Rev 0.0	Figure No. 5a	
SPECIATED SULPHUR MONITORING STATION LOCATIONS		Project No. 241.032028.00001			



Aerial Photography from Bing

1 Station Location

True North



**ELFRIDA COMMUNITY BUILDERS
GROUP INC.**

ELFRIDA NEIGHBOURHOOD

MIXED ODOUR MONITORING
STATION LOCATIONS

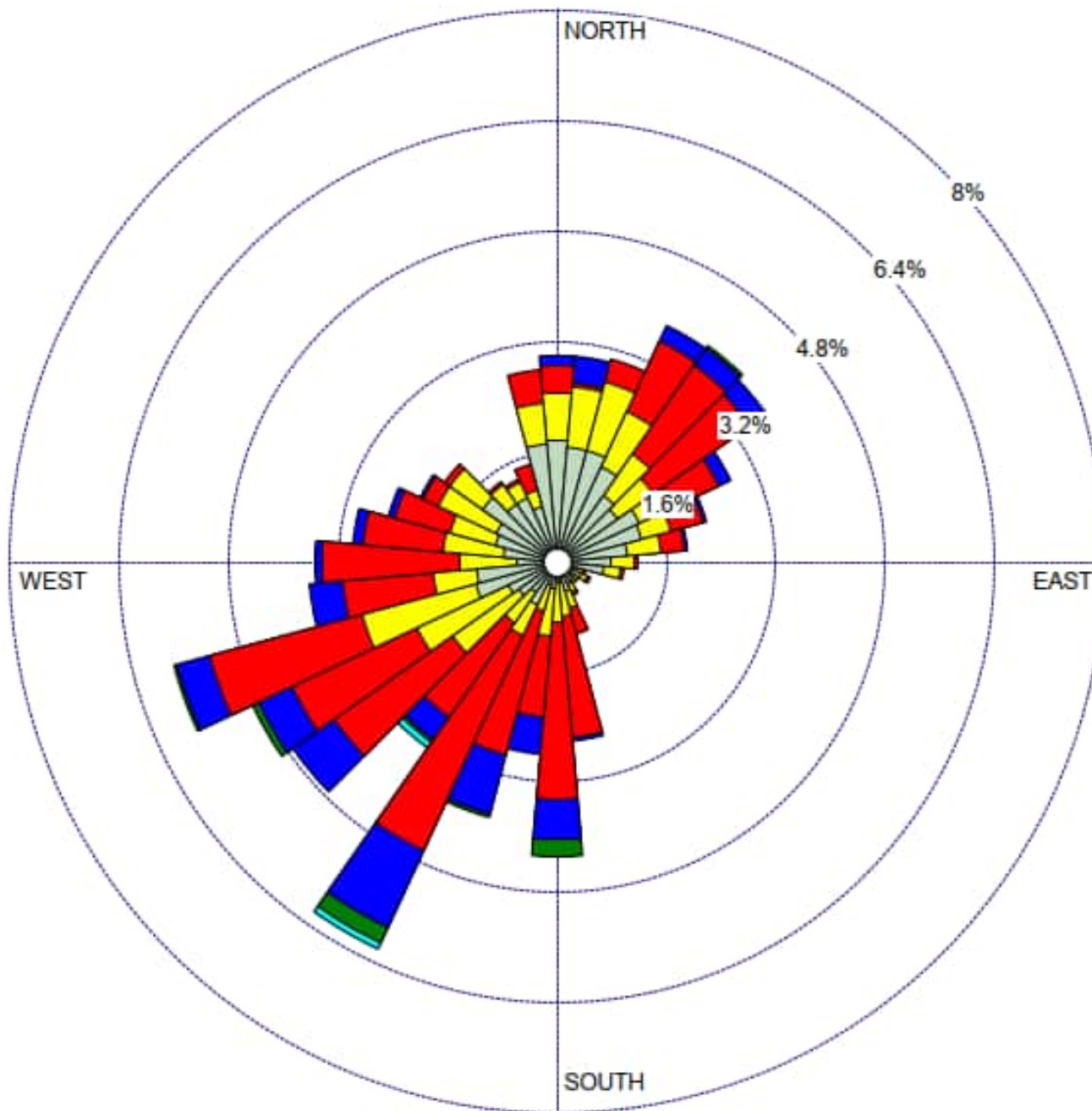
Scale: 1: 35,000 METRES

Date: April 2026 Rev 0.0 Figure No.

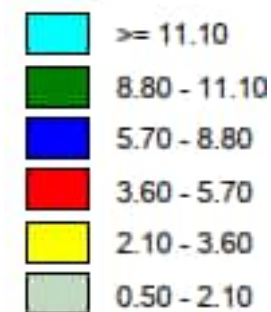
Project No. 241.032028.00001

5b





WIND SPEED (m/s)



Calms: 4.86%

True North



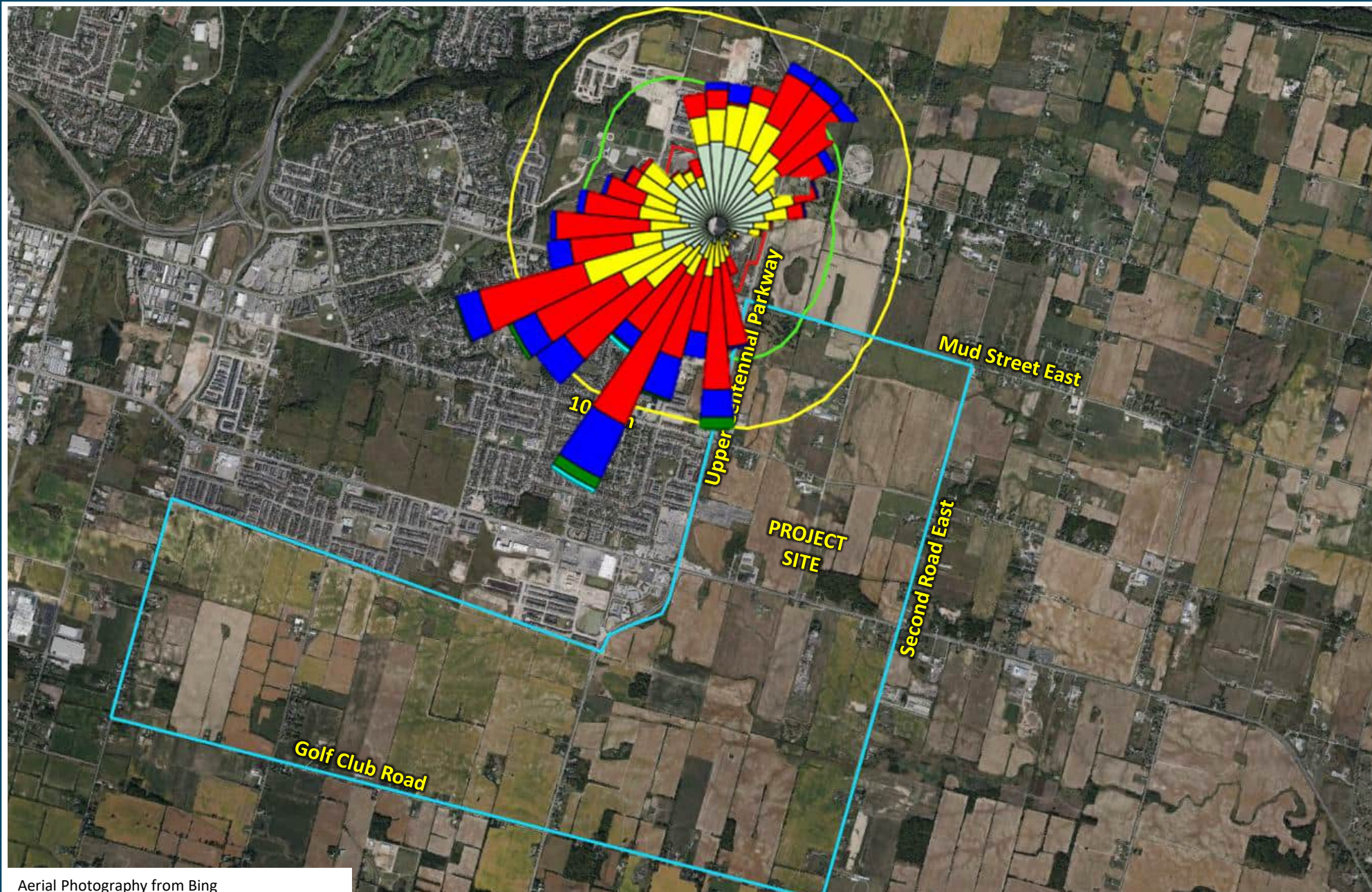
**ELFRIDA COMMUNITY BUILDERS
GROUP INC.**

ELFRIDA NEIGHBOURHOOD

WIND FREQUENCY
DISTRIBUTION DIAGRAM
(WIND ROSE)
HAMILTON AIR MONITORING
NETWORK (AUG.25-NOV.15,
2025)

Scale:	n/a	METRES
Date: April 2026	Rev 0.0	Figure No.
Project No. 241.032028.00001		6





Aerial Photography from Bing

ELFRIDA COMMUNITY BUILDERS GROUP INC.

ELFRIDA NEIGHBOURHOOD

OVERLAY OF WIND FREQUENCY DISTRIBUTION DIAGRAM (WIND ROSE)
HAMILTON AIR MONITORING NETWORK (AUG.25-NOV.15,2025)

True North



Scale: 1:35,000

Date: April 2026

Project No. 241.032028.00001

METRES

Rev 0.0

Figure No.

7



Appendix A EXP Peer Review Comments and SLR Response

Land Use Compatibility and Air Quality and Odour Impact Study

Elfrida Community

Elfrida Community Builders Group Inc.

SLR Project No.: 241.032028.00002

April 24, 2026



January 23, 2026

Elfrida Community Builders Group Inc.
C/O TMA Law
25 Main Street, Suite 2010
Hamilton, ON L8P 1H1

SLR Project No.: 241.032028.00002

Revision: 0

**RE: Response to Peer Review of Land Use Compatibility and Preliminary Air Quality and Odour Impact Study
Elfrida Community**

SLR Consulting (Canada) Ltd. (SLR), was retained by Elfrida Community Buildings Group Inc. to conduct a Land use Compatibility and Preliminary Air Quality and Odour Impact Study in support of the proposed Elfrida Community urban boundary expansion application which includes over 1,200 hectares of land in the Elfrida neighbourhood of Hamilton ("the Project site").

Introduction

SLR received peer review comments on the above noted report. The peer review comments were prepared on behalf of the City of Hamilton by EXP Services Inc. (EXP). A copy of the peer review comments is provided in Attachment A.

The updated Land Use Compatibility and Air Quality and Odour Impact Study addresses each of the recommendations provided in the EXP peer review. This letter has been prepared to confirm how each of the peer review recommendations have been addressed.

Peer Review Recommendations

Recommendation #1

Conduct additional study once more details of the project are known.

SLR Response to Recommendation #1

In order to further quantify mixed odours and TRS, the following scope of work was undertaken and summarized in the Land Use Compatibility and Air Quality and Odour Impact Study:

- Ambient air monitoring to collect quantitative mixed odour and sulphur compounds including TRS data specific to the Project site;
- Detailed analysis of real-time air monitoring for TRS concentrations provided online by the Hamilton Air Monitoring Network (HAMN) (<https://www.hamnair.ca/>) surrounding the Facility and located northwest of the Project site;
- Comparison of the HAMN data with the Project site data;

- Comprehensive review of extensive Freedom of Information (FOI) data provided by the MECP related to the Facility operations and number of odour complaints received and investigated by the MECP;
- Continued analysis of Mixed Odour Monitoring reports provided by the Facility and located online (<https://gflstoneycreek.com/>); and
- Analysis of Ammonia Monitoring reports provided by the Facility and located online (<https://gflstoneycreek.com/>).

Recommendation #2

Updating the study with respect to the CLC complaint history.

SLR Response to Recommendation #2

SLR conducted a review of the odour complaint information provided in the Annual Reports prepared by the Facility and available online¹. A summary of the complaint information is provided in Table 4 of the updated report. A discussion of the review of odour complaint information is provided in Section 6.3.2 of the report.

Based on a review of Table 4, odour complaints increased substantially in 2023 over previous years, with most complaints received in the fall season between September and November.

Recommendation #3

Updating the report with respect to available data on the Hamilton Air Monitoring Network.

SLR Response to Recommendation #3

SLR conducted a review of the HAMN data, and included it in the summary table of the SLR TRS monitoring data, provided in Appendix D Table D.1. of the report.

A review of the HAMN data that corresponds to the sampling days indicates 1 concentration of the TRS above the applicable AAQC. The elevated TRS concentration was detected at the GFL North HAMN station on October 10, 2025. As discussed above, TRS was not detected in the sample analysis of the canisters collected on that day. Based on a review of the HAMN meteorological station data, the predominant winds on October 10, 2025, were from the south southwest. The wind conditions would create the situation wherein emissions from the Facility would be directed toward the GFL North HAMN station and away from the Project site

Recommendation #4

Updating the report with respect to Table and Table 3 numbering and reference in the report.

SLR Response to Recommendation #4

SLR accepts this comment. An updated report has been provided, with correct Table numbering and references.

¹ <https://gflstoneycreek.com/document-library>



Recommendation #5

Consideration of updating Table 2 with information noted in response in Section 5.4 [of the peer review].

SLR Response to Recommendation #5

The updated report includes a more detailed summary of the SLR collected mixed odour concentrations, which is included in Table 1. The updated report notes that SLR station number at maximum detection, wind direction at time of maximum detection, confirmation of odours are related to the GFL facility and approximate maximum distance GFL odour was observed at 4 D/T or greater from the landfill boundary. A map of the SLR mixed odour monitoring station locations is provided in Figure 5b of the report.

Recommendation #6

Provide comment on the status of the MECP order and the likelihood of continued operations in compliance with the ECA and Design and Operations Report.

SLR Response to Recommendation #6

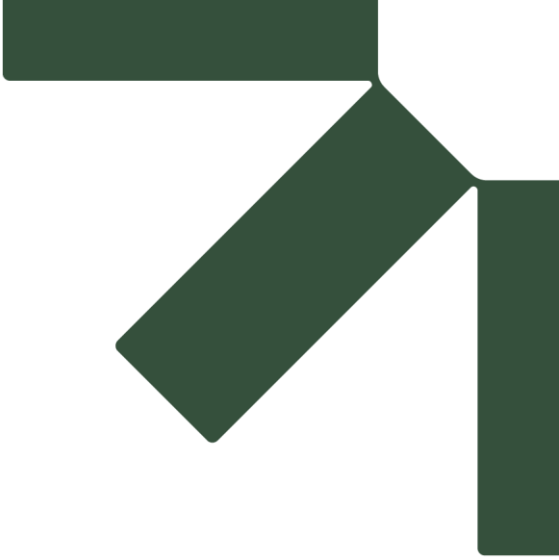
A discussion of the MECP Order is provided in Section 3.4 of the updated report, and the MECP Order is provided in Appendix A.

SLR cannot comment on the likelihood of continued operations in compliance with the ECA, however, SLR has provided a discussion of publicly available monitoring data and complaints data related to the GFL facility in Section 6.3 of the report.

Conclusion

Based on the SLR response to the peer review comments, and the additional assessment completed, SLR concludes that the recommendations of the EXP peer review have been met.





Attachment A – EXP Service Inc. Peer Review comments

Response to Peer Review of Land Use Compatibility and Preliminary Air Quality and Odour Impact Study

Elfrida Community

Elfrida Community Buildings Group Inc.

SLR Project No.: 241.032028.00002

January 23, 2026



April 28, 2025

City of Hamilton
71 Main Street West, 7th Floor
Hamilton, ON L8P 4Y5

Attention: Dave Heyworth

Via e-mail: Dave.Heyworth@hamilton.ca

Re: GTR-25005241-A0

Project Name: **Peer Review of Land Use Compatibility and Preliminary Air Quality and Odour Impact Study - Elfrida Community**

Subject: **Peer Review of Land Use Compatibility and Preliminary Air Quality and Odour Impact Study - Elfrida Community**
Prepared by SLR Consulting (Canada) Ltd. - March 11, 2025

1 Introduction

EXP Services Inc. (EXP) was retained by the City of Hamilton ('City') to complete a peer review of Land Use Compatibility and Preliminary Air Quality and Odour Impact Study - Elfrida Community prepared by SLR Consulting (Canada) Ltd. ('SLR'), dated March 11, 2025, hereinafter referred to as the 'Study', in support of a proposed urban boundary expansion in the Elfrida neighbourhood of Hamilton ('Project Site'). The stated intent of the study is to identify any existing and potential land use compatibility issues and to identify and evaluate options to achieve appropriate design, buffering and/or separation distances between the surrounding sensitive land uses, including residential uses, and nearby Employment Areas and/or major facilities.

This report presents our review of the Study. The Study has been reviewed for method, completeness, and accuracy of the findings in the Study. Our comments are provided in the following sections.

2 Scope of Work

EXP's peer review is comprised the following:

- Evaluation of the assumptions, methodologies and standards of practice used to prepare the assessment
- Review of the Study against the applicable policies of the Provincial Planning Statement and Rural Hamilton Official Plan

3 Peer Review Comments – Air Quality Assessment

3.1 Introduction

SLR: It is noted that the Study has been conducted in accordance with the Terms of Reference (ToR) prepared by SLR, dated January 17, 2025, and provided in Appendix A of the Study.

EXP Comments: EXP understands that given the preliminary stage of the Project Site approvals, a detailed Odour Impact Study is not proposed at this time. Accordingly, EXP's review is limited to the ToR accepted by the City comprising a Land Use Compatibility – Air Quality and Odour Impact Study following the Ministry of Environment, Conservation and Parks (MECP) D-Series of Guidelines. Further, the results of this study will inform the next steps, including identification of where more detailed studies and/or air quality monitoring may be required within the Project Site.

3.2 Description of Development and Surroundings

SLR: The Proposed development location and current occupation uses are described and it is noted that the proposed use is to support a mixed-use residential community in the early stage of the planning process. Due to the early stage, the site planning is incomplete and designation of land uses within the Project site has not been established.

EXP Comments: While EXP understands that planning is in the early stages, no information is provided on the density of the proposed project. Existing low density residential uses are provided for comparison without comment that the proposed project would have similar density. Opinion should be provided on whether there is a need for additional studies such as if high density (i.e. high rise) or significant open spaces are being considered.

3.2.1 Surroundings

SLR: The surrounding land uses are described as residential to the west, and agricultural lands to the north, east and south with respect to the City of Hamilton Official Plan and City of Hamilton Zoning By-Law 05-200.

EXP Comments: The surrounding land uses are accurately described.

3.2.2 Land Use Designations in the Area

SLR: SLR provides the land use designations with respect to The City of Hamilton Official Plan and City of Hamilton Zoning By-Law 05-200 within sections 3.3 and 3.3.1.

EXP Comments: The surrounding land uses are accurately described. It is noted that the only D-Series guideline considered is the D-4 series guidelines. While this is consistent with the ToR and limited to impact from the Stoney Creek Landfill, it should be recognized that as the planning progresses and the concept plan develops assessment with additional guidelines may be required. Specifically:

- D-6 Compatibility between Industrial Facilities for:
 - Rural industrial zoned properties east of Hendershot Road / South of Highway 20;
 - Properties zoned as Rural Industrial Business Park southwest of the Rymal Road East and Highway 56 intersection;
 - Properties zoned Prestige Business Park west of Trinity Church Road; and
 - Mixed use properties along Rymal Road East and Upper Centennial Parkway
- Air quality issues other than odour noted in D-4 Guideline such as "litter, contaminant discharges from associated vehicular traffic, visual impact, dust".
- The Ontario Ministry of Food, Agriculture and Rural Affairs (OMFRA) Minimum Distance Separation (MDS) Formulae given its proximity to farms.

- City of Hamilton's Framework for Processing & Evaluating Urban Boundary Expansion Applications guideline, which is currently in draft.

4 GFL Facility

SLR: SLR identifies that the GFL waste management Facility is located approximately 130 m northwest of the Project site and that it operates under the MECP Amended ECA Number A181008 and includes relevant MECP orders and permits.

EXP Comments: EXP agrees with SLR's identification of the GFL waste management facility's location and operation under MECP approvals. However, no discussion is provided in the Study with respect to the MECP Order which identified a failure to maintain an odour management plan and receipt of 302 odour complaints from local residents regarding various odours experienced off-site. The MECP Order concluded that GFL has not been operating in accordance with their Design & Operations Report and the ECA. Regardless of the distance of the proposed Site the Study should include comment on the status of the order and the likelihood of continued operations in compliance with the ECA and Design and Operations Report; or a rationale as to why it was not considered. The majority of complaints in 2023 were received in the fall season between September and November. Comment on if this is related to any seasonal operations and/or meteorological conditions in September and November would be helpful.

5 Preliminary Odour Impact Study of Stoney Creek Regional Facility

5.1 SLR Field Monitoring Program

SLR: Section 5.1 provides a description of the field monitoring program consistent with the City's ToR.

EXP: EXP agrees the field monitoring program is consistent with the City's ToR.

5.2 SLR Field Monitoring Program Equipment

SLR: Section 5.2 describes the use of a field olfactometer to conduct the survey, conversion to Odour Units and averaging periods, as well as SLR personnel qualifications and equipment calibration.

EXP: EXP agrees the field monitoring program equipment is consistent with standard industry practice.

5.3 SLR Quality Assurance/Quality Control

SLR: Section 5.3 describes the use of detailed field notes capturing observations, measurements, and meteorological conditions.

EXP: EXP agrees the quality assurance/quality control program is adequate.

5.4 Preliminary SLR Odour Monitoring Results

SLR: Section 5.4 describes the limited scope of the five-day monitoring program from February 10, 2025, to February 20, 2025, and choice of sampling times and locations. A summary of the findings of the weekly monitoring program conducted by GFL is provided in section 5.5 and further in Table 2.

EXP: EXP understands the summary provides a high-level presentation of the findings, however, more details on all sampling locations and meteorological conditions would provide more clarity and confidence in the program. For example:

- Including a map, such as in Appendix E, showing the location points and location numbers referenced in Table for easier reference.
- Including all sample data rather than just maximum or rationale why, and
- Confirmation location referenced as First Street is the adjacent road First Road West.

Also, it appears the tables referenced in section 5.4 for SLR sampling are for Table 3 not Table 2 as stated, and the Study should be updated accordingly.

5.5 External Data Reviews

5.5.1 Ministry of Environment, Conservation and Parks Facility Information.

SLR: Section 5.51 notes that obtaining compliant history is useful and that based on Environmental Property Information there are a number of documents that warrant a Freedom of Information (FOI) request. Further that such a request has been advanced.

EXP: While EXP understands the time frame for FOI response is uncertain and can be lengthy the history of complaints, ECA compliance, and available MECP order warrants an FOI request and recommends the report be updated on receipt of the information. It is further noted on the CLC web portal that 22 odour complaints have been received from April 10 to April 16th time period alone.

5.5.2 GFL Annual Reporting

SLR: In section 5.52 SLR notes that annual reports prepared by the facility are to be shared with the Community Liaison Committee and provided a summary of the complaints in Table 1. Further, that the number of complaints increased dramatically in 2023.

EXP: While EXP recognizes that the summary is accurate to 2023, a review of the CLC website portal indicates that complaints are ongoing. A rough breakdown of complaints for 2024 is provided in Table 1. The report is dated March 2025 and the website which includes information on number of complaints for 2024 and first quarter of 2025 is available. This gap should be addressed and the report updated accordingly.

Month	Number of Complaints
2024	
January	33
February	99
March	21
April	7
May	35
June	11
July	15
August	46
September	67
October	30
November	31
December	20
Total 2024	415
2025	
January	36

February	19
March	21
April	29

The CLC reports also notes that three air monitoring units have been installed to collect air quality data, located at the west landfill holding pond and the north buffer zone adjacent to Green Mountain Rd. W. These units monitor for TRS (Total Reduced Sulphur) and can be found on the Hamilton Air Monitoring Network (HAMN) website at www.hamnair.ca. While review of this data is not specifically noted in the ToR, it is readily available and is relevant data which could provide useful information with respect to odour impact on the proposed Site.

5.5.3 GFL Weekly Monitoring

SLR: In section 5.5.3 SLR provides a summary of the weekly monitoring since June 27, 2024, and references Table 3.

EXP: EXP understands the summary provides a high-level presentation of the findings, however, more details on all sampling locations and meteorological conditions would provide more clarity and confidence in the program. Also, it appears the tables referenced in section 5.5.3 for SLR sampling are for Table 2 not Table 3 as stated, and the Study should be updated accordingly. It is also noted that the number of complaints suggests a higher frequency than observed during the survey.

5.6 Meteorological Data

SLR: Section 5.6 provides the meteorological data for a five-year period and notes the closest portions of the Project site are predicted to occur less than 10% of the time.

EXP: EXP agrees that the use of Hamilton Airport and the five-year sampling period is acceptable and common practice. Given the data has noted an increase in the occurrence of complaints in the fall season, an assessment of wind frequency and direction during the fall season would be prudent; or comment if the facility operations have seasonal differences which could account for the increased complaint history.

6 Mixed Odour Criteria

SLR: SLR provides an overview of the MECP assessment of mixed odours and rationale of the odour sampling program.

EXP: EXP agrees with the summary and rationale provided.

7 Conclusions

SLR: SLR concludes that there are significant odours that extend beyond the limits of the property boundary. Mixed odours identified as objectionable were primarily detected along property boundaries and in alignment with predominant wind directions. SLR notes odour detections have been less than 1000 m from the property boundary and only a small portion of the proposed development is within the buffer. SLR further notes existing sensitive receptors are closer in proximity to the property and the new development would not require a new condition for environmental compliance. Additional air quality study should be undertaken once more details about the project are known.

EXP: EXP agrees that an additional air quality study should be undertaken once more details are known if the project moves forward. While the use of warning clauses and mitigation measures noted in Section 8 are commonly applied in early stages of planning, EXP cannot comment on the effectiveness of warning clauses and mitigation measures unless such a study is completed and notes that some of the measures would not be effective for open spaces. EXP considers the odour survey findings, history of complaints, non-compliance with ECA and MECP orders are sufficient to require additional study before considering the proposed Site compatible.

8 Recommendations

Based on the odour survey findings, history of complaints, and non-compliance of the Stoney Creek Landfill with their ECA and MECP orders, the following is recommended before considering the project compatible:

- Conduct additional study once more details of the project are known.
- Updating the study with respect to CLC complaint history.
- Updating the report with respect to available data on the Hamilton Air Monitoring Network.
- Updating the report with respect to Table 2 and Table 3 numbering and reference in the report.
- Consideration of updating Table 2 with information noted in response in section 5.4 .
- Provide comment on the status of the MECP order and the likelihood of continued operations in compliance with the ECA and Design and Operations Report

9 General Limitations

Information in this report is considered to be privileged and confidential and have been prepared exclusively for the City of Hamilton. The purpose of this report is to provide the City of Hamilton with a Peer Review of the Land Use Compatibility and Preliminary Air Quality and Odour Impact Study – Elfrida Community, dated March 11, 2025, prepared by SLR. The information presented in this report is based on information provided by others and visual observations as identified herein. Achieving the objectives stated in this report has required us to arrive at conclusions based upon the best information presently known to us. No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information; it can only reduce the possibility to an acceptable level. Professional judgment was exercise in gathering and analyzing the information obtained and in the formulation of the conclusions we reach, but we commit ourselves to care and competence in reaching those conclusions.

Air quality conditions at various times may differ from those encountered. In addition, any changes to operations such as the introduction of new processes and/or alterations to air-handling equipment may render the conclusions of the report inaccurate or invalid. In the event of such changes, EXP should be contacted to re-evaluate the conditions with the assessed area and make appropriate revision to the original conclusions of this report

This report was prepared for the exclusive use of the City of Hamilton and may not be reproduced in whole or in part, without prior written consent of EXP, or used or relied upon in whole or in part by other parties for any purposes whatsoever. Any use which a third party makes of this report, or any part thereof, or any reliance on or decision to be made based on it, are the responsibility of such third parties. EXP Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions make or actions based on this report.

10 Closure

We trust that the information provided in this report is satisfactory for your purposes. Should you have any questions or require more information, please do not hesitate to contact the undersigned.

Sincerely,

EXP Services Inc.

DRAFT

Scott Grant-Hose, B.Sc.
Environmental Specialist
Environmental Services

DRAFT

Ron Taylor, M.Sc., C.Chem., CIH
Discipline Lead, Air Quality & Industrial Hygiene
Environmental Services

Appendix B GFL Environmental Permits

Land Use Compatibility and Air Quality and Odour Impact Study

Elfrida Community

Elfrida Community Builders Group Inc.

SLR Project No.: 241.032028.00002

April 24, 2026



ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 8268-DMFJRM

Issue Date: November 7, 2025

GFL Environmental Inc.
65 Green Mountain Road West
Hamilton, Ontario
L8J 1X5

Site Location: 65 Green Mountain Road West
Hamilton City, Ontario
L8J 1X5

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

A landfill facility, consisting of the following processes and support units:

- one (1) odour control unit serving leachate treatment plant, equipped with activated carbon filter, discharging to the air at a maximum volumetric flow rate of 4.72 cubic metres per second, through a stack having a diameter of 0.76 metre, and extending 6.57 metres above grade;
- fugitive dust emissions associated with material handling and transfer, stockpiling, and access roads;
- fugitive odour emissions resulting from the landfill active working face;

all in accordance with the Application for an Approval (Air & Noise) dated May 07, 2025, and signed by Lorenzo Alfano; and all other supporting information and documentation submitted in support of the application, including the ESDM Report and the Acoustic Assessment Report.

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

1. "Acoustic Assessment Report" means the report, prepared in accordance with Publication NPC-233 and Appendix A of the Basic Comprehensive User Guide that documents all sources of noise emissions and Noise Control Measures present at the Facility, as updated in accordance with Condition 10 of this Approval;

2. "Acoustical Consultant" means a person currently active in the field of environmental acoustics and noise/vibration control, who is familiar with Ministry noise guidelines and procedures and has a combination of formal university education, training and experience necessary to assess noise emissions from a Facility;
3. "Approval" means this Environmental Compliance Approval, including the application and supporting documentation listed above;
4. "Approval (Waste)" means Environmental Compliance Approval number A181008, as amended, issued to the Company in respect of activities mentioned in subsection 27(1) of the EPA at the Facility;
5. "Best Management Practices Plan" means the document titled "Dust Management Plan Stoney Creek Regional Facility", dated October 2025, and prepared by GHD on behalf of GFL Environmental Inc., as amended;
6. "Company" means **GFL Environmental Inc.**, that is responsible for the construction or operation of the Facility and includes any successors and assigns in accordance with section 19 of the EPA;
7. "Community Liaison Committee" means the committee consisting of members of the public engaging with the Company on environmental matters/issues;
8. "Director" means a person appointed for the purpose of section 20.3 of the EPA by the Minister pursuant to section 5 of the EPA;
9. "District Manager" means the District Manager of the appropriate local district office of the Ministry, where the Facility is geographically located;
10. "EPA" means the *Environmental Protection Act*, R.S.O. 1990, c.E.19;
11. "Equipment" means the equipment and processes described in the Company's application, this Approval and in the supporting documentation submitted with the application, to the extent approved by this Approval;
12. "Exhausted" means the capacity of the activated carbon bed to adsorb contaminant emissions is reached, and the Odour Control Unit is no longer able to effectively reduce emissions;
13. "ESDM Report" means the Emission Summary and Dispersion Modelling Report which was prepared in accordance with section 26 of O. Reg. 419/05 and the Procedure Document by GHD, signed by Matthew Griffin, dated May 02, 2025, submitted in support of the application, and includes any changes to the report made up to the date of issuance of this Approval;
14. "Facility" means the entire operation located on the property where the Equipment is located;
15. "Manual" means a document or a set of documents that provide written

instructions to staff of the Company;

16. "Ministry" means the ministry of the government of Ontario responsible for the EPA and includes all officials, employees or other persons acting on its behalf;
17. "Noise Abatement Action Plan" means the noise abatement program developed by the Company, submitted to the Director and District Manager and approved by the Director, designed to achieve compliance with the limits set in Ministry Publications Noise Guideline for Landfill Sites;
18. "Noise Control Measures" means measures to reduce the noise emissions from the Facility and/or Equipment including, but not limited to, silencers, acoustic louvres, enclosures, absorptive treatment, plenums and barriers;
19. "Noise Guidelines for Landfill Sites" means the Ministry draft publication Noise Guidelines for Landfill Sites, October 1998, as amended;
20. "Odour Control Unit" means the activated carbon adsorption unit described in the Company's application, this Approval and in the supporting documentation submitted with the application, to the extent approved by this Approval;
21. "Odour Management Plan" means a document titled "Odour Management Plan Stoney Creek Regional Facility", dated October 2025, and prepared by GHD on behalf of GFL Environmental Inc., as amended;
22. "Operations Manual for Air Quality Monitoring in Ontario" means the document titled "Operations Manual for Air Quality Monitoring in Ontario" published by the Government of Ontario, dated November 10, 2023, as amended from time to time, and available on a website of the Government of Ontario;
23. "Publication NPC-233" means the Ministry Publication NPC-233, "Information to be Submitted for Approval of Stationary Sources of Sound", October, 1995 as amended;
24. "Publication NPC-300" means the Ministry Publication NPC-300, "Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning, Publication NPC-300", August 2013, as amended.
25. "Waste" means waste described in the ESDM Report, this Approval, and Approval (Waste).

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

TERMS AND CONDITIONS

1. OPERATION AND MAINTENANCE

1. The Company shall ensure that the Equipment is properly operated and maintained at all times. The Company shall:
 - a. prepare, not later than three (3) months after the date of this Approval, and update, as necessary, a Manual outlining the operating procedures and a maintenance program for the Equipment, including:
 - i. routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Equipment suppliers;
 - ii. emergency procedures, including spill clean-up procedures;
 - iii. procedures for any record keeping activities relating to operation and maintenance of the Equipment;
 - iv. procedures for monitoring the negative pressure ventilation in the fully enclosed leachate treatment building and reporting events when pressure cannot be maintained;
 - v. procedures for monitoring the performance of the Odour Control Unit; and,
 - vi. the frequency of the inspection and replacement of the media in the Odour Control Unit and procedures for reporting carbon media replacement;
 - b. implement the recommendations of the Manual.
2. The Company shall ensure that all receiving, processing, storage, and type of Waste at the Facility shall be conducted in accordance with the Facility's Approval (Waste).
3. The Company shall ensure that:
 - a. the fully enclosed leachate treatment building is maintained at a negative pressure environment, such that all potentially odorous air is collected and treated using the fully functioning Odour Control Unit;
 - b. all doors in the enclosed leachate treatment building of the Facility remain closed at all times, except during shipping and/or receiving, and for operational/maintenance purposes.
4. The Company shall:
 - a. ensure that the activated carbon filter media in the Odour Control Unit is replaced before it is Exhausted;
 - b. monitor the operational parameters of the Odour Control Unit, either as specified in the manual of the Odour Control Unit manufacturer, or as

deemed necessary in accordance with site operational conditions. The results of monitoring these parameters shall be recorded in a log.

2. RECORD RETENTION

1. The Company shall retain, for a minimum of five (5) years from the date of their creation, all records and information related to or resulting from the recording activities required by this Approval, and make these records available for review by staff of the Ministry upon request. The Company shall retain:
 - a. all records on the maintenance, repair and inspection of the Equipment;
 - b. all records/logs pertaining to the Odour Control Unit performance parameters and ventilation records;
 - c. all records of any environmental complaints, including a description of the measures taken to address the cause of the incident to which the complaint relates and to prevent a similar occurrence in the future.

3. FUGITIVE DUST CONTROL

1. The Company shall:
 - a. implement, at all times, the most recent version of the Best Management Practices Plan;
 - b. review and evaluate the Best Management Practices Plan on an annual basis;
 - c. record the results of each annual review and update as required the Best Management Practices Plan within one (1) month of the completion of the annual review;
 - d. maintain the updated Best Management Practices Plan at the Facility and provide a copy to the District Manager within one (1) month of the update.
2. The Company shall record, either electronically or in a log book, each time a specific preventative and control measure described in the Best Management Practices Plan is implemented. The Company shall record, as a minimum:
 - a. the date when each emission control measure is implemented, including a description of the control measure;
 - b. the date when each new preventative measure or operating procedure to minimize emissions is implemented, including a description of the preventative measure or operating procedure; and
 - c. the date, time of commencement, and time of completion of each periodic activity conducted to minimize emissions, including a

description of the preventative measure/procedure and the name of the individual performing the periodic activity.

4. COMPLAINTS / ODOUR CONTAMINANT EMISSIONS RESPONSE PROCEDURE

1. A designated representative of the Company shall be available to receive public complaints caused by the operations at the Facility twenty-four (24) hours per day, seven (7) days per week.
2. If at any time, the Company receives any odour complaints from the public regarding the operation of the Facility, the Company shall respond to these complaints according to the following procedures, all of which shall be recorded and maintained in a computerized tracking system:
 - a. The Company shall record and assign a unique number to each complaint. The record shall include, at a minimum:
 - i. the name, address, and telephone number of the complainant, if provided;
 - ii. the date and time of the complaint and of receipt by the Company;
 - iii. a description of the complaint, including the nature of the concern, its location, and duration;
 - iv. a summary of the Facility's operating conditions at the time of the complaint, Odour Control Unit media efficiency, and status of the landfill active face;
 - v. the meteorological conditions at the time of the complaint, including ambient temperature, wind speed, and wind direction; and
 - vi. the Company's preliminary determination of the possible cause(s) of the complaint.
 - b. The Company shall, within one (1) week, submit to the District Manager by email (Environment.Hamilton@Ontario.ca) a summary report of all complaints received during the preceding week, including all information collected under Condition 3.2.a., and all proposed action(s) to prevent recurrence of the complaint in the future.

5. ODOUR MANAGEMENT PLAN

1. The Company shall, at all times, take all reasonable measures to prevent odorous emissions and odour impacts from all potential sources at the Facility.
2. The Company shall:
 - a. implement, at all times, the most recent version of the Odour

Management Plan;

- b. record the results of each annual review and update as required the Odour Management Plan within one (1) month of the completion of the annual review;
- c. include inspection and maintenance procedures, including performance parameters for the Odour Control Unit, and carbon media filter replacement frequency;
- d. maintain the updated Odour Management Plan at the Facility and provide a copy to the District Manager within one (1) month of the update.

3. The Company shall:

- a. update and revise the Odour Management Plan within three (3) months of the following:
 - i. implementation of any proposed modifications that may impact odour emissions; and
 - ii. subject to Condition 6.1, implementation of a Technology Benchmarking Report;
- b. review and evaluate the Odour Management Plan for the control of odour emissions once every twelve (12) months from the date of this Approval, or at a frequency directed, or agreed upon in writing by the District Manager;
- c. record the results of each annual review and evaluation, and update the Odour Management Plan accordingly;
- d. implement, at all times, the most recent version of the Odour Management Plan within sixty (60) days of an update.

4. The Company shall record, and retain such records, each time a specific preventative and odour impact reduction measure described in the Odour Management Plan is implemented.

6. TECHNOLOGY BENCHMARKING REPORT

- 1. The District Manager may, at their discretion, require the Company in writing to prepare a Technology Benchmarking Report.
- 2. Subject to Condition 6.1:
 - a. The Company shall submit to the Director a Technology Benchmarking Report prepared by a Professional Engineer to identify feasible options to reduce off-property odour impacts, no later than six (6) months after the date of the written request from the District Manager.

- b. The Technology Benchmarking Report should, at a minimum, include the following:
- i. a comprehensive list of all control methods for odour impact reduction based on the following:
 - a comparison of methods used by other facilities in the same or similar industrial sector;
 - a review of emission control requirements and strategies from other jurisdictions; and
 - where applicable, transfer of technologies from other sectors with similar issues, including preventative steps such as material substitutions, process changes and add-on controls or treatment methods;
 - ii. an evaluation of the technical feasibility of the identified control options individually, and where applicable, control options in combination. This evaluation will include the availability and applicability of the option to the odour source, technical considerations, and any site specific considerations;
 - iii. a ranking of feasible options, or option combinations with an assessment of predicted impact reductions at sensitive receptors for major sources and waste facility emissions including percent contribution, maximum and average odour concentrations and frequency assessment at sensitive receptors, and compared to current operations;
 - iv. recommendations based on current odour impact assessment, predicted reductions that can be achieved by implementing feasible options, timelines, approval requirements and other applicable considerations.
- c. The Company shall update and/or implement the recommendations of the Technology Benchmarking Report as directed by the District Manager.

7. PUBLIC ENGAGEMENT

1. The Company shall, not later than six (6) months after the date of this Approval, submit a Public Engagement Plan to the District Manager. The Company shall review feedback from the Community Liaison Committee, the local community, and/or the District Manager, and shall provide the District Manager, on an annual basis:
 - a. a list of all Ministry comments received, if any, on the development of

- the Public Engagement Plan, and a description of how each Ministry comment was addressed in the Public Engagement Plan; and
- b. any proposed updates to the Public Engagement Plan.
2. The Company shall on an annual basis from the date of this Approval, review and propose amendments to the Public Engagement Plan for the Facility. The Public Engagement Plan shall:
- a. outline a process for disseminating, consulting, reviewing and exchanging information relevant to the air emissions of the Facility with the local community, including environmental monitoring, maintenance and complaint/public concerns resolution; and
- b. describe how the local community was consulted.
3. The Company shall submit the Public Engagement Plan, and any proposed amendments, to the District Manager as required by the District Manager.
4. Upon acceptance of the Public Engagement Plan by the District Manager, the Company shall immediately implement the Public Engagement Plan.
5. The Company shall update the Public Engagement Plan annually as per above or at the direction of the District Manager.

8. AMBIENT AIR MONITORING

1. The Company shall carry out and maintain ambient air quality monitoring, at a minimum, for the following parameters:
- a. Total Reduced Sulphur (TRS) compounds; and
- b. Meteorological data.
2. The company shall submit an ambient air monitoring plan to the District Manager for approval, no later than three (3) months after the issuance of this Approval, or within a period agreed upon in writing with the District Manager, in accordance with the Operations Manual for Air Quality Monitoring in Ontario.
3. The ambient air monitoring plan shall include, at a minimum, the following requirements:
- a. procedures to continuously measure TRS concentrations along the Facility's property line, with real-time access to the data;
- b. requirements for the installation and operation of a minimum of two (2) TRS monitors, in accordance with the Operations Manual for Air Quality Monitoring in Ontario, at locations and using methods approved by the District Manager;

- c. monitoring protocols specifying that each monitor shall measure TRS concentrations at least every ten (10) minutes; and
 - d. alarm settings requiring each monitor to automatically alert the Company and Ministry staff specified by the District Manager of any exceedance of TRS concentrations above the criteria listed in the “Ontario Ambient Air Quality Criteria” May 2020, as amended;
 - e. procedures to ensure that the recorded concentrations of TRS and meteorological data are made available to the public in a timely and accessible manner, in a format acceptable to and approved in writing by the District Manager.
- 4. The Company shall implement, maintain, and update the ambient air monitoring plan in accordance with this Approval and any direction provided by the District Manager.
 - 5. The District Manager may discontinue the requirement for continuous TRS or meteorological monitoring, or may modify the type or frequency of monitoring, if the results of the ambient air monitoring indicate that the environmental impact from TRS is insignificant.

9. NOISE

- 1. The Company shall, at all times, ensure that the noise emissions from the Facility comply with the limits set out in Ministry Publication Noise Guidelines for Landfill Sites.

10. ACOUSTIC ASSESSMENT REPORT

- 1. The Company shall submit an Acoustic Assessment Report for the Facility, prepared by an Acoustical Consultant, to the District Manager and the Director not later than twelve (12) months from the date of this Approval.
- 2. In the event that the findings of the Acoustic Assessment Report demonstrate that the Facility is not in compliance with the limits set in Noise Guidelines for Landfill Sites, the Acoustic Assessment Report must incorporate a Noise Abatement Action Plan that includes but is not limited to the following:
 - a. required Noise Control Measures to reduce the noise emissions from the Facility to comply with the limits set in Ministry Publication Noise Guidelines for Landfill Sites; and
 - b. a timetable for implementation of the Noise Control Measures, including the date for achieving compliance with the applicable noise limits for the Facility.
- 3. The Director may not accept the results of any Acoustic Assessment Report if the requirements of Publication NPC-233 or Appendix A of the Basic

Comprehensive Certificates of Approval (Air) User Guide were not followed.

4. If the Director does not accept the results of an Acoustic Assessment Report, the Director may, upon written notice, require the Company to repeat the Acoustic Assessment Report within the time frame specified in the notice.

1. CHANGE OF OWNERSHIP

1. The Company shall notify the Director in writing, and forward a copy of the notification to the District Manager, within thirty (30) days of the occurrence of any of the following changes to Facility operations:
 - a. the ownership of the Facility;
 - b. the operator of the Facility;
 - c. the address of the Company;
 - d. the partners, where the Company is or any time becomes a partnership and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c. B.17, shall be included in the notification; or
 - e. the name of the corporation where the Company is or at any time becomes a corporation, other than a municipal corporation, and a copy of the most current information filed under the Corporations Information Act, R.S.O. 1990, c. C.39, shall be included in the notification.
2. In the event of any change in ownership of the Facility, the Company shall notify the successor of the existence of this Approval and provide the successor with a copy of this Approval, and the Company shall provide a copy of the notification to the District Manager and the Director.

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

1. Conditions number 1, 3, and 5 are included to emphasize that the Facility/Equipment must be maintained and operated according to a procedure that will result in compliance with the EPA, the Regulations, and this Approval.
2. Condition number 2 is included to require the Company to keep records and to provide information to staff of the Ministry so that compliance with the EPA, the Regulations and this Approval can be verified.
3. Conditions number 4, and 8 are included to require the Company to gather accurate information so that compliance with the EPA, the Regulations, and this Approval can be verified.

4. Condition number 6 is included to require the Company to provide information to the Ministry on the efforts of the Company in minimizing odorous emissions relative to industry best practices.
5. Condition number 7 is included to require the Company to properly address environmental issues that may arise from the operation of the Facility and to minimize the impact on the environment.
6. Condition number 9 is included to provide the minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the Facility.
7. Condition number 10 is included to require the Company to gather accurate information and submit an Acoustic Assessment Report in accordance with procedures set in the Ministry's noise guidelines, so that the environmental impact and subsequent compliance with the EPA, the regulation and this Approval can be verified. This condition is also included to require the Company to develop, if necessary, a Noise Abatement Action Plan designed to ensure that the noise emissions from the Facility are in compliance with applicable limits set in the Ministry's noise guidelines, which are included as Performance Limits of this Approval.
8. Condition number 11 is included to require the Company to notify/report to the Ministry so that compliance with the EPA, the regulations and this Approval can be verified.

In accordance with Section 139 of the *Environmental Protection Act*, you may by written notice served upon me, the Ontario Land Tribunal and in accordance with Section 47 of the *Environmental Bill of Rights*, 1993, the Minister of the Environment, Conservation and Parks, within 15 days after receipt of this notice, require a hearing by the Tribunal. The Minister of the Environment, Conservation and Parks will place notice of your appeal on the Environmental Registry. Section 142 of the *Environmental Protection Act* provides that the notice requiring the hearing ("the Notice") shall state:

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

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;

5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

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

This Notice must be served upon:

Registrar*
Ontario Land Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5
OLT.Registrar@ontario.ca

and

The Minister of the Environment,
Conservation and Parks
777 Bay Street, 5th Floor
Toronto, Ontario
M7A 2J3

and

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

*** Further information on the Ontario Land Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349 or 1 (866) 448-2248, or www.olt.gov.on.ca**

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

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

DATED AT TORONTO this 7th day of November,
2025

Nancy E Orpana, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

VA/
c: District Manager, MECP Hamilton - District
Matthew Griffin, GHD

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER A181008

Issue Date: October 28, 2025

GFL Environmental Inc.
65 Green Mountain Rd W
Hamilton, Ontario
L8J 1X5

Site Location: 65 Green Mountain Road West
Hamilton City, ON
L8J 1X5

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

the use and operation of a 59.1 ha (146 acres) landfill site within a total site area of 73.9 ha (185.5 acres), being known as the Stoney Creek Regional Facility.

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

"Adverse Effect" is as defined in the Environmental Protection Act, R.S.O. 1990.

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

"Best Management Practices" means an approach to managing water quality as described in the June 1991 provincial document entitled "Storm Water Quality Best Management Practices" and MOEE "Interim Storm Water Quality Guidelines for New Development", May 1991, as amended.

"City" means the City of the Hamilton.

"CLC" means the Stoney Creek Regional Facility Community Liaison Committee.

"Commercial" means a place of business or facilities where merchandise or services can be exchanged by the general public, including hotels, retail stores, services shops and premises, public service

amusements and small workshops, and offices, including government offices and administrative offices of an institution where such offices are located beyond the area where the services of the institution are primarily delivered.

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

"Crown" means Her Majesty the Queen in Right of Ontario.

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

"District Manager " means the District Manager in the Ministry's Hamilton District Office.

"District Office " means the Ministry's Hamilton District Office.

"EPB" means to the Environmental Permissions Branch of the Ministry.

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

"Institutional" means facilities and services provided for the use of the public or particular segments of the public on a non profit basis, whether provided directly or indirectly by government, charitable, community, non-profit or other social agencies, and including such uses as, hospitals, post-secondary educational facilities, major public art galleries, museums and libraries, and any office associated with such uses.

"Major Works" means all aspects of the leachate, ground water and surface water management system; erosion control and landfill gas control systems; landfill liner and hydraulic containment systems.

"Ministry" means the Ministry of Environment, Conservation and Parks.

"NMA" means Nutrient Management Act, 2002, S.O. 2002, c. 4, as amended from time to time.

"ODWS" means the Ontario Drinking Water Standards.

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

"Owner " means GFL Environmental Inc. and its successors and assigns.

"OWRA" means the Ontario Water Resources Act, R.S.O. 1990, c.0.40, as amended.

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

"Preparation Report" refers to a report documenting that the subsequent stage of the landfill has been

constructed in accordance with the approved design plans and specifications.

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

"Putrescible" means material that undergoes decomposition, typically organic wastes (i.e. food or kitchen type wastes), but does not include material within which decomposition is incidental.

"PWQO" means the Provincial Water Quality Objectives.

"Regional Director" means the Director of the Ministry's West Central Region.

"Reasonable Use Guideline" means the Ministry Guideline B-7 (formerly Policy 15-08) entitled "Incorporation of the Reasonable Use Concept into MOEE Groundwater Management Activities", dated April 1994, as amended.

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

"SDWA" means Safe Drinking Water Act, 2002, S.O. 2002, c. 32, as amended from time to time.

"Site" means the entire waste disposal site including the landfilling area and the buffer lands, located at 65 Green Mountain Road West, Hamilton City, Ontario.

"Storm Water Management Practices" means an approach to managing water quality as described in the provincial document entitled "Storm Water Management Practices Planning and Design Manual", June 1994 as amended.

"Supporting Documentation" refers to the reports listed in Schedule "A" of this Approval.

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

TERMS AND CONDITIONS

1.0 GENERAL

Compliance

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

1.2 Any person authorized to carry out work on or operate any aspect of the Site shall comply with

the conditions of this Approval .

In Accordance

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

Other Legal Obligations

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

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

Adverse Effect

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

Furnish Information

- 1.6 Any information requested by the Director or a Provincial Officer concerning the Site and its operation under this Approval , including but not limited to any records required to be kept by this Approval shall be provided in a timely manner.
- 1.7 The receipt of any information by the Ministry or the failure of the Ministry to prosecute any person or to require any person to take any action, under this Approval or under any statute, regulation or subordinate legal instrument, in relation to the information, shall not be construed as:
- a. an approval, waiver, or justification by the Ministry of any act or omission of any person that contravenes any condition of this Approval or any statute, regulation or other subordinate legal requirement; or
 - b. acceptance by the Ministry of the information's completeness or accuracy.

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

Interpretation

- 1.9 This Approval revokes and replaces the previous Approval and all subsequent amendments.
- 1.10 Where there is a conflict between a provision of any document, including the application, referred to in this Approval, and the conditions of this Approval, the conditions in this Approval shall take precedence.
- 1.11 Where there is a conflict between the application and a provision in any documents listed in Schedule "A", the application shall take precedence, unless it is clear that the purpose of the document was to amend the application and that the Ministry approved the amendment in writing.
- 1.12 Where there is a conflict between any two documents listed in Schedule "A", other than the application, the document bearing the most recent date shall take precedence.
- 1.13 The conditions of this Approval are severable. If any condition of this Approval, or the application of any condition of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

Certificate of Requirement

- 1.14 Pursuant to Section 197 of the EPA, no person having an interest in the Site shall deal with the Site in any way without first giving a copy of this Approval to each person acquiring an interest in the Site as a result of the dealing.
- 1.15 In the event any additional land is acquired that will be included as part of the Site, then two (2) copies of a completed Certificate of Requirement, containing a registerable description of the Site, shall be submitted to the Director for the Director's signature within sixty (60) calendar days of a notice being issued for the Site that incorporates the land into the Approval.
- 1.16 In the event any additional land is acquired that will be included as part of the Site as discussed in Condition 1.15 then the Certificate of Requirement shall be registered in the appropriate land registry office on title to the Site and a duplicate registered copy shall be submitted to the Director within ten (10) calendar days of receiving the Certificate of Requirement signed by the Director.

No Transfer or Encumbrance

- 1.17 No portion of this Site shall be transferred or encumbered prior to or after closing of the Site

unless the Director is notified in advance and is satisfied with the arrangements made to ensure that all conditions of this Approval will be carried out and that sufficient financial assurance is deposited with the Ministry to ensure that these conditions will be carried out.

Change of Owner

1.18 The Owner shall notify the Director , in writing, and forward a copy of the notification to the District Manager , within 30 days of the occurrence of any changes in the following information:

- a. the ownership of the Site ;
- b. the Operator of the Site ;
- c. the address of the Owner or Operator ;
- d. the partners, where the Owner or Operator is or at any time becomes a partnership and a copy of the most recent declaration filed under the Business Names Act , R. S. O. 1990, c. B.17, shall be included in the notification; and
- e. the name of the corporation where the Owner or Operator is or at any time becomes a corporation, other than a municipal corporation, and a copy of the most current information filed under the Corporations Information Act , R. S. O. 1990, c. C.39, shall be included in the notification.

1.19 In the event of any change in the ownership of the Site, other than a change to a successor municipality, the Owner shall notify in writing the succeeding owner of the existence of this Approval , and a copy of such notice shall be forwarded to the Director and District Manager .

Inspections

1.20 No person shall hinder or obstruct a Provincial Officer from carrying out any and all inspections authorized by the OWRA, the EPA, the PA, the SDWA or the NMA, of any place to which this Approval relates, and without limiting the foregoing:

- (a) to enter upon the premises where the approved works are located, or the location where the records required by the conditions of this Approval are kept;
- (b) to have access to, inspect, and copy any records required to be kept by the conditions of this Approval;
- (c) to inspect the Site, related equipment and appurtenances;
- (d) to inspect the practices, procedures, or operations required by the conditions of this Approval; and

- (e) to sample and monitor for the purposes of assessing compliance with the terms and conditions of this Approval or the EPA, the OWRA, the PA, the SDWA or the NMA.

Approval Referencing

- 1.21 The Owner shall ensure that all communication made pursuant to this Approval will refer to Approval No. A 181008.

2.0 FINANCIAL ASSURANCE

Overview

- 2.1 Financial assurance (FA) for the Site shall be provided as required by the Director, in an amount that is sufficient to pay for compliance with and performance of any action specified in this Approval, including emergency close out, monitoring and maintenance of the Site, planned close out whether or not the Site reaches approved capacity, maintenance of all required contaminant control systems including leachate management systems, contaminant monitoring for the Contaminating Lifespan of the Site and contingency plans for the Site in accordance with Schedule “B” of this Approval. The Owner shall provide regular updates to the CLC and the City regarding the value of the financial assurance.
- 2.2 Financial assurance may be provided in one or more of the following forms: cash, irrevocable letter of credit, surety bond, or some other form, all satisfactory to the Director .

Inflation Rate

- 2.3 The Owner shall ensure the methodology for calculating the inflation rate for the financial assurance re-evaluation is the current approach deemed acceptable by the Ministry.

Interest (Discount) Rate

- 2.4 The Owner shall ensure the methodology for calculating the discount rate for the financial assurance re-evaluation is the current approach deemed acceptable by the Ministry.

Payment Schedule

- 2.5 (1) By no later than **February 28, 2023**, the Owner shall ensure that the Director, as defined in Section 131 of the Act, has Financial Assurance in the amount of **\$38,488,573.00** for the Site. This Financial Assurance shall be in a form acceptable to the Director and shall provide sufficient funds for the closure and post-closure monitoring, maintenance and care of the Site and shall provide sufficient contingency funds.
- (2) The Owner shall provide the Ministry financial assurance (total amount, not additional amount) in a form acceptable to the Director as follows for the following years:

- i. December 31, 2023 - **\$39,978,953.00**
- ii. December 31, 2024 - **\$41,469,333.00**
- iii. December 31, 2025 - **\$42,959,714.00**
- iv. December 31, 2026 - **\$44,450,094.00**

- 2.6 (1) A revised or new Financial Assurance Re-Evaluation Report is to be prepared and submitted to the Director every five (5) years starting on March 31, 2026. The report shall include:
- a. updates of the discount, interest and inflation rates associated with the requirements for financial assurance in this Approval including justifications and sources of the proposed rates; and
 - b. a report prepared by a qualified Professional Engineer which updates the cost estimates on which the amounts associated with the requirements for financial assurance in this Approval are based.
- (2) The amount of financial assurance is subject to review at any time by the Director and may be amended at his/her discretion. If any financial assurance is scheduled to expire or notice is received, indicating financial assurance will not be renewed, and satisfactory methods have not been made to replace the financial assurance at least sixty (60) days before the financial assurance terminates, the financial assurance shall forthwith be replaced by cash.
- 2.7 (1) The report referenced in the above condition shall take into consideration the:
- a. actual amounts of waste landfilled;
 - b. projected rate of fill;
 - c. capping of completed fill areas;
 - d. empirical leachate generation rates;
 - e. a recalculation of the Contaminating Life Span of the Site;
 - f. any measures that have been carried out or need to be carried out to prevent and ameliorate any adverse effect that relates to the Site; and
 - g. annual inspection, maintenance, and monitoring costs, including costs for leachate treatment and disposal.
- (2) In the event that any contingency measures have been carried out, the report shall describe

the contingency measures remaining to be carried out and a confirmation by the Owner to the Director as to the work which has been done and materials supplied by the Owner relating to the contingency measures, the fair value, thereof, and the balance required to be retained as financial assurance to carry out remaining contingency measures.

- 2.8 No waste shall be received, accepted, disposed or transferred at the site unless financial assurance is received.

3.0 COMMUNITY LIAISON COMMITTEE

- 3.1 The Owner shall ensure that the continuance, mandate, membership, operation and funding of the existing CLC is completed in accordance with the Terms of Reference described in Schedule "G". (Terms of Reference for the CLC).
- 3.2 The Owner shall ensure a copy of the terms of reference for the CLC shall be publicly available.
- 3.3 The Owner shall provide the CLC and the City with access to non-proprietary documents including consultants reports relating to the Site in accordance with protocols agreed to between the Owner and the City and the CLC. In addition, the Owner shall provide the CLC and the City with copies of the annual reports required to be submitted to the Director and Regional Director. The Terms of Reference for the CLC shall include these protocols.
- 3.4 After notifying the Owner and meeting all appropriate Health and Safety regulations, the Owner shall allow the CLC and the City reasonable access to the Site, accompanied by a Owner official.
- 3.5 The Owner in conjunction with the CLC and the City shall continue to maintain a public complaints procedure that includes:
- a. Circulating on a quarterly basis all complaints to members of the CLC, City and keeping a public record at the Owner offices. Copies of complaint forms will be available at the Site office.
 - b. A 24-hour emergency telephone number to receive any complaints and to respond immediately. Written responses are to be provided by the Owner to the complainant within ten days of receipt of a complaint.
 - c. Recording the name and address of the complainant if given, and the date, time and nature of complaint.
 - d. Reviewing with the CLC and the City at least twice annually, all complaints about the operations of the Site and the Owner 's response/action. Complaints about exceedances are to be reviewed with the CLC and the City at each meeting of the CLC. Complaints that are not resolved within a period of ninety (90) days shall be referred to the CLC for review and resolution.

- e. Summarizing all complaints received and how they were addressed in the annual report.

4.0 CONSTRUCTION, INSTALLATION and PLANNING

Major Works

4.1 For the purposes of this Approval the following are Major Works :

- a. Liner;
- b. Leachate collection system;
- c. Groundwater Collection Trench;
- d. Final Cover; and
- e. Stormwater Management System

- 4.2 (1) A final detailed design shall be prepared for each Major Work to be constructed at the Site consistent with the conceptual design of the Site as presented in the Supporting Documentation listed in Schedule "A". Any design optimization or modification shall be clearly identified, along with an explanation of the reasons for the change. The final detailed design of each Major Work shall be submitted to the Director for approval and copied to the District Manager.
- (2) Specifications and a detailed quality assurance/quality control program for construction of the Major Works, and provisions for quality assurance procedures, with respect to the liner, to be undertaken by an independent third-party consulting firm experienced in liner construction, reporting to the Ministry.

4.3 The final detailed design of each Major Work shall include the following:

- a. design drawings and specifications;
- b. a detailed quality assurance / quality control (QA/QC) program for construction of the major work; and
- c. details on the monitoring, maintenance, repair and replacement of the engineered components of the major work, if any.

4.4 Any design optimization or modification that is inconsistent with the conceptual design shall be clearly identified, along with an explanation of the reasons for the change.

4.5 Each major work shall be constructed in accordance with the approved final detailed design and the QA/QC procedures shall be implemented as proposed by the Owner. Any significant

variances from the conceptual design for the Site as detailed in Schedule "A" shall be subject to approval by the Director.

- 4.6 As-built drawings for all Major Works shall be retained on Site and made available to Ministry staff for inspection.

Subsequent Stages

- 4.7 At least six (6) months prior to the anticipated completion of landfilling in each stage of the Site, a final detailed design for the subsequent stage shall be submitted to the Director. Any significant variances from the conceptual design for the Site as detailed in Schedule "A" shall be subject to approval by the Director.
- 4.8 No landfilling of wastes shall occur on any part of the liner until the Regional Director has received an inspection report from the independent third party referred to in Condition 4.2 (2), indicating that the part of the liner was constructed as required by this Approval. A copy of these inspection reports shall also be provided to the City and the CLC.

5.0 SITE OPERATIONS

Proper Operation

- 5.1 The Site shall be properly operated and maintained at all times. All waste shall be managed and disposed of in accordance with the EPA , Regulation 347, and the requirements of this Approval. At no time shall the discharge of a contaminant that causes or is likely to cause an adverse effect be permitted.
- 5.2 The Owner shall ensure that the Ministry's Guideline B-7, Reasonable Use Concept, is applied at the Site boundaries.
- 5.3 (1) The Owner shall ensure the operations, maintenance and procedures manual for the Site includes discussions on the following items:
- a. Health and safety;
 - b. Operation and maintenance of the Site;
 - c. Waste disposal area and development;
 - d. Nuisance management;
 - e. Leachate management;
 - f. Landfill gas management;

- g. Surface water/Storm water management;
 - h. Inspections and monitoring;
 - i. Contingency plans and emergency procedures;
 - j. Complaints; and,
 - k. Reporting and record keeping.
- (2) The operations and procedures manual shall be:
- a. retained at the Site;
 - b. reviewed on an annual basis and updated by the Owner as required; and
 - c. be available for inspection by Ministry staff.
- (3) Where revisions to the Operations, Maintenance and Procedures Manual are necessary and/or desirable, the Owner shall submit the changes to the Director for approval after consultation with the CLC and the City. Approval by the Director is required prior to those changes being implemented. Should the provisions of this manual conflict with this Approval, the Owner shall operate the Site in accordance with this Approval.

Buffer

- 5.4 A minimum buffer area width of 30 m shall be maintained around the perimeter of the approved fill area. To minimize erosion, the buffer shall be maintained with healthy vegetative cover and/or other appropriate surface treatment.

Signage

- 5.5 The Owner shall place a sign which complies with local by-laws at the main entrance and exit to the Site which is legible from a distance not less than 25 m and on which is displayed in prominent letters the following information:
- a. the name of the Site and Owner ;
 - b. the number of the Approval;
 - c. the name of the Operator;
 - d. the normal hours of operation;

- e. a warning against unauthorized access;
- f. the telephone number to which complaints may be directed;
- g. a twenty-four (24) hour emergency telephone number (if different from above); and
- h. a warning against dumping outside the Site .

Hours of Operation

- 5.6 (1) Waste may be received at the Site between the hours of 7:00 a.m. and 5:00 p.m., Monday to Friday. The normal Site operating hours shall be 6:30 a.m. to 6:00 p.m. Monday to Friday. The Site shall be closed on weekends and statutory holidays.
 - (2) Amendment to the hours of operation require approval by the Director prior to implementation.
- 5.7 Notwithstanding Condition 5.6, with prior written approval of the District Manager, the time periods may be extended to accommodate seasonal or unusual quantities of waste, construction activities or such factors as determined to be reasonable to the District Manager.
- 5.8 Upon reasonable notice to the District Manager, contingency actions may take place outside normal hours of operation. Emergency response may occur at any time as required.

Site Security

- 5.9 During non-operating hours, the Site entrance and exit gates will be locked or otherwise secured against access by unauthorized persons.
- 5.10 The Owner shall ensure that no queuing of waste vehicles will occur on public roadways.
- 5.11 The Owner shall monitor the weight of waste received for disposal by use of weigh scales. Where weigh scales are temporarily out of operation for maintenance or repair, estimates of waste volumes and density shall be used to estimate the weight of waste received for disposal. The weigh scales shall be installed prior to receiving of any waste. The weigh scale shall be recalibrated on an annual basis.
- 5.12 a. No waste shall be accepted, landfilled or removed from the site unless a Site supervisor or trained designate is present and supervises the operation.
- b. The Owner shall ensure that all Site operations employees have been adequately trained prior to acceptance of waste at the Site with respect to the following:
- i. terms, conditions and operating requirements of this Approval;

- ii. the operation and management of the Site with respect to the Operations and Maintenance Manual;
 - iii. relevant waste management regulations and legislation;
 - iv. environmental concerns related to the waste being handled at the Site;
 - v. occupational health and safety concerns pertaining to the waste being handled at the Site; and
 - vi. emergency procedures and contingency plans in cases of fire, off-site impacts and any other emergency situation.
- c. The Site is deemed to be closed when a Site supervisor or trained designate is not present at the Site.
 - d. To assist the Site operating personnel, the Owner shall ensure that the Maintenance and Operations Manual, required by Condition No. 5.3, and all revisions is kept on Site at all times following commencement of landfilling.

Site Access

- 5.13 Access to the Site shall be via the existing Site entrance from Upper Centennial Parkway. Exit from the Site shall be from the existing Site exit onto First Road West southerly to Mud Street.
- 5.14 The Owner shall ensure that all trucks owned by the Owner, or related companies, use Upper Centennial Parkway as the primary haul route to and from the Site. The Owner shall use its best efforts to encourage independent carriers to also use Upper Centennial Parkway as the primary haul route, including the posting of signs at the entrance and exit. The Owner shall refuse access to the Site to trucks and/or carriers found to be in continuous non-compliance with this Condition. Where changes or upgrades to the local road network occur, and changes to the primary haul route are necessary or convenient, such changes shall be submitted to the Director for approval after consultation with the CLC and the City and prior to implementation.
- 5.15 The Owner shall keep First Road West used by trucks leaving the Site free of dirt and waste to meet the requirements of the applicable roads authority.
- 5.16 Prior to a waste type being landfilled which is significantly different from a waste type landfilled in the West Quarry in the past, the Owner shall inform the Regional Director, the CLC and the City in writing of the new waste type proposed to be landfilled.

Vermin, Dust, Litter, Odour, Noise, Traffic

- 5.17 The Site shall be operated and maintained such that vermin, vectors, dust, litter, odour, noise and

traffic do not create a nuisance.

Litter Control

5.18 The Owner shall take all practical steps to prevent off-site litter impacts from Site operations.

Noise

5.19 The landfill Site shall be required to operate within the noise level limits prescribed in the Ministry's document "Noise Guidelines for Landfill Sites".

5.20 The monitoring of sound levels of daily activity in the Site shall typically occur twice/ year and relate to periods of peak filling activity within 5 m of final contours of the Site. Monitoring shall be conducted at representative locations identified in Item 6 of Schedule "A". Where possible measurements shall be taken during neutral lapse conditions (cloudy day) under light winds for measurement of the sound to the south and southwest of the Site. Prevailing, light, southwesterly winds or neutral lapse (cloudy day) light wind conditions are preferred in the assessment of the noise affecting lands to the north of the Site. Measurements of the hourly Leq shall be carried out for five (5) representative hourly periods at each location between 0700 and 1900 hours. All measurements shall be attended and reported as per the MECP NPC 103 for Varying Sound, with the report identifying the source of sound heard at each location and its relative contribution to the total Leq.

5.21 The Site should be operated so as to not exceed predicted noise impact as set out in Item No. 6 of the attached Schedule "A", and in any event, noise generated by the operation of the Site shall not exceed the Ministry's landfill noise guidelines at any residence.

5.22 The Owner may apply to the Director for approval of an alternative method of noise attenuation that accounts for the actual nature and extent of development at that time. These alternatives shall be developed in consultation with the City and the CLC. The application must be supported by a noise impact assessment that demonstrates that the noise impacts associated with the alternative method will not exceed the noise impacts reported in Item 6 of Schedule "A". The Owner shall seek comment from the City and the CLC prior to submission to the Director for approval.

5.23 All on-Site equipment used during the start up, operation and closure of the Site which are of the type described in Publication NPC-115 and Publication NPC-118 of the Ministry's Model Municipal Noise Control By-Law or which are capable of being used for similar applications shall comply with the noise emission standards contained therein.

5.24 The Owner shall comply with noise criteria in Ministry Guideline entitled "Noise Guidelines for Landfill Sites" dated October 1998 as amended from time to time and the Site shall comply with the limits set in Publication NPC-300.

Groundwater Trench

- 5.25 Prior to the discontinuation of pumping of the groundwater collection system, the Owner shall submit an application to the Director for approval of such action, following consultation with the CLC and the City. The application shall include technical justification for discontinuation of pumping of the groundwater collection system and an assessment of the impacts of allowing the groundwater to rebound including the impact on the hydraulic control layer and monitoring programs at the Site.

Surface Water

- 5.26 The Owner shall take all appropriate measures to minimize surface water from coming in contact with waste. Temporary berms and ditches shall be constructed around active waste disposal areas to prevent extraneous surface water from coming in contact with the active working face.

6.0 LANDFILL OPERATIONS

Waste Type

- 6.1 The waste to be received at the Site for final disposal is restricted to solid, non-hazardous commercial, institutional and industrial waste including petroleum contaminated soils.
- 6.2 No liquid industrial wastes, hazardous wastes, as defined under Regulation 347, or putrescible waste shall be disposed of in the waste disposal fill area of the Site. This includes: hazardous industrial wastes; hazardous waste chemicals; ignitable waste; corrosive waste; leachate toxic waste; acute hazardous waste chemicals or reactive waste; hauled sewage; domestic waste; and waste from the operation of a sewage works subject to the Ontario Water Resources Act where the works:
- i. is owned by a municipality;
 - ii. is owned by the Crown subject to an agreement with a municipality under the OWRA; or
 - iii. receives only waste similar in character to the domestic sewage from a household.

Disposal of Non-hazardous Incinerator Ash

- 6.3 Receipt and disposal of non-hazardous incinerator ash to the Site shall be done in accordance with the document entitled "Waste Control Procedures", detailed as part of Item 49 of Schedule "A".
- 6.4 The Owner shall develop, maintain on-Site and implement a Dust Contingency program which details how the Owner will mitigate and minimize impacts from dust resulting from the disposal of deposits of non-hazardous incinerator ash.
- 6.5 The Owner shall ensure, through testing prescribed in Regulation 347 as amended from time-to-time performed by either the Owner or the generator, that all loads of incinerator ash

received and disposed of at the Site are non-hazardous.

- 6.6 Summarized results of the testing required as part of Condition 6.5 shall be included as part of the reports required under Condition 14.1.

Asbestos Waste

- 6.7 Any waste that is considered asbestos waste shall be handled in accordance with Section 17 of Reg. 347 as amended from time to time.
- 6.8 A suitable sized excavation for the asbestos waste shall be made by the Owner in a location away from the active landfilling face.
- 6.9 All asbestos waste shall be inspected to ensure that the asbestos waste is properly bagged or contained and free from puncture, tears or leaks.
- 6.10 The asbestos waste shall be placed in the excavation to avoid damage to the containers and to prevent dust and spillage.
- 6.11 Upon completion of the unloading and deposition of the asbestos in the excavation, at least 125 centimetres of cover or waste material shall be placed over the asbestos.
- 6.12 All asbestos waste shall be deposited to a level no higher than 1.25 metres below the general elevation of the disposal area to ensure that daily cover material removal in the future does not encounter the asbestos waste.

Capacity

- 6.13 The maximum volume of waste and cover materials, excluding final cover, which may be disposed at the Site is **10,180,000 m³**.
- 6.14 The annual tonnage of approved waste received at the Site for final disposal shall not exceed 750,000 tonnes in any consecutive twelve (12) month period, as calculated on a daily basis. The maximum daily tonnage of approved waste received at the Site for final disposal shall not exceed 8,000 tonnes.
- 6.15 The maximum number of waste vehicles depositing waste at the Site shall not exceed 250 in any one operating day.

Waste Placement

- 6.16 No waste, including intermediate cover or final cover layer, shall be landfilled outside the limits of the base and final cover contours as shown in Item No. 57 in Schedule "A". No waste shall be disposed of within the buffer lands.

Landfilling of Sludge

- 6.17 A thickness of at least 2 metres of compacted waste and cover material shall be maintained between any landfilled sludge (solid non-hazardous as per Reg. 347) and the granular leachate collection layer.

Service Area

- 6.18 Only waste generated within the Province of Ontario may be received for disposal at this Site.

Waste Inspection

- 6.19 All loads of waste must be properly inspected by trained Site personnel prior to disposal at the Site and waste vehicles must be diverted to appropriate areas for waste disposal.

Burning Waste Prohibited

- 6.20 Burning of waste at the Site is prohibited.

Leachate Management

- 6.21 a. No leachate and/or contaminated water collected at the Site shall be discharged to the natural environment except as outlined in Item No. 3 of the attached Schedule "A", Surface Water Impact Assessment report, providing the surface water trigger levels for the proposed contingency plans.
- b. All collected leachate and/or contaminated water shall be discharged to the City sanitary sewer or an alternative acceptable to the Director.
- c. If the Owner discharges leachate and/or contaminated water directly to the City sanitary sewer system then the Owner shall obtain, and maintain at all times, Agreements with the City which will specify the permissible quality and quantity of leachate that can be discharged to the City sanitary sewer system. These agreements shall also outline the monitoring and reporting requirements to demonstrate compliance. A copy of these Agreements and any changes to these agreements as may occur from time to time, shall be provided to the Director, the CLC and the City prior to any discharge of leachate to the sanitary sewer system.
- 6.22 The Owner shall, during normal operations, limit dust impacts using the control measures as indicated in Item No. 7 of the Schedule "A" and in any event shall take all necessary steps as are reasonably necessary to limit dust impacts from the Site.
- 6.23 The Owner shall maintain a minimum of one watering truck at the Site for the purpose of mitigating dust impacts.

- 6.24 The Owner shall require all vehicles leaving the landfilling area of the Site to pass through a wheel washing facility.
- 6.25 The Owner shall ensure that an agreement in writing with the City is in place in case any discharge of leachate from the Site to the City's sanitary sewer occurs. The agreement shall include a development and implementation plan for a notification system under which the Owner will hold back the leachate at the Site during by-pass and upset events at the Woodward Avenue Waste Water Treatment Plant (WWTP).
- 6.26 The practice of recirculating leachate by spraying at the Site shall not be permitted.

Landfill Gas Collection

- 6.27 The Site is not required to collect landfill gas.

7.0 MAJOR WORKS AND CONSTRUCTION APPROVALS

- 7.1 Expansion of the Site shall proceed in 4 phases in accordance with Item 57 of Schedule "A". Approval of Phase 1 is hereby approved. Prior to proceeding with Phases 2-4, approval of the detailed design is required in accordance with Condition 4.

8.0 INSPECTIONS AND RECORDS

Daily Records

- 8.1 Daily records shall be maintained at the Site which shall include the following:
- a. the date, time of arrival, name of hauler, vehicle license plate number, type, origin and quantity (by weight) of all waste received at the Site;
 - b. all complaints from the public received by the Owner and an indication of the action taken by the Owner in response;
 - c. results of any tests done to determine the acceptability of waste at the Site;
 - d. calculation of the total quantity (by weight) of waste received at the Site for each day; and
 - e. a record of litter collection activities and site inspections.
- 8.2 The Owner shall maintain a written record of Site inspections at the Site. The record shall include the following:
- a. time and date of the inspection;

- b. name, title and signature of trained personnel conducting the inspection;
- c. listing of all general site areas, fencing, gates, systems inspected and deficiencies observed; and
- d. recommendations for remedial action and the date the remedial action, if necessary was completed.

Inspections

8.3 The Owner shall conduct inspections as outlined in Schedule "B".

Log Book

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

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

8.5 A record shall be kept in a daily log book of all refusal of waste shipments, the reason(s) for refusal, and the origin of the waste, if known.

8.6 Site inspection records shall be kept in the form of a written log or a dedicated electronic file.

8.7 The Owner shall maintain on record at the Site for each client disposing of solid non-hazardous waste at the Site, a description of each type of solid non-hazardous waste received from the client and documentation to demonstrate that the Owner has taken reasonable care to ensure that waste classified as either hazardous or liquid industrial waste under Reg. 347 as amended from time to time, is not disposed of at the Site.

Record Retention

8.8 Except as authorized in writing by the Director, all records required by this Approval shall be retained at the Site for a minimum of two (2) years from their date of creation.

8.9 The Owner shall retain all documentation listed in Schedule "A" for as long as this Approval is

valid.

- 8.10 All monthly Site inspection records are to be kept at the Site until they are included in the Annual Report.
- 8.11 The Owner shall retain employee training records as long as the employee is working at the Site.
- 8.12 The Owner shall make all of the above documents available for inspection upon request of Ministry staff.
- 8.13 The Owner shall retain, either on-Site or in another location and notify the District Manager of this location, copies of the annual reports referred to in the preceding condition and any associated documentation of compliance monitoring activities and shall continue to do so for a period of at least two (2) years after the closure of the Site.

9.0 TRAINING

Employees and Training

- 9.1 A training plan for all employees that operate any aspect of the Site shall be developed and implemented by the Operator. Only trained employees shall operate any aspect of the Site or carry out any activity required under this Approval. Employees must provide proof of training to the Ministry upon request. For the purpose of this Approval "trained" means knowledgeable either through instruction or practice in:
 - a. the relevant waste management legislation including EPA, Reg. 347 and, regulations and guidelines;
 - b. major environmental and occupational health and safety concerns pertaining to the waste to be handled;
 - c. the proper handling of wastes;
 - d. the management procedures including the use and operation of equipment for the processes and wastes to be handled;
 - e. the emergency response procedures;
 - f. the specific written procedures for the control of nuisance conditions;
 - g. the terms, conditions and operating requirements of this Approval and
 - h. proper inspection, receiving and recording procedures and the activities to be undertaken during and after a load rejection.

10.0 COMPLAINTS PROCEDURES

- 10.1 If at any time, the Owner receives complaints regarding the operation of the Site, the Owner shall respond to these complaints as per the Standard Operating Procedure for the the Site.

11.0 EMERGENCY SITUATIONS

- 11.1 In the event of a reportable spill or discharge of a contaminant to the environment, Site staff shall contact the Ministry's Spills Action Centre (1-800-268-6060), the Ministry's District Office and the City's Spills Response Line (905-540-5188) forthwith.
- 11.2 The Owner shall submit to the District Manager a written report within three (3) days of the spill or incident, outlining the nature of the incident, remedial measures taken and measures taken to prevent future occurrences at the Site if required.

12.0 MONITORING

Groundwater Monitors

- 12.1 The Owner shall ensure all groundwater monitoring wells are properly capped, locked and protected from damage.
- 12.2 In areas where landfilling is to proceed around monitoring wells, the wells must be decommissioned in accordance with O. Reg. 903 as amended from time to time.
- 12.3 Any groundwater monitoring wells included in the monitoring program shall be assessed, repaired, replaced or decommissioned as required.
- 12.4 The Owner shall repair or replace any monitoring well which is destroyed or in any way made inoperable for sampling within one year.
- 12.5 All monitoring wells that are no longer required as part of the groundwater monitoring program shall be decommissioned in accordance with good standard practice that will prevent contamination through the abandoned well and in accordance with O. Reg. 903. A report on the decommissioning shall be provided in the annual monitoring report for the period during which the well was decommissioned.

Environmental Monitoring

- 12.6 The Owner shall provide monitoring in accordance with the following:
- a. the performance of the engineered control systems of the Site in accordance with Schedule "B";

- b. leachate production and quality in accordance with Schedule "C";
- c. surface water flow and quality in accordance with Schedule "D";
- d. levels of landfill gases in accordance with Schedule "E";
- e. ground water in accordance with Schedule "F"; and
- f. noise levels as per the requirements set out in Condition 5.20.
- g. treated leachate effluent testing requirements outlined in Item 64 of Schedule "A".

12.7 All monitoring data will be made available to the CLC and the City as soon as practicable.

12.8 Any changes to the monitoring programs shall be done in consultation with the CLC and the City prior to being submitted to the Director for approval. Approval by the Director is required prior to those changes being implemented.

12.9 If it is determined by the Regional Director that noise and/or dust levels from on-Site operations or from transportation of waste to the Site must, in the opinion of the Director, be reduced or otherwise controlled to prevent adverse impacts to adjacent properties, the Owner shall implement contingency measures in accordance with the requirements of the Director, following consultation with the CLC and the City, where practicable.

Predictive Monitoring

12.10 In the event that the results of the monitoring programs listed in Schedules D or F are such that an off-Site exceedance of the PWQO, ODWO or the Reasonable Use Guideline is predicted to occur, the Owner shall include in the annual monitoring report the following:

- a. the details of any such predicted off-Site exceedance, including the assumptions upon which the prediction is based;
- b. a discussion of the modifications, if any, to intended operations which would be necessary to prevent the predicted off-Site exceedance;
- c. a discussion of the modifications, if any, which should be made to the monitoring program; and
- d. a discussion of other mitigation measures, if any, which may be necessary to prevent off-Site impacts.

13.0 CONTINGENCY PLANS AND TRIGGER MECHANISMS

13.1 Contingency plans relating to ground water impacts and the triggering of such contingency plans

shall be as described in Item Nos. 2 and 4 of the attached Schedule "A".

- 13.2 Contingency plans relating to surface water impacts and the triggering of such contingency plans shall be as described in Item No. 3 of the attached Schedule "A".
- 13.3 Contingency plans relating to landfill gas impacts and the triggering of such contingency plans shall be as described in Item Nos. 2 and 14 of the attached Schedule "A".
- 13.4 Any changes to the specific trigger levels for the ground water and surface water monitoring programs shall be done in consultation with the CLC and the City prior to being submitted to the Director for approval. Approval by the Director is required prior to the implementation of these changes.
- 13.5 In the event that the results of the monitoring programs listed in Schedule D or F are such that an off-Site exceedance of the PWQO, ODWO or the Reasonable Use Guideline has occurred as a result of the operation of the Site, the Owner shall notify the Director, the CLC and the City as soon as possible and specify the following:
 - a. Details of the off-Site exceedance, including the confirmatory monitoring results and the potential off-Site impacts to surface water and ground water users;
 - b. the extent and timing of the contingency measures to be implemented;
 - c. modifications, if any, which should be made to the monitoring program; and
 - d. other mitigation measures, if any, which may be necessary to reduce or prevent off-Site impacts.

14.0 LEACHATE TREATMENT SYSTEM

On-Site leachate treatment system (LTS)

- 14.1 The Owner is approved to construct an on-Site LTS as per design details outlined in the Design Brief, GHD, dated October 10, 2025, which is included as Item 64, in Schedule "A" of this Approval.
- 14.2 The Owner shall provide the District Manager with a written notice at least 7 days before the LTS is expected to become operational, confirming the start of its operations.
- 14.3 The Owner shall provide to the Director and District Manager a detailed engineering report (preparation report) within 30 days of construction and commissioning completion of the LTS and at least 2 days before LTS is expected to become operational. The report shall include the following:

- a. all construction activities;
- b. QA/QC activities;
- c. design drawings and specifications confirming that construction is completed in accordance with the approved design plans and specifications.
- d. As-built drawings including any design optimization or modification that is inconsistent with the conceptual design provided and included in Item 64 of Schedule "A" shall be clearly identified, along with an explanation of the reasons for the change.

14.4 After commissioning of the on-Site leachate treatment system, leachate generated at the landfill Site shall be collected, and treated using the on-Site leachate treatment system, and disposed of into the City of Hamilton sanitary sewer system as per the City's authorization and information provided in the design brief which is included as Item 64 in Schedule "A" of this Approval, which may be amended from time to time.

14.5 Leachate generated at the landfill Site that is not treated using the on-Site leachate treatment system shall not be discharged to the natural environment at any time. Any alternative proposal for leachate management and disposal must receive prior written approval of the District Manager.

14.6 Within thirty (30) days of the initiation of the operation of the leachate treatment system, the Owner shall submit to the Director, with copies to the District Manager, an Operation and Maintenance Manual for the on-Site leachate treatment system. The operations and maintenance manual shall be reviewed on a annual basis and updated by the Owner/Operator as required.

15.0 REPORTING

Annual Report

15.1 By **June 30th** of each year, an annual report on the use, operation, and monitoring of the Site during the previous calendar year shall be submitted to the District Manager. The report shall include the following:

- a. the results and an interpretive analysis of the results of all air, ground water, surface water, landfill gas, noise and leachate monitoring including:
 - i. the adequacy of the monitoring programs and recommendations for any modifications to programs as appropriate;
 - ii. the extent to which the monitoring results indicate compliance with the conditions of this Approval, PWQO, ODWO, the Reasonable Use Guideline and any other relevant statutes and guidelines;

- iii. the trend of the monitoring results with respect to future compliance with the conditions of this Approval, PWQO, ODWO, the Reasonable Use Guideline and any other relevant statutes and guidelines;
 - iv. the current or expected future need to implement contingency plans and/or additional mitigation measures to ensure compliance with the Conditions of this Approval, PWQO, ODWO, the Reasonable Use Guideline and any other relevant statutes and guidelines; and
 - v. an impact assessment of the landfill approved under Approval No. A130404 (Closed Newalta (Stoney Creek)) on the Site.
- b. Site plans showing:
 - i. existing contours of the Site;
 - ii. areas of landfilling operation during the reporting period and areas of intended operation during the next reporting period;
 - iii. areas of excavation during the reporting period;
 - iv. the progress of final and interim cover application; and
 - v. previously existing Site works, works installed during the reporting period, and works planned for installation during the next reporting period.
- c. The results of on and off-Site noise level measurements including a description of the operations at the Site at the time these measurements were conducted;
- d. Calculations of the volume of waste, interim cover and final cover disposed or applied during the reporting period and a calculation of the total volume of Site capacity used during the reporting period;
- e. A calculation of the remaining capacity of the Site and an estimate of the remaining Site life;
- f. A summary of the quantity, source and types of waste received at the Site;
- g. A discussion of any approved changes to the operation, equipment and/or procedures at the Site including their effects, if any, on the sound environment within the local community. If these changes resulted in an increase in noise levels a description of the mitigation measures which were taken to reduce the impacts and of the effectiveness of these measures are to be provided. Recommendations respecting any proposed changes in the operation, equipment and/or procedures at the Site and their effects, if any, on the sound

environment within the local community with proposed mitigation measures;

- h. A summary of any occurrences or incidents where this Approval was not complied with, the reasons for non-compliance and the measures to be implemented to ensure that future non-compliance does not occur;
- i. A list of all complaints and a record of the Owner's responses to such complaints, including a list of complaints filed with Ministry and the City, where such information is reasonably available to the Owner;
- j. A discussion of any operational problems encountered at the Site and the remedial measures taken including the control of dust and noise; and
- k. Any other information with respect to this waste Site which the Regional Director may require from time to time.

16.0 SITE CLOSURE

Closure Plan

- 16.1 At least two (2) years prior to closure or when 90% of the Site capacity is reached, whichever comes first, the Owner shall submit to the Director for approval, with copies to the District Manager, a detailed Site closure plan pertaining to the termination of landfilling operations at this Site , post-closure inspection, maintenance and monitoring, and end use. The plan shall include the following:
- a. a plan showing Site appearance after closure;
 - b. a description of the proposed end use of the Site ;
 - c. a description of the procedures for closure of the Site, including:
 - i.) posting of a sign at the Site entrance indicating the landfill is closed and identifying any alternative waste disposal arrangements;
 - ii) completion, inspection and maintenance of the final cover and landscaping;
 - iii.) site security;
 - iv) removal of unnecessary landfill-related structures, buildings and facilities; and
 - v) final construction of any control, treatment, disposal and monitoring facilities for leachate, groundwater, surface water and landfill gas;

- d. a schedule indicating the time-period for implementing sub-conditions i) to vi) above.
- e. descriptions of the procedures for post-closure care of the Site, including:
 - i.) operation, inspection and maintenance of the control, treatment, disposal and monitoring facilities for leachate, groundwater, surface water and landfill gas;
 - ii) record keeping and reporting; and
 - iii) complaint contact and response procedures;
- f. an assessment of the adequacy of and need to implement the contingency plans for leachate and methane gas; and
- g. an update of the cost estimates for financial assurance and the amount which has been provided to the Director to date.

16.2 The Closure Plan shall be designed in consultation with the CLC, the City and the Hamilton Region Conservation Authority prior to being submitted to the Director for approval.

16.3 The Site shall be closed in accordance with the closure plan as approved by the Director.

Schedule "A"

This Schedule "A" forms part of Environmental Compliance Approval No. A 181008.

1. The application for Approval of a Waste Disposal Site (Landfill) dated December 1, 1995 and supporting information.
2. The document entitled "Stoney Creek Regional Facility Environmental Assessment, Design and Operations Report" by GHD, dated July 2019.
3. The document entitled "Stoney Creek Regional Facility Environmental Assessment, Surface Water Detailed Impact Assessment Report" by GHD, dated January 2019.
4. The document entitled "Stoney Creek Regional Facility Environmental Assessment, Geology and Hydrogeology Detailed Impact Assessment Report" by GHD, dated January 2019.
5. The document entitled "Taro East Quarry Environmental Assessment, Waste Characterization Report" by Gartner Lee Limited, dated January 1995.
6. The document entitled "Stoney Creek Regional Facility Environmental Assessment, Noise Detailed Impact Assessment Report" by GHD, dated January 2019.
7. The document entitled "Stoney Creek Regional Facility Environmental Assessment, Air Quality and Odour Detailed Impact Assessment Report" by GHD, dated January 2019.
8. The document entitled "Stoney Creek Regional Facility Environmental Assessment, Land Use Impact Assessment" by GHD, dated January 2019.
9. The document entitled "Tender Documents for East Quarry Landfill Site, Phase 1A Base Liner and Leachate Collection System, Stoney Creek, Ontario" dated July 25, 1996 by Gartner Lee Limited including Addendum Nos. 1 dated August 2, 1996, No. 2 dated August 13, 1996, and No. 3 dated August 14, 1996
10. The set of drawings, Drawings No. 1 to 12, entitled "Contract No. ___, Taro Aggregates Ltd. Phase 1A - Base Liner and Leachate Collection System, East Quarry Landfill Site" dated July 1996 by Gartner Lee Limited.
11. The document entitled "East Quarry Landfill Site, Proposal for Construction and Testing of a Base Liner Test Pad" dated May 3, 1996 by Gartner Lee Limited.
12. The letter dated May 23, 1996 to Mr. John Kaasalainen of the Ministry of Environment and Energy, Approvals Branch, from Mark Sungaila of Gartner Lee Limited providing additional information regarding the construction of the base liner test pad.

13. The letter dated May 28, 1996 to Mr. Wayne Jackman of Taro Aggregates Limited from Mr. Steven Usher of Gartner Lee Limited providing the predictive monitoring trigger levels for the proposed East Quarry Landfill.
14. The memorandum dated June 26, 1996 to Mr. Wayne Jackman of Taro Aggregates Limited from Mr. Mark Sungaila of Gartner Lee Limited providing the trigger levels for combustible gas contingencies.
15. The letter dated August 2, 1996 to Mr. John Kaasalainen of the Ministry of Environment and Energy, Approvals Branch, from Mr. Edward San of Gartner Lee Limited providing additional information for the Phase 1A final detailed design.
16. The letter dated August 14, 1996 to Mr. John Kaasalainen of the Ministry of Environment and Energy from Mr. Wayne Jackman of Taro Aggregates providing responses to the Ministry's review comments dated February 28, 1996.
17. The document entitled "Terrapure Environmental, Financial Assurance Estimate" dated May 1, 2019 by HDR Inc.
18. The document entitled "Response to Conditions 5.6 and 5.8, Simulation of Groundwater Flow at the Taro Aggregates Limited Properties, City of Stoney Creek, Ontario" dated August 1996 by Gartner Lee Limited.
19. The letter report to Mr. Wayne Jackman of Taro Aggregates Limited from Mr. Steven Usher of Gartner Lee Limited dated July 30, 1996 entitled "Taro East Quarry Landfill / EA Condition of Approval 5.9 / Long Term Impact of Dewatering".
20. Gartner Lee report titled "Technical Specifications for Taro East Landfill Site-Phase 3 Base Liner and Leachate Collection System, Stoney Creek, Ontario", dated March 10, 1999.
21. Addendum to the report mentioned in item 2 above dated March 19, 1999, from Mark Sungaila of Gartner Lee to A. Dominski, MOE.
22. Set of drawings, Drawings 1 to 14, titled "Philip Services Corp., Phase 3-Base Liner and Leachate Collection System, Taro East landfill", dated March 1999.
23. The letter dated June 27, 1997 to Mr. Wilfred Ng, Director, Approvals Branch Ministry of Environment and Energy from Mr. Wayne Jackman, Environmental Engineering Manager of Taro Aggregates Ltd. providing the details and design of the permanent on-site wheel wash facility.
24. Letter from Mark A. Sungaila, Gartner Lee Limited, to A. Dominski, Ontario Ministry of the Environment, dated March 6, 1998, requesting an amendment to the Certificate of Approval, on behalf of Wayne Jackman of Philip Enterprises Inc., including the following supporting

documentation:

- i) report entitled Taro East Landfill, Technical Specifications for Phase 1B Base Liner and Leachate Collection System, prepared by Gartner Lee Limited, and dated February 1998; and,
 - ii) set of drawings, Drawings Nos. 1 to 10, entitled Philip Services Corp., Phase 1B - Base Liner and Leachate Collection System, Taro East Landfill, prepared by Gartner Lee Limited, and dated March 1998.
- 25. Facsimile transmission from Mark A. Sungaila, Gartner Lee Limited, to Margaret Wojcik, Ontario Ministry of the Environment, dated May 12, 1998, providing Addenda No. 1 and No. 3 to the report submitted with the request for the amendment.
 - 26. Facsimile transmission from Mark A. Sungaila, Gartner Lee Limited, to Margaret Wojcik, Ontario Ministry of the Environment, dated May 13, 1998, providing Addendum No.4 to the report submitted with the request for the amendment.
 - 27. Facsimile transmission from Mark A. Sungaila, Gartner Lee Limited, to Margaret Wojcik, Ontario Ministry of the Environment, dated May 19, 1998, providing Addendum No.5 to the report submitted with the request for the amendment.
 - 28. Letter from Mark A. Sungaila, Gartner Lee Limited, to Margaret Wojcik, Ontario Ministry of the Environment, dated May 25, 1998, providing additional information on the design, construction and testing details on the Phase 1B base liner and including Addendum No.2 to the report submitted with the request for the amendment.
 - 29. Letter from Mark A. Sungaila, Gartner Lee Limited, to Margaret Wojcik, Ontario Ministry of the Environment, dated June 1, 1998, providing additional information on the design, construction and testing details on the Phase 1B base liner.
 - 30. Report entitled Taro East Quarry Landfill 1996 Phase 1A Liner and Leachate Collection System Construction Inspection Report, prepared by Gartner Lee Limited, and dated December 1996.
 - 31. Report entitled Taro East Landfill 1997 Phase 1A Liner and Leachate Collection System Construction Inspection Report, prepared by Gartner Lee Limited, and dated November 1997.
 - 32. Report entitled Taro East Landfill 1997 Phase 2 Liner and Leachate Collection System Construction Inspection Report, prepared by Gartner Lee Limited, and dated November 1997.
 - 33. Letter dated December 18, 2000 from Wayne Jackman, Environmental Engineering Manager, Philip Services Inc. to Mr. A. Dominski, P. Eng. Supervisor, Waste Unit, Environmental Assessment and Approvals Branch, Ministry of the Environment, regarding approval of temporary leachate forcemain at the Taro East Landfill and the following attached documents:

- a) Letter dated November 21, 2000 from Chris Caers, M.E.Sc., P. Eng., Project Manager, Earth Tech Canada Inc. to Mr. Wayne Jackman, Philip Services Inc. regarding proposed leachate forcemain construction;
 - b) Drawing No. A4-90K46 -G1 - Taro Aggregates Ltd., City of Stoney Creek, West Quarry Landfill Temporary Forcemain, dated November, 2000, prepared by Earth Tech (Canada) Inc.;
 - c) Specifications for the Leachate Forcemain; and,
 - d) Drawing No. A1-90K46 -P2 - Taro West Landfill, Temporary Forcemain, dated November, 2000, prepared by Earth Tech (Canada) Inc.
34. Letter dated February 22, 2001 from Frank Falcone, C.E.T., Senior Technologist, Earth Tech Canada Inc. to George Lai, P. Eng. Environmental Assessment and Approvals Branch regarding Taro Landfill - Temporary Forcemain with the following Drawing:
- a) Drawing No. A1-90K46 -P2 - Taro West Landfill, Temporary Forcemain, dated November, 2000, revised December 1, 2000, signed February 22, 2001 by C.J.E. Caers, Earth Tech (Canada) Inc.
35. Fax dated March 1, 2001 from Karla Everard, Earth Tech (Canada) Inc. to George Lai, MOE regarding hydraulic calculations of the proposed leachate forcemain including the following documents:
- a) Memo dated January 3, 2001 from Everard to Frank Falcone regarding design flowrate of the proposed leachate forcemain; and,
 - b) Proposed leachate forcemain hydraulic analysis.
36. Technical Specifications for Taro East Landfill Site - Phase 1C and 3B Base Liner and Leachate Collection System, Stoney Creek, Ontario, dated January 2001.
37. Design Drawings for Phase 1C and 3B, numbered 1 to 22, dated January 2001.
38. Letter dated May 21, 2002 from Joe Stephenson, M.Eng., P.Eng., President and Andre Schnell, M.Eng., P.Eng., Senior Project Engineer, Hydromantis, Inc. to Mr. George W. Lai, M.Eng., P.Eng., Senior Engineer, Waste Unit, Certificate of Approval Section, Environmental Assessment and Approval Branch, Ontario Ministry of the Environment and Energy, regarding response to technical questions related to the report biotreatability study to assess potential impacts of the combined Taro East and West Landfill Leachate on the Woodward Avenue WWTP.
39. Letter dated March 8, 2002 from Mark. A. Sungaila, M.A.Sc., P.Eng., Senior Environmental Engineer/Principal and Edward San, M.E.Sc., P.Eng., Senior Environmental Engineer/Principal

to Mr. Andrzej Dominski, P.Eng. Supervisor, Waste Section, Environmental Assessment and Approvals Branch, MOE regarding final detailed design of Phase 6A base liner and leachate collection system, Taro East Landfill.

40. Technical Specifications for Taro East Landfill Site - Phase 6A Base Liner and Leachate Collection System, Stoney Creek, Ontario, dated March 2002, prepared by Gartner Lee Limited.
41. Letter dated May 7, 2002 from Mark. A. Sungaila, M.A.Sc., P.Eng., Senior Environmental Engineer/Principal and Edward San, M.E.Sc., P.Eng., Senior Environmental Engineer/Principal to Mr. George Lai, Environmental Assessment and Approvals Branch, Ontario Ministry of the Environment, regarding signing and stamping final detailed design for Phase 6A base liner and leachate collection system, Taro East Landfill (Provisional Certificate of Approval A181008).
42. Design Drawings entitled "Philip Services Inc., Phase 6A - Base Liner and Leachate Collection System, Taro East Landfill" are indexed as follows:

Drawing 1 - Existing conditions.

Drawing 2 - Facility Layout.

Drawing 3 - Site Preparation.

Drawing 4 - Groundwater Collection System and Details.

Drawing 5 - Grading Plan - Base Grading Layer.

Drawing 6 - Grading Plan - Secondary Liner.

Drawing 7 - Grading Plan - Hydraulic Control Layer.

Drawing 8 - Grading Plan - Primary Layer.

Drawing 9 - Grading Plan - Leachate Collection System.

Drawing 10 - Temporary Berm Layout.

Drawing 11 - Leachate Collection System and Details.

Drawing 12 - Sections - Temporary Berm Construction, Base Liner Construction, Connection to Existing Liner.

Drawing 13 - Connection Berm for Interim Waste Placement.

43. Gartner Lee Limited report titled "Imported Fine-Grained soil for Construction of Compacted Clay Liner at Taro East landfill", dated August 2002, which shall form part of Schedule "A" of

the original Certificate of Approval.

44. November 2003 document by Gartner Lee titled "Detailed Design for Taro East Landfill Site-Phase 4 Groundwater Collection System and Engineered Side Wall Fill, Stoney Creek, Ontario", which forms part of Schedule "A".
45. Application for approval dated February 6, 2004, and the February 2004 report by Gartner Lee titled "Detail Design for Taro East Landfill Site-Phase 4 Base Liner and Leachate Collection System, Stoney Creek, Ontario", and associated drawings (No.1 to 28).
46. Application for approval dated November 23, 2005, and supporting information and documentation prepared by PSC Industrial Services Canada Inc.
47. Report and supporting documentation entitled "*Detailed Design for the Phase 5 and 6 Base Liner System and Leachate Collection System, Newalta Stoney Creek Landfill (Provisional Certificate of Approval A181008* " prepared for Newalta Industrial Services by Gartner Lee Limited dated March 2007.
48. Report and Drawings entitled "Detailed Design for the Stage 1 Final Cover, Newalta Stoney Creek Landfill (Provisional Certificate of Approval A181008)" prepared for Newalta Industrial Services by Gartner Lee Limited, dated June 2007.
49. Application for a Provisional Certificate of Approval for a Waste Disposal Site dated April 24, 2008, signed by Michael Jovanovic, Regional Manager, Newalta Industrial Services Inc., including all attached supporting information, cover letter, appendices, etc.
50. Report entitled "Detailed Design for the Stage 2 Final Cover, Newalta Stoney Creek Landfill, (Provisional Certificate of Approval A181008)", prepared by AECOM Canada Ltd., dated July 2010.
51. Report entitled "Detailed Design for the Phase 8 West Sidewall & Groundwater Collection System, Newalta Stoney Creek Landfill, including design drawings GW1 to GW5", prepared by AECOM, December 2010.
52. Report entitled "Detailed Design for the Phase 7 Base Liner and Leachate Collection System, Newalta Stoney Creek Landfill (Provisional Certificate of Approval A181008)" prepared by AECOM (Project No. 60213675), dated February 2012.
53. Detailed Design Drawings for Phase 7 Base Liner and Leachate Collection System as follows:
 - i. Cover Sheet entitled "Newalta Stoney Creek Landfill - Phase 7 Base Liner and Leachate Collection System" prepared by AECOM (Project No. 60213675), dated February 2012;
 - ii. Drawing No. LF-PH-7-001 - Existing Conditions - prepared by AECOM (Project No.

60213675), dated February 9, 2012;

- iii. Drawing No. LF-PH-7-002 - Facility Layout - prepared by AECOM (Project No. 60213675), dated February 9, 2012;
- iv. Drawing No. LF-PH-7-003 - Site Preparation - prepared by AECOM (Project No. 60213675), dated February 9, 2012;
- v. Drawing No. LF-PH-7-004 - Groundwater Collection System and Details - prepared by AECOM (Project No. 60213675), dated April 24, 2012;
- vi. Drawing No. LF-PH-7-005 - Grading Plan Base Grading Layer - prepared by AECOM (Project No. 60213675), dated February 9, 2012;
- vii. Drawing No. LF-PH-7-006 - Grading Plan Secondary Liner - prepared by AECOM (Project No. 60213675), dated February 9, 2012;
- viii. Drawing No. LF-PH-7-007 - Grading Plan Hydraulic Control Layer - prepared by AECOM (Project No. 60213675), dated February 9, 2012;
- ix. Drawing No. LF-PH-7-008 - Grading Plan Primary Liner - prepared by AECOM (Project No. 60213675), dated February 9, 2012;
- x. Drawing No. LF-PH-7-009 - Grading Plan Leachate Collection System (Graded Filter) - prepared by AECOM (Project No. 60213675), dated February 9, 2012;
- xi. Drawing No. LF-PH-7-010 - Grading Plan - temporary Berm and Final Grades at Limit of Landfill, Access Ramp Detail - prepared by AECOM (Project No. 60213675), dated February 9, 2012;
- xii. Drawing No. LF-PH-7-011 - Leachate Collection System - prepared by AECOM (Project No. 60213675), dated February 9, 2012;
- xiii. Drawing No. LF-PH-7-012 - Typical Details - Base Liner and Temporary Berm - prepared by AECOM (Project No. 60213675), dated February 9, 2012;
- xiv. Drawing No. LF-PH-7-013 - Typical Details - Interim Temp. Berm and Connection Details to Existing Liner System - prepared by AECOM (Project No. 60213675), dated February 9, 2012;
- xv. Drawing No. LF-PH-7-014 - Groundwater Collection System, Sidewall Construction Sections "E" and "F" - prepared by AECOM (Project No. 60213675), dated February 9, 2012;
- xvi. Drawing No. LF-PH-7-015 - Sidewall Construction Section "G" and Details - prepared by

AECOM (Project No. 60213675), dated April 24, 2012;

- xvii. Drawing No. LF-PH-7-016 - Typical Details - Leachate Collection System Cleanout Structure Details - prepared by AECOM (Project No. 60213675), dated February 9, 2012;
 - xviii. Drawing No. LF-PH-7-017 - Typical Details - Leachate Collection System Cleanout Structure Details - prepared by AECOM (Project No. 60213675), dated February 9, 2012;
 - ixx. Drawing No. LF-PH-7-018 - Typical Details - Leachate Collection System Cleanout Structure Details - prepared by AECOM (Project No. 60213675), dated February 9, 2012;
 - xx. Drawing No. LF-PH-7-019 - Typical Details - Groundwater Collection System - Cleanout Structures CO-G10 and CO-G11 - prepared by AECOM (Project No. 60213675), dated February 9, 2012;
 - xxi. Drawing No. LF-PH-7-020 - Typical Details - Injection Wells W9 and W10 - prepared by AECOM (Project No. 60213675), dated February 9, 2012; and,
 - xxii. Drawing No. LF-PH-7-021 - Proposed Maximum Limit of Phase 7A Construction to be completed in Year 2012 - prepared by AECOM (Project No. 60213675) and dated April 24, 2012.
- 54. Drawing No. 3-R entitled "Base Grading Plan" prepared by AECOM (Project No. 60213675) dated January 14, 2013.
 - 55. Environmental Compliance Approval Application signed by Lorenzo Alfano, Newalta dated November 15, 2012 for amending Conditions 23 and 25 of the ECA re: Changes to service area and waste receiving rates.
 - 56. Report entitled "Newalta Stoney Creek Landfill Reconfiguration Supporting Documentation" prepared for Newalta Corporation by AECOM (Project No. 60290994) dated August 2013.
 - 57. Application to Amend Environmental Compliance Approval No. A181008, Terrapure Environmental Stoney Creek Regional Facility, signed by Lorenzo Alfano, dated July 11, 2019.
 - 58. Memorandum from Ben Kempel/Brian Dermody, GHD to Jessica Foo, MECP, dated September 13, 2019 re: Recommended Surface Water Monitoring Program - Terrapure Environmental Stoney Creek Regional Facility (MECP Reference 5720-BE4NER).
 - 59. Memorandum from Ben Kempel/Brian Dermody, GHD to Jessica Foo, MECP, dated September 17, 2019 re: Response to Comments Groundwater Technical Support - Terrapure Environmental Stoney Creek Regional Facility.
 - 60. Memorandum from Brian Dermody, GHD to Jennifer Roth, City of Hamilton, dated October 27, 2019 re: Responses to City Review Comments - Terrapure Stoney Creek Regional Facility ECA

Amendment Application.

61. Document entitled "Final Cover, Terrapure Stoney Creek Landfill", dated July 14, 2020" re: Technical Specifications and Drawings for final cover of the Terrapure Stoney Creek Regional Facility.
62. Documents entitled "Terrapure Environmental Stoney Creek Landfill Phase 9 Base Liner and Leachate Collection System", including Drawings C-01-C18, inclusive., dated May 2021.
63. Environmental Compliance Approval Application dated June 27, 2025, including technical supporting documents.
64. Design Brief, GFL SCRF Leachate Treatment System Design, GHD, dated October 6, 2025, revised on October 10, 2025.

SCHEDULE "B"

This Schedule "B" forms part of the Approval.

Table B.1: Ground Water Perimeter Drain and Underdrain Operation, Inspection, and Maintenance Requirements

Frequency	Operation	Inspection	Maintenance
Daily	No active operational requirements; system operates by gravity flow and only when groundwater pumping station is in operation (refer to Table B.2)	No specific daily requirements.	No specific daily requirements, maintenance as needed
Monthly		No specific monthly requirements.	No specific monthly requirements, maintenance as needed.
Quarterly		Probe cleanouts for sediment accumulation.	No specific quarterly requirements, maintenance as needed. Remove sediment as needed.
Annually		Video inspection of perimeter drain piping	Flush system piping as required based on inspection, other maintenance as needed.

Note: Ground water level and quality monitoring addressed in Schedule "C".

Table B.2: Groundwater Pumping Station Operation, Inspection, and Maintenance Requirements

Frequency	Operation	Inspection	Maintenance
Daily	Groundwater will be pumped from collection system as required. Once in operation, pumping station operates automatically with pumps activated by float controls. Once pumping cycle set at system start-up. No active operational requirements.	If in operation, check pump operation.	No specific daily requirements, maintenance as needed.
Monthly		No specific monthly requirements.	No specific monthly requirements, maintenance as needed.
Quarterly		Inspect for sediment accumulation. Inspect pump switches, electrical systems and alarms.	No specific quarterly requirements, maintenance as needed. Vacuum sediment, clean switch contacts and pumps as needed.
Annually		Remove pumps and inspect for wear.	No specific annual requirements, maintenance as needed.

Table B.3: Leachate Collection System Operation, Inspection, and Maintenance Requirements

Frequency	Operation	Inspection	Maintenance
Daily	No active operational requirements; system operates by gravity flow.	Measure leachate quantity being collected.	No specific daily requirements, maintenance as needed.
Monthly		No specific monthly requirements.	No specific monthly requirements, maintenance as needed.
Quarterly		Probe cleanouts for sediment accumulation.	No specific quarterly requirements, maintenance as needed.
Annually		Video inspection of all system piping upon completion of construction. Once constructed, video inspection of main pipes and lateral pipes once every two years.	Flush all collection system piping as required based on inspection, other maintenance as needed.

NOTE: Leachate quality, quantity and head monitoring addressed in Schedule "C".

Table B.4: Leachate Pumping Station and Gravity Sewer Operation, Inspection, and Maintenance Requirements

Frequency	Operation	Inspection	Maintenance
Daily	Pumping station operates automatically with pumps activated by float controls. Once pumping cycle set at system start-up, no active operational requirements.	Check pump for proper operation.	No specific daily requirements, maintenance as needed.
Monthly		Inspect pumping station for sediment accumulation. Inspect gravity sewer for sediment accumulation.	Vacuum sediment as needed, maintenance as needed.
Quarterly		Inspect pump switches, electrical systems and alarms.	No specific quarterly requirements, maintenance as needed.
Annually		Remove pumps and inspect for wear. - Video inspection of all gravity sewer piping upon completion of construction. - Once constructed video inspection of gravity sewer piping once every two years.	Flush gravity sewer as required based on inspection, other maintenance as needed.

Table B.5: Hydraulic Control Layer Operation, Inspection, and Maintenance Requirements

Frequency	Operation	Inspection	Maintenance
Daily	Operation of water replacement system. ⁽¹⁾	When water replacement is occurring, ensure proper operation of injection/extraction wells.	No specific daily requirements, maintenance as needed.
Monthly	No specific monthly requirements.	No specific monthly requirements.	No specific monthly requirements, maintenance as needed.
Quarterly	No specific quarterly requirements.	No specific quarterly requirements.	No specific quarterly requirements, maintenance as needed.
Annually	No specific annual requirements.	No specific annual requirements.	No specific annual requirements, maintenance as needed.

No active operational requirements until end of landfill operating period. Saturation of hydraulic control layer to begin starting once construction of liner has been completed. Frequency of replacement of water within hydraulic control layer to be determined based on water quality within layer. Water quality and head monitoring addressed in Schedule "C".

Table B.6: Gas Venting System Operation, Inspection, and Maintenance Requirements

Frequency	Operation	Inspection	Maintenance
Monthly	System is passive and has no active operational requirements.	No specific monthly requirements.	No specific monthly requirements, maintenance as needed.
Annually		No specific annual requirements.	No specific annual requirements, maintenance as needed.

Table B.7: Final Cover Inspection and Maintenance Requirements

Frequency	Inspection	Maintenance
Semi-Annually	• “Walk over” inspection for settlement occurrences, surface erosion and vegetation condition (semi-annually for the first two years following construction).	No specific semi-annual requirements, maintenance as needed.
Annually	“Walk over” inspections annually after two years.	No specific annual requirements, maintenance as needed.

Table B.8: General Site Works Inspection and Maintenance Requirements

Frequency	Inspection	Maintenance
Weekly	• Visual inspection of all fences, gates, visual screens, access roads, First Road West (for efficiency of sweeping) public warning signs, traffic signs.	Maintenance/repair as needed.
Monthly (May to October only)	Visual inspection of sedimentation / retention ponds and perimeter ditches for vegetation condition and sediment accumulation (monthly for first year after construction).	Maintenance as needed (sediment removal, revegetation, erosion repairs).
Semi-Annually	Visual inspection of sedimentation/retention ponds and perimeter ditches for vegetation condition and sediment accumulation (semi-annually after first year following construction).	Maintenance as needed (sediment removal, revegetation, erosion repairs).

SCHEDULE "C"

This Schedule "C" forms part of the Approval.

ENVIRONMENTAL MONITORING

This program will be implemented sequentially as the development of the site progresses. The Short Term category corresponds to the period during the operating life, prior to the hydraulic control layer being surcharged. The Long Term category corresponds to the post closure period, once the hydraulic control is surcharged.

The following schedule examines each layer individually in terms of water quantity (levels and flow) and water quality (chemistry).

	Frequency
Atmospheric Conditions <u>Short and Long Term</u> Average temperature (min., mean, max.), precipitation and wind direction.	Daily
Waste Records of scale-house receipts of waste types.	Continuous
Airborne Dust PM ₁₀ Monitoring	Continuous
Leachate Collection Layer <u>Short and Long Term</u> 1 Levels - 16 of 44 cleanouts - diffusion test pad location (Short term only) 2 Flow - Leachate Collection System discharge point. 3 Quality - Discharge point (List C + BOD)	Quarterly Quarterly Daily Quarterly
Hydraulic Control Layer <u>Short Term</u> 1 Levels - sampler tube at diffusion test pad <u>Long Term</u> - 14 pump in/out locations around perimeter <u>Short Term</u> 2 Flow - visual observation of pumpout volumes <u>Long Term</u> - at each of 14 pump in/out locations as part of flushing cycle <u>Short Term</u> 3 Quality - from pumpout discharge (List A) - sampler tube at diffusion test pad (List B) <u>Long Term</u> - 14 pump in/out locations (List A)	Monthly Monthly for 2 years after surcharge, Quarterly thereafter Monthly or as needed Annually or as determined by performance testing As needed when flowing

	4 per year
Groundwater Collection System / Vinemount Flow Zone <u>Short and Long Term</u> 1 Levels - accessible perimeter cleanout locations - diffusion test pad location (Short term only) 2 Flow - Discharge, if pumping 3 Quality - Discharge, if pumping	Quarterly Monthly Quarterly (List B)
Primary and Secondary Liners <u>Short Term</u> 1 Quality - Electrical Conductivity at diffusion test pad	Quarterly

To avoid engineered perforations of the liner systems, which may become conduits for fluid movement and/or localized liner failure, groundwater monitors in the VFZ, UFZ, MFZ and LFZ will be restricted to the perimeter of the site (that is no groundwater monitors will exist under the liner).

List A: General: pH, Conductivity, Alkalinity, Phenols, TKN, NH₃ N, TOC

Major ions: Ca, Mg, Na, K, Cl, SO₄, F, NO₂N, NO₃N, Br,

PO₄

List B: List A + Metals: Al, BA, BE, B, Cd, Cr, Co, Cu, Pb, Fe, Mn, Mo, Ni, Si, Sr, Ti, V, Zn

List C: List B + Organic Analysis: Misa Groups 16, 17, 18, 19, 20, and 22.

SCHEDULE "D"

This Schedule “D” forms part of the Approval.

Surface Water Monitoring Program

Table D.1 Surface Water Monitoring Program

Stations	Spring Freshet (Feb-Apr)	Spring Rain (Apr-May)	Summer Dry (June-Aug)	Summer Rain (June-Sep)	Fall Rain (Oct-Dec)
TS-1	✓ ❖	✓	✓ ❖	✓	✓
TS-2	✓ ❖	✓	✓ ❖	✓	✓
T-1R	✓ ❖	✓	✓ ❖	✓	✓
T-3R*	✓ ❖	✓	✓ ❖	✓	✓
T-3A	✓ ❖	✓	✓ ❖	✓	✓
T-12	✓ ❖	✓	✓ ❖	✓	✓
T-13	✓	✓	✓	✓	✓
T-15	✓ ❖	✓	✓ ❖	✓	✓
T-30	✓	✓	✓	✓	✓
T-32	✓	✓	✓	✓	✓
North Sump	✓ ❖		✓ ❖		

Notes:

* Sample when there is visible flow. Check on a weekly basis to get the monthly sample

✓ includes field measurements and water quality evaluation (full) parameters

❖ includes trace organic compounds

Table D.2 Surface Water Parameter List

<i>List ✓ : Field Measurements</i>	<i>List ✧ : Trace Organic Compounds</i>
pH dissolved oxygen water temperature conductivity stream flow (or water level)	MISA test groups 16, 17, 18, 19, 20, 22 Volatile organics, Semi-volatile organics Pesticides, Base/neutral extractables Acid extractables Chlorophenols
<i>List ✓ : Water Quality Evaluation (full)</i>	
total suspended solids pH and alkalinity hardness chloride nitrite total ammonia un-ionized ammonia (calculated) total phosphorus (0.030) copper (0.001) boron cadmium (0.00045) mercury (0.0002) chromium (0.1) iron (0.3) filtered total aluminum (0.075) arsenic (0.1) total phenols (4AAP) (0.001)	BODS dissolved organic carbon sulphate nitrate calcium magnesium sodium manganese lead (0.001) zinc (0.020) nickel (0.025) silver (0.0001) selenium (0.1) molybdenum (0.010) cobalt (0.1) beryllium vanadium

Note: Number in parenthesis is the minimum detection limit (in mg/L) which must be obtained in all cases. If it is not possible to achieve the stated detection limit then the lowest possible detection limit should be obtained.

SCHEDULE "E"

This Schedule "E" forms part of the Approval.

COMBUSTIBLE GAS MONITORING

As each phase of the landfill is constructed, the gas monitors should be installed in the buffer zone every 200 m around the perimeter of the landfill, into the water table in the Eramosa bedrock. Monitoring will include combustible gas concentrations in all monitors.

	Frequency
Monitoring	
Winter: First two years of landfill phase construction	Weekly
(After two years with no detection of combustible gas)	Monthly
Summer:	Once
Sampling	Four samples each location
Summer: Gas sampling (CO ₂ , CH ₄ , N ₂ , O ₂ , H ₂ S) within first year of phase completion	

SCHEDULE "F"

This Schedule "F" forms part of the Approval.

GROUND WATER MONITORING PROGRAM

Monitoring Well Nest		Flow Zone	Water Level Measurements		Sampling			Notes
			Weekly	Monthly	Parameter List	Sample Collection Frequency		
14	I	LFZ	-	✓	A	Triannual		
29	II	VFZ	-	✓	-	-	Monitors will be decommissioned when liner construction reaches this location	
	III	UFZ	-	✓	-	-		
	I	UMFZ	-	✓	-	-		
	IV	LMFZ	-	✓	-	-		
30	II	Waste	-	✓	-	-		
	I	UFZ	-	✓	-	-		
31	II	Waste	-	✓	-	-		
	I	UFZ	-	✓	A	Triannual		
32	II	Waste	-	✓	-	-		
	I	VFZ	-	✓	-	-		
33	II	Waste	-	✓	A	Triannual		
	I	VFZ	-	✓	A	Triannual		
35	V	Overburden/Eramosa	-	✓	A	B	Triannual	Semi-annual
	VII	VFZ	-	✓	A	B	Triannual	Semi-annual
								Sem

	IV	UFZ	-	✓	A	B	Triannual	i- a n n u a l	
	VI	UMFZ	-	✓	A	B	Triannual	S e m i- a n n u a l	
	III	LFZ	-	✓	A	B	Triannual	S e m i- a n n u a l	
36	IVR	Overburden/Eramosa	-	✓	A		Triannual		Replacement well
	VR	VFZ	-	✓	A		Triannual		Replacement well
	IIIR	UFZ	-	✓	A		Triannual		Replacement well
	IR	UMFZ	-	✓	A		Triannual		Replacement well
	IIR	LFZ	-	✓	-		-		Replacement well

40	III	VFZ	-	✓	-	-	Monitors will be decommissioned when liner construction reaches this location	
	IIR	UFZ	-	✓	-	-		
	I	UMFZ	-	✓	-	-		
41	III	Overburden/Eramosa	-	✓	A		Triannual	
	II	UMFZ	-	✓	A	B	Triannual	Semi-annual
	I	LFZ	-	✓	A	B	Triannual	Semi-annual
42	III	VFZ	-	✓	A		Triannual	
	II	UFZ	-	✓	A		Triannual	
	I	UMFZ	-	✓	A		Triannual	
43	II	LMFZ	-	✓	A		Triannual	
	I	LFZ	-	✓	A		Triannual	
44	II	LMFZ	-	✓	A	B	Triannual	Semi-annual
	I	LFZ	-	✓	A	B	Triannual	Semi-annual
45	II	LMFZ	-	✓	-		-	
	I	LFZ	-	✓	-		-	
46 R	IIIR	UFZ	-	✓	A		Triannual	Replacement well
	IIR	UMFZ	-	✓	A		Triannual	Replacement well
	IR	LFZ	-	✓	A		Triannual	Replacement well
47	IV	Overburden/Eramosa	-	✓	A	B	Triannual	Semi-annual
	III	VFZ	-	✓	A	B	Triannual	Semi-annual
	IIR	UFZ	-	✓	A	B	Triannual	Semi-annual
	I	UMFZ	-	✓	A	B	Triannual	Semi-annual

48	IV	Overburden/Eramosa	-	✓	A		Triannual		Monitors will be decommissioned when liner construction reaches this location
	V	VFZ	-	✓	A		Triannual		
	III	UFZ	-	✓	-		-		
	II	UMFZ	-	✓	A		Triannual		
	I	LFZ	-	✓	A		Triannual		
49	IV	Overburden/Eramosa	-	✓	A		Triannual		
	V	VFZ	-	✓	A		Triannual		
	III	UFZ	-	✓	-		-		
	II	UMFZ	-	✓	A		Triannual		
	IR	LFZ	-	✓	-		-		
50	II	Overburden/Eramosa	-	✓	A		Triannual		
	I	UFZ	-	✓	-		-		
51	V	Overburden/Eramosa	-	✓	A	B	Triannual	Semi-annual	
	IV	VFZ	-	✓	A	B	Triannual	Semi-annual	
	VI	RS	-	✓	-		-		
52	III	Overburden/Eramosa	-	✓	A		Triannual		
	II	VFZ	-	✓	A		Triannual		
	I	UFZ	-	✓	-		-		
55	I	VFZ	-	✓	-		-		
		UFZ	-						
		UMFZ	-						
56	II	UFZ	-	✓	A		Triannual		
	I	UMFZ	-	✓	A		Triannual		
57	II	Waste	-	✓	-		-		
	IR	UFZ	-	✓	-		-		Replacement well

58	I	Waste	-	✓	A	B	Triannual	Semi-annual	
60	III	VFZ	-	✓	A		Triannual		
	II	UFZ	-	✓	A		Triannual		
	I	UMFZ	-	✓	A		Triannual		
	IV	LFZ	-	✓	A		Triannual		
61	III	VFZ	-	✓	A		Triannual		
	II	UFZ	-	✓	A		Triannual		
	I	UMFZ	-	✓	A		Triannual		
62	IV	UFZ	-	✓	A		Triannual		
	III	UMFZ	-	✓	A		Triannual		
	II	LMFZ	-	✓	A		Triannual		
	I	LFZ	-	✓	A		Triannual		
67	III	UFZ	-	✓	A		Triannual		
	II	UMFZ	-	✓	A		Triannual		
	I	LMFZ	-	✓	A		Triannual		
68	IV	VFZ	-	✓	A	B	Triannual	Semi-annual	
	III	UFZ	-	✓	A	B	Triannual	Semi-annual	
	II	UMFZ	-	✓	A	B	Triannual	Semi-annual	
	I	LFZ	-	✓	A	B	Triannual	Semi-annual	
72	III	UFZ	-	✓	A	B	Triannual	Semi-annual	
	II	UMFZ	-	✓	A	B	Triannual	Semi-annual	
	I	LFZ	-	✓	A	B	Triannual	Semi-annual	
75	IV	UFZ	-	✓	A		Triannual		
	III	UMFZ	-	✓	A		Triannual		
	II	LMFZ	-	✓	A		Triannual		
	I	LFZ	-	✓	A		Triannual		
76	III	LMFZ	-	✓	A	B	Triannual	Semi-annual	
	II	LFZ	-	✓	A	B	Triannual	Semi-annual	
	I	RS	-	✓	A	B	Triannual	Semi-annual	
77	V	Overburden/Eramosa	-	✓	A		Triannual		
	II	UMFZ	-	✓	A		Triannual		
	I	LFZ	-	✓	A		Triannual		

P1	III	UFZ	-	✓	A	Triannual	
	II	UMFZ	-	✓	A	Triannual	
	I	LFZ	-	✓	A	Triannual	
P2	II	UFZ	-	✓	A	Triannual	
	I	LFZ	-	✓	-	-	
P3	II	UFZ	-	✓	A	Triannual	
	III	UMFZ	-	✓	A	Triannual	
	I	LMFZ	-	✓	A	Triannual	
P4	IV	Eramosa	-	✓	A	Triannual	
	II	UFZ	-	✓	-	-	
	III	UMFZ	-	✓	-	-	
P5	IVRR	VFZ	-	✓	A	Triannual	Replacement well
	IIIR	UFZ	-	✓	A	Triannual	Replacement well
	IIR	UMFZ	-	✓	A	Triannual	Replacement well
	IR	LFZ	-	✓	A	Triannual	Replacement well
P6	IR	UFZ	-	✓	-	-	Replacement well
9	9-I	VFZ	-	✓	-	-	
P7	VIR	Overburden/Eramosa	-	✓	-	-	Replacement well
	IV	VFZ	-	✓	A	Triannual	
	III	UFZ	-	✓	A	Triannual	
	II	UMFZ	-	✓	A	Triannual	
	V	LMFZ	-	✓	-	-	
	IR	LFZ	-	✓	A	Triannual	Replacement well
P8	II	Overburden/Eramosa	-	✓	A	Triannual	
	I	UFZ	-	✓	A	Triannual	
P9	II	Overburden/Eramosa	-	✓	A	Triannual	
	IIIR	VFZ	-	✓	A	Triannual	Replacement well
	I	UFZ	-	✓	A	Triannual	

		Overburden/Eramosa							
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P10	V	sa	-	✓	A	B	Triannual	Semi-annual	
	IV	VFZ	-	✓	A	B	Triannual	Semi-annual	
	III	UFZ	-	✓	A	B	Triannual	Semi-annual	
	II	UMFZ	-	✓	A	B	Triannual	Semi-annual	
	I	LFZ	-	✓	A	B	Triannual	Semi-annual	
P11	III	UFZ	-	✓	A		Triannual		
	II	UMFZ	-	✓	A		Triannual		
	I	LFZ	-	✓	A		Triannual		
P12	I	UFZ	-	✓	A		Triannual		
P14	I	UFZ	-	✓	A		Triannual		
P15	I	UFZ	-	✓	A		Triannual		
P16	I	UFZ	-	✓	A		Triannual		
P17	I	UFZ	-	✓	A		Triannual		
Shatter Trench	ST 1	UFZ	-	✓	A		Triannual		
Shatter Trench	ST1-II	UFZ	-	✓	-		-		
	ST 1-I	UMFZ	-	✓	-		-		
Shatter Trench	ST 2	UFZ	-	✓	A		Triannual		
Shatter Trench	ST 2-I	UFZ	-	✓	-		-		
	ST 2-II	UMFZ	-	✓	-		-		
Shatter Trench	M 5	UFZ	-	✓	-		-		
		UMFZ	-						
Shatter Trench	M 5a	UFZ	✓	-	-		-		
	M 5R	UMFZ	✓	-	-		-		

Lower Excavation	M4	VFZ	-	✓	A		Triannual		
		UFZ	-						
		UMFZ	-						
CW3, 5R, 16 (when operating)	CW16	VFZ	-	✓	A		Triannual		
	CW3, 5R	UFZ	-						
L1	L1	LFZ	-	✓	A		Triannual		
LS-1	LS-1	Waste	-	✓	A	B	Triannual	Semi-annual	
LS-2	LS-2	Waste	-	✓	A	B	Triannual	Semi-annual	
LS-3	LS-3	Waste	-	✓	A	B	Triannual	Semi-annual	
Gas Monitors	G11	Overburden/Eramosa	-	✓	A		Triannual		
Gas Monitors	G13	Overburden/Eramosa	-	✓	A		Triannual		
Gas Monitors	G27	Overburden/Eramosa	-	✓	A		Triannual		

FREQUENCY AND PARAMETERS

Parameter List A	Field Measurements: pH, water temperature, conductivity
	Analytical Parameters: pH, conductivity, alkalinity, hardness, TDS, phenols, TKN, ammonia, DOC, calcium, potassium, magnesium, sodium, chloride, fluoride, bromide, nitrate, nitrite, phosphate, sulphate, aluminum, barium, beryllium, boron, cadmium, chromium, cobalt, copper, lead, iron Parameter List A to be sampled on triannual basis (spring, summer, fall)
Parameter List B	Analytical Parameters: MISA Test Groups 16, 17, 18, 19, 20, 22
	Volatile organics, semi-organics, pesticides, base/neutral extractables, acid extractables, chlorophenols Parameter List B to be sampled on semi-annual basis (spring, fall)
	Water levels are a requirement of Permit to Take Water

VFZ - Vinemount Flow Zone, UFZ - Upper Flow Zone, UMFZ - Upper Mid Flow Zone, LMFZ - Lower Mid Flow Zone, LFZ - Lower Flow Zone, RS - Rochester Shale

Schedule G

This Schedule “G” forms part of the Approval.

The following are the Terms of Reference for the CLC:

Continuance:

The Owner shall continue to maintain a community liaison committee to be known as the Terrapure Stoney Creek Regional Facility Community Liaison Committee (CLC) that will be guided by the Terms of Reference as outlined below and applicable Conditions in this Approval

Mandate:

The mandate of the CLC is to:

- (a) Provide a forum for public concerns to be raised and for mitigation measures to be discussed.
- (b) Serve for the dissemination, review and exchange of information and monitoring results relevant to the undertaking.

Changes to operation or mandate of this committee shall have the agreement of the Owner , 2/3 of all voting members and the approval of the Regional Director of West Central Region of the Ministry of the Environment, Conservation and Parks.

If there is no interest from the public in participating in a CLC or if there is no interest in continuing a CLC after one has been established, the Owner shall publish a notice at least once a year inviting expressions of interest in forming the CLC.

Membership:

Membership on the CLC shall be as follows:

A) Voting Members

- a. There shall be four community representatives from the resident population of the City of Hamilton, with preference given to those who reside within 1500 metres of the Site . Should there be less than four community representative applicants, the CLC may operate with a minimum of two community representatives. The term of the community representatives on the CLC shall be the same as for the City of Hamilton representatives, four years. These terms should be staggered to avoid complete turnover of membership at the end of four years.
- b. Two Representatives of the City of Hamilton appointed by the City of Hamilton, which representatives are not staff members. The term of the City of Hamilton representatives shall be for a four year term, to align with the terms of Council of the City of Hamilton.

The committee reserves the right to elect one Alternate Community Member. The Alternate Community Member is invited to attend meetings and to participate as an official voting member in case one of the other appointed community members is unable to attend. This position will help ensure quorum at each meeting and will help in succession planning for the committee, as the Alternate Community Member will be eligible to put his/her name forward for consideration as a full Community Member

B) Non- Voting Members

- a. There shall be one non-voting representative of the MECP on the CLC .
- b. There shall be two non-voting members appointed by the Owner on the CLC.

The following new agencies, communities and stakeholders will be invited to join the community liaison committee:

- a. Interested Indigenous communities as identified in the Indigenous consultation plan
- b. Representatives from the Hamilton Wentworth District School Board
- c. Representatives from Hamilton Wentworth Catholic School Board

Operation of the CLC:

The CLC shall elect a chair from the voting members of the CLC whose role it will be to call and preside over meetings of the committee.

Selection of Community Representatives:

- a. The procedure for the selection of the community representatives on the CLC shall consist of advertising for interested applicants in both a daily newspaper and a local community newspaper by the Owner . If the CLC disbands due to lack of sufficient interest but then subsequently reforms at a future date, selection of the new group of community representatives will be made by a selection committee comprised of the City of Hamilton, MECP and Owner members. Subsequent selection will be conducted by the entire CLC , with input from both voting and non- voting members.

Meeting Procedures for CLC:

- a. Routine meetings shall be held at the discretion of the voting members of the CLC to a maximum of once per quarter. Additional meetings shall be convened at the call of the Chair. All meetings will be open to observers from the public, with the exception of committee member selection, personnel matters and legal advice.
- b. Meetings will be formal with an agenda circulated in advance of the meetings. Request for delegations to attend are to be made at least two days in advance of the meeting. Minutes will be taken.

- c. If quarterly meetings are not held, the Owner shall circulate Site updates on a quarterly basis by email.
- d. Meeting dates, meeting agendas and meeting minutes or quarterly updates shall be publicly accessible. The CLC shall maintain additional general meeting rules and operating guidelines, including a quorum, procedures for voting, notice of meetings and procedures for open houses and public forum.

Funding for the CLC:

The Owner shall provide nominal funding, as required, for the reasonable costs of the operation of the CLC , excluding the costs of administrative services and quarterly meeting space, which is to be provided by the Owner at the Site.

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

- 1. The reason for inclusion of the definitions is to define the specific meaning of terms and simplify the wording of conditions in this Approval.*
- 2. The reason for Conditions 1.1 and 1. 2 is to ensure that the Site is designed, operated, monitored and maintained in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider.*
- 3. The reason for Conditions 1.3, 1.4, 1.5, 1.9, 1.10, 1.11, 1.12 and 1.13 is to clarify the legal rights and responsibilities of the Owner under this Approval.*
- 4. Conditions 1.6 and 1.7 are included to ensure that the appropriate Ministry staff have ready access to information and the operations of the Site, which are approved under this Approval.*
- 5. Condition 1.8 has been included in order to clarify what information may be subject to the Freedom of Information Act.*
- 6. Conditions 1.14 to 1.16 inclusive are included, pursuant to subsection 197(1) of the EPA, to provide that any persons having an interest in the Site are aware that the land has been approved and used for the purposes of waste disposal.*
- 7. The reasons for Condition 1.17 are to restrict potential transfer or encumbrance of the Site without the approval of the Director and to ensure that any transfer of encumbrance can be made only on the basis that it will not endanger compliance with this Approval.*
- 8. The reasons for Conditions 1.18 and 1.19 are to ensure that the Site is operated under the corporate name which appears on the application form submitted for this approval and to ensure that the Director is informed of any changes.*
- 9. The reason for Condition 1.20 is to ensure that appropriate Ministry staff have ready access to the Site for inspection of facilities, equipment, practices and operations required by the conditions in this Approval. This condition is supplementary to the powers of entry afforded a Provincial Officer pursuant to the EPA and OWRA.*
- 10. The reason for Condition 1.21 is to ensure the Approval is reference in any correspondence to clearly indicate the site that is being discussed.*
- 11. The reasons for Conditions 2.1 to 2.8 are to ensure that sufficient funds are available to the Ministry to close the landfill, and to carry out all expected post-closure care activities and any contingencies. Failure to include requirements for financial assurance would not be in the*

public interest and may result in a hazard or nuisance to the natural environment or any person.

- 12. Conditions 3.1 to 3.5 are to establish and maintain a forum for the exchange of information and public dialogue on activities to be carried out at the landfill site. Open communication with the public and local authorities is important in helping to maintain high standards for site operation and environmental protection.*
- 13. The reason for Conditions 4.1 to 4.5 inclusive, 4.7 and 4.8 is to ensure that the Site is designed, constructed and operated in an environmentally acceptable manner, based on the conceptual design and operations for the Site.*
- 14. The reason for Condition 4.6 is to ensure the availability of as-built drawings for inspection and information purposes.*
- 15. The reason for Conditions 5.1, 5.3 is to ensure that waste disposal at the site is undertaken in accordance with applicable Ministry of the Environment regulations, and the approved documents incorporated into this Approval. Compliance with these regulations and guidelines and an organized operation will ensure that the site does not cause and adverse effect on the environment.*
- 17. The reason for Condition 5.2 is to ensure the Owner is aware of their responsibility for ensuring groundwater protection at the Site.*
- 18. The reason for Condition 5.4 is to ensure the Owner maintains a 30 m buffer around the landfill site.*
- 19. The reasons for Conditions 5.5 are to ensure that users of the Site are fully aware of important information and restrictions related to Site operations under this Approval.*
- 21. The reasons for Conditions 5.6, 5.7, and 5.8 are to specify the normal hours of operation for the landfill Site and a mechanism for amendment of the hours of operation.*
- 22. The reasons for Conditions 5.9, 5.10, 5.11 and 5.12 are to specify site access to/from the Site and to ensure the controlled access and integrity of the Site by preventing unauthorized access when the Site is closed and no site attendant is on duty.*
- 23. The reason for Conditions 5.13 and 5.14 is to clearly identify the access requirements for the Site.*
- 24. The reason for Condition 5.15 is to ensure trucks entering the Site do not cause an impact to traffic.*
- 25. The reason for Condition 5.16 is to ensure approval is obtained for any new type of waste to be received at the Site.*

27. *The reasons for Condition 5.17 is to ensure the site is operated in a manner in which as adverse effect does not occur. This is to ensure the long-term protection of the environment and human health.*
28. *The reasons for Condition 5.18 is to ensure that the Site is operated and maintained in an environmentally acceptable manner and does not result in a hazard or nuisance to the natural environment or any person.*
29. *The reason for Condition 5.19, 5.20, 5.21, 5.22, 5.23, and 5.24 are to ensure that noise from or related to the operation of the landfill is kept to within Ministry limits and does not result in a hazard or nuisance to any person.*
30. *The reason for Condition 5.25 is to ensure the Owner receives ministry's approval before discontinuing using the groundwater collection trench.*
32. *The reason Condition 5.26 is to prevent ponding in on site ditches and any adverse impact on the environment and human health.*
33. *The reason for Conditions 6.1, 6.2 and 6.18 is to specify the approved areas from which waste may be accepted at the Site and the types and amounts of waste that may be accepted for disposal at the Site, based on the Owner's application and supporting documentation.*
34. *The reasons for Conditions 6.3, 6.4, 6.5 and 6.6 are to approve the receipt and disposal of non-hazardous incinerator ash at the Site and to ensure that disposal of the ash waste is done in a manner which minimizes the effects of the landfill to the health and safety of the public and the environment and to conduct the disposal in accordance with the application and not in a manner which the Director has not been asked to consider.*
35. *The reasons for Conditions 6.7, 6.8, 6.9, 6.10, 6.11 and 6.12 are to ensure that the management and disposal of asbestos waste is done in accordance with regulatory requirements and in a manner that is protective of human health and safety and the environment.*
36. *Condition 6.13, 6.14, and 6.15 specifies the maximum amount of waste that may be received at the site based on the approved Environmental Assessment for the site.*
37. *The reason for Condition 6.16 is to specify restrictions on the extent of landfilling at this Site based on the Owner's application and supporting documentation. These limits define the approved volumetric capacity of the site. Approval to landfill beyond these limits would require an application with supporting documentation submitted to the Director.*
38. *The reason for Condition 6.17 has been imposed to minimize the potential for clogging of the drainage layer and to minimize temperature effects on the leachate collection system.*
39. *Condition 6.19 is necessary in order to ensure that all waste loads are inspected and waste that*

is disposed of at the site is in accordance with the terms and conditions in this Approval.

40. *The reason for Condition 6.20 is that open burning of waste is unacceptable because of concerns with air emissions, smoke and other nuisance affects, and the potential fire hazard.*
41. *Conditions 6.21, 6.22, 6.23, 6.24, 6.25, and 6.26 are to ensure that leachate is managed in a manner approved by this Approval.*
42. *The reason for Condition 6.27 is that there is low potential for landfill gas generation due to the nature of waste that has been disposed of at the Site and in accordance with Section 15.3 of O. Reg. 232, the Director has been satisfied that gas collection is not required.*
43. *The reason for Conditions 7.1 are to ensure the major works for the Site are approved based on the ministry approved detailed design drawing.*
44. *Conditions 8.1, 8.2 and 8.3, are needed to ensure regular inspections of the site are conducted in order to protect the natural environment.*
45. *The reason for Conditions 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 8.10, 8.11, 8.12 and 8.13 are to ensure that accurate waste records are maintained to ensure compliance with the conditions in this Approval (such as fill rate, site capacity, record keeping, annual reporting, and financial assurance requirements), the EPA and its regulations. Record keeping is necessary to determine compliance with this Approval, the EPA and its regulations.*
46. *The reason for Condition 9.1 is to ensure that the Site is supervised and operated by properly trained staff in a manner which does not result in a hazard or nuisance to the natural environment or any person.*
47. *The reason for Condition 10.1 is to ensure that complaints are addressed expeditiously in order to minimize the impact of the Site on the environment and the health and safety of the public.*
48. *The reasons for Conditions 11.1 and 11.2 are to ensure that the Ministry is informed of any spills or fires at the Site and to provide public health and safety and environmental protection.*
49. *The reasons for Conditions 12.1, 12.2, 12.3, 12.4 and 12.5 are to ensure protection of the natural environment and the integrity of the groundwater monitoring network.*
50. *The reason for Conditions 12.6, 12.7, 12.8, 12.9 and 12.10 are to demonstrate that the landfill site is performing as designed and the impacts on the natural environment are acceptable. Regular monitoring allows for the analysis of trends over time and ensures that there is an early warning of potential problems so that any necessary remedial/contingency action can be taken.*
51. *The reason for Conditions 13.1, 13.2, 13.3, 13.4 and 13.5 are to ensure that the Owner follows a plan with an organized set of procedures for identifying and responding to unexpected but possible problems at the Site. A remedial action / contingency plan is necessary to ensure*

protection of the natural environment. A leachate contingency plan is a specific requirement of Reg. 232.

52. *The reason for Condition 14.1 and 14.2 is to ensure that the leachate treatment system is constructed and operated as approved.*
53. *The reason for Conditions 14.3 is to ensure that the Site is designed, constructed and operated in an environmentally acceptable manner, based on the conceptual design and operations for the Site.*
54. *Condition 14.4 and 14.5 is added to ensure that leachate generated at this Site is disposed of in an environmentally acceptable manner.*
55. *The reason for Condition 14.6 is to ensure an operation and maintenance plan is available for the leachate treatment system.*
56. *The reasons for Condition 15.1 is to ensure that regular review of site development, operations and monitoring data is documented and any possible improvements to site design, operations or monitoring programs are identified. An annual report is an important tool used in reviewing site activities and for determining the effectiveness of site design.*
57. *The reasons for Conditions 16.1 and 16.2 are to ensure that final closure of the Site is completed in an aesthetically pleasing manner and to ensure the long-term protection of the natural environment.*
58. *Condition 16.3 has been inserted in order to ensure proper public consultation about the end use of the Site is undertaken and that the end use activities are consistent with those identified during the EA process.*

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). A181008 issued on January 13, 2023

In accordance with Section 139 of the *Environmental Protection Act*, you may by written notice served upon me, the Ontario Land Tribunal and in accordance with Section 47 of the *Environmental Bill of Rights*, 1993, the Minister of the Environment, Conservation and Parks, within 15 days after receipt of this notice, require a hearing by the Tribunal. The Minister of the Environment, Conservation and Parks will place notice of your appeal on the Environmental Registry. Section 142 of the *Environmental Protection Act* provides that the notice requiring the hearing ("the Notice") shall state:

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

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

compliance approval.

The Notice should also include:

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

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

This Notice must be served upon:

Registrar*
Ontario Land Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5
OLT.Registrar@ontario.ca

and

The Minister of the Environment,
Conservation and Parks
777 Bay Street, 5th Floor
Toronto, Ontario
M7A 2J3

and

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

*** Further information on the Ontario Land Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349 or 1 (866) 448-2248, or www.olt.gov.on.ca**

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

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

DATED AT TORONTO this 28th day of October, 2025



Mohsen Keyvani, P.Eng.

Director

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

AQ/

c: District Manager, MECP Hamilton - District
Peter Lesieczko P. Eng. and Neil Shannick P. Eng., GHD

Provincial Officer's Order

Order Number

1-277723794

Order Issued To

GFL ENVIRONMENTAL INC.
100 NEW PARK PL UNIT 500, VAUGHAN, ON, L4K 0H9

Site

GFL Stoney Creek Regional Facility
65 GREEN MOUNTAIN RD W, HAMILTON, ON, L8J 1X5

Refer to the Definitions section in the Provincial Officer's Report, Part B of this Order, for the meaning of all the capitalized terms that are used in this Order.

PART A - WORK ORDERED

Pursuant to my authority under **EPA | 157.1, EPA | 157**, I order you to do the following:

Item No. 1 **Compliance Due Date:** Apr-10-2024

Upon service of this Order and until cell 9A is commissioned, or June 1, 2024, whichever date comes first, do not deposit Waste higher than the current maximum Waste height of 235.75mASL.

Item No. 2 **Compliance Due Date:** Apr-17-2024

By April 17, 2024, post a copy of this Order to your website so that it is publicly accessible.

Item No. 3 **Compliance Due Date:** Apr-18-2024

By April 18, 2024, add to the weekly progress report required by the 2023 Order a report on the status of the commissioning of cells 9A and 9C.

Item No. 4 **Compliance Due Date:** Jun-01-2024

By June 1, 2024, commission Cell 9A, as outlined in the Design & Operations Report.

Item No. 5 **Compliance Due Date:** Jun-01-2024

By June 1, 2024, or upon commissioning of Cell 9A, whichever date comes first, cease depositing Waste above the approved final contours of the Site (221.75mASL) and begin to decrease the contours of the balance of the

Site.

Item No. 6 Compliance Due Date: Jun-01-2024

By June 1, 2024, or within one week of the commissioning of Cell 9A, whichever date comes first, perform a contour survey of the landfill to determine the total volume of Waste currently placed at the Site and provide the results of this survey and an isopach drawing via email to Tamara.Posadowski@ontario.ca and Environment.Hamilton@ontario.ca.

Item No. 7 Compliance Due Date: Jun-01-2024

By June 1, 2024, or upon commissioning of Cell 9A, whichever date comes first, add to the weekly progress report required by the 2023 Order, the total volume of Waste that has been relocated for the week.

Item No. 8 Compliance Due Date: Oct-01-2024

By October 1, 2024, commission Cell 9C, as outlined in the Design & Operations Report.

Item No. 9 Compliance Due Date: Dec-31-2024

By December 31, 2024, relocate and store all Waste deposited since July 1, 2023, below the approved final contours of 221.75mASL.

Item No. 10 Compliance Due Date: Dec-31-2024

By December 31, 2024, perform a contour survey of the landfill to confirm the total volume of Waste placed at the Site and provide the results of this survey and an isopach drawing via email to Tamara.Posadowski@ontario.ca and Environment.Hamilton@ontario.ca.

Item No. 11 Compliance Due Date: Dec-31-2025

By December 31, 2025, ensure that all Waste on Site is stored below the approved final contours of 221.75mASL.

Item No. 12 Compliance Due Date: Dec-31-2025

By December 31, 2025, perform a contour survey of the landfill to confirm the total volume of Waste placed at the Site and provide the results of this survey and an isopach drawing via email to Tamara.Posadowski@ontario.ca and Environment.Hamilton@ontario.ca.

PART B - PROVINCIAL OFFICER'S REPORT

This Order is being issued for the reasons set out below.

Definitions

For the purposes of this Order, the following capitalized terms shall have the meanings set out below:

"2023 Order" means the Provincial Officer's Order 1-237438590 issued to GFL on October 18, 2023.

"Design & Operations Report" means the Design & Operations Report for the Stoney Creek Regional Facility Environmental Assessment, dated July 2019, that is part of Item No. 57 in Schedule A of the ECA and must be complied with under condition 1.3 of the ECA.

"ECA" means the Environmental Compliance Approval, A181008 issued by the Ministry regarding the operations at the Site.

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

"GFL" means GFL Environmental Inc.

"Leachate Assessment Report" means the Leachate Assessment Report dated December 8, 2023, and prepared by GHD on behalf of GFL, and a copy of which is attached as part of this Order.

"Ministry" means the Ontario Ministry of the Environment, Conservation and Parks.

"Order" means this Provincial Officer's Order No. 1-277723794, as it may be amended.

"Provincial Officer" means the undersigned provincial officer or, in the event that the undersigned officer is unable to act, any other provincial officer authorized to act pursuant to the EPA.

"Site" means the property listed above in the Site section and further described below in the section entitled Description of the Site and/or System/Facility.

"Waste" means the waste type described in sections 6.1 and 6.2 of the ECA.

"Waste Relocation Plan" means the plan submitted by GFL to the Ministry on January 22, 2024 and referred to below.

Description of Person(s) Subject to the Order

GFL Environmental Inc. is an active Ontario corporation with Ontario Corporation Number 1000399619, that was amalgamated on January 1, 2023.

GFL acquired the Site on February 2, 2022 and has continued the operations at the Site as a waste disposal site (landfilling site). Many of the employees of the former owner of the Site are still involved in the operations of this Site, under the management and control of GFL.

Description of the Site and/or System/Facility

The Site includes the active filling property municipally known as 65 Green Mountain Rd. W., Hamilton, Ontario, L8J 1X5, which is legally described as all of PIN 17097-2071 (LT).

The operations regarding the Site also include the property with the leachate pond, which is located to the west of the active landfill operations, in the Heritage Green Sports Park which is legally described as all of PIN 17097-2822 (LT). The leachate pond stores treated leachate from the landfilling operations before it is discharged to municipal sanitary sewers.

Details describing the Site are included in Item 4.2 of the Leachate Assessment Report.

To the north and south of the Site there are residential neighbourhoods, and also to the west of the leachate pond. To the east of the Site, there is agricultural lands, various recreational activities and additional residences.

The Site is subject to the ECA which approves the receipt and disposal of solid, non-hazardous waste. No hazardous, liquid industrial, or putrescible wastes may be received at the Site. The Site has been operating since 1996 and in 2019 received approval under the Environmental Assessment Act for an expansion. The ECA relating to the expansion, was issued on October 31, 2019, and was amended in 2021 for construction and installation of major works and again in 2023 as required to provide an updated financial assurance plan.

Reasons for the Order

This Order is being issued to formally set out the Ministry requirements regarding the steps to be undertaken by GFL to achieve compliance with the ECA in respect of the Waste contours of the Site.

The ECA for the Site contains the following key conditions relevant to this Order:

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

6.16 "No waste, including intermediate cover or final cover layer, shall be landfilled outside the limits of the base and final cover contours as shown in Item No. 57 in Schedule "A". No waste shall be disposed of within the buffer lands."

Item No. 57 in Schedule "A" is listed as: "Application to Amend Environmental Compliance Approval No. A181008, Terrapure Environmental Stoney Creek Regional Facility, signed by Lorenzo Alfano, dated July 11, 2019" and includes the Design & Operations Report which GFL has not amended.

The Design & Operations Report describes the final contours as a maximum elevation of about 221.75mASL, which is to include the final vegetated cover.

Condition 6.16 has appeared in previous amendments of the ECA, and the ECA provides the following reason for condition 6.16:

"The reason for Condition 6.16 is to specify restrictions on the extent of landfilling at this Site based on the Owner's application and supporting documentation. These limits define the approved volumetric capacity of the site. Approval to landfill beyond these limits would require an application with supporting documentation submitted to the Director."

Since I became the Provincial Officer assigned to the Site, I have determined that GFL is not operating in accordance with the Design & Operations Report, specifically in regard to the following:

- I. Waste contour heights;
- II. leachate head level; and
- III. final cover application.

I originally raised concerns about the Site landfill contours with GFL on September 12, 2023. In conversations with GFL, I understand that GFL believes they are in compliance with the ECA because the Waste has been placed there on an interim basis only and that the ECA only restricts elevation of the final grade. GFL also indicated that this was a standard operating practice of the Site, that a condition of a previous ECA issued in 1996 only regulated the Site's final contours, and that GFL continues to operate within the confines of its volumetric capacity restrictions.

I have responded to GFL that I enforce compliance with the existing ECA. When a new ECA is issued for a site, the older version is revoked by the signing Director, as indicated in the current ECA "Upon issuance of the environmental compliance approval, I hereby revoke Approval No (s). A181008 issued on July 23, 2021". The current ECA condition is very clear in stating that "no waste" is to be landfilled outside the final contours, so placement of Waste on an interim basis is not permitted. In order to place Waste above the approved final contours at the Site, GFL must apply for an ECA amendment.

As for operating within its volumetric capacity, GFL's current ECA has an approved capacity of 10,180,000 m³. However, this capacity takes into account the area that is to be incorporated into the landfill during its expansion. This expansion is not complete at this time, so the area required to deposit the approved volume of Waste is not available.

On November 24, 2023, I completed an inspection at the Site to assess compliance with section 6.16 of the ECA. This inspection involved the review of topographical survey information from January 2023 which showed landfill contours and volumes, along with in field measurements which I collected using a Trimble Geo 7X unit. Review of the topographical survey identified two areas of the landfill that are above the approved final contour elevation. During my Site inspection I visited these areas, determined they were inactive Waste piles, took my own measurements and confirmed these areas were still above the approved final contours

(measurements of 231.54mASL and 225.58mASL for the two areas of concern). Measurements collected on the active tipping face of the landfill at that time showed elevations ranging from 219.48mASL to 222.10mASL. So, the active tipping face at this time was already at or near the final contour elevations of the landfill.

On December 8, 2023, GFL provided the Ministry with a copy of the Leachate Assessment Report which I had requested in October 2023. Included in the report is a description of the Waste cover areas and recommendations regarding the importance of having appropriate waste cover to reduce leachate generation. Also included is a description of the historic and current levels of leachate at the Site, which has indicated that the leachate head level has been consistently above the required 0.5m, set out in the Design & Operations Report.

Information provided in the Attachment 1 section of the Leachate Assessment Report indicates that GFL has not been landfilling the Waste and applying final cover as per the approved design as outlined in the Design & Operations Report. This has most likely contributed to the generation of more leachate and has added to the already high leachate head levels. The Leachate Assessment Report also states that final cover is not keeping pace with liner construction, which is resulting in larger areas of exposed Waste which increases leachate generation.

On December 20, 2023, I issued my inspection report to GFL. The inspection report outlines that there was Waste currently placed in the landfill in excess of the approved final contours, which is in contravention of condition 6.16 of the ECA.

Also included with the inspection report was a list of actions items which included the requirement for GFL to submit a plan to reduce the heights of the Waste piles at the landfill that are currently above the approved final contours.

On January 8, 2024, which is after GFL received my inspection report which identified the non-compliance of the Waste heights; GFL moved the active tipping face of the landfill and continued to deposit Waste above the maximum permitted height. New cell construction was not completed as expected in 2023, due to GFL's focus on leachate management and odour compliance issues. GFL has indicated Waste needs to be deposited in this area until a new cell is commissioned.

On January 22, 2024, the Ministry received as requested following my inspection report, an email submission from GFL including the Waste Relocation Plan. It provided staged dates for the relocation of Waste currently stored above approved final contours and the June 2024 and October 2024 completion dates for Cells 9A and 9C. The Waste Relocation Plan lacked certain details and suggested a final resolution date of December 2025. The Ministry and GFL have since met and discussed the plan.

In GFL's Waste Relocation Plan, the plan speaks to reducing heights of interim Waste storage to pre-upset heights, and identifies pre-upset heights as pre-July 2023. Based on the plan and discussions had with GFL afterwards, pre-upset is to be interpreted as all Waste received at the Site since July 1, 2023 and up to the commissioning of the next new cell, 9A.

From July 1, 2023, to March 31, 2024, GFL has received 421,479.42 metric tonnes of Waste which is an approximate volume of 221,831.27m³. GFL is to ensure that, by December 31, 2024, this amount of Waste, and any additional Waste received at the Site until June 1, 2024, or when cell 9A is commissioned, whichever date comes first, is relocated to areas of the Site which are below the approved final contours of the Site.

The Waste relocation should be prioritized over the receipt of new Waste to ensure that the volume of Waste stored above the limit can be relocated into the new cells by the dates outlined in the Waste Relocation Plan and in the Order items above. Also, by prioritizing the Waste relocation, it will ensure that final cover can be applied to the areas where this Waste is currently being temporarily stored, so that leachate generation can be reduced, and will assist GFL in achieving the targeted leachate head level of 0.5m.

In GFL's Waste Relocation Plan, it states that "During the removal of the waste, odour will be assessed. Odour mitigation measures will be deployed as required in accordance with the odour management plan." GFL must ensure odour mitigation measures are available at the Site, prior to Waste relocation, so that if they are necessary, they are immediately available for use. The Waste must be relocated in such a manner to ensure that no nuisance odours are generated as a result, as required by condition 5.17 of the ECA. Should GFL not be able to do this, the Ministry will take additional steps and actions as required.

A draft copy of this Order was provided to GFL on March 19, 2024 for the company to provide comments and feedback on the Order requirements. Comments from GFL were received on March 25, 2024 and were considered prior to the issuance of this Order.

Conclusion

Notwithstanding the work being done by GFL regarding the 2023 Order, from January 1, 2024, to April 8, 2024, the Ministry has received 302 odour complaints from local residents regarding various odours relating to the Site, including Waste, leachate and the leachate pond. The current heights of the Waste piles are a concern as I believe they are contributing to the Waste odours currently being detected off-site. Based on my observations, odours experienced during the summer of 2023 were predominantly odours associated with the leachate. The odours that are now being experienced off-site are usually associated with Waste material at the Site.

GFL's actions of placing Waste above final contours and not keeping up with the final cover and capping, will result in an increased generation of leachate. The current leachate head level in the landfill remains above the levels outlined in the Design & Operations Report and is being addressed by the 2023 Order. These actions, I believe, have likely contributed to the odour issues experienced at the Site in the summer of 2023 and that GFL has not been operating in accordance with their Design & Operations Report and the ECA. Further, the elevated leachate levels prevented GFL from continuing its cell expansion in 2023 which has resulted in GFL placing Waste above the final contours. GFL's actions of temporary stockpiling Waste above final contours is unacceptable and a contravention of the ECA.

This Order is being issued as both a contravention order and a preventive measure order and formally sets out the Ministry's requirements following the discussions with GFL.

Authority to Issue the Order

I am issuing this Order under my authority as a Provincial Officer under the following legislation, which also includes the authority to take intermediate action and/or procedural steps:

This Order is issued pursuant to EPA s. 157 and section 157.1.

I reasonably believe that GFL Environmental Inc. has contravened or is contravening s.40 of the EPA as outlined in the Contraventions section below and described in some detail above.

I further reasonably believe that the requirements specified in this Order are necessary or advisable so as to prevent or reduce the risk of a discharge of a contaminant, namely odours, into the natural environment from the undertaking at the Site or to prevent, decrease or eliminate an adverse effect that may result from the discharge of a contaminant from the undertaking at the Site.

Contraventions

EPA 40	40. No person shall deposit, or cause, permit or arrange for the deposit of, waste upon, in, into or through any land or land covered by water or in any building that is not a waste disposal site for which an environmental compliance approval or renewable energy approval has been issued or a registration under Part II.2 is in effect and except in accordance with the terms and conditions of the approval or the regulations made for the purposes of Part II.2.
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Attachments

The attachments listed below, if any, form part of this Order:

Leachate Assessment Report (28 pages)

ISSUING OFFICER

Name: Tamara Posadowski

Job Title: Environmental Compliance Officer

Badge Number: 1861

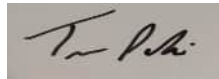
Address: 119 KING ST W, 9TH FLR, HAMILTON, ON

Officer Email: tamara.posadowski@ontario.ca

Office Email: Environment.Hamilton@ontario.ca

Date: Apr 10, 2024

Signature:



REVIEW AND APPEAL INFORMATION

REQUEST FOR REVIEW

You may request that this Order be reviewed by the Director. Your request must be made in writing or orally with written confirmation. Your written request or written confirmation of your oral request must be received by the Director within 7 days after the date this Order was served on you and must be given to the Director as indicated in the Contact Information below.

In your written request or written confirmation, you must:

- specify the portions of this Order that you wish to be reviewed;
- include any submissions to be considered by the Director with respect to issuance of this Order to you or any other person and with respect to the contents of this Order;
- apply for a stay of this Order, if necessary; and
- provide an address for service by one of the following means, in person, by mail, by commercial courier, by fax, or by email.

In response to your request, the Director may confirm, alter/amend or revoke this Order. As an intermediate step, the Director may stay this Order by providing written notice to you that additional time is required to make a decision.

The Director will serve you with a copy (written notice) of the decision to revoke this Order or of an order, a Director's Order, to confirm or alter/amend this Order, together with reasons.

DEEMED CONFIRMATION OF THIS ORDER

If within 7 days of the Director receiving your request for review you do not receive written notice of a stay, or oral or written notice of the Director's decision on your request for review, this Order is deemed (considered) to have been confirmed by Order of the Director and deemed to have been served upon you at the expiry of those 7 days.

APPEAL INFORMATION (REQUIRE A HEARING)

A. If this Order is deemed confirmed as explained above, you may require a hearing by the Ontario Land Tribunal on the deemed confirmed Order within 15 days of the deemed service date:

- you must serve as indicated in the Contact Information below, written notice of your appeal on the Ontario Land Tribunal and the Director within those 15 days of the deemed service date;

- your notice must state the portions of the deemed confirmed Order for which a hearing is required and the grounds on which you intend to rely at the hearing;
- unless you have leave (permission) of the Ontario Land Tribunal, you are not entitled to appeal a portion of the deemed confirmed Order or to rely on grounds of appeal that are not stated in your notice requiring the hearing; and
- written notice requiring a hearing must be served on the Ontario Land Tribunal and the Director as indicated in the Contact Information below.

B. If this Order is confirmed or altered/amended by the Director by a written order served upon you (as opposed to the deemed confirmation noted above), such Director's Order will include the appropriate instructions for appealing that order to the Ontario Land Tribunal.

CONTACT INFORMATION

The contact information for the Director and the Ontario Land Tribunal is the following:

Registrar
Ontario Land Tribunal
655 BAY STREET, 15th FLOOR
TORONTO, ON M5G 1E5
OLT.Registrar@ontario.ca

and Director (Provincial Officer's Orders)
Ministry of the Environment,
Conservation and Parks
Hamilton District Office
119 KING ST W, 9TH FLR
HAMILTON, ON L8P 4Y7
Office Email: Environment.
Hamilton@ontario.ca
Fax: (905) 521-7806

The contact information of the Ontario Land Tribunal and further information regarding its appeal requirements can be obtained directly from the Tribunal at:

Tel: (416) 212-6349, Toll Free: 1(866) 448-2248 or www.olt.gov.on.ca

SERVICE INFORMATION

Service of the documentation referred to above can be made personally, by mail, by fax (in the case of the Director only), by commercial courier or by email in accordance with the legislation under which this Order is made and any corresponding Service Regulation.

ADDITIONAL INFORMATION

Unless stayed by the Director or the Ontario Land Tribunal, this Order is effective from the date of service.

Failure to comply with a requirement of this Order constitutes an offence. Unless otherwise indicated, the obligation to comply with a requirement of this Order continues on each day after the specified compliance date until the obligation has been satisfied.

The requirements of this Order are minimum requirements only and do not mean that you are not required to comply with any other applicable legal requirements, including any:

- statute, regulation, or by-law;
- federal, provincial, or municipal law; or
- applicable requirements that are not addressed in this Order.

The requirements of this Order are severable. If any requirement of this Order, or the application of any requirement to any circumstance, is held invalid, such finding does not invalidate or render unenforceable the requirement in other circumstances. It also does not invalidate or render unenforceable the other requirements of this Order.

Further orders may be issued in accordance with the legislation as circumstances require.

This Order is binding upon any successors or assignees of the persons to whom this Order is issued.

The procedures to request a review by the Director or require a hearing and other information provided above are intended as a guide. The legislation should be consulted for additional details and accurate reference. Further information can be obtained from e-Laws at www.ontario.ca/laws.

Attachments

For Provincial Officer's Order 1-277723794

Leachate Assessment Report (28 pages)

Report

December 8, 2023

To	Lorenzo Alfano (GFL)	Contact No.	519-340-4192
Copy to	Brad Mullin (GFL)	Email	Brian.Dermody@ghd.com
From	Brian Dermody	Project No.	11103232
Project Name	Terrapure-Stoney Creek Landfill		
Subject	Leachate Assessment Report		

1. Introduction

This report provides an assessment of leachate management at the Stoney Creek Regional Facility (SCRF, Site) which is owned and operated by GFL Environmental Inc. (GFL). The SCRF is located at 65 Green Mountain Road West, in the City of Hamilton, immediately southwest of the intersection of Upper Centennial Parkway and Green Mountain Road West.

The SCRF is governed by Environmental Compliance Approval (ECA) No. A181008 for Waste and ECA No. 5400-7DSSHU for Industrial Sewage Works issued by the Ministry of Environment, Conservation, and Parks (MECP). The wastes that can be received at the SCRF for final disposal are restricted by the conditions of the ECA. Acceptable waste types include post-diversion, solid, non-hazardous commercial, institutional and industrial waste including petroleum contaminated soils. Only waste generated within the Province of Ontario may be received for disposal at the SCRF.

No municipal solid waste (MSW), liquid industrial wastes, hazardous wastes as defined under Ontario Regulation 347 General – Waste Management under the Environmental Protection Act, or putrescible wastes are accepted at the SCRF. This includes: hazardous industrial wastes; hazardous waste chemicals; ignitable waste; corrosive waste; leachate toxic waste; acute hazardous waste chemicals or reactive waste; hauled sewage; domestic waste; and waste from the operation of a sewage works subject to the Ontario Water Resources Act.

1.1 Purpose of this Report

This report was prepared to address questions raised by the MECP as a result of recent odours that were observed at the SCRF. Specifically, this report provides responses to a letter from the MECP to Lorenzo Alfano at GFL dated October 5, 2023 (MECP Letter), requesting a Leachate Assessment Report (Item 11) for the SCRF. This report provides an overview of the existing leachate management system at the Site; the staging of landfill development; an assessment of the leachate (including leachate generation, leachate head on the base liner system, leachate discharge, and leachate balance); potential impacts resulting from the leachate; and conclusions and recommendations for the management of leachate at the SCRF.

2. Limitations

This report: has been prepared by GHD for GFL Environmental Inc and may only be used and relied on by GFL Environmental Inc for the purpose agreed between GHD and GFL Environmental Inc as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than GFL Environmental Inc arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section(s) 3 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by GFL Environmental Inc and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

Accessibility of documents

If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.

3. Assumptions

The leachate assessment presented in this report is based on the following assumptions:

- Final cover is constructed in accordance with the approved design.
- Landfill liner is constructed in accordance with the approved design.
- Monitoring data provided by GFL is accurate.

4. Leachate Assessment

4.1 Existing Leachate Management System

The SCRF includes the following main leachate controls:

- **A double liner system** that is built over a layer of granular grading fill placed on the quarry floor. The double liner system incorporates the following:
 - A composite primary liner consisting of a high-density polyethylene (HDPE) membrane directly underlain by a 1.0 m thick compacted clay liner.
 - A hydraulic control layer consisting of a 0.5 m thick layer of clear crushed stone.
 - A secondary liner consisting of a 1.0 m thick layer of compacted clay.
- **A leachate collection system (LCS)** installed on top of the primary liner across the landfill base and side slopes. This system consists of a 0.5 m thick layer of crushed stone which incorporates a network of perforated pipes conveying leachate to a leachate pumping system.

A typical cross-section through the base liner system is shown in Figure 1.

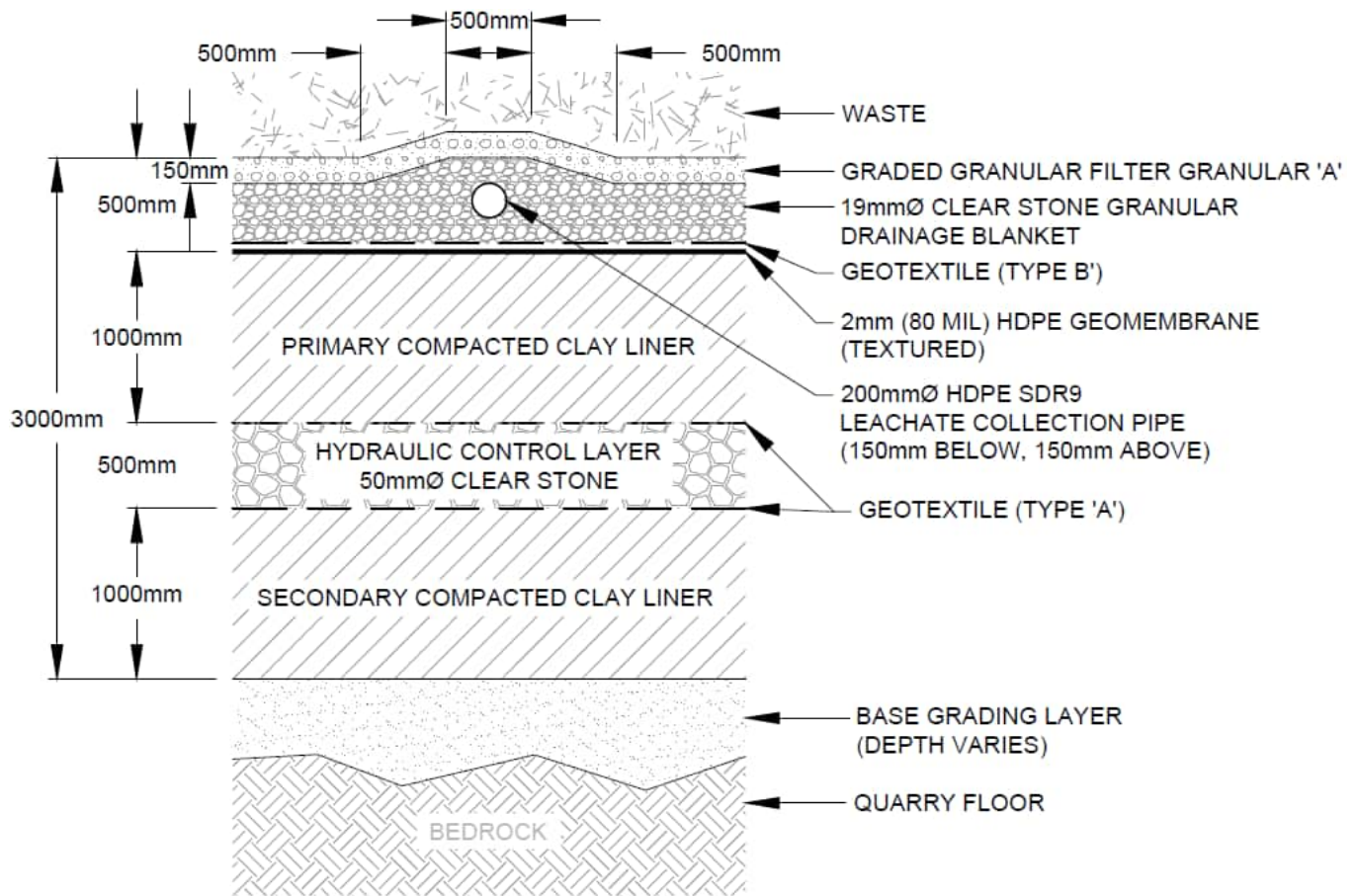


Figure 1 Typical Cross Section Through Base Liner System

Two other landfill components will also contribute to the control of leachate, as follows:

- **A groundwater collection system** is installed beneath the secondary liner. This consists of a system of trenches filled with clear crushed stone beneath the base of the landfill and around the perimeter of the landfill. The perimeter trenches also incorporate perforated pipes. This system is hydraulically connected to the base grading fill placed beneath the secondary liner.
- **A final cover** constructed over the surface of the completed landfill. This consists of a 0.60 m thick layer of compacted clay overlain by a vegetated topsoil layer 0.15 m thick.

A typical cross-section through the final cover system is shown in Figure 2.

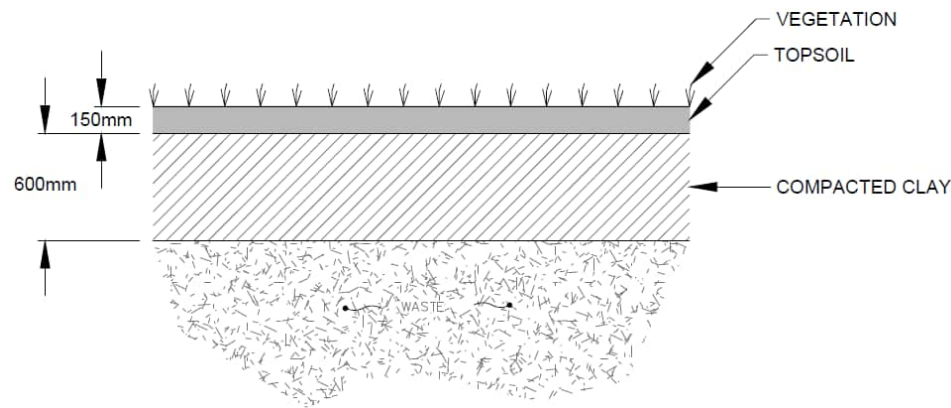


Figure 2 Typical Cross Section Through Final Cover System

Leachate is collected through the LCS and drains by gravity towards a sump at the Permanent Leachate Pumping Station (PLPS) in the southeast corner of the Site. Leachate is then recovered from the base of the landfill via pumping from either the Interim Leachate Pumping Station (ILPS) or the PLPS. The LCS for the SCRF is shown in Figure 3.

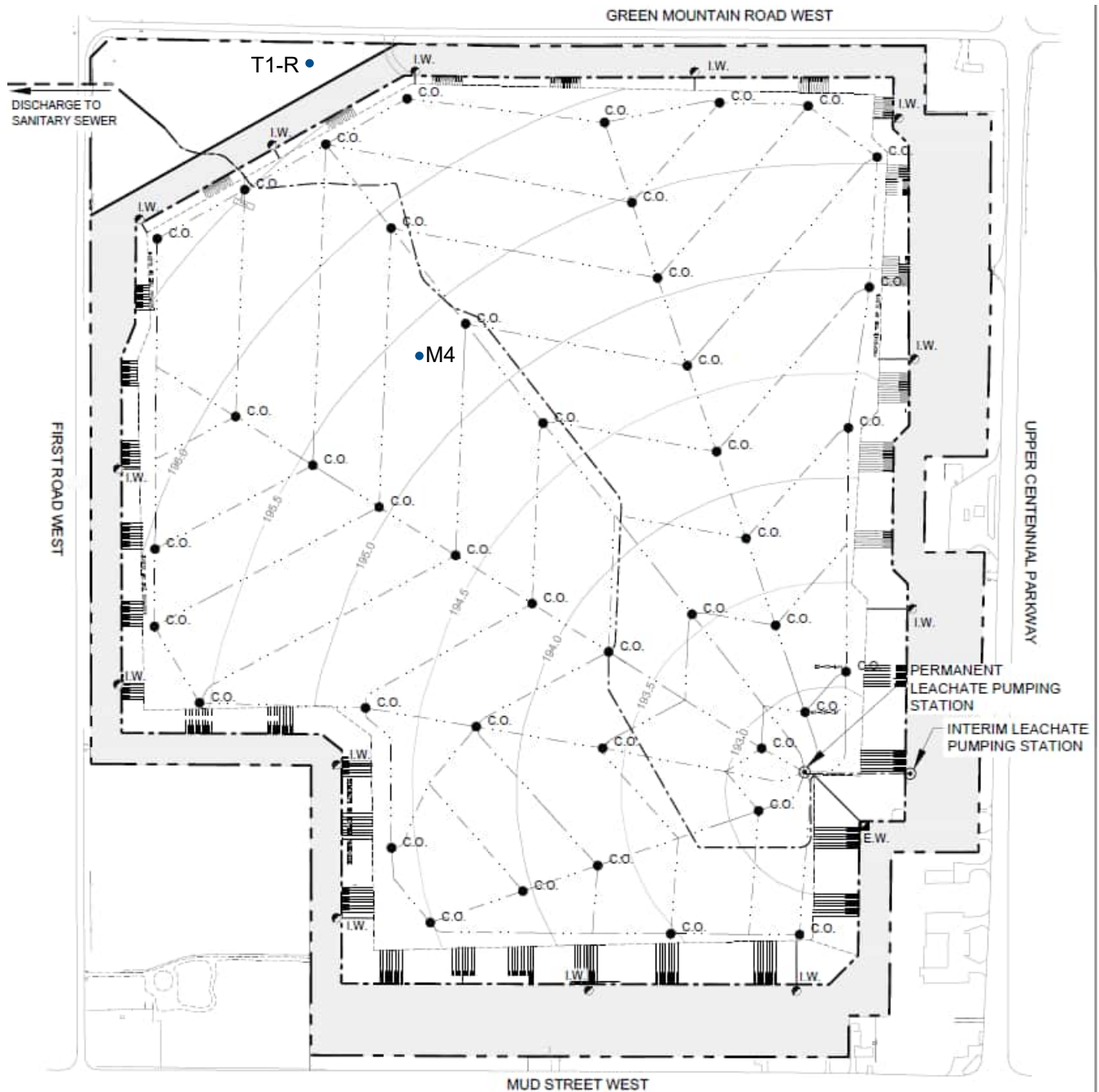


Figure 3 Top of Primary Liner Contours and Leachate Collection System Layout

Collected leachate is then treated by the Leachate Treatment System (LTS) at the ILPS through the addition of hydrogen peroxide and ferric chloride for chemical treatment. The leachate is then gravity fed into a discharge pipe buried within the landfill that conveys the leachate from the southeast corner to the northwest corner of the Active East Landfill where impacted groundwater is introduced using a wye structure prior to the leachate pipe crossing First Road West and discharging to the leachate equalization pond in the Closed West Landfill. Impacted groundwater is

collected from beneath the landfill via pumping well M4 and temporarily stored in the detention pond in the northwest corner of the Site prior to being added to the leachate discharge pipe. Leachate from the closed west landfill is passively collected, via the former quarry drain, in a sump called T1-R which is then passively drained into the leachate equalization pond. The leachate (from the east and west landfill) and impacted groundwater mixture is aerated within the leachate equalization pond and is then discharged off-Site through a connection to the City of Hamilton sanitary sewer under Mistywood Drive.

4.2 Landfill Development

The SCRF occupies a total Site area of 73.9 hectares (ha). This includes 56.8 ha for the landfill footprint, 2.3 ha for the Stormwater Management Pond (SWMP) located in the northwest corner of the Site, and 14.8 ha for buffer zones to accommodate Site infrastructure (e.g., administration office, access roads, screening berms, etc.).

The base liner system and final cover system are constructed in stages as landfilling progresses. Table 1 provides an overview of the SCRF development over the past 5 years (2018-2023), as well as the anticipated development through to Site closure. Figures depicting the development of the SCRF between 2018-2023 are provided in Attachment 1.

Table 1 Landfill Development Staging

Year	Active Landfill Area (hectares)	Capped Landfill Area (hectares)	Constructed Landfill Footprint (hectares)	Percentage of Landfill Capped (%)
2018	29.9	10.2	40.1	25.4
2019	29.9	10.2	40.1	25.4
2020	29.9	10.2	40.1	25.4
2021	26.1	14.0	40.1	34.9
2022	25.4	14.7	40.1	36.7
2023	25.3	16.9	42.2	40.0
2024-2025 ¹	15.4	32.7	48.1	68.0
2026-2027 ¹	11.3	42.7	54.0	79.1
2028-2029 ¹	7.1	49.7	56.8	87.5
Post Closure	0.0	56.8	56.8	100.0

1. Dates and values estimated based on anticipated future waste receipts and construction timing for the base liner and final cover systems.

The *Active Landfill Area* represents areas where waste is being placed or where the final cover has yet to be constructed. The *Capped Landfill Area* represents the area where final cover has been constructed. The *Constructed Landfill Footprint* represents the total area of the base liner system constructed. Presently, final cover has been constructed over approximately 40% of the constructed landfill footprint. Additional final cover will be constructed over the active landfill areas once the waste has been placed to the final approved contours.

4.3 Leachate Generation

The Hydrologic Evaluation of Landfill Performance (HELP) model version 3.07 (Schroeder, et al., 1994a and 1994b) was used to provide an assessment of leachate generation for active landfilling and site closure conditions. The HELP model was developed by the United States Army Corps of Engineers under endorsement from the United States Environmental Protection Agency (USEPA).

The HELP model uses Site-specific information for three generalized groups of input parameters as follows:

- General Design Data
- Weather/Climatic Data
- Soil & Design Data

The general design data and weather/climatic data used in this assessment were obtained from GFL from the Ambient PM₁₀ Monitoring Program, including monitoring data presented in the Annual Reports from 2018 through 2022, as prepared by Rotek Environmental Inc. Two soil profiles were used for this assessment to evaluate two conditions: Active Landfill and Capped Landfill (i.e., site closure conditions).

Precipitation that falls in the Active Landfill Area is contained within the landfill footprint where it infiltrates the waste and is ultimately collected as leachate. The majority of precipitation that falls in the Capped Landfill Area is diverted as surface runoff and directed to the stormwater management system, while some infiltrates the waste and is ultimately collected as leachate. A portion of the precipitation is subject to surface evaporation or evapotranspiration from soil under both Active and Capped Landfill conditions. This portion does not contribute to runoff or infiltration.

Active Landfill conditions were modeled with waste having minimal to no additional soil cover. The Capped Landfill conditions were modeled with the approved final cover design comprising 150 mm of topsoil overlying a 600 mm compacted clay cover with a maximum hydraulic conductivity of 1.0×10^{-5} cm/sec. Underlying layers, including waste and the landfill liner were consistent for each model.

The HELP model estimated infiltration rates for each of the described scenarios. The estimated infiltration rate for the Active Landfill was 440.12 mm/ha/year (4,401.16 m³/ha/year), while the estimated infiltration rate for the Capped Landfill was 313.85 mm/ha/year (3,138.52 m³/ha/year). These infiltration rates were applied to the areas presented in Table 1 to estimate the total leachate generated at the SCRF each year. The estimated annual leachate generation rates are presented in Table 2. Table 2 also includes projections for future leachate generation rates, based on a conceptual schedule for progressive closure of the Site through to final Site closure.

Table 2 *Leachate Generation Estimate*

Year	Generation in Active Landfill Areas (m³)	Generation in Capped Landfill Areas (m³)	Total Estimated Leachate Generation (m³)	Total Estimated Leachate Generation (L)
2018	131,595	32,013	163,608	163,608,000
2019	131,595	32,013	163,608	163,608,000
2020	131,595	32,013	163,608	163,608,000
2021	114,870	43,939	158,810	158,810,000
2022	111,789	46,136	157,926	157,926,000
2023	111,349	53,041	164,390	164,390,000
2024-2025	67,778	102,630	170,407	170,407,000
2026-2027	49,733	134,015	183,748	183,748,000
2028-2029	31,248	155,984	187,233	187,233,000
Post Closure	0	178,268	178,268	178,268,000

The total leachate generated on an annual basis has remained relatively constant between 2018 and 2023. However, the leachate generation rate is expected to increase by about 16% in the coming years based on the anticipated development staging of the landfill, primarily due to the increase in total landfill area.

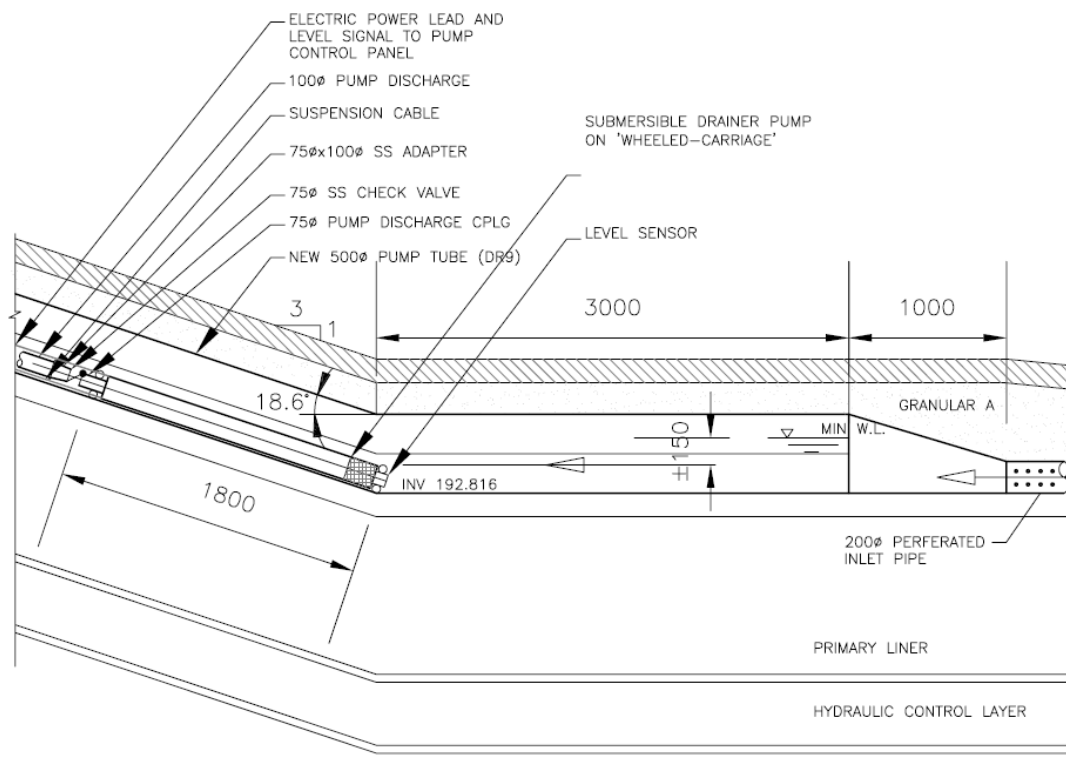


Figure 5 Cross Section Through Pump at ILPS

The PLPS structure has only been constructed up to the surface of the landfill to date. Installation of the surface cap as well as the final instrumentation and controls is expected to be completed when the final cover is constructed in this area. A temporary pump and discharge pipe have been installed to allow for discharge from the PLPS to the ILPS. Historically, most of the leachate has been recovered through the ILPS since it has a larger pump and is directly connected to the leachate treatment system. During recent months, the pumping location has been moved between the ILPS, PLPS, and the exposed leachate blanket in the northeast section of the landfill to mitigate odour impacts from the leachate. With the LTS effectively treating the odours, and recent upgrades to seal and winterize the PLPS, most of the leachate discharge should now be via the PLPS. The lowest level that the leachate can be maintained at the ILPS is 192.966 m compared to 192.474 m at the PLPS. This represents a potential reduction in leachate head on the base liner that can be realized by maintaining pumping at the PLPS.

Leachate levels in the SCRF are currently measured manually at the PLPS by GFL staff. Readings are typically collected on a weekly basis, although the frequency may be adjusted based on pumping conditions. Leachate levels are also measured at three leachate monitors located upgradient of the PLPS. The average monthly leachate depths measured at the PLPS between 2018 and 2023 are presented in Table 3. A comparison of the measured leachate depths throughout each year is presented in Figure 6.

Table 3 Average Leachate Depth Measured at PLPS (m)

	2018	2019	2020	2021	2022	2023
January	2.82	2.48	3.17	3.18	2.04	2.41
February	2.87	2.80	2.57	2.77	2.63	2.48
March	2.61	2.73	2.85	2.39	2.63	3.07
April	2.07	2.41	2.58	2.04	2.17	3.51
May	2.32	2.48	2.57	1.81	1.85	3.44

	2018	2019	2020	2021	2022	2023
June	1.98	1.84	2.55	1.76	1.28	3.57
July	2.01	1.05	2.62	2.52	0.83	3.61
August	1.12	0.57	2.41	2.68	0.56	4.04
September	0.55	0.37	2.48	3.06	0.51	3.53
October	0.48	0.76	2.12	2.99	0.58	3.16
November	1.13	1.27	2.34	2.85	1.29	-
December	1.86	1.79	2.90	1.93	1.73	-

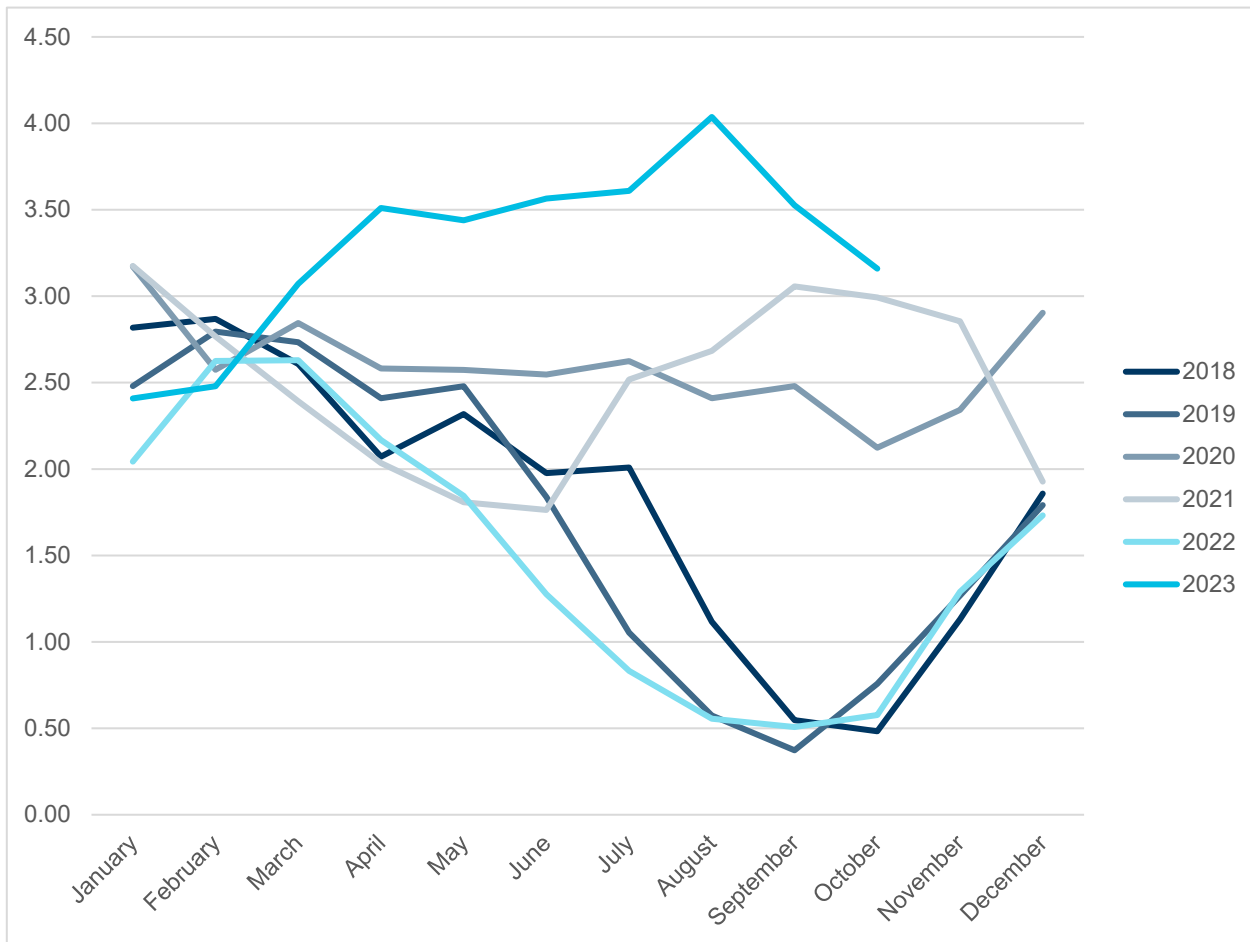


Figure 6 Leachate Depth at PLPS (m)

Leachate levels typically peak around February/March before gradually declining through September/October. A sharp increase is then observed from October through January, before the cycle repeats. Leachate levels in 2023 have been higher than previous years due to challenges arising from odour mitigation activities (e.g., multiple pumping locations, temporary shutdowns for upgrades and maintenance).

4.5 Leachate Discharge

Leachate discharge rates are measured using a flowmeter at the ILPS and are recorded daily. Historically, discharge rates in excess of 250 US gallons per minute (GPM) have been achieved. However, recent efforts to mitigate odours have necessitated a temporary reduction in the discharge rate to approximately 90 GPM. A summary of the total

volume of leachate removed from the landfill monthly between 2018 and 2023 is presented in Table 4. A comparison of the leachate volumes pumped throughout each year is presented in Figure 7.

Table 4 *Leachate Volume Pumped From SCRF*

Leachate Pumped From SCRF (L)						
	2018	2019	2020	2021	2022	2023
January	15,920,846	8,598,006	18,070,978	11,079,074	8,691,874	2,400,069
February	16,962,099	12,823,202	22,004,981	13,953,659	5,656,036	12,777,782
March	23,998,982	22,441,644	19,913,263	18,473,828	31,537,924	16,801,237
April	20,477,418	23,668,362	15,495,412	12,986,335	18,590,678	20,322,422
May	16,380,344	24,597,958	11,090,126	9,472,720	19,470,677	12,959,083
June	16,006,387	24,398,262	7,376,636	1,164,645	14,006,729	11,397,014
July	14,102,206	15,100,141	5,630,744	0	8,386,572	12,041,977
August	25,151,177	13,171,467	12,963,625	1,713,546	7,422,241	8,824,729
September	8,120,627	10,136,491	4,911,416	13,414,040	6,667,788	19,478,518
October	9,093,674	6,825,422	13,047,274	18,556,644	3,105,664	8,793,319
November	10,187,706	8,881,529	2,699,462	32,496,875	0	-
December	0	0	2,257,752	13,101,778	0	-
TOTAL	176,401,465	170,642,484	135,461,668	146,413,142	123,536,184	125,796,150

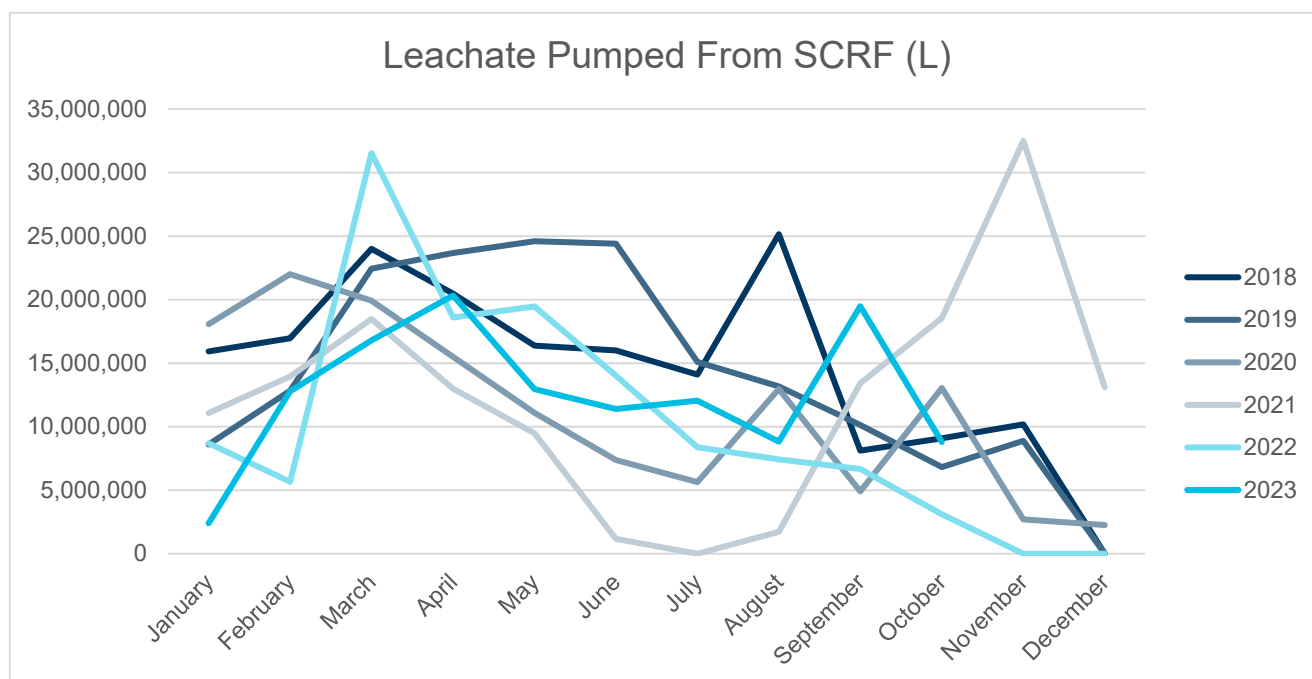


Figure 7 *Leachate Pumped from SCRF (L)*

The volume of leachate pumped from the landfill typically peaks around March/April, before declining through December, and increasing again in January/February. The average monthly leachate discharge achieved between 2018-2023 was approximately 12,500,000 L, with a high of approximately 32,500,000 L in November 2021. In December of 2018, 2019, and 2022 no leachate at all was pumped from the landfill.

4.6 Leachate Balance

Leachate discharge rates measured at the Site are presented in Table 4 above for comparison against the predicted leachate generation rates presented in Table 2. Figure 8 provides a comparison of the predicted leachate generation rates and measured pumping volumes between 2018 and 2023.

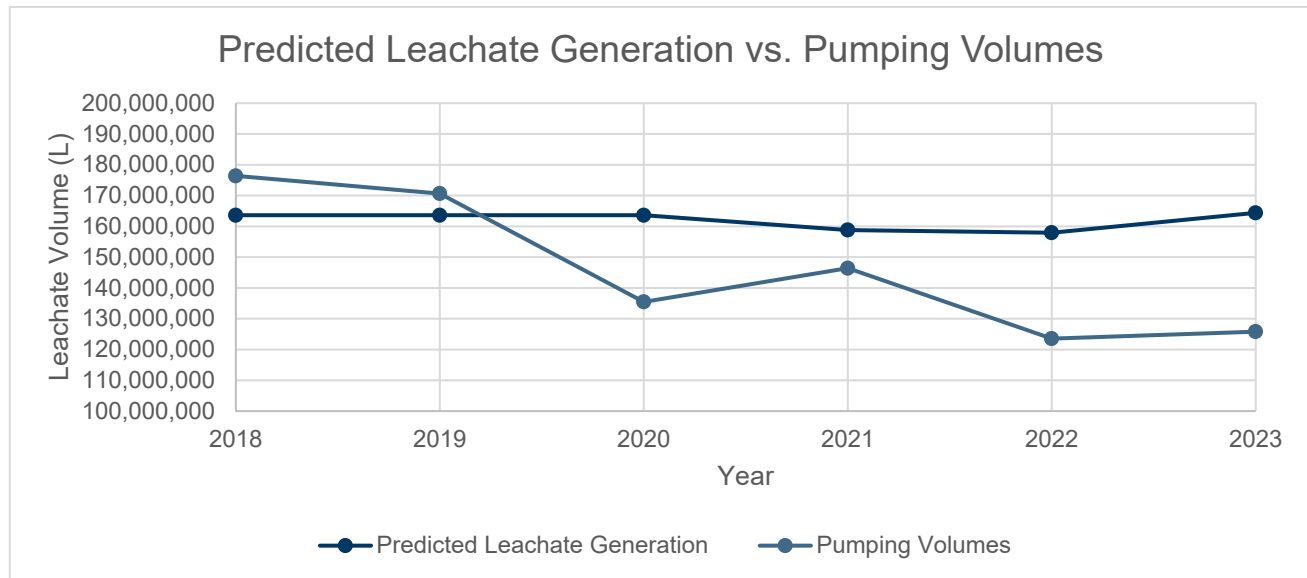


Figure 8 Predicted Leachate Generation Rate vs. Measured Pumping Volumes

As identified in Figure 8, the HELP model underestimated leachate generation in 2018 and 2019 and overestimated generation rates from 2020 to present. The HELP model simulations included modelling of landfill performance over a period of 100 years, using synthetic weather data that was based on weather data supplied by GFL. The predicted leachate generation rates are based on the average annual infiltration rate (887 mm/ha/year) and variations in landfill areas and areas that are active or capped (Table 1). As a result, predicted leachate generation rates based on the HELP model will exhibit consistent precipitation and infiltration rates, whereas actual measured leachate pumping volumes will be influenced by year-over-year variations in precipitation.

Measured precipitation in 2018 and 2019 exceeded the modelled annual average, while 2020 measured precipitation was below the modelled average. However, the magnitude of the precipitation variation relative to the modelled average and the difference in predicted vs. pumped leachate do not directly correlate. Additionally, measured precipitation in 2021 was similar to 2019, however measured pumping volumes indicate the model overestimated leachate generation.

Pumping data available for 2023 at the time of this writing is incomplete (through October 2023). The total pumping volume for 2023 will continue to increase, but is not anticipated to reach the predicted volumes, based on current pumping rates and winter trends in prior years. The overestimation in 2023 however, is partially attributed to reduced pumping rates described in Section 4.5.

4.7 Leachate Impacts

4.7.1 Odour

The odours associated with the leachate at the SCRF have been observed in three primary locations: the PLPS, the leachate equalization pond in the west landfill, and the exposed leachate blanket in the northeast section of the landfill. Upgrades to the LTS have been successful at addressing the odours from the PLPS and equalization pond, while continued pumping has drawn the leachate levels down sufficiently so that it is no longer exposed in the northeast section of the landfill. The top of the LCS in this area is at an elevation of approximately 195.5 m. After peaking in

August at over 196.5 m, leachate levels have since been reduced to under 195.2 m, eliminating the exposed leachate and resulting odours from this area as shown through ongoing monitoring activities.

4.7.2 Leachate Seeps

The final cover constructed to date along the west side of the landfill has an elevation of approximately 202.0 m at its lowest point at the limit of landfill (i.e., top of sidewall). Perimeter ditching has also been completed along the entire south and western perimeter of the landfill. Visual inspections of the final cover are completed by GFL staff on monthly basis and have shown no evidence of leachate seeps. However, water from the SWMP has not been discharged off-Site due to the water quality not meeting the trigger concentrations for some parameters (e.g., field conductivity, lab pH, and phenols). Lower concentrations of sodium, chloride, and metals were generally detected at the SWMP compared to other on-Site locations. To date, all of the water collected in the SWMP has been directed to the sanitary sewer connection through the Closed Facility.

4.7.3 Liner Service Life

Certain engineered elements of the leachate control system have a finite lifespan, which cannot be accurately estimated in a landfill setting. The leachate controls have been developed such that components can either be replaced or maintained, or alternatively, redundancy has been provided where maintenance isn't practical. The system, as a whole, is capable of controlling leachate for at least the entire contaminating lifespan which is estimated to be up to 80 years.

Table 5 summarizes the rationale behind the expectation of the service life of the liner system. Table 5 also describes the function and estimated service life of each leachate control component, identifies the potential failure modes that are considered realistic, and indicates how these failure modes have been addressed in the design. Additional details surrounding the liner service life can be found in the Design & Operations Report for the SCRF (GHD, July 2019).

Table 5 *Rationale for Expected Service Life of Engineered Leachate Controls*

Component	Primary function and required service life	Failure modes considered	Performance expectation and rationale
Leachate collection system granular blanket	- Collects leachate to maintain minimal head on liner system. - Required for about 300 years.	Blockage of granular blanket due to siltation, bio-fouling, or chemical precipitation.	EXPECTATION: Granular blanket will be capable of conveying flow for at least 300 years. RATIONALE: - Siltation can be controlled because graded filter is incorporated into upper part of blanket. - Bio-fouling only possible within waste or graded filter where small pore spaces exist: bio-fouling in lower part of blanket will not be significant because of large pore spaces and minimal organic content of waste. - Precipitation will not occur because waste/granular blanket is a closed geochemical system and because of large pore spaces within blanket. - Precipitation only considered possible at pumping station where geochemical conditions change: pumping station accessible for routine maintenance. - Localized blockages will not be significant due to continuous nature of granular blanket on base and side slopes.

Component	Primary function and required service life	Failure modes considered	Performance expectation and rationale
			- Redundancies exist: - Collection through perforated pipes - Pumping from cleanout risers
Leachate Collection Piping System	- Provides redundancy for leachate collection. 300 year service life desirable but not essential.	Blockage of piping system due to siltation, bio-fouling, or chemical precipitation.	EXPECTATION: Service life unquantifiable but expected to be many decades. RATIONALE: - Blockage will not occur because pipes can be cleaned. - Design facilitates cleaning through close clean-out spacing and access from ground surface. - Prevention of blockage desirable but not essential.
		Collapse of piping system due to landfill-imposed stresses or chemical deterioration.	EXPECTATION: Service life unquantifiable but expected to be many decades. RATIONALE: - Stresses are readily calculated: piping system designed with sufficient safety factor so that collapse does not occur. - Prevention of collapse desirable but not essential. - HDPE known to be chemically resistant.
Primary Liner System	- Provides engineered leachate containment prior to hydraulic containment (during 40 year operating period). - Engineered containment only required for about 40 years.	Increase in hydraulic conductivity from deterioration of HDPE geomembrane due to contact with leachate.	EXPECTATION: Geomembrane will retain its low permeability properties for well in excess of 40 years. RATIONALE: Unexpected based on current knowledge of durability of HDPE and expected leachate; processes that are known to cause HDPE deterioration do not exist within landfill.
		Increase in hydraulic conductivity from deterioration of clay liner due to contact with leachate.	EXPECTATION: Clay liner will retain its low permeability properties for well in excess of 40 years (see SECONDARY CLAY LINER, below). RATIONALE: Unexpected to occur; mineralogical analyses carried out indicate that clay performance not affected by leachate.

4.7.4 Groundwater

Leakage through the primary liner system was modelled as part of the impact assessment undertaken to support the landfill expansion approval. This modelling demonstrated that head on the liner system resulted in very minor amounts of leakage through the primary liner system. This result is not unexpected given the primary liner system consists of a geomembrane overlying a 1 m thick compacted clay layer.

Any leakage that passes through the primary liner system would enter the hydraulic control layer (HCL), which separates the primary liner system from the secondary liner system. In order to validate the results of modelling and measure potential leakage through the primary liner system, GFL has collected samples of water from within the HCL

since May 2018. The samples of water from the HCL are analyzed for a comprehensive list of general chemistry and metals analytes. The patterns in water quality within the HCL are evaluated to determine if significant quantities of leachate are leaking through the primary liner.

Figures 1 through 5 in Attachment 2 present the concentrations of leachate indicators (chloride, fluoride, alkalinity, ammonia and total organic carbon) in HCL water quality between May 2018 and October 2023 (the period over which data is available). As illustrated on Figures 1 through 5 (Attachment 2), water quality within the HCL has remained relatively consistent with no apparent trends of increasing concentrations over time. The variability in concentrations presented on these figures reflects natural variability in water quality and is not indicative of progressive deterioration in water quality resulting from leakage of leachate accumulating in the HCL.

It is important to note that even if significant leakage were to be detected within the HCL water, this water can be pumped out and replaced with clean water so that the protective hydraulic properties of this layer are maintained. Further, the secondary composite liner underlying the HCL provides additional leakage protection. In combination, the three principal components of the liner system provide very robust long-term protection of underlying groundwater.

Outside of the landfilled waste and liner system, groundwater quality is monitored through a comprehensive network of groundwater monitoring wells completed within the various groundwater flow zones underlying the Site. These monitoring wells are sampled regularly as part of the required routine monitoring program and the results are evaluated for the presence of landfill-related impacts as part of the annual reporting process. The results of groundwater monitoring undertaken to date continue to confirm that there is no evidence that the SCRF is impacting groundwater quality.

5. Conclusions

Final cover construction is not keeping pace with liner construction, leaving large areas of the landfill with exposed waste, which increases leachate generation. The infiltration rate for the Active Landfill was 440.12 mm/ha/year compared to 313.85 mm/ha/year for the Capped Landfill, representing a possible 29% reduction in the leachate generation rate per unit area that can be realized by capping active areas of the landfill.

The average leachate head being maintained on the liner is in excess of the recommended 0.5 m. This leads to an excess volume of leachate in the landfill that requires constant pumping over a long time period to discharge. For example, an annual leachate generation rate of 150,000,000 L would take between 3.7 to 10.2 months to remove based on recent pumping rates of 90 GPM and 250 GPM, respectively.

The lowest level that the leachate can be maintained at the ILPS is 192.966 m compared to 192.474 m at the PLPS. This represents a potential reduction in leachate head on the base liner that can be realized by maintaining pumping at the PLPS.

Pumping rates are not being adjusted as required to account for seasonal variation in the leachate generation rate. This causes fluctuations in the amount of leachate being stored in the landfill, making it difficult to maintain the leachate head on the liner below 0.5 m.

6. Recommendations

The recommendations below should be implemented to improve the management of leachate at the SCRF.

- Reduce the area of the active landfill. Construct final cover over areas with exposed waste to reduce leachate generation. Final cover construction will need to be completed in conjunction with:
 - Relocation of waste in excess of approved grades from active areas to newly constructed landfill cells.
 - Expansion of the existing SWMP and construction of drainage ditches along the east and north perimeter of the landfill to allow for shedding clean runoff.

- Reduce the leachate head on the base liner. Increasing pumping rates will expedite the discharge of leachate from the landfill and reduce the head. Adjustments to the pumping rate should be done in consideration of the existing LTS and its ability to mitigate odours from the leachate prior to discharge to the sanitary sewer.
- Increase pumping rates during the winter. This will reduce the accumulation of leachate in the landfill and facilitate the management of increased leachate generation during the spring freshet.

Project name		Terrapure-Stoney Creek Landfill					
Document title		Report Leachate Assessment					
Project number		11103232					
File name		11103232-RPT-33-Leachate Assessment Report.docx					
Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S4		Brian Dermody	Victoria Shortreed		Michael Cant		12/8/2023

GHD

Contact: Brian Dermody, Senior Engineer | GHD

455 Phillip Street, Unit 100A

Waterloo, Ontario N2L 3X2, Canada

T +1 519 884 0510 | **F** +1 519 884 0525 | **E** info-northamerica@ghd.com | **ghd.com**

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Attachments

Attachment 1

STONEY CREEK LANDFILL VOLUMES			
LINE	ITEM	QUANTITY	NOTES
1	TOTAL VOLUME OF WASTE PLACED IN 2020	290,930 m³	LINE 2 - 6,570,455 m³
2	TOTAL VOLUME OF WASTE PLACED TO DATE	6,861,385 m³	COMPARISON OF JANUARY 2021 SURVEY AND APPROVED BOTTOM OF WASTE, LESS DEDUCTIONS FOR NON-WASTE MATERIALS
3	ESTIMATED REMAINING WASTE VOLUME	3,318,615 m³	10,180,000 m³ - LINE 2



- LEGEND:
- EXISTING MAJOR CONTOUR (2m INTERVAL)
 - EXISTING MINOR CONTOUR (1m INTERVAL)
 - EXISTING FINAL COVER MAJOR CONTOUR (2m INTERVAL)
 - EXISTING FINAL COVER MINOR CONTOUR (1m INTERVAL)
 - FINAL COVER AREA
 - PROPERTY BOUNDARY
 - LIMIT OF LINER

SOURCE:

TOPOGRAPHICAL SURVEY INFORMATION BASED ON AERIAL PHOTOGRAPHY DATED JANUARY 7, 2021, BY AUTOMATED ENGINEERING TECHNOLOGIES.

REGIONAL MUNICIPALITY OF HAMILTON
WENTWORTH BENCHMARK 75U169
(N) 813.300, (E) 999.000, ELEVATION = 204.228 mASL

NOTE:
PHASES '1A', '2' AND '1B' WERE DESIGNED USING BENCHMARK (ELEVATION 204.337 mASL).

PHASES '1C', '3A', '3B', '4' AND '6A' WERE DESIGNED USING BENCHMARK AS SHOWN (ELEVATION = 204.228mASL).

REGIONAL MUNICIPALITY OF HAMILTON WENTWORTH
BENCHMARK 75U169
IRON PIPE WITH BRASS CAP, ALONG FIRST ROAD WEST, 0.2Km NORTH OF INTERSECTION WITH MUD STREET, 1.0 Km WEST OF HWY #20, 14.3m NORTH OF CENTER LINE OF DRIVEWAY TO HOUSE, 8.2m EAST OF CENTER LINE OF ROAD, 9cm WEST OF BENCHMARK SIGN POST, 1m ABOVE ROAD LEVEL, ELEVATION 204.228mASL.

NOTES:

TOTAL AREA= 40.1 ha
TOTAL FINAL COVER= 10.1 ha



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Client
TERRAPURE ENVIRONMENTAL
STONEY CREEK, ONTARIO

Project
STONEY CREEK REGIONAL FACILITY
2020 ANNUAL MONITORING REPORT

No.	Issue	Drawn	Approved	Date
Drawn	T.WAGSTAFF	Designer	B.DERMODY	
Drafting Check	D.BARTON	Design Check	B.DERMODY	
Project Manager	B.DERMODY	Date	JANUARY 2021	
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Original Size		Bar is 20mm on original size drawing		
ANSI D		0 20mm		

Project No. 11103232-33

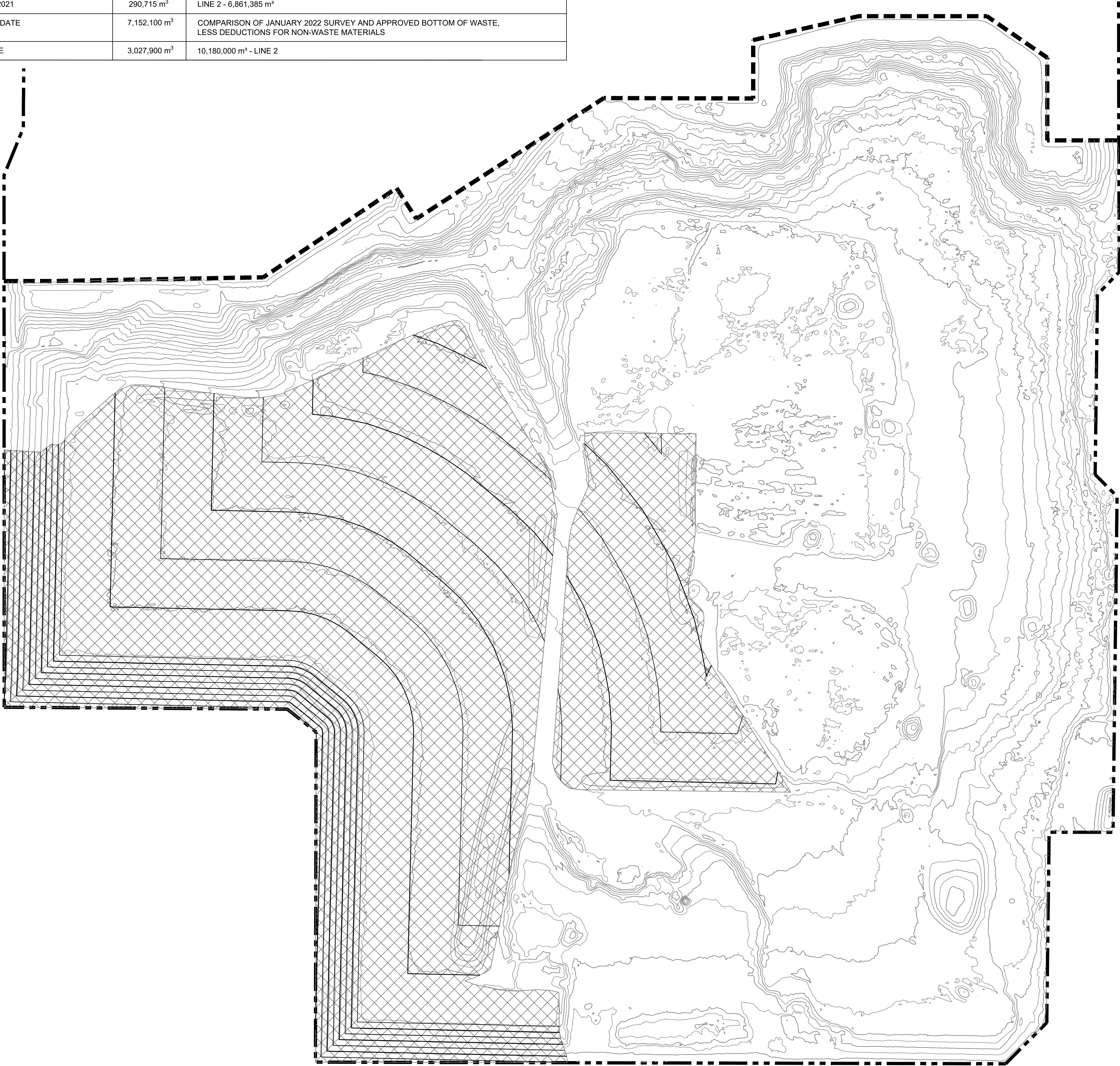
Title

LANDFILL CONTOURS AND VOLUMES - JANUARY 2021

Sheet No.

FIGURE 3.5

STONEY CREEK LANDFILL VOLUMES			
LINE	ITEM	QUANTITY	NOTES
1	TOTAL VOLUME OF WASTE PLACED IN 2021	290,715 m³	LINE 2 - 6,861,385 m³
2	TOTAL VOLUME OF WASTE PLACED TO DATE	7,152,100 m³	COMPARISON OF JANUARY 2022 SURVEY AND APPROVED BOTTOM OF WASTE, LESS DEDUCTIONS FOR NON-WASTE MATERIALS
3	ESTIMATED REMAINING WASTE VOLUME	3,027,900 m³	10,180,000 m³ - LINE 2



LEGEND:

— 221 — EXISTING MAJOR CONTOUR (2m INTERVAL)

— EXISTING MINOR CONTOUR (1m INTERVAL)

— 220.0 — EXISTING FINAL COVER MAJOR CONTOUR (2m INTERVAL)

— EXISTING FINAL COVER MINOR CONTOUR (1m INTERVAL)

▨ FINAL COVER AREA

- - - PROPERTY BOUNDARY

- - - LIMIT OF LINER

SOURCE:

TOPOGRAPHICAL SURVEY INFORMATION BASED ON AERIAL PHOTOGRAPHY DATED JANUARY 14, 2022 BY AUTOMATED ENGINEERING TECHNOLOGIES.

REGIONAL MUNICIPALITY OF HAMILTON
WENTWORTH BENCHMARK 75U169
(N) 813.300, (E) 999.000, ELEVATION = 204.228 mASL

NOTE:
PHASES '1A', '2' AND '1B' WERE DESIGNED USING BENCHMARK (ELEVATION 204.337 mASL).

PHASES '1C', '3A', '3B', '4' AND '6A' WERE DESIGNED USING BENCHMARK AS SHOWN (ELEVATION = 204.228mASL).

REGIONAL MUNICIPALITY OF HAMILTON WENTWORTH BENCHMARK 75U169
IRON PIPE WITH BRASS CAP, ALONG FIRST ROAD WEST, 0.2Km NORTH OF INTERSECTION WITH MUD STREET, 1.0 Km WEST OF HWY #20, 14.3m NORTH OF CENTER LINE OF DRIVEWAY TO HOUSE, 8.2m EAST OF CENTER LINE OF ROAD, 9cm WEST OF BENCHMARK SIGN POST, 1m ABOVE ROAD LEVEL, ELEVATION 204.228mASL.



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Client
**TERRAPURE ENVIRONMENTAL
STONEY CREEK, ONTARIO**

Project
**STONEY CREEK REGIONAL FACILITY
2021 ANNUAL MONITORING REPORT**

No.	Issue	Drawn	Approved	Date
Drawn	T.WAGSTAFF	Designer	B.DERMODY	
Drafting Check	P.LESIECZKO	Design Check	B.DERMODY	
Project Manager	B.DERMODY	Date	JANUARY 2022	
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Original Size		Bar is 20mm on original size drawing 0 20mm		
ANSI D				

Project No. 11103232-33

Title

**LANDFILL CONTOURS
AND VOLUMES -
JANUARY 2022**

Sheet No.

FIGURE 3.5

Sheet 1 of 1

STONEY CREEK LANDFILL VOLUMES			
LINE	ITEM	QUANTITY	NOTES
1	TOTAL VOLUME OF WASTE PLACED IN 2022	386,565 m³	LINE 2 - 7,152,100 m³
2	TOTAL VOLUME OF WASTE PLACED TO DATE	7,538,665 m³	COMPARISON OF JANUARY 2023 SURVEY AND APPROVED BOTTOM OF WASTE, LESS DEDUCTIONS FOR NON-WASTE MATERIALS
3	ESTIMATED REMAINING WASTE VOLUME	2,641,335 m³	10,180,000 m³ - LINE 2



- LEGEND:
- 221 — EXISTING MAJOR CONTOUR (2m INTERVAL)
 - — — EXISTING MINOR CONTOUR (1m INTERVAL)
 - 220.0 — EXISTING TOP OF FINAL COVER CONTOUR (2m INTERVAL)
 - — — EXISTING TOP OF FINAL COVER CONTOUR (1m INTERVAL)
 - [Cross-hatch pattern] FINAL COVER AREA
 - - - - - PROPERTY BOUNDARY
 - - - - - LIMIT OF LINER

SOURCE:

TOPOGRAPHICAL SURVEY INFORMATION BASED ON AERIAL PHOTOGRAPHY DATED JANUARY 11, 2023 BY AUTOMATED ENGINEERING TECHNOLOGIES.

REGIONAL MUNICIPALITY OF HAMILTON
WENTWORTH BENCHMARK 75U169
(N) 813.300, (E) 999.000, ELEVATION = 204.228 mASL

NOTE:
PHASES '1A', '2' AND '1B' WERE DESIGNED USING BENCHMARK (ELEVATION 204.337 mASL).

PHASES '1C', '3A', '3B', '4' AND '6A' WERE DESIGNED USING BENCHMARK AS SHOWN (ELEVATION = 204.228mASL).

REGIONAL MUNICIPALITY OF HAMILTON WENTWORTH
BENCHMARK 75U169
IRON PIPE WITH BRASS CAP, ALONG FIRST ROAD WEST, 0.2Km NORTH OF INTERSECTION WITH MUD STREET, 1.0 Km WEST OF HWY #20, 14.3m NORTH OF CENTER LINE OF DRIVEWAY TO HOUSE, 8.2m EAST OF CENTER LINE OF ROAD, 9cm WEST OF BENCHMARK SIGN POST, 1m ABOVE ROAD LEVEL, ELEVATION 204.228mASL.

NOTES:

TOTAL AREA= 40.1 ha
TOTAL FINAL COVER= 14.7 ha



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**GFL ENVIRONMENTAL
STONEY CREEK, ONTARIO**

Project

**STONEY CREEK REGIONAL FACILITY
2022 ANNUAL MONITORING REPORT**

No.	Issue	Drawn	Approved	Date
Drawn	T.WAGSTAFF	Designer	B.DERMODY	
Drafting Check	P.LESIECZKO	Design Check	B.DERMODY	
Project Manager	B.DERMODY	Date	JAN 2023	
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ANSI D				

Project No. 11103232-50

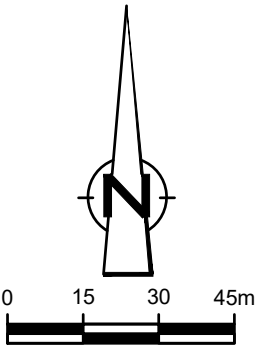
Title

**LANDFILL CONTOURS
AND VOLUMES -
JANUARY 2023**

Sheet No.

FIGURE 3.5

STONEY CREEK LANDFILL VOLUMES			
LINE	ITEM	QUANTITY	NOTES
1	TOTAL VOLUME OF WASTE PLACED IN 2023 (TO NOVEMBER 14th)	331,437 m³	LINE 2 - 7,538,665 m³
2	TOTAL VOLUME OF WASTE PLACED TO DATE	7,870,102 m³	COMPARISON OF NOVEMBER 2023 SURVEY AND APPROVED BOTTOM OF WASTE, LESS DEDUCTIONS FOR NON-WASTE MATERIALS
3	ESTIMATED REMAINING WASTE VOLUME	2,309,898 m³	10,180,000 m³ - LINE 2



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STONEY CREEK, ONTARIO**

Project
STONEY CREEK REGIONAL FACILITY

No.	Issue	Drawn	Approved	Date
Drawn	T.WAGSTAFF	Designer	B.DERMODY	
Drafting Check	P.LESIECZKO	Design Check	B.DERMODY	
Project Manager	B.DERMODY	Date	JAN 2023	
This document shall not be used for construction unless signed and sealed for construction.		Scale	1:1500	
Original Size		Bar is 20mm on original size drawing 0 20mm		
ANSI D				

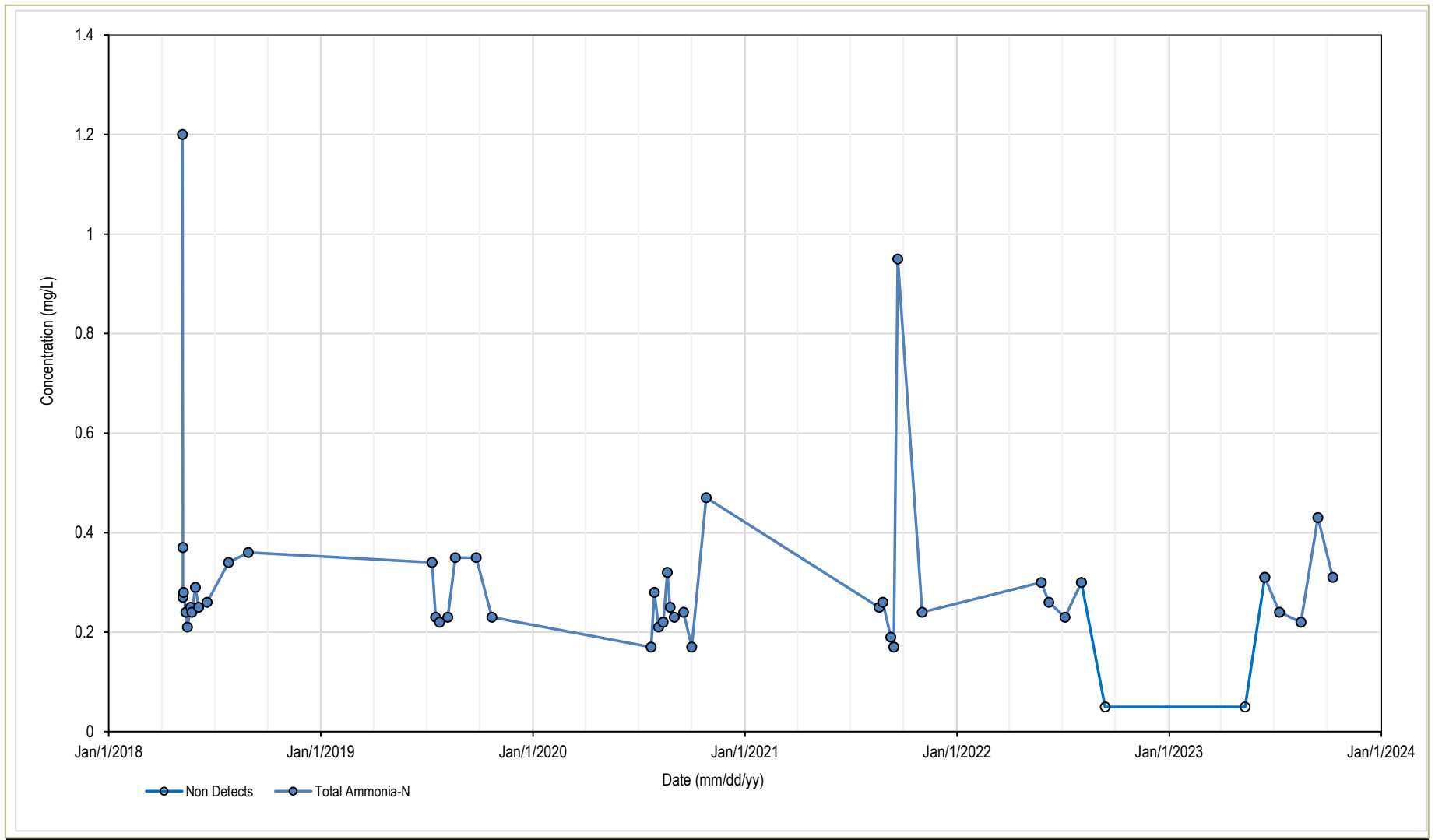
Project No. 11103232-50

Title
**LANDFILL CONTOURS
AND VOLUMES -
NOVEMBER 2023**

Sheet No.

FIGURE 3.5

Attachment 2

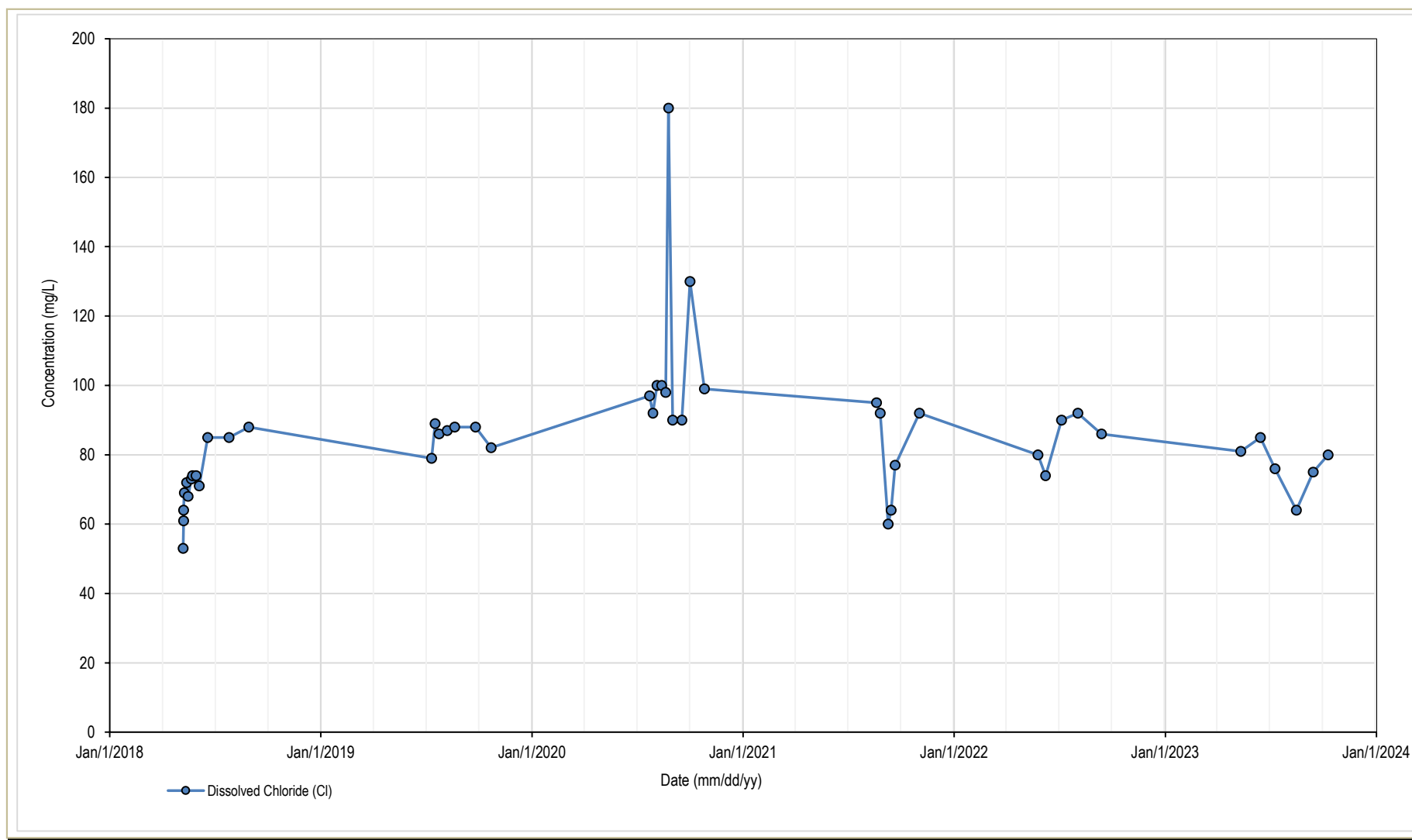


GFL ENVIRONMENTAL INC
STONE CREEK REGIONAL FACILITY

Project No. 11103232
Date December 2023

TOTAL AMMONIA-N CONCENTRATION VS TIME

FIGURE 1

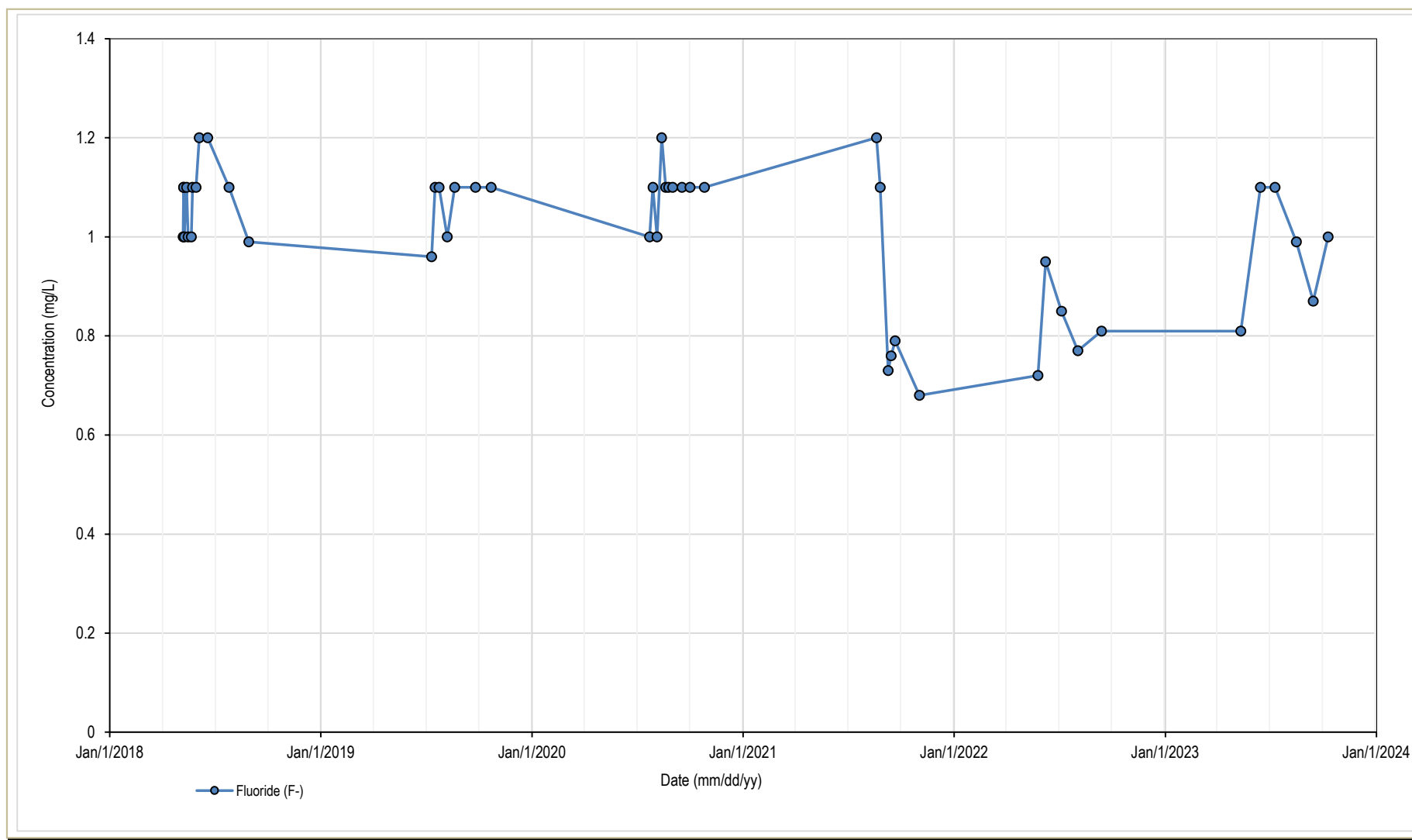


GFL ENVIRONMENTAL INC
STONE CREEK REGIONAL FACILITY

Project No. 11103232
Date December 2023

DISSOLVED CHLORIDE CONCENTRATION VS TIME

FIGURE 2

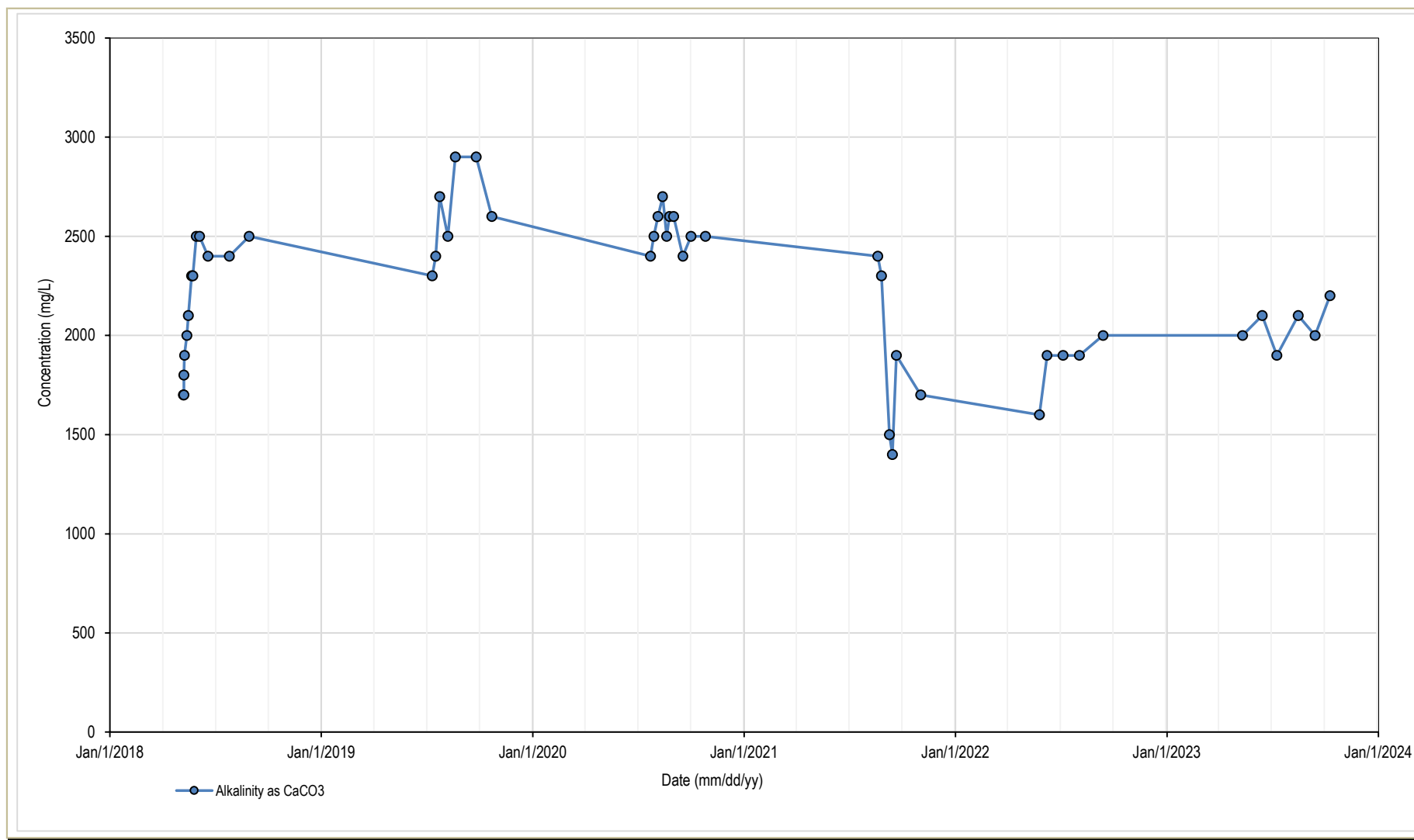


GFL ENVIRONMENTAL INC
STONE CREEK REGIONAL FACILITY

Project No. 11103232
Date December 2023

FLUORIDE CONCENTRATION VS TIME

FIGURE 3

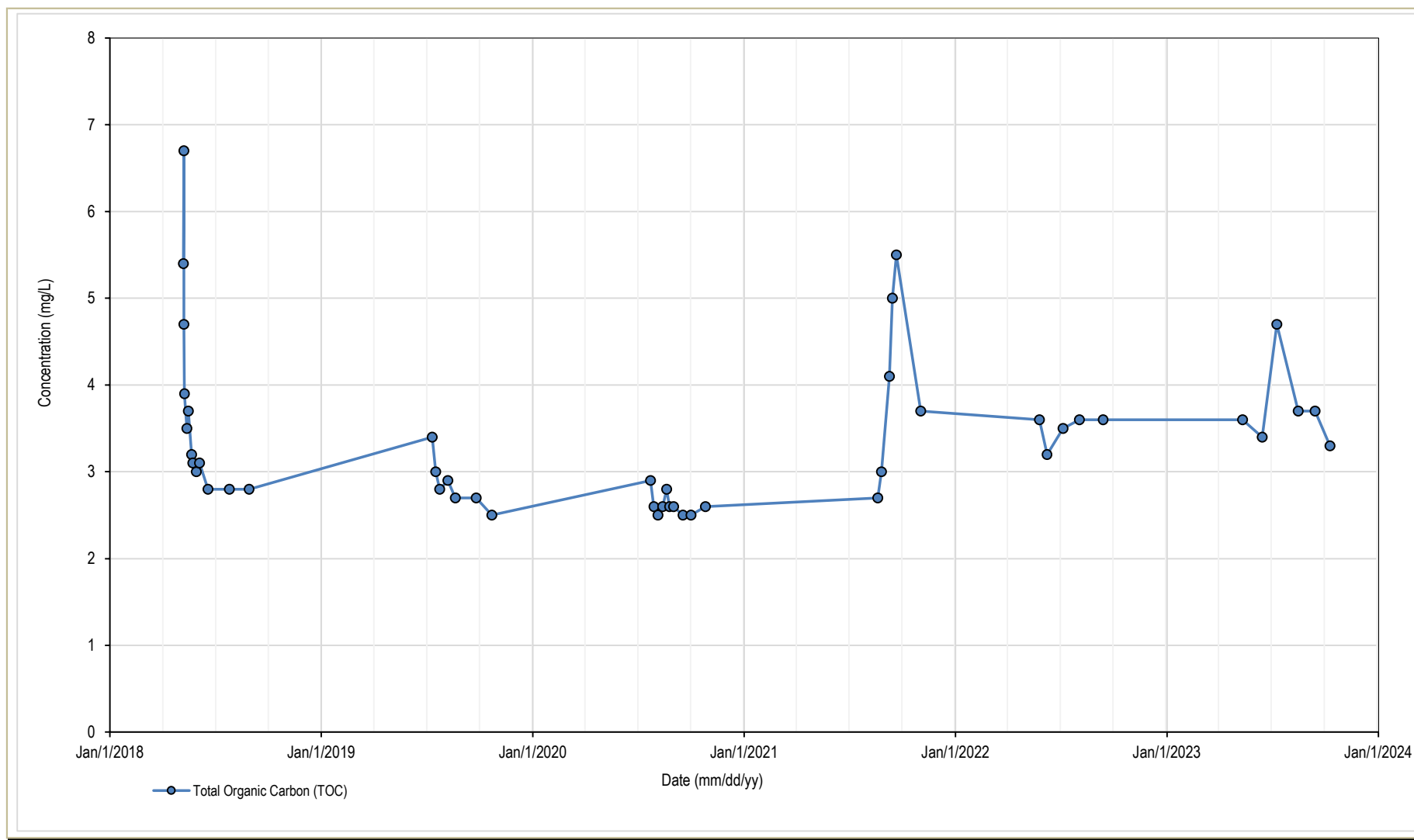


GFL ENVIRONMENTAL INC
STONE CREEK REGIONAL FACILITY

Project No. 11103232
Date December 2023

ALKALINITY CONCENTRATION VS TIME

FIGURE 4



GFL ENVIRONMENTAL INC
STONE CREEK REGIONAL FACILITY

Project No. 11103232
Date December 2023

TOTAL ORGANIC CARBON CONCENTRATION VS TIME

FIGURE 5

Appendix C Training and Calibration Records

Land Use Compatibility and Air Quality and Odour Impact Study

Elfrida Community

Elfrida Community Builders Group Inc.

SLR Project No.: 241.032028.00002

April 24, 2026





Nasal Ranger® Field Olfactometer Certificate of Calibration



St. Croix Sensory, Inc.

Order Information

Nasal Ranger Serial Number:	90202247	Client:	SLR Consulting Ltd.
Nasal Ranger Dial Variant:	Standard Dial	Client PO Number:	n/a
Dial Serial Number:	SD231771	Invoice Number:	1139

Dilution to Threshold Calibration

Reference Values

Reference D/T	Allowable Min	Allowable Max
60	54	66
30	27	33
15	13.5	16.5
7	6.3	7.7
4	3.6	4.4
2	1.8	2.2

Calibration Results

Measured D/T	Variance	In Tolerance
60.0	0.0%	Yes
30.0	0.1%	Yes
15.1	0.5%	Yes
6.9	-1.0%	Yes
3.9	-2.0%	Yes
2.0	-0.2%	Yes

Calibration Equipment Used

Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
TSI Incorporated	4040 Mass Flow Meter	4040-2336-001	2/21/2024	2/21/2025
TSI Incorporated	4040 Mass Flow Meter	4040-2336-001	2/21/2024	2/21/2025
TSI Incorporated	4143 Mass Flow Meter	4143-2339-002	2/22/2024	2/22/2025

Comments: None

Next Calibration Due: 2/4/2026

Verified By:

Date: 2/3/2025

*This document certifies that this Nasal Ranger® Field Olfactometer, specified by unique serial number, was calibrated by St. Croix Sensory, Inc. on the above date using Test Procedure 2014.
St. Croix Sensory's United States Facility is ISO 9001:2015 Certified for the Design, Manufacturing, and Service of Sensory Testing Products, PJR Certificate No. C2023-01317*

Certificate of Completion

Angela Yu Fan He

Completed the "ODOR SCHOOL"® course

Nasal Ranger Inspector

Odor Assessment & Measurement for Ambient Odors

This course prepares the individual to make odor observations and investigations, to record pertinent information, and to report the data and findings to management or officials. (3.5TCH)



10/15/2025

www.fivesenses.com



Certificate of Sensitivity



St. Croix Sensory, Inc.

Name: Angela He

EN13725 n-butanol Compliance Summary

y1	y2	y3	y4	y5	y6	y7	y8	y9	y10	y11	y12	Avg log ₁₀	Std Dev	dilution ppb log ₁₀
1413	1413	1413	1413	178	355	1413	1413	708	708	1413	1413			
26.9	26.9	26.9	26.9	213.7	107.1	26.9	26.9	53.7	53.7	26.9	26.9			
1.43	1.43	1.43	1.43	2.33	2.03	1.43	1.43	1.73	1.73	1.43	1.43	1.60	0.2989	

Avg Detection Threshold			Std Dev	
Actual (ppb)	Criteria (ppb)	Result	Actual	Result
40	20 to 80	PASS	2.0	PASS

Secondary Reference Materials Summary

Standard	Number of Tests	Avg Detection Threshold (ppb)	Std Dev	Acceptable Range (ppb)
Hydrogen Sulfide	12	0.22	1.7	0.13 - 0.5
Dimethyl Sulfide	12	0.71	1.5	0.25 - 1.0

Cylinder Usage Summary

Reference Materials Used

Standard	Concentration (ppm)	Manufacturer	Cylinder Number	Date Received
n-butanol	38.0	Linde	EA0013527	2/10/2025
Hydrogen Sulfide	1.0	Linde	FF48404	2/6/2025
Dimethyl Sulfide	1.0	Linde	FF52388	10/3/2025

Ac'Scent Olfactometer Calibration Summary

Dilution Level	#	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Sample Volume Factory Setting	(LPM)	0.0003	0.0006	0.00125	0.0025	0.005	0.01	0.02	0.04	0.08	0.16	0.32	0.64	1.26	2.5
Dilution Ratio Factory Setting	#	64,000	32,000	16,000	8,000	4,000	2,000	1,000	500	250	125	63	32	16	8
Sample Delivery Volume	(LPM)	0.00033	0.00062	0.00134	0.00258	0.00533	0.01052	0.02143	0.041	0.08	0.165	0.32	0.64	1.18	2.5
Dilution Ratio	#	61,606	32,790	15,172	7,880	3,814	1,933	949	496	254	123	64	32	17	8
Total Volume	(LPM)	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33

Comments:

To maintain certification status, St. Croix Sensory recommends that participants schedule quarterly sensitivity testing beginning 9 months after the date of certificate issuance.

Next Calibration Due:

7-20-2026

Verified By:

Wallis

Date:

10-20-2025

This document certifies that the holder is within acceptable range of compliance to EN13725 for n-butanol as evaluated by St. Croix Sensory, Inc. on the above date following principles described in EN13725:2022. St. Croix Sensory's Canada Facility is ISO/IEC 17025:2017 Accredited, P/L Certificate No. I24-186-2.

Certificate of Completion

Alice Najjar

Completed the "ODOR SCHOOL"® course

Nasal Ranger Inspector

Odor Assessment & Measurement for Ambient Odors

This course prepares the individual to make odor observations and investigations, to record pertinent information, and to report the data and findings to management or officials. (3.5TCH)



08/18/2025

www.fivesenses.com



Certificate of Sensitivity



Name: Alice Najjar

EN13725 n-butanol Compliance Summary

y1	y2	y3	y4	y5	y6	y7	y8	y9	y10	y11	y12	Avg log ₁₀	Std Dev	dilution ppb log ₁₀
355	355	708	708	355	708	1413	1413	355	355	708	2818			
107.1	107.1	53.7	53.7	107.1	53.7	26.9	26.9	107.1	107.1	53.7	13.5			
2.03	2.03	1.73	1.73	2.03	1.73	1.43	1.43	2.03	2.03	1.73	1.13	1.75	0.2989	

Avg Detection Threshold			Std Dev	
Actual (ppb)	Criteria (ppb)	Result	Actual	Result
57	20 to 80	PASS	2.0	PASS

Secondary Reference Materials Summary

Standard	Number of Tests	Avg Detection Threshold (ppb)	Std Dev	Acceptable Range (ppb)
Hydrogen Sulfide	12	0.32	1.7	0.13 - 0.5
Dimethyl Sulfide	12	0.67	1.5	0.25 - 1.0

Cylinder Usage Summary

Reference Materials Used

Standard	Concentration	Manufacturer	Cylinder Number	Date Received
n-butanol	38	Linde	EA0013527	2/10/2025
Hydrogen Sulfide	1.0	Linde	FF48404	2/6/2025
Dimethyl Sulfide	1.0	Linde	EX0015663	2/6/2025

Ac'Scent Olfactometer Calibration Summary

Dilution Level	#	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Sample Volume Factory Setting	(LPM)	0.0003	0.0006	0.00125	0.0025	0.005	0.01	0.02	0.04	0.08	0.16	0.32	0.64	1.26	2.5
Dilution Ratio Factory Setting	#	64,000	32,000	16,000	8,000	4,000	2,000	1,000	500	250	125	63	32	16	8
Sample Delivery Volume	(LPM)	0.00032	0.0006	0.00121	0.0026	0.00547	0.01056	0.02084	0.041	0.08	0.159	0.31	0.64	1.3	2.55
Dilution Ratio	#	63,531	33,883	16,802	7,819	3,717	1,925	976	496	254	128	66	32	16	8
Total Volume	(LPM)	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33

Comments:

To maintain certification status, St. Croix Sensory recommends that participants schedule quarterly sensitivity testing beginning 9 months after the date of certificate issuance.

Next Calibration Due:

6-9-2026

Verified By:

Wallis

Date:

9-10-2025

This document certifies that the holder is within acceptable range of compliance to EN13725 for n-butanol as evaluated by St. Croix Sensory, Inc. on the above date following principles described in EN13725:2022.

St. Croix Sensory's Canada Facility is ISO/IEC 17025:2017 Accredited, PJL Certificate No. I24-186-2.

Certificate of Completion

Steven Moulds

Completed the "ODOR SCHOOL"® course

Nasal Ranger Inspector

Odor Assessment & Measurement for Ambient Odors

This course prepares the individual to make odor observations and investigations, to record pertinent information, and to report the data and findings to management or officials. (3.5TCH)



08/18/2025

www.fivesenses.com



Certificate of Sensitivity



Name: Steven Moulds

EN13725 n-butanol Compliance Summary

y1	y2	y3	y4	y5	y6	y7	y8	y9	y10	y11	y12	Avg log ₁₀	Std Dev	dilution ppb log ₁₀
708	1413	2818	1413	1413	708	708	1413	708	1413	1413	2818			
53.7	26.9	13.5	26.9	26.9	53.7	53.7	26.9	53.7	26.9	26.9	13.5			
1.73	1.43	1.13	1.43	1.43	1.73	1.73	1.43	1.73	1.43	1.43	1.13	1.48	0.2153	

Avg Detection Threshold			Std Dev	
Actual (ppb)	Criteria (ppb)	Result	Actual	Result
30	20 to 80	PASS	1.6	PASS

Secondary Reference Materials Summary

Standard	Number of Tests	Avg Detection Threshold (ppb)	Std Dev	Acceptable Range (ppb)
Hydrogen Sulfide	12	0.32	1.9	0.13 - 0.5
Dimethyl Sulfide	12	0.67	1.5	0.25 - 1.0

Cylinder Usage Summary

Reference Materials Used

Standard	Concentration	Manufacturer	Cylinder Number	Date Received
n-butanol	38	Linde	EA0013527	2/10/2025
Hydrogen Sulfide	1.0	Linde	FF48404	2/6/2025
Dimethyl Sulfide	1.0	Linde	EX0015663	2/6/2025

Ac'Scent Olfactometer Calibration Summary

Dilution Level	#	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Sample Volume Factory Setting	(LPM)	0.0003	0.0006	0.00125	0.0025	0.005	0.01	0.02	0.04	0.08	0.16	0.32	0.64	1.26	2.5
Dilution Ratio Factory Setting	#	64,000	32,000	16,000	8,000	4,000	2,000	1,000	500	250	125	63	32	16	8
Sample Delivery Volume	(LPM)	0.00032	0.0006	0.00121	0.0026	0.00547	0.01056	0.02084	0.041	0.08	0.159	0.31	0.64	1.3	2.55
Dilution Ratio	#	63,531	33,883	16,802	7,819	3,717	1,925	976	496	254	128	66	32	16	8
Total Volume	(LPM)	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33	20.33

Comments:

To maintain certification status, St. Croix Sensory recommends that participants schedule quarterly sensitivity testing beginning 9 months after the date of certificate issuance.

Next Calibration Due:

6-9-2026

Verified By:

Date:

9-10-2025

This document certifies that the holder is within acceptable range of compliance to EN13725 for n-butanol as evaluated by St. Croix Sensory, Inc. on the above date following principles described in EN13725:2022.

St. Croix Sensory's Canada Facility is ISO/IEC 17025:2017 Accredited, PJL Certificate No. I24-186-2.

Appendix D Example of Completed Field Note

Land Use Compatibility and Air Quality and Odour Impact Study

Elfrida Community

Elfrida Community Builders Group Inc.

SLR Project No.: 241.032028.00002

April 24, 2026



Technical Memorandum



To: File

From:

Company: Elfrida Community Builders Group Inc. c/o TMA Law

cc:

Date:

Project No. 241.032028.00001

RE: Elfrida Community Builders Group Inc., Hamilton, Ontario

SLR conducted air quality monitoring on 10/07/2025 (DD/MM/YYYY) for mixed odours and sulphur compounds including total reduced sulphurs.

Summary of Observed Activities

During the time of sample collection, the following potential air emission generating activities were observed:

Table 1: Odour Monitoring Survey Activity Summary Report – Day 1

Stoney Creek Landfill Activity Description (truck activity, on-site activity including equipment use, landfill pile size, collect photo if applicable):
Dumptrucks & excavators, grader, street sweeper
Surrounding Activities Description (i.e. other industries, drop-off location roadway dust, unpaved roads, construction etc.):
- Strong odour at station 9 & 10 coming from upwind mushroom farm



Table 2: Odour Monitoring Survey Activity Summary Report – Day 2

Stoney Creek Landfill Activity Description (truck activity, on-site activity including equipment use, landfill pile size, collect photo if applicable):
17 Excavating berm along Green Mtn Road beside the MET station.
Active site.
Surrounding Activities Description (i.e. other industries, drop-off location roadway dust, unpaved roads, construction etc.):
Street sweeper active.
↳ creating very large visible dust plume along First Rd W. Not effectively capturing roadway dirt/dust.



Meteorological Conditions

Observed Project site meteorological conditions including identification of precipitation denote as N/A if information is not known:

Table 3: Meteorological conditions during sample collection

Date	Time	Wind Speed (km/h)	Wind Direction	Precipitation (Yes/No)	Temperature (°C)	Relative Humidity
10/10/2025	12-1	20.4	South	No	14.6	54
10/10/2025	1	19.7	~~SW~~ ^{SSW}	No	15.5	50
10/10/2025	2	19.7	~~SW~~ ^{SSW}	No	16.4	46
10/10/2025	3	23.3	SSW	~~10.13 mm~~	16.6	47
11/10/2025	12	6	SSW	No	16.4	61
11/10/2025	1	7.7	SSW	No	15.2	64
11/10/2025	2	7.6	N ~~NW~~	2.13 mm	14.3	74
11/10/2025	3	6.6	~~N~~ ^{NW}	4.58 mm	13	90

Record hourly data from Environment Canada



Nasal Ranger Data Collection Notes

Table 4: Nasal Ranger Data Collection - Day 1 10/10/2025 (DD/MM/YYYY), Completed By Steven

Location Number on Map	Time	Odour Observed (Yes/No)	World Odour Scale (1-5)	Hedonic Tone Scale (+10 to -10)	Detectable by Nasal Ranger (Yes/No)	Nasal Ranger Dilution Threshold (D/T)	Temp (°C)	Humidity (%RH)	Precipitation (Yes/No)	Wind Speed/Direction	Description of Odour (See Attached Odour Wheel)
1	2:54	yes	2	-2	yes	4:1					exhaust, rubber, coffee, smoke
2	2:51	yes	1	-1	No	-					exhaust, grass, weak garbage
3	2:43	No	-	-	No	-					~~exhaust, rubber, coffee, smoke~~
4	2:46	yes	1	1	No	-					earthy, manure, dusty (weak)
5	2:24	yes	1	+2	No	-					grass, earthy
6	2:11	yes	3	-5	yes	15:1					other garbage
7 ~~1:48~~	~~1:48~~	yes	2	-1	yes	2:1					gas paint, prep food, gear bag
8	1:43	yes	2	-2	yes	2:1					prepared foods, gas
9	1:05	yes	2	-3	yes	4:1					sour manure
10	1:14	yes	4	-7	yes	30:1					musty manure, gas, rotten meat, onion
11	12:48	yes	1	+2	No	-					prepared food odour
12	1:53	yes	3	-4	yes	15:1					garbage, sour, eggs



Continued

[illegible]

Table 5: Nasal Ranger Data Collection - Day 2 11/10/2025 (DD/MM/YYYY), Completed By STEVEN MOUNIS

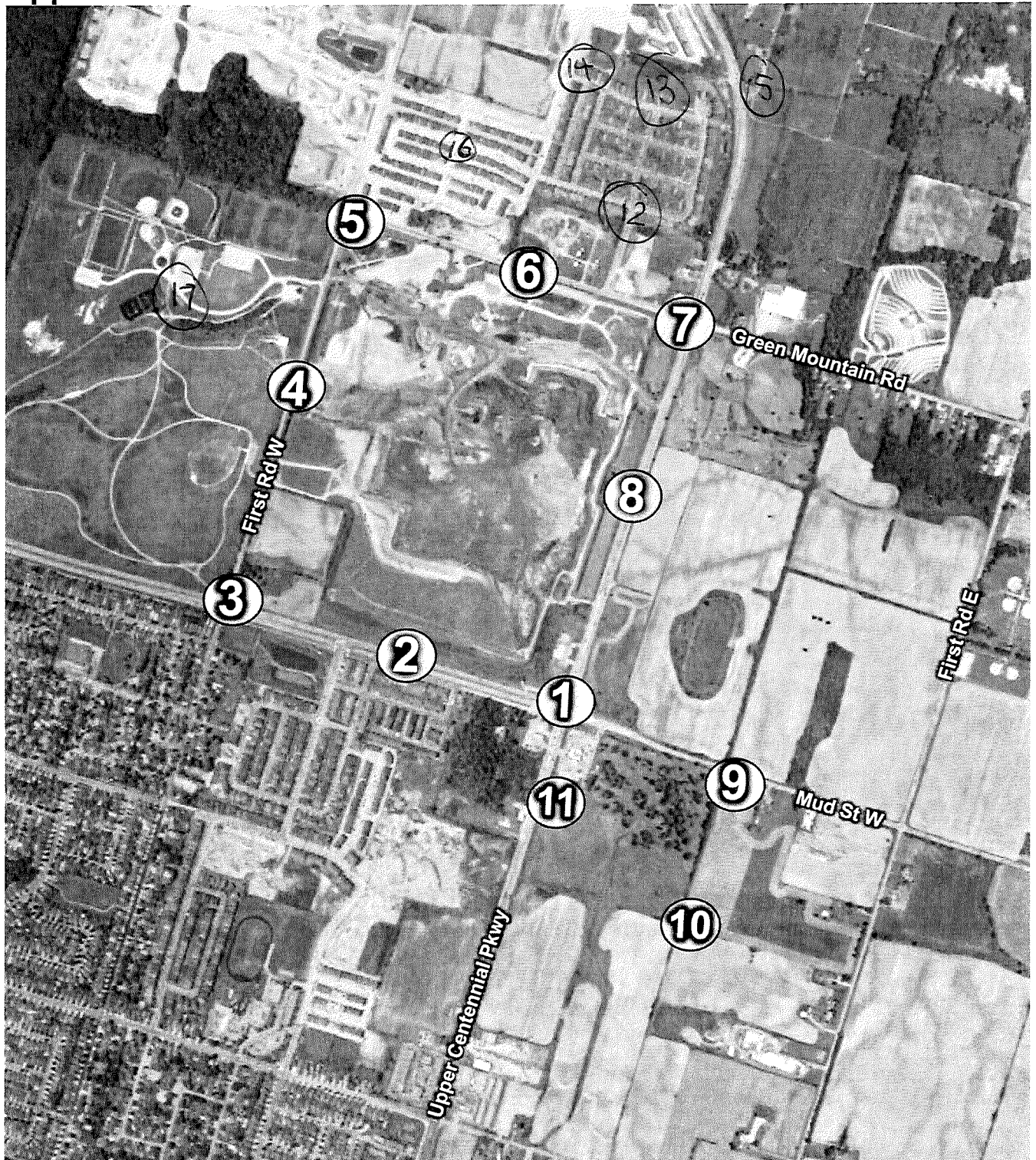
Location Number on Map	Time	Odour Observed (Yes/No)	World Odour Scale (1-5)	Hedonic Tone Scale (+10 to -10)	Detectable by Nasal Ranger (Yes/No)	Nasal Ranger Dilution Threshold (D/T)	Temp (°C)	Humidity (%RH)	Precipitation (Yes/No)	Wind Speed/Direction	Description of Odour (See Attached Odour Wheel)
1	3:03PM	Yes	1	-2	Yes	2:1			~~No~~ Yes		garbage, ripened food, exhaust
2	2:51PM	Yes	1	-1	No	/			~~No~~ Yes		garbage, grass, earthy
3	2:40PM	No	/	/	No	/			No		/
4	2:27PM	Yes	2	-3	Yes	2:1			No		Peg manure, earthy
5	2:12PM	No	/	/	No	/			~~No~~ Yes		/
6	2:05PM	No	/	/	No	/			~~No~~ Yes		/
7	1:47PM	No	/	/	No	/			No		/
8	1:31PM	Yes	1	-2	Yes	2:1			No		garbage, gasoline, dust
9	1:05PM	Yes	1	-1	No	/			No		Earthy, garbage
10	1:14PM	~~Yes~~	1	+1	No	/			No		Earthy
11	12:48PM	Yes	1	-2	Yes	2:1			No		Earthy, gas, garbage, rotting food



Continued

[illegible]

Approximate Data Collection Locations

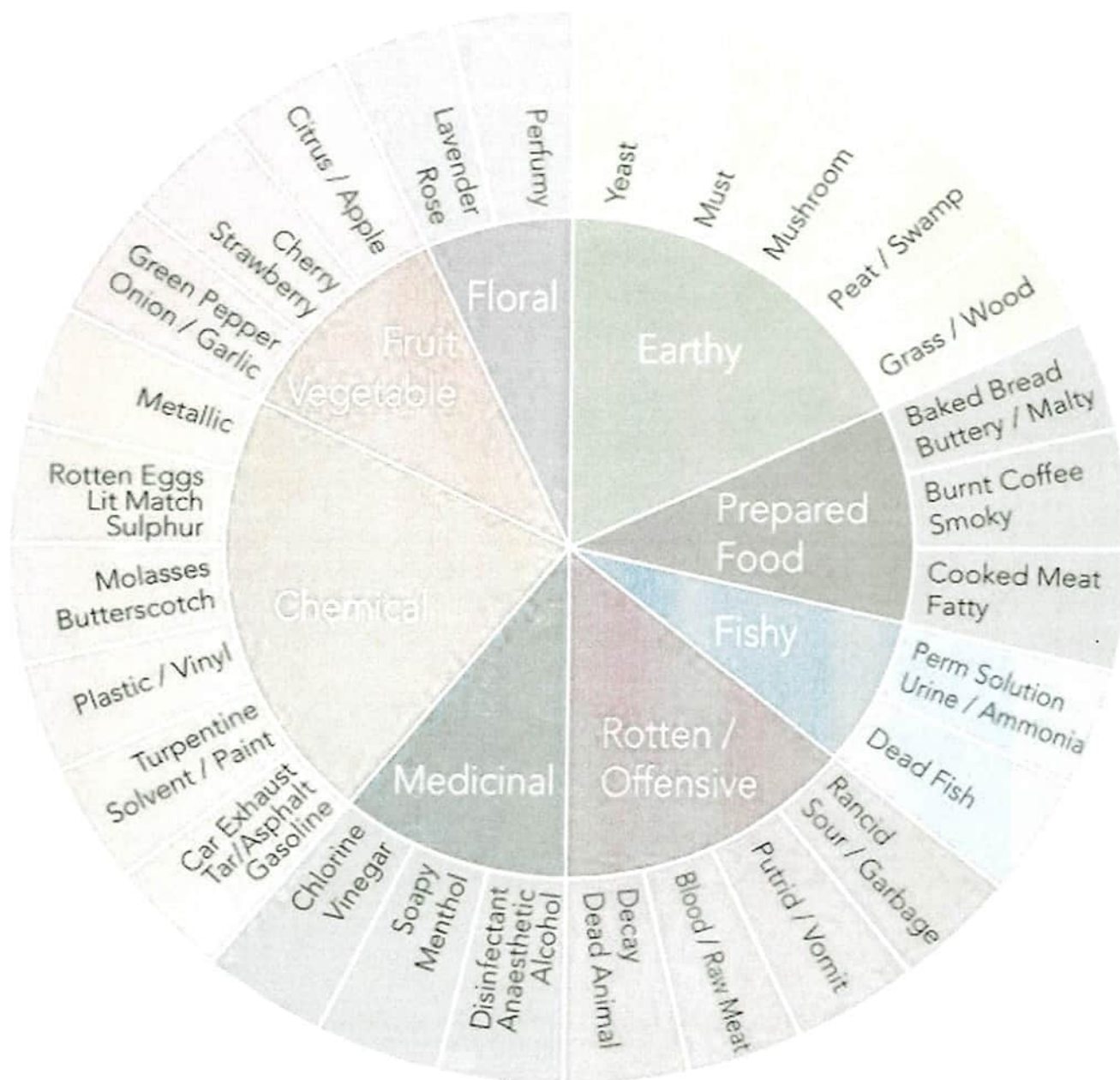


SUMMA® Cannister Air Monitoring Data Collection Notes**Table 6: SUMMA Cannister Data Collection. Sampling started on: 10/10/2025 (DD/MM/YYYY)**

Station Location	Initial Vacuum Gauge Reading (inHg)	Exact Time of Opening	Final Vacuum Gauge Reading (inHg)	Exact Time of Closure	Summa Can Serial #	Regulator ID	Lab Tag # on Summa Can	Site Conditions / Notes
11	-29	12:42	-6.5	12:42	06000-0220	CS 1200-0336		
9	-31	1:21	-9	1:21	0413	0324		
10	-31	1:16	-10	1:16	0549	0147		



Odour Wheel



1

¹ Metro Vancouver, 2019



World Odour Scale

Using a Word Scale to Measure Odor Intensity

This method measures the strength of an odor on the continuum from 0 to 5 as shown here.

It's a simple method commonly used by citizens in a community.

Click each number on the scale for a description of the strength of an odor at that rating.

0	1	2	3	4	5
No Odor	Very Faint	Faint	Noticeable	Strong	Very Strong

Hedonic Scale

Your Experience with Odors

The Hedonic Tone (HT) Scale shown here is a subjective scale used to indicate our personal response to an odor.

Think of the Most Pleasant odor of your whole life. This is a +10 number on your personal Hedonic Tone Scale.

Think of the Least Pleasant odor of your whole life. This is your -10 number on your personal Hedonic Tone Scale.

- ☒ +10 Most Pleasant
- ☐
- ☐ +5
- ☐
- ☐ 0 Neutral
- ☐
- ☐ -5
- ☐
- ☒ -10 Least Pleasant



Appendix E 24-Hour Speciated Sulphur Compound Results

Land Use Compatibility and Air Quality and Odour Impact Study

Elfrida Community

Elfrida Community Builders Group Inc.

SLR Project No.: 241.032028.00002

April 24, 2026



Table E.1: Summary of 24-Hour Average Speciated Sulphur Concentrations

					250823-10-0233-0025	250823-09-0367-0305	250823-0251 (Trip Blank)	250829-11-0017-0042	250829-10-0476-0295	250829-9a-0053-0301	250829-9b-0266-0236 (Field dup)
Date Sampled:					23-Aug-2025	23-Aug-2025	23-Aug-2025	29-Aug-2025	29-Aug-2025	29-Aug-2025	29-Aug-2025
		MECP AAQC			µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
Analyte	CAS	24-hour Average	10-Min Average	Lowest Detection Limit	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air
Dimethyl disulfide	624-92-0	43.8 [2]	56	3.9	<7.7	<7.7	<7.7	<3.8	<3.8	<3.8	<3.8
Dimethyl sulfide	75-18-3	23.5 [2]	30	5.1	<15.0	<15.0	<15.0	<5.1	<5.1	<5.1	<5.1
Hydrogen sulfide	7783-06-5	7	13	2.8	<5.6	<5.6	<5.6	<2.8	<2.8	<2.8	<2.8
Methyl mercaptan*	74-93-1	10.2 [2]	13	3.9	<7.9	<7.9	<7.9	<3.9	<3.9	<3.9	<3.9
Carbon disulfide	75-15-0	330		6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2
Carbonyl sulfide [1]	463-58-1	13		10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Diethyl disulfide [1]	110-81-6	7		10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Diethyl sulfide [1]	352-93-2	7		15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Dimethylthiophene, 2,5- [1]	638-02-8	5		18	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0
Ethyl mercaptan*	75-08-1	10.2 [2]	13	10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Ethyl methyl sulfide [1]	624-89-5	7		12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Ethylthiophene, 2- [1]	872-55-9	28.5		18	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0
Isobutyl mercaptan*	513-44-0	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Isopropyl mercaptan*	75-33-2	10.2 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Methylthiophene, 2- [1]	554-14-3	28.5		16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Methylthiophene, 3- [1]	616-44-4	28.5		16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Propyl mercaptan*	107-03-9	10.2 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Tetrahydrothiophene [1]	110-01-0	650		14	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0
n-Butyl mercaptan*	109-79-5	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
sec-butyl mercaptan + thiophene*	513-53-1	10.2 [2]	13	14	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0
t-Butyl mercaptan*	75-66-1	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Sulfur, total reduced (as H2S), Ontario 4	N/A	7.0 [2]	13	5.6	<25.0	<25.0	<25.0	<5.6	<5.6	<5.6	<5.6
Sulfur, total reduced (as H2S), 22 compounds	N/A	7.0 [2]	13	25	<16.0	<16.0	<16.0	<25.0	<25.0	<25.0	<25.0
Sulfur, total reduced (as H2S), 10 compounds	N/A	7.0 [2]	13	16	<12.0	<12.0	<12.0	<16.0	<16.0	<16.0	<16.0
Sulfur, total reduced (as H2S), NPRI 6	N/A	7.0 [2]	13	12	<11.0	<11.0	<11.0	<12.0	<12.0	<12.0	<12.0
Sulfur, total reduced (as H2S), HAMN (GFL Southeast)	N/A	4.8 [2]			<0.1			<0.4			
Sulfur, total reduced (as H2S), HAMN (GFL Southeast)	N/A	7.0 [2]			<0.1			<0.6			
Sulfur, total reduced (as H2S), HAMN (GFL North)	N/A	4.8 [2]			<0.4			<0.8			
Sulfur, total reduced (as H2S), HAMN (GFL North)	N/A	7.0 [2]			<0.6			<1.2			
Sulfur, total reduced (as H2S), HAMN (GFL Lagoon)	N/A	4.8 [2]			<0.5			<0.5			
Sulfur, total reduced (as H2S), HAMN (GFL Lagoon)	N/A	7.0 [2]			<0.7			<0.7			

Notes

- * Compared against AAQC for Total Mercaptan
- Concentration above Laboratory Detection Limit and below Regulatory limit
- Monitored concentration exceeds AAQC
- Data qualified, compound detected in blank.

[1] 24-Hour Criteria from Air Contaminants Benchmark list

[2] Regulatory criteria converted using MECP Averaging Period Conversion Factor equation as follows: $C_0=C_1 \times F$
Where: C_0 = concentration at averaging period t_0
 C_1 =concentration at averaging period t_1
 F =Factor to convert from averaging period t_1 to the averaging period $t_0 = (t_1/t_0)^n$, $n=28$
Equation is located on Table 7-1 of MECP Procedure for Preparing and ESDM Report (2018)



Table E.1: Summary of 24-Hour Average Speciated Sulphur Concentrations

					250904-09-0608-0274	250904-10-0269-0187	250904-11-0200-0097	250910-9-0617-0291	250910-10-0252-0242	250910-10-0206-0247 (Field dup)	250910-11-0088-011	250916-10-0146-0217
Date Sampled:					04-Sep-2025	04-Sep-2025	04-Sep-2025	10-Sep-2025	10-Sep-2025	10-Sep-2025	10-Sep-25	16-Sep-2025
		MECP AAQC			µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
Analyte	CAS	24-hour Average	10-Min Average	Lowest Detection Limit	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air
Dimethyl disulfide	624-92-0	43.8 [2]	56	3.9	<3.8	<3.8	<3.8	<3.8	<3.8	<3.8	<3.8	<3.8
Dimethyl sulfide	75-18-3	23.5 [2]	30	5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1
Hydrogen sulfide	7783-06-5	7	13	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Methyl mercaptan*	74-93-1	10.2 [2]	13	3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9
Carbon disulfide	75-15-0	330		6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2
Carbonyl sulfide [1]	463-58-1	13		10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Diethyl disulfide [1]	110-81-6	7		10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Diethyl sulfide [1]	352-93-2	7		15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Dimethylthiophene, 2,5- [1]	638-02-8	5		18	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0
Ethyl mercaptan*	75-08-1	10.2 [2]	13	10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Ethyl methyl sulfide [1]	624-89-5	7		12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Ethylthiophene, 2- [1]	872-55-9	28.5		18	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0
Isobutyl mercaptan*	513-44-0	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Isopropyl mercaptan*	75-33-2	10.2 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Methylthiophene, 2- [1]	554-14-3	28.5		16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Methylthiophene, 3- [1]	616-44-4	28.5		16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Propyl mercaptan*	107-03-9	10.2 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Tetrahydrothiophene [1]	110-01-0	650		14	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0
n-Butyl mercaptan*	109-79-5	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
sec-butyl mercaptan + thiophene*	513-53-1	10.2 [2]	13	14	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0
t-Butyl mercaptan*	75-66-1	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Sulfur, total reduced (as H2S), Ontario 4	N/A	7.0 [2]	13	5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6
Sulfur, total reduced (as H2S), 22 compounds	N/A	7.0 [2]	13	25	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Sulfur, total reduced (as H2S), 10 compounds	N/A	7.0 [2]	13	16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Sulfur, total reduced (as H2S), NPRI 6	N/A	7.0 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Sulfur, total reduced (as H2S), HAMN (GFL Southeast)	N/A	4.8 [2]			<0.3			<1.6				<2.0
Sulfur, total reduced (as H2S), HAMN (GFL Southeast)	N/A	7.0 [2]			<0.4			<2.3				<2.9
Sulfur, total reduced (as H2S), HAMN (GFL North)	N/A	4.8 [2]			<1.1			<0.5				<0.1
Sulfur, total reduced (as H2S), HAMN (GFL North)	N/A	7.0 [2]			<1.6			<0.7				<0.1
Sulfur, total reduced (as H2S), HAMN (GFL Lagoon)	N/A	4.8 [2]			<0.7			<3.1				<0.3
Sulfur, total reduced (as H2S), HAMN (GFL Lagoon)	N/A	7.0 [2]			<1.0			<4.5				<0.4

Notes

*

Concentration above Laboratory Detection Limit and below Regulatory limit

Monitored concentration exceeds AAQC

Data qualified, compound detected in blank.

[1]

24-Hour Criteria from Air Contaminants Benchmark list

[2]

Regulatory criteria converted using MECP Averaging Period Conversion Factor equation as follows: C₀=C₁ x F
Where: C₀= concentration at averaging period t₀
C₁=concentration at averaging period t₁
F=Factor to convert from averaging period t₁ to the averaging period t₀ = (t₁/t₀)ⁿ, n=28
Equation is located on Table 7-1 of MECP Procedure for Preparing and ESDM Report (2018)



Table E.1: Summary of 24-Hour Average Speciated Sulphur Concentrations

					250916-09-0199-0257	250916-11-0397-0207	250922-09-0029-0318	250922-10-0182-0145	250922-11-0536-0291	250928-09-1888-0325	250928-09-0326-0247 (Field dup)
Date Sampled:					16-Sep-2025	16-Sep-2025	22-Sep-25	22-Sep-25	22-Sep-25	28-Sep-25	28-Sep-25
					µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
Analyte	CAS	MECP AAQC 24-hour Average	MECP AAQC 10-Min Average	Lowest Detection Limit	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air
Dimethyl disulfide	624-92-0	43.8 [2]	56	3.9	<3.8	<3.8	<3.8	<3.8	<3.8	<3.8	<3.8
Dimethyl sulfide	75-18-3	23.5 [2]	30	5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1
Hydrogen sulfide	7783-06-5	7	13	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Methyl mercaptan*	74-93-1	10.2 [2]	13	3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9
Carbon disulfide	75-15-0	330		6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2
Carbonyl sulfide [1]	463-58-1	13		10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Diethyl disulfide [1]	110-81-6	7		10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Diethyl sulfide [1]	352-93-2	7		15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Dimethylthiophene, 2,5- [1]	638-02-8	5		18	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0
Ethyl mercaptan*	75-08-1	10.2 [2]	13	10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Ethyl methyl sulfide [1]	624-89-5	7		12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Ethylthiophene, 2- [1]	872-55-9	28.5		18	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0
Isobutyl mercaptan*	513-44-0	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Isopropyl mercaptan*	75-33-2	10.2 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Methylthiophene, 2- [1]	554-14-3	28.5		16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Methylthiophene, 3- [1]	616-44-4	28.5		16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Propyl mercaptan*	107-03-9	10.2 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Tetrahydrothiophene [1]	110-01-0	650		14	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0
n-Butyl mercaptan*	109-79-5	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
sec-butyl mercaptan + thiophene*	513-53-1	10.2 [2]	13	14	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0
t-Butyl mercaptan*	75-66-1	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Sulfur, total reduced (as H2S), Ontario 4	N/A	7.0 [2]	13	5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6
Sulfur, total reduced (as H2S), 22 compounds	N/A	7.0 [2]	13	25	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Sulfur, total reduced (as H2S), 10 compounds	N/A	7.0 [2]	13	16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Sulfur, total reduced (as H2S), NPRI 6	N/A	7.0 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Sulfur, total reduced (as H2S), HAMN (GFL Southeast)	N/A	4.8 [2]					<0.3			<0.6	
Sulfur, total reduced (as H2S), HAMN (GFL Southeast)	N/A	7.0 [2]					<0.4			<0.9	
Sulfur, total reduced (as H2S), HAMN (GFL North)	N/A	4.8 [2]					<0.3			<0.9	
Sulfur, total reduced (as H2S), HAMN (GFL North)	N/A	7.0 [2]					<0.4			<1.3	
Sulfur, total reduced (as H2S), HAMN (GFL Lagoon)	N/A	4.8 [2]					<0.7			<1.0	
Sulfur, total reduced (as H2S), HAMN (GFL Lagoon)	N/A	7.0 [2]					<1.0			<1.5	

Notes

- * Compared against AAQC for Total Mercaptan
- Concentration above Laboratory Detection Limit and below Regulatory limit
- Monitored concentration exceeds AAQC
- Data qualified, compound detected in blank.

[1] 24-Hour Criteria from Air Contaminants Benchmark list

[2] Regulatory criteria converted using MECP Averaging Period Conversion Factor equation as follows: $C_0 = C_1 \times F$
Where: C_0 = concentration at averaging period t_0
 C_1 = concentration at averaging period t_1
 F = Factor to convert from averaging period t_1 to the averaging period $t_0 = (t_1/t_0)^n$, $n=28$
Equation is located on Table 7-1 of MECP Procedure for Preparing and ESDM Report (2018)



Table E.1: Summary of 24-Hour Average Speciated Sulphur Concentrations

					250928-10-0118-0242	250928-11-0304-0111	251006-09-0518-0043	251006-10-0361-0299	251006-11-0439-0302	251010-10-0549	251010-19-0413
Date Sampled:					28-Sep-25	28-Sep-25	06-Oct-2025	06-Oct-2025	06-Oct-2025	10-Oct-2025	10-Oct-2025
					µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
Analyte	CAS	MECP AAQC 24-hour Average	MECP AAQC 10-Min Average	Lowest Detection Limit	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air
Dimethyl disulfide	624-92-0	43.8 [2]	56	3.9	<3.8	<3.8	<3.8	<3.8	<3.8	<3.9	<3.9
Dimethyl sulfide	75-18-3	23.5 [2]	30	5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1
Hydrogen sulfide	7783-06-5	7	13	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Methyl mercaptan*	74-93-1	10.2 [2]	13	3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9
Carbon disulfide	75-15-0	330		6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2
Carbonyl sulfide [1]	463-58-1	13		10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Diethyl disulfide [1]	110-81-6	7		10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Diethyl sulfide [1]	352-93-2	7		15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Dimethylthiophene, 2,5- [1]	638-02-8	5		18	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0
Ethyl mercaptan*	75-08-1	10.2 [2]	13	10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Ethyl methyl sulfide [1]	624-89-5	7		12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Ethylthiophene, 2- [1]	872-55-9	28.5		18	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0
Isobutyl mercaptan*	513-44-0	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Isopropyl mercaptan*	75-33-2	10.2 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Methylthiophene, 2- [1]	554-14-3	28.5		16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Methylthiophene, 3- [1]	616-44-4	28.5		16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Propyl mercaptan*	107-03-9	10.2 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Tetrahydrothiophene [1]	110-01-0	650		14	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0
n-Butyl mercaptan*	109-79-5	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
sec-butyl mercaptan + thiophene*	513-53-1	10.2 [2]	13	14	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0
t-Butyl mercaptan*	75-66-1	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Sulfur, total reduced (as H2S), Ontario 4	N/A	7.0 [2]	13	5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6
Sulfur, total reduced (as H2S), 22 compounds	N/A	7.0 [2]	13	25	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Sulfur, total reduced (as H2S), 10 compounds	N/A	7.0 [2]	13	16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Sulfur, total reduced (as H2S), NPRI 6	N/A	7.0 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Sulfur, total reduced (as H2S), HAMN (GFL Southeast)	N/A	4.8 [2]					<0.4			<1.1	
Sulfur, total reduced (as H2S), HAMN (GFL Southeast)	N/A	7.0 [2]					<0.6			<1.6	
Sulfur, total reduced (as H2S), HAMN (GFL North)	N/A	4.8 [2]					<0.5			10.0	
Sulfur, total reduced (as H2S), HAMN (GFL North)	N/A	7.0 [2]					<0.7			14.7	
Sulfur, total reduced (as H2S), HAMN (GFL Lagoon)	N/A	4.8 [2]					<0.6			<0.6	
Sulfur, total reduced (as H2S), HAMN (GFL Lagoon)	N/A	7.0 [2]					<0.9			<0.9	

Notes

- * Compared against AAQC for Total Mercaptan
- Concentration above Laboratory Detection Limit and below Regulatory limit
- Monitored concentration exceeds AAQC
- Data qualified, compound detected in blank.

[1] 24-Hour Criteria from Air Contaminants Benchmark list

[2] Regulatory criteria converted using MECP Averaging Period Conversion Factor equation as follows: $C_0 = C_1 \times F$
Where: C_0 = concentration at averaging period t_0
 C_1 = concentration at averaging period t_1
 F = Factor to convert from averaging period t_1 to the averaging period $t_0 = (t_1/t_0)^n$, $n=28$
Equation is located on Table 7-1 of MECP Procedure for Preparing and ESDM Report (2018)



Table E.1: Summary of 24-Hour Average Speciated Sulphur Concentrations

					251010-11-0220	251016-09-0051-0312	251016-10-0080-0175	251016-11-0574-0163	251022-11-0178-0242	251022-11-0179-0325 (Field dup)	251022-10-0255-0192
Date Sampled:					10-Oct-2025	16-Oct-2025	16-Oct-2025	16-Oct-2025	22-Oct-25	22-Oct-25	22-Oct-25
		MECP AAQC			µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
Analyte	CAS	24-hour Average	10-Min Average	Lowest Detection Limit	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air
Dimethyl disulfide	624-92-0	43.8 [2]	56	3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9
Dimethyl sulfide	75-18-3	23.5 [2]	30	5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1
Hydrogen sulfide	7783-06-5	7	13	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Methyl mercaptan*	74-93-1	10.2 [2]	13	3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9
Carbon disulfide	75-15-0	330		6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2
Carbonyl sulfide [1]	463-58-1	13		10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Diethyl disulfide [1]	110-81-6	7		10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Diethyl sulfide [1]	352-93-2	7		15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Dimethylthiophene, 2,5- [1]	638-02-8	5		18	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0
Ethyl mercaptan*	75-08-1	10.2 [2]	13	10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Ethyl methyl sulfide [1]	624-89-5	7		12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Ethylthiophene, 2- [1]	872-55-9	28.5		18	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0
Isobutyl mercaptan*	513-44-0	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Isopropyl mercaptan*	75-33-2	10.2 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Methylthiophene, 2- [1]	554-14-3	28.5		16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Methylthiophene, 3- [1]	616-44-4	28.5		16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Propyl mercaptan*	107-03-9	10.2 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Tetrahydrothiophene [1]	110-01-0	650		14	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0
n-Butyl mercaptan*	109-79-5	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
sec-butyl mercaptan + thiophene*	513-53-1	10.2 [2]	13	14	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0
t-Butyl mercaptan*	75-66-1	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Sulfur, total reduced (as H2S), Ontario 4	N/A	7.0 [2]	13	5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6
Sulfur, total reduced (as H2S), 22 compounds	N/A	7.0 [2]	13	25	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Sulfur, total reduced (as H2S), 10 compounds	N/A	7.0 [2]	13	16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Sulfur, total reduced (as H2S), NPRI 6	N/A	7.0 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Sulfur, total reduced (as H2S), HAMN (GFL Southeast)	N/A	4.8 [2]				<1.8			<0.3		
Sulfur, total reduced (as H2S), HAMN (GFL Southeast)	N/A	7.0 [2]				<2.6			<0.4		
Sulfur, total reduced (as H2S), HAMN (GFL North)	N/A	4.8 [2]				<1.9			<1.0		
Sulfur, total reduced (as H2S), HAMN (GFL North)	N/A	7.0 [2]				<2.8			<1.5		
Sulfur, total reduced (as H2S), HAMN (GFL Lagoon)	N/A	4.8 [2]				<0.4			<0.3		
Sulfur, total reduced (as H2S), HAMN (GFL Lagoon)	N/A	7.0 [2]				<0.6			<0.4		

Notes

- * Compared against AAQC for Total Mercaptan
- Concentration above Laboratory Detection Limit and below Regulatory limit
- Monitored concentration exceeds AAQC
- Data qualified, compound detected in blank.

[1] 24-Hour Criteria from Air Contaminants Benchmark list

[2] Regulatory criteria converted using MECP Averaging Period Conversion Factor equation as follows: $C_0 = C_1 \times F$
Where: C_0 = concentration at averaging period t_0
 C_1 = concentration at averaging period t_1
 F = Factor to convert from averaging period t_1 to the averaging period $t_0 = (t_1/t_0)^n$, $n=28$
Equation is located on Table 7-1 of MECP Procedure for Preparing and ESDM Report (2018)



Table E.1: Summary of 24-Hour Average Speciated Sulphur Concentrations

					251022-9-0083-0111	251029-11-0032-0260	251029-9-0506-0330	251029-10-0486-0308	251103-11-0198-0110	251103-10-0139-0323	251103-9-0345-0247
Date Sampled:					22-Oct-25	29-Oct-2025	29-Oct-2025	29-Oct-2025	03-Nov-2025	03-Nov-2025	03-Nov-2025
		MECP AAQC			µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
Analyte	CAS	24-hour Average	10-Min Average	Lowest Detection Limit	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air
Dimethyl disulfide	624-92-0	43.8 [2]	56	3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9
Dimethyl sulfide	75-18-3	23.5 [2]	30	5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1
Hydrogen sulfide	7783-06-5	7	13	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Methyl mercaptan*	74-93-1	10.2 [2]	13	3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9
Carbon disulfide	75-15-0	330		6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2
Carbonyl sulfide [1]	463-58-1	13		10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Diethyl disulfide [1]	110-81-6	7		10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Diethyl sulfide [1]	352-93-2	7		15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Dimethylthiophene, 2,5- [1]	638-02-8	5		18	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0
Ethyl mercaptan*	75-08-1	10.2 [2]	13	10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Ethyl methyl sulfide [1]	624-89-5	7		12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Ethylthiophene, 2- [1]	872-55-9	28.5		18	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0
Isobutyl mercaptan*	513-44-0	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Isopropyl mercaptan*	75-33-2	10.2 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Methylthiophene, 2- [1]	554-14-3	28.5		16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Methylthiophene, 3- [1]	616-44-4	28.5		16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Propyl mercaptan*	107-03-9	10.2 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Tetrahydrothiophene [1]	110-01-0	650		14	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0
n-Butyl mercaptan*	109-79-5	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
sec-butyl mercaptan + thiophene*	513-53-1	10.2 [2]	13	14	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0
t-Butyl mercaptan*	75-66-1	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Sulfur, total reduced (as H2S), Ontario 4	N/A	7.0 [2]	13	5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6
Sulfur, total reduced (as H2S), 22 compounds	N/A	7.0 [2]	13	25	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Sulfur, total reduced (as H2S), 10 compounds	N/A	7.0 [2]	13	16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Sulfur, total reduced (as H2S), NPRI 6	N/A	7.0 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Sulfur, total reduced (as H2S), HAMN (GFL Southeast)	N/A	4.8 [2]				<0.9			<0.6		
Sulfur, total reduced (as H2S), HAMN (GFL Southeast)	N/A	7.0 [2]				<1.3			<0.9		
Sulfur, total reduced (as H2S), HAMN (GFL North)	N/A	4.8 [2]				<0.1			<0.2		
Sulfur, total reduced (as H2S), HAMN (GFL North)	N/A	7.0 [2]				<0.1			<0.3		
Sulfur, total reduced (as H2S), HAMN (GFL Lagoon)	N/A	4.8 [2]				<0.3			<0.4		
Sulfur, total reduced (as H2S), HAMN (GFL Lagoon)	N/A	7.0 [2]				<0.4			<0.6		

Notes

- * Compared against AAQC for Total Mercaptan
- Concentration above Laboratory Detection Limit and below Regulatory limit
- Monitored concentration exceeds AAQC
- Data qualified, compound detected in blank.

[1] 24-Hour Criteria from Air Contaminants Benchmark list

[2] Regulatory criteria converted using MECP Averaging Period Conversion Factor equation as follows: $C_0=C_1 \times F$
Where: C_0 = concentration at averaging period t_0
 C_1 =concentration at averaging period t_1
 F =Factor to convert from averaging period t_1 to the averaging period $t_0 = (t_1/t_0)^n$, $n=28$
Equation is located on Table 7-1 of MECP Procedure for Preparing and ESDM Report (2018)



Table E.1: Summary of 24-Hour Average Speciated Sulphur Concentrations

					251109-11-0575-0095	251109-9-0111-0156	251109-10-0440-0184	251115-11-0263-0230	251115-11-0013-0319	251115-9-0017-0299	251115-10-0088-0138
Date Sampled:					09-Nov-2025	09-Nov-2025	09-Nov-2025	15-Nov-2025	15-Nov-2025	15-Nov-2025	15-Nov-2025
		MECP AAQC			µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
Analyte	CAS	24-hour Average	10-Min Average	Lowest Detection Limit	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air	Sub-Matrix: Air
Dimethyl disulfide	624-92-0	43.8 [2]	56	3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<7.7	<3.9
Dimethyl sulfide	75-18-3	23.5 [2]	30	5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<10.2	<5.1
Hydrogen sulfide	7783-06-5	7	13	2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<5.6	<2.8
Methyl mercaptan*	74-93-1	10.2 [2]	13	3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<7.9	<3.9
Carbon disulfide	75-15-0	330		6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2
Carbonyl sulfide [1]	463-58-1	13		10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Diethyl disulfide [1]	110-81-6	7		10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Diethyl sulfide [1]	352-93-2	7		15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Dimethylthiophene, 2,5- [1]	638-02-8	5		18	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0
Ethyl mercaptan*	75-08-1	10.2 [2]	13	10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Ethyl methyl sulfide [1]	624-89-5	7		12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Ethylthiophene, 2- [1]	872-55-9	28.5		18	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0
Isobutyl mercaptan*	513-44-0	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Isopropyl mercaptan*	75-33-2	10.2 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Methylthiophene, 2- [1]	554-14-3	28.5		16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Methylthiophene, 3- [1]	616-44-4	28.5		16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Propyl mercaptan*	107-03-9	10.2 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Tetrahydrothiophene [1]	110-01-0	650		14	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0
n-Butyl mercaptan*	109-79-5	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
sec-butyl mercaptan + thiophene*	513-53-1	10.2 [2]	13	14	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0	<21.0
t-Butyl mercaptan*	75-66-1	10.2 [2]	13	15	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Sulfur, total reduced (as H2S), Ontario 4	N/A	7.0 [2]	13	5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<10.1	<5.6
Sulfur, total reduced (as H2S), 22 compounds	N/A	7.0 [2]	13	25	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Sulfur, total reduced (as H2S), 10 compounds	N/A	7.0 [2]	13	16	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0	<16.0
Sulfur, total reduced (as H2S), NPRI 6	N/A	7.0 [2]	13	12	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Sulfur, total reduced (as H2S), HAMN (GFL Southeast)	N/A	4.8 [2]			<0.8			<1.0			
Sulfur, total reduced (as H2S), HAMN (GFL Southeast)	N/A	7.0 [2]			<1.2			<1.5			
Sulfur, total reduced (as H2S), HAMN (GFL North)	N/A	4.8 [2]			<0.1			<0.3			
Sulfur, total reduced (as H2S), HAMN (GFL North)	N/A	7.0 [2]			<0.1			<0.4			
Sulfur, total reduced (as H2S), HAMN (GFL Lagoon)	N/A	4.8 [2]			<0.2			<0.4			
Sulfur, total reduced (as H2S), HAMN (GFL Lagoon)	N/A	7.0 [2]			<0.3			<0.6			

Notes

- * Compared against AAQC for Total Mercaptan
- Concentration above Laboratory Detection Limit and below Regulatory limit
- Monitored concentration exceeds AAQC
- Data qualified, compound detected in blank.

[1] 24-Hour Criteria from Air Contaminants Benchmark list

[2] Regulatory criteria converted using MECP Averaging Period Conversion Factor equation as follows: $C_0 = C_1 \times F$
Where: C_0 = concentration at averaging period t_0
 C_1 = concentration at averaging period t_1
 F = Factor to convert from averaging period t_1 to the averaging period $t_0 = (t_1/t_0)^n$, $n=28$
Equation is located on Table 7-1 of MECP Procedure for Preparing and ESDM Report (2018)



Appendix F MECP EOI-FOI Request

Land Use Compatibility and Air Quality and Odour Impact Study

Elfrida Community

Elfrida Community Builders Group Inc.

SLR Project No.: 241.032028.00002

April 24, 2026



**Ministry of the Environment,
Conservation and Parks**

Corporate Management Division

**Ministère de l'Environnement, de la
Protection de la nature et des Parcs**

Division de la gestion ministérielle

February 13, 2025

Alice Najjar
SLR Consulting Ltd.

Dear Alice Najjar
RE: Request #: EPI-2025-2000005708
Requestor provided Permit Numbers: A181008
Requestor provided Client Reference: 241.032028.00001
Site address: 65 Green Mountain Road WEST, Hamilton

This letter confirms that, after conducting a thorough search of its source system applications, the ministry has identified potential records related to your property request. Our search indicates that the ministry may hold the following records:

- Waste Generator number/classes
- Waste System Approval¹
- Environmental Assessment
- Waste Approval¹
- Correspondence, Abatement, Occurrence reports
- Incident Reporting
- Inspections
- Prosecutions
- Investigations
- Convictions
- Tickets
- IEB Referral
- Technical Support
 - Orders
 - Abatement Response
 - Facility Air Profile
- Permits To Take Water¹
- Investigations
- Non Compliance Stub
- Waste Management Systems Approval¹
- Waste Approval¹

- Industrial Approval¹
- Waste Site Approval¹
- Industrial Approval¹
- Waste System Approval¹
- Waste Inspection
- Pollution Incident Report

If you would like to submit a Freedom of Information (FOI) request to the ministry, please return to the table on the Requests tab of the EPI application and select "Submit FOI" under the Actions column in the row identified by EPI-2025-2000005708.

If you have any questions regarding the matter, please contact the ministry at eproperty@ontario.ca.

Sincerely,

Environmental Property Information (EPI) Program

Disclaimer

This search result is provided for informational purposes only and is not intended to provide specific advice or recommendations. The Ministry of the Environment, Conservation and Parks (MECP) cannot and does not guarantee that the information provided is current, accurate, complete, or free of errors. Any reliance upon this information is solely at the risk of the user.

¹ In addition to the core reports (e.g Environmental Compliance Approval), there may be extensive supporting documentation associated with this record type. When transferring your request over to FOI, we encourage you to refine the scope of your request to only the supporting documentation required for your purposes, as the inclusion of this additional documentation can add significant processing time.

Ministry of the Environment,
Conservation and Parks

Ministère de l'Environnement, de la
Protection de la nature et des Parcs

Corporate Management Division

Division de la gestion ministérielle

Le 13 février 2025

Alice Najjar
SLR Consulting Ltd.

Madame,
Monsieur, Alice Najjar
Objet : No de demande : EPI-2025-2000005708
Numéro(s) de permis associé(s) fourni(s) par le demandeur: A181008
Référence client fournie par le demandeur: 241.032028.00001
Adresse du site: 65 Green Mountain Road WEST, Hamilton

La présente lettre confirme que, après avoir effectué une recherche exhaustive dans ses applications de système source, le ministère a circonscrit des dossiers potentiels reliés à votre demande concernant des biens immobiliers. Notre recherche indique que les dossiers suivants peuvent être en possession du ministère:

- Waste Generator number/classes
- Waste System Approval¹
- Environmental Assessment
- Waste Approval¹
- Correspondence, Abatement, Occurrence reports
- Incident Reporting
- Inspections
- Prosecutions
- Investigations
- Convictions
- Tickets
- IEB Referral
- Technical Support
- Orders
- Abatement Response
- Facility Air Profile
- Permits To Take Water¹
- Investigations

- Non Compliance Stub
- Waste Management Systems Approval¹
- Waste Approval¹
- Industrial Approval¹
- Waste Site Approval¹
- Industrial Approval¹
- Waste System Approval¹
- Waste Inspection
- Pollution Incident Report

Si vous souhaitez soumettre une demande de liberté d'information (FOI) au ministère, veuillez retourner au tableau de l'onglet Requêtes de l'application EPI et sélectionner "Soumettre FOI" dans la colonne Actions de la ligne identifiée par EPI-2025-2000005708.

Si vous avez des questions concernant votre demande, nous vous invitons à communiquer avec le ministère à l'adresse électronique suivante : eproperty@ontario.ca.

Veuillez recevoir mes salutations les plus sincères,

Programme d'Information Environnementale de la propriété

Avertissement

Ce résultat de recherche est fourni uniquement à titre informatif et n'a aucunement pour but de donner des conseils particuliers ou des recommandations. Le ministère de l'Environnement de la Protection de la nature et des Parcs (MEPP) ne peut pas garantir que les renseignements fournis sont à jour, exacts, complets et exempts d'erreurs. L'utilisateur qui se fie à ces renseignements le fait à ses seuls risques.

¹ En plus des rapports de base (par exemple, l'approbation de conformité environnementale), il peut y avoir de nombreux documents justificatifs associés à ce type d'enregistrement. Lors du transfert de votre demande vers FOI, nous vous encourageons à affiner la portée de votre demande en ne tenant compte que des pièces justificatives requises pour vos besoins, car l'inclusion de ces documents supplémentaires peut ajouter un temps de traitement important.

Appendix G GFL Ammonia Sampling Results

Land Use Compatibility and Air Quality and Odour Impact Study

Elfrida Community

Elfrida Community Builders Group Inc.

SLR Project No.: 241.032028.00002

April 24, 2026





GFL Stoney Creek Regional Facility

Ammonia Sampling Results

The results are being evaluated using a MECP reference value. All results have been below the MECP reference value.

Date	Sample Location Result					
	North Station	Interim Leachate Pumping Station	Leachate Pond Station	Leachate Pond Station Duplicate	Off-Site	Units
June 25 to July 2, 2024	2.7	4.2	21.2	15.4	-	ppb
July 2 to July 9, 2024	10.7	8	44.5	43.6	-	ppb
July 9 to July 23, 2024	1.6	<0.2	21.2	24.8	-	ppb
July 23 to July 30, 2024	4.3	3.9	29.2	32.6	-	ppb
July 30 to August 6, 2024	8.5	13.8	35.4	26.7	-	ppb
August 6 to August 13, 2024	4.3	4.6	20.8	16.6	-	ppb
August 13 to August 20, 2024	3.0	5.7	39.8	30.3	-	ppb
August 20 to August 27, 2024	4.1	3.1	48.7	28.6	-	ppb
August 27 to September 3, 2024	9.5	1.9	30.1	22.1	-	ppb
September 3 to 17, 2024	6.6	1.8	34.9	40.1	-	ppb
September 17 to 24, 2024	5.3	2.8	9.1	10.4	-	ppb
September 24 to October 1, 2024	<0.4	<0.4	5.9	3.0	-	ppb
October 1 to 10, 2024	3.6	4.4	10	7.3	-	ppb
October 8 to 15, 2024	4.3	14.9	5.8	7.3	-	ppb
October 15 to 22, 2024	10.7	8.7	20.3	14.8	-	ppb
October 22 to 29, 2024	8.7	5.5	15.9	7.9	-	ppb
October 29 to Nov. 5, 2024	18.9	4.9	20.5	13	-	ppb
November 5 to 12, 2024	7.5	6.3	8.4	7.3	2.6	ppb
November 12 to 19, 2024	3.8	3.2	7.6	5.9	8.8	ppb
November 19 to 26, 2024	1.3	3.7	3.2	2.6	7.4	ppb
November 26 to December 3, 2024	1.5	5.6	7.1	12.5	6.1	ppb
December 3 to December 10, 2024	12.2	5.1	4.2	6.2	-	ppb
December 10 to December 17, 2024	19.6	0.4	4.5	1.6	-	ppb
December 17 to December 24, 2024	9.7	3.5	4.5	4.2	-	ppb
December 24 to December 31, 2024	4.7	<0.4	4.8	4.1	-	ppb
Dec. 31, 2024 to Jan. 7, 2025	<0.4	1.2	<0.4	4.3	-	ppb
January 7 to January 14, 2025	2.8	3.8	2.8	5	-	ppb
January 14 to January 21, 2025	<0.4	2.1	22.5	21.1	-	ppb
January 21 to January 28, 2205	13.1	1.7	7.7	6.0	-	ppb
January 28 to February 4, 2025	4.9	4.5	6.6	3.7	-	ppb
February 4 to 11, 2025	0.5	4.3	3.4	3.3	-	ppb
February 11 to 25, 2025	5.8	2.3	6.1	5.1	-	ppb
February 25 to March 4, 2025	4.3	3.5	4.1	5.6	-	ppb
March 4 to March 11, 2025	6.6	-	2.4	-	-	ppb
March 11 to March 18, 2025	0.9	-	2.2	-	-	ppb
March 18 to March 25, 2025	8.0	-	1.7	-	-	ppb
March 25 to April 1, 2025	<0.1	-	0.3	-	-	ppb
April 1 to April 8, 2025	2.1	-	4.1	-	-	ppb
April 8 to April 15, 2025	1.9	-	6.7	-	-	ppb
April 15 to April 22, 2025	4.4	-	4.0	-	-	ppb
April 22 to April 29, 2025	11.8	-	3.9	-	-	ppb
April 29 to May 6, 2025	12.3	-	7.2	-	-	ppb
May 6 to May 20, 2025	5.3	-	6.3	-	-	ppb
May 20 to May 27, 2025	10.6	-	12.6	-	-	ppb
May 27 to June 3, 2025	<0.1	-	1.6	-	-	ppb
June 3 to June 10, 2025	0.7	-	5.0	-	-	ppb
June 10 to June 17, 2025	9.2	-	3.7	-	-	ppb
June 17 to June 24, 2025	8.6	-	4.4	-	-	ppb
June 24 to July 1, 2025	17.7	-	4.6	-	-	ppb
July 1 to July 8, 2025	14.3	-	<0.1	-	-	ppb
July 8 to July 14, 2025	17.3	-	12.5	-	-	ppb
July 14 to July 21, 2025	35.3	-	2.6	-	-	ppb
July 21 to July 28, 2025	25.0	-	11.2	-	-	ppb
July 28 to August 5, 2025	12.3	-	5.8	-	-	ppb
August 5 to August 11, 2025	30.3	-	0.1	-	-	ppb
August 11 to August 28, 2025	21.6	-	3.1	-	-	ppb
August 28 to September 4, 2025	15.6	-	16.2	-	-	ppb
September 4 to September 9, 2025	28.0	-	12.8	-	-	ppb



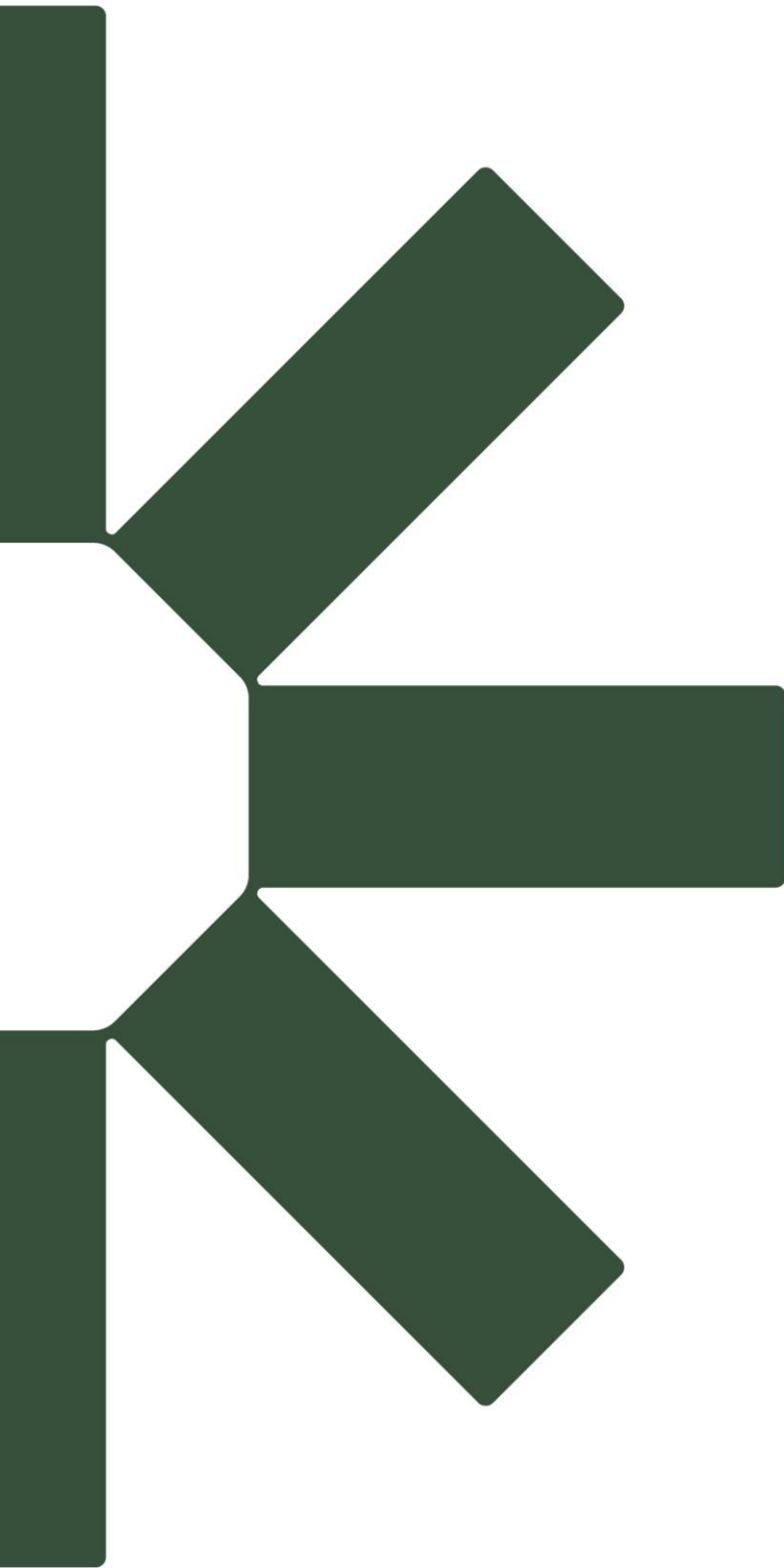
GFL Stoney Creek Regional Facility

Ammonia Sampling Results

The results are being evaluated using a MECP reference value. All results have been below the MECP reference value.

Date	Sample Location Result					
	North Station	Interim Leachate Pumping Station	Leachate Pond Station	Leachate Pond Station Duplicate	Off-Site	Units

Notes:
ppb - parts per billion
Ammonia samples are passively collected continuously over 7 or 14 days.
Duplicate samples and laboratory blanks are completed each sample period.
Off-Site sample added at the request of the MECP for four weeks.



Making Sustainability Happen