Guideline D-4 Landfill Impact Assessment

Flato Ida Residential Subdivision, Dundalk, Ontario

Flato Ida Dundalk Inc.

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Prepared by:

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SLR Project No.: 209.30125.00001

May 17, 2024

Revision: 0

Revision Record

Revision	Date	Prepared By	Checked By	Authorized By
0	May 17, 2024	Andrew Wicke	Amanda Malatesta	Katherine Gibson

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1.0 Introduction

SLR Consulting (Canada) Ltd. (SLR) was retained by Flato Ida Dundalk Inc. (the Client) to conduct a Guideline D-4 Landfill Impact Assessment in support of the proposed Flato Ida residential subdivision (hereinafter referred to as the "Site"). The Site includes the properties located at 752212, 752226, 752240 and 752252 Ida Street in the Village of Dundalk, Ontario (**Figure 1**). The southeastern boundary of the Site lies within approximately 200 metres (m) of the Dundalk Transfer Station and Closed Landfill Site located at 752178 Ida Street.

1.1 Guideline D-4 Study Objectives

In accordance with the Ministry of Environment, Conservation and Parks (MECP) Land Use Compatibility Guidelines, land development or land use changes on or near (within 500 m) operating or non operating landfills (as defined in O.Reg 347) requires that a Guideline D-4 Assessment be completed for the subject lands that could be potentially impacted by the waste disposal site. For a proposed development near a non-operating landfill, the Guideline D-4 study must consider:

> *"groundwater and surface water contamination by leachate, surface water runoff, ground settlement, visual impact, soil contamination and hazardous waste and landfill-generated gases. Particular attention shall be given to the production and migration of methane gas."*

The Guideline D-4 Study Terms of Reference – Flato Ida Residential Subdivision, was submitted to the Village of Dundalk on November 15, 2022 and later approved on January 23, 2023, outlined the requirements of this study, which included:

- Description of the proposed development at the subject Site.
- Description and discussion of the Dundalk Transfer Station and Closed Landfill Site.
- Assessment of potential groundwater contamination by leachate.
- Assessment of potential surface water contamination by leachate and / or surface run-off.
- Assessment of landfill generated gases, based on data collected from the existing monitoring well network[1]
- Assessment of vectors and vermin.

Additional comments from the Township of Southgate suggested that the D-4 Assessment also include:

- A site plan showing the location of boreholes/monitoring wells across the subject Site.
- Discussion of groundwater elevation, flow direction and chemistry sampling/analysis tasks
- Evaluation methodology for potential surface water runoff impacts (surface water runoff mapping)

A Guideline D-6 Assessment was also completed by SLR and submitted under separate cover.

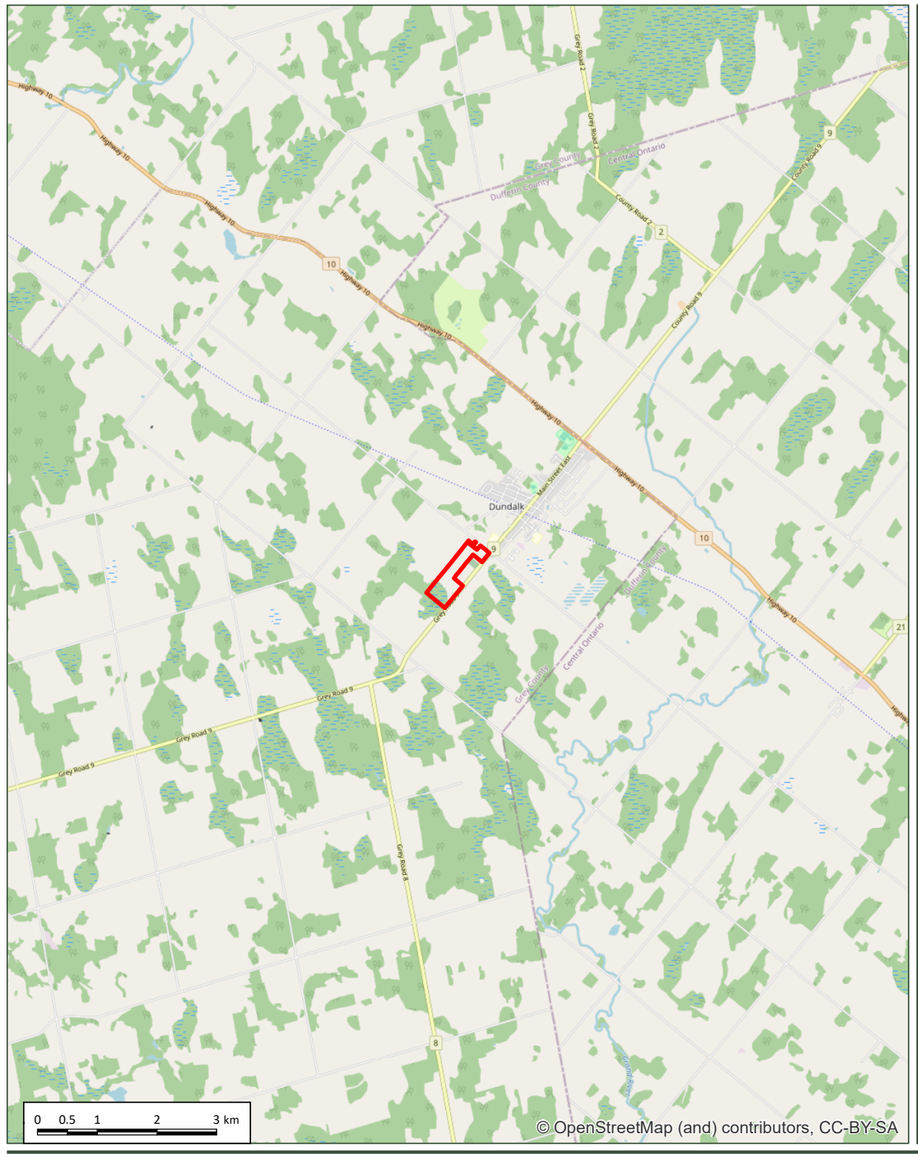
The Terms of Reference (TOR) is appended in **Appendix A**.

[1] The scope of work did not include the installation of new gas monitors on the subject Site

1.2 Report Organization

This D-4 Assessment report has been organized into 8 sections following this introduction. Section 2.0 provides an overview of background information related to the development, previous investigations and regional geology and hydrogeology. Section 3.0 provides the field methodologies utilized during the assessment. Section 4.0 presents a review of the Dundalk Closed Landfill site, and site specific conditions. Section 5.0 provides a summary of the field investigations and results. Section 6.0 provides a discussion and assessment of the potential impacts of Closed Landfill on the development Site. Section 7.0 and 8.0 provides our Closure and references.

All Figures referenced throughout the report are presented within the text. Appendices A through F present the: Terms of Reference; Development Plan; Environmental Compliance Approval (ECA); Borehole Logs, Site Visit Photolog and Landfill Biennial Report Figures, respectively.



NOTES:
DATA SOURCE: LAND INFORMATION ONTARIO

LEGEND:

- SITE BOUNDARY
- DUNDALK TRANSFER STATION AND CLOSED LANDFILL SITE
- PARCEL
- UNEVALUATED WETLAND

0 50 100 200 300 m

SCALE 1:10,000
PAGE SIZE 11 x 17
NAD 1983 UTM Zone 17N

THIS MAP IS FOR CONCEPTUAL PURPOSES ONLY
AND SHOULD NOT BE USED FOR NAVIGATION

FLATO IDA DUNDALK INC.
FLATO IDA RESIDENTIAL SUBDIVISION
DUNDALK, ONTARIO, CANADA

GUIDELINE D-4 LANDFILL IMPACT ASSESSMENT

SITE LOCATION

SLR

FIGURE NO:
1

DATE: May 17, 2024

PROJECT NO: 209.V30125.00001

Last Saved: May 17, 2024 11:53:03 AM by tgraham

GIS PATH: G:_Projects\FLATO\Dundalk\1_Maps\RPT\209_30125\Ida Street\RPT_202404_D4_Assess\209_V30125_01_SiteLocation_rev0.mxd

2.0 Background

2.1 Proposed Development

The proposed Flato Ida Residential Subdivision lies on lands legally described as Parts of Lots 228, 229 and 230, Range 3 West of the Toronto and Sydenham Road Geographic Township of Proton, Township of Southgate, County of Grey. The Site is bounded by Grey Road 9 and rural residential to the southeast; Ida Street and rural residential to the northeast; a significant woodlot and unevaluated wetland to the southwest, and agricultural lands to the northwest (**Figure 1**). The subject Site is located approximately 200 m northwest of the Dundalk Transfer Station and Closed Landfill Site.

The proposed development on the Site includes single detached dwellings, townhomes, parklands, and a stormwater management pond. The current Site concept plan is attached in **Appendix B**. The total area of the development is 18.73 hectares (ha) with another 17.20 ha of the property designated as Hazard Lands in the Grey County Official Plan (2018) or township lands, which is to remain undeveloped.

It is our understanding the proposed development will be connected to the Township service, eliminating the need for private wells for potable water supply on the Site. It is the Townships responsibility to provide safe and reliable drinking water supply to the residents. It is not the intent of this D-4 Assessment to identify potential risks that may impact source water.

2.2 Dundalk Transfer Station and Closed Landfill Site

The Dundalk Transfer Station and Closed Landfill Site is located at 752178 Ida Street occupying a lot 6.6 ha in size. As shown on **Figure 2,** the Dundalk Transfer Station and Closed Landfill Site is located approximately 200 m southeast of the Site. The surrounding area consists of a mix of residential, agricultural and forested lands, as well as commercial lands to the northeast. Originally referred to as the “Dundalk Landfill Site”, the landfill was licensed as a waste disposal site under Certificate of Approval (CofA) (#A262302), dated March 20, 2003, and later amended on October 16, 2003, and July 27, 2007. This was then superseded by the Environmental Compliance Approval (ECA) issued on July 12, 2011, and amended June 14, 2016, and June 13, 2018. The ECA is attached in **Appendix C**.

The landfill was in operation until 2003, after which time it was closed and transitioned to a waste receiving and transfer station. Closure activities included capping the 0.8 ha waste footprint with a low permeability soil (clayey silt) and vegetative cover. Prior to this, it was presumed by GM BluePlan Engineering (2023) that the landfill was licensed to receive primarily solid non-hazardous domestic waste. In accordance with Condition 45 through 48 of the amended ECA, the landfill site must undergo routine inspections. The inspections include, evaluation of the landfill cap and vegetative cover and containment systems for cracks or deficiencies site, security, the potential for adverse effects on the environment, and that there are no off-site impacts from rodents, vectors, odour, dust or litter. Schedule C outlines the requirements for routine monitoring including groundwater, surface water, and methane gas monitoring with reports prepared and submitted to the MECP on a biennial basis.

The waste transfer station has a Municipal Hazardous and Special Waste depot, so the facility is approved to receive hazardous, non-hazardous and recyclable waste. At the time this report was prepared, the hours of operation were: 10 am to 3 pm on Tuesdays and Thursdays (April and May only) and 9 am to 1 pm on Saturdays. Between 2019-2022 GM BluePlan (2021, 2023)

noted that no public complaints regarding the landfill site had been received by the Township of Southgate.

2.3 Physical Setting

2.3.1 Topography and Drainage

The proposed development Site is gently undulating with a gentle decrease in ground surface elevation from north to south. A topographic high of 519 metres above sea level (masl) is located near the north end of the Site, with a topographic low of 509 masl at the southwestern boundary (**Figure 3**).

The Site is located on a drainage divide between the Saugeen River Watershed (SRW) and Upper Grand River Watershed (GRW), which are governed by the Saugeen Valley Conservation Authority (SVCA) and the Grand River Conservation Authority (GRCA), respectively. An unevaluated wetland is located in the southwest portion of the Site within the SRW. In addition, two tributaries to the Grand River headwater drainage feature (HDF) and its associated floodplain are located within the GRW (**Figure 3**). Both drainage features flow southeast, with one ultimately flowing past the landfill. Two channels that drain from the landfill connect to this headwater drainage feature from the east. Both tributaries join approximately 2.5 km south of the Site before draining into the Grand River.

2.3.2 Physiography

The Study Area lies within the Dundalk Till Plain physiographic region of southern Ontario (Chapman and Putnam, 1984). The Dundalk Till Plain is a gently undulating, partially drumlinized and fluted surface, where the long axis of the drumlins are oriented in a southeast direction parallel to the direction of ice flow during Pleistocene glaciation. The Dundalk Till Plain supports extensive wetland complexes due to the presence of poorly drained depressions.

2.3.3 Geology

Surficial geology in the Dundalk area consists primarily of drumlinized till plains (Chapman and Putnam, 1984) comprised of the Elma Till (stony sandy silt to silt) and Catfish Creek Till (clayey silt and gravel). The Catfish Creek Till is a regionally continuous aquitard within the study area. Surficial geology is provided on **Figure 4**

Previous drilling as part of a geotechnical investigation was completed by Soil Engineers Ltd. (SEL, 2020), and at a site nearby to the north by SLR (2021) as part of a hydrogeological investigation.

Based on previous investigations completed in the area by SLR (2021) a thin, discontinuous 1-2 m thick sand, silt and gravel unit underlies the topsoil. The main stratigraphic unit identified in the area was a silty sand till (SEL, 2020; SLR, 2021). This unit was characterised as sand and silt with clay and gravel. This unit showed weathering within the upper 3-5 m portion of the till and became denser with depth. Occasional cobbles were also present, as were sand lenses.

2.3.4 Hydrogeology

Previous investigations (SEL, 2020, SLR 2021) suggest groundwater is shallow, and hosted within the more permeable upper weathered portion of till or within the discontinuous sand lenses. The unweathered till is less permeable and acts as an aquitard that protects the underlying bedrock aquifer (SLR, 2021). Water well records for the area suggest the till unit may extend to depths of up to 35 mbgs.

There are isolated deposits of glaciolacustrine, glaciofluvial ice-contact and glaciofluvial outwash materials at surface and interbedded within the till plain. These sand and gravel deposits form the Dundalk Aquifer (Saugeen Valley Source Protection Area, 2015). The extent and thickness of the Dundalk Aquifer is unknown, due to a lack of reliable well records for the area. It is noted that static water levels within the Dundalk Aquifer are close to ground surface. The overburden material is underlain by bedrock aquifer units comprised of the Guelph, Eramosa, Goat Island and Gasport Formations (Golder, 2018).

Shallow groundwater flows westerly towards the low-lying wetlands located along the western edges of the property, as well as to the south.

546788 547288 547788 548288

4890046 4889546

MW22-401
MW22-402
MW22-403
MW22-404
MW22-405-D
MW22-405-S
MW22-406
MW22-407
MW22-408
MW-6
ESA-1
MW-8
BH-4
BH-5
BH-1
MW-7-S
MW-7-D
MW-2
BH-3
MP1-D
MP1-S

Main St W
Mcauley St
Victoria St W
Ida St
Hanbury St
Morrow Cir
Grey Road 9

N

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

LEGEND:

- SITE BOUNDARY
- DUNDALK TRANSFER STATION AND CLOSED LANDFILL SITE
- MONITORING WELL
- MINI-PIEZOMETER
- BOREHOLE
- PERMANENT WATERCOURSE

NOTES:
BASEDATA:
ONTARIO MINISTRY OF NATURAL RESOURCES, LAND INFORMATION ONTARIO (LIO)

0 50 100 200 300 m

SCALE 1:5,000
PAGE SIZE: 11 x 17
NAD 1983 UTM Zone 17N

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FLATO IDA DUNDALK INC.
FLATO IDA RESIDENTIAL SUBDIVISION
DUNDALK, ONTARIO, CANADA

GUIDELINE D-4 LANDFILL IMPACT ASSESSMENT

SITE PLAN

SLR

FIGURE NO:
2

DATE: May 17, 2024

PROJECT NO: 209.V30125.00001

546788 547288 547788 548288

4890046 4889546

Main St W
Victoria St W
Mcauley St
Ida St
Hanbury St
Morrow Cir
Grey Road 9
Upper Grand River Watershed
Saugeen River Watershed

N

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

LEGEND:

- SITE BOUNDARY
- DUNDALK TRANSFER STATION AND CLOSED LANDFILL SITE
- SITE PLAN (2024-03-20)
- PERMANENT WATERCOURSE
- DRAINAGE DIVIDE
- WETLAND VERIFIED BY GRCA - NOT SURVEYED
- SURFACE CONTOUR (1M)
- UNEVALUATED WETLAND

NOTES:
BASEDATA:
ONTARIO MINISTRY OF NATURAL RESOURCES, LAND INFORMATION ONTARIO (LIO)

0 50 100 200 300 m

SCALE 1:5,000
PAGE SIZE: 11 x 17
NAD 1983 UTM Zone 17N

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FLATO IDA RESIDENTIAL SUBDIVISION
DUNDALK, ONTARIO, CANADA

GUIDELINE D-4 LANDFILL IMPACT ASSESSMENT

TOPOGRAPHY AND DRAINAGE

SLR

FIGURE NO:
3

DATE: May 17, 2024

PROJECT NO: 209.V30125.00001

LEGEND:

- SITE BOUNDARY
- DUNDALK TRANSFER STATION AND CLOSED LANDFILL SITE
- PERMANENT WATERCOURSE
- UNEVALUATED WETLAND
- 5B: STONE-POOR, CARBONATE-DERIVED SILTY TO SANDY TILL
- 7A: SANDY DEPOSITS

NOTES:
BASEDATA:
ONTARIO MINISTRY OF NATURAL RESOURCES, LAND INFORMATION ONTARIO (LIO)
WELLHEAD PROTECTION AREA:
GRAND RIVER CONSERVATION AUTHORITY
CONTAINS INFORMATION MADE AVAILABLE UNDER GRAND RIVER CONSERVATION AUTHORITY'S OPEN DATA LICENCE V2.0.

0 37.5 75 150 225 m

SCALE 1:5,000
PAGE SIZE 11 x 17
NAD 1983 UTM Zone 17N

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FLATO IDA RESIDENTIAL SUBDIVISION
DUNDALK, ONTARIO, CANADA

GUIDELINE D-4 LANDFILL IMPACT ASSESSMENT

SURFICIAL GEOLOGY

SLR

FIGURE NO:
4

DATE: May 17, 2024

PROJECT NO: 209.V30125.00001

3.0 Methodology

3.1 Desktop Review

To prepare this D-4 assessment the following documents were reviewed:

- Ministry of the Environment, Conservation and Parks (2016), amended Environmental Compliance Approval, Number A262302, Dundalk Transfer Station and Closed Landfill Site, Lot 232, Concession 3, Southgate Township, County of Grey
- GM BluePlan Engineering (2021). Biennial Operations & Monitoring Report (2019/2020) – Dundalk Transfer Station & Closed Landfill Site Part Lot 232, Conc. 3W, Former Township of Proton, Township of Southgate
- GM BluePlan Engineering (2023). Biennial Operations & Monitoring Report (2021/2022) – Dundalk Transfer Station & Closed Landfill Site Part Lot 232, Conc. 3W, Former Township of Proton, Township of Southgate

3.2 Site Visit

A site visit to the Waste Transfer and Closed Landfill Site was completed on April 13, 2023 by an SLR representative. The purpose of the visit was to investigate the condition of the landfill cover, groundwater monitoring wells and gas monitoring wells, site aesthetics, security, drainage and rodent control. A Landfill Site representative was available during the visit for interviewing and to provide a tour of the former landfill area and transfer station.

3.3 Field Investigations

Field investigations for the Hydrogeological Assessment for the Flato Ida Subdivision were undertaken beginning in April, 2022. This included the drilling of an additional nine (9) new monitoring wells, for a total of 13 monitoring wells (existing four (4) monitors were advanced in August 2020 as part of the geotechnical investigation) (**Figure 2**). Soils were collected at regular intervals using split spoon sampling equipment (approximately 0.61 m in length) and logged in general accordance with the Unified Soil Classification System. The newly completed wells were then developed to remove fine grained soils from around the screen interval, and in-situ hydraulic conductivity testing was completed at select monitoring wells to assess the permeability of the soils. Well construction details are summarised in **Table 1**. Borehole logs are presented in **Appendix D**.

Groundwater monitoring occurred on a quarterly basis. Monitoring of the initial four monitoring wells started in September 2020, and monitoring of the newer monitoring wells began in May 2022. In total, 13 events have occurred, with the most recent event taking place on March 2024. Details on the sampling methodology and program are provided in the Hydrogeological Assessment report, which was issued under separate cover.

Water quality sampling was also completed at one (1) well as part of a Phase II Environmental Site Assessment (ESA). The groundwater was sampled using a peristaltic pump to achieve low-flow sampling conditions. The water quality sample was collected once water quality parameters had stabilized. More detail is provided in the Phase II ESA report, provided under separate cover.

Most of the field activities described above pre-date the request for the Guideline D-4 Assessment, as such, soil screening for methane and other soil vapours as well as, water

quality sampling for the various landfill indicator parameters, and methane gas monitoring were not completed as part of the previous work.

In order to assess the potential for landfill gas migration onto the subject property, select monitoring wells (ESA-1, MW-2, MW-6, MW-7-S) were instrumented (on March 7, 2024) with gas caps. At the time of installation, groundwater levels were measured however, in all cases the water level within the wells were above the well screen therefore, during the spring when water levels are high, these wells are not suitable for landfill gas monitoring. The suitability of these wells, under dry or low water level conditions, as landfill gas monitors is uncertain.

4.0 Dundalk Closed Landfill Conditions

4.1 Site Visit Observations

The site visit was completed by SLR staff on April 13, 2023. SLR staff met with a Landfill site representative who answered questions and provided a tour of the grounds and each monitoring well. A site visit photolog is presented in **Appendix E**. The site representative confirmed that at the time of the visit no complaints had been received in regard to the landfill site. Non-hazardous waste such as wood, drywall and recyclables were stored in separate marked containers. White goods (containing CFCs) were stored outside on the ground but were removed twice a year. Propane and gas canisters were stored in a locked cage, while oil and antifreeze were stored inside a beige building. Automotive batteries were being stored in a shed behind this building. Electronic waste and other hazardous wastes (including pesticides and fertilizers) were stored in separately coloured bins and are removed every 3 months. Tires were stored outside on the ground and open to drop off 1-2 times per year. The landfill cap vegetation is cut 1-2 times per year.

Saturated conditions were observed at surface across the southwestern area of the landfill. This was attributed to ponded water due to snow melt and proximity to the nearby wetland. No surface water runoff from the landfill was observed, however evidence of shallow groundwater flow in the form of iron and manganese staining was noted to be occurring along the landfill slope on the western side near GP-5.

Groundwater monitors and gas probes were generally observed to be in good conditions. Some locations were noted to be in some disrepair (surface monument/casing tilted, surface monument lid did not close or was missing) or missing caps (DL-1, DL-3D, DL-3I and MW3).

Despite much of the area being fenced off the landfill site representative trespassing was increasing in frequency and is becoming more of a concern, climbing over the top of fences and accessing the site through the wetland to the west. It was stated that additional security measures such as cameras were to be implemented soon.

The closed landfill site had no odour and the overall condition was very clean, with no evidence of debris or litter observed outside the designated storage areas. The transfer station and waste bins were not visible from the street and there was no evidence of vector or vermin.

4.2 Biennial Report Summary

4.2.1 Groundwater and Surface Water Flow and Quality

To date, eleven monitoring wells, six gas probes, and four surface water stations are present at the closed landfill Site. Of these monitoring wells, eight are within the shallow overburden (maximum depth of 6.9 mbgs), two are within the intermediate overburden (maximum depth of

12.16 mbgs) and one is within the leachate (depth of 5.64 mbgs). The site plan **Figure 3** from the GM Blueplan (2023) 2021/2022 biennial report is provided in **Appendix F**. A table summary of these wells and construction details are in **Table 2**. Note that one monitoring well, DL5 (omitted from Table 2) was replaced with monitoring well DL5R-04 in 2004.

The 2019/2020 and 2021/2022 Biennial Reports for the Closed Dundalk Landfill and Transfer Station (GM BluePlan, 2021, 2023) reported that groundwater primarily flows within the shallow weathered, unconsolidated silt till overburden and fill material towards the southwest, with localized groundwater flow moving radially outwards from the landfill cap and fill areas. Groundwater is relatively shallow and intersects the ground surface to the west and southwest, discharging along the wetland. Surface drainage of the landfill is primarily towards the wetland areas to the west and southwest, with several small drainage channels being identified downgradient of the landfill site. Surface water flow within the wetland channel ultimately flows south. Groundwater flow directions (**Figures 3** and **4**) from the 2021/2022 Biennial report are provided in **Appendix F**.

Strong downward gradients exist between the shallow weathered till and a less permeable silt till below, however the groundwater quality data suggests very limited vertical groundwater migration appears to be occurring based on chloride concentrations in the shallow system compared to the deep monitoring wells.

Based on groundwater levels in specific wells, there is little to no ground separation between the bottom of the refuse pile and the groundwater table. Leachate production therefore may be resulting from the migration of groundwater through the bottom of the pile. The report stated that the landfill may not be past its peak contaminating period, despite being out of operation since 2003, as leachate-indicator parameters appear to be stable between monitoring periods.

Monitoring wells DL1S and DL1D are considered background wells, lying upgradient of the landfill site closer to Ida Street. Background water quality is typical of a carbonate system with average hardness of around 360 mg/L, conductivity of around 680 µS/cm to 880 µS/cm, and average chloride concentrations in range of 30 mg/L to 70 mg/L, which GM Blueplan attributes to road salt application.

Monitoring well DL5R-04 is located within the landfill leachate. Several indicator parameters were noted to have elevated but relatively stable concentrations since landfill closure, attributed to potential leachate generation from groundwater flow through the bottom of the pile. Water quality at this location is noted to have high conductivity between 1700 µS/cm to 2500 µS/cm, elevated barium, boron, iron, manganese, potassium, sodium, chloride, ammonia, alkalinity, hardness, total dissolved solids (TDS), total kjeldahl nitrogen (TKN), dissolved organic carbon (DOC) and sulphate. Toluene, a volatile organic compound (VOC) was detected once in 2013 in a downgradient well, DL2. VOCs are routinely sampled for once every 4 years, with the next event to occur in 2025. Leachate impacts appear more readily around the area of the landfill cap, with some attenuation occurring cross gradient (MW3). Downgradient wells DL3S and MW2 are located south and southwest of the landfill, respectively. Groundwater quality at these locations show evidence of leachate impacts. GM BluePlan suggests that westerly flowing leachate will be intercepted by the larger regional groundwater flow pattern within the wetland that flows south, away from the subject Site. Surface water quality downgradient of the landfill generally meets applicable standards, as noted by GM BluePlan (2023), observed exceedances of chloride, phenols, phosphorus, zinc and iron within the wetland channel are due to natural background concentrations or from road-salt application (in the case of sodium and chloride).

4.2.2 Gas Migration and Potential Impacts

GM BluePlan (2023) states that since there little to no separation between the base of the refusal pile and the water table in some parts of the landfill area, methane gas production is limited. Based on the distance between the fill area, site boundary and nearest residence, they do not anticipate off-site gas migration. Gas monitoring has been completed as part of the regular monitoring program. Gas concentrations at DL5R-04 (which is a leachate monitor installed directly within the refuse) ranged from 0% to 5.3% by volume, but since 2014 have typically been below 1%. In 2014 six gas monitoring probes were added to the site. The screened portions of GP1, GP2, GP4 and GP5 are typically submerged below the water table which limits gas detection. Gas has not been detected in the upgradient probe GP3 located near Ida Street. Northwest of the landfill cap area, GP6 was recorded as having 4% to 7% gas by volume in 2015, but since then has been at or below 1%. Migration beyond this point would not be expected due to saturated soil conditions, and so would be limited to venting through the slope.

5.0 Field Investigation Results

5.1 Site Geology

Based on the results of the on-Site drilling program, a relatively thin (1–2 m thick) sand to silty sand unit was located at surface overlain by topsoil. At select locations (MW22-405, MW22-406, MW22-408), a discontinuous sandy gravel layer was encountered between 3.0mbgs to 4.0 mbgs. Underlying the sand to silt sand unit, was a till unit composed of sandy silt to silty sand material at depth ranging between 1.0 and 5.5 mbgs. Interbedded within the till unit are discontinuous sand to sandy gravel lenses. The upper 3 to 5 m of the till unit is weathered, and shows root structures, fractures, and oxidized soils. This more permeable weathered soil hosts the water table, primarily due to poor drainage to depth. The till unit is estimated to be approximately 35 m thick underneath the Site. The till material serves as an aquitard protecting the underlying bedrock aquifer due to its low permeability and substantial thickness. Borehole logs from the field investigations are included in **Appendix D**.

5.2 Groundwater Flow

The interpreted groundwater flow map for spring 2023, represents groundwater flow under generally high-water table conditions (**Figure 5**). As shown on **Figure 3**, there is a watershed divide through the property. Shallow groundwater west of the divide flows in a southwesterly direction towards the adjacent wetland and significant woodland. Groundwater flow east of the divide generally flows to the southeast towards the closed landfill site. The primary route for lateral groundwater flow is through the upper weathered till unit.

Vertical hydraulic gradients suggest that groundwater flow is primarily horizontal based on the water level data at MW22-405 and MW-7. Based on our assessment of the data, the western wetland is primarily fed by runoff or precipitation, with minor contributions of groundwater in the spring and following large precipitation events. The water levels within monitors MW22-406, MW22-407 and MW22-408, located adjacent to these wetland areas near or above surface in the wetter spring months. As the water table drops in the summer months, groundwater contributions to the wetland are minimized. Groundwater elevations and gradients are provided in **Tables 3** to **5**.

5.3 Water Quality

Groundwater sampled from ESA-1 on May 10, 2022 is shown in **Table 6**. As water quality sampling was completed as part of a Phase II ESA and not completed as part of D-4 Assessment, water quality was not analyzed for all the landfill leachate indicator parameters. The leachate indicator parameters that were sampled, include boron (0.033 mg/L) and barium (0.043 mg/L), which had concentrations similar to background levels based on the water quality results from landfill (background) monitoring wells DL1S and DL1D. Elevated levels of sodium (79 mg/L) and chloride (130 mg/L) were present. The sodium to chloride ratios were evaluated to confirm whether the elevated concentrations of were attributed to road, as suggested by GMBluePlan (2023). Road salt has a sodium to chloride ration of about 1. Our assessment as provided below, found the ratio to be nearly 1, indicating a strong likelihood that road salt is influencing water quality at this location. This conclusion is consistent with the location of the well, which is located near the corner of Ida St. and Main St. W.

Na – 0.0079 g/L / 22.99 g/mol = 3.44×10^{-4} mol

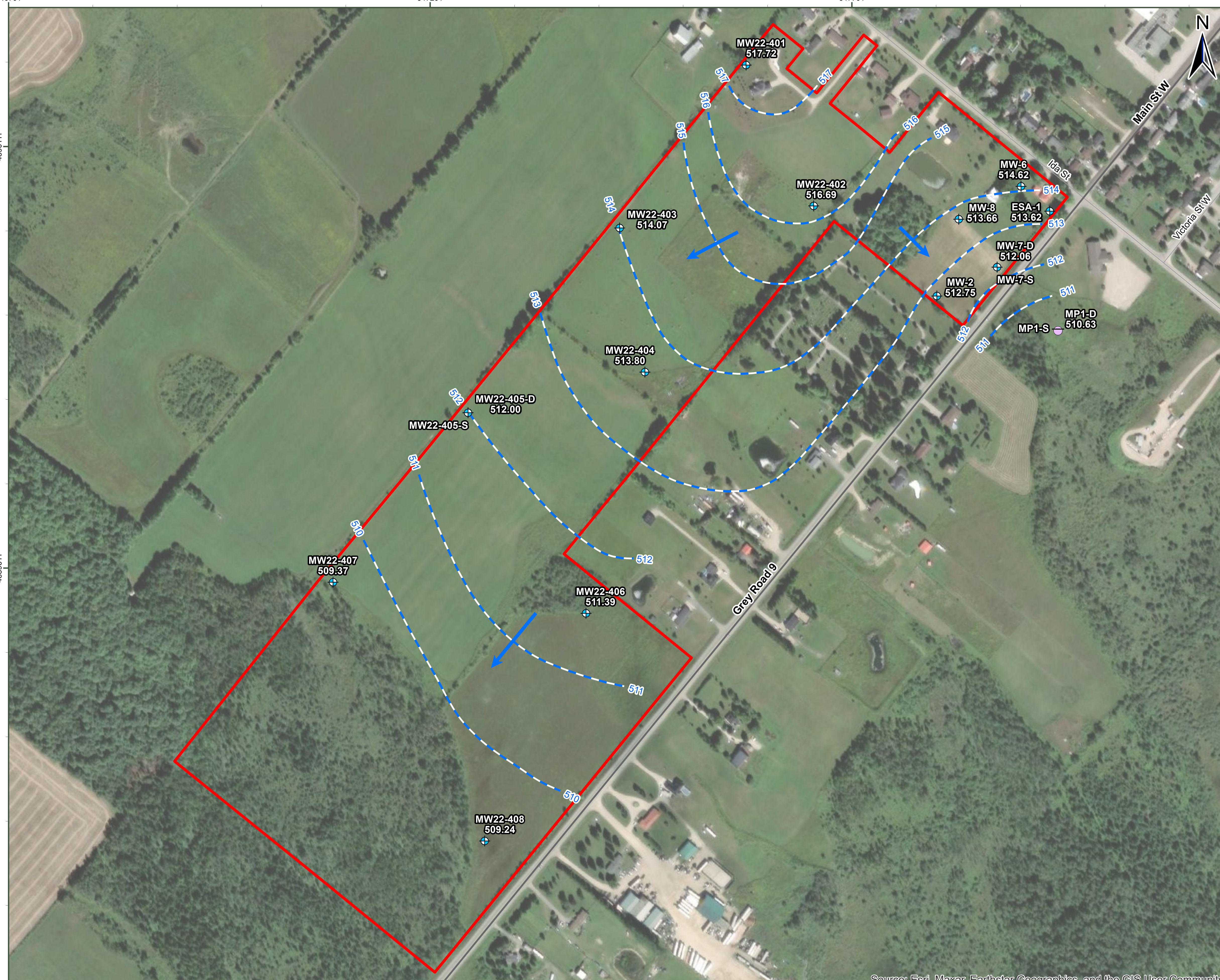
Cl – 0.013 g/L / 35.45 g/mol = 3.67×10^{-4} mol

For a ratio of 3.44/3.67 = 0.937. This suggests that the source is likely from road salt application.

Toluene and several other volatile organic compounds (VOC) are also identified as landfill leachate indicators (GMBluePlan, 2023). Toluene as BTEX was analyzed along with other petroleum hydrocarbons (PHCs) as part of the Phase II ESA monitoring program. Concentrations of toluene and benzene, ethylbenzene and xylene, as well as F1-F4 were non-detect. Polyaromatic hydrocarbons (PAHs) were also analyzed as part of the Phase II ESA sampling and concentrations were non-detect.

5.4 Methane Gas Monitoring

To date, landfill gas monitoring has not been undertaken at Site. Gas caps were installed during the last monitoring event (March 2024), however based on the water levels collected during this event, the water table was found to be shallow (about 0.03 to 0.88 mbgs), such that the screen interval at each monitoring well location was fully saturated, with the top of the water table above the top of the well screen at each location. Therefore, gas measurements could not be obtained.



LEGEND:

- SITE BOUNDARY
- MONITORING WELL
- MINI-PIEZOMETER
- INFERRED GROUNDWATER ELEVATION CONTOUR
- INFERRED GROUNDWATER FLOW DIRECTION
- 513.80 GROUNDWATER ELEVATION (MARCH 28, 2023)

NOTES:

BASEDATA:
ONTARIO MINISTRY OF NATURAL RESOURCES, LAND INFORMATION ONTARIO (LIO)

GROUNDWATER ELEVATION CONTOURS AND GROUNDWATER FLOW DIRECTIONS ARE BASED ON INTERPRETATION AND EXTRAPOLATION BETWEEN MEASUREMENTS AT THE MONITORING WELL LOCATIONS SHOWN AND FOR THE DATE NOTED. AS A RESULT, THE GROUNDWATER ELEVATION CONTOURS AND GROUNDWATER FLOW DIRECTIONS ARE INFERRED BETWEEN THOSE MEASURED AT THE MONITORING WELLS AND ACTUAL GROUNDWATER LEVELS AND FLOW DIRECTIONS MAY VARY FROM THOSE SHOWN.

0 37.5 75 150 225 m

SCALE 1:4,500
PAGE SIZE 11 x 17
NAD 1983 UTM Zone 17N

THIS MAP IS FOR CONCEPTUAL PURPOSES ONLY AND SHOULD NOT BE USED FOR NAVIGATION

FLATO IDA DUNDALK INC.
FLATO IDA RESIDENTIAL SUBDIVISION
DUNDALK, ONTARIO, CANADA

GUIDELINE D-4 LANDFILL IMPACT ASSESSMENT

INTERPRETED GROUNDWATER FLOW DIRECTION - MARCH 2023

SLR

FIGURE NO:
5

DATE: May 17, 2024 PROJECT NO: 209.V30125.00001

Last Saved: May 17, 2024 12:01:57 PM by tgraham

GIS PATH: G:_Projects\FLATO\Dundalk\1_Maps\RPT\209_30125\Ida Street\RPT_202404_D4_Assess\209_V30125_05_GW_Elevations_2023March_rev0.mxd

6.0 Discussion

6.1 Leachate Impacts

Based on the direction of groundwater flow, the Site is upgradient to the closed landfill. Although some portion of shallow groundwater flow in the landfill area is slightly radial (northwest to southwest), this is a minor component of the shallow flow system and is likely intercepted by the downgradient wetland and surface water channels, which form part of the regional flow pattern towards the south. Migration of this leachate towards the Site is therefore very unlikely. The groundwater sampling at ESA-1, although it did not include the full suite of leachate indicator parameters, it was sampled for barium, boron, sodium, chloride, BTEX, PHCs and PAHs. Levels of these parameters were within the background concentrations on the landfill site wells DL1S and DL1D and in the case of BTEX, PHCs and PAHs, were below detection limits. Elevated levels of sodium and chloride are likely to be due to road salt impacts.

Surface water flows off the landfill site towards the western wetland. A drainage channel that flows northwest, connects with the headwater drainage feature that originates at the Subject Site, ultimately flowing southwest. Some shallow ponding of surface water was noted on the western portion of the landfill site during the site visit by SLR personnel, with some evidence of shallow groundwater discharge in the form of iron and manganese precipitation occurring in the vicinity of GP-5. Results of the surface water quality sampling indicates concentrations are similar to background and generally meet PWQO standards. From the exceedances that were observed, these were explained by natural background water quality.

6.2 Methane Migration

Results of the Biennial Reports prepared by GM BluePlan show that methane concentrations within the waste (DL5R-04) have not exceeded 5.3% by volume in air historically and appear to be decreasing. Gas monitors GP-6 which is located downgradient from the landfill at the southwest corner has historically had the highest methane concentrations, peaking at 7% volume in air. Other downgradient gas monitors such as GP-5 have not had measurable gas, as their screen intervals were fully saturated thereby, inhibiting gas migration into the well. Notwithstanding, the reportable gas concentrations have been relatively low across the landfill site. In addition, gas will preferentially flow through unsaturated soil, the wet conditions in the wetland and downgradient surface water channels around the landfill will likely act as a buffer against gas migration, causing gases to primarily vent through the upper weathered soils into the atmosphere. Data from the nearby MP-1S and MP1D suggest that groundwater remains within 0.0 mbgs to 1.0 mbgs for most of the year, suggesting shallow groundwater conditions will limit gas migration.

The migration of methane gas typically decreases with distance from the landfill footprint. In accordance with the guidance document released by the Ministry “Guidance Manual for Landfill Sites Receiving Municipal Waste (MOE, November 1993), “…methane gas migration of any significance may extend for a distance of ten times the depth of the landfill between the ground surface and the water table” As noted by GMBluePlan (2023), there is little to no separation between the bottom of the refuse pile and the groundwater table in select parts of the landfill. As such, landfill gas migration would be limited.

Depth to groundwater along the southern portion of the site is quite shallow, ranging from 0.73 mbgs to 2.41 mbgs at MW2, 0.02 mbgs to 0.73 mbgs at MW-7-S and 0.54 mbgs to 1.72 mbgs at ESA-1. The lowest water levels were observed at MW22-401 in the northern corner of the Site (3.86 mbgs) and MW22-402 (3.29 mbgs) during the fall period of 2023, with higher water

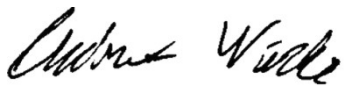
levels being observed during the springtime. The potential for gas migration is greatest under frozen ground conditions, when combustible gases, if present, will tend to preferentially migrate laterally through the soils rather than vent through the overlying fill or cover material. It should be noted however that the development is approximately 200 m from the landfill boundary. Given that landfill gas concentrations downgradient are low and the wetland and water course would act as a barrier for methane gas migration, the potential for landfill gas to migrate onto the proposed development Site is considered unlikely. Notwithstanding, it is recognized that there is no wetland or water course along the southeast portion of the Site (north of the landfill), where landfill gas, if present, could migrate. Therefore, to assess for the presence and temporal variability of soil gas concentrations, it is recommended that a soil gas monitor be installed at the southeast corner of the site and monitored for gas during periods of low water table (Summer 2024) and frozen conditions (Winter 2024/2025).

7.0 Closure

We trust this report meets your requirements at this time. Please do not hesitate to contact the undersigned with any questions.

Regards,

SLR Consulting (Canada) Ltd.



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Tables

Guideline D-4 Landfill Impact Assessment

Flato Ida Residential Subdivision, Dundalk, Ontario

Flato Ida Dundalk Inc.

SLR Project No.: 209.30125.00001

May 17, 2024

Table 1: Subject Site groundwater monitoring well construction details.

Monitor	Date of Installation	Ground Surface Elevation (masl)	Top of Pipe Elevation (masl)	Screen Interval (masl)	Screened Material
ESA-1	13-Apr-22	514.2	515.2	512.6 - 509.6	Silty SAND TILL
MW22-401	13-Apr-22	518.6	519.5	514.0 - 512.5	Silty SAND TILL
MW22-402	11-Apr-22	516.8	517.7	512.3 - 510.7	Silty SAND TILL
MW22-403	11-Apr-22	514.3	515.2	509.7 - 508.2	Sandy SILT TILL
MW22-404	13-Apr-22	514.2	515	509.6 - 508.1	Silty SAND TILL
MW22-405-S	12-Apr-22	512.1	513.1	507.5 – 506.0	Silty SAND TILL
MW22-405-D	12-Apr-22	512.1	513.1	503.0 – 501.4	Silty SAND TILL
MW22-406	18-Apr-22	511.5	512.3	507.2 – 505.7	Silty SAND TILL, SANDY GRAVEL
MW22-407	18-Apr-22	509.5	510.5	505.0 – 503.5	Sandy SILT TILL
MW22-408	18-Apr-22	509.3	510.3	504.7 – 503.2	Silty SAND with GRAVEL
MW-2	26-Aug-20	513.5	514.3	510.6 – 509.1	Silty SAND TILL, SAND
MW-6	24-Aug-20	514.8	515.5	511.9 – 510.4	Silty SAND TILL, SAND
MW-7-S	25-Aug-20	512.1	512.7	510.7 – 509.2	Silty SAND TILL, SAND
MW-7-D	24-Aug-20	512.1	512.7	507.5 – 505.9	Silty SAND TILL
MW-8	26-Aug-20	513.6	514.5	511.7 – 510.1	Silty SAND TILL
MP-1-S	16-Oct-20	510.6	511.4	–	–
MP-1-D	16-Oct-20	510.5	511.9	–	–

Table 2: Landfill Monitoring locations and gas probe summary table, modified from GM BLuePlan Engineering, (2023)

Well ID	Well Location		Installation Details			Reference Elevations			Screen Elevations	
Units	Easting	Northing	Date	Depth	Type	Ground	Stick-up	TOC	Bottom	Top
	NAD 83 Zone 17T		mmm-yy	mbgs		masl	m	masl	masl	masl
Monitoring Wells										
DL1S	548136	4889898	Nov-91	3.65	Shallow	512.83	0.82	513.65	509.18	510.70
DL1D	548137	4889896	Nov-91	10.49	Intermediate	512.83	0.88	513.71	502.34	503.86
DL2	548019	4889746	Nov-91	4.56	Shallow	511.55	0.94	512.49	506.99	508.51
DL3S	548038	4889732	Nov-91	4.10	Shallow	511.81	1.10	512.91	507.71	509.23
DL3I	548041	4889731	Nov-91	6.90	Shallow	511.76	1.15	512.91	504.86	506.38
DL3D	548042	4889733	Nov-91	12.16	Intermediate	511.79	1.16	512.95	499.63	501.15
DL4	548100	4889799	Nov-91	3.80	Shallow	510.88	1.05	511.93	507.08	508.60
DL5R-04	548076	4889816	4-Oct	5.64	Leachate	515.09	0.79	515.88	509.45	512.49
MW1	NA	NA	14-Jun	4.57	Shallow	511.21	0.82	512.03	506.64	509.68
MW2	NA	NA	14-Jun	6.10	Shallow	511.55	0.89	512.44	505.45	508.49
MW3	NA	NA	14-Jun	4.57	Shallow	510.10	0.87	510.97	505.53	508.57
Surface Water Sampling Locations										
SW-1	Upgradient with potential for surface water run-off									
SW-2	Downgradient with potential for surface water run-off									
SW-3	Crossgradient with potential for surface water run-off									
SW-4	Upstream - Background									
Landfill Gas Probes										
GP1	NA	NA	14-Jun	3.96	Not Applicable	511.50	0.85	512.35	507.54	510.58
GP2	NA	NA	14-Jun	3.05	Not Applicable	512.08	0.85	512.93	509.03	511.16
GP3	NA	NA	14-Jun	3.96	Not Applicable	513.08	0.78	513.86	509.12	512.16
GP4	NA	NA	14-Jun	3.05	Not Applicable	511.19	0.82	512.01	508.14	510.27
GP5	NA	NA	14-Jun	3.05	Not Applicable	509.82	0.83	510.65	506.77	508.90
GP6	NA	NA	14-Jun	3.66	Not Applicable	511.55	0.73	512.28	507.89	510.78

Table 3: Groundwater Elevations in Monitoring Wells

Monitor ID	Units	25-Sep-20	16-Nov-20	5-Apr-21	5-Jul-21	9-Sep-21	3-Nov-21	13-May-22	13-Jul-22	20-Sep-22	25-Nov-22	28-Mar-23	1-Nov-23	7-Mar-24
ESA-1	mbgs	-	-	-	-	-	-	0.79	1.46	1.72	1.16	0.54	-	0.64
	masl	-	-	-	-	-	-	513.37	512.70	512.44	513.00	513.62	-	513.52
MW22-401	mbgs	-	-	-	-	-	-	2.40	3.38	3.86	3.63	0.89	-	1.25
	masl	-	-	-	-	-	-	516.20	515.22	514.74	514.97	517.72	-	517.35
MW22-402	mbgs	-	-	-	-	-	-	1.37	2.09	3.29	3.19	0.14	-	0.55
	masl	-	-	-	-	-	-	515.45	514.73	513.54	513.64	516.69	-	516.27
MW22-403	mbgs	-	-	-	-	-	-	0.89	1.85	2.61	1.40	0.20	-	0.28
	masl	-	-	-	-	-	-	513.38	512.42	511.66	512.87	514.07	-	513.99
MW22-404	mbgs	-	-	-	-	-	-	1.14	0.93	2.31	1.40	0.36	-	0.43
	masl	-	-	-	-	-	-	513.02	513.23	511.85	512.76	513.80	-	513.73
MW22-405-S	mbgs	-	-	-	-	-	-	0.81	1.80	2.55	1.82	0.04	0.56	0.09
	masl	-	-	-	-	-	-	511.25	510.26	509.51	510.24	512.02	511.50	511.97
MW22-405-D	mbgs	-	-	-	-	-	-	0.85	1.86	2.63	1.91	0.11	0.69	0.22
	masl	-	-	-	-	-	-	511.25	510.24	509.47	510.20	511.99	511.41	511.88
MW22-406	mbgs	-	-	-	-	-	-	0.33	1.11	1.76	0.93	0.11	0.48	0.15
	masl	-	-	-	-	-	-	511.17	510.39	509.74	510.57	511.39	511.02	511.35
MW22-407	mbgs	-	-	-	-	-	-	-0.44	1.51	2.34	1.21	0.15	-	0.18
	masl	-	-	-	-	-	-	509.95	508.00	507.17	508.30	509.37	-	509.33
MW22-408	mbgs	-	-	-	-	-	-	0.33	1.21	1.23	0.12	0.07	0.07	0.07
	masl	-	-	-	-	-	-	508.98	508.10	508.08	509.19	509.24	509.24	509.24
BH-2	mbgs	1.17	0.76	0.96	1.27	1.07	0.93	1.11	1.71	2.41	1.92	0.73	-	0.88
	masl	512.32	512.72	512.52	512.22	512.41	512.56	512.37	511.77	511.07	511.56	512.75	-	512.60
BH-6	mbgs	0.64	0.03	0.10	0.51	0.21	0.09	0.51	1.36	1.84	1.26	0.15	0.82	0.20
	masl	514.13	514.74	514.67	514.26	514.56	514.69	514.26	513.41	512.93	513.51	514.62	513.96	514.57
BH-7-S	mbgs	0.25	-0.01	0.02	0.12	0.01	-0.02	-	0.45	0.73	0.05	0.02	0.05	0.03
	masl	511.82	512.08	512.05	511.95	512.06	512.09	-	511.62	511.35	512.02	512.06	512.02	512.04
BH-7-D	mbgs	0.22	0.00	0.01	0.22	-0.01	-0.02	0.14	0.58	0.72	0.04	0.00	0.03	0.03
	masl	511.83	512.05	512.04	511.83	512.06	512.07	511.91	511.47	511.33	512.01	512.05	512.02	512.02
BH-8	mbgs	0.47	-0.03	0.01	0.22	0.01	0.01	0.31	0.90	1.23	0.53	-0.02	-	-0.01
	masl	513.17	513.67	513.63	513.42	513.63	513.63	513.33	512.74	512.41	513.11	513.66	-	513.65

Notes: mbgs metres below ground surface
masl metres below sea level
Monitors MW22-401 to MW22-408 was installed in April 2022; as such, water levels prior to this data are unavailable.

Table 4: Groundwater Elevations in Mini-Piezometers

Monitor ID	Units	25-Sep-20	16-Nov-20	5-Apr-21	5-Jul-21	9-Sep-21	3-Nov-21	13-May-22	13-Jul-22	20-Sep-22	25-Nov-22	28-Mar-23	7-Mar-24
MP101-S	mbgs	n.d.	-0.09	-0.17	-0.26	-0.04	-0.05	-0.02	0.09	0.27	-0.06	-0.08	-0.05
	masl	n.d.	510.64	510.72	510.81	510.59	510.61	510.57	510.46	510.28	510.61	510.63	510.60
MP101-D	mbgs	n.d.	0.00	0.92	0.08	-0.19	-0.70	-0.04	0.78	0.86	0.25	-0.12	-0.23
	masl	n.d.	510.52	509.60	510.44	510.71	511.22	510.56	509.74	509.66	510.27	510.64	510.75

Notes:
mbgs metres below ground surface
masl metres below sea level

Table 5: Vertical Hydraulic Gradients

Monitor ID	25-Sep-20	16-Nov-20	5-Apr-21	5-Jul-21	9-Sep-21	3-Nov-21	13-May-22	13-Jul-22	20-Sep-22	25-Nov-22	28-Mar-23	1-Nov-23	7-Mar-24
MP101													
Shallow monitor (masl)	-	510.64	510.72	510.81	510.59	510.61	510.57	510.46	510.28	510.61	510.63	-	510.60
Deep monitor (masl)	-	510.52	509.60	510.44	510.71	511.22	510.56	509.74	509.66	510.27	510.64	-	510.75
Hydraulic gradient (m/m)	-	0.11	-	0.33	-0.11	-0.55	0.01	0.65	0.56	0.31	0.00	-	-0.13
MW22-405													
Shallow monitor (masl)	-	-	-	-	-	-	511.25	510.26	509.51	510.24	512.02	512.02	511.97
Deep monitor (masl)	-	-	-	-	-	-	511.25	510.24	509.47	510.20	511.99	511.99	511.88
Hydraulic gradient (m/m)	-	-	-	-	-	-	0.00	0.00	0.01	0.01	0.01	0.01	0.02
BH-7													
Shallow monitor (masl)	511.82	512.08	512.05	511.95	512.06	512.09	-	511.62	511.35	512.02	512.06	512.02	512.04
Deep monitor (masl)	511.83	512.05	512.04	511.83	512.06	512.07	511.91	511.47	511.33	512.01	512.05	512.02	512.02
Hydraulic gradient (m/m)	0.00	0.01	0.00	0.03	0.00	0.00	-	0.03	0.00	0.00	0.00	0.00	0.00

Notes: Positive hydraulic gradients indicates downward groundwater movement (i.e., recharge conditions)

TABLE 6: GROUNDWATER ANALYTICAL RESULTS

					BTEX & F1 Hydrocarbons								Calculated Parameters	F2-F4 Hydrocarbons			Inorganics		Metals																					
					Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Mixture	Petroleum Hydrocarbons F1	Petroleum Hydrocarbons F1 (less BTEX)	Methylnaphthalene, 2-(1-)	Petroleum Hydrocarbons F2	Petroleum Hydrocarbons F3	Petroleum Hydrocarbons F4	Chloride (Filtered)	Cyanide (Free)	Antimony (Filtered)	Arsenic (Filtered)	Barium (Filtered)	Beryllium (Filtered)	Boron (Total) (Filtered)	Cadmium (Filtered)	Chromium Total (Filtered)	Chromium VI	Cobalt (Filtered)	Copper (Filtered)	Lead (Filtered)	Mercury	Molybdenum (Filtered)	Nickel (Filtered)	Selenium (Filtered)	Silver (Filtered)	Sodium (Filtered)	Thallium (Filtered)	Uranium (Filtered)	Vanadium (Filtered)
					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L
EQL					0.2	0.2	0.2	0.2	0.4	0.4	25	25	0.071	100	200	200	1	0.001	0.5	1	2	0.4	10	0.09	5	0.5	0.5	0.9	0.5	0.1	0.5	1	2	0.09	0.1	0.05	0.1	0.5
ON GW Table 2 Potable Fine					5	24	2.4			300	750[#1]	750[#1]	3.2	150	500	500	790		6	25	1000	4	5000	2.7	50	25	3.8	87	10	1	70	100	10	1.5	490	2	20	6.2
Monitoring_Zone	**Location_Code**	**Field_ID**	**Sampled_Date_Time**																																				
Ida Street	ESA-1	ESA-1	5/10/2022		<0.2	<0.2	<0.2	<0.2	<0.4	<0.4	<25	<25	<0.071	<100	<200	<200	130	<0.001	<0.5	<1	43	<0.4	33	<0.09	<5	<0.5	<0.5	1.1	<0.5	<0.1	0.68	1.5	<2	<0.09	79	<0.05	0.84	<0.5

Env Stds Description

ON GW Table 2 Potable Fine:Ontario Groundwater Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition, Medium to Fine

Env Stds Comments

#1:F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

TABLE 6: GROUNDWATER ANALYTICAL RESULTS

					Polyaromatic Hydrocarbons																		
				Zinc (Filtered)	Acenaphthylene	Acenaphthene	Anthracene	Benz[a]anthracene	Benzo[b+k]fluoranthene	Benzo[g h i]perylene	Benzo[k]fluoranthene	Benzo[a]pyrene	Chrysene	Dibenz[a h]anthracene	Fluoranthene	Fluorene	Indeno[1 2 3-cd]pyrene	Methylnaphthalene, 1-	Methylnaphthalene, 2-	Naphthalene	Phenanthrene	Pyrene
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				5	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.009	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.03	0.05
ON GW Table 2 Potable Fine				1100	1	4.1	2.4	1		0.2	0.1	0.01	0.1	0.2	0.41	120	0.2	3.2	3.2	11	1	4.1
Monitoring_Zone	**Location_Code**	**Field_ID**	**Sampled_Date_Time**																				
Ida Street	ESA-1	ESA-1	5/10/2022	<5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.009	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.03	<0.05

Env Stds Description
ON GW Table 2 Potable Fine:Ontario Groundwater Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition, Medium to Fine

Env Stds Comments
#1:F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result.

Appendix A Terms of Reference

Guideline D-4 Landfill Impact Assessment

Flato Ida Residential Subdivision, Dundalk, Ontario

Flato Ida Dundalk Inc.

SLR Project No.: 209.30125.00001

May 17, 2024

SLR Consulting (Canada) Ltd.
Please select an office from this list

November 15, 2022

Attention: Grey County, Township of Southgate

SLR Project No.: 209.30125.00001

RE: D-4 Study Terms of Reference - Flato Ida Residential Subdivision

Introduction

SLR Consulting (Canada) Ltd. (SLR) was retained by Flato Ida Dundalk Inc. to conduct a Hydrogeological Assessment in support of a Draft Plan of subdivision and future Site Plan for the proposed Flato Ida Residential Subdivision (hereinafter referred to as the "Site"). The Site includes the properties located at 752212, 752226, 752240 and 752252 Ida Street within the Village of Dundalk, Ontario (Figure 1). The southeastern boundary of the Site lies within approximately 200 metres (m) of the Dundalk Transfer Station and Closed Landfill Site located at 752178 Ida Street. In accordance with the Ministry of Environment, Conservation and Parks (MECP) Land Use Compatibility Guidelines, land development or land use changes on or near (within 500 m) operating or non operating landfills (as defined in O.Reg 347) requires a Guideline D-4 Assessment be completed for the lands that could be potentially impacted by the waste disposal site. The purpose of this memo is to submit for your review and approval the Terms of Reference (ToR) for a D-4 Assessment in support of a Draft Plan.

Background

The proposed Flato Ida Residential Subdivision lies on lands legally described as Parts of Lots 228, 229 and 230, Range 3 West of the Toronto and Sydenham Road Geographic Township of Proton, Township of Southgate, County of Grey. The Site is bounded by Grey Road 9 to the southeast and Ida Street to the northeast. The Site is currently used primarily for agricultural purposes, with scattered rural residences. The area surrounding the Site is occupied by agricultural lands and rural residential, with a woodlot along the southwest portion of the Site. The subject Site is located approximately 200 m northwest of the Dundalk Transfer Station and Closed Landfill Site.

The property located at 752178 Ida Street, originally referred to as the "Dundalk Landfill Site", was licensed as a waste disposal site under Certificate of Approval (CofA) (later referred to as an Environmental Compliance Approval (ECA)) number A262302, dated March 20, 2003, and later amended on October 16, 2003, July 27 2007, July 12 2011, June 14 2016, and June 13 2018. The landfill has since been closed, and the property currently operates as a waste transfer station. Under Schedule C of the amended ECA, the landfill site must undergo routine monitoring including groundwater, surface water, and methane gas monitoring with reports prepared and submitted to the MECP on a biennial basis.

Terms of Reference

The following scope of work outlines the requirements of the D-4 Study:

- Description of the proposed development at the subject Site including:
    - Site zoning, planned / permitted land uses;
    - Concept plan for the proposed development. A detailed description of the proposed development is to be submitted during Detailed Design including, but not limited to: proposed use, height and depth of excavation, proposed water and sanitary services;
    - Description of the subject Site's topography, physiography, hydrostratigraphy, and a preliminary hydrogeological assessment of the program completed to date; and
    - Distance to the Dundalk Transfer Station and Closed Landfill Site.
- Description and discussion of the Dundalk Transfer Station and Closed Landfill Site including:
    - General items:
        - Details about the landfill including whether it is active or closed, history and engineering controls, site activities (waste transfer, recycling, composting etc.);
        - Landfill site boundaries, waste footprint or fill areas;
        - Description of surrounding land use
        - Hours of operation;
        - Types of waste, landfill cover and depth, presence of any Contaminant Attenuation Zones (CAZ);
        - Active and historical CofA and/or ECA including monitoring requirements; and
        - Complaint history received by the County and the Ministry.
    - Assessment of potential groundwater contamination by leachate:
        - Identify groundwater monitoring wells on the landfill site and monitoring requirements;
        - Direction of groundwater flow and interpreted groundwater flow direction; and
        - Discuss the extent, if known, of existing groundwater impacts from the landfill.
    - Assessment of potential surface water contamination by leachate and / or surface run-off:
        - Identify any surface water features on or near the landfill site and monitoring requirements;
        - Direction of surface water flow and run-off drainage; and
        - Discuss the extent, if known, of any existing surface water impacts from the landfill.
    - Assessment of landfill generated gases:
        - Identify landfill gas monitors on the landfill site and monitoring requirements;

- Assess the presence of landfill generated gas, if gas monitors are present on the landfill site. The need for gas monitors on site will be a part of the evaluation, however, the installation of gas monitors on the subject Site is not part of this evaluation; and
- Discuss the extent, if known, of any existing landfill gas impacts from the landfill, and identify potential remedial measures, where necessary.

- Assessment of vectors and vermin:
  - Discuss potential issues related to vector or vermin associated with the historical landfill and current waste transfer station;

As part of a D-6 assessment being completed under separate cover, the following will be completed.

- Dust, odour, and visual nuisances:
  - Discuss any significant air quality emissions related to the waste management property, including dust and odour;
  - If odours are identified, the nature, objectionability, and strength of the odours (dilution thresholds) will be measured using a handheld nasal olfactomer ("Nasal Ranger");
  - The assessment must consider odour and visual nuisances from the existing facility on the proposed development;
  - Complaints information will be requested through the MECP Environmental Property Information (EPI) Program and Freedom of Information (FOI) process related to the current transfer station and closed landfill site. The cost is approximately $120 (+HST). This fee will be invoiced directly to the client as a disbursement;
  - A review of the meteorological information for the area, including the directional frequency and strength of winds;
  - A discussion of the applicable Provincial air quality regulations, standards, policies and guidelines, and various policy documents published by the MECP;
  - A qualitative evaluation of the potential for adverse air quality impacts on sensitive portions of the development site;
  - If odour in excesses of the air quality regulations, standards, policies and guidelines are anticipated, conceptual mitigation measures will be identified, which could be installed at the industries and/or incorporated into the Project design. At-source mitigation, buffers, at-receptor mitigation, and other methods such as warning clauses will be considered and provided as mitigations measures in the Assessment Report; and
  - Detailed quantitative air dispersion modelling using the MECP approved US EPA AERMOD model is not proposed at this time. It is possible that detailed air modelling may be requested by the Municipality for future planning submissions.

Qualified staff from SLR will complete a site visit at the Dundalk Transfer Station and Closed Landfill Site to assess the landfill cover, condition of the groundwater and landfill gas monitors, presence of vectors and vermin, and identify any significant air quality odours. For potential impacts, adverse effects or risk to health and safety, the D-4 Assessment will identify necessary investigations along with remedial/mitigation measures and provide recommendations, as needed.

In support of the D-4 Study, the County must provide for review all existing documentation related to the landfill Site. SLR would like to request copies of the following documentation:

- A copy of the most recent biennial Report including current and historical groundwater, surface water, and landfill gas monitoring data for the landfill site;
- Well construction details and / or borehole logs of the groundwater and landfill gas monitors;
- Drawings depicting the location of the groundwater, surface water, and landfill gas stations;
- Contaminant Attenuation Zone Report;
- Landfill closure report; and
- Complaints received for the landfill site.

SLR would also like to request permission to complete a site visit of the Dundalk Transfer Station and Closed Landfill Site. Where information is not available or provided by the County, it shall be included in the D-4 study, any investigations beyond what is outlined above will be provided under separate cover.

Closing

Please confirm that this ToR for the D-4 Study meets the intent of the information and study requirements of Bruce County and the Township of Southgate. If you have any further questions or comments, we look forward to discussing them with you at your earliest convenience.

Yours sincerely,

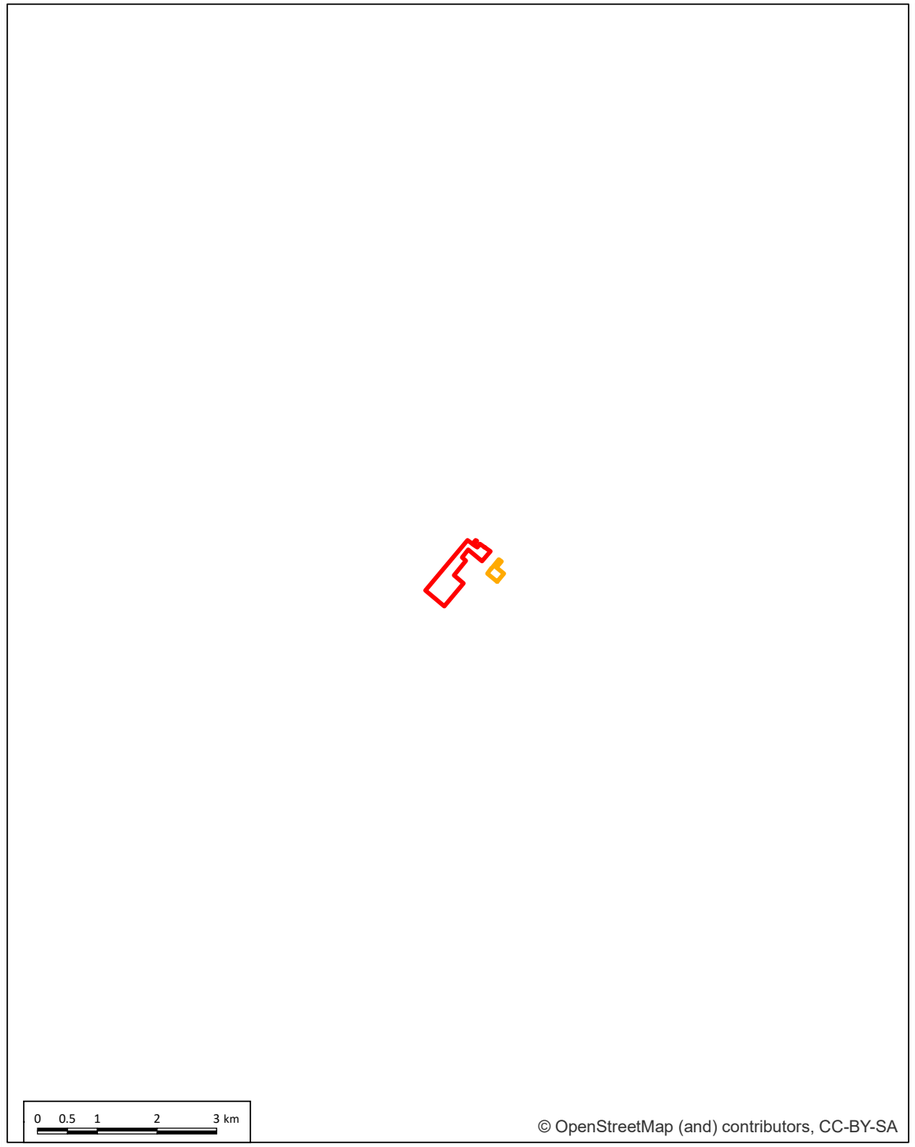
SLR Consulting (Canada) Ltd.

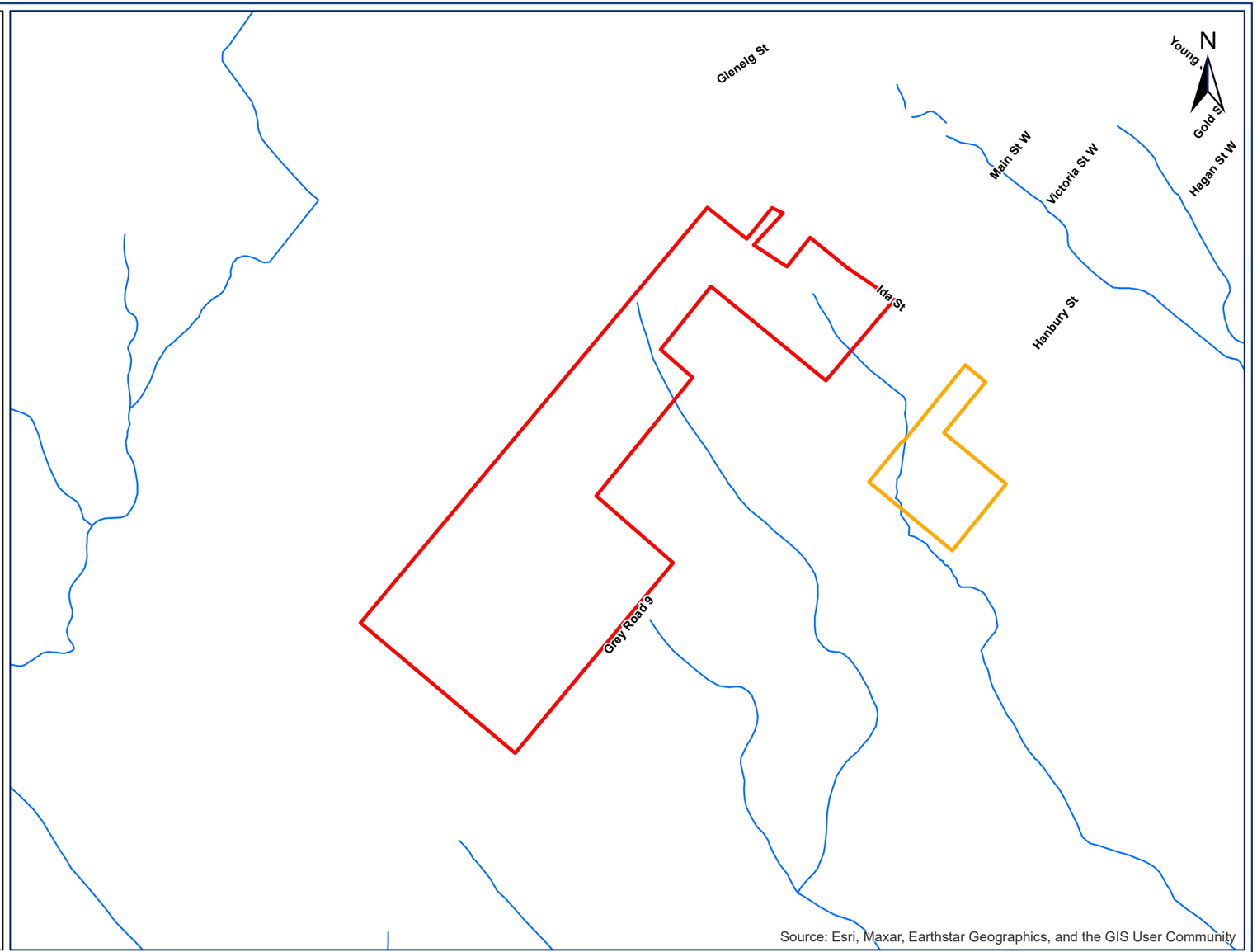
Amanda Malatesta, M.Sc., P.Geo.
Hydrogeologist
amalatesta@slrconsulting.com

Katherine Gibson, M.Sc., P.Geo.
Senior Hydrogeologist
kgibson@slrconsulting.com

Attachments Figure 1: Site Location

cc Shayne Connors – MHBC Planning
Kory Chisholm – MHBC Planning
Nazy Majidi – Flato Ida Dundalk Inc.
Diane Freeman – SLR Consulting
Jessica Vu – SLR Consulting





NOTES:
DATA SOURCE: LAND INFORMATION ONTARIO

LEGEND

- SITE BOUNDARY
- DUNDALK TRANSFER STATION AND CLOSED LANDFILL SITE

0 50 100 200 300 m

SCALE 1:10,000
PAGE SIZE 11 x 17
NAD 1983 UTM Zone 17N
THIS MAP IS FOR CONCEPTUAL PURPOSES ONLY
AND SHOULD NOT BE USED FOR NAVIGATION

DUNDALK VILLAGE TWO INC.
IDA RESIDENTIAL SUBDIVISION
DUNDALK, ONTARIO, CANADA

D-4 STUDY

SITE LOCATION

FIGURE NO:
1

DATE: September 27, 2022 PROJECT NO: 209.30125.00001

Appendix B Development Plan

Guideline D-4 Landfill Impact Assessment

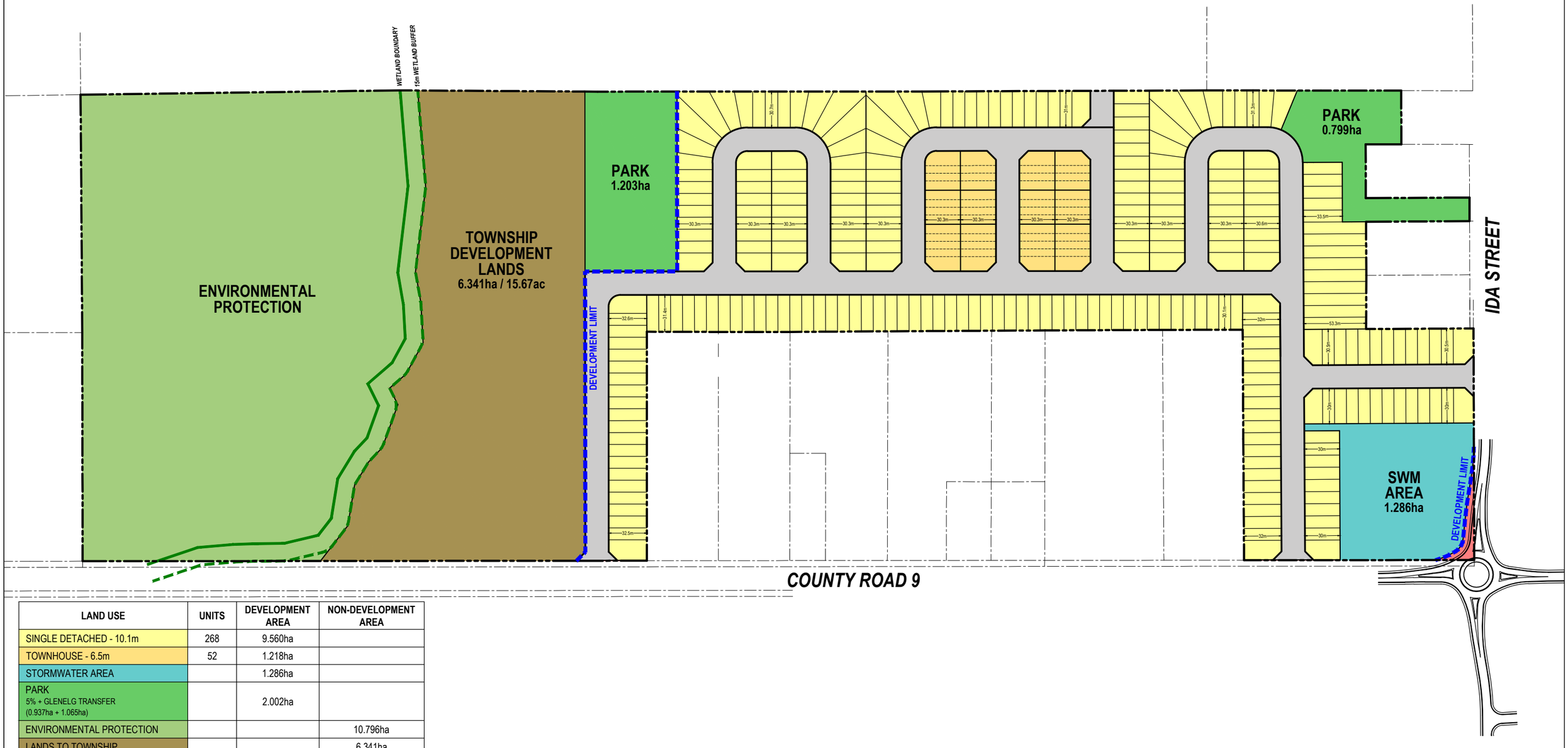
Flato Ida Residential Subdivision, Dundalk, Ontario

Flato Ida Dundalk Inc.

SLR Project No.: 209.30125.00001

May 17, 2024

FLATO IDA STREET, DUNDALK
CONCEPT PLAN



LAND USE	UNITS	DEVELOPMENT AREA	NON-DEVELOPMENT AREA
SINGLE DETACHED - 10.1m	268	9.560ha	
TOWNHOUSE - 6.5m	52	1.218ha	
STORMWATER AREA		1.286ha	
PARK 5% + GLENELG TRANSFER (0.937ha + 1.065ha)		2.002ha	
ENVIRONMENTAL PROTECTION			10.796ha
LANDS TO TOWNSHIP			6.341ha
LANDS TO COUNTY			0.065ha
0.3m RESERVE		0.004ha	
RIGHT OF WAY (2,342m)		4.668ha	
TOTALS	317	18.738ha	17.202ha

MARCH 20, 2024

Appendix C Environmental Compliance Approval

Guideline D-4 Landfill Impact Assessment

Flato Ida Residential Subdivision, Dundalk, Ontario

Flato Ida Dundalk Inc.

SLR Project No.: 209.30125.00001

May 17, 2024

Ontario

Ministry of the Environment **Ministère de l'Environnement**

AMENDED PROVISIONAL CERTIFICATE OF APPROVAL
WASTE DISPOSAL SITE
NUMBER A262302

The Corporation of the Township of Southgate
R.R. #1
185667 Grey Road 9
Dundalk, Ontario N0C 1B0

Site Location: Dundalk Landfill Site
Lot 232, Concession 3
Southgate Township, County of Grey

You have applied in accordance with Section 27 of the Environmental Protection Act for approval of:

a 0.4 hectare Waste Disposal Site (Landfill) for the disposal of domestic, commercial waste and brush and tree cuttings, and the establishment and operation of a Waste Disposal Site (Transfer).

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

(a) "**Act**" means the *Environmental Protection Act*, R.S.O. 1990, C.E-19, as amended;

(b) "**Bulking**" means the mixing of similar waste types into a single container in a secure and safe manner;

(c) "**Certificate**" means this Provisional Certificate of Approval;

(d) "**Competent**" means knowledgeable and able to carry out any necessary duties, in the following through instruction and practice;

i. Relevant waste management legislation, regulations and guidelines;
ii. Major environmental concerns pertaining to the waste to be handled;
iii. Emergency response procedures for the waste to be handled;
iv. Use and operation of any equipment to be used;
v. Emergency response procedures and alerting;
vi. Owner specific written procedures for the control of conditions that may cause an adverse effect; and
vii. Requirements of this Certificate;

(e) "**Director**" means Director, Environmental Assessment and Approvals Branch, Ontario Ministry of the Environment;

(f) "**District Manager**" means District Manager, Owen Sound District Office, Ontario Ministry of the Environment;

(g) "**Ministry**" and "**MOE**" means the Ontario Ministry of the Environment;

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

(i) "**Ontario Regulation 347**" means Ontario Regulation 347 - R.R.O. 1990, General - Waste Management, as amended from time to time, made under the *Act*;

(j) "**Ontario Regulation 189**" means Ontario Regulation 189/94, Refrigerants, or as amended, made under the *Act*;

(k) "**Owner**" means the Township of Southgate and any employees of the Township of Southgate responsible for

managing the operations of the Site;

(l) "**Residual Waste**" means waste that is destined for final disposal;

(m) "**Scavenging**" means the uncontrolled removal of reusable material from waste at a waste disposal site;

(n) "**Site**" means the property located at Lot 232, Concession 3 southwest of the Toronto & Sydenham Road, Township of Proton, County of Grey, more particularly described as Part 1 according to deposited Plan 17R1379 and includes both the landfilling and waste transfer activities; and

(o) "**white goods which contain refrigerants**" means appliances or equipment which contain, or may contain refrigerants, and which include, but are not restricted to, refrigerators, freezers and air-conditioning systems.

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

TERMS AND CONDITIONS

General

1. This Provisional Certificate of Approval supersedes and replaces Provisional Certificate No. A2623-02 issued February 11, 1992.

2. Except as otherwise provided by these Conditions, the Site shall be designed, developed, used, maintained and operated, and all facilities, equipment and fixtures shall be built and or installed in accordance with the Application for a Certificate of Approval for a Waste Disposal Site dated November 1, 2002, and supporting documentation, and plans and specifications listed in Schedule "A".

3. The requirements specified in this Certificate are requirements under the Act. Issuance of this Certificate in no way abrogates the Owner's legal obligations to take all reasonable steps to avoid violating other applicable provisions of this legislation and other legislation and regulations.

4. The requirements of this Certificate are severable. If any requirements of this Certificate, or the application of any requirement of this Certificate to any circumstance, is held invalid, the application of such requirement to other circumstances and the remainder of this Certificate shall not be affected in any way.

5. The Owner must ensure compliance with all terms and conditions of this Certificate. Any non-compliance constitutes a violation of the Act and is grounds for enforcement.

6. (a) The Owner shall, forthwith upon request of the Director, District Manager, or Provincial Officer (as defined in the Act), furnish any information requested by such persons with respect to compliance with this Certificate, including but not limited to, any records required to be kept under this Certificate; and

(b) In the event the Owner provides the Ministry with information, records, documentation or notification in accordance with this Certificate (for the purposes of this condition referred to as "Information"),

(i) the receipt of Information by the Ministry;
(ii) the acceptance by the Ministry of the Information's completeness or accuracy; or
(iii) the failure of the Ministry to prosecute the Owner, or to require the Owner to take any action, under this Certificate or any statute or regulation in relation to the Information;
shall not be construed as an approval, excuse or justification by the Ministry of any act or omission of the Owner relating to the Information, amounting to non-compliance with this Certificate or any statute or regulation.

7. The Owner shall allow Ministry personnel, or a Ministry authorized representative(s), upon presentation of credentials,

to;

(a) carry out any and all inspections authorized by Section 156, 157 or 158 of the Act, Section 15, 16 or 17 of the **OWRA**, or Section 19 or 20 of the **Pesticides Act**, R.S.O. 1990, as amended from time to time, of any place to which this Certificate relates; and,
(b) without restricting the generality of the foregoing, to:

(i) enter upon the premises where records required by the conditions of this Certificate are kept;
(ii) have access to and copy, at reasonable times, any records required by the conditions of this Certificate;
(iii) inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations required by the conditions of this Certificate; and
(iv) sample and monitor at reasonable times for the purposes of assuring compliance with the conditions of this Certificate.

8. Where there is a conflict between a provision of any document referred to in Schedule "A", and the conditions of this Certificate, the conditions in this Certificate shall take precedence. Where there is a conflict between the documents listed in Schedule "A", the document bearing the most recent date shall prevail.

9. Any information relating to this Certificate and contained in Ministry files may be made available to the public in accordance with the provisions of the *Freedom of Information and Protection of Privacy Act*, R.S.O. 1990, C. F-31.

10. All records and monitoring data required by the conditions of this Certificate must be kept on the Owner's premises for a minimum period of three (3) years from the date of their creation.

Notification

11. The Owner shall ensure that all communications/correspondence made pursuant to this Provisional Certificate of Approval reference Certificate No. A262302.

12. The Owner shall notify the Director in writing of any of the following changes, within thirty (30) days of the change occurring:

(a) change of Owner or name of Owner;
(b) change of address or address of new Owner;
(c) change of partners where the Owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, 1991 shall be included in the notification to the Director; and
(d) any change of name of the corporation where the Owner is or at any time becomes a corporation, and a copy of the most current "Initial Notice or Notice of Change" (form 1 or 2 of Ontario Regulation 182, Chapter C-39, R.R.O. 1990, as amended from time to time).

13. (a) The Owner shall notify the District Manager, in writing, within thirty (30) days of appointing an operator responsible for managing the operations of the Site on behalf of the Owner.

(b) In the event of any change in ownership of the Site, the Owner shall notify in writing the succeeding owner of the existence of this Provisional Certificate of Approval, and a copy of such notice shall be forwarded to the Director.

Site Operations - General

14. On each operating day, the Owner shall conduct a visual inspection of the security fence, road and gravel pad and waste storage locations to ensure that any potential problems such as odours, dust, vectors, vermin, rodents and other nuisances are controlled, that all litter is picked up, and that any possibility of fire is minimized.

15. If at any time problems such as odours, dust, litter, noise, vectors, vermin, rodents or other nuisances are generated at the Site, including all on-Site roads, the Owner shall take appropriate, immediate remedial action to eliminate the problem.

16. No scavenging of waste is permitted to take place at the Site.

17. All wastes at the Site must be managed and disposed in accordance with the Act and Regulation 347.

18. All surface water runoff from the Site must be discharged in accordance with the EPA.

Site Operations - Landfill

19. Waste shall be deposited at the Site in accordance with Item 1, Schedule "A", Development and Operation Plan for the Village of Dundalk, Proton Landfill Site as approved by the Ministry.

20. No operation shall be carried out at the Site unless this Certificate including the reasons for this condition has been registered by the Owner as an instrument in the appropriate Land Registry Office against title to the Site and a duplicate registered copy thereof has been returned by the applicant to the Director.

21. No waste other than segregated brush, lumber and clean wood shall be burned at this site.

22. Access to the burning area by the public and other unauthorized personnel is prohibited when burning is being carried out.

23. No burning is to occur without the supervision of the operating authority.

Site Operations - Transfer Station

24. The Site Transfer Station's operating hours are restricted to 7:30 a.m. to 6:00 p.m. Monday to Friday and 7:30 a.m. to 4:00 p.m. Saturday. The Site shall be closed Sundays and Statutory Holidays.

25. The Site Transfer Station shall only accept the following types and quantities of wastes generated in the Township of Southgate:

(a) wood wastes such as brush, scrap lumber and stumps limited to 62 m^3 at any time;
(b) construction & demolition wastes, household bulky wastes such as furniture and mattresses, televisions and computers limited to 62 m^3 at any time;
(c) appliances including refrigerators and stoves and scrap metal limited to 92 m^3 at any time;
(d) recyclable (Blue Box) materials limited to 31 m^3 at any time;
(e) yard waste limited to 31 m^3 at any time;
(f) used tires limited to 31 m^3 at any time; and
(g) used oil limited to 2000 L at any time.

26. Prior to being accepted at the Site Transfer Station, all incoming waste shall be inspected by a Competent employee(s) and shall only be permitted to enter the Site if the Site is approved to accept that type of waste.

27. In the event that waste or recyclable materials cannot be removed from the Site Transfer Station and the total approved storage capacity is reached, the Owner shall:

(a) cease accepting additional waste to ensure the total approved storage capacity does not exceed the maximum amount approved by this Certificate; and
(b) submit to the District Manager, a schedule for removal the stored waste, within five (5) days of reaching the storage capacity; and
(c) remove stored waste in accordance with the schedule required in Condition 27(b).

28. (a) The Owner shall ensure that all white goods which contain refrigerants accepted at the Site Transfer Station, and which have not been tagged by a licensed technician to verify that the equipment no longer contains refrigerants, are stored in an upright position and in such a manner to allow for the safe handling and removal from the Site for removal of refrigerants by a licensed technician as required by Ontario Regulation 189; and

(b) The Owner shall maintain a detailed log of all white goods which contain refrigerants received. The log shall include the following: date of the record, types, quantities and source of white goods which contain refrigerants received, details on removal of refrigerants as required by Ontario Regulation 189 if refrigerants were removed on Site, and the quantities and destination of the white goods and/or refrigerants transferred from the Site.

29. With respect to waste oils, the Owner shall ensure that:

(a) Waste oil shall be stored in secondary containment that is adequate to contain any spills or leaks or run-off.
(b) Unidentified oils and/or oils which are suspected of containing PCB's, shall be handled as follows:

(i) they shall not be mixed (bulked), with other oils prior to testing. Oils which are lab-packed are not considered to be mixed under this Certificate; and
(ii) Oils which have been tested for PCB content and are found to have PCBs at or above 50 parts per million shall be forthwith reported to the District Manager and shall be managed in accordance with Ontario Regulation 362 and stored or removed from the Site to an approved PCB storage site, in accordance with written instructions from the District Manager.

30. Prior to the receipt of waste at the Site Transfer Station, the Owner shall implement the operating and maintenance procedures, as outlined in Item 3, Schedule "A", including training in these procedures.

Site Security

31. The Site shall be maintained in a secure manner, such that unauthorized vehicles cannot enter the Site.

32. The Owner shall limit access to and from the Site to the approved hours of operation and when the Site is supervised by a Competent person.

33. The Owner shall ensure that a sign, readable from the nearest public road, is posted at the entrance to this Site stating:

(a) the Owner's name;
(b) an emergency telephone number;
(c) a telephone number for complaints;
(d) operating hours; and
(e) acceptable waste types.

34. If at any time, the Owner receives complaints regarding the operation of the Site, the Owner shall respond to these complaints according to the following procedure:

(a) The Owner shall record each complaint on a formal complaint form as provided in Item 3, Schedule "A";
(b) The Owner, upon notification of the complaint shall initiate appropriate steps to determine all possible causes of the compliant, proceed to take the necessary actions to eliminate the cause of the complaint and forward a formal reply to the complainant; and
(c) The Owner shall retain on-site a report written within one (1) week of the complaint date, listing the actions taken to resolve the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the reoccurrence of similar incidents.

Spills

35. The Owner shall promptly take all necessary steps to contain and clean up any spills or upsets (including uncontrolled run-off to tile beds, drains, surface-water and groundwater supplies and wells) which result from this operation. All spills and upsets shall be immediately reported to the Ministry's Spill Action Centre at 1-800-268-6060 and shall be recorded in a written log or an electronic file format, as to the nature of the spill or upset, and action taken for clean-up, correction and prevention of future occurrences.

Contingency Measures

36. Within ninety (90) days of issuing this Certificate, the Owner shall have in place a Spill Contingency and Emergency Response Plan. The Plan shall include, but is not limited to:

(a) emergency response procedures to be undertaken in the event of a spill or process upset, including specific clean up methods;
(b) a list of contingency equipment and spill clean up materials, including names and telephone numbers of waste management companies available for emergency response; and
(c) a notification protocol with names and telephone numbers of persons to be contacted, including Owner's personnel, the Ministry Spills Action Centre and District Office, the local Municipality and Fire Department.

37. An up-to-date copy of the Spill Contingency and Emergency Response Plan shall be kept in a central location available to all staff, and a copy shall be submitted to:

(a) the Director, and
(b) the local Fire Department.

38. The Owner shall ensure that

(a) the equipment and materials outlined in the Spill Contingency and Emergency Response Plan are in a good state of repair, fully operational and immediately available; and
(b) all operating personnel are fully trained in the contingency equipment and materials' use and in the procedures to be employed in the event of an emergency.

Annual Report

39. By March 31, 2004, and on an annual basis thereafter, the Owner shall retain on-site an annual report covering the previous calendar year. Each report shall include, as a minimum, the following information:
(a) a summary of the waste loads removed from the Site;
(b) the number of waste loads rejected;
(c) any environmental and operational problems, that could negatively impact the environment, encountered during the operation of the Site and during the facility inspections and any mitigative actions taken;
(d) a statement as to compliance with all Conditions of this Provisional Certificate of Approval and with the inspection and reporting requirements of the Conditions herein; and,
(e) any recommendations to minimize environmental impacts from the operation of the Site and to improve site operations and monitoring programs in this regard.

Closure Plan

40. (a) The Owner shall submit, for approval by the Director, a written Closure Plan four (4) months prior to the permanent closure of the Site. This plan must include, as a minimum, a description of the work that will be done to facilitate closure of the Site and a schedule for completion of that work; and

(b) Within ten (10) days after closure of the Site, the Owner must notify the Director, in writing, that the Site is closed and that the Site Closure Plan has been implemented.

SCHEDULE "A"

This Schedule "A: forms part of Provisional Certificate of Approval No. A262302

1. Report titled "Development and Operation Plan, Village of Dundalk, Proton Landfill Site" prepared by Terraqua

Investigations Ltd, dated May 1992.

2. Application for a Provisional Certificate of Approval for a Waste Disposal Site signed by Ms. Bonnie Riddell, dated December 12, 2002.

3. Documentation in Support of Application for Approval of a Waste Disposal Site dated November 25, 2002 prepared by R.J. Burnside & Associates Limited.

4. Letter from Ms. B. Riddell, Clerk Administrator, Township of Southgate, to Environmental Assessment and Approvals Branch, dated January 14, 2003 re: Notification of area property owners.

5. Letter from Mr. J. Hollingsworth, R.J. Burnside & Associates Limited, to Environmental Assessment and Approvals Branch, dated January 20, 2003 re: revised details for used oil collection.

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

1. The reason for Conditions 1, 3, 4, 5, 8, 9, 10, 11, 12, 13, 17, 18, 20, is to clarify the legal responsibilities and obligations imposed by this Provisional Certificate of Approval.

2. The reason for Conditions 2, 19 and 29 is to ensure that this Site is operated in accordance with the application submitted by the Company, and not in a manner which the Director has not been asked to consider.

3. The reason for Conditions 6 and 7 is to ensure that appropriate Ministry staff have ready access to the system in order to confirm that the system is being operated according to this Provisional Certificate of Approval. The condition is supplementary to the powers afforded a Provincial Officer pursuant to the Environmental Protection Act, the Ontario Water Resources Act, and the Pesticides Act, as amended.

4. The reason for Condition 21, 25, 26, 27, 28 and 29 is to ensure that the types and quantities of waste received at the Site are in accordance with that approved under this Certificate, and that waste storage is done in a manner and duration which does not result in a nuisance or a hazard to the health and safety of the environment or people.

5. The reason for Conditions 14, 15, 16, 19, 22, 23, 24 and 30 is to ensure that the site is operated in a manner which does not result in a nuisance or a hazard to the health and safety of the environment or people.

6. The reason for Conditions 31, 32 and 33 is to minimize the risk of unauthorized entry and to ensure the Site is only operated in the presence of trained personnel and to ensure proper management of waste.

7. The reasons for Condition 35 is to ensure that the Owner immediately responds to a spill and notify the Ministry forthwith of any spills as required in Part X of the EPA so that appropriate spills response can be determined.

8. The reason for Conditions 36, 37 and 38 is to ensure that the Owner's staff are properly trained in the operation of the equipment used at the Site and emergency response procedures. This will minimize the possibility of spills occurring and will enable staff to deal promptly and effectively with any spills that do occur.

9. The reason for Condition 34 is to ensure that complaints are properly and quickly resolved and that complaints and follow-up actions have been documented.

10. The reason for Condition 40 is to ensure that the Site is closed in accordance with MOE standards and to protect the health and safety of the environment.

This Provisional Certificate of Approval revokes and replaces Certificate(s) of Approval No. A2623-02 issued on February 11, 1992

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

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

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the waste disposal site is located;

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

This Notice must be served upon:

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

AND

The Director
Section 39, *Environmental Protection Act*
Ministry of Environment and Energy
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

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

The above noted waste disposal site is approved under Section 39 of the Environmental Protection Act.

DATED AT TORONTO this 20th day of March, 2003

Ian Parrott, P.Eng.
Director
Section 39, *Environmental Protection Act*

VP/
c: District Manager, MOE Owen Sound
James R. Hollingsworth, P. Eng., R. J. Burnside & Associates Limited

Ontario

Ministry of the Environment | **Ministère de l'Environnement**

AMENDMENT TO PROVISIONAL CERTIFICATE OF APPROVAL
WASTE DISPOSAL SITE
NUMBER A262302
Notice No. 1

The Corporation of the Township of Southgate
Rural Route, No. 1
Dundalk, Ontario N0C 1B0

Site Location: Dundalk Landfill Site
Lot 232, Concession 3
Southgate Township, County of Grey

You are hereby notified that I have amended Provisional Certificate of Approval No. A262302 issued on March 20, 2003 for a 0.4 hectare Waste Disposal Site (Landfill) for the disposal of domestic, commercial waste and brush and tree cuttings, and the establishment and operation of a Waste Disposal Site (Transfer), as follows:

The following Condition is hereby revoked and replaced:

25. The Site Transfer Station shall only accept the following types and quantities of wastes generated in the Township of Southgate:

(a) wood wastes such as brush, scrap lumber and stumps limited to 62 m^3 at any time;
(b) construction and demolition wastes, household bulky wastes such as furniture and mattresses, televisions and computers, limited to 62 m^3 at any time;
(c) appliances including refrigerators and stoves and scrap metal limited to 92 m^3 at any time;
(d) recyclable (Blue Box) materials limited to 31 m^3 at any time;
(e) yard wastes limited to 31 m^3 at any time;
(f) used tires limited to 31 m^3 at any time;
(g) used oil limited to 2000 L at any time;
(h) kitchen organics limited to 3 m^3 at any time; and
(i) non-hazardous household refuse limited to 3 m^3 at any time.

The following is hereby added to Schedule "A":

6. Application for a Provisional Certificate of Approval for a Waste Disposal Site signed by Mr. Dave Milliner, Environmental Services Manager, Township of Southgate, dated September 4, 2003.

7. Letter from Mr. James Hollingsworth, R.J. Burnside & Associates Limited, to EAAB, dated September 9, 2003 outlining the reasons for the required amendment.

All other Terms and Conditions on Provisional Certificate of Approval No. A262302 , which was issued to March 20, 2003, not affected by this amendment, continue to remain in effect.

The reason(s) for this amendment to the Certificate of Approval is (are) as follows:

to allow the Owner to provide a reasonable level of service to those residents who are unable to utilize the main stream waste management collection services.

This Notice shall constitute part of the approval issued under Provisional Certificate of Approval No. A262302 dated March 20, 2003

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require

a hearing by the Tribunal. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

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

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the waste disposal site is located;

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

This Notice must be served upon:

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

AND

The Director
Section 39, *Environmental Protection Act*
Ministry of Environment and Energy
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

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

The above noted waste disposal site is approved under Section 39 of the Environmental Protection Act.

DATED AT TORONTO this 16th day of October, 2003

Ian Parrott, P.Eng.
Director
Section 39, *Environmental Protection Act*

VP/
c: District Manager, MOE Owen Sound
James R. Hollingsworth, P. Eng., R. J. Burnside & Associates Limited

Ontario

Ministry of the Environment **Ministère de l'Environnement**

AMENDMENT TO PROVISIONAL CERTIFICATE OF APPROVAL
WASTE DISPOSAL SITE
NUMBER A262302
Notice No. 2
Issue Date: July 27, 2007

The Corporation of the Township of Southgate
Rural Route, No. 1
Dundalk, Ontario
N0C 1B0

Site Location: Dundalk Landfill/Transfer Site
Lot 232, Concession 3
Southgate Township, County of Grey

You are hereby notified that I have amended Provisional Certificate of Approval No. A262302 issued on March 20, 2003 and amended on October 16, 2003 for a 0.4 hectare Waste Disposal Site (Landfill) for the disposal of domestic, commercial waste and brush and tree cuttings, and the establishment and operation of a Waste Disposal Site (Transfer), as follows:

I. Condition 25 is hereby revoked and replaced with:

25. The Site Transfer Station shall only accept the following types and quantities of wastes generated in the Township of Southgate:
(a) wood wastes such as brush, scrap lumber and stumps limited to 62 m^3 at any time;
(b) construction and demolition wastes, household bulky wastes such as furniture and mattresses, limited to 62 m^3 at any time;
(c) appliances including refrigerators and stoves and scrap metal limited to 92 m^3 at any time;
(d) recyclable (Blue Box) materials limited to 31 m^3 at any time;
(e) yard wastes limited to 31 m^3 at any time;
(f) used tires limited to 31 m^3 at any time;
(g) used oil limited to 2,500 litres at any time;
(h) kitchen organics limited to 3 m^3 at any time;
(i) non-hazardous household refuse limited to 3 m^3 at any time;
(j) antifreeze limited to 2,000 litres at any time;
(k) electronics limited to 35 m^3 at any time;
(l) batteries (automotive and dry cell) limited to 35 m^3 at any time;
(m) propane cylinders limited to 35 m^3 at any time; and
(n) paint limited to 35 m^3 at any time.

II. The following items are hereby added to Schedule "A":

8. Application for a Provisional Certificate of Approval for a Waste Disposal Site signed by David Millner, Environmental Services Manager, Township of Southgate, dated June 28, 2007.

9. Dundalk bulky Waste Transfer Station- Waste Depot Operations, prepared by James Hollingsworth, R.J. Burnside & Associates Limited, to EAAB, dated June 5, 2007.

The reason for this amendment to the Certificate of Approval is as follows:

To allow the Owner to accept antifreeze, paint, batteries and propane tanks at the Dundalk Bulky Waset Transfer Station.

This Notice shall constitute part of the approval issued under Provisional Certificate of Approval No. A262302 dated March 20, 2003, as amended.

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by

written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

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

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the waste disposal site is located;

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

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., Suite 1700
P.O. Box 2382
Toronto, Ontario
M4P 1E4

AND

The Director
Section 39, *Environmental Protection Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

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

The above noted waste disposal site is approved under Section 39 of the Environmental Protection Act.

DATED AT TORONTO this 27th day of July, 2007

Tesfaye Gebrezghi, P.Eng.
Director
Section 39, *Environmental Protection Act*

AT/
c: District Manager, MOE Owen Sound
James R. Hollingsworth, P. Eng., R. J. Burnside & Associates Limited

Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDED PROVISIONAL CERTIFICATE OF APPROVAL
WASTE DISPOSAL SITE
NUMBER A262302
Issue Date: July 12, 2011

The Corporation of the Township of Southgate
RR1
185667 Grey Road 9
Dundalk, Ontario
N0C 1B0

Site Location: Dundalk Landfill/Transfer Site
Lot 232, Concession 3
Southgate Township, County of Grey

You have applied in accordance with Section 27 of the Environmental Protection Act for approval of:

a 6.6 hectare Waste Disposal Site consisting of closed landfill site on 0.8 hectares, a transfer site and the establishment and operation of a *Municipal Hazardous and Special Waste depot,*

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

(a) **"Act**" means the *Environmental Protection Act*, R.S.O. 1990, C.E-19, as amended;

(b) "**Bulking**" means the mixing of similar waste types into a single container in a secure and safe manner;

(c) "**Certificate**" means this Provisional Certificate of Approval;

(d) **"competent person"** means a person or people who through their knowledge, training and experience is/are able to carry out any necessary duties in the following, through instruction and practice:

i. relevant waste management legislation, regulations and guidelines;

ii. major environmental concerns pertaining to the waste to be handled;
iii. emergency response procedures for the waste to be handled;
iv. use and operation of any equipment to be used;
v. operation and management of the *Site,* or area(s) within the *Site,* in accordance with the specific job requirements of each individual operator, and which may include procedures for receiving, screening and identifying, refusing, handling and temporarily storing wastes;
vi. *Owner* specific written procedures for the control of conditions that may cause an adverse effect;
vii. requirements of the *Certificate;* and
viii.record keeping procedures;

(e) "**Director**" means Director, Environmental Assessment and Approvals Branch, Ontario Ministry of the Environment;

(f) "**District Manager**" means District Manager, Owen Sound Area Office, Ontario Ministry of the Environment;

(g) **"Fire Code"** means Regulation 213/07 of the Fire Protection and Prevention Act, 1997;

(h) **"45-cubic metre MHSW storage container"** means the specialized portable storage container that is referred to in the Design and Operations Report that is identified in Item 11 of Schedule "A";

(i) **"lab packed"** means the waste management industry's recognized method of temporarily storing and transporting inventoried miscellaneous organic and inorganic wastes in a drum;

(j) **"MHSW Guidelines"** refers to the *Ministry* publication entitled "Household Hazardous Waste Collection and Facility Guidelines", dated May 1993;

(k) **"Municipal Hazardous and Special Waste"** and the acronym **"MHSW"** means hazardous waste or special waste that fall within waste classes 135, 145, 147, 148, 211, 212, 213, 221, 222, 231, 242, 251, 252, 253, 254, 261, 262, 263, 312 and 331 as defined in Ontario Regulation 347 and also includes waste anti-freeze, *WEEE,* waste wet cell batteries, waste dry cell batteries, waste lithium batteries from electronic devices, waste fluorescent tubes and waste energy efficient light bulbs and waste switches and thermostats that may contain mercury;

(l) "**Ministry**" and "**MOE**" means the Ontario Ministry of the Environment;

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

(n) "**Ontario Regulation 347**" means Ontario Regulation 347 - R.R.O. 1990, General - Waste Management, as amended from time to time, made under the *Act*;

(o) "**Ontario Regulation 189**" means Ontario Regulation 189/94, Refrigerants, or as amended, made under the *Act*;

(p) "**Owner**" means the Township of Southgate and any employees of the Township of Southgate responsible for managing the operations of the Site;

(q) "**PCB**" and "**PCBs"** means any monochlorinated or polychlorinated biphenyl or any mixture of them or mixture that contains one or more of them;

(r) "**Scavenging**" means the uncontrolled removal of reusable material from waste at a waste disposal site;

(s) "**Site**" means the property located at Lot 232, Concession 3 south-west of the Toronto & Sydenham Road, Township of Proton, County of Grey, more particularly described as Part 1 according to deposited Plan 17R1379. Additional lands include Part 1, Plan 17R3443, Part 1, Plan 16R5528 and Part 1, Plan 16R5526. The *Site* includes the closed landfilling area, the current waste transfer activities and the establishment of a *Municipal Hazardous and Special Waste* depot;

(t) **"Storage Guidelines"** means the *Ministry* document entitled "Guidelines for Environmental Protection Measures at Chemical and Waste Storage Facilities" dated May 2007;

(u) **"tire unit"** is a standardize means of describing the total weight of all of the tires at the *Site* regardless of the individual weight of each of the tires. To report the number of tires in standardized tire units each tire weighing less than twelve kilograms is one tire unit and each tire weighing twelve kilograms or more is the number of tire units that results from dividing twelve into the number of kilograms that the tire weighs;

(v) **"WEEE"** means waste electrical and electronic equipment listed in Schedules 1 through 7 of *Ontario Regulation 393/04 of the Waste Diversion Act;* and

(w) "**white goods which contain refrigerants**" means appliances or equipment which contain, or may contain refrigerants, and which include, but are not restricted to, refrigerators, freezers and air-conditioning systems.

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

TERMS AND CONDITIONS

General

1. This Provisional Certificate of Approval supersedes and replaces Provisional Certificate No. A262302 issued March 20, 2003, as amended.

2. Except as otherwise provided by these Conditions, the *Site* shall be designed, developed, used, maintained and operated, and all facilities, equipment and fixtures shall be built and or installed in accordance with the Applications for a Certificate of Approval for a Waste Disposal Site dated November 25, 2002 and February 25, 2011 and supporting documentation, plans and specifications listed in Schedule "A".

3. The requirements specified in this *Certificate* are requirements under the *Act.* Issuance of this *Certificate* in no way abrogates the *Owner's* legal obligations to take all reasonable steps to avoid violating other applicable provisions of this legislation and other legislation and regulations.

4. The requirements of this *Certificate* are severable. If any requirements of this *Certificate,* or the application of any requirement of this *Certificate* to any circumstance, is held invalid, the application of such requirement to other circumstances and the remainder of this *Certificate* shall not be affected in any way.

5. The *Owner* must ensure compliance with all terms and conditions of this *Certificate.* Any non-compliance constitutes a violation of the *Act* and is grounds for enforcement.

6. (a) The *Owner* shall, forthwith upon request of the *Director, District Manager,* or Provincial Officer (as defined in the *Act*), furnish any information requested by such persons with respect to compliance with this *Certificate,* including but not limited to, any records required to be kept under this *Certificate;* and

(b) In the event the *Owner* provides the *Ministry* with information, records, documentation or notification in accordance with this *Certificate* (for the purposes of this condition referred to as "Information"),

(i) the receipt of Information by the *Ministry;*
(ii) the acceptance by the *Ministry* of the Information's completeness or accuracy; or
(iii) the failure of the *Ministry* to prosecute the *Owner*, or to require the *Owner* to take any action, under this *Certificate* or any statute or regulation in relation to the Information;
shall not be construed as an approval, excuse or justification by the *Ministry* of any act or omission of the *Owner* relating to the Information, amounting to non-compliance with this *Certificate* or any statute or regulation.

7. The *Owner* shall allow *Ministry* personnel, or a *Ministry* authorized representative(s), upon presentation of credentials, to;

(a) carry out any and all inspections authorized by Section 156, 157 or 158 of the *Act,* Section 15, 16 or 17 of the ***OWRA***, or Section 19 or 20 of the **Pesticides Act**, R.S.O. 1990, as amended from time to time, of any place to which this *Certificate* relates; and
(b) without restricting the generality of the foregoing, to:

(i) enter upon the premises where records required by the conditions of this *Certificate* are kept;
(ii) have access to and copy, at reasonable times, any records required by the conditions of this *Certificate;*
(iii) inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations required by the conditions of this *Certificate;* and
(iv) sample and monitor at reasonable times for the purposes of assuring compliance with the conditions of this *Certificate.*

8. Where there is a conflict between a provision of any document referred to in Schedule “A”, and the conditions of this *Certificate,* the conditions in this *Certificate* shall take precedence. Where there is a conflict between the documents listed

in Schedule "A", the document bearing the most recent date shall prevail.

9. Any information relating to this *Certificate* and contained in *Ministry* files may be made available to the public in accordance with the provisions of the *Freedom of Information and Protection of Privacy Act*, R.S.O. 1990, C. F-31.

10. All records and monitoring data required by the conditions of this *Certificate* must be kept on the *Owner's* premises for a minimum period of three (3) years from the date of their creation.

Notification

11. The *Owner* shall ensure that all communications/correspondence made pursuant to this Provisional Certificate of Approval reference Certificate No. A262302.

12. The *Owner* shall notify the *Director* in writing of any of the following changes, within thirty (30) days of the change occurring:

(a) change of *Owner* or name of *Owner;*
(b) change of address or address of new *Owner;*
(c) change of partners where the *Owner* is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, 1991 shall be included in the notification to the *Director;* and
(d) any change of name of the corporation where the *Owner* is or at any time becomes a corporation, and a copy of the most current "Initial Notice or Notice of Change" (form 1 or 2 of Ontario Regulation 182, Chapter C-39, R.R.O. 1990, as amended from time to time).

13. (a) The *Owner* shall notify the *District Manager*, in writing, within thirty (30) days of appointing an operator responsible for managing the operations of the *Site* on behalf of the *Owner;* and

(b) In the event of any change in ownership of the *Site,* the *Owner* shall notify in writing the succeeding owner of the existence of this Provisional Certificate of Approval, and a copy of such notice shall be forwarded to the *Director*.

***Site* Operations - General**

14. On each operating day, the *Owner* shall conduct a visual inspection of the security fence, road and gravel pad and waste storage locations to ensure that any potential problems such as odours, dust, vectors, vermin, rodents and other nuisances are controlled, that all litter is picked up, and that any possibility of fire is minimized.

15. If at any time problems such as odours, dust, litter, noise, vectors, vermin, rodents or other nuisances are generated at the *Site,* including all on-*Site* roads, the *Owner* shall take appropriate, immediate remedial action to eliminate the problem.

16. No *Scavenging* of waste is permitted to take place at the *Site*.

17. All wastes at the *Site* must be managed and disposed in accordance with the *Act* and its Regulations.

18. All surface water run-off from the *Site* must be discharged in accordance with the *OWRA*.

19. The service area for all waste and *MHSW* is the Counties of Grey, Bruce, Huron, Wellington, Simcoe, Dufferin, Perth and the Region of Waterloo.

Hours of Operation

20. The allowed operating hours of the *Site* are from to 7:30 a.m. to 6:00 p.m. Monday to Friday and 7:30 a.m. to 4:00 p.m. Saturday. The *Site* shall be closed Sundays and Statutory Holidays.

21. (a) When the *45-cubic metre MHSW storage container* is moved from the *Site* for use at the Egremont site that is owned by the Township of Southgate, *MHSW* that is normally accepted for storage in this container shall not be collected at the *Site;* and

(b) Within 30 days of issue of this *Certificate,* the *Owner* shall provide notice of the schedule for *MHSW* collection at the entrance to the *Site,* at the entrance to the Egremont site and on the *Owner's* web site.

Site Operations - Landfill

22. The *Site* may not receive waste for final disposal.

23. No operation shall be carried out at the *Site* unless this *Certificate* including the reasons for this condition has been registered by the *Owner* as an instrument in the appropriate Land Registry Office against title to the *Site* and a duplicate registered copy thereof has been returned by the applicant to the *Director*.

24. Burning of any material is prohibited at the *Site.*

Site Operations - _MHSW_ depot

25. The *Municipal Hazardous and Special Waste (MHSW)* depot for the *Site* shall be developed, operated and maintain in accordance with the Conditions of this *Certificate* and the plans and specification in Schedule "A" of this *Certificate.*

26. The following Conditions apply to the *MHSW* depot:

(a) The *MHSW* Depot may accept only *MHSW;*

(b) The operation of the *MHSW* depot is limited to the *Bulking* of waste oil, waste anti-freeze, the collection of waste paint for *Bulking* or offer for re-use to the public and the collection and transfer of *MHSW* and associated *MHSW*solids and sludges;

(c) The Owner shall have absolute discretion in the refusal of any waste;

(d) *MHSW* shall be only accepted at the *MHSW* depot:
(i) from the Counties of Grey, Bruce, Huron, Wellington, Simcoe, Dufferin, Perth and the Region of Waterloo;
(ii) from householders responsible for those wastes;
(iii) from industrial, commercial and institutional (IC&I) businesses and farm operations where such wastes are considered unrelated to the operation of the business;
(iv) for any *MHSW* coming to the *Site* from industrial, commercial and institutional (IC&I) businesses and farm operations, the *Owner* shall fill out a form that identifies the name of the business or operation, the Vehicle Licence Plate number, the name of the person dropping off the waste, and shall have that person sign the form indicating that the business or operation is currently exempt from generator registration requirement for hazardous waste and/or waste oil and/or anti-freeze because they generate less than 5 kg per month of hazardous waste and/or less than 25 litres of waste oil and/or less than 25 litres of waste anti-freeze per month; and
(v) the maximum amount of *MHSW* that may be accepted at the *Site* from industrial, commercial and institutional (IC&I) businesses and farm operations in one day is 5 oil filters, 25-litres of waste oil, 25-litres of waste anti-freeze and 25-kilograms of hazardous waste.

(e) The maximum amounts of *MHSW* that are allowed to be received per day, stored on *Site* and the maximum allowed time of storage on *Site* are outlined in Schedule "B" of this *Certificate;*

(f) *MHSW* storage shall be restricted to three areas of the *Site* as follows:
i) An outdoor caged area of maximum size of 9 square metres, for the storage of waste cylinders such as propane containers;
ii) A Special Waste Building for storage of oil and antifreeze, *WEEE* and wet cell batteries;
iii) a *45-cubic metre MHSW storage container* for the storage of the remainder of the *MHSW* that is allowed to be stored on *Site*;

(g) Storage of *MHSW* in *45-cubic metre MHSW storage container* shall be in 205-litre drums that are either *lab packed* or contain non fragile solids or a homogeneous liquid;

(h) A maximum of 100 of the 205-litre drums containing *MHSW* may be stored in the *45-cubic metre MHSW storage container;*

(i) The holding tanks for waste oil or anti-freeze shall never exceed 90% of their capacities;

(j) In regards to the haulage of the *45-cubic metre MHSW storage container* from the *Site* the following applies:
Before the *45-cubic metre MHSW storage container* is allowed to be loaded onto a roll-off container truck, a *competent person* shall inspect the waste that is stored in the container and assess whether the storage is sufficiently safe and secure to allow it to be loaded onto a roll-off container truck. Once the *competent person*
is satisfied that the waste is properly secured in the container, they
shall provided written permission for the container to be loaded. A copy of the
written permission shall be kept as part of the daily records that are required by
Condition 49; and

(k) The receipt of waste class 312, is restricted to Sharps and Syringes that are received in biohazardous containers.

27. Management and Storage of *MHSW* shall be in accordance with the *Storage Guidelines* and the *MHSW Guidelines,* including but not limited to the following aspects:

(a) storage areas and containers containing flammable and/or ignitable materials shall be stored and managed in accordance with the *Fire Code* and shall be adequately grounded;
(b) waste motor oil may be bulked in a double-walled above ground waste oil storage tank that has a maximum capacity of 2200 litres. In addition, a maximum of 300 litres of oil may be stored in the *45-cubic metre MHSW storage container;*
(c) waste anti-freeze may be bulked in a storage tank maximum capacity of 1,300 litres that is provided with secondary containment of minimum capacity of 1430 litres. In addition, a maximum of 700 litres of waste anti-freeze may be stored in the *45-cubic metre MHSW storage container;*
(d) the waste oil and waste anti-freeze tanks shall be clearly labelled indicating their contents;
(e) with respect to the storage of waste wet cell batteries the following applies:
i) they may only be stored in neatly arranged non conducting wood or
fibreglass trays for secondary containment;
ii) they shall be placed on a wooden skid of approximate size 1.1 metres square;
iii) if they are not cracked, they may be stacked to a maximum of 4 high on
a wooden skid if the batteries are suitable for stacking;
iv) if safe to do so, a maximum of 2 skids of wet cell batteries may be stacked on one another;
v) batteries on skids shall be banded or shrink wrapped on the pallets before shipping; and
vi) cracked or wet cell batteries that are leaking shall not be stacked and
shall be handled with best management practices;
(f) waste propane cylinders and other waste cylinders may be only stored outside in a secure segregated area of maximum area of 9 square metres in a manner which prevents cylinders from being knocked over or cylinder valves from breaking;
(g) incompatible types of waste shall be segregated from one another during storage;
(h) waste received in fragile containers shall be *lab packed* if safe to do so;
(i) with respect to waste pharmaceuticals the following applies:
i) they may only be contained in a locked container to prevent
unauthorized access or removal; and
ii) when they are ready for transport, pharmaceuticals may be *lab packed;*
(j) the *Owner* shall have sufficient drums and lab-pack containers available on the premises for the storage of the waste collected;
(k) paint may either be bulked in to 205-litre drums or offered to the public for re-use;

(l) *MHSW* that is received and stored at the *MHSW* depot shall be in amounts which can be safely handled at the *Site* and in no case shall exceed the limits outlined in Schedule "B" of the *Certificate;*
(m) with the exception of cylinders such as used propane tanks, all *MHSW* shall be stored indoors;
(n) storage containers shall be clearly labelled indicating the type and nature of the *MHSW* stored;
(o) the indoor storage area shall be equipped with spill clean-up material;
(p) the indoor storage areas for *MHSW* shall be equipped with a means of ventilation;
(q) mercury containing devices such as switches, thermostats and thermometers shall be packed in suitable specialized containers or drums with packaging to prevent breakage;
(r) fluorescent bulbs and tubes shall be stored in suitable specialized containers or in drums with packaging to prevent breakage;
(s) sharps and syringes shall be placed in a sealed container that is labelled biohazardous and *lab packed* into a 205-litre storage drum or other suitable container;
(t) dry cell batteries shall be stored separately in pails by type (i.e. lithium batteries stored separately from nickel-cadmium batteries etc.) and in manner which prevents spontaneous ignition of stored batteries; and
(u) the electric terminals of lithium batteries shall be taped with electrical insulating tape to prevent shorting of the electric terminals.

28. With respect waste oil, paint or ballasts that may contain *PCBs* the following apply:

(a) For unidentified oils and/or oils which are suspected of containing *PCBs,* they shall not be mixed (bulked), with other oils prior to testing. Oils which are *lab packed* are not considered to be mixed under this *Certificate;*

(b) oil based paint which has been manufactured prior to 1972 shall be assumed to contain *PCBs* unless tested and found to contain less than 50 parts per million of *PCBs;*

(c) Waste light ballasts shall be checked by a *competent person* to see if they may contain *PCBs.* If they are found to likely contain *PCBs,* they shall be treated as *PCB* waste and shall be *lab packed* in a 205-Litre drum that is labelled "Ballasts that may contain *PCBs"*; and

(d) Light ballasts that are suspected of containing *PCBs* and waste oil, and paint which have been found to contain *PCBs* at or above 50 parts per million shall be reported forthwith to the *District Manager* and shall be managed in accordance with Ontario Regulation 362 and stored or removed from the *Site* to an approved *PCB* storage site, in accordance with written instructions from the *District Manager.*

29. The *Owner* may only offer waste paint for reuse provided that the following conditions are met:

(a) the container is labelled as to its contents;
(b) the container is undamaged such that the material may be transported without risk of leaks or spills;
(c) all transactions are recorded by invoice; and
(d) information on the type and volume of waste returned to the public through the *MHSW* depot shall be recorded in the records that are required by Condition 49 of this *Certificate.*

<u>*Site* Operations - Waste Transfer Station</u>

30. The *Site* Transfer Station shall only accept and store the following types and quantities of wastes generated in the Township of Southgate:

(a) wood wastes such as brush, scrap lumber and stumps limited to 62 m^3 at any time;
(b) construction and demolition wastes, household bulky wastes such as furniture and mattresses, limited to 62 m^3 at any time;

(c) appliances including refrigerators and stoves and scrap metal limited to 92 m^3 at any time;
(d) recyclable (Blue Box) materials limited to 31 m^3 at any time;
(e) yard wastes limited to 31 m^3 at any time;
(f) used tires limited to 1500 *tire units* at any time;
(g) kitchen organics limited to 3 m^3 at any time; and
(h) non-hazardous household refuse limited to 3 m^3 at any time.

31. The *Owner* shall ensure that:

(a) at least one dedicated *competent person* is at the *Site* to directly supervise the operation of the *MHSW* depot;

(b) during operating hours, all incoming *MHSW* shall be inspected by a *competent person,* prior to being accepted at the *MHSW* depot; and

(c) that they have a current list of *competent people* at the *Site* and available for inspection by a Provincial Officer.

32. Prior to being accepted at the *Site* Transfer Station, all incoming waste shall be inspected by a *competent person* and shall only be permitted to enter the *Site* if the *Site* is approved to accept that type of waste.

33. In the event that waste or recyclable materials cannot be removed from the *Site* Transfer Station and the total approved storage capacity is reached, the *Owner* shall:

(a) cease accepting additional waste to ensure the total approved storage capacity does not exceed the maximum amount approved by this *Certificate;* and
(b) submit to the *District Manager,* a schedule for removal the stored waste, within five (5) days of reaching the storage capacity; and
(c) remove stored waste in accordance with the schedule required in Condition 33 (b).

34. (a) The *Owner* shall ensure that all *white goods which contain refrigerants* accepted at the *Site* Transfer Station, and which have not been tagged by a licensed technician to verify that the equipment no longer contains refrigerants, are stored in an upright position and in such a manner to allow for the safe handling and removal from the *Site* for removal of refrigerants by a licensed technician as required by *Ontario Regulation 189;* and

(b) The *Owner* shall maintain a detailed log of all *white goods which contain refrigerants* received. The log shall include the following: date of the record, types, quantities and source of *white goods which contain refrigerants* received, details on removal of refrigerants as required by *Ontario Regulation 189* if refrigerants were removed on *Site,* and the quantities and destination of the white goods and/or refrigerants transferred from the *Site.*

35. The *Owner* shall forthwith implement the operating and maintenance procedures, as outlined in Item 3, Schedule "A", including training in these procedures.

Site Security

36. The *Site* shall be maintained in a secure manner, such that unauthorized vehicles cannot enter the *Site.*

37. The *Owner* shall limit access to and from the *Site* to the approved hours of operation and when the *Site* is supervised by a *competent person*.

38. The *Owner* shall ensure that a sign, readable from the nearest public road, is posted at the entrance to this *Site* stating:

(a) the *Owner's* name;

(b) an emergency telephone number;
(c) a telephone number for complaints;
(d) operating hours; and
(e) acceptable waste types.

39. If at any time, the *Owner* receives complaints regarding the operation of the *Site,* the *Owner* shall respond to these complaints according to the following procedure:

(a) The *Owner* shall record each complaint on a formal complaint form as provided in Item 3, Schedule "A";
(b) The *Owner*, upon notification of the complaint shall initiate appropriate steps to determine all possible causes of the compliant, proceed to take the necessary actions to eliminate the cause of the complaint and forward a formal reply to the complainant; and
(c) The *Owner* shall retain on-*Site* a report written within one (1) week of the complaint date, listing the actions taken to resolve the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the reoccurrence of similar incidents.

Spills

40. The *Owner* shall promptly take all necessary steps to contain and clean up any spills or upsets (including uncontrolled run-off to tile beds, drains, surface-water and groundwater supplies and wells) which result from this operation. All spills and upsets shall be immediately reported to the *Ministry's* Spill Action Centre at 1-800-268-6060 and shall be recorded in a written log or an electronic file format, as to the nature of the spill or upset, and action taken for clean-up, correction and prevention of future occurrences.

Environmental Emergency Plan

41. Within ninety (90) days of issuing this *Certificate,* the *Owner* shall have in place an Environmental Emergency Plan (E2 Plan). A copy of the E2 Plan shall be provided to the *District Manager* and the local Fire Department within 95 days of issue of this *Certificate.* The E2 Plan shall include, but is not limited to:

(a) the preparation for, the prevention of, the response to and the recovery from an environmental emergency;
(b) a list of emergency response equipment and spill clean up materials, including names and telephone numbers of waste management companies available for emergency response; and
(c) a notification protocol with names and telephone numbers of persons to be contacted, including *Owner's* personnel, the *Ministry's* Spills Action Centre and District Office, the local Municipality and Fire Department.

42. The *Owner* shall annually review and update as needed the Environmental Emergency Plan. An updated copy of the E2 Plan shall be kept in a central location available to all staff and for inspection by a Provincial Officer. A copy of the E2 Plan shall be submitted within 30-days of an update to:

(a) the *District Manager,* and
(b) the local Fire Department.

43. The *Owner* shall ensure that:

(a) the equipment and materials outlined in the Environmental Emergency Plan are in a good state of repair, fully operational and immediately available; and
(b) all operating personnel are fully trained in the Environmental Emergency response equipment and materials' use and in the procedures to be employed in the event of an emergency.

Inspections

44. On each operating day, a visual inspection by a *competent person* shall be conducted of the following areas of the *Site*:

i. loading/unloading area(s);
ii. processing area(s);
iii. storage area(s); and
iv. perimeter security fence or barriers.

45. A *competent person* shall inspect the entire *Site* each day the *Site* is in operation to ensure that:

(a) the *Site* is secure;
(b) there are any no off-*Site* impacts such as vermin, vectors, odour, dust or litter result from the operation of the *Site;*
(c) that the operations of the *Site* are not causing any adverse effects on the environment; and
(d) the Site is being operated in compliance with the *Certificate.*

46. Any deficiencies noted during the inspection shall be promptly corrected, including temporarily ceasing operations at the *Site* if needed.

47. Results of the inspection shall be recorded in the daily record log as outlined in Condition 49 of the *Certificate.*

48. The *Owner* shall have a *competent person:*

(a) on a regular basis, inspect all containment systems for cracks and spalling;
(b) on an annual basis, examine or test the oil storage tank to ensure there are no leaks;
(c) remedy any malfunction and/or deficiency which these inspections, examinations or tests reveal; and
(d) record the inspections as required by Condition 45 of the *Certificate.*

Daily Log Book

49. A log book or electronic file shall be maintained for a minimum of five years and shall include daily records of the following information. All amounts must be recorded in metric units:

(i) date of record;
(ii) the name of carrier and waste management Certificate of Approval number if the *MHSW* waste received is from an industrial, commercial or institutional business;
(iii) types, quantities, source and person delivering the *MHSW;*
(iv) daily estimates of the amount of *MHSW* and other wastes stored at the *Site;*
(v) quantities and destination of waste and residual materials shipped from the *Site;*
(vi) quantities of paint provided to the public for reuse;
(vii) a record of any waste refusals which shall include; amounts, reasons for refusal and actions taken;
(viii) a list of areas inspected and deficiencies observed;
(ix) any environmental and operational problems, that could negatively impact the environment or human health, encountered during the operation of the *Site* and any actions taken to mitigate the situation;
(x) the action taken for the clean up or correction of the spill, the time and date of the spill or process upset, and for spills, the time that the *Ministry* and other persons were notified of the spill in fulfilment of the reporting requirements in the *Act;* and
(xi) any recommendations to minimize environmental impacts from the operation of the Site.

Annual Report

50. By March 31, 2012, and on an annual basis thereafter, the *Owner* shall provide a copy to the *District Manager* of an annual report covering the previous calendar year. Each report shall include, as a minimum, the following information:

(a) a summary, in tabular form where possible, of the information required to kept in Condition 49;
(b) a statement as to compliance with all Conditions of this Provisional Certificate of Approval and with the inspection and reporting requirements of the Conditions herein;
(c) any recommendations to minimize environmental impacts from the operation of the *Site* and to

improve *Site* operations and monitoring programs in this regard; and
(d) provide a list of *competent people* at the *Site.*

Closure Plan

51. (a) The *Owner* shall submit, for approval by the *Director,* a written Closure Plan four (4) months prior to the permanent closure of the *Site.* This plan must include, as a minimum, a description of the work that will be done to facilitate closure of the *Site* and a schedule for completion of that work; and

(b) Within ten (10) days after closure of the *Site,* the *Owner* must notify the *Director,* in writing, that the *Site* is closed and that the *Site* Closure Plan has been implemented.

SCHEDULE "A"

This Schedule "A" forms part of Provisional Certificate of Approval No. A262302

1. Report titled "Development and Operation Plan, Village of Dundalk, Proton Landfill Site" prepared by Terraqua Investigations Ltd, dated May 1992.

2. Application for a Provisional Certificate of Approval for a Waste Disposal Site signed by Ms. Bonnie Riddell, dated December 12, 2002.

3. Documentation in Support of Application for Approval of a Waste Disposal Site dated November 25, 2002 prepared by R.J. Burnside & Associates Limited.

4. Letter from Ms. B. Riddell, Clerk Administrator, Township of Southgate, to Environmental Assessment and Approvals Branch, dated January 14, 2003 re: Notification of area property owners.

5. Letter from Mr. J. Hollingsworth, R.J. Burnside & Associates Limited, to Environmental Assessment and Approvals Branch, dated January 20, 2003 re: revised details for used oil collection.

6. Application for a Provisional Certificate of Approval for a Waste Disposal Site signed by Mr. Dave Milliner, Environmental Services Manager, Township of Southgate, dated September 4, 2003.

7. Letter from Mr. James Hollingsworth, R.J. Burnside & Associates Limited, to EAAB, dated September 9, 2003 outlining the reasons for the required amendment.

8. Application for a Provisional Certificate of Approval for a Waste Disposal Site signed by David Milliner, Environmental Services Manager, Township of Southgate, dated June 28, 2007.

9. Dundalk bulky Waste Transfer Station- Waste Depot Operations, prepared by James Hollingsworth, R.J. Burnside & Associates Limited, to EAAB, dated June 5, 2007.

10. Application for a Provisional Certificate of Approval for a Waste Disposal Site signed by David Milliner, Chief administrative Officer, Township of Southgate, dated February 25, 2011.

11. Design and Operations report with the title "Township of Southgate, Dundalk Waste Transfer Facility, MHSW Depot Operations," dated February 2011 and prepared by R.J. Burnside and Associates Limited.

12. May 20, 2011 letter from James R. Holingsworth, P.Eng., Manager, Solid Waste Services, R.J. Burnside & Associates Limited, to Jim Chisholm, P.Eng., Ministry of the Environment.

13. June 21, 2011 letter from James R. Hollingsworth, P.Eng., Solid Waste Services, R.J. Burnside & Associates Limited, to Jim Chisholm, P.Eng., Ministry of the Environment.

SCHEDULE "B"

This Schedule "B" forms part of Provisional Certificate of Approval No. A262302

Waste	Maximum daily amount received	Maximum amount allowed to be stored at *Site*	Maximum storage time at *Site*
Used oil	2,500 litres	2,500 litres	Until tank 90% full
Anti-freeze	2,000 litres	2,500 litres	Until tank 90% full
WEEE	1 tonne	5 tonnes	6 months
Tires	1500 tires units	1500 *tire units*	6 months
Wet Cell Batteries	100 batteries	500 batteries	6 months
Cylinders (i.e. Propane)	100 cylinders	1000 cylinders	6 months
Paint and solvent	500 litres	2,500 litres	6 months
All other *MHSW* not covered above in this table	Reasonable amounts reflective of normal activity of *MHSW* depot	Reasonable amounts reflective of normal activity of *MHSW* depot. Maximum total *MHSW* in the *45-cubic metre MHSW storage container* is 45 cubic metres.	6 months

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

1. The reason for Conditions 1, 3, 4, 5, 8, 9, 10, 11, 12, 13, 17, and 18 is to clarify the legal responsibilities and obligations imposed by this Provisional Certificate of Approval.

2. The reason for Conditions 2, 22 and 27 is to ensure that this Site is operated in accordance with the application submitted by the Company, and not in a manner which the Director has not been asked to consider.

3. The reason for Conditions 6 and 7 is to ensure that appropriate Ministry staff have ready access to the system in order to confirm that the system is being operated according to this Provisional Certificate of Approval. The condition is supplementary to the powers afforded a Provincial Officer pursuant to the Environmental Protection Act, the Ontario Water Resources Act, and the Pesticides Act, as amended.

4. The reason for Conditions 14, 15, and 16 is to ensure that the site is operated in a manner which does not result in a nuisance or a hazard to the health and safety of the environment or people.

5. The reason for condition 19 is to identify the service area for the site.

6. The reason for condition 20 is to specify the allowed hours of work of the site.

7. The reason for Condition 21 and 25 to 32 inclusive is to ensure that the types and quantities of waste received at the Site are in accordance with that approved under this Certificate, and that waste storage is done in a manner and duration which does not result in a nuisance or a hazard to the health and safety of the environment or people.

8. The reason for Condition 22 is because the landfill site is closed.

9. The reason for Condition 23 is to alert any body interested in the property that it has been used as a landfill site.

10. The reason for Conditions 24 is to prohibit the burning of waste as the landfill site is now closed and waste is no longer accepted for final disposal.

11. The reason for Condition 33 is to prevent an adverse effect from happening in the event that materials cannot be removed from the Site.

12. The reason for Condition 34 is to outline some of the requirement for the management of white goods which contain refrigerants at the site.

13. The reason for Condition 35 is so that proper operating and maintenance procedures be used at the site.

14. The reason for Conditions 36, 37, and 38 is to minimize the risk of unauthorized entry and to ensure the Site is only operated in the presence of trained personnel and to ensure proper management of waste.

15. The reason for Condition 39 is to ensure that complaints are properly and quickly resolved and that complaints and follow-up actions have been documented.

16. The reasons for Condition 40 is to ensure that the Owner immediately responds to a spill and notify the Ministry forthwith of any spills as required in Part X of the EPA so that appropriate spills response can be determined.

17. The reason for Conditions 41, 42, and 43 is to ensure that the Owner's staff are properly trained in the operation of the equipment used at the Site and emergency response procedures. This will minimize the possibility of spills occurring and will enable staff to deal promptly and effectively with any spills that do occur.

18. The reasons for Conditions 44 to 48 is to insure that the site is properly inspected and maintained.

19. The reason for Conditions 49 and 50 is to ensure that proper records of the operations of the site are kept and that the Ministry is informed annually of the operations of the site.

20. The reason for Condition 51 is to ensure that the Site is closed in accordance with MOE standards and to protect the health and safety of the environment.

This Provisional Certificate of Approval revokes and replaces Certificate(s) of Approval No. A262302 issued on March 20, 2003, as amended.

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

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

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the waste disposal site is located;

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

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto, Ontario
M5G 1E5

AND

The Director
Section 39, *Environmental Protection Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

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

The above noted waste disposal site is approved under Section 39 of the Environmental Protection Act.

DATED AT TORONTO this 12th day of July, 2011

Tesfaye Gebrezghi, P.Eng.
Director
Section 39, *Environmental Protection Act*

JC/
c: District Manager, MOE Owen Sound
James R. Hollingsworth, P.Eng., R.J. Burnside & Associates Limited

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER A262302
Notice No. 2
Issue Date: June 13, 2018

The Corporation of the Township of Southgate
185667 Grey County Road 9
Rural Route, No. 1
Dundalk, Ontario
N0C 1B0

Site Location: Dundalk Transfer Station and Closed Landfill Site
Lot 232, Concession 3
Southgate Township, County of Grey

You are hereby notified that I have amended Approval No. A262302 issued on July 12, 2011 and amended on June 14, 2016 for a 6.6 hectare Waste Disposal Site consisting of a closed landfill site on 0.8 hectares, a transfer site and a Municipal Hazardous and Special Waste depot , as follows:

Schedule "C" of this *Approval* is hereby amended as follows:

SCHEDULE "C"

	Monitoring Location	**Sampling Frequency**	**Parameters**
Ground Water Monitoring	DL1S, DL1D	Once every four years (Fall)	Arsenic, Barium, Boron, Calcium, Iron, Magnesium, Manganese, Phosphorus, Potassium, Sodium, Chloride, Nitrate, Nitrite, Sulphate, Alkalinity, Conductivity, Hardness, pH, Ammonia, Dissolved Organic Carbon, Total Dissolved Solids, Total Kjeldahl Nitrogen
	DL2, DL3S, DL3I, DL3D, DL4, DL5R-04, MW-1, MW-2, MW-3	Once every year (Fall)	
	DL4, DL5R-04	Once every four	Volatile Organic

		years (Fall)	Compounds
Surface Water Monitoring	SW-2, SW-3, SW-4	Once every year (Fall)*	Barium, Boron, Iron, Manganese, Potassium, Sodium, Chloride, Sulphate, Alkalinity, Conductivity, Field Temperature, Hardness, pH, Ammonia, Dissolved Organic Carbon, Total Dissolved Solids, Total Phosphorus
Gas Monitoring	GP-1, GP-2, GP-3, GP-4, GP-5, GP-6, DL5R-04	Once every year (Fall)	Combustible Gas (Methane)

***Note:** To meet the requirement for once-a-year sampling, surface water samples must be taken more than once-a-year if dry conditions are encountered on a designated sampling day.

This Notice shall constitute part of the approval issued under Approval No. A262302 dated March 20, 2003

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;

b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

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

The Notice should also include:

1. The name of the appellant;

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

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

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

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

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

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

DATED AT TORONTO this 13th day of June, 2018

Dale Gable, P.Eng.
Director
appointed for the purposes of Part II.1 of the *Environmental Protection Act*

ND/
c: District Manager, MOECC Owen Sound
A.W. Bringleson, GM Blueplan Engineering Limited

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER A262302
Notice No. 1
Issue Date: June 14, 2016

The Corporation of the Township of Southgate
185667 Grey County Road 9
Rural Route, No. 1
Dundalk, Ontario
N0C 1B0

Site Location: Dundalk Transfer Station and Closed Landfill Site
Lot 232, Concession 3
Southgate Township, County of Grey

You are hereby notified that I have amended Approval No. A262302 issued on July 12, 2011 for a 6.6 hectare Waste Disposal Site consisting of a closed landfill site on 0.8 hectares, a transfer site and a Municipal Hazardous and Special Waste depot , as follows:

I. For the purposes of this *Approval* , the following definitions are hereby amended:

"Approval" or "ECA" means this entire provisional Environmental Compliance Approval document, issued in accordance with Section 20.3 of the *EPA* , and includes any schedules to it, the application and the supporting documentation listed in Schedule "A";

"Director" means any *Ministry* employee pursuant to section 20.3 of Part II.1 of the *EPA* .

II. Condition 50 of this *Approval* is hereby amended as follows:

50. By March 31, 2017, and on a biennial basis thereafter, the *Owner* shall submit to the *District Manager* a "Biennial Report" which shall cover the 24 month period of the previous two years. Each report shall include, as a minimum, the following information:

(a) a summary, in tabular form where possible, of the information required to be kept in Condition 49;

(b) a statement as to compliance with all Conditions of this *Approval* and with the inspection and reporting requirements of the Conditions herein;

(c) the results and analyses of all groundwater, surface water, leachate and landfill gas monitoring, as specified in Schedule "C" of this *Approval* ;

(d) comparison of results to the appropriate Ministry standards and guidelines, including the *Ministry's* Reasonable Use Guideline and the Provincial Water Quality Objectives;

(e) any recommendations to minimize environmental impacts from the operation of the *Site* and to

improve *Site* operations and monitoring programs in this regard; and

(f) provide a list of *competent persons* at the *Site.*

III. The following Condition is hereby added to this *Approval* :

52. (a) Ground water, surface water and gas monitoring at the *Site* shall be carried out in accordance with Schedule "C".

(b) In the event the *Owner* recommends any changes to the environmental monitoring plan in the Biennial Report, the *Owner* shall provide a cover letter with the submission of the biennial report that clearly indicates the report contains proposed changes to the environmental monitoring plan and request the District Office review the proposed changes. The cover letter shall be addressed to the *District Manager* .

(c) Within fourteen (14) days of receiving written correspondence from the District Office confirming that the District Office is in agreement with the proposed changes to the environmental monitoring program identified in Condition 52 (b), the *Owner* shall forward a letter identifying the proposed changes, copies of the correspondences from the *District Manager* and all other correspondences and responses related to Condition 52 (b), to the *Director* requesting the *Approval* be amended to approve the proposed changes to the environmental monitoring plan.

(d) In the event any other changes to the environmental monitoring program are proposed outside of the recommendation of the Biennial Report, the *Owner* shall follow current *Ministry* procedures for seeking approval for amending the *ECA* .

IV. The following items are hereby added to Schedule "A" of this *Approval* :

14. Letter from Ian Mitchell, District Engineer, Owen Sound Area Office, Ministry of the Environment, dated April 13, 2006 to Mr. David Milliner, Corporation of the Township of Southgate, regarding changing reporting frequency from annual to bi-annual.

15. Letter from A.W. Bringleson, GM BluePlan Engineering Limited, dated March 31, 2015 to the Ministry of the Environment, enclosing an ECA application for amending Condition 50 of Approval A262302, and other supporting information.

V. This Schedule "C" forms part of Environmental Compliance Approval No. A262302

SCHEDULE "C"

	Monitoring Location	**Sampling Frequency**	**Parameters**
Ground Water Monitoring	DL1S, DL1D	Once every four years (Fall)	Arsenic, Barium, Boron, Calcium, Iron, Magnesium, Manganese, Phosphorus, Potassium, Sodium, Chloride, Nitrate, Nitrite, Sulphate, Alkalinity, Conductivity, Hardness, pH, Ammonia, Biological Oxygen Demand,
	DL2, DL3S, DL3I, DL3D, DL4, DL5R-04, MW-1, MW-2, MW-3	Once every year (Fall)	

			Dissolved Organic Carbon, Chemical Oxygen Demand, Total Dissolved Solids, Total Kjeldahl Nitrogen
	DL4, DL5R-04	Once every four years (Fall)	Volatile Organic Compounds
Surface Water Monitoring	SW-2, SW-3, SW-4	Twice every year (Spring and Fall)	Barium, Boron, Iron, Manganese, Potassium, Sodium, Chloride, Sulphate, Alkalinity, Conductivity, Field Temperature, Hardness, pH, Ammonia, Chemical Oxygen Demand, Dissolved Organic Carbon, Total Dissolved Solids, Total Phosphorus, Total Suspended Solids
Gas Monitoring	GP-1, GP-2, GP-3, GP-4, GP-5, GP-6, DL5R-04	Once every year (Fall)	Combustible Gas (Methane)

VI. The reasons for this amendment to the *Approval* are as follows:

1. The reason for Condition 50 is to change the reporting frequency from annual to bi-annual, in accordance with items 14 and 15 of Schedule "A".

2. The reason for Condition 52 is to demonstrate that the impacts on the natural environment from the closed landfill site 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.

This Notice shall constitute part of the approval issued under Approval No. A262302 dated July 12, 2011

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

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

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

The Notice should also include:

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

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

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

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

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

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

DATED AT TORONTO this 14th day of June, 2016

Dale Gable, P.Eng.
Director
appointed for the purposes of Part II.1 of
the *Environmental Protection Act*

MT/
c: District Manager, MOECC Owen Sound
Alen Bringleson, GM BluePlan Engineering Limited

Appendix D Site Borehole Logs

Guideline D-4 Landfill Impact Assessment

Flato Ida Residential Subdivision, Dundalk, Ontario

Flato Ida Dundalk Inc.

SLR Project No.: 209.30125.00001

May 17, 2024

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato Ida Dundalk Inc.**
PROJECT: **HydroG Assessment**
ADDRESS: **Flato Ida**
SLR JOB NO: **209.30125.00001**

Monitoring Well LOG

BOREHOLE NO: **ESA-1**
SURFACE ELEVATION: 514.16 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: SPT Count / % Moisture	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0	514.16	**TOPSOIL** Dark brown, organics (rootlets), moist, soft		0-2.5	75.0		SPT 5				514
	513.73	**Silty SAND TILL** Fine-medium, brown, trace silt, soft, moist								bentonite seal	
1				*2.5-5 / DUP-1C	33.3		SPT 6				513
	512.64	**Silty SAND TILL** Silty, light brown, gravel (sub-angular), trace clay, dense, moist to dry		*5-7.5	70.8		SPT 12				
2											512
				*7.5-10	50.0		SPT >50				
3										silica sand 50 mm 010 slot PVC pipe	511
				10-12.5	50.0		SPT 49				
4				12.5-15	12.5		SPT >50				510
										end cap	
5				15-17.5	12.5		SPT >50				509
										bentonite seal	
				17.5-20	50.0		SPT >50				
6											

End of monitoring well at 508.06 m

Well Completion Details:
Screened interval from 512.64 m to 509.59 m
Elevation at top of pipe (TOP) = 515.16 m

Groundwater Information:
Depth to groundwater from TOP = 2.44 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)

DRILL DATE: 2022 April 13
LOGGED BY: RH
DRILLED BY: Geo-Environmental

Notes: SPLIT SPOON

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato Ida Dundalk Inc.**
PROJECT: **HydroG Assessment**
ADDRESS: **Flato Ida**
SLR JOB NO: **209.30125.00001**

Monitoring Well LOG

BOREHOLE NO: MW22-401
SURFACE ELEVATION: 518.60 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE ID	% Recovery	TEST DATA: SPT Count / % Moisture	WELL COMPLETION NOTES	ELEVATION (m)
0	518.60	**TOPSOIL** Dark brown, organict (rootlets), soft, moist				silica sand	
	518.32	**SAND** Fine-medium, some gravel, some silt, brown, soft, moist	0-2.5	45.8	4		518
1			*2.5-5	33.3	8		
			*5-7.5	50.0	8		517
2	516.31	**Silty SAND TILL** Silty fine sand, gravel (sub-angular/sub-rounded), orange mottling, light brown, dense, dry				bentonite seal	
			7.5-10	83.3	33		516
3			10-12.5	75.0	48		
	514.79	No orange mottling, wet, loose					515
4			12.5-15	58.3	40		
			15-17.5	29.2	>50		514
5						silica sand 50 mm 010 slot PVC pipe	
			17.5-20	0	>50		513
6						end cap	

End of monitoring well at 512.50 m

Well Completion Details:
Screened interval from 514.03 m to 512.50 m
Elevation at top of pipe (TOP) = 519.50 m

Groundwater Information:
Depth to groundwater from TOP = 4.28 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)
DRILL DATE: 2022 April 13
LOGGED BY: RH
DRILLED BY: Geo-Environmental

Notes: SPLIT SPOON

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato Ida Dundalk Inc.**
PROJECT: **HydroG Assessment**
ADDRESS: **Flato Ida**
SLR JOB NO: **209.30125.00001**

Monitoring Well LOG

BOREHOLE NO: **MW22-402**
SURFACE ELEVATION: 516.82 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: SPT Count / % Moisture	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0	516.82	**TOPSOIL** Brown, moist, soft		0-1	50.0		SPT 15			silica sand	
	516.52	**Silty SAND TILL** Silty, gravel (sub-angular), trace clay, some organics, brown, moist, soft-dense, increasing gravel content with depth		2.5-3.0	45.8		SPT 5				516
1											
				5.5-6.5	83.3		SPT 15				515
2										bentonite seal	
				7.5-10	100.0		SPT >50				514
3											
				11-12	79.2		SPT >50				513
4											
				14-15	50.0		SPT >50				512
5											
				17-17.5	33.3		SPT >50			silica sand 50 mm 010 slot PVC pipe	
				18-20	100.0		SPT >50				511
6										end cap silica sand	
				20.5-22.5	87.5		SPT >50			bentonite seal	510

End of monitoring well at 509.96 m

Well Completion Details:
Screened interval from 512.25 m to 510.72 m
Elevation at top of pipe (TOP) = 517.68 m

Groundwater Information:
Depth to groundwater from TOP = 2.95 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)
DRILL DATE: 2022 April 11
LOGGED BY: RH
DRILLED BY: Geo-Environmental

Notes: SPLIT SPOON

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato Ida Dundalk Inc.**
PROJECT: **HydroG Assessment**
ADDRESS: **Flato Ida**
SLR JOB NO: **209.30125.00001**

Monitoring Well LOG

BOREHOLE NO: **MW22-403**
SURFACE ELEVATION: 514.27 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: SPT Count / % Moisture	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0	514.27	**TOPSOIL** Dark brown, some organics (rootlets), soft, moist								silica sand	514
	514.02	**SAND** Fine-medium, brown, trace clay, soft, moist		1-2.5	66.7		SPT 4				
	513.51	**Sandy SILT TILL** Silty, light brown, gravel (sub-angular), trace clay, soft, moist, increasing gravel content with depth									513
1				4.5-5	20.8		SPT 5				
2				6.5-7.5	37.5		SPT 24				
	511.98	Cobbles, dry, dense								bentonite seal	512
3				9-10	66.7		SPT >50				
				11.5-12.5	58.3		SPT >50				511
4				14-15	62.5		SPT >50				510
5				16.5-17.5	50.0		SPT >50			silica sand 50 mm 010 slot PVC pipe	509
	508.94	Moist from 5.33 m to EOH									
6				19-20	66.7		SPT >50			end cap silica sand	508
										bentonite seal	
	507.49	~~Largest cobble at 6.78 m~~		22-22.5	37.5		SPT >50				

End of monitoring well at 507.41 m

Well Completion Details:
Screened interval from 509.70 m to 508.17 m
Elevation at top of pipe (TOP) = 515.21 m

Groundwater Information:
Depth to groundwater from TOP = 2.79 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)
DRILL DATE: 2022 April 11
LOGGED BY: RH
DRILLED BY: Geo-Environmental

Notes: SPLIT SPOON

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato Ida Dundalk Inc.**
PROJECT: **HydroG Assessment**
ADDRESS: **Flato Ida**
SLR JOB NO: **209.30125.00001**

Monitoring Well LOG

BOREHOLE NO: **MW22-404**
SURFACE ELEVATION: 514.16 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: ■SPT Count (10 20 30 40 50) ◆ % Moisture (20 40 60 80 100)	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0	514.16	**TOPSOIL**									514
	513.96	Dark brown, organics (rootlets), moist, soft									
		SAND		0-2.5	66.7		4			silica sand	
		Brown, some silt, organics, (rootlets), moist, soft									
	513.40	**Silty SAND**									
1		Medium sand, brown, orange mottling, gravel (sub-angular/angular), soft, compact, wet		*2.5-5 / DUP-1B	66.7		12				513
	512.64	**Silty SAND TILL**									
		Medium-fine silty sand, some gravel (sub-angular/angular), compact/dense, wet		*5-7.5	75.0		44				
2	511.87	No recovery			0		>50			bentonite seal	512
3	511.11	**Gravelly SAND**		10-12.5	91.7		>50				511
		Grey-brown, gravel (sub-angular/angular), some silt, wet, loose									
	510.30	**Silty SAND TILL**		12.5-15	66.7		>50				510
4		Silty fine sand, gravel (sub-angular/angular), grey-brown, dry, dense									
				15-17.5	54.2		>50				
5										silica sand 50 mm 010 slot PVC pipe	509
				17.5-20	70.8		>50				
6										end cap silica sand	508
				20-22.5	0		>50			bentonite seal	

End of monitoring well at 507.30 m

Well Completion Details:
Screened interval from 509.59 m to 508.06 m
Elevation at top of pipe (TOP) = 515.00 m

Groundwater Information:
Depth to groundwater from TOP = 1.77 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)
DRILL DATE: 2022 April 13
LOGGED BY: RH
DRILLED BY: Geo-Environmental

Notes: SPLIT SPOON
NO RECOVERY

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato Ida Dundalk Inc.**
PROJECT: **HydroG Assessment**
ADDRESS: **Flato Ida**
SLR JOB NO: **209.30125.00001**

Monitoring Well LOG

BOREHOLE NO: MW22-405-D
SURFACE ELEVATION: 512.10 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: SPT Count (■) / % Moisture (◆)	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0	512.10	**TOPSOIL**								silica sand	512
	511.87	Dark brown, organics (rootlets), moist, soft									
		SAND		1.5-2.5	70.8		4				
	511.34	Medium sand, light brown, organics (rootlets), moist, soft		*2.5-5 / DUP-1A	58.3		9				
1		Silty fine sand with gravel (sub-angular), light brown, moist, soft									511
	510.58	**Silty SAND with GRAVEL**		*5-7.5	37.5		12		▼		
		Silty fine sand with gravel (sub-angular), trace clay, light brown, moist-dry, soft									
2				7.5-10	75.0		22				510
	509.05										
3	508.99	**Gravelly SAND**		10-12.5	66.7		>50				509
		Coarse sand and gravel (sub-angular), some fine sand, trace silt, light brown, wet, loose									
		Silty SAND TILL		12.5-15	79.2		>50				
4		Silty fine sand with gravel (sub-angular), trace clay, light brown-grey, dry, dense									508
				15-17.5	66.7		>50			bentonite seal	
5											507
				17.5-20	45.8		>50				
6											506
				20-22.5	37.5		>50				
7				2.5-25	87.5		50				505
				25-27.5	70.8		>50				
8											504
				27.5-30	58.3		>50				
9											503
				0	0		>50				
10				32.5-35	0		47			silica sand 50 mm 010 slot PVC pipe	502
										end cap	
		End of monitoring well at 501.43 m									

Well Completion Details:
Screened interval from 502.96 m to 501.43 m
Elevation at top of pipe (TOP) = 513.05 m

Groundwater Information:
Depth to groundwater from TOP = 2.81 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)
DRILL DATE: 2022 April 12
LOGGED BY: RH
DRILLED BY: Geo-Environmental

Notes: SPLIT SPOON
NO RECOVERY

SLR BOREHOLE LOG (MOISTURE) 209.30125.00001_2023-05-05.GPJ SLR_CAN V5.2 MOISTURE.GDT 23/5/5

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato Ida Dundalk Inc.**
PROJECT: **HydroG Assessment**
ADDRESS: **Flato Ida**
SLR JOB NO: **209.30125.00001**

Monitoring Well LOG

BOREHOLE NO: **MW22-405-S**
SURFACE ELEVATION: 512.06 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: ■SPT Count (10 20 30 40 50) ◆ % Moisture (20 40 60 80100)	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0	512.06	**TOPSOIL** Dark brown, organics (rootlets), moist, soft								silica sand	512
	511.83	**SAND** Medium sand, light brown, organics (rootlets), moist, soft		1.5-2.5	70.8		4				
	511.30	Silty fine sand with gravel (sub-angular), light brown, moist, soft		*2.5-5 / DUP-1A	58.3		9				
1											511
	510.54	**Silty SAND with GRAVEL** Silty fine sand with gravel (sub-angular), trace clay, light brown, moist-dry, soft		*5-7.5	37.5		12				
2										bentonite seal	510
				7.5-10	75.0		22				
3	509.01										509
	508.95	**Gravelly SAND** Coarse sand and gravel (sub-angular), some fine sand, trace silt, light brown, wet, loose		10-12.5	66.7		>50				
		Silty SAND TILL Silty fine sand with gravel (sub-angular), trace clay, light brown-grey, dry, dense									
4				12.5-15	79.2		>50				508
				15-17.5	66.7		>50				
5										silica sand 50 mm 010 slot PVC pipe	507
				17.5-20	45.8		>50				
6										end cap	506
		End of monitoring well at 505.96 m Well Completion Details: Screened interval from 507.49 m to 505.96 m Elevation at top of pipe (TOP) = 513.05 m Groundwater Information: Depth to groundwater from TOP = 2.79 m (July 13, 2022) * denotes soil sample taken for lab analysis MW22-405S was straight drilled adjacent to MW22-405D									

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)
DRILL DATE: 2022 April 12
LOGGED BY: RH
DRILLED BY: Geo-Environmental

Notes: SPLIT SPOON

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato Ida Dundalk Inc.**
PROJECT: **HydroG Assessment**
ADDRESS: **Flato Ida**
SLR JOB NO: **209.30125.00001**

Monitoring Well LOG

BOREHOLE NO: **MW22-406**
SURFACE ELEVATION: 511.50 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: SPT Count / % Moisture	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0	511.50	**TOPSOIL**								cement	
	511.40	**SAND** Fine sand, trace silt, trace organics, brown, grey mottling, moist, soft, loose		0-2.5	66.7		4				511
	510.74	**Silty SAND** Grey, brown mottling, silty, trace gravel, trace clay, cobbles, moist, firm, compact		2.5-5	62.5		5				
1				5-7.5	54.2		9				510
2										bentonite seal	
	509.21	**Silty SAND and GRAVEL** Brown-grey, silty, gravelly, moist, firm, compact Dry		7.5-10	100.0		36				509
3	509.01			10-12.5	100.0		35				508
	507.69	**GRAVEL** Brown-grey, crushed rock/gravel (angular), trace silt, saturated, loose		12.5-15	41.7		40				
4	506.93	**FINE SAND**									507
	506.78	Brown, gravel, saturated, loose **GRAVEL** Brown, angular, trace fine sand, trace cobble, wet, loose		15-17.5	54.2		36			silica sand 50 mm 010 slot PVC pipe	
5	506.17	**Silty SAND TILL** Brown-grey, silty, some gravel, dry, dense		17.5-19	66.7		>50			end cap	506

End of monitoring well at 505.71 m

Well Completion Details:
Screened interval from 507.23 m to 505.71 m
Elevation at top of pipe (TOP) = 512.31 m

Groundwater Information:
Depth to groundwater from TOP = 1.92 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)
DRILL DATE: 2022 April 18
LOGGED BY: MJ
DRILLED BY: Geo-Environmental

Notes: SPLIT SPOON

SLR BOREHOLE LOG (MOISTURE) 209.30125.00001_2023-05-05.GPJ SLR_CAN V5.2 MOISTURE.GDT 23/5/5

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato Ida Dundalk Inc.**
PROJECT: **HydroG Assessment**
ADDRESS: **Flato Ida**
SLR JOB NO: **209.30125.00001**

Monitoring Well LOG

BOREHOLE NO: MW22-407
SURFACE ELEVATION: 509.61 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE ID	% Recovery	TEST DATA: SPT Count / % Moisture	WELL COMPLETION NOTES	ELEVATION (m)
0	509.61	**TOPSOIL**				cement	509
	509.38	**Silty SAND** Brown, silty, trace cobble, moist, soft	0-2.5	37.5	7		
1			2.5-5	16.7	6		
	508.09	Occasional gravel, compact					508
2			5-7.5	70.8	12		
	507.32	**Sandy SILT TILL** Grey-brown, gravelly (sub-angular/angular), trace silt, dry-moist, firm, compact	7.5-10	83.3	>50	bentonite seal	507
3			10-12.5	41.7	>50		506
4			12.5-15	100.0	>50		
			15-17.5	95.8	>50		505
5						silica sand 50 mm 010 slot PVC pipe	
			17.5-20	70.8	>50		504
6						end cap	

End of monitoring well at 503.51 m

Well Completion Details:
Screened interval from 505.04 m to 503.51 m
Elevation at top of pipe (TOP) = 510.46 m

Groundwater Information:
Depth to groundwater from TOP = 2.46 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)

DRILL DATE: 2022 April 18
LOGGED BY: MJ
DRILLED BY: Geo-Environmental

Notes: SPLIT SPOON

SLR CONSULTING (CANADA) LTD.

CLIENT: **Flato Ida Dundalk Inc.**
PROJECT: **HydroG Assessment**
ADDRESS: **Flato Ida**
SLR JOB NO: **209.30125.00001**

Monitoring Well LOG

BOREHOLE NO: **MW22-408**
SURFACE ELEVATION: 509.31 m

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE ID	% Recovery	SOIL TYPE	TEST DATA: ■SPT Count (10 20 30 40 50) ◆ % Moisture (20 40 60 80 100)	WELL COMPLETION	WATER LEVEL	WELL COMPLETION NOTES	ELEVATION (m)
0	509.31	**TOPSOIL**								cement	509
	509.18	**Silty SAND with GRAVEL** Brown, silty, some gravel, trace clay, trace organics, moist-wet, occasional cobbles, loose-dense, increasing gravel content with depth		*0-5	100.0		5				
1											508
				5-7.5	45.8		9				
2	507.02	Saturated, hard, compact								bentonite seal	507
				*7.5-10	70.8		21				
3	506.26	Set, very hard, very dense									
				10-12.5	75.0		>50				506
4				12.5-15	70.8		>50				505
				15-17.5	37.5		>50				
5	503.98	**Gravelly Silty SAND** Brown-grey, moist-wet, dense, soft								silica sand 50 mm 010 slot PVC pipe	504
				17.5-20	62.5		>50				
6										end cap silica sand	503
				20-22.5	16.7		>50			bentonite seal	

End of monitoring well at 502.45 m

Well Completion Details:
Screened interval from 504.74 m to 503.21 m
Elevation at top of pipe (TOP) = 510.28 m

Groundwater Information:
Depth to groundwater from TOP = 2.18 m (July 13, 2022)

* denotes soil sample taken for lab analysis

DRILLING METHOD: Hollow Stem Auger Drilling
BOREHOLE DIAMETER: 0.2 m (OD)
DRILL DATE: 2022 April 18
LOGGED BY: MJ
DRILLED BY: Geo-Environmental

Notes: SPLIT SPOON

Appendix E Photolog

Guideline D-4 Landfill Impact Assessment

Flato Ida Residential Subdivision, Dundalk, Ontario

Flato Ida Dundalk Inc.

SLR Project No.: 209.30125.00001

May 17, 2024

Appendix E – Site Visit Photo Log

Photo 1: Landfill entrance gate	Photo 2: Perimeter fence of landfill
	

Photo 3: Waste bins on landfill site	Photo 4: Garbage and drywall bins
	

Photo 5: Wetland area, facing southwest towards SW3	Photo 6: Tire Pile
	

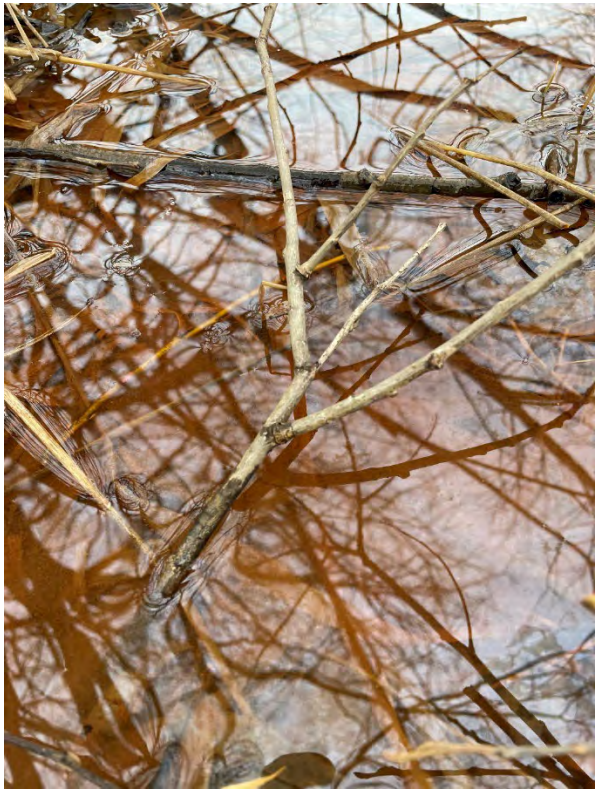
Photo 7: GP-5	Photo 8: Iron staining near GP-5
	

Photo 9: DL-1 with loose cap	Photo 10: DL-2
	

Photo 11: DL-3D	Photo 12: DL-3I
	

Photo 13: DL-3S	Photo 14: MW-2 and GP-6
	

Appendix F Biennial Operations Monitoring Report (2021/2022) Figures

Guideline D-4 Landfill Impact Assessment

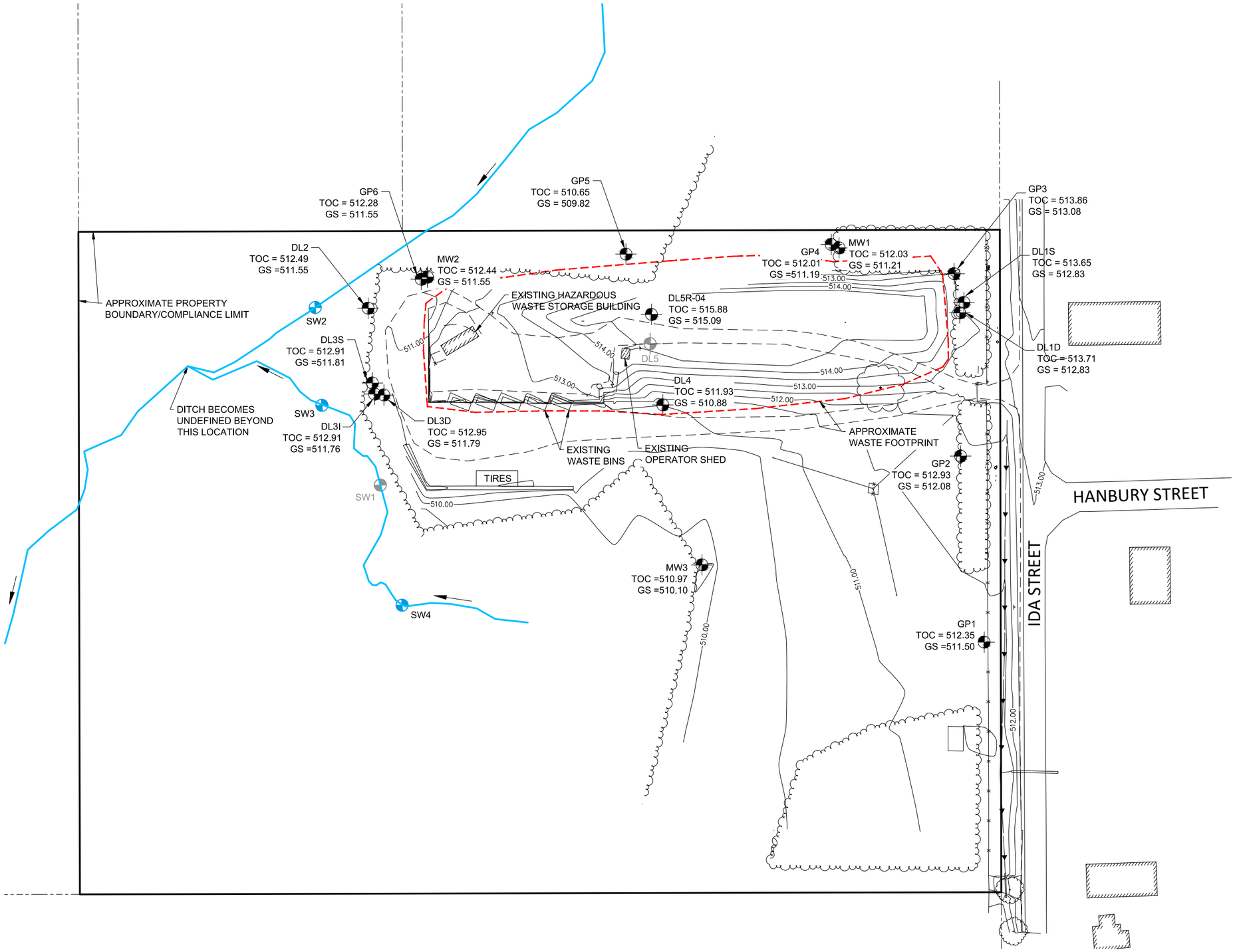
Flato Ida Residential Subdivision, Dundalk, Ontario

Flato Ida Dundalk Inc.

SLR Project No.: 209.30125.00001

May 17, 2024

212298-2
Annual Monitoring Report
Dundalk Waste Transfer Station
Township of Southgate



LEGEND

- MONITORING WELL
- SURFACE WATER SAMPLING STATION
- DECOMMISSIONED MONITORING WELL
- HISTORICAL SURFACE WATER SAMPLING STATION-NO LONGER SAMPLED
- TOC — TOP OF PVC PIPE masl (MEASURING POINT)
- GS — GROUND SURFACE ELEVATION masl
- APPROXIMATE LIMIT OF FILL
- 512.0 — EXISTING GROUND CONTOUR

15 0 25 50

1:1250(m)

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FEBRUARY 2023

SITE PLAN

Figure No. 3

BluePlan ENGINEERING

FILE:C:\Civil 3D Projects\212298-2 AMR 2022 Fig3-5-K.dwg LAYOUT:Figure 3-Site Plan
LAST SAVED BY:Kboers, 2/22/2023 4:40:24 PM PLOTTED BY:Ken Boers - GM BluePlan 2/22/2023 4:42:44 PM

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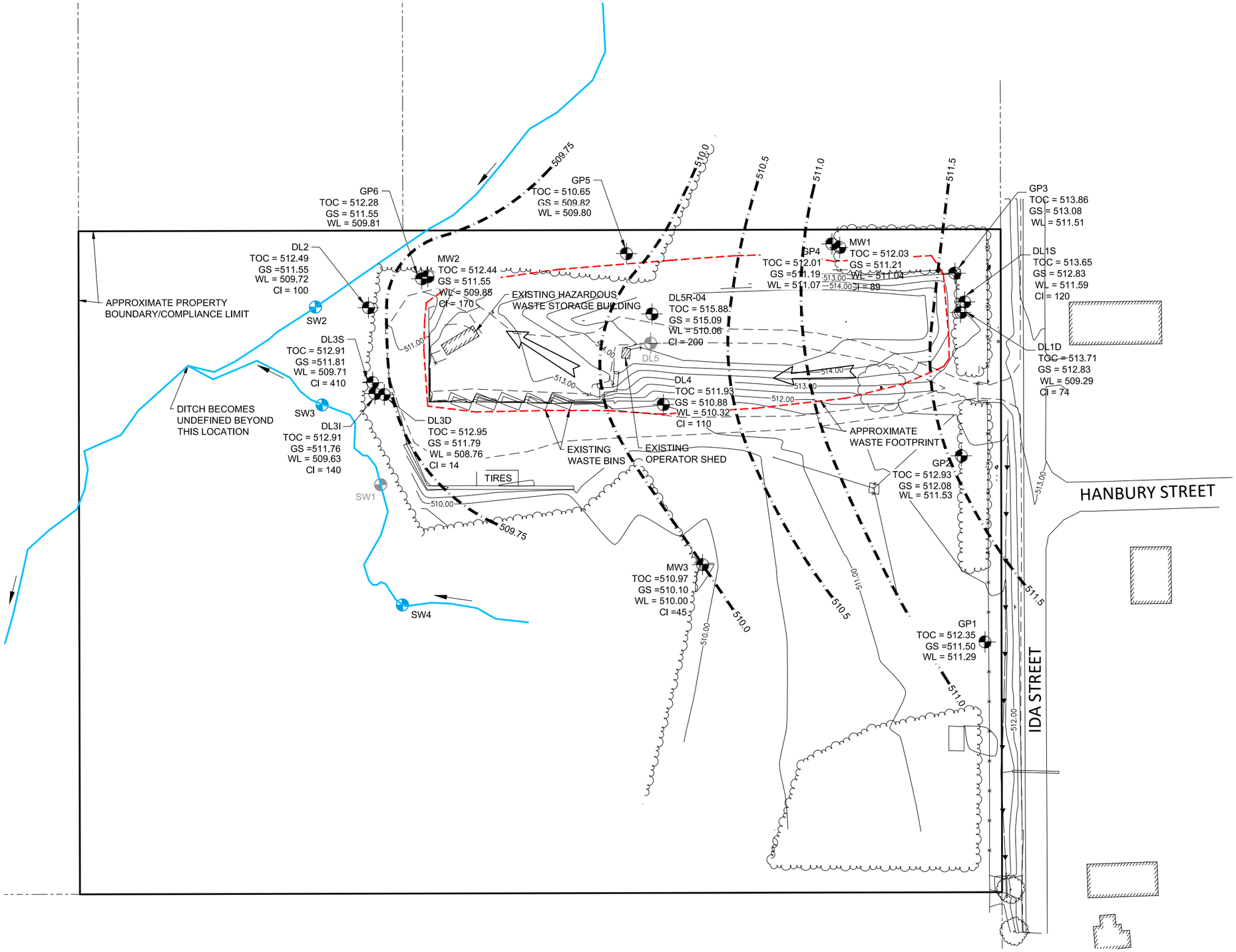
Annual Monitoring Report
Dundalk Waste Transfer Station
Township of Southgate



LEGEND

- MONITORING WELL
- SURFACE WATER SAMPLING STATION
- DECOMMISSIONED MONITORING WELL
- HISTORICAL SURFACE WATER SAMPLING STATION-NO LONGER SAMPLED
- GENERAL DIRECTION OF GROUNDWATER FLOW
- 511 — INTERPRETED POTENTIOMETRIC SURFACE
- TOC — TOP OF PVC PIPE masl (MEASURING POINT)
- GS — GROUND SURFACE ELEVATION masl
- WL — DENOTES GROUNDWATER ELEVATION, masl
- CI — DENOTES CHLORIDE CONCENTRATION, mg/L
- APPROXIMATE LIMIT OF FILL

NOTE: DEEPER OVERBURDEN WELLS DL-1D AND DL-3D WERE NOT USED TO DELINEATE THE POTENTIOMETRIC SURFACE CONTOURS.

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SCALE = 1:1250
FEBRUARY 2023

SHALLOW GROUNDWATER FLOW DIRECTION AND CHLORIDE CONCENTRATION DISTRIBUTION (FALL 2021)

Figure No. 4

BluePlan ENGINEERING

FILE:C:\Civil 3D Projects\212298-2 AMR 2022 Fig3-5-K.dwg LAYOUT:Figure 4-2021 FALL GW
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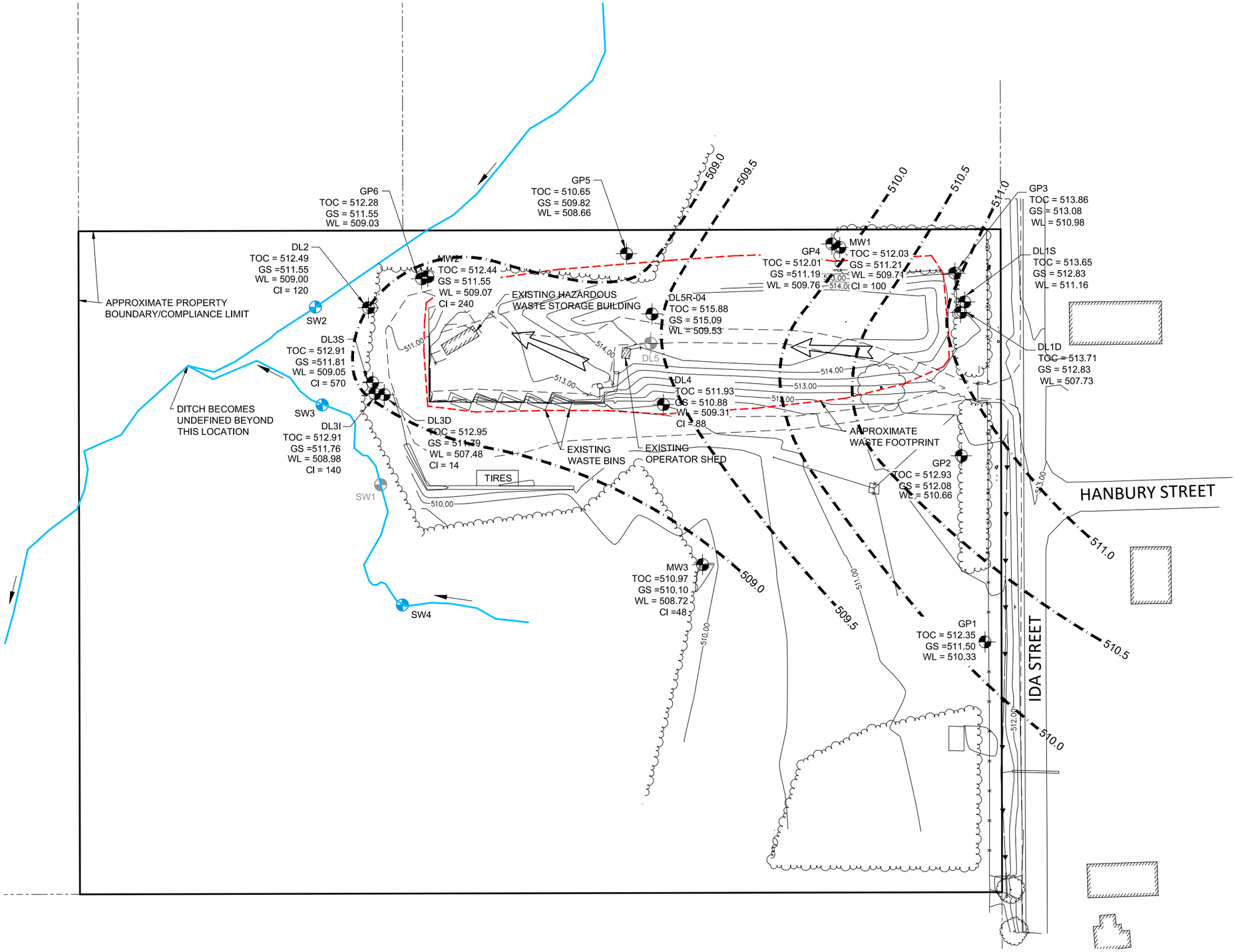
212298-2
Annual Monitoring Report
Dundalk Waste Transfer Station
Township of Southgate



LEGEND

- MONITORING WELL
- SURFACE WATER SAMPLING STATION
- DECOMMISSIONED MONITORING WELL
- HISTORICAL SURFACE WATER SAMPLING STATION-NO LONGER SAMPLED
- GENERAL DIRECTION OF GROUNDWATER FLOW
- 511 — INTERPRETED POTENTIOMETRIC SURFACE
- TOC — TOP OF PVC PIPE masl (MEASURING POINT)
- GS — GROUND SURFACE ELEVATION masl
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- CI — DENOTES CHLORIDE CONCENTRATION, mg/L
- APPROXIMATE LIMIT OF FILL

NOTE: DEEPER OVERBURDEN WELLS DL-1D AND DL-3D WERE NOT USED TO DELINEATE THE POTENTIOMETRIC SURFACE CONTOURS.

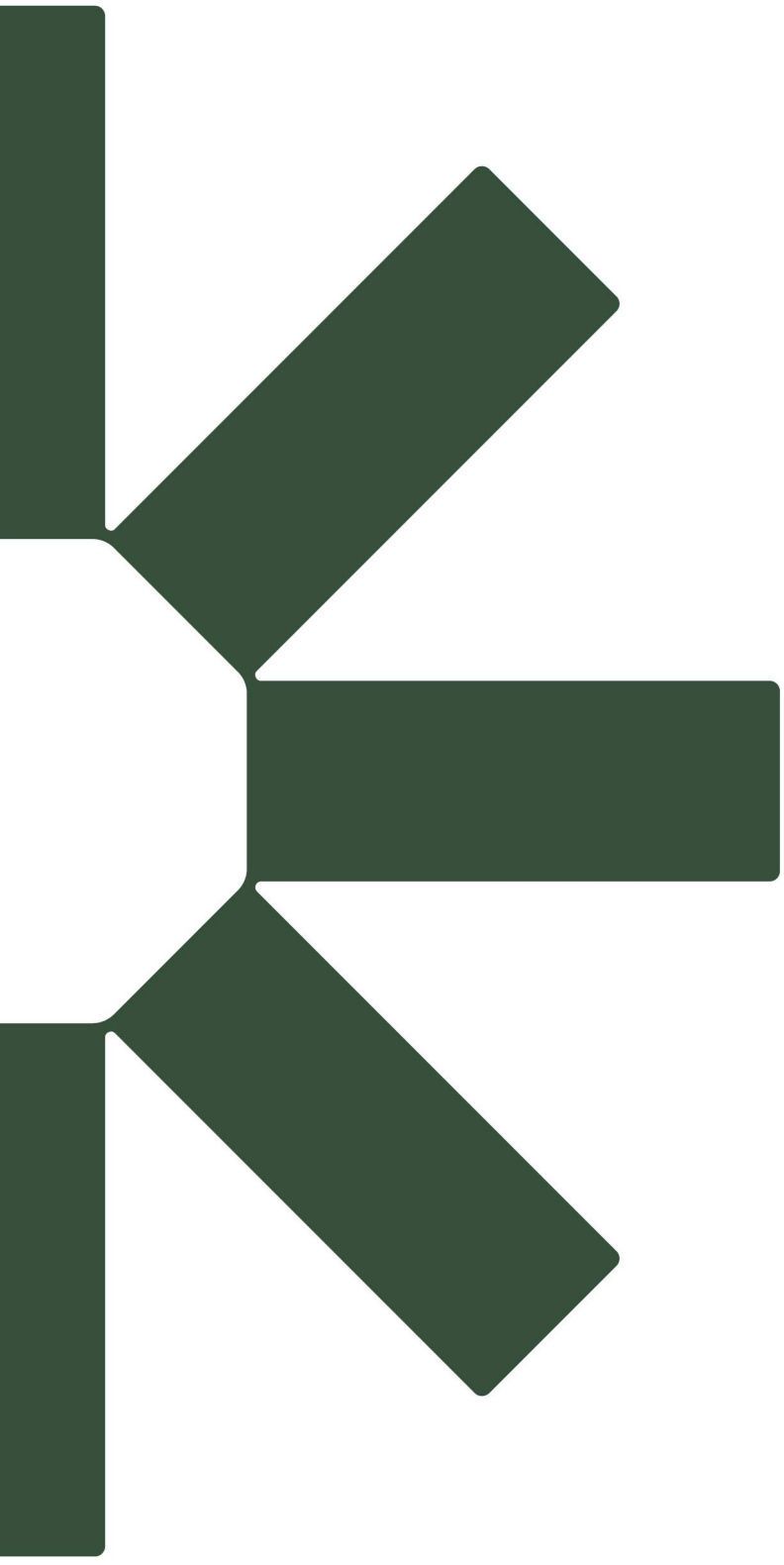
15 0 25 50
1:1250(m)

SCALE = 1:1250
FEBRUARY 2023

SHALLOW GROUNDWATER FLOW DIRECTION AND CHLORIDE CONCENTRATION DISTRIBUTION (FALL 2022)

Figure No. 5

BluePlan ENGINEERING



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