



**REPORT**

**Harts Gravel Road Waste Disposal Site**  
*2024 Groundwater Monitoring and Assessment Report*

Submitted to:

**Nathalie Matthews**

Ministry of the Environment, Conservation and Parks  
1259 Gardiners Road, Unit 3  
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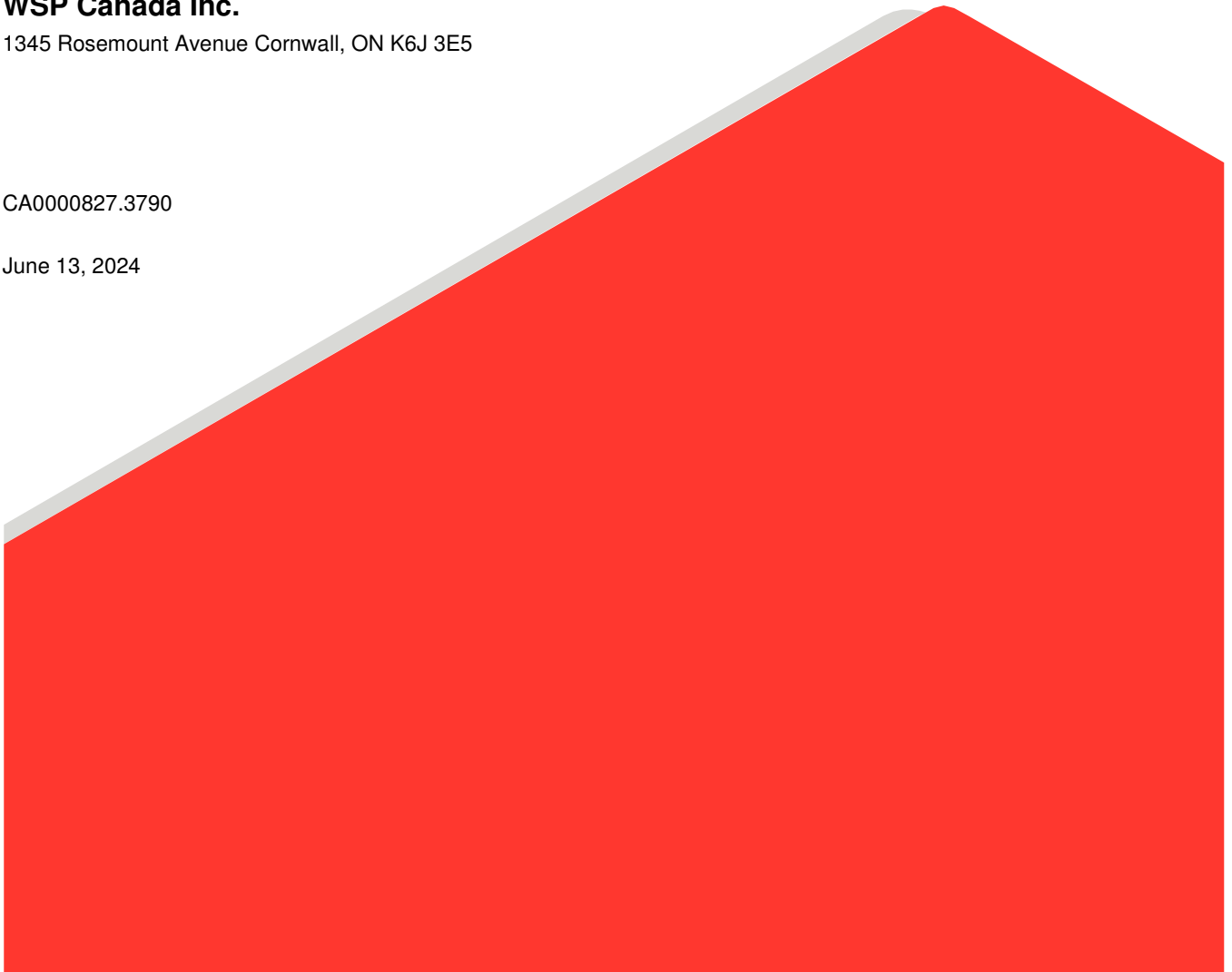
Submitted by:

**WSP Canada Inc.**

1345 Rosemount Avenue Cornwall, ON K6J 3E5

CA0000827.3790

June 13, 2024



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June 13, 2024

Ministry of the Environment, Conservation and Parks  
1259 Gardiners Road, Unit 3  
Kingston, Ontario  
K7M 8S5

**Attention: Nathalie Matthews, Senior Environmental Officer**

Dear Ms. Matthews,

**Subject: Harts Gravel Road Waste Disposal Site**

**2024 Groundwater Monitoring and Assessment Report**

On behalf of the Township of Rideau Lakes, we are pleased to provide a digital copy and one (1) hard copy of our report entitled Harts Gravel Road Waste Disposal Site 2024 Groundwater Monitoring and Assessment Report.

Should you require further information concerning this report, please contact the undersigned at 613-933-5602 or by email to [jennifer.brown.hawn@wsp.com](mailto:jennifer.brown.hawn@wsp.com).

Yours sincerely,



Jennifer Brown-Hawn

Senior Lead - Earth & Environment

JBH/sc

Encl.

cc: Ben Rothwell, Township of Rideau Lakes  
Shellee Fournier, Township of Rideau Lakes  
Andrew Harwood, WSP

WSP ref.: CA0000827.3790

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## 1.0 INTRODUCTION

### 1.1 BACKGROUND

The Township of Rideau Lakes (Township) owns the former Harts Gravel Road Waste Disposal Site (WDS), which is legally described as Part of Lot 23, Concession 7, Township of Rideau Lakes (former Township of Bastard), United Counties of Leeds and Grenville. The 0.52-hectare (ha) site is located 1.5 km south of Philipville, Ontario, and is accessed via Harts Gravel Road at the north end of the site (**Figure 1-1, APPENDIX A**). A post and page wire fence encloses the perimeter of the site. The site is situated in a rural setting and is bound to the north by Harts Gravel Road, the south by Private Road LB1, and by forested lands on the east and west property boundaries.

The Provisional Certificate of Approval, issued July 5, 1974, was revoked when the Environmental Compliance Approval (ECA) No. A441101 was issued on October 4, 2017 (**APPENDIX B**). An amendment to the ECA (Notice No. 1), issued December 1, 2017, included changes to the Closure Plan conditions. The most recent amendment to the ECA (Notice No. 2), issued June 27, 2018, approved the Closure Plan that was prepared by WSP and submitted to the MECP on April 13, 2018.

Landfilling operations ceased in 1973, and the refuse area was reportedly covered with 2,100 cubic metres of soil in October and November 1973. An assessment was completed by WSP on July 17, 2017, to investigate the integrity of the fence, the presence of waste material at the surface, the presence of staining and/or leachate springs, and the integrity of the final landfill cover. Exposed waste (scrap metal) was present on the south portion of the site, along Private Road LB1; the Township subsequently removed this exposed waste on October 24 and 25, 2018 and applied cover material as needed in those areas.

### 1.2 OWNERSHIP AND KEY PERSONNEL

Site Owner:	Township of Rideau Lakes	Competent	Andrew Harwood, M.Eng., P.Eng.
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### 1.3 OBJECTIVES AND SCOPE

The principal objective of this monitoring report is to assess influences from the former Harts Gravel Road Waste Disposal Site on the local groundwater resources. This assessment has been developed based on comments provided by the Ministry of Environment Conservation and Parks (MECP) groundwater and surface water technical support (correspondence dated July 29, 2020, and January 4, 2022, **APPENDIX C**), following review of the Supplemental Groundwater and Surface Water Assessment (WSP, December 14, 2018). The MECP recommendations for groundwater and surface water included:

- “All monitoring wells were dry during all attempts to sample in 2018. WSP recommended sampling be attempted again in the spring in hopes of obtaining samples. I agree with this recommendation. An

assessment of groundwater is required to determine what, if any, ongoing groundwater monitoring is required at the site.

- If groundwater samples are unable to be obtained from existing monitoring wells, I recommend that at least one deeper/bedrock monitoring well be installed and sampled that intercepts the groundwater table. This monitoring well should be located in an area where worst case impacts are expected to exist.
- An additional round of monitoring, as recommended by WSP, should be completed to help inform the need for long-term monitoring of surface water, particularly relative to elevated zinc concentrations observed in November 2018.”

It should be noted that the surface water comments and associated surface water monitoring were addressed in the Harts Gravel Road Waste Disposal Site 2022 Monitoring Report (WSP, 2022).

## 1.4 ASSUMPTIONS AND LIMITATIONS

This document provides an overview of the recent conditions at the WDS based on field monitoring and information provided by WDS officials. The information herein reflects WSP’s best judgment incorporating information reasonably available at the time of field investigations.

The assessment relies in part on information from subcontractors and other individuals as necessary (accredited laboratories, consultants, surveyors, etc.) as referenced within the report, some of which cannot be independently verified by WSP. This report has been prepared relying on information understood to be factual and correct obtained by investigative effort typical of this magnitude of project conducted by a reasonable and prudent environmental practitioner. WSP shall not be responsible for conditions arising from information or facts that were not disclosed to WSP. The conclusions presented herein are based on information obtained up to February 1, 2024, including any site activities or procedures that may have changed since, may render the conclusions invalid.

Despite any conclusions in this report, given the limited nature of observations made during the field investigations, WSP does not purport to guarantee that latent or undiscovered conditions do not exist or otherwise may or may not become evident in the future. Any conclusions regarding environmental conditions presented in this report are based on an investigative scope of work authorized by the WDS operator (Township of Rideau Lakes). It is important to note that no investigation can wholly identify all contaminants or environmental conditions on a subject property (above and below ground).

## 2.0 METHODOLOGY

The monitoring program methodology included the installation of a bedrock monitoring well that intercepted the groundwater table, and sample collection from the newly installed monitoring well following the installation and development of the bedrock well. The methodology for this assessment is detailed in the following sections.

### 2.1 GROUNDWATER MONITORING

#### MONITORING LOCATIONS AND FREQUENCY

The groundwater monitoring program was developed to evaluate compliance with MECP regulations and guidelines. The groundwater monitoring network consists of one (1) leachate monitor, four (4) shallow overburden monitors (one on each side of the interpreted refuse footprint) installed on May 14, 2018, and one (1) shallow

bedrock monitor installed on October 17, 2023. Monitoring well locations are presented in **Figure 1-2, APPENDIX A**.

One (1) leachate monitor, designated MW-5, was installed in the middle of the site within the waste footprint; three (3) shallow overburden (~3 m depth) monitors, designated MW-1, MW-2, and MW-3, were installed nearby to the northeast, north, and west property boundary, one (1) shallow overburden drive point monitor, designated DP-4, was installed adjacent to the southeast property boundary; and one (1) shallow bedrock well, designated MW23-01br, was installed east of MW-1 within the approximate refuse area.

Newly installed monitoring well MW23-01br was developed on October 24 and November 2, 2023. At this time, it was discovered that the monitoring well had low water yield. Sampling of monitoring well MW23-01br was attempted on November 8, 2023; however, the monitoring well yielded no water. On January 16, 2024, a partial groundwater sample was collected from MW23-01br due to low water yield within the well. A partial duplicate sample was also collected at this time for quality assurance purposes. On February 1, 2024, WSP returned to the site and was able to collect additional sample water from MW23-01br to be analyzed for the remainder of the parameters in the work plan. Additionally, due to low water yield, a partial sample was collected from drive point monitor DP-4 on February 1, 2024. Groundwater levels and groundwater samples could not be obtained from the remaining groundwater monitoring wells (MW-1, MW-2, MW-3, MW-5) due to the monitors being dry during the February sampling event when groundwater levels were attempted at all monitors.

#### **FIELD AND LABORATORY PARAMETER LIST**

Field measurements included pH, temperature, conductivity, and oxidation reduction potential (ORP), which would be obtained at the wellhead; however, insufficient water volume was available during each sampling event; therefore, no field measurements were obtained.

Groundwater sample laboratory chemical analysis includes:

- Alkalinity, pH, conductivity, chloride, sulphate, total dissolved solids (TDS), calcium, magnesium,
- Arsenic, barium, boron, cadmium, chromium, copper, iron, lead, manganese, mercury, sodium, potassium, zinc,
- Total ammonia, total Kjeldahl nitrogen (TKN), nitrite, nitrate, total phosphorus,
- Biochemical oxygen demand (BOD), chemical oxygen demand (COD), dissolved organic carbon (DOC),
- Phenols,
- Volatile organic compounds (VOCs).

#### **MONITORING PROCEDURES AND METHODS**

Static water level measurements were recorded from monitor MW23-01br during each site visit and from all on-site monitoring wells during the February 1, 2024, sampling event. Due to the low yield of the monitoring wells, samples were collected from monitors MW23-01br and DP-4 using manual bailers. The monitors were not purged prior to sampling due to the low volume of water present.

Sample bottles were filled in accordance with laboratory requirements. Metals, mercury, and DOC bottles were field filtered using a 45 µm disposable filter. Samples were packed into coolers with ice and a chain of custody



and submitted to Caduceon Environmental Laboratories, a Canadian Association for Laboratory Accreditation (CALA accredited), in Ottawa, for analysis. Groundwater monitoring results were compared to the Ontario Drinking Water Quality Standards (ODWQS).

## 2.2 STANDARD OPERATING PROCEDURES

Standard Operating Procedures are followed in accordance with WSP's Standard Operating Procedures (SOP) Manual.

## 2.3 RECORD KEEPING AND FIELD NOTES

Observations made on-site were recorded electronically on field tablets during the monitoring sessions. Immediately following the site visits the information was transferred to WSP's standard Field Record Forms. The forms are retained in electronic format, and the information includes monitoring well conditions, groundwater levels, field parameters, and requirements for equipment (e.g. Waterra™ tubing). The forms were reviewed prior to the next site visit. Copies of the Field Record Forms for the 2023 and 2024 monitoring programs are included in **APPENDIX D**. A photographic inventory of each groundwater monitoring location is included in **APPENDIX D**.

## 2.4 QUALITY ASSURANCE FOR SAMPLING AND ANALYSIS

As part of the quality assurance for field sampling, WSP uses disposable, powder-free nitrile gloves, which are changed after every sample is collected. Sample bottles are handled such that the inside of the bottle and cap do not come in contact with the surrounding environment or the sampler. If contact does occur, the sample bottle or cap is thoroughly rinsed with sample water, or the bottle is discarded. Sample bottles are labelled (on the bottle label and the cap) with the monitoring well number, which is confirmed using a site map.

A separate bottle is filled to collect field measurements (pH, conductivity, temperature, ORP) from a monitoring well.

A duplicate sample is collected for the groundwater sampling program. The laboratory certificates of analyses from the 2024 monitoring session indicate that the analysis, quality control requirements, and limits for holding time were satisfied and do not indicate any quality control issues that would materially affect the conclusions of this report.

The methods used to complete the required analysis and the QA/QC checks are detailed in the Caduceon analytical reports (**APPENDIX E**). Caduceon is a CALA member and participates in the proficiency testing program. Caduceon complies with the requirements of ISO/IEC Guide 17025.

A data QA/QC is undertaken by a second staff member to review all entered data and to confirm data validity, along with a review of exceedances of compliance criteria (if applicable).

## 3.0 PHYSICAL SETTING

The geology and hydrogeology of the site were evaluated through the review of published mapping/information and borehole/monitoring well information.

### 3.1 GEOLOGICAL SETTING

The regional physiography of Leeds and Grenville consists of the Smiths Falls Limestone Plains and the Algonquin Highlands, which are characterized by shallow glacial till and limestone and clay plains with occasional bedrock outcrops (Chapman and Putnam, 1984).

The land use in the vicinity of the landfill is representative of a rural-agricultural setting. Most of the surrounding land is undeveloped, featuring mature forest. Improved lands to the west are used for hay, pasture, and row crops. Non-improved lands consist of woodlots and wet, low-lying areas. Local access roads and sparse housing comprise the remaining regional land use.

The landfill site is situated in an area of bedrock drift complex in Paleozoic terrain consisting of well-drained sandy loam at the top of the ridge and imperfectly drained silt loam at the base of the ridge (MNDM, Surficial Geology of Ontario and Canada Department of Agriculture and the Ontario Department of Agriculture and Food, Soil of Lanark County and Soil of Leeds County). The bedrock is composed of carbonate metasedimentary rocks (marble, calc-silicate, skarn and tectonic breccias) of the Grenville Supergroup and Flinton Group (MNDM, Bedrock Geology of Ontario).

### 3.1.1 Overburden

The MECP water well records indicate that nearby wells consist of between 0.6 m and 16 m of sand and clay overlying between 18 m and 36 m of sandstone or granite (end of well).

Based on the boreholes drilled on the subject site, as shown in **APPENDIX F**, the subsurface soils consist mainly of silty sand, with occasional sand and clayey sand zones or areas. Groundwater monitors (MW-1, MW-2, MW-3, DP-4 and MW-5) were screened within the shallow overburden interval and are designated as overburden monitors.

### 3.1.2 Bedrock

In October 2023, a shallow bedrock well (designated MW23-01br) was installed at the site. Overburden extended 1.5 m below ground surface (b.g.s) and consisted of sand and silt. Marble bedrock was encountered below the overburden. The marble core samples were observed to contain brown and black flecks, mica, and had multiple weathered fractures. Groundwater monitor MW23-01br was screened with a 3 m screen within the shallow bedrock interval and is designated as a bedrock monitor. The designations for the site monitors are included in **Table G-1, APPENDIX G**.

## 3.2 HYDROGEOLOGY

Groundwater level measurements were conducted at the six (6) monitors on February 1, 2024. As shown in **Table G-1**, the monitoring wells were dry during this event, apart from monitors DP-4 and MW23-01br, where the potentiometric elevations were 100.53 m and 105.38 m (respectively) above sea level (ASL).

The shallow groundwater appears to be influenced by seasonal and climatic conditions. Based on the topography, the shallow groundwater likely flows southeast towards the low-lying area near Private Road LB1; however, insufficient groundwater level elevations were available in 2024 to interpret the groundwater flow direction. The shallow groundwater table is likely within the bedrock fractures and/or porous intervals; however, shallow groundwater likely discharges to the southeast ponded area adjacent to the site.

Due to the recent installation of the bedrock monitoring well MW23-01br in October 2023, there is insufficient data to interpret bedrock flows at this time.

## 4.0 MONITORING RESULTS

### 4.1 DATA QUALITY EVALUATION

The sampling protocols and procedures are described in **Section 2.0** of this report. WSP's sampling protocols follow those recommended in the MOE document *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario* (MOE, 1996). Field instruments are calibrated each day prior to use in the field. Groundwater field data is collected in a separate sample bottle, which is later discarded. Based on this procedure, all field data is expected to be reliable for further assessment.

### 4.2 QUALITY ASSURANCE AND QUALITY CONTROL

Samples are collected in laboratory-prepared sample bottles with appropriate preservatives in a manner in which the outside environment does not come into contact with the interior of the sample bottle or cap. Once a sample is collected, the cap is promptly replaced, and the sample bottle is placed back in the cooler for shipping to a CALA-accredited lab. Caduceon Environmental Laboratories (Caduceon) conducted the required analysis of the groundwater samples. The methods used to complete the required analysis, as well as the QA/QC checks, are detailed in the Caduceon analytical reports (**APPENDIX E**).

A blind duplicate sample was submitted during the February 1, 2024, sampling event as a quality control measure. The Relative Percent Difference (RPD) between the duplicate and the original sample was calculated as shown below.

$$\text{Relative Percent Difference (RPD)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\frac{(\text{Sample Result} + \text{Duplicate Result})}{2}} \times 100$$

The RPD can be calculated for a parameter when both sample concentrations (the original sample and the duplicate) are greater than five times the laboratory reportable detection limit. The MECP document *Protocol for Analytical Methods Used in Assessment of Properties under Part XV.1 of the Environmental Protection Act* prescribes quality control performance criteria for the analysis of various contaminants.

As shown in **Table E-3, APPENDIX E**, the RPD was calculated for the groundwater duplicate sample, sampled from MW23-01br, during the January monitoring event in 2024. Those parameters which were not detected or otherwise approaching less than five times the detection limit were excluded from quality control evaluation via analysis of RPD. There were calcium, magnesium, sodium, potassium, total phosphorus, COD, barium, boron, and manganese concentrations in the samples sufficiently above the detection limits to assess the RPD. The result of the RPD analysis was below 20% in cases where the analysis was valid, except for total phosphorus (43.7%), manganese (28.6%), and COD (55.6%); thus, these three results should be interpreted with caution. The average absolute RPD for valid groundwater parameters was approximately 15.4%, with 66.7% of the parameters valid for comparison exhibiting RPD values less than 20%. It is noted that a partial duplicate sample was collected due to insufficient water volume, and the results may be influenced by sediment in the sample. The sample was observed to be slightly turbid and trace fines at the time of collection.

## 4.3 GROUNDWATER QUALITY

### 4.3.1 CHEMICAL RESULTS

Groundwater laboratory chemical results for the monitoring periods are provided in **Table E-1** and **Table E-2, APPENDIX E**. Groundwater samples were collected from monitor MW23-01br in January and February of 2024 and from monitor DP-4 in February 2024. The remaining monitoring wells were dry during the February event,

which coincides with these wells historically being dry during sample attempts. Field measurements could not be obtained from wells MW23-01br and DP-4 during the sampling events in 2024 due to insufficient water volume in the monitoring wells. A partial duplicate was collected at MW23-01br on January 16, 2024; however, the duplicate sample could not be completed during the February event due to insufficient water volume.

### 4.3.2 GROUNDWATER QUALITY COMPLIANCE

The groundwater quality in samples collected in 2024 from monitors MW23-01br and DP-4 comply with the Ontario Drinking Water Quality Standards (ODWQS), as shown in **Table E-1, APPENDIX E**. In 2022, DP-4 exhibited exceedances of the ODWQS for dissolved organic carbon (DOC), iron, manganese, and zinc. The sample collected from DP-4 in February 2024 met ODWQS for DOC; however, due to low water yield analysis could not be completed for metals. VOCs were below laboratory reportable detection limits and, therefore, did not exceed ODWQS (**Table E-2, APPENDIX E**) in 2024.

## 5.0 DISCUSSION

### 5.1 GROUNDWATER QUALITY COMPLIANCE

As shown in **Table E-1**, there were no exceedances of the ODWQS in samples collected from monitors MW23-01br and DP-4 in 2024. The remaining groundwater monitors were dry during the sampling event in 2024; thus, it was not possible to compare the groundwater results to samples collected from the reference location or to the Reasonable Use Policy B-7. A general comparison between the samples collected on February 1, 2024, from DP-4 and MW23-01br shows that DP-4 exhibited more elevated levels of conductivity, pH, total dissolved solids, alkalinity, sulphate and biochemical oxygen demand (BOD) when compared to those resulting from MW23-01br. However, these two monitors are screened in different stratigraphic layers (bedrock and overburden).

The groundwater collected from monitor MW23-01br was observed to be slightly turbid, with no colour and trace fines during both sample events, whereas the groundwater collected from monitor DP-4 was observed to be moderately turbid, with a reddish-brown colour and trace fines at the time of collection.

Due to insufficient water volume in the groundwater monitoring wells on site, there are no clear trends in the groundwater quality and limited compliance assessment can be made.

### 5.2 ADEQUACY OF MONITORING PROGRAM

The principal objective of this monitoring report was to assess influences from the former Harts Gravel Road Waste Disposal Site on the local groundwater resources.

Groundwater sampling was previously attempted during separate monitoring programs conducted in May, June, October and November 2018 and in March, April, and May 2022 to target typically higher groundwater elevations and the spring melt period. Groundwater collection was attempted during or following large precipitation events; however, the sample locations were typically dry or contained insufficient water volume to collect a sample. As part of this monitoring program, groundwater sample collection was attempted during wet weather periods in November 2023, January and February 2024 (note that January and February 2024 were unseasonably warm). Groundwater samples from MW23-01br were collected in January and February, and a partial sample of DP-4 was collected in February. Groundwater level measurements were recorded in February and determined that MW-1, MW-2, MW-3, and MW-5 were dry and, therefore, could not be sampled.

The groundwater stations appear to be influenced by seasonal fluctuations with dry conditions during the summer and fall. As such, a limited assessment of the landfill influences on the groundwater was possible during the above-referenced monitoring period.

## **6.0 CONCLUSIONS**

- The groundwater stations appear to be influenced by seasonal fluctuations with dry conditions during the summer and fall.
- Partial groundwater samples were collected from monitor MW23-01br on January 16 and February 1, 2024, and a partial groundwater sample was collected from monitor DP-4 on February 1, 2024. The remaining monitors were found to be dry, and samples could not be obtained on February 1, 2024. These monitors have historically been found to be dry.
- There were no exceedances of the Ontario Drinking Water Quality Standards from samples collected in January and February of 2024.

## **7.0 RECOMMENDATIONS**


- Due to the generally dry monitoring well conditions, a limited compliance assessment can be made, and therefore, no remedial measures are considered to be required for the site at the present time.

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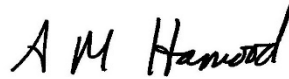
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## Signature Page

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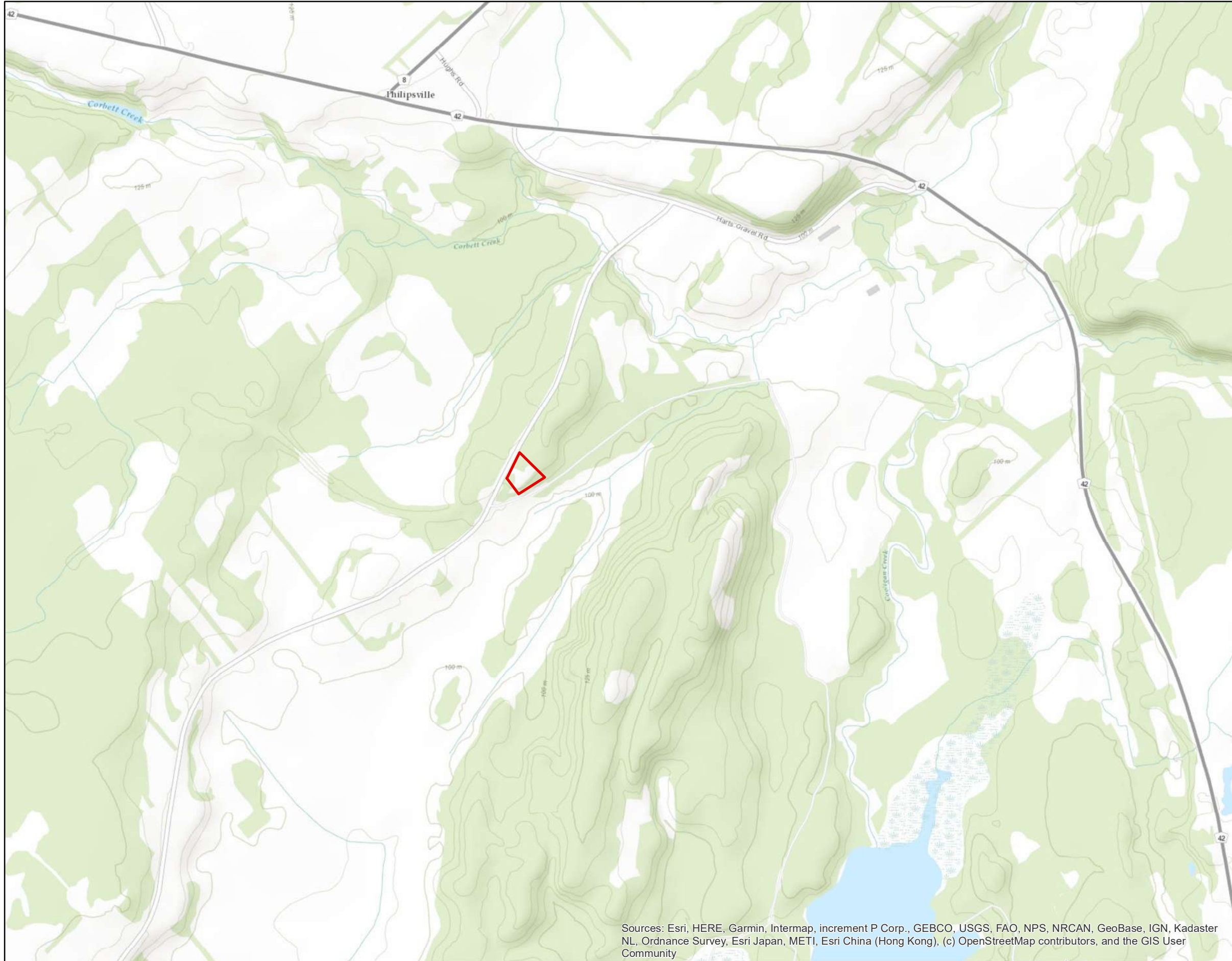
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**APPENDIX A**

**Figures**



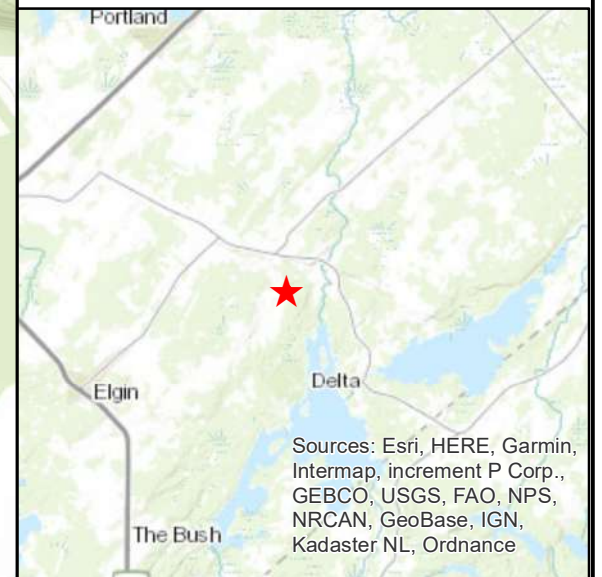


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PROJECT:  
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 CLOSED WASTE DISPOSAL SITE**

LEGEND  
 ★ SITE LOCATION  
 □ APPROXIMATE PROPERTY BOUNDARY



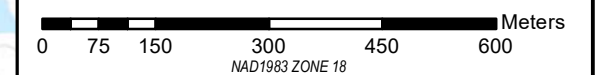
DATA SOURCE:

PROJECT NUMBER: CA0000827.3790 DATE: MARCH 2024

DRAWN BY: AM

CHECKED BY: AH

SCALE: 1:10,000



TITLE  
**AREA PLAN**

FIGURE NUMBER:  
 1-1

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community





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 PHONE: 613-933-5602 FAX: 613-936-0335  
 WWW.WSP.COM

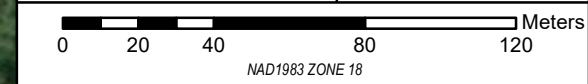
CLIENT:  
**TOWNSHIP OF RIDEAU LAKES**

PROJECT:  
**HARTS GRAVEL ROAD  
 CLOSED WASTE DISPOSAL SITE**

**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE REFUSE AREA
- OVERBURDEN MONITORING WELL
- BEDROCK MONITORING WELL
- SURFACE WATER STATION
- WATERCOURSE AND FLOW DIRECTION

DATA SOURCE:	ONTARIO BASE MAPPING	
PROJECT NUMBER:	CA0000827.3790	DATE: MARCH 2024
DRAWN BY:	AM	
CHECKED BY:	AH	
SCALE:	1:2,000	



TITLE  
**SITE PLAN**

SHEET NUMBER:  
**FIGURE 1-2**





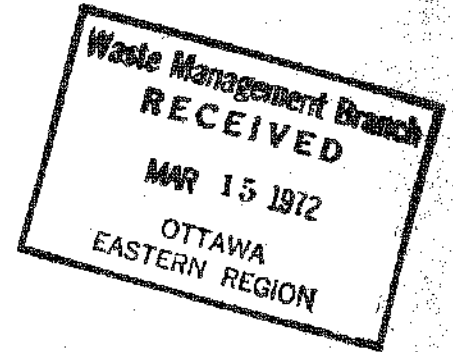
**APPENDIX B**

**Environmental Compliance  
Approval**

A 441101

**BASTARD AND BURGESS (S)**

SHIRLEY BRYDEN, TOWNSHIP CLERK  
R.R. 2, ELGIN, ONTARIO



March 9, 1972.

Department of Environment,  
Waste Management,  
2378 Holly Lane,  
Ottawa, Ontario. K1V7P1

Dear Mr. Rivoche:

Further to our telephone conversation of this morning, My Council wishes to advise that we have located a new site for our Municipal Dump, pending approval from your Department.

We shall advise you, when the weather is suitable, and arrange for an inspection, of this location, in the meantime, we would request an extension to the time limit for use of our old Dump.

Also, please be advised that we are in the process of setting up a Joint Planning Area in our Municipality, combining the Townships of Rear of Leeds and Lansdowne, South Crosby, North Crosby, Bastard and South Burgess and the villages of Newboro and Westport.

Ontario Department of the Environment,  
Waste Management Branch,  
2378 Holly Lane, Suite 204,  
Ottawa, Ontario. K1V 7P1

Thanking you,

Yours truly,

*Shirley Bryden*  
Shirley Bryden,  
Clerk-Treasurer.

Dear Mrs. Bryden

Your Provisional Certificate has been extended till May 30, and I hope to visit the location proposed for the new site prior to this expiry date.

Thank you for letting us know about the Joint Planning we are very interested.

George B. Rivoche P. Eng  
Regional Engineer.



Department of Energy and Resources Management
Waste Management Branch

APPLICATION FOR A CERTIFICATE OF APPROVAL
FOR A WASTE DISPOSAL SITE

TO: THE DEPARTMENT OF ENERGY AND RESOURCES MANAGEMENT
880 Bay Street,
Toronto, Ontario

To be submitted through Regional
Waste Management Engineer

(1) Under the Waste Management Act, 1970 and the regulations, this applica-
tion is made by.....

Owner of Facility

Address

(2) for the Renewal/Issue of a Certificate of Approval for a
.....Site

Delete item inapplicable

Type of Disposal

(3) located .....
.....

Full particulars of Location

(4) A Certificate/Provisional Certificate of Approval No. ....for this
site was issued.....19.....

Delete item inapplicable

(5) No change in use, operation, or ownership of the site has occurred since
the date of the original application.

Dated this.....day of.....19.....

Signature of Applicant

(6) The following changes in use, operation or ownership (have occurred
since the date of the original application) (are proposed)

Delete item inapplicable

If necessary, provide additional
details on separate sheets and attach
to application.

Continued on Attached Sheets [ ]

(7) The site will be operated in accordance with The Waste Management Act,
1970 and the regulations by.....

Name of Operator

Address

The required supporting information to the application is appended hereto.

(8) Notice of this application has been published in the.....
.....on.....and
.....19..... and a copy of the notice is attached.

(9) A certificate that the site does not contravene any of the by-laws of the
municipality is attached.

To be completed if applicant is other
than a municipality

See notes on sections 1 to 9 on back
of last copy (pink) which is to be
retained by Applicant.

Dated this.....day of.....19.....

Signature of Applicant

No Carbon Paper Required







Ontario

Ministry of the Environment — Waste Management Branch

Provisional Certificate No.

021101

# PROVISIONAL CERTIFICATE OF APPROVAL FOR A WASTE DISPOSAL SITE

Under The Environmental Protection Act, 1971 and the regulations and subject to the limitations thereof, this Provisional Certificate of Approval is issued to:

Township of Bastard and South Burgess,  
Delta, Ontario.

for the dump,

Site.

located Lot 25, Concession 7,  
Harts Gravel Road, Twp of Bastard and South Burgess.

subject to the following conditions:

That as the site is closed necessary action shall be taken to maintain the integrity and continuity of the cover materials.



This Provisional Certificate expires on the 15th day of June, 1975.

Dated this 5th day of July, 1974.

*D. P. Caplice*

DIRECTOR, WASTE MANAGEMENT BRANCH



Ministry of the Environment

Ontario

NOTICE

TO: Township of Eastard and South Burgess, Delta, Ontario.

You are hereby notified that Provisional Certificate of Approval No. 441101 has been issued to you subject to the conditions outlined therein.

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

For the conservation of the natural environment.

You may by written notice served upon me and the Environmental Appeal Board within 15 days after receipt of this Notice, require a hearing by the Board.

This Notice should be served upon:

Environmental Appeal Board, 365 Bay Street, Suite 300, Toronto, Ontario. M5H 2V3

AND

The Director, Section 22, Ministry of the Environment, 135 St. Clair Avenue West, Toronto, Ontario. 3rd Floor, M 6Y 1A8, Ontario. M5S 1Z8.

DATED at Toronto this 5th day of July, 19 74.

D. P. Coplin





Ministry of the Environment

Waste Management Branch

Ontario

FOR HEAD OFFICE USE	
File	A
Issue	
Re-issue	
Up-grade	

### RECOMMENDATION OF REGIONAL ENGINEER

NOTE: This form shall be submitted by the Regional Engineer to Head Office along with the application form and all supporting information.

APPLICANT: Township of Buxton and South Burgess

FOR THE WASTE DISPOSAL SITE  Closed Dump FOR THE WASTE MANAGEMENT SYSTEM

LOCATED AT: Lots 25 Con VII SERVING: \_\_\_\_\_

(Hartsgravel Rd.) Top of Buxton & S. Burgess

DATE APPLICATION RECEIVED: \_\_\_\_\_ FILE: A 441101

ISSUE Certificate of Approval  Provisional Certificate of Approval  PROVISION CERTIFICATE TO EXPIRE ON: JUN 15 / 76

CONDITIONS

(1) C.S - R3

CIRCULATE TO

REASONS FOR CIRCULATION

Refuse Application  Revoke  Suspend  Refuse to re-issue  Cert. No. \_\_\_\_\_

REASONS



Ministry of the Environment

Waste Management Branch  
RECEIVED  
JUN 21 1973  
OTTAWA  
EASTERN REGION

# PROVISIONAL CERTIFICATE OF APPROVAL FOR A WASTE DISPOSAL SITE

Provisional Certificate No. 441101

Under The Environmental Protection Act, 1971 and the regulations and subject to the limitations thereof, this Provisional Certificate of Approval is issued to.....

Township of Bastard and South Burgess,

R. R. #2, Elgin, Ontario

for the Dump Site

located Lot 25, Concession 7, Hartsgravel Road,

Township of Bastard

subject to the following conditions.....

1. That the site shall be closed off prior to July 31st, 1973.....

2. Closing off procedures shall include:.....

(a) The implementation of a rodent extermination program, to be maintained as a control program for the duration of this Certificate.

(b) The erection of a fence or barrier across all access roads into the waste disposal site to ensure that the site is no longer

SUBJECT AS WELL TO THE CONDITIONS SET OUT ON THE ATTACHED SHEET.....

This Provisional Certificate expires on the 15th day of June, 1974.

Dated this 15th day of June, 1973.

Director, Waste Management Branch



Ministry of the Environment

PAGE 2

The following conditions are additional to the conditions shown on Provisional Certificate of Approval Number 441101 for a Waste Disposal Site issued to Township of Bastard and dated June 15th, 1973

used.

- (c) The placement of signs at the access roads advising the public that the site is closed, and giving the location of the alternate site to be utilized by the public.
(d) The placement of two (2) feet of compacted cover material over all areas of the site previously used for the disposal of wastes.
(e) The grading of the site area to minimize the effects caused by scouring and erosion.

[Handwritten signature]
Director, Waste Management Branch



Ontario

Ministry of the  
Environment

## NOTICE

TO: Township of Bastard and South Burgess,  
R. R. #2,  
Elgin, Ontario

You are hereby notified that Provisional Certificate of Approval No. 441101 has been issued to you subject to the conditions outlined therein.

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

The site has reached its full capacity for operation as a waste disposal site.

In order to prevent harm or material discomfort to any person and for the conservation of the natural environment.

You may by written notice served upon me and the Environmental Appeal Board within 15 days after receipt of this Notice, require a hearing by the Board.

This Notice should be served upon:

Environmental Appeal Board,  
365 Bay Street,  
Suite 300,  
Toronto, Ontario.  
M5H 2V3

AND

The Director,  
Waste Management Branch,  
Ministry of the Environment,  
880 Bay Street, 3rd Floor,  
Toronto, Ontario.  
M5S 1Z8.

DATED at Toronto this 15th day of June, 19 73.



Waste Management Branch  
RECEIVED  
DEC 13 1972  
OTTAWA  
EASTERN REGION

# PROVISIONAL CERTIFICATE OF APPROVAL FOR A WASTE DISPOSAL SITE

Provisional Certificate No. 441101

Under The Environmental Protection Act, 1971 and the regulations and subject to the limitations thereof, this Provisional Certificate of Approval is issued to

Township of Bastard and South Burgess,  
R.R. #2, Elgin, Ontario

for the Dump Site  
located Lot 25, Concession 7,  
Hartsgravel Road, Township of Bastard

subject to the following conditions

1. That the site be closed off prior to the expiry date of this Certificate.

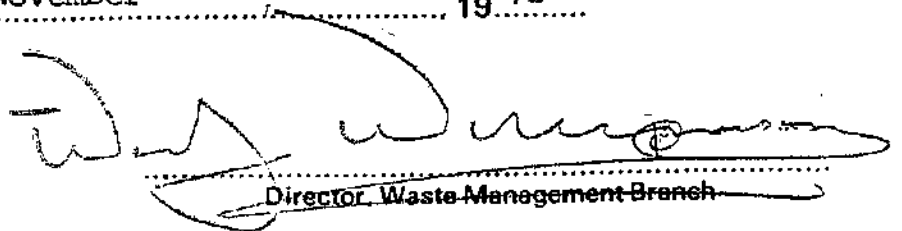
The closing off procedures shall include:

a) The implementation of a rodent extermination program, to be maintained as a control program for the duration of this Certificate.

b) The erection of a fence across all access roads into the waste  
SUBJECT AS WELL TO THE CONDITIONS SET OUT ON THE ATTACHED SHEET.....

This Provisional Certificate expires on the 15th day of June, 1973

Dated this 28th day of November, 1972

  
Director, Waste Management Branch



Ministry of the Environment

PAGE 2

The following conditions are additional to the conditions shown on Provisional Certificate of Approval Number 441101 for a waste Disposal Site issued to Township of Bastard and South and dated November 23, 1972 Burgess

disposal site.

c) The placement of signs at the access road advising the public that the site is closed and the location of the new waste disposal site.

d) The placement of two (2) feet of compacted cover over all areas of the site used for waste disposal purposes.

e) The grading of the site to minimize scouring and erosion.

A handwritten signature in black ink, appearing to read "W. J. ...".  
Director, Waste Management Branch

(Page 2 of 2 Pages)



Ministry of the Environment

For Head Office Use	
O	R
2nd Sheet	
Waste Management Branch	
RECEIVED	
AUG 31 1972	
OTTAWA EASTERN REGION	

PROVISIONAL CERTIFICATE OF APPROVAL FOR A WASTE DISPOSAL SITE

Provisional Certificate No. 441107

Under The Environmental Protection Act, 1971 and the regulations and subject to the limitations thereof, this Provisional Certificate of Approval is issued to.....

Township of Bastard and South Burgess.

P.O. #0 Elgin Ontario

for the Dump Site

located Lot 25 Concession 7

Marionvale Road Township of Bastard

subject to the following conditions.....

1. That prior to the expiry date of this Certificate, the owner implement the close-off procedures as specified in the letter (Pivacke - Bryden) dated Mar 2nd, 1970.

This Provisional Certificate expires on the 20th day of November, 19 72

Dated this 22nd day of August, 19 72

Handwritten signature of J. Johnson

Director, Waste Management Branch

(Page 1 of 1 Pages)



2nd Sheet  
Waste Management Branch

RECEIVED

JUL 14 1972

OTTAWA  
EASTERN REGION

# PROVISIONAL CERTIFICATE OF APPROVAL FOR A WASTE DISPOSAL SITE

Provisional Certificate No. 441101

Under The Environmental Protection Act, 1971 and the regulations and subject to the limitations thereof, this Provisional Certificate of Approval is issued to.....

Township of Bastard and South Burgess,

R. R. #2, Elgin, Ontario.

for the Dump Site

located Lot 25, Concession 7,

Hartsgravel Road

subject to the following conditions.....

This Provisional Certificate expires on the 31st day of August, 19 72

Dated this 4th day of July, 19 72

*[Signature]*  
Director, Waste Management Branch

(Page 1 of 1 Pages)



WASTE MANAGEMENT BRANCH

RECOMMENDATION OF REGIONAL ENGINEER

FOR HEAD OFFICE USE	
FILE	A
ISSUE	
RE-ISSUE	
UP-GRADE	

NOTE: This form shall be submitted by the Regional Engineer to Head Office along with the application form and all supporting information.

APPLICANT: Township of Bastard and South Burgess, R.R. #2, Elgin, Ontario.

FOR THE WASTE DISPOSAL SITE  WASTE MANAGEMENT SYSTEM

LOCATED AT Lot 25, Concession 7, Hartsgravel Road, Township of Bastard. SERVING .....

DATE APPLICATION RECEIVED: ..... re-issue ..... File: A 441101

ISSUE: Certificate of Approval  Provisional Certificate of Approval  Provisional Certificate to Expire On June 15, 1974.

CONDITIONS:

C.1 That the site shall be closed off prior to July 31, 1973.

R.1 a) .....

C.3 .....

R.2 .....

The municipality is presently establishing their new facilities (file 441102) and the above site will be closed off by July 31, 1973.

CIRCULATE TO:

REASONS FOR CIRCULATING:

REFUSE APPLICATION:

REVOKE  SUSPEND  REFUSE TO RE-ISSUE  (Cert. No. ....)

REASONS:

DATE: May 23, 1973. SIGNED: *Geoff M. Rivolta* Regions: Engineer Eastern Region

WASTE MANAGEMENT BRANCH

RECOMMENDATION OF REGIONAL ENGINEER

FOR HEAD OFFICE USE	
FILE	A
ISSUE	
RE-ISSUE	
UP-GRADE	

NOTE: This form shall be submitted by the Regional Engineer to Head Office along with the application form and all supporting information.

APPLICANT: Township of Bastard and South Burgess, R.R.#2, Elgin, Ontario.

FOR THE WASTE DISPOSAL SITE  WASTE MANAGEMENT SYSTEM

LOCATED AT Lot 25, Concession 7,  
Hartsgravel Road, Township of Bastard. SERVING .....

DATE APPLICATION RECEIVED: ..... - re-issue - ..... File: A. 441101

ISSUE: Certificate of Approval  Provisional Certificate of Approval  Provisional Certificate to Expire  
On June 15, 1973.

CONDITIONS:

1. That the site be closed off prior to the expiry date of this Certificate.  
The closing off procedures shall include:

- a) The implementation of a rodent extermination program, to be maintained as a control program for the duration of this Certificate.
- b) The erection of a fence across all access roads into the waste disposal site.
- c) The placement of signs at the access road advising the public that the site is closed and the location of the new waste disposal site.
- d) The placement of two (2) feet of compacted cover over all areas of the site used for waste disposal purposes.
- e) The grading of the site to minimize scouring and erosion.

CIRCULATE TO:

REASONS FOR CIRCULATING:

REFUSE APPLICATION:

REVOKE  SUSPEND  REFUSE TO RE-ISSUE  (Cert. No.....)

REASONS:

DATE: October 20, 1972. SIGNED: *Guy B. Rivche*  
Regional Engineer  
Eastern Region

Waste Management Branch,  
2378 Holly Lane, Suite 204,  
Ottawa, Ontario K1V 7P1

October 20, 1972.

MEMORANDUM

TO: FILE - A.441101

FROM: C.F. Elgner,  
Assistant Engineer, Eastern Region.

SUBJECT: Township of Bastard and South Burgess  
Waste Disposal Site located on Lot 25,  
Concession 7, Bastard Township.

---

The above site will be closed off as soon as the new facilities on Lot 21 and 22, Concession 8, Bastard Township are operational.

The closing off and relocation was delayed since the Township of Bastard and South Burgess has only recently received a Provisional Certificate of Approval for their new site (i.e. file 441102).

CE

CFE/hf

C.F. Elgner

c.c. - Head Office

**WASTE MANAGEMENT BRANCH**

**RECOMMENDATION OF REGIONAL ENGINEER**

FOR HEAD OFFICE USE	
FILE	A
ISSUE	
RE-ISSUE	
UP-GRADE	

NOTE: This form shall be submitted by the Regional Engineer to Head Office along with the application form and all supporting information.

APPLICANT: Township of Bastard and South Burgess

FOR THE WASTE DISPOSAL SITE  WASTE MANAGEMENT SYSTEM

LOCATED AT Lot 25, Concession 7, Township of Bastard. SERVING

DATE APPLICATION RECEIVED: Re-issue File: A 441101

ISSUE: Certificate of Approval  Provisional Certificate of Approval  Provisional Certificate to Expire On Nov. 30, 1972.

CONDITIONS:

That prior to the expiry date of this Certificate, the owner implement the close-off procedures as described in the letter (Rivoche-Bryden) dated May 2, 1972.

CIRCULATE TO:

REASONS FOR CIRCULATING:

REFUSE APPLICATION:

REVOKE  SUSPEND  REFUSE TO RE-ISSUE  (Cert. No. ....)

REASONS:

DATE: July 28, 1972. SIGNED: Claude Elgner Assistant Regional Engineer Eastern Region



For Head Office Use	
O	R
2nd Sheet	Waste Management Branch
RECEIVED	
MAR 21 1972	
OTTAWA EASTERN REGION	

# PROVISIONAL CERTIFICATE OF APPROVAL FOR A WASTE DISPOSAL SITE

Provisional Certificate No. 441101

Under The Environmental Protection Act, 1971 and the regulations and subject to the limitations thereof, this Provisional Certificate of Approval is issued to.....

Township of Eastard and South Burgess.

R.R. #2, Elgin, Ontario

for the Dump Site

located Lot 25, Concession 7,

Hartsgravel road

subject to the following conditions.....

That prior to the expiry date of this Certificate the holder of this Certificate advise the Waste Management Regional Engineer what arrangements have been made to provide waste disposal facilities after the closure of the site covered by this Certificate.

This Provisional Certificate expires on the 31st day of May, 19 72.

Dated this 14th day of March, 19 72.

Director, Waste Management Branch

(Page.....of.....Pages)



# PROVISIONAL CERTIFICATE OF APPROVAL FOR A WASTE DISPOSAL SITE

Certificate No. 441101

Under The Waste Management Act, 1970 and the regulations and subject to the limitations thereof, this Provisional Certificate of Approval is issued to.....

Township of Bastard and South Burgess,

R.R. #2

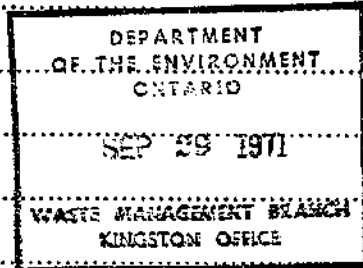
Elsin

Ontario

for the dump Site

located Lot 25, Concession 7,

Hartsgravel Road



subject to the following conditions.....

1. That the site be closed off before the expiry date of this Certificate.
2. That within one (1) month of the date of receipt of this Certificate the Owner file, with the Regional Engineer of the Waste Management Branch, a detailed proposal outlining the closing off procedures to be employed.

*- recommended re issue until  
May 30/72*

This Provisional Certificate expires on the 30th day of November

1971...

Dated this 27th day of September 1971.

Director, Waste Management Branch



# PROVISIONAL CERTIFICATE OF APPROVAL FOR A WASTE DISPOSAL SITE

Certificate No. 441101

Under **The Waste Management Act, 1970** and the regulations and subject to the limitations thereof, this Provisional Certificate of Approval is issued to.....

Township of Bastard and South Burgess

R. R. #2, Elgin, Ontario

for the Landfill Site

located Lot 25, Concession 7,

Hartsgravel Road

subject to the following conditions.....

1. Site will be inspected by Waste Management Branch and recommendations for improvements made by expiry date.

This Provisional Certificate expires on the 30th day of September 1971.

Dated this 29th day of January 1971.

*J. D. Heaver*  
.....  
Director, Waste Management Branch

xxxxxxx  
Area Code 613  
546-3297  
A.441101

797 Princess St.  
Kingston, Ont.

XXXXXXXXXXXX  
XXXXXX

September 1, 1971.

C  
Mrs. S. Bryden, Clerk-Treasurer,  
Twp. of Bastard & S. Burgess,  
R. R. #2,  
Elgin, Ontario.

(3)  
O  
Dear Mrs. Bryden:

This letter will confirm my conversation on the site of the  
Hartsgravel dump with your Deputy Reeve, Mr. Fred Lake.

In essence, open dumps in this area of Ontario are forbidden by the  
Waste Management Act, the above site is practically full, i.e., outlived  
its usefulness and should be therefore closed off as soon as possible  
since it appears impossible to enlarge or upgrade it to acceptable  
standards.

P  
We are therefore, as agreed with Mr. F. Lake, recommending that your  
Provisional Certificate be renewed until November 31, 1971 to give you  
time to find a new site and relocate. Mr. Lake and myself discussed in  
some detail the business of looking for a new location.

Y  
Hoping to hear from you in the near future so as to visit and assess  
any proposed new location, we remain,

Yours very truly,

GR

G. B. Rivoche, P. Eng.,  
Regional Engineer,  
Eastern Region.

GER/mp

cc: Mrs. B. Ellis  
B. H. Young, C.P.N.I.(C)

Hau Nov 4th



WASTE MANAGEMENT BRANCH

RECOMMENDATION OF REGIONAL ENGINEER

This form shall be submitted by the Regional Engineer to Head Office along with the application form and all supporting information.

(1) DATE APPLICATION RECEIVED: August 20, 1971 File: A.41101

(2) APPLICANT: Township of Bastard & South Burgess

(3) ISSUE: Certificate of Approval   
*Renew* Provisional Certificate of Approval

(4) TIME: Provisional Certificate to Expire in *Nov 31, 71* months from date of issue.

(5) CONDITIONS OF ISSUE:  
1. That the site be closed off before the expiry date of this Certificate.  
2. That within 1 months of the date of receipt of this Certificate the Owner file, with the Regional Engineer of the Waste Management Branch, a detailed proposal outlining the closing off procedures to be employed.

(6) DO NOT ISSUE: REFUSE APPLICATION   
REVOKE (Cert. No. ....)

(7) REASONS FOR (6)  
.....  
.....  
.....  
.....

(8) DEFER: CIRCULATE TO: .....  
FOR: .....

(9) DATE: 1/9/71 SIGNED: *Guy B. Rivette*  
Regional Engineer

A44110

Department of Energy and Resources Management  
Waste Management Branch

DEPT. OF ENERGY AND  
RESOURCES MANAGEMENT  
ONTARIO  
AUG 20 1971  
WASTE MANAGEMENT BRANCH  
KINGSTON OFFICE

APPLICATION FOR A CERTIFICATE OF APPROVAL  
FOR A WASTE DISPOSAL SITE

THE DEPARTMENT OF ENERGY AND RESOURCES MANAGEMENT  
880 Bay Street,  
Toronto, Ontario

To be submitted through Regional  
Waste Management Engineer

Under the Waste Management Act, 1970 and the regulations, this applica-

tion is made by Township of Bastard AND South Burgess  
Delta

Owner of Facility

Address

Delete item inapplicable

Type of Disposal

Full particulars of Location

for the Renewal of a Certificate of Approval for a  
Open Dump Site

located Conc. 7, Lot 25  
Hartsgravel Road

A Certificate of Approval No. 44101 for this  
Provisional Certificate site was issued January 29 1971

Delete item inapplicable

No change in use, operation, or ownership of the site has occurred since  
the date of the original application.

Dated this 16 day of August 1971

Shuley Bryden  
Signature of Applicant

The following changes in use, operation or ownership (have occurred  
since the date of the original application) (are proposed)

Delete item inapplicable

If necessary, provide additional  
details on separate sheets and attach  
to application.

Continued on Attached Sheets

The site will be operated in accordance with The Waste Management Act,  
1970 and the regulations by Township of Bastard AND  
SOUTH BURGESS Delta

Name of Operator

Address

The required supporting information to the application is appended hereto.

Notice of this application has been published in the

on and

19 and a copy of the notice is attached.

A certificate that the site does not contravene any of the by-laws of the  
municipality is attached.

To be completed if applicant is other  
than a municipality

See notes on sections 1 to 9 on back  
of last copy (pink) which is to be  
retained by Applicant.

Dated this 16 day of August 1971

Shuley Bryden  
Signature of Applicant

No Carbon Paper Required



WAS. DISPOSAL SITE INSPECTION RECORD

Inspection of: ~~XXXXXXXXXXXXXXXXXXXXXXXXXXXX~~ (Name) (When) (Where) (How) (Why) Date: Aug. 31, 71

modified landfill File No. 441101

1. Site location - Municipality Bastard & South Burgers

Lot No. 25 Conc. No. 7

2. Owner Township

3. Municipality(s) served Township

Population served 1000 (Approx.)

4. General description of site (ravine, swamp, sand pit, farm field, etc.)

embankment alongside road

5. General description of soil on site Very little soil on site,

mostly boulders, top soil & probably silty clay.

6. Distance to nearest - watercourse 1400'

- public road 20'

- dwelling 1400'

7. Are the following adequate?

Access road Yes  No  Signs Yes  No

Employee shelter Yes  No  Screening Yes  No

Fencing Yes  No  Gate Yes  No

Unloading area Yes  No  Firebreak Yes  No

Control on blowing litter Yes  No

8. Restricted public access? Yes  No

If yes, open hours are: \_\_\_\_\_

9. Supervisor present during open hours? Yes  No

If dump permitted, is covering carried out to satisfaction of M.O.H.?

Yes \_\_\_\_\_ No \_\_\_\_\_

Frequency? \_\_\_\_\_

(b) If landfill necessary, frequency of covering is: NOT DONE  
\_\_\_\_\_ (minimum - once per week)

(c) Covering done by whom? \_\_\_\_\_

(d) Method of covering (area fill, trench & fill, etc.)? \_\_\_\_\_

11(a) Is open burning carried out? Yes \_\_\_\_\_ No X

Are wastes segregated before burning? Yes \_\_\_\_\_ No \_\_\_\_\_

12. Is site located in an area where:

(a) Water table is high? Yes \_\_\_\_\_ No X

(b) Flooding may occur? Yes \_\_\_\_\_ No X

13. Are rats present? Yes ? No \_\_\_\_\_

Is a rat control program in effect? Yes \_\_\_\_\_ No X

14. Other comments (if any) \_\_\_\_\_

Deputy Reeve Fred Lake suggested  
himself that this site should be  
closed off as soon as possible and a  
new one found.

Site Location - Municipality \_\_\_\_\_

- Lot No \_\_\_\_\_ Conc. No. \_\_\_\_\_

15. Recommendation of Inspector

(a) Location - Satisfactory \_\_\_\_\_ Unsatisfactory  X

(b) Operation - Satisfactory \_\_\_\_\_ Unsatisfactory  X

16. Recommended improvements (if any) \_\_\_\_\_

Site to be closed before Nov 31  
Our usual procedure were outlined  
to Mr. Lake during our conversation.

Report submitted by: Regional Eng. (Inspector)

Health Unit: Waste Mgmt. Branch

Concur: Gen. R. Revick (Chief Health Inspector)

WASTE MANAGEMENT BRANCH

RECOMMENDATION OF REGIONAL ENGINEER

NOTE: This form shall be submitted by the Regional Engineer to Head Office along with the application form and all supporting information.

(1) DATE APPLICATION RECEIVED: DEC. 14, 1970 File: A. 4411

(2) APPLICANT: TOWNSHIP OF BASTARD & SOUTH BURGESS

(3) ISSUE: Certificate of Approval [ ]
Provisional Certificate of Approval [X]

(4) TIME: Provisional Certificate to Expire in 8 months from date of issue.

(5) CONDITIONS OF ISSUE:
SITE WILL BE INSPECTED BY WASTE MANAGEMENT BRANCH
AND RECOMMENDATIONS FOR IMPROVEMENTS MADE BY
EXPIRY DATE.

(6) DO NOT ISSUE: REFUSE APPLICATION [ ]
REVOKE (Cert. No. ....) [ ]

(7) REASONS FOR (6)
.....
.....
.....

(8) DEFER: CIRCULATE TO:
.....
FOR:
.....

(9) DATE: JAN. 19/71 SIGNED: [Signature]
Regional Engineer

Department of Energy and Resources Management  
Waste Management Branch

APPLICATION FOR A CERTIFICATE OF APPROVAL  
FOR A WASTE DISPOSAL SITE

TO: THE DEPARTMENT OF ENERGY AND RESOURCES MANAGEMENT  
880 Bay Street,  
Toronto, Ontario

To be submitted through Regional  
Waste Management Engineer

(1) Under the Waste Management Act, 1970 and the regulations, this applica-  
tion is made by top of Buxton and South Burgess

Owner of Facility

R.R. #2 Elgin

Address

(2) for the ~~Renewal~~  
Issue of a Certificate of Approval for a  
LANDFILL Site

Delete item inapplicable

Type of Disposal

(3) located Con. 2 lot 25

Full particulars of Location

Hartsburg Road

(4) A Certificate of Approval No. \_\_\_\_\_ for this  
Provisional Certificate site was issued \_\_\_\_\_ 19 \_\_\_\_\_

Delete item inapplicable

(5) No change in use, operation, or ownership of the site has occurred since  
the date of the original application.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 19 \_\_\_\_\_

Signature of Applicant

(6) The following changes in use, operation or ownership (have occurred  
since the date of the original application) (are proposed)

Delete item inapplicable

If necessary, provide additional  
details on separate sheets and attach  
to application.

Continued on Attached Sheets

(7) The site will be operated in accordance with The Waste Management Act,  
1970 and the regulations by top of Buxton and

Name of Operator

South Burgess R.R. #2 Elgin

Address

The required supporting information to the application is appended hereto.

(8) Notice of this application has been published in the \_\_\_\_\_  
\_\_\_\_\_ on \_\_\_\_\_ and  
\_\_\_\_\_ 19 \_\_\_\_\_ and a copy of the notice is attached.

(9) A certificate that the site does not contravene any of the by-laws of the  
municipality is attached.

To be completed if applicant is other  
than a municipality

See notes on sections 1 to 9 on back  
of last copy (pink) which is to be  
retained by Applicant.

Dated this 9<sup>th</sup> day of Dec 19 70

Shirley Burgess  
Signature of Applicant

No Carbon Paper Required







Provisional Certificate No.

041101

Ministry of the Environment – Waste Management Branch

# PROVISIONAL CERTIFICATE OF APPROVAL FOR A WASTE DISPOSAL SITE

Under The Environmental Protection Act, 1971 and the regulations and subject to the limitations thereof, this Provisional Certificate of Approval is issued to:

Township of Bastard and South Burgess,  
Delta, Ontario.

for the use of,

Site.

located lot 15, Concession 7,  
North Gravel Rd. 1, Twp of Bastard and South Burgess.

subject to the following conditions:

That as the site is closed necessary action shall be taken to maintain the integrity and continuity of the cover materials.



This Provisional Certificate expires on the 11th day of June, 1975.

Dated this 5th day of July, 1974.

*D. P. Caplice*

DIRECTOR, WASTE MANAGEMENT BRANCH

## AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER A441101

Issue Date: October 4, 2017

The Corporation of the Township of Rideau Lakes  
1439 #8 County Rd  
Rideau Lakes, Ontario  
K0E 1G0

Site Location: Harts Gravel Road WDS  
Lot 23, Concession 7  
Township of Rideau Lakes,  
United Counties of Leeds and Grenville

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

*a 0.52 hectares of the closed landfill Site*

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

- (a) *"Act"* means the *Environmental Protection Act*, R.S.O. 1990, C.E-19, as amended;
- (b) *"Approval" or "ECA"* means this Environmental Compliance Approval and any Schedules to it, including the application and supporting documentation listed in Schedule "A"
- (c) *"Director"* means a person appointed by the Minister pursuant to section 5 of the *EPA* for the purposes of Part II.1 of the *EPA*;
- (d) *"District Manager"* means the *District Manager* of the local district office of the *Ministry* in which the *Site* is geographically located;
- (e) *"EPA"* means Environmental Protection Act, R.S.O. 1990, c. E. 19, as amended;
- (f) *"Ministry"* and *"MOECC"* means the Provincial Government of Ontario responsible for the *EPA* and includes all officials, employees or other persons acting on its behalf;
- (g) *"O. Reg. 419/05"* means the Ontario Regulation 419/05, Air Pollution – Local Air Quality, as

amended;

- (h) **"Owner" or "Township"** means the Township of Rideau Lakes or the person(s) responsible for managing the Site on behalf of the Owner;
- (i) **"OWRA"** means the Ontario Water Resources Act, R.S.O. 1990, c. O-40, as amended;
- (j) **"PA"** means the Pesticides Act, R.S.O. 1990, c. P-11, as amended;
- (k) **"Provincial Officer"** means any person designated in writing by the Minister as a provincial officer pursuant to section 5 of the *OWRA* or section 5 of the *EPA* or section 17 of *PA*;
- (l) **"Regulation 347"** means the Regulation 347, R.R.O. 1990, made under the *EPA*, as amended; and
- (m) **"Site"** means the lands approved under this *Approval*, and consist of a 0.52 hectares of the closed landfill Site on part of Lot 23, Concession 7, Harts Gravel Road WDS, Township of Rideau Lakes, United Counties of Leeds and Grenville.
- (n) **"Qualified Person"** means either a person who holds a license or temporary license issued under the *Professional Engineers Act* to engage in the practice of professional engineering, other than a limited license issued under that Act, a member of the Association of Professional Geoscientists of Ontario under the *Professional Geoscientists Act, 2000* but not if the person is a limited member or a non-practising member;

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

## TERMS AND CONDITIONS

### GENERAL

#### 1.0 Compliance

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

#### 2.0 In Accordance

- 2.1 Except as otherwise provided for in this *Approval*, the *Site* shall be designed, developed, built,

operated and maintained in accordance with the application for this *Approval*, and the supporting documentation.

### **3.0 Interpretation**

- 3.1 Where there is a conflict between a provision of any document, including the application, referred to in this *Approval* , and the conditions of this *Approval* , the conditions in this *Approval* shall take precedence.
- 3.2 Where there is a conflict between the application and a provision in any documents listed in Schedule "A", the application shall take precedence, unless it is clear that the purpose of the document was to amend the application and that the *Ministry* approved the amendment.
- 3.3 Where there is a conflict between any two documents listed in Schedule "A", other than the application, the document bearing the most recent date shall take precedence.
- 3.4 The conditions of this *Approval* are severable. If any condition of this *Approval* , or the application of any condition of this *Approval* to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this *Approval* shall not be affected thereby.

### **4.0 Other Legal Obligations**

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

### **5.0 Adverse Effect**

- 5.1 The *Township* shall take steps to minimize and ameliorate any adverse effect on the natural environment or impairment of water quality resulting from the *Site* , including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.
- 5.2 Despite an *Owner* or any other person fulfilling any obligations imposed by this *Approval* the person remains responsible for any contravention of any other condition of this *Approval* or any applicable statute, regulation, or other legal requirement resulting from any act or omission that caused the adverse effect to the natural environment or impairment of water quality.

### **6.0 Information and Record Retention**

- 6.1 Any information requested, by the *Ministry* , concerning the *Site* and its operation under this *Approval* , including but not limited to any records required to be kept by this *Approval* shall be provided to the *Ministry* , upon request, in a timely manner. Records shall be retained for contaminating life span of the *Site* except for as otherwise authorized in writing by the *Director* .

- 6.2 The receipt of any information by the *Ministry* or the failure of the *Ministry* to prosecute any person or to require any person to take any action, under this *Approval* or under any statute, regulation or other legal requirement, in relation to the information, shall not be construed as:
- a) an *Approval* , waiver, or justification by the *Ministry* of any *act* or omission of any person that contravenes any term or condition of this *Approval* or any statute, regulation or other legal requirement; or
  - b) acceptance by the *Ministry* of the information's completeness or accuracy.
- 6.3 Any information relating to this *Approval* and contained in *Ministry* files may be made available to the public in accordance with the provisions of the Freedom of Information and Protection of Privacy Act, R.S.O. 1990.
- 6.4 All records and monitoring data required by the conditions of this *Approval* must be kept on the *Township's* premises for a minimum period of five (5) years from the date of their creation.

## **7.0 Change of Ownership**

- 7.1 The *Township* shall notify the *Director* , in writing, and forward a copy of the notification to the *District Manager* , within 30 days of the occurrence of any changes in the following information:
- a. the ownership of the *Site* ;
  - b. the operator of the *Site* ;
  - c. the address of the *Owner* and/or operator;
  - d. the partners, where the *Township* or operator is or at any time becomes a partnership and a copy of the most recent declaration filed under the *Business Names Act* , R. S. O. 1990, c. B.17, shall be included in the notification.
- 7.2 No portion of this *Site* shall be transferred or encumbered prior to or after closing of the *Site* unless the *Director* is notified in advance and sufficient financial assurance is deposited with the *Ministry* to ensure that these conditions will be carried out. In the event of any change in ownership of the works, other than change to a successor municipality, the *Township* shall notify the successor of and provide the successor with a copy of this *Certificate* , and the *Township* shall provide a copy of the notification to the *District Manager* and the *Director*.

## **8.0 Groundwater and Surface Water Assessment Report**

- 8.1 By July 31, 2018, the *Owner* shall submit to the *District Manager* a report by a *Qualified Person* that includes, but is not necessarily limited to:
- i) An assessment on the potential for off site impacts to groundwater from the *Site* and determine if ongoing monitoring is necessary.
  - ii) An assessment on the potential for off site impacts to surface water from the *Site* , including seasonal or permanent flows from the site to nearby surface water features and/or adjacent features and determine if ongoing monitoring is necessary.

## 9.0 Closure Plan

9.1 Within sixty (60) days from the date of this *Certificate*, the *Owner* shall submit for the *Director's* approval, with copies to the District Manager, a detailed site closure plan pertaining to the termination of landfilling operations at this *Site*, post-closure inspection, maintenance and monitoring, and end use. The plan shall include the following:

- (i) A plan showing *Site* appearance after closure;
- (ii) a description of the proposed end use of the *Site* ;
- (iii) a description of the procedures for closure of the *Site*, including:
  - a) posting of a sign at the *Site* entrance indicating the landfill is closed;
  - b) completion, inspection and maintenance of the final cover and landscaping;
  - c) *site* security;
  - d) removal of unnecessary landfill-related structures, buildings and facilities; and
  - e) a schedule indicating the time-period for implementing sub-conditions a) to d) above;
- (iv) descriptions of the procedures for post-closure care of the *Site*, including:
  - a) operation, inspection and maintenance of the integrity of the final cover, presence of staining and leachate springs, and integrity of fence
  - b) record keeping and reporting; and
  - c) complaint contact and response procedures;

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

1. *The reason for the definitions is to simplify the wording of the subsequent conditions and define the specific meaning of terms as used in this Approval.*
2. *The reason for Conditions 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, & 7.0 is to clarify the legal rights and responsibilities of the Township.*

**Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). A441101 issued on July 5, 1974 as amended**

*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

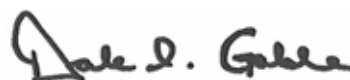
AND

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](http://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 4th day of October, 2017



---

Dale Gable, P.Eng.

Director

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

CM/

c: District Manager, MOECC Kingston - District  
Michelle Jones, Manager, The Corporation of the Township of Rideau Lakes



---

**AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL**

NUMBER A441101

Notice No. 1

Issue Date: December 1, 2017

The Corporation of the Township of Rideau Lakes  
1439 County Rd 8  
Rideau Lakes, Ontario  
K0E 1G0

Site Location: Harts Gravel Road WDS  
Lot 23, Concession 7  
Rideau Lakes Township,  
United Counties of Leeds and Grenville

*You are hereby notified that I have amended Approval No. A441101 issued on October 4, 2017 for a 0.52 hectares of the closed landfill Site , as follows:*

**The following Conditions are hereby revoked and replaced with the following:****9.0 Closure Plan**

9.1 By **March 31, 2018**, the *Owner* shall submit for the *Director's* approval, with copies to the District Manager, a detailed site closure plan pertaining to the termination of landfilling operations at this *Site* , post-closure inspection, maintenance and monitoring, and end use. The plan shall include the following:

- (i) A plan showing *Site* appearance after closure;
- (ii) a description of the proposed end use of the *Site* ;
- (iii) a description of the procedures for closure of the *Site*, including:
  - a) posting of a sign at the *Site* entrance indicating the landfill is closed;
  - b) completion, inspection and maintenance of the final cover and landscaping;
  - c) *site* security;
  - d) removal of unnecessary landfill-related structures, buildings and facilities; and
  - e) a schedule indicating the time-period for implementing sub-conditions a) to d) above;
- (iv) descriptions of the procedures for post-closure care of the *Site*, including:

- a) operation, inspection and maintenance of the integrity of the final cover, presence of staining and leachate springs, and integrity of fence
- b) record keeping and reporting; and
- c) complaint contact and response procedures.

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

*To allow the Owner sufficient time to prepare and submit a closure plan.*

**This Notice shall constitute part of the approval issued under Approval No. A441101 dated October 4, 2017**

*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

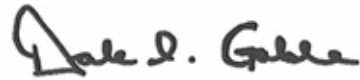
AND

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](http://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 1st day of December, 2017



---

Dale Gable, P.Eng.

Director

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

CM/

c: District Manager, MOECC Kingston - District  
Rideau Lakes, The Corporation of the Township of Rideau Lakes

**AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL**

NUMBER A441101

Notice No. 2

Issue Date: June 27, 2018

The Corporation of the Township of Rideau Lakes  
1439 County Rd 8  
Rideau Lakes, Ontario  
K0E 1G0

Site Location: Harts Gravel Road WDS  
Lot 23, Concession 7  
Rideau Lakes Township, United Counties of Leeds and Grenville

*You are hereby notified that I have amended Approval No. A441101 issued on October 4, 2017 and amended December 1, 2017 for a 0.52 hectare closed landfill Site , as follows:*

**The following Condition is hereby amended as follows:**

9.1 The closure plan as identified by Item 1 in Schedule A is hereby approved.

**SCHEDULE "A"**

**Schedule "A" forms part of this Environmental Compliance Approval.**

1. "Township of Rideau Lakes, Harts Gravel Road Waste Disposal Site Closure Plan"  
Project No. 171-02761-00. Prepared by WSP, April, 2018.

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

*To ensure the Site is closed in accordance with Ministry's standards and to protect the health and safety of the environment.*

**This Notice shall constitute part of the approval issued under Approval No. A441101 dated October 4, 2017**

*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

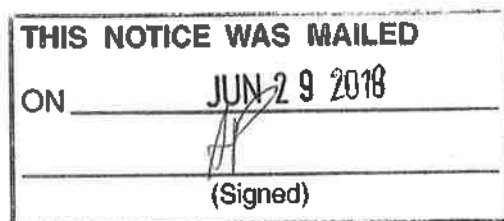
AND

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](http://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 27th day of June, 2018



Dale Gable, P.Eng.

Director

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

CF/

c: District Manager, MOECC Kingston - District  
Jennifer Brown-Hawn, WSP

**APPENDIX C**

**MECP Correspondence**

**Ministry of the  
Environment,  
Conservation and Parks**  
Eastern Region  
1259 Gardiners Road, Unit 3  
Kingston ON K7P 3J6  
Phone: 613.549.4000  
or 1.800.267.0974

**Ministère de l'Environnement,  
de la Protection de la nature  
et des Parcs**  
Région de l'Est  
1259, rue Gardiners, unité 3  
Kingston (Ontario) K7P 3J6  
Tél: 613 549-4000  
ou 1 800 267-0974



## MEMORANDUM

July 29, 2020

**TO:** Nathalie Matthews  
Senior Environmental Officer  
Kingston District Office  
Eastern Region

**FROM:** Lauren Forrester  
Surface Water Specialist  
Technical Support Section  
Eastern Region

**RE:** Supplemental Groundwater and Surface Water Assessment Report  
Harts Gravel Road Closed WDS  
Lot 23 Concession 7, Bastard Township (Township of Rideau Lakes)  
United Counties of Leeds and Grenville  
ECA A441101

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As requested, I have reviewed the above referenced report, prepared by WSP and dated December 14, 2018. I offer the following comments in relation to surface water matters.

### **Background**

The Harts Gravel Road WDS is a 0.52 ha site that received domestic and commercial waste. The site is reported to have ceased operation 1973 and waste was covered with soil. During a 2017 site visit, uncovered waste (predominantly metal waste, including metal drums, automobiles and appliances) was observed along the southeast portion of the site, including in the wet area, as well as along the northeast fence lines.

Ministry mapping identifies a small pocket of unevaluated swamp southeast of the property, which extends onto neighboring parcels. No defined outflow from the swamp area was observed during our site visit in 2017. Based on topography, overland flow would likely be to the east-northeast (along and/or under LB1 road), towards Corbett Creek / Cooligan Creek before discharging to Lower Beverly Lake.

The subject report was prepared to evaluate the potential for offsite groundwater and surface water impacts, and to determine the need for ongoing monitoring for this site.

### **Results and Discussion**

- The integrity of the landfill cover was evaluated by WSP on July 17, 2017, along with integrity of the site fencing, presence or absence of leachate staining or springs, and presence of exposed waste.

- The consultant reports that exposed waste was removed by the Township on October 24 and 25, 2018.
- Due to dry conditions encountered in the spring of 2018, follow up assessment was carried out in the fall.
- Relative to groundwater, WSP established 1 leachate monitor and four shallow overburden monitors. These monitors were found to be dry May, June, October and November.

WSP interprets shallow groundwater flow to be to the southeast, discharging to the ponded area adjacent to the site.

- Surface water stations were established in the watercourse on the north side of the recreation trail (upstream, SW1), in the ponded area at the base of the fill area (SW2) and 110 m downstream of SW2 in the watercourse (SW3); however, only one set of samples could be collected from SW1 due to dry conditions.
- Surface water stations were shallow, ranging from 0.15 - 0.20 m, with flow dependent on precipitation. Low dissolved oxygen was reported in all stations, attributed to stagnant conditions.

WSP describes exceedances at upstream and downstream stations as similar (TP, Cu, Fe, Zn > PWQO on May 14, 2018). Water quality guideline exceedances are interpreted by the consultant to be mainly the result of adjacent off-site land uses, and/or sediment in samples, and unlikely to be influenced by the landfill. An exception is noted for November, where phenol and zinc were elevated in downstream stations and interfered to be potential effects of the scrap metal removal the month prior. This is reasonable. Based on my review of the submitted data, significant water negative impacts do not appear to have been occurring at the time of sampling.

- WSP conclude that limited assessment was possible in 2018 due to the susceptibility of both ground- and surface water monitoring locations to seasonal variations. No contingency/remedial measures are recommended; however, the consultant recommends that the sampling program be extended to provide for one additional sampling event. This is to assess the off-site impact to groundwater and surface water from the landfill, and to evaluate the need for ongoing monitoring. I have no objection to a limited extension of the monitoring to better inform long-term monitoring requirements.

## **Conclusions and Recommendations**

I am in general agreement with the conclusions of the consultant. The available data do not demonstrate significant negative impacts. An additional round of monitoring, as recommended by WSP, should be completed to help inform the need for long-term monitoring of surface water, particularly relative to elevated zinc concentrations observed in November 2018.



If you have any questions about these comments, I would be happy to discuss them with you.

A handwritten signature in black ink that reads "Lauren Forrester". The signature is written in a cursive style with a large, looping initial 'L'.

Lauren Forrester, M.Sc.  
LF

ec: Victor Castro, Water Resources Unit Supervisor  
Shawn Trimper, Regional Hydrogeologist

c: File SW LG RL 03 06 C7 – Harts Gravel Road (closed WDS)

## St. Marseille, Laura

---

**From:** Matthews, Nathalie (MECP) <Nathalie.Matthews@ontario.ca>  
**Sent:** January 4, 2022 8:39 AM  
**To:** mdwyer@rideaulakes.ca  
**Cc:** Brown-Hawn, Jennifer  
**Subject:** RE: Harts Gravel Road  
**Attachments:** lf-nm- gw-sw assessment report (SW review).pdf

Good morning and happy new year.

The ministry's hydrogeologist has completed his review of the groundwater related aspects of the report noted below in my July 29, 2020 email and the following comments were provided to me:

All monitoring wells were dry during all attempts to sample in 2018. WSP recommended sampling be attempted again in the spring in hopes of obtaining samples. I agree with this recommendation. An assessment of groundwater is required to determine what if any ongoing groundwater monitoring is required at the site.

If groundwater samples are unable to be obtained from the existing monitoring wells, I recommend that at least one deeper/bedrock monitoring well be installed and sampled that intercepts the groundwater table. This monitoring well should be located in an area where worst case impacts are expected to exist.

Please confirm that the recommendations (in the attachment and highlighted above in this email) from the ministry's surface water specialist and hydrogeologist will be implemented in the spring of 2022.

**Nathalie Matthews**, Provincial Officer

Ministry of the Environment, Conservation and Parks – Kingston District Office

☎ 613.548.6917 | Spills Action Centre: 800.268.6060 | Pollution Hotline: 866.MOE.TIPS

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---

**From:** Matthews, Nathalie (MECP)  
**Sent:** July-29-20 3:09 PM  
**To:** mdwyer@rideaulakes.ca  
**Cc:** Brown-Hawn, Jennifer <Jennifer.Brown.Hawn@wsp.com>  
**Subject:** Harts Gravel Road

Good afternoon,

The ministry has completed its review of the surface water related aspects of the report entitled 'Harts Gravel Road Waste Disposal Site – *Supplemental Groundwater and Surface Water Assessment*, dated December 14, 2018.

Comments from the ministry's Surface Water Specialist are summarised in the attached memorandum. Please confirm that you are in agreement and will arrange to have another surface water sampling event.

A follow up email will be forwarded to you after I receive ground water comments from our hydrogeologist.

---

Nathalie Matthews, Environmental Officer/Provincial Officer 📞 613.548.6917 or 800.267.0974, ext. 2674  
| Spills Action Centre: 800.268.6060 | Pollution Hotline (anonymous): 866.MOE.TIPS  
| [www.ontario.ca/ministry-environment](http://www.ontario.ca/ministry-environment)

Ministry of the Environment, Conservation and Parks - Kingston District Office - 1259 Gardiners Road, Unit 3, Kingston, ON K7P 3J6

*We want to hear from you. You can provide feedback on my service at (888) 745-8888. | Votre opinion nous importe. Faites-nous part de vos commentaires sur mes services au (888) 745-8888.*

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**APPENDIX D**

**Field Record Forms and Site  
Photographs**

**Groundwater/Surface Water**



Site Name: Harts Gravel Closed Waste Disposal Site

Job No. CA0000827.3790

**GROUNDWATER PURGE AND SAMPLE**

Date	24-Oct-23	02-Nov-23	08-Nov-23				If YES, Complete Detail Section
Field Staff	AM	SC	CM				
Weather Conditions	Overcast	Sunny, partially cloudy, windy	N/A				
- Temperature	5°C	7°C	---				
- Precipitation (ie n/a, light, heavy)	N/A	N/A	N/A				
Were all instruments calibrated? (pH, Cond. ORP, DO)	Y	Y	Y				F
What sampling methods were used? (circle)	Water (Bailer) Pump	Water (Bailer) Pump	Water (Bailer) Pump				
Were there wells that could not be purged or purged dry?	Y	Y	Y				C
Which well was used for the groundwater duplicate?	N/A	N/A	N/A				
Were there any wells that could not be field filtered?	N/A	N/A	N/A				B
Were there any wells that could not be sampled?	N/A	N/A	N/A				C
Does any waterra, string, or bailers need to be replaced?	N/A	N/A	N/A				A
Were any locks or caps missing/damaged?	N/A	N/A	N/A				A
Was any waterra inaccessible?	N/A	N/A	N/A				A
Were any PVC/metal casings damaged?	N/A	N/A	N/A				A
Were any supplies used? (filters, caps, waterra, etc.)	Y	N	N				E
Were odour/colour/sheens observed?	N/A	N/A	N/A				D
Were any seeps or staining observed?	N/A	N/A	N/A				D
Were any major changes to the site observed?	N	N	N				D

**SURFACE WATER SAMPLE**

Date							If YES, Complete Detail Section
Field Staff							
Weather Conditions							
- Temperature							
- Precipitation (ie n/a, light, heavy)							
Were all instruments calibrated? (pH, Cond. ORP, DO)							F
Were any supplies used? (filters, caps, waterra, etc.)							E
Locations not sampled/reason.							
Where was the surface water duplicate							
Were any odour/colour/sheens observed?							D

**SECTION A Well Conditions**

Monitoring Well:	Date :
Problem:	
Total Depth:	
Equipment Required:	
Corrected By/Date:	

Monitoring Well:	Date
Problem:	
Total Depth:	
Equipment Required:	
Corrected By/Date:	

**SECTION B Wells That Could Not Be field filtered**

Date	Wells

Site Name: Harts Gravel Closed Waste Disposal Site

Job No. CA0000827.3790

**SECTION C Wells That Were Purged Dry or Could Not Be Purged/Sampled**

Date:	24-Oct-23	<input checked="" type="radio"/> Purge	<input type="radio"/> Sample
Dry: MW-1, MW-2, MW-3, MW-5, DP-4			
Purged Dry: MW23-01br			
Date:	02-Nov-23	<input checked="" type="radio"/> Purge	<input type="radio"/> Sample
Dry: MW-1, MW-2, MW-3, MW-5, DP-4			
Purged Dry: MW23-01br			
Date :	08-Nov-23	<input checked="" type="radio"/> Purge	<input type="radio"/> Sample
Dry: MW-1, MW-2, MW-3, MW-5, DP-4, MW23-01br			
Date :		<input type="radio"/> Purge	<input type="radio"/> Sample
Date :		<input type="radio"/> Purge	<input type="radio"/> Sample





**Groundwater/Surface Water**

Site Name: Harts Gravel Closed Waste Disposal Site

Job No. CA0000827.3790

**GROUNDWATER PURGE AND SAMPLE**

Date	16-Jan-24	01-Feb-24						If YES, Complete Detail Section
Field Staff	CM	SC						
Weather Conditions	Cloudy	Cloudy, slight wind						
- Temperature	-8°C	3°C						
- Precipitation (ie n/a, light, heavy)	Light snow	N/A						
Were all instruments calibrated? (pH, Cond. ORP, DO)	Y	Y						F
What sampling methods were used? (circle)	Water (Bailer) Pump	Water (Bailer) Pump						
Were there wells that could not be purged or purged dry?	Y	Y						C
Which well was used for the groundwater duplicate?	MW23-01br	MW23-01br						
Were there any wells that could not be field filtered?	Y	Y						B
Were there any wells that could not be sampled?	Y	Y						C
Does any waterra, string, or bailers need to be replaced?	N	N						A
Were any locks or caps missing/damaged?	N/A	N/A						A
Was any waterra inaccessible?	N/A	N/A						A
Were any PVC/metal casings damaged?	N/A	N/A						A
Were any supplies used? (filters, caps, waterra, etc.)	N	N						E
Were odour/colour/sheens observed?	N/A	N/A						D
Were any seeps or staining observed?	N/A	N/A						D
Were any major changes to the site observed?	N	N						D

**SURFACE WATER SAMPLE**

Date								If YES, Complete Detail Section
Field Staff								
Weather Conditions								
- Temperature								
- Precipitation (ie n/a, light, heavy)								
Were all instruments calibrated? (pH, Cond. ORP, DO)								F
Were any supplies used? (filters, caps, waterra, etc.)								E
Locations not sampled/reason.								
Where was the surface water duplicate								
Were any odour/colour/sheens observed?								D

**SECTION A Well Conditions**

Monitoring Well:	Date :
Problem:	
Total Depth:	
Equipment Required:	
Corrected By/Date:	

Monitoring Well:	Date
Problem:	
Total Depth:	
Equipment Required:	
Corrected By/Date:	

**SECTION B Wells That Could Not Be field filtered**

Date	Wells
16-Jan-24	MW23-01br
01-Feb-24	DP-4 and MW23-01br

Site Name: Harts Gravel Closed Waste Disposal Site

Job No. CA0000827.3790

**SECTION C Wells That Were Purged Dry or Could Not Be Purged/Sampled**

Date:	16-Jan-24	Purge	Sample
Dry: MW-1, MW-2, MW-3, MW-5, DP-4			
Partial Sample and Duplicate: MW23-01br			
Date:	01-Feb-24	Purge	Sample
Dry: MW-1, MW-2, MW-3, MW-5, DP-4			
Partial Sample: DP-4 and MW23-01br, Duplicate: MW23-01br			
Date :		Purge	Sample
Date :		Purge	Sample
Date :		Purge	Sample







MW-1



MW-1



MW-2



MW-2



MW-3



MW-3



MW-5



MW-5





DP-4



DP-4



MW23-01br



MW23-01br

**APPENDIX E**

**Groundwater Chemistry**

**Table E-1: Groundwater General Chemistry Analysis  
Harts Gravel Closed Waste Disposal Site**



Parameter Units ODWQS Location/Date	Conductivity Lab µS/cm	pH Lab 6.5-8.5	TDS Lab mg/L 500	Alkalinity mg/L 30-500	Chloride mg/L 250	Sulphate mg/L 500	Calcium mg/L	Magnesium mg/L	Sodium mg/L 200	Potassium mg/L	Total Phosphorus mg/L	Total Ammonia mg/L	TKN mg/L	Phenols mg/L	Nitrite mg/L 1.0	Nitrate mg/L 10.0	BOD mg/L	COD mg/L	DOC mg/L 5	Arsenic mg/L 0.01	Barium mg/L 1.0	Boron mg/L 5.0	Cadmium mg/L 0.005	Chromium (Total) mg/L 0.05	Copper mg/L 1	Iron mg/L 0.3	Lead mg/L 0.010	Manganese mg/L 0.05	Mercury mg/L 0.001	Zinc mg/L 5			
<b>MW-1</b> 31-Mar-22 1-Feb-24	Dry Dry																																
<b>MW-2</b> 31-Mar-22 1-Feb-24	Dry Dry																																
<b>MW-3</b> 31-Mar-22 1-Feb-24	Dry Dry																																
<b>MW-5</b> 31-Mar-22 1-Feb-24	Dry Dry																																
<b>DP-4</b> 31-Mar-22 Duplicate 01-Feb-24	795 854	8.15 8.11	478 451	399 455	5.4 5.0	62 31	99.1 101	62.8 ---	8.2 7.1	0.8 0.6	0.89 ---	0.01 ---	1.3 ---	<0.001 ---	< 0.05 ---	0.08 ---	<3 ---	38 ---	9.3 3.3	0.0001 ---	0.034 ---	0.218 ---	<0.000015 ---	<0.002 ---	0.005 ---	0.482 0.225	0.00016 0.00007	0.219 0.207	<0.00002 ---	<0.00002 ---	6.62 7.25		
<b>MW23-01br</b> 16-Jan-24 Duplicate 01-Feb-24	---	---	---	---	---	---	132 130	38.8 38.2	5.2 5.3	2.7 2.8	1.43 2.23	<0.05 ---	<1.0 1.4	<0.001 ---	---	---	---	139 246	---	0.0003 0.0003	0.178 0.174	0.107 0.107	0.000043 0.000015	<0.001 ---	0.0093 0.0038	0.041 0.019	0.00028 0.00002	0.028 0.021	---	---	0.014 0.010		
<b>Trip Blank</b> 31-Mar-22	< 1	5.47	< 1	< 5	< 0.5	< 1	< 0.02	< 0.02	< 0.2	< 0.1	0.01	< 0.01	< 0.1	< 0.001	< 0.05	< 0.05	< 3	< 5	< 0.2	< 0.0001	< 0.001	< 0.005	< 0.000015	< 0.002	< 0.002	< 0.005	0.00004	< 0.001	< 0.00002	< 0.005			

NOTES: Indicates exceedance of Ontario Drinking Water Quality Standards (ODWQS)  
 Blank cell - Indicates parameter not analyzed  
 BOD - Biological Oxygen Demand COD - Chemical Oxygen Demand, DOC - Dissolved Organic Carbon, TDS - Total Dissolved Solids, TKN - Total Kjeldahl Nitrogen

**Table E-2: Groundwater VOC Chemistry Analysis  
Harts Gravel Closed Waste Disposal Site**

Monitoring Well		DP-4	Trip Blank	MW23-01br	Duplicate
Date		31-Mar-22	31-Mar-22	16-Jan-24	
Parameter	ODWQS				
Acetone		< 30	< 30	<30	<30
Benzene	1	< 0.5	< 0.5	<0.5	<0.5
Monochlorobenzene (Chlorobenzene)	80	< 0.5	< 0.5	<0.5	<0.5
Bromodichloromethane		< 2	< 2	<2	<2
Bromoform		< 5	< 5	<5	<5
Bromomethane		< 0.5	< 0.5	<0.5	<0.5
Carbon Tetrachloride	2	< 0.2	< 0.2	<0.2	<0.2
Chloroform		< 1	< 1	<1	<1
Dibromochloromethane		< 2	< 2	<2	<2
Dibromoethane,1,2- (Ethylene Dibromide)		< 0.2	< 0.2	<0.2	<0.2
Dichlorobenzene,1,2-	200	< 0.5	< 0.5	<0.5	<0.5
Dichlorobenzene,1,3-		< 0.5	< 0.5	<0.5	<0.5
Dichlorobenzene,1,4-	5	< 0.5	< 0.5	<0.5	<0.5
Dichlorodifluoromethane		< 2	< 2	<2	<2
Dichloroethane,1,1-		< 0.5	< 0.5	<0.5	<0.5
Dichloroethane,1,2-	5	< 0.5	< 0.5	<0.5	<0.5
Dichloroethene, 1,1-	14	< 0.5	< 0.5	<0.5	<0.5
Dichloroethene, cis-1,2-		< 0.5	< 0.5	<0.5	<0.5
Dichloroethene, trans-1,2-		< 0.5	< 0.5	<0.5	<0.5
Dichloromethane (Methylene Chloride)	50	< 5	< 5	<5	<5
Dichloropropane,1,2-		< 0.5	< 0.5	<0.5	<0.5
Dichloropropene, cis-1,3-		< 0.5	< 0.5	<0.5	<0.5
Dichloropropene, trans-1,3-		< 0.5	< 0.5	<0.5	<0.5
Dichloropropene 1,3- cis+trans		< 0.5	< 0.5	<0.5	<0.5
Ethylbenzene	140	< 0.5	< 0.5	<0.5	<0.5
Hexane		< 5	< 5	<5	<5
Methyl Ethyl Ketone		< 20	< 20	<20	<20
Methyl Isobutyl Ketone		< 20	< 20	<20	<20
Methyl-t-butyl Ether		< 2	< 2	<2	<2
Styrene		< 0.5	< 0.5	<0.5	<0.5
Tetrachloroethane,1,1,1,2-		< 0.5	< 0.5	<0.5	<0.5
Tetrachloroethane,1,1,2,2-		< 0.5	< 0.5	<0.5	<0.5
Tetrachloroethylene	10	< 0.5	< 0.5	<0.5	<0.5
Toluene	60	< 0.5	< 0.5	<0.5	<0.5
Trichloroethane,1,1,1-		< 0.5	< 0.5	<0.5	<0.5
Trichloroethane,1,1,2-		< 0.5	< 0.5	<0.5	<0.5
Trichloroethylene	5	< 0.5	< 0.5	<0.5	<0.5
Trichlorofluoromethane		< 5	< 5	<5	<5
Vinyl Chloride	1	< 0.2	< 0.2	<0.2	<0.2
Xylene, m,p-	90	< 1.0	< 1.0	<1	<1
Xylene, o-	90	< 0.5	< 0.5	<0.5	<0.5
Xylene, m,p,o-		< 1.1	< 1.1	<1.1	<1.1

NOTES:

Indicates values exceeding Ontario Drinking Water Quality Standards (ODWQS)

Values are presented in µg/L

Blank cell - Indicates parameter not analyzed

**Table E-3: Groundwater Chemistry Relative Percent Difference  
Harts Gravel Closed Waste Disposal Site**

Parameter	MDL	5 x RDL	16-Jan-24				Valid
			MW23-1sbr	Duplicate	Relative %	Absolute	
TDS	1	5					No
Alkalinity	5	25					No
Chloride	0.5	2.5					No
Sulphate	1	5					No
Calcium	0.02	0.1	132	130	1.5	1.5	Yes
Magnesium	0.02	0.1	38.8	38.2	1.6	1.6	Yes
Sodium	0.2	1	5.2	5.3	-1.9	1.9	Yes
Potassium	0.1	0.5	2.7	2.8	-3.6	3.6	Yes
Total Phosphorus	0.01	0.05	1.43	2.23	-43.7	43.7	Yes
Total Ammonia	0.01	0.05	<0.05	<0.05			No
TKN	0.1	0.5	<1.0	1.4			No
Phenols	0.001	0.005	<0.001	<0.001			No
Nitrite	0.05	0.25					No
Nitrate	0.05	0.25					No
BOD	3	15					No
COD	5	25	139	246	-55.6	55.6	Yes
DOC	0.2	1					No
Arsenic	0.0001	0.0005	0.0003	0.0003	0.0	0.0	No
Barium	0.001	0.005	0.178	0.174	2.3	2.3	Yes
Boron	0.005	0.025	0.107	0.107	0.0	0.0	Yes
Cadmium	0.000015	0.000075	0.000043	<0.000015			No
Chromium	0.002	0.01	<0.001	<0.001			No
Copper	0.002	0.01	0.0093	0.0038	84.0	84.0	No
Iron	0.005	0.025	0.041	0.019	73.3	73.3	No
Lead	0.00002	0.0001	0.00028	0.00002	173.3	173.3	No
Manganese	0.001	0.005	0.028	0.021	28.6	28.6	Yes
Mercury	0.00002	0.0001					No
Zinc	0.005	0.025	0.014	0.010	33.3	33.3	No
Total Valid							9
Total Pass							6
Percent Passing							66.7
Average Valid Absolute Relative Percent Difference							15.4

Blank cell - Indicates parameter not analysed

RDL - Laboratory Reportable Detection Limit, TKN - Total Kjeldahl Nitrogen, BOD - Biochemical Oxygen Demand, COD - Chemical Oxygen Demand, TDS - Total Dissolved Solids, TSS - Total Suspended Solids

**C.O.C.: G 109775**

**REPORT No: 24-001754 - Rev. 0**

**Report To:**

WSP Canada Inc. - Cornwall  
 1345 Rosemont Ave.  
 Cornwall, ON K6J 3E5

**CADUCEON Environmental Laboratories**

2378 Holly Lane  
 Ottawa, ON K1V 7P1

**Attention: Jennifer Brown-Hawn**

DATE RECEIVED: 2024-Jan-17  
 DATE REPORTED: 2024-Jan-25  
 SAMPLE MATRIX: Ground Water

CUSTOMER PROJECT: Harts Gravel  
 P.O. NUMBER: CA0000827.3790

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
COD (Liquid)	2	KINGSTON	EHINCH	2024-Jan-19	COD-001	SM 5220D
ICP/MS (Liquid)	2	OTTAWA	AOZKAYMAK	2024-Jan-18	D-ICPMS-01	EPA 200.8
ICP/OES (Liquid)	2	OTTAWA	NHOGAN	2024-Jan-17	D-ICP-01	SM 3120B
Ammonia (Liquid)	2	KINGSTON	JYEARWOOD	2024-Jan-19	NH3-001	SM 4500NH3
Phenols (Liquid)	2	KINGSTON	JMACINNES	2024-Jan-22	PHEN-01	MECP E3179
TP & TKN (Liquid)	2	KINGSTON	KDIBBITS	2024-Jan-23	TPTKN-001	MECP E3516.2
VOC-Volatiles Full (Water)	2	RICHMOND_HILL	CBURKE	2024-Jan-19	C-VOC-02	EPA 8260

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an \*



**Michelle Dubien**  
**Data Specialist**



**CADUCEON Environmental Laboratories Certificate of Analysis**

Final Report  
REPORT No: 24-001754 - Rev. 0

Parameter	Units	R.L.	Client I.D.	
			MW23-01 br	Duplicate
			Sample I.D.	
			Date Collected	
			-	-
Phosphorus (Total)	mg/L	0.01	1.43	2.23
Total Kjeldahl Nitrogen	mg/L	0.1	<1.0	1.4
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	<0.05	<0.05
Phenolics	mg/L	0.001	<0.001	<0.001
COD	mg/L	5	139	246
Barium	mg/L	0.001	0.178	0.174
Boron	mg/L	0.005	0.107	0.107
Calcium	mg/L	0.02	132	130
Iron	mg/L	0.005	0.041	0.019
Magnesium	mg/L	0.02	38.8	38.2
Manganese	mg/L	0.001	0.028	0.021
Potassium	mg/L	0.1	2.7	2.8
Sodium	mg/L	0.2	5.2	5.3
Zinc	mg/L	0.005	0.014	0.010
Arsenic	mg/L	0.0001	0.0003	0.0003
Cadmium	mg/L	0.00001 5	0.000043	<0.000015
Chromium	mg/L	0.001	<0.001	<0.001
Copper	mg/L	0.0001	0.0093	0.0038
Lead	mg/L	0.00002	0.00028	0.00002



**Michelle Dubien  
Data Specialist**

The analytical results reported herein refer to the samples as received and relate only to the items tested. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

**CADUCEON Environmental Laboratories Certificate of Analysis**

Final Report  
REPORT No: 24-001754 - Rev. 0

Parameter	Units	R.L.	Client I.D.	Duplicate	
			MW23-01 br		
			Sample I.D.	24-001754-1	24-001754-2
			Date Collected	2024-01-16	2024-01-16
			-	-	
Acetone	µg/L	30	<30	<30	
Benzene	µg/L	0.5	<0.5	<0.5	
Bromodichloromethane	µg/L	2	<2	<2	
Bromoform	µg/L	5	<5	<5	
Bromomethane	µg/L	0.5	<0.5	<0.5	
Carbon Tetrachloride	µg/L	0.2	<0.2	<0.2	
Chlorobenzene	µg/L	0.5	<0.5	<0.5	
Chloroform	µg/L	1	<1	<1	
Dibromochloromethane	µg/L	2	<2	<2	
Ethylene Dibromide	µg/L	0.2	<0.2	<0.2	
Dichlorobenzene,1,2-	µg/L	0.5	<0.5	<0.5	
Dichlorobenzene,1,3-	µg/L	0.5	<0.5	<0.5	
Dichlorobenzene,1,4-	µg/L	0.5	<0.5	<0.5	
Dichlorodifluoromethane (Freon 12)	µg/L	2	<2	<2	
Dichloroethane,1,1-	µg/L	0.5	<0.5	<0.5	
Dichloroethane,1,2-	µg/L	0.5	<0.5	<0.5	
Dichloroethylene,1,1-	µg/L	0.5	<0.5	<0.5	
Dichloroethylene,1,2-cis-	µg/L	0.5	<0.5	<0.5	
Dichloroethylene,1,2-trans-	µg/L	0.5	<0.5	<0.5	
Dichloropropane,1,2-	µg/L	0.5	<0.5	<0.5	
Dichloropropene,1,3-cis-	µg/L	0.5	<0.5	<0.5	



**Michelle Dubien**  
Data Specialist

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**CADUCEON Environmental Laboratories Certificate of Analysis**

Final Report  
REPORT No: 24-001754 - Rev. 0

Parameter	Units	R.L.	Client I.D.	
			MW23-01 br	Duplicate
			Sample I.D.	
			24-001754-1	24-001754-2
Date Collected				
			2024-01-16	2024-01-16
			-	-
Dichloropropene, 1,3-cis+trans- (Calculated)	µg/L	0.5	<0.5	<0.5
Dichloropropene, 1,3-trans-	µg/L	0.5	<0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5	<0.5
Hexane	µg/L	5	<5	<5
Dichloromethane (Methylene Chloride)	µg/L	5	<5	<5
Methyl Ethyl Ketone	µg/L	20	<20	<20
Methyl Isobutyl Ketone	µg/L	20	<20	<20
Methyl tert-Butyl Ether (MTBE)	µg/L	2	<2	<2
Styrene	µg/L	0.5	<0.5	<0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.5	<0.5	<0.5
Tetrachloroethane, 1,1,2,2-	µg/L	0.5	<0.5	<0.5
Tetrachloroethylene	µg/L	0.5	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5
Trichloroethane, 1,1,1,-	µg/L	0.5	<0.5	<0.5
Trichloroethane, 1,1,2,-	µg/L	0.5	<0.5	<0.5
Trichloroethylene	µg/L	0.5	<0.5	<0.5
Trichlorofluoromethane (Freon 11)	µg/L	5	<5	<5
Vinyl Chloride	µg/L	0.2	<0.2	<0.2
Xylene, m,p-	µg/L	1	<1	<1
Xylene, m,p,o-	µg/L	1.1	<1.1	<1.1
Xylene, o-	µg/L	0.5	<0.5	<0.5

Elevated RLs due to sample matrix interferences



**Michelle Dubien**  
Data Specialist

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**C.O.C.:** G 109779

**REPORT No:** 24-003192 - Rev. 0

**Report To:**

WSP Canada Inc. - Cornwall  
 1345 Rosemont Ave.  
 Cornwall, ON K6J 3E5

**CADUCEON Environmental Laboratories**

2378 Holly Lane  
 Ottawa, ON K1V 7P1

**Attention: Jennifer Brown-Hawn**

DATE RECEIVED: 2024-Feb-02  
 DATE REPORTED: 2024-Feb-12  
 SAMPLE MATRIX: Ground Water

CUSTOMER PROJECT: Harts Gravel  
 P.O. NUMBER: CA0000827.3790

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	2	OTTAWA	PCURIEL	2024-Feb-02	A-IC-01	SM 4110B
BOD5 (Liquid)	2	KINGSTON	JYEARWOOD	2024-Feb-07	BOD-001	SM 5210B
Cond/pH/Alk Auto (Liquid)	2	OTTAWA	SBOUDREAU	2024-Feb-02	COND-02/PH-02/A LK-02	SM 2510B/4500H/ 2320B
DOC/DIC (Liquid)	2	OTTAWA	VKASYAN	2024-Feb-05	C-OC-01	EPA 415.2
Mercury (Liquid)	1	OTTAWA	TBENNETT	2024-Feb-05	D-HG-02	SM 3112B

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an \*



**Michelle Dubien**  
**Data Specialist**

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Final Report  
REPORT No: 24-003192 - Rev. 0

Parameter	Units	R.L.	Client I.D.	DP-4	
			MW23-1BR		
			Sample I.D.	24-003192-1	24-003192-2
			Date Collected	2024-02-01	2024-02-01
			-	-	
Alkalinity(CaCO3) to pH4.5	mg/L	5	425	455	
TDS (Calc. from Cond.)	mg/L	3	408	451	
Conductivity @25°C	uS/cm	1	778	854	
pH @25°C	pH units	-	7.88	8.11	
Chloride	mg/L	0.5	5.0	5.0	
Nitrate (N)	mg/L	0.05	0.17	<0.05	
Nitrite (N)	mg/L	0.05	<0.05	<0.05	
Sulphate	mg/L	1	17	31	
BOD5	mg/L	3	<3	6	
Dissolved Organic Carbon	mg/L	0.2	3.4	3.3	
Mercury	mg/L	0.00002	<0.00002		



**Michelle Dubien**  
**Data Specialist**

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**APPENDIX F**

**Borehole Logs**















# BOREHOLE DRILLING RECORD : 23-1

Prepared by: **Claire McFaul**  
 Reviewed by: **Steve Ash**

Date (Start): **2023-10-17**  
 Date (End): **2023-10-17**

Project Name: **Hartsgravel Road**  
 Site: **Hartsgravel WDS**  
 Sector: **Waste Footprint**  
 Client: **Township of Rideau Lakes**  
 Project Number: **CA0000827.3790**  
 Geographic Coordinates: X = 408813 mE  
 Y = 4942772 mN  
 Surface Elevation: 112.14 m (Above Sea Level)  
 Top of PVC Elevation: 113.687 m (Above Sea Level)

Drilling Company: **Strata Drilling Group**  
 Drilling Equipment: **Geoprobe 3230**  
 Drilling Method: **Hydraulic Percussion / HQ**  
 Borehole Diameter: **200 mm / 96 mm**  
 Drilling Fluid: **Water**  
 Sampling Method: **Tube transparent DT32**

SAMPLE TYPE  
 DC - Diamond Corer  
 SS - Split Spoon  
 MA - Manual Auger  
 DP - Direct Push  
 ST - Shelby Tube  
 TU - DT32 Liner  
 MC - Macro Core Liner

∇ Water Level  
 ▼ Free Phase

Projet : HARTGRAVEL2023.GPJ Type rapport : PORTLAND DESIGN Data Template : WSP ENV BOREHOLE LOGS.GDT 2024-5-21

DEPTH ELEVATION (m)	SUBSURFACE PROFILE		SAMPLES				MONITORING WELL		REMARKS
	LITHOLOGY	STRATIGRAPHY	TCR / Recovery %	SCR %	RQD %	NUMBER	DIAGRAM	DESCRIPTION	
		Ground surface.							
0.10 112.04 0.41 0.5 111.73		Topsoil, SAND and SILT, brown, dry  Becomes lighter  Becomes reddish brown to dark brown	32			TU1/TU1A		SAND	Percussion Drill
1.5 1.52 110.62		MARBLE, white with black flecks, weathered fractures	200	91	48	DC1		PVC Riser	Refusal at 1.5 m, moved over 1 m. Refusal at same depth
2.0 2.5 3.0			100	87	82	DC2			Began Coring Waste observed - metal, screw
3.5 3.61 108.53		MARBLE, white with black flecks, rusty staining, highly fractured to crumbly	88	17	17	DC3		BENTONITE	
4.5 4.72 107.42		MARBLE, white with black flecks and pyrite, weathered fractures	95	67	44	DC4		SAND	
6.0 6.5 6.60 6.70 105.44		Seam of with increased pyrite content.  Becomes highly fractured to crumbly with rust coloured staining.	100	63	58	DC5		Screen	
7.5 7.72 104.42		End of borehole at 7.72 m.							

**APPENDIX G**

**Groundwater Regime**

**Table G-1: Groundwater Level Elevations**  
**Harts Gravel Closed Waste Disposal Site**

Monitor	MW-1	MW-2	MW-3	DP-4	MW-5	MW23-1br		
	Overburden	Overburden	Overburden	Overburden	Overburden	Bedrock		
18T Easting	408784	408776	408795	408859	408812	408825.21		
18T Northing	4942773	4942754	4942734	4942751	4942758	4942763.86		
Top of Pipe Elevation	113.10	112.84	112.32	103.09	113.66	113.69		
Ground Elevation	112.21	112.06	111.41	102.02	112.79	112.14		
Top of Screen	110.69	110.54	110.19	101.09	112.18	107.47		
Base of Screen Elevation	109.16	109.01	108.67	100.26	110.66	104.42		
Date	Precipitation (mm)							
	Sample Date	Prior 2 Days						
14-May-18	0.0	0.0	Dry	Dry	Dry	Dry	Dry	-
29-May-18	0.0	3.5	Dry	Dry	Dry	100.33	Dry	-
19-Jun-18	0.0	0.0	Dry	Dry	Dry	Dry	Dry	-
15-Oct-18	2.1	0.5	Dry	Dry	Dry	Dry	Dry	-
26-Nov-18	19.7	6.5	Dry	Dry	Dry	Dry	Dry	-
31-Mar-22	3.8	2.3	Dry	Dry	Dry	100.64	Dry	-
26-Apr-22	7.2	7.9	Dry	Dry	Dry	100.65	Dry	-
17-May-22	7.8	26.6	Dry	Dry	Dry	100.50	Dry	-
16-Jan-24	0.3	0.0	-	-	-	-	-	105.46
01-Feb-24	0.0	0.0	Dry	Dry	-	100.53	Dry	105.38

NOTES:

- 1) All elevations presented as mASL - metres Above Sea Level
- 2) Precipitation data source: Brockville Climate Station ID 6100970, Environment and Climate Change Canada - Meteorological Service of Canada

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