September 19, 2025

Janet Blackburn
Marina manager
Norfolk County

Re:
Project Name: Port Rowan Dredging 2025 - Phase 1

Dear Janet Blackburn,

On July 16, 2025, the Riggs Associates field crew visited Port Rowan to collect sediment samples in the harbour and complete a bathymetric survey of the approach channel. The purpose of this expedition was to establish preliminary soil characterizations for the site and to help determine potential dredge grades and boundaries. The sediment samples collected were analyzed by AGAT labs in London, Ontario to assess compliance with the Excess Soils Quality Standards (ESQS) and the Provincial Sediment Quality Guidelines (PSQG).

In this letter we will provide a breakdown of the site, presenting a summary of our findings, the sediment sample laboratory results, and some potential options moving forward for Norfolk County to discuss internally.

1. Port Rowan

1.1. Dredge Grades, Dredge Limits, and Cost Estimate

The 2025 sounding survey shows that the entire marina has infilled with sediment. The existing depths in the marina range between 0.1m to 1.0m below chart datum, with some sounding depths even indicating 0.2m above chart datum. This marina is primarily used for recreational navigation; and contains a series of old privately owned boathouse structures along the East and West side of the pier, there are no recreational sailboats in this marina and the deepest vessel draft required would be in the range of 0.6 to 0.9m deep. The shallow depths of this area extend to an unknown limit to the southeast, beyond the survey data collected in 2025, but navigational charts indicate shallow depths and dense vegetation are present for most of the inner bay.

There were no formal historic drawings found, but a 2012 permit document indicates the Port Rowan Marina was previously dredged to an approximately area of 300m long x 8m wide, and to a varying grade depth of 0.9m to 1.2m below water level. These depths would be adequate for the size of vessels that currently use this marina; however, the channel dredge extents that would be required to achieve these navigable grade depths consistently into the deeper water is unknown at this time as it would extend well beyond the 2025 sounding survey limits into the inner bay. While analyzing the 2025 sounding data, two preliminary dredge boundaries approximately 250m long x 12m+- wide were established to

meet the needs of the recreational vessels within the marina property (these dredge limits are presented on Figure 1.1). As previously mentioned, these limits do not extend into the inner bay or into deeper navigable water. These proposed dredge limits essentially create a trough down the center on each side of the marina. The total volume calculated for these 2 areas is presented in Table 1.1.

Table 1.1 – Port Rowan Volume calculations

Dredge Area ID	Grade Depth (m) Below Chart Datum	Dredge Volume (m3)	Total Dredge Volume (m3)
DA1	1.0	2,917	5,534
DA2	1.0	2,617	

The cost presented using the volumes shown in Table 1.1 have been calculated using recent project bids of comparable nature in a similar geographic region. For budgeting purposes, the method of dredging assumed for the purpose of this letter is mechanical dredging which typically has a higher cost per cubic meter compared to hydraulic dredging. It is estimated that the cost of mechanical dredging would cost approximately $720,500. This cost has been calculated using a cost of approximately $130 per cubic meter of dredge material. Typically, in past dredging project bids the “depth of cut” for the dredge grade can also affect the unit dredge rate; with thin dredge cuts generally resulting in higher unit rates. Due to the type of silty material found at this site, the cost per cubic meter will be higher than other sites with sandier material.

The cost estimate presented only represents the cost to dredge the material from the marina, placing it on a barge, then unloading it on the shore to dewater. This estimate does not include costs related to building the dewatering area, trucking the material, building the disposal containment facility or double handling the material into that facility, nor does it include any engineering or consulting related fees to complete a successful dredging project. Typical project costs not included in the estimates presented here can include Design & Engineering, Permitting and Approvals, Construction of the Containment Site, Contract Supervision and Construction Monitoring. At the time of writing this letter, it is too early to quantify these costs for Norfolk County. Once Norfolk County has confirmed their requirement for dredging and disposal, Riggs Associates would be pleased to assist Norfolk County with the next steps towards preparing a dredge contract.

FIGURE 2.1

PORT ROWAN PROPOSED DREDGE AREAS

RIGGS ASSOCIATES

CLIENT NORFOLK COUNTY

0 7.5 22.5 45m 1:1500

1.2. Sediment Sample Results

As presented in the Sediment Chemistry Summary document (Attached in Appendix A) the sample results for Port Rowan showed that all the samples had a high salt content along with high nitrogen and high nutrient levels. The sample locations 2025-N1, 2025-N2 & 2025-S1 also exceeded the PSGQ Lowest Effect level (LEL) values. The combination of high nitrogen levels and LEL exceedance indicates that this material would not be authorized for propwashing or in-water disposal, necessitating a different method of dredging the material to ensure regulatory compliance.

1.3. Disposal Site

A preliminary upland disposal site was suggested by Norfolk County (The Water Tower Property), unfortunately due to the high salt content of the material found in the harbour the new regulations have strict limitations on how and where this material can be placed.
The chemistry of this material presents only two options for disposal,

- The material can be used as backfill for a road style construction project or a similar type of project that would be naturally exposed to salt, or
- The material has to be buried at a minimum of 1.5m below the surface and a minimum distance of 100m away from any drinking water source.

In order to move forward with an upland disposal solution Norfolk County would need to select a different site that has the capacity to bury this material or identify a future road project where this material could be used. If future use is the chosen option, a “Class 2 Soil Management Site” would still need to be identified to temporarily stockpile the material.

The new Excess Soil Management regulations (O.Reg 406/19) indicate that dredged material placed temporarily would need to be stockpiled on a site that has been classified as a Class 2 Soil Management Site and would need to be reused within a 2-year window for a separate project. If the dredge material is going straight to a permanent site for use, then this is called a Beneficial Reuse Site. The regulations are also strict when it comes to transporting “Liquid Soils”. This means that the dredge material would need to be dewatered prior to it being transported to the Class 2 Soil Management Site or the Beneficial Reuse Site. This is typically done by one of two methods.

- Building a temporary containment berm near the water’s edge and allowing the material to drain at the worksite, or
- If the material has a very high coarse grain size, then it could be dewatered naturally on the barge as it’s being dredged; then prior to unloading the material for transport, the material would be required to pass a slump test (which are required to be 150mm or less). However, based on the grain size results of these samples (without add a Solidification Reagent) the Port Rowan material would not pass the slump tests; meaning that a temporary dewatering containment facility would need to be constructed.

1.4. Options to Progress Discussions

Based on the information collected in the field and the sample results, the obstacles currently preventing the Port Rowan Marina from being dredged are related to the available budget, sediment chemistry, and the lack of a proper in-land disposal facility. A few options to consider are as follows:

a) A disposal site (Beneficial Reuse Site or a Class 2 Soil Management Site) needs to be identified; this can be achieved in two ways.
   - The most cost-effective solution to up-land disposal is if Norfolk County has a project that would qualify to accept the high salt content dredge material or a pit where this material can be buried at the required depths.
   - The alternative is to leave the responsibility of locating the disposal site up to the dredging contractor. However, this will have an additional construction cost associated with it.

b) Norfolk County needs to identify an ongoing road construction project that is capable of using up this material. It should be noted that due to the gain size characteristics of this material, Riggs Associates is not recommending this material be used as a structural component in road construction.

c) Norfolk County needs to increase their budget or reduce the scope of work to fit the existing budget.

d) Build a “Contained Disposal Facility” (CDF) near the marina with the capacity to accept dredging materials. If a 50x100m CDF could be constructed near the marina, there would be the approximate capacity to store upwards of 20,000m3 of dredge material, plus once the CDF was full it could be turned into additional usable parklands for the community.

e) If mechanical dredging is the preferred path forward, it should be explored to include the use of a Solidification Reagent mixed with the dredge material prior to unloading to prevent the need of dewatering and allow the material to be trucked away in the same season.

f) Don’t dredge.

2. Conclusion

The items presented as options in this letter should not be considered as recommendations; the listed items are only presented as suggestions to allow for continued discussions between Norfolk County and its council. Although this site does require dredging to facilitate low water navigation, the costs and the logistics to achieve this goal may not be financially achievable.

Based on the findings presented, the Port Rowan Marina dredging using a method of propwashing is not an achievable objective based on the sediment sample chemistry results. The only method for dredging this marina can be mechanical or hydraulic with an up-land disposal providing the budget can be adjusted to accommodate.

It is recommended that if Norfolk County has a desire to participate in future dredging projects at multiple sites, obtaining or planning to have access to a local usable disposal site should be explored. Although additional budget would be required for the construction, building a Contained Disposal Facility (CDF) near the marina would facilitate efficient dredge material disposal at the Port Rowan Marina. If planned for during the design process, this new CDF could also be utilized for other local Norfolk County dredging projects as well.

Norfolk County is encouraged to review the findings presented in this document and discuss them internally with council to determine the most appropriate course of action for the Port Rowan Marina.

If a cost-effective solution can be reached allowing Norfolk County to move forward with the Port Rowan Marina dredging. Riggs Associates can assist Norfolk County with document assembly and permit application submission if the County requires.

Andrew Marczenko C.E.T.

A. Marczenko

APPENDIX A

Port Rowan

Sediment Chemistry Results for Preliminary Characterization

August 28th, 2025

Janet Blackburn
Marina Manager,
Port Dover Harbour Marina
East Basin, 50 Passmore Ave
Port Dover, ON N0A 1N0

Re: Port Rowan, Ontario
Sediment Chemistry Results for Preliminary Soil Characterization

Norfolk County plans to carry out maintenance dredging in the area of Port Rowan to provide a safe navigational approach channel for vessels entering or exiting the harbour. The harbour contains multiple businesses, greenspaces and beaches, and is also directly adjacent some residential area. Ensuring safe operation of the harbour is imperative to Norfolk County, and the safety of the public overall.

The intent is to dispose of the dredged material in local upland sites. In addition to The Provincial Sediment Quality Guidelines (PSQG), recent regulations introduced by the Ministry of Environment, Conservation and Parks (MECP) including Ontario Regulation 153/04: Records of Site Conditions (O.Reg 153/04) and Ontario Regulation 406/19: On-Site and Excess Soil Management (O.Reg 406/19), impose new restrictions on movement of excess soils in Ontario. These restrictions include sampling and record keeping requirements, as well as various specific Excess Soil Quality Standards (ESQS) that define how the excess soil may be used. It is important to note that O.Reg 153/04 Schedule E Part V sets out requirements for excess soil sampling frequency based on volume. As these samples were collected for a preliminary characterization, the finalized scope of the project and dredge volumes will dictate the number of additional sediment samples required to comply with the regulation. Based on the proposed dredge volume of 5,535m^3, the number of additional sediment samples is expected to be twenty-one (21). The following brief discussion will outline the results of the preliminary soil characterization sediment chemistry and initial impressions.

Sediment collection for preliminary soil characterization was conducted on July 16th, 2025. A total of six (6) samples were collected from within the proposed dredge limits in the harbour. Locations of the samples are shown below in Figure 1. Samples were analyzed at AGAT Laboratories in London, Ontario to assess compliance with the ESQS and PSQG. Complete detailed sediment chemistry comparisons are tabulated in Appendix A. Laboratory results are provided in Appendix B.

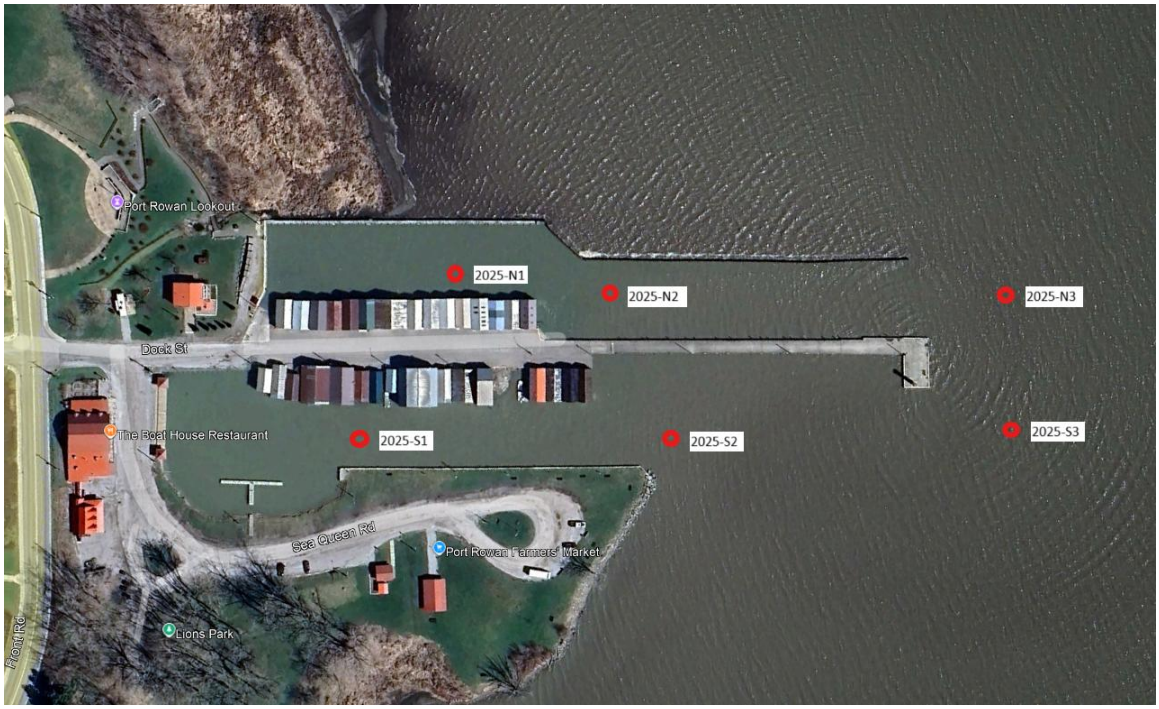

Figure 1: Locations of preliminary soil characterization samples

Analyses were completed on each sample for the following sets of compounds:

- Benzene, toluene, ethylbenzene and xylene (BTEX) and F1-F4 Hydrocarbons (C6-C50 chains)
- Metals and inorganics
- Polychlorinated biphenyls (PCBs) and organochlorine (OC) pesticides
- Polycyclic aromatic hydrocarbons (PAHs)
- Particle size
- Nutrients

The collected samples contained exceedances of the PSQGs Lowest Effect Level (LEL) for nutrients in Samples 2025-N1, 2025-N2 and 2025-S1 from the inner harbour area, as shown below in Table 1. The samples also exceeded the established Lake Erie background levels for Total Kjeldahl Nitrogen (TKN). Note that due to recovered sediment sample volume at the time, Total Phosphorus (TP) was not analyzed, and additional samples would be required to confirm concentrations throughout the dredge area. Generally, all nutrients are high in a given sample; so, although TP was not analyzed, it should be anticipated that it may also be above background levels. Nutrient exceedances can create issues when disposing of dredge material in water.

Table 1: Nutrient results for Port Rowan samples

Parameter	Units	PSQG LEL	Back-ground*	Sample ID					
				2025-N1	2025-N2	2025-N3	2025-S1	2025-S2	2025-S3
NUTRIENTS									
Total organic carbon (TOC)	%	1	10	5.1	6.4	1.8	5.8	2.6	0.87
Total Kjeldahl Nitrogen (TKN)	µg/g	550	4800	8260	6790	2640	7760	3710	1030
TP	µg/g	600	2000	-	-	-	-	-	-

**Background values for nutrients taken from Kemp and Thomas (1976)*

All samples except Sample 2025-S3 also contained exceedances under the MECP Table 3.1 ESQG: Residential, Parkland, Institutional Property Use of soil conductivity, which is related to the dissolved salt content in the soil. These are shown in Table 102 in Appendix A. Under O.Reg 406/19 and O.Reg 153/04, salt impacted soils may only be utilized for a beneficial reuse in projects where it is reasonable to expect salt to accumulate naturally, such as infrastructure projects or roads, OR if it is placed at depth of 1.5m below final grade. It should be noted that this can limit disposal options.

All samples were analyzed for particle grain size utilizing a 75 µg sieve resulting in a rough depiction of the soil texture and granularity. All samples consisted of fine silt material, with upwards of 99% fines in all cases except sample 2025-S2, which contained 89.2% fines. The excess soil regulations place restrictions on the transportation of “liquid soil”, meaning soil that does not pass a slump height test of 150mm as prescribed in the regulations. Typically, soils that have higher silt fractions will have a harder time not only dewatering but performing slump tests as well, due to the smaller particle size and denser nature of the material. Therefore, dredged material may have to be dewatered prior to transportation off site.

In conclusion, the initial sediment chemistry analysis found exceedances of the PSQG LEL in nutrients for Samples 2025-N1, 2025-N2, and 2025-S2. These values also exceed established local Lake Erie background levels. All samples except 2025-S3 also showed exceedances of the MECP Table 3.1 ESQG: Residential, Parkland, Institutional Property Use for soil conductivity, meaning the soil is salt impacted, which can limit disposal options. Provided any additional required samples are consistent with the initial results, the dredged material will be suitable for several practical uses. Due to the high silt fraction of the dredged material, additional dewatering time or processing may be required prior to transportation of the material to the final placement site.

If you require any further clarification on the contents of this letter, please don’t hesitate to reach out.

Kind regards,

Andy Tarrant P.Eng.
Riggs Associates Ltd.

References

Thomas, R. L., and A. Mudroch. 1979. Small craft harbours - Sediment survey, Lakes Ontario, Erie and Lake St. Clair. *Dredging summary and protocol: Report to Small Craft Harbours Ontario Region from the Great Lakes Biolimnology Laboratory*. December, 1979.

A. L. W. Kemp, R. L. Thomas, C. I. Dell, and J.-M. Jaquet. 1976. Cultural Impact on the Geochemistry of Sediments in Lake Erie. *Journal of the Fisheries Research Board of Canada*. 33(3): 440-462. https://doi.org/10.1139/f76-065

APPENDIX A – Sediment Chemistry Results Comparison Tables

Table 1 Sediment Metals and Nutrients vs. PSQGs

Parameter	PSQG	Back-ground*	Sample ID					
	LEL		2025-N1	2025-N2	2025-N3	2025-S1	2025-S2	2025-S3
Arsenic	6	4.2	6	5	3	5	3	2
Cadmium	0.6	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	26	79	27	19	11	25	12	7
Copper	16	29	31.9	25.1	10.3	33.1	14.2	5.8
Iron								
Lead	31	35	29	22	9	28	16	6
Manganese	460							
Mercury	0.2	0.17	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	16		26	18	10	24	12	7
Zinc	120	123	131	68	38	126	46	25
NUTRIENTS								
Total organic carbon (%)	1	-	5.1	6.4	1.8	5.8	2.6	0.87
Total Kjeldahl Nitrogen	550	-	8260	6790	2640	7760	3710	1030
TP	600	-						

1. All concentrations in ug/g (ppm) unless otherwise specified.
2. '-' means no value available
3.. * Thomas and Mudroch (1979) ** Kemp and Thomas (1976)
4. TOC taken as average of all samples: 3.76

Table 2 Sediment PAH vs. PSQGs

Parameter	PSQG	Sample ID					
	LEL	2025-N1	2025-N2	2025-N3	2025-S1	2025-S2	2025-S3
Anthracene	0.22	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo[a]anthracene	0.32	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo[k]fluoranthene	0.24	0.08	0.08	<0.05	0.05	<0.05	<0.05
Benzo[a]pyrene	0.37	0.08	0.16	<0.05	0.05	<0.05	<0.05
Benzo[g,h,i]perylene	0.17	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	0.34	0.12	<0.05	<0.05	0.08	0.07	<0.05
Dibenzo[a,h]anthracene	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	0.75	0.15	0.08	<0.05	0.11	0.09	<0.05
Fluorene	0.19	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno[1,2,3-cd]pyrene	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	0.56	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	0.49	0.12	0.06	<0.05	0.08	0.07	<0.05
Total PAH	4.0	0.55	0.38	<0.3	0.37	0.23	<0.3

1. All concentrations in ug/g (ppm) unless otherwise specified.
2. '-' means no value available

Table 3 Sediment OC Pesticide vs. PSQGs

Parameter	PSQG	Sample ID					
	LEL	2025-N1	2025-N2	2025-N3	2025-S1	2025-S2	2025-S3
Aldrin	0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Alpha-Chlordane	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Gamma-Chlordane	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane (Total)	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
pp'-DDD	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
pp'-DDE	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
op'-DDT	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
pp'- DDT	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
DDT (Total)	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Dieldrin	0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	0.003	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Gamma-Hexachlorocyclohexane	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
PCB 1254	0.06	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
PCB 1248	0.03	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
PCB 1016	0.007	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
PCB 1260	0.005	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Total PCB	0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07

1. 'All concentrations in ug/g (ppm) unless otherwise specified.
2. '-' means no value available

Table 4 Sediment Analysis Texture

Parameter		Sample ID					
		2025-N1	2025-N2	2025-N3	2025-S1	2025-S2	2025-S3
Particle Size Distribution (Sand)	%	0.90	0.40	0.30	0.50	11.00	0.40
Particle Size Distribution (Silt and clay)	%	99.10	99.60	99.70	99.50	89.00	99.60
Soil Texture	%	Fine	Fine	Fine	Fine	Fine	Fine

TABLE 101

PETROLEUM HYDROCARBON (PHC) FRACTIONS F1 to F4 AND BTEX ANALYSIS - SOIL

Port Rowan 2025-07-15

Parameters	MECP Table 3.1 ESQS Residential / Parkland / Institutional Property Use	Laboratory Detection Limit	2025-N1	2025-N2	2025-N3	2025-S1	2025-S2	2025-S3
			15-Jul-2025	15-Jul-2025	15-Jul-2025	15-Jul-2025	15-Jul-2025	15-Jul-2025
			6898517	6898518	6898519	6898520	6898521	6898522
Benzene	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	1.9	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	0.99	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylenes (Total)	0.9	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1-BTEX	25	5	<5	<5	<5	<5	<5	<5
F2 (C10-C16)	10	10	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	300	50	<50	<50	<50	<50	<50	<50
F4 (C34-C50)	2800	50	<50	<50	<50	<50	<50	<50
Chrom. to baseline at nC50	-							
F4G-SG (GHH-Silica)	2800							

Notes:

Standards from Table 3.1 of the MECP Rules for Soil Management and Excess Soil Quality Standards adopted by reference in O. Reg. 406/19 made under the Environmental Protection Act, R.S.O. 1990, cc. E.19 for Full Depth Excess Soil Quality Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use.

Standards from Table 1 of the MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011, O. Reg. 153/04 as amended document for Full Depth Background Site Condition Standards for Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use.

Test results shown in bold type exceeded the MECP Table 3.1 RPI ESQS

Test results shown in bold type exceeded the MECP Table 1 RPIICC SCS, as amended.

Laboratory detection limits for the test results shown in bold type exceeded the applicable standards.

All Standards and results shown in µg/g.

NC - RPD not calculable/not valid; " - " parameter not analyzed

Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.

mbg - metres below grade

Tests carried out by: AGAT

TABLE 102

O.REG. 153/04 METALS AND/OR INORGANICS ANALYSIS - SOIL

Port Rowan 2025-07-15

Parameters	MECP Table 3.1 ESQS Residential / Parkland / Institutional Property Use	Laboratory Detection Limit	2025-N1	2025-N2	2025-N3	2025-S1	2025-S2	2025-S3
			15-Jul-2025	15-Jul-2025	15-Jul-2025	15-Jul-2025	15-Jul-2025	15-Jul-2025
			6898517	6898518	6898519	6898520	6898521	6898522
Antimony (Sb)	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic (As)	18	1	6.0	5.0	3.0	5.0	3.0	2.0
Barium (Ba)	390	2	154.0	101.0	57.2	132.0	64.4	34.6
Beryllium (Be)	4	0.5	0.7	0.5	<0.5	0.7	<0.5	<0.5
Boron (B), Hot Water Ext.	1.5	0.1	0.47	0.3	0.34	0.52	0.44	0.21
Boron (B)	120	5	17.0	12.0	8.0	15	7.0	5
Cadmium (Cd)	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium (Cr)	160	5	27.0	19.0	11.0	25.0	12.0	7.0
Chromium, Hexavalent	8	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cobalt (Co)	22	0.8	9.1	7.0	4.4	8.6	4.9	3.2
Copper (Cu)	140	1.0	31.9	25.1	10.3	33.1	14.2	5.8
Cyanide, Weak Acid Diss	0.051	0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Conductivity	0.7	0.005	**1.61**	**1.140**	**0.85**	**1.26**	**0.839**	0.621
Lead (Pb)	120	1	29.0	22.0	9.0	28.0	16.0	6.0
Mercury (Hg)	0.27	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum (Mo)	6.9	0.5	0.6	<0.5	<0.5	0.6	<0.5	<0.5
Nickel (Ni)	100	1	26.0	18.0	10.0	24.0	12.0	7.0
Selenium (Se)	2.4	0.8	1.2	1.1	<0.8	1.2	<0.8	<0.8
Silver (Ag)	20	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SAR	5	N/A	0.351	0.38	0.245	0.486	0.307	0.268
Thallium (Tl)	1	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Uranium (U)	23	0.50	0.72	0.55	0.5	0.68	<0.50	<0.50
Vanadium (V)	86	2.0	37.9	27.1	16.3	34.9	17.4	11.0
Zinc (Zn)	340	5	131.0	68.0	38.0	126.0	46.0	25.0
pH	5 to 9 and 5 to 11	N/A	7.01	7.08	7.08	7.10	7.12	7.08

Notes:

#N/A

#N/A

#N/A

Standards from Table 3.1 of the MECP Rules for Soil Management and Excess Soil Quality Standards adopted by reference in O. Reg. 406/19 made under the Environmental Protection Act, R.S.O. 1990, cc. E.19 for Full Depth Excess Soil Quality Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use.

Test results shown in bold type exceeded the MECP Table 3.1 RPI ESQS

Test results shown in bold type exceeded the MECP Table 3.1 RPI ESQS

Laboratory detection limits for the test results shown in bold type exceeded the applicable standards.

All Standards and results shown in µg/g [exceptions, SAR (unitless) and Conductivity (mS/cm)]

NC - RPD not calculable/not valid; " - " parameter not analyzed

mbg - metres below grade

pH criteria refers to surface and subsurface soils, respectively.

Tests carried out by:

TABLE 104

POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) ANALYSIS - SOIL

Port Rowan 2025-07-15

Parameters	MECP Table 3.1 ESQS Residential / Parkland / Institutional Property Use	Laboratory Detection Limit	2025-N1	2025-N2	2025-N3	2025-S1	2025-S2	2025-S3
			15-Jul-2025	15-Jul-2025	15-Jul-2025	15-Jul-2025	15-Jul-2025	15-Jul-2025
			6898517	6898518	6898519	6898520	6898521	6898522
Acenaphthene	14	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	0.093	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	0.16	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)anthracene	0.5	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	0.57	0.05	0.08	0.16	<0.05	0.050	<0.05	<0.05
Benzo(b&j)fluoranthene	5.7	0.05	0.12	<0.05	<0.05	0.050	0.05	<0.05
Benzo(g,h,i)perylene	6.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	5.7	0.05	0.08	0.08	<0.05	0.050	<0.05	<0.05
Chrysene	7	0.05	0.12	<0.05	<0.05	0.080	0.07	<0.05
Dibenzo(ah)anthracene	0.57	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	0.69	0.05	0.15	0.08	<0.05	0.110	0.09	<0.05
Fluorene	6.8	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	0.38	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1+2-Methylnaphthalenes	0.92	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1-Methylnaphthalene	NV							
2-Methylnaphthalene	NV							
Naphthalene	0.59	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	6.2	0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	70	0.05	0.12	0.06	<0.05	0.080	0.07	<0.05

Notes:

Standards from Table 3.1 of the MECP Rules for Soil Management and Excess Soil Quality Standards adopted by reference in O. Reg. 406/19 made under the Environmental Protection Act, R.S.O. 1990, cc. E.19 for Full Depth Excess Soil Quality Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use.

Standards from Table 1 of the MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011, O. Reg. 153/04 as amended document for Full Depth Background Site Condition Standards for Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use.

Test results shown in bold type exceeded the MECP Table 3.1 RPI ESQS

Test results shown in bold type exceeded the MECP Table 1 RPIICC SCS, as amended.

Laboratory detection limits for the test results shown in bold type exceeded the applicable standards.

All Standards and results shown in µg/g.

NC - RPD not calculable/not valid; " - " parameter not analyzed

mbg - metres below grade

Tests carried out by: AGAT

TABLE 105

POLYCHLORINATED BIPHENYLS (PCBs) ANALYSIS - SOIL

Port Rowan 2025-07-15

Parameters	MECP Table 3.1 ESQS Residential / Parkland / Institutional Property Use	Laboratory Detection Limit	2025-N1	2025-N2	2025-N3	2025-S1	2025-S2	2025-S3
			15-Jul-2025	15-Jul-2025	15-Jul-2025	15-Jul-2025	15-Jul-2025	15-Jul-2025
			6898517	6898518	6898519	6898520	6898521	6898522
Aroclor 1016	-							
Aroclor 1221	-							
Aroclor 1232	-							
Aroclor 1242	-	0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Aroclor 1248	-	0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Aroclor 1254	-	0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Aroclor 1260	-	0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Aroclor 1262	-							
Aroclor 1268	-							
Total PCBs	0.35	0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07

Notes:

Standards from Table 3.1 of the MECP Rules for Soil Management and Excess Soil Quality Standards adopted by reference in O. Reg. 406/19 made under the Environmental Protection Act, R.S.O. 1990, cc. E.19 for Full Depth Excess Soil Quality Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use.

Standards from Table 1 of the MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011, O. Reg. 153/04 as amended document for Full Depth Background Site Condition Standards for Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use.

Test results shown in bold type exceeded the MECP Table 3.1 RPI ESQS

Test results shown in bold type exceeded the MECP Table 3.1 RPI ESQS

Laboratory detection limits for the test results shown in bold type exceeded the applicable standards.

All Standards and results shown in µg/g.

NC - RPD not calculable/not valid; " - " parameter not analyzed

mbg - metres below grade

Tests carried out by: AGAT

TABLE 108

ORGANOCHLORINE (OC) PESTICIDES ANALYSIS - SOIL

Port Rowan 2025-07-15

Parameters	MECP Table 3.1 ESQS Residential / Parkland / Institutional Property Use	Laboratory Detection Limit	2025-N1	2025-N2	2025-N3	2025-S1	2025-S2	2025-S3
			15-Jul-2025	15-Jul-2025	15-Jul-2025	15-Jul-2025	15-Jul-2025	15-Jul-2025
			6898517	6898518	6898519	6898520	6898521	6898522
Aldrin	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
a-chlordane	-	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
g-chlordane	-	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	0.26	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
op-DDD	-	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
pp-DDD	-	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
DDD	3.3	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
o,p-DDE	-	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
pp-DDE	-	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
DDE	0.26	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
op-DDT	-	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
pp-DDT	-	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
DDT	1.4	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Dieldrin	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan I	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	0.072	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	0.52	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobutadiene	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
gamma-hexachlorocyclohexane	0.01	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachloroethane	0.01	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	0.13	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Notes:

Standards from Table 3.1 of the MECP Rules for Soil Management and Excess Soil Quality Standards adopted by reference in O. Reg. 406/19 made under the Environmental Protection Act, R.S.O. 1990, cc. E.19 for Full Depth Excess Soil Quality Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use.

Standards from Table 1 of the MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011, O. Reg. 153/04 as amended document for Full Depth Background Site Condition Standards for Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use.

Test results shown in bold type exceeded the MECP Table 3.1 RPI ESQS

Test results shown in bold type exceeded the MECP Table 1 RPIICC SCS, as amended.

Laboratory detection limits for the test results shown in bold type exceeded the applicable standards.

All Standards and results shown in µg/g.

NC - RPD not calculable/not valid; " - " parameter not analyzed

mbg - metres below grade

Tests carried out by: AGAT

APPENDIX B – Laboratory Sediment Chemistry Results

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: RIGGS ASSOCIATES LTD
1240 Commissioners Road West
London, ON N6K1C7
(519) 657-1040
ATTENTION TO: Andrew Marczenko
PROJECT: Port Rowan & Port Dover
AGAT WORK ORDER: 25L321976
SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganic Team Lead
TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor
DATE REPORTED: Jul 24, 2025
PAGES (INCLUDING COVER): 28
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
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- *All reportable information is available on request from AGAT Laboratories, in accordance with ISO/IEC 17025:2017, ISO/IEC 17025:2005 (Quebec), DR-12-PALA and/or NELAP Standards.*
- *This document is signed by an authorized signatory who meets the requirements of the MELCCFP, CALA, CCN and NELAP.*
- *For environmental samples in the Province of Quebec: The analysis is performed on and results apply to samples as received. A temperature above 6°C upon receipt, as indicated in the Sample Reception Notification (SRN), could indicate the integrity of the samples has been compromised if the delay between sampling and submission to the laboratory could not be minimized.*

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Certificate of Analysis

AGAT WORK ORDER: 25L321976

PROJECT: Port Rowan & Port Dover

CLIENT NAME: RIGGS ASSOCIATES LTD

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

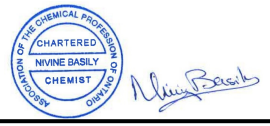
Metals & Inorganics (Soil)

DATE RECEIVED: 2025-07-16

DATE REPORTED: 2025-07-24

		SAMPLE DESCRIPTION:		2025-01
		SAMPLE TYPE:		Sediment
		DATE SAMPLED:		2025-07-15 09:30
Parameter	Unit	G / S	RDL	6898508
Aluminum	µg/g		20.0	4000
Antimony	µg/g		0.8	<0.8
Arsenic	µg/g		1	2
Barium	µg/g		2.0	25.3
Beryllium	µg/g		0.5	<0.5
Boron	µg/g		5	6
Boron (Hot Water Soluble)	µg/g		0.10	0.23
Cadmium	µg/g		0.5	<0.5
Chromium	µg/g		5	7
Cobalt	µg/g		0.8	2.7
Copper	µg/g		1.0	8.4
Iron	µg/g		100	7940
Lead	µg/g		1	4
Manganese	µg/g		5.0	351
Molybdenum	µg/g		0.5	<0.5
Nickel	µg/g		1	6
Phosphorus	µg/g		20	710
Selenium	µg/g		0.8	<0.8
Silver	µg/g		0.5	<0.5
Strontium	µg/g		5	119
Thallium	µg/g		0.5	<0.5
Titanium	µg/g		50	280
Uranium	µg/g		0.50	0.80
Vanadium	µg/g		2.0	12.4
Zinc	µg/g		5	26
Zirconium	µg/g		1.0	2.3
Chromium, Hexavalent	µg/g		0.2	<0.2
Cyanide, WAD	µg/g		0.040	<0.040
Mercury	µg/g		0.10	<0.10

Certified By:



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AGAT WORK ORDER: 25L321976

PROJECT: Port Rowan & Port Dover

CLIENT NAME: RIGGS ASSOCIATES LTD

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

Metals & Inorganics (Soil)

DATE RECEIVED: 2025-07-16

DATE REPORTED: 2025-07-24

			SAMPLE DESCRIPTION:	2025-01
			SAMPLE TYPE:	Sediment
			DATE SAMPLED:	2025-07-15 09:30
Parameter	**Unit**	**G / S**	**RDL**	**6898508**
Electrical Conductivity (2:1)	mS/cm		0.005	0.554
Sodium Adsorption Ratio (2:1) (Calc.)	N/A		N/A	0.405
pH, 2:1 CaCl2 Extraction	pH Units		NA	6.84

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

6898508 EC was determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio. SAR is a calculated parameter.

Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 25L321976

PROJECT: Port Rowan & Port Dover

CLIENT NAME: RIGGS ASSOCIATES LTD

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

(Soil) TOC, TKN

DATE RECEIVED: 2025-07-16

DATE REPORTED: 2025-07-24

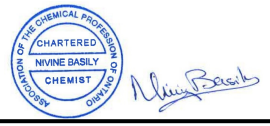
		SAMPLE DESCRIPTION:		2025-01	2025-02	2025-03	2025-04	2025-N1	2025-N2	2025-N3	2025-S1
		SAMPLE TYPE:		Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
		DATE SAMPLED:		2025-07-15 09:30	2025-07-15 09:30	2025-07-15 09:30	2025-07-15 09:30	2025-07-15 13:30	2025-07-15 13:30	2025-07-15 13:30	2025-07-15 13:30
Parameter	**Unit**	**G / S**	**RDL**	**6898508**	**6898514**	**6898515**	**6898516**	**6898517**	**6898518**	**6898519**	**6898520**
Total Organic Carbon(Walkley-Black Wet Oxidation)	%		0.30	0.49	<0.30	<0.30	<0.30	5.1	6.4	1.8	5.8
Total Kjeldahl Nitrogen	µg/g		50.00	553	186	86.7	121	8260	6790	2640	7760

		SAMPLE DESCRIPTION:		2025-S2	2025-S3
		SAMPLE TYPE:		Sediment	Sediment
		DATE SAMPLED:		2025-07-15 13:30	2025-07-15 13:30
Parameter	**Unit**	**G / S**	**RDL**	**6898521**	**6898522**
Total Organic Carbon(Walkley-Black Wet Oxidation)	%		0.30	2.6	0.87
Total Kjeldahl Nitrogen	µg/g		50.00	3710	1030

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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AGAT WORK ORDER: 25L321976

PROJECT: Port Rowan & Port Dover

CLIENT NAME: RIGGS ASSOCIATES LTD

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

Metals & Inorganics (Soil)

DATE RECEIVED: 2025-07-16

DATE REPORTED: 2025-07-24

SAMPLE DESCRIPTION:				2025-02	2025-03	2025-04	2025-N1	2025-N2	2025-N3	2025-S1	2025-S2
SAMPLE TYPE:				Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
DATE SAMPLED:				2025-07-15 09:30	2025-07-15 09:30	2025-07-15 09:30	2025-07-15 13:30	2025-07-15 13:30	2025-07-15 13:30	2025-07-15 13:30	2025-07-15 13:30
Parameter	Unit	G / S	RDL	6898514	6898515	6898516	6898517	6898518	6898519	6898520	6898521
Antimony	µg/g		0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g		1	2	2	2	6	5	3	5	3
Barium	µg/g		2.0	14.5	9.5	10.6	154	101	57.2	132	64.4
Beryllium	µg/g		0.5	<0.5	<0.5	<0.5	0.7	0.5	<0.5	0.7	<0.5
Boron	µg/g		5	<5	<5	<5	17	12	8	15	7
Boron (Hot Water Soluble)	µg/g		0.10	<0.10	<0.10	<0.10	0.47	0.30	0.34	0.52	0.44
Cadmium	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g		5	<5	<5	7	27	19	11	25	12
Cobalt	µg/g		0.8	1.9	1.4	1.8	9.1	7.0	4.4	8.6	4.9
Copper	µg/g		1.0	3.7	2.2	4.4	31.9	25.1	10.3	33.1	14.2
Lead	µg/g		1	3	2	2	29	22	9	28	16
Molybdenum	µg/g		0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	0.6	<0.5
Nickel	µg/g		1	4	3	3	26	18	10	24	12
Selenium	µg/g		0.8	<0.8	<0.8	<0.8	1.2	1.1	<0.8	1.2	<0.8
Silver	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thallium	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Uranium	µg/g		0.50	<0.50	<0.50	0.70	0.72	0.55	0.50	0.68	<0.50
Vanadium	µg/g		2.0	8.9	9.2	20.2	37.9	27.1	16.3	34.9	17.4
Zinc	µg/g		5	18	14	25	131	68	38	126	46
Chromium, Hexavalent	µg/g		0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide, WAD	µg/g		0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g		0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm		0.005	0.176	0.107	0.103	1.61	1.14	0.854	1.26	0.839
Sodium Adsorption Ratio (2:1) (Calc.)	N/A		N/A	0.170	0.157	0.360	0.351	0.380	0.245	0.486	0.307
pH, 2:1 CaCl2 Extraction	pH Units		NA	6.86	6.91	6.94	7.01	7.08	7.08	7.10	7.12

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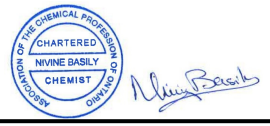

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Certificate of Analysis

AGAT WORK ORDER: 25L321976

PROJECT: Port Rowan & Port Dover

CLIENT NAME: RIGGS ASSOCIATES LTD

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

Metals & Inorganics (Soil)

DATE RECEIVED: 2025-07-16

DATE REPORTED: 2025-07-24

		SAMPLE DESCRIPTION:		2025-S3
		SAMPLE TYPE:		Sediment
		DATE SAMPLED:		2025-07-15 13:30
Parameter	Unit	G / S	RDL	6898522
Antimony	µg/g		0.8	<0.8
Arsenic	µg/g		1	2
Barium	µg/g		2.0	34.6
Beryllium	µg/g		0.5	<0.5
Boron	µg/g		5	5
Boron (Hot Water Soluble)	µg/g		0.10	0.21
Cadmium	µg/g		0.5	<0.5
Chromium	µg/g		5	7
Cobalt	µg/g		0.8	3.2
Copper	µg/g		1.0	5.8
Lead	µg/g		1	6
Molybdenum	µg/g		0.5	<0.5
Nickel	µg/g		1	7
Selenium	µg/g		0.8	<0.8
Silver	µg/g		0.5	<0.5
Thallium	µg/g		0.5	<0.5
Uranium	µg/g		0.50	<0.50
Vanadium	µg/g		2.0	11.0
Zinc	µg/g		5	25
Chromium, Hexavalent	µg/g		0.2	<0.2
Cyanide, WAD	µg/g		0.040	<0.040
Mercury	µg/g		0.10	<0.10
Electrical Conductivity (2:1)	mS/cm		0.005	0.621
Sodium Adsorption Ratio (2:1) (Calc.)	N/A		N/A	0.268
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.08

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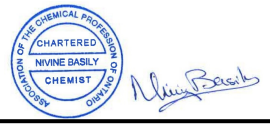

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PROJECT: Port Rowan & Port Dover

CLIENT NAME: RIGGS ASSOCIATES LTD

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

Metals & Inorganics (Soil)

DATE RECEIVED: 2025-07-16 **DATE REPORTED: 2025-07-24**

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

6898514-6898522 EC was determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

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AGAT WORK ORDER: 25L321976

PROJECT: Port Rowan & Port Dover

CLIENT NAME: RIGGS ASSOCIATES LTD

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

Particle Size by Sieve (Wet)

DATE RECEIVED: 2025-07-16 **DATE REPORTED: 2025-07-24**

		SAMPLE DESCRIPTION:		2025-01	2025-02	2025-03	2025-04	2025-N1	2025-N2	2025-N3	2025-S1
		SAMPLE TYPE:		Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
		DATE SAMPLED:		2025-07-15 09:30	2025-07-15 09:30	2025-07-15 09:30	2025-07-15 09:30	2025-07-15 13:30	2025-07-15 13:30	2025-07-15 13:30	2025-07-15 13:30
Parameter	**Unit**	**G / S**	**RDL**	**6898508**	**6898514**	**6898515**	**6898516**	**6898517**	**6898518**	**6898519**	**6898520**
Sieve Analysis - 75 µm (retained)	%		NA	43.20	70.90	80.40	67.90	0.90	0.40	0.30	0.50
Sieve Analysis - 75 µm (passing)	%		NA	56.80	29.10	19.60	32.10	99.10	99.60	99.70	99.50
Soil Texture (Toronto)				Fine	Coarse	Coarse	Coarse	Fine	Fine	Fine	Fine

		SAMPLE DESCRIPTION:		2025-S2	2025-S3
		SAMPLE TYPE:		Sediment	Sediment
		DATE SAMPLED:		2025-07-15 13:30	2025-07-15 13:30
Parameter	**Unit**	**G / S**	**RDL**	**6898521**	**6898522**
Sieve Analysis - 75 µm (retained)	%		NA	11.00	0.40
Sieve Analysis - 75 µm (passing)	%		NA	89.00	99.60
Soil Texture (Toronto)				Fine	Fine

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

6898508-6898522 Value reported is the amount of sample passing through or retained on sieve after wash with water and represents proportion by weight particles smaller or larger than indicated sieve size.
Analysis performed at AGAT Toronto (unless marked by *)

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AGAT WORK ORDER: 25L321976

PROJECT: Port Rowan & Port Dover

CLIENT NAME: RIGGS ASSOCIATES LTD

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2025-07-16

DATE REPORTED: 2025-07-24

SAMPLE DESCRIPTION:				2025-01	2025-02	2025-03	2025-04	2025-N1	2025-N2	2025-N3	2025-S1
SAMPLE TYPE:				Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
DATE SAMPLED:				2025-07-15 09:30	2025-07-15 09:30	2025-07-15 09:30	2025-07-15 09:30	2025-07-15 13:30	2025-07-15 13:30	2025-07-15 13:30	2025-07-15 13:30
Parameter	Unit	G / S	RDL	6898508	6898514	6898515	6898516	6898517	6898518	6898519	6898520
Hexachloroethane	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Gamma-Hexachlorocyclohexane	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan I	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan II	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Alpha-Chlordane	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
gamma-Chlordane	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	µg/g		0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
op'-DDE	ug/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
pp'-DDE	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
DDE	µg/g		0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
op'-DDD	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
pp'-DDD	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
DDD	µg/g		0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
op'-DDT	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
pp'-DDT	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
DDT (Total)	µg/g		0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Dieldrin	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobutadiene	µg/g		0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	36.7	25.1	22.7	23.1	49.4	52.0	46.3	63.0
wet weight OC	g		0.005	10.6	10.6	10.1	10.9	10.8	10.2	10.2	10.7

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Certificate of Analysis

AGAT WORK ORDER: 25L321976

PROJECT: Port Rowan & Port Dover

CLIENT NAME: RIGGS ASSOCIATES LTD

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2025-07-16 **DATE REPORTED: 2025-07-24**

		SAMPLE DESCRIPTION:	2025-01	2025-02	2025-03	2025-04	2025-N1	2025-N2	2025-N3	2025-S1
		SAMPLE TYPE:	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
		DATE SAMPLED:	2025-07-15 09:30	2025-07-15 09:30	2025-07-15 09:30	2025-07-15 09:30	2025-07-15 13:30	2025-07-15 13:30	2025-07-15 13:30	2025-07-15 13:30
Surrogate	Unit	Acceptable Limits	6898508	6898514	6898515	6898516	6898517	6898518	6898519	6898520
TCMX	%	50-140	81	92	85	86	106	93	85	104
Decachlorobiphenyl	%	50-140	80	95	81	82	88	84	83	90

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SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2025-07-16

DATE REPORTED: 2025-07-24

				SAMPLE DESCRIPTION:	2025-S2	2025-S3
				SAMPLE TYPE:	Sediment	Sediment
				DATE SAMPLED:	2025-07-15 13:30	2025-07-15 13:30
Parameter	Unit	G / S	RDL		6898521	6898522
Hexachloroethane	µg/g		0.005		<0.005	<0.005
Gamma-Hexachlorocyclohexane	µg/g		0.005		<0.005	<0.005
Heptachlor	µg/g		0.005		<0.005	<0.005
Aldrin	µg/g		0.005		<0.005	<0.005
Heptachlor Epoxide	µg/g		0.005		<0.005	<0.005
Endosulfan I	µg/g		0.005		<0.005	<0.005
Endosulfan II	µg/g		0.005		<0.005	<0.005
Endosulfan	µg/g		0.005		<0.005	<0.005
Alpha-Chlordane	µg/g		0.005		<0.005	<0.005
gamma-Chlordane	µg/g		0.005		<0.005	<0.005
Chlordane	µg/g		0.007		<0.007	<0.007
op'-DDE	ug/g		0.005		<0.005	<0.005
pp'-DDE	µg/g		0.005		<0.005	<0.005
DDE	µg/g		0.007		<0.007	<0.007
op'-DDD	µg/g		0.005		<0.005	<0.005
pp'-DDD	µg/g		0.005		<0.005	<0.005
DDD	µg/g		0.007		<0.007	<0.007
op'-DDT	µg/g		0.005		<0.005	<0.005
pp'-DDT	µg/g		0.005		<0.005	<0.005
DDT (Total)	µg/g		0.007		<0.007	<0.007
Dieldrin	µg/g		0.005		<0.005	<0.005
Endrin	µg/g		0.005		<0.005	<0.005
Methoxychlor	µg/g		0.005		<0.005	<0.005
Hexachlorobenzene	µg/g		0.005		<0.005	<0.005
Hexachlorobutadiene	µg/g		0.01		<0.01	<0.01
Moisture Content	%		0.1		46.8	32.6
wet weight OC	g		0.005		10.2	10.6

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Certificate of Analysis

AGAT WORK ORDER: 25L321976

PROJECT: Port Rowan & Port Dover

CLIENT NAME: RIGGS ASSOCIATES LTD

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2025-07-16

DATE REPORTED: 2025-07-24

		SAMPLE DESCRIPTION:	2025-S2	2025-S3
		SAMPLE TYPE:	Sediment	Sediment
		DATE SAMPLED:	2025-07-15 13:30	2025-07-15 13:30
Surrogate	Unit	Acceptable Limits	6898521	6898522
TCMX	%	50-140	88	109
Decachlorobiphenyl	%	50-140	89	99

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

6898508-6898522 Results are based on the dry weight of the soil.
DDT total is a calculated parameter. The calculated value is the sum of op'DDT and pp'DDT.
DDD total is a calculated parameter. The calculated value is the sum of op'DDD and pp'DDD.
DDE total is a calculated parameter. The calculated value is the sum of op'DDE and pp'DDE.
Endosulfan total is a calculated parameter. The calculated value is the sum of Endosulfan I and Endosulfan II.
Chlordane total is a calculated parameter. The calculated value is the sum of Alpha-Chlordane and Gamma-Chlordane.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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AGAT WORK ORDER: 25L321976

PROJECT: Port Rowan & Port Dover

CLIENT NAME: RIGGS ASSOCIATES LTD

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PAHs (Soil)

DATE RECEIVED: 2025-07-16

DATE REPORTED: 2025-07-24

		SAMPLE DESCRIPTION:		2025-01	2025-02	2025-03	2025-04	2025-N1	2025-N2	2025-N3	2025-S1
		SAMPLE TYPE:		Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
		DATE SAMPLED:		2025-07-15 09:30	2025-07-15 09:30	2025-07-15 09:30	2025-07-15 09:30	2025-07-15 13:30	2025-07-15 13:30	2025-07-15 13:30	2025-07-15 13:30
Parameter	**Unit**	**G / S**	**RDL**	**6898508**	**6898514**	**6898515**	**6898516**	**6898517**	**6898518**	**6898519**	**6898520**
Naphthalene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g		0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05
Anthracene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g		0.05	0.10	<0.05	<0.05	<0.05	0.15	0.08	<0.05	0.11
Pyrene	µg/g		0.05	0.09	<0.05	<0.05	<0.05	0.12	0.06	<0.05	0.08
Benzo(a)anthracene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/g		0.05	0.09	<0.05	<0.05	<0.05	0.12	<0.05	<0.05	0.08
Benzo(b)fluoranthene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	0.12	<0.05	<0.05	0.05
Benzo(k)fluoranthene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	0.08	0.08	<0.05	0.05
Benzo(a)pyrene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	0.08	0.16	<0.05	0.05
Indeno(1,2,3-cd)pyrene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-and 1-methyl Naphthalene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	36.7	25.1	22.7	23.1	49.4	52.0	46.3	63.0
Surrogate	**Unit**	**Acceptable Limits**									
Naphthalene-d8	%	50-140		105	115	90	85	105	120	90	120
Acridine-d9	%	50-140		115	100	100	70	90	110	95	70
Terphenyl-d14	%	50-140		120	70	75	70	80	88	80	90

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Certificate of Analysis

AGAT WORK ORDER: 25L321976

PROJECT: Port Rowan & Port Dover

CLIENT NAME: RIGGS ASSOCIATES LTD

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PAHs (Soil)

DATE RECEIVED: 2025-07-16

DATE REPORTED: 2025-07-24

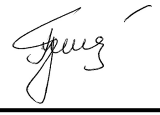
				SAMPLE DESCRIPTION:	2025-S2	2025-S3
				SAMPLE TYPE:	Sediment	Sediment
				DATE SAMPLED:	2025-07-15 13:30	2025-07-15 13:30
Parameter	**Unit**	**G / S**	**RDL**		**6898521**	**6898522**
Naphthalene	µg/g		0.05		<0.05	<0.05
Acenaphthylene	µg/g		0.05		<0.05	<0.05
Acenaphthene	µg/g		0.05		<0.05	<0.05
Fluorene	µg/g		0.05		<0.05	<0.05
Phenanthrene	µg/g		0.05		<0.05	<0.05
Anthracene	µg/g		0.05		<0.05	<0.05
Fluoranthene	µg/g		0.05		0.09	<0.05
Pyrene	µg/g		0.05		0.07	<0.05
Benzo(a)anthracene	µg/g		0.05		<0.05	<0.05
Chrysene	µg/g		0.05		0.07	<0.05
Benzo(b)fluoranthene	µg/g		0.05		0.05	<0.05
Benzo(k)fluoranthene	µg/g		0.05		<0.05	<0.05
Benzo(a)pyrene	µg/g		0.05		<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g		0.05		<0.05	<0.05
Dibenz(a,h)anthracene	µg/g		0.05		<0.05	<0.05
Benzo(g,h,i)perylene	µg/g		0.05		<0.05	<0.05
2-and 1-methyl Naphthalene	µg/g		0.05		<0.05	<0.05
Moisture Content	%		0.1		46.8	32.6
Surrogate	**Unit**	**Acceptable Limits**				
Naphthalene-d8	%	50-140			120	70
Acridine-d9	%	50-140			70	105
Terphenyl-d14	%	50-140			74	120

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

6898508-6898522 Results are based on the dry weight of the soil.
Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&j)Fluoranthene isomers because the isomers co-elute on the GC column.
2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 25L321976

PROJECT: Port Rowan & Port Dover

CLIENT NAME: RIGGS ASSOCIATES LTD

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (Soil)

DATE RECEIVED: 2025-07-16 **DATE REPORTED: 2025-07-24**

		SAMPLE DESCRIPTION:		2025-01	2025-02	2025-03	2025-04	2025-N1	2025-N2	2025-N3	2025-S1
		SAMPLE TYPE:		Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
		DATE SAMPLED:		2025-07-15 09:30	2025-07-15 09:30	2025-07-15 09:30	2025-07-15 09:30	2025-07-15 13:30	2025-07-15 13:30	2025-07-15 13:30	2025-07-15 13:30
Parameter	**Unit**	**G / S**	**RDL**	**6898508**	**6898514**	**6898515**	**6898516**	**6898517**	**6898518**	**6898519**	**6898520**
Benzene	µg/g		0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
m & p-Xylene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylenes (Total)	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g		5	<5	<5	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g		5	<5	<5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g		10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g		50	<50	<50	<50	<50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g		50	<50	<50	<50	<50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g		50	NA	NA	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	36.7	25.1	22.7	23.1	49.4	52.0	46.3	63.0
Surrogate	**Unit**	**Acceptable Limits**									
Toluene-d8	% Recovery	60-140		114	117	115	113	111	115	112	117
Terphenyl	%	60-140		79	74	96	77	88	90	87	93

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Certificate of Analysis

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PROJECT: Port Rowan & Port Dover

CLIENT NAME: RIGGS ASSOCIATES LTD

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (Soil)

DATE RECEIVED: 2025-07-16

DATE REPORTED: 2025-07-24

				SAMPLE DESCRIPTION:	2025-S2	2025-S3
				SAMPLE TYPE:	Sediment	Sediment
				DATE SAMPLED:	2025-07-15 13:30	2025-07-15 13:30
Parameter	**Unit**	**G / S**	**RDL**		**6898521**	**6898522**
Benzene	µg/g		0.02		<0.02	<0.02
Toluene	µg/g		0.05		<0.05	<0.05
Ethylbenzene	µg/g		0.05		<0.05	<0.05
m & p-Xylene	µg/g		0.05		<0.05	<0.05
o-Xylene	µg/g		0.05		<0.05	<0.05
Xylenes (Total)	µg/g		0.05		<0.05	<0.05
F1 (C6 to C10)	µg/g		5		<5	<5
F1 (C6 to C10) minus BTEX	µg/g		5		<5	<5
F2 (C10 to C16)	µg/g		10		<10	<10
F3 (C16 to C34)	µg/g		50		<50	<50
F4 (C34 to C50)	µg/g		50		<50	<50
Gravimetric Heavy Hydrocarbons	µg/g		50		NA	NA
Moisture Content	%		0.1		46.8	32.6
Surrogate	**Unit**	**Acceptable Limits**				
Toluene-d8	% Recovery	60-140			114	114
Terphenyl	%	60-140			96	86

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AGAT WORK ORDER: 25L321976

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SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (Soil)

DATE RECEIVED: 2025-07-16 **DATE REPORTED: 2025-07-24**

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

6898508-6898522 Results are based on sample dry weight.
The C6-C10 fraction is calculated using Toluene response factor.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contribution.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Analysis performed at AGAT Toronto (unless marked by *)

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AGAT WORK ORDER: 25L321976

PROJECT: Port Rowan & Port Dover

CLIENT NAME: RIGGS ASSOCIATES LTD

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

PCBs (Aroclors) - Sediment

DATE RECEIVED: 2025-07-16

DATE REPORTED: 2025-07-24

			SAMPLE DESCRIPTION:	2025-01	2025-02	2025-03	2025-04	2025-N1	2025-N2	2025-N3	2025-S1
			SAMPLE TYPE:	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
			DATE SAMPLED:	2025-07-15 09:30	2025-07-15 09:30	2025-07-15 09:30	2025-07-15 09:30	2025-07-15 13:30	2025-07-15 13:30	2025-07-15 13:30	2025-07-15 13:30
Parameter	**Unit**	**G / S**	**RDL**	**6898508**	**6898514**	**6898515**	**6898516**	**6898517**	**6898518**	**6898519**	**6898520**
Aroclor 1242	µg/g		0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Aroclor 1248	µg/g		0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Aroclor 1254	µg/g		0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Aroclor 1260	µg/g		0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Polychlorinated Biphenyls	µg/g		0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Moisture Content	%		0.1	36.7	25.1	22.7	23.1	49.4	52.0	46.3	63.0
PCB Extr	NA			Y	Y	Y	Y	Y	Y	Y	Y
Surrogate	**Unit**	**Acceptable Limits**									
Decachlorobiphenyl	%	50-140		80	95	81	82	88	84	83	90

		SAMPLE DESCRIPTION:	2025-S2	2025-S3	
		SAMPLE TYPE:	Sediment	Sediment	
		DATE SAMPLED:	2025-07-15 13:30	2025-07-15 13:30	
Parameter	**Unit**	**G / S**	**RDL**	**6898521**	**6898522**
Aroclor 1242	µg/g		0.07	<0.07	<0.07
Aroclor 1248	µg/g		0.07	<0.07	<0.07
Aroclor 1254	µg/g		0.07	<0.07	<0.07
Aroclor 1260	µg/g		0.07	<0.07	<0.07
Polychlorinated Biphenyls	µg/g		0.07	<0.07	<0.07
Moisture Content	%		0.1	46.8	32.6
PCB Extr	NA			Y	Y
Surrogate	**Unit**	**Acceptable Limits**			
Decachlorobiphenyl	%	50-140		89	99

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

6898508-6898522 Results are based on the dry weight of soil extracted.
PCB total is a calculated parameter. Result for total PCB is sum of Aroclors determined in the sample.

Analysis performed at AGAT Toronto (unless marked by *)

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Quality Assurance

CLIENT NAME: RIGGS ASSOCIATES LTD

AGAT WORK ORDER: 25L321976

PROJECT: Port Rowan & Port Dover

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

Soil Analysis

RPT Date: Jul 24, 2025			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Metals & Inorganics (Soil)															
Aluminum	6898508	6898508	4000	3930	1.8%	< 20.0	109%	70%	130%	104%	80%	120%	NA	70%	130%
Antimony	6898508	6898508	<0.8	<0.8	NA	< 0.8	95%	70%	130%	100%	80%	120%	92%	70%	130%
Arsenic	6898508	6898508	2	2	NA	< 1	106%	70%	130%	102%	80%	120%	100%	70%	130%
Barium	6898508	6898508	25.3	25.3	0.0%	< 2.0	112%	70%	130%	110%	80%	120%	113%	70%	130%
Beryllium	6898508	6898508	<0.5	<0.5	NA	< 0.5	95%	70%	130%	92%	80%	120%	97%	70%	130%
Boron	6898508	6898508	6	5	NA	< 5	86%	70%	130%	98%	80%	120%	93%	70%	130%
Boron (Hot Water Soluble)	6898508	6898508	0.23	0.25	NA	< 0.10	99%	60%	140%	101%	70%	130%	100%	60%	140%
Cadmium	6898508	6898508	<0.5	<0.5	NA	< 0.5	109%	70%	130%	105%	80%	120%	110%	70%	130%
Chromium	6898508	6898508	7	7	NA	< 5	101%	70%	130%	99%	80%	120%	96%	70%	130%
Cobalt	6898508	6898508	2.7	2.7	NA	< 0.8	93%	70%	130%	101%	80%	120%	95%	70%	130%
Copper	6898508	6898508	8.4	8.3	1.2%	< 1.0	87%	70%	130%	101%	80%	120%	87%	70%	130%
Iron	6898508	6898508	7940	7870	0.9%	< 100	102%	70%	130%	103%	80%	120%	NA	70%	130%
Lead	6898508	6898508	4	4	NA	< 1	104%	70%	130%	112%	80%	120%	104%	70%	130%
Manganese	6898508	6898508	351	355	1.1%	< 5.0	99%	70%	130%	101%	80%	120%	NA	70%	130%
Molybdenum	6898508	6898508	<0.5	<0.5	NA	< 0.5	109%	70%	130%	105%	80%	120%	112%	70%	130%
Nickel	6898508	6898508	6	6	0.0%	< 1	103%	70%	130%	99%	80%	120%	102%	70%	130%
Phosphorus	6898508	6898508	710	661	7.1%	< 20	93%	70%	130%	96%	80%	120%	NA	70%	130%
Selenium	6898508	6898508	<0.8	<0.8	NA	< 0.8	104%	70%	130%	96%	80%	120%	98%	70%	130%
Silver	6898508	6898508	<0.5	<0.5	NA	< 0.5	101%	70%	130%	104%	80%	120%	105%	70%	130%
Strontium	6898508	6898508	119	120	0.8%	< 5	101%	70%	130%	104%	80%	120%	NA	70%	130%
Thallium	6898508	6898508	<0.5	<0.5	NA	< 0.5	111%	70%	130%	107%	80%	120%	98%	70%	130%
Titanium	6898508	6898508	280	268	4.4%	< 5.0	101%	70%	130%	99%	80%	120%	NA	70%	130%
Uranium	6898508	6898508	0.80	0.81	NA	< 0.50	108%	70%	130%	101%	80%	120%	97%	70%	130%
Vanadium	6898508	6898508	12.4	12.5	0.8%	< 2.0	103%	70%	130%	99%	80%	120%	99%	70%	130%
Zinc	6898508	6898508	26	26	0.0%	< 5	98%	70%	130%	99%	80%	120%	87%	70%	130%
Zirconium	6898508	6898508	2.3	2.3	NA	< 1.0	98%	70%	130%	97%	80%	120%	96%	70%	130%
Chromium, Hexavalent	6902408		<0.2	<0.2	NA	< 0.2	90%	70%	130%	90%	80%	120%	85%	70%	130%
Cyanide, WAD	6902295		<0.040	<0.040	NA	< 0.040	104%	70%	130%	102%	80%	120%	99%	70%	130%
Mercury	6898508	6898508	<0.10	<0.10	NA	< 0.10	114%	70%	130%	107%	80%	120%	109%	70%	130%
Electrical Conductivity (2:1)	6898508	6898508	0.554	0.544	1.8%	< 0.005	97%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	6899136		1.36	1.35	0.7%	NA									
pH, 2:1 CaCl2 Extraction	6898514	6898514	6.86	6.88	0.3%	NA	98%	80%	120%						
Particle Size by Sieve (Wet)															
Sieve Analysis - 75 µm (retained)	6898314		16.58	16.84	1.6%	NA	99%	75%	125%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Matrix spike NA: Spike level < native concentration. Matrix spike acceptance limits do not apply and are not calculated.

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Quality Assurance

CLIENT NAME: RIGGS ASSOCIATES LTD
AGAT WORK ORDER: 25L321976
PROJECT: Port Rowan & Port Dover
ATTENTION TO: Andrew Marczenko
SAMPLING SITE:
SAMPLED BY:

Soil Analysis (Continued)

RPT Date: Jul 24, 2025			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Sieve Analysis - 75 µm (passing)	6898314		83.42	83.16	0.3%	NA									
(Soil) TOC, TKN															
Total Organic Carbon(Walkley-Black Wet Oxidation)	6898508	6898508	0.49	0.47	NA	< 0.30	86%	70%	130%				110%	70%	130%
Total Kjeldahl Nitrogen	6898508	6898508	553	561	1.4%	< 50	101%	70%	130%	105%	80%	120%	99%	70%	130%
Metals & Inorganics (Soil)															
Sodium Adsorption Ratio (2:1) (Calc.)	6899078		3.26	3.12	4.4%	NA									

Comments: NA signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

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Quality Assurance

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AGAT WORK ORDER: 25L321976
PROJECT: Port Rowan & Port Dover
ATTENTION TO: Andrew Marczenko
SAMPLING SITE:
SAMPLED BY:

Trace Organics Analysis

RPT Date: Jul 24, 2025			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PHCs F1 - F4 (Soil)															
Benzene	6895855		<0.02	<0.02	NA	< 0.02	110%	60%	140%	112%	60%	140%	117%	60%	140%
Toluene	6895855		<0.05	<0.05	NA	< 0.05	109%	60%	140%	114%	60%	140%	119%	60%	140%
Ethylbenzene	6895855		<0.05	<0.05	NA	< 0.05	108%	60%	140%	117%	60%	140%	116%	60%	140%
m & p-Xylene	6895855		<0.05	<0.05	NA	< 0.05	105%	60%	140%	106%	60%	140%	109%	60%	140%
o-Xylene	6895855		<0.05	<0.05	NA	< 0.05	99%	60%	140%	114%	60%	140%	114%	60%	140%
F1 (C6 to C10)	6895855		<5	<5	NA	< 5	111%	80%	120%	115%	60%	140%	113%	60%	140%
F2 (C10 to C16)	6898517	6898517	< 10	< 10	NA	< 10	100%	80%	120%	105%	60%	140%	116%	60%	140%
F3 (C16 to C34)	6898517	6898517	< 50	< 50	NA	< 50	114%	80%	120%	97%	60%	140%	120%	60%	140%
F4 (C34 to C50)	6898517	6898517	< 50	< 50	NA	< 50	85%	80%	120%	85%	60%	140%	90%	60%	140%
PCBs (Aroclors) - Sediment															
Aroclor 1242	6898646		< 0.07	< 0.07	NA	< 0.07	103%	60%	140%	NA	60%	140%	NA	60%	140%
Aroclor 1248	6898646		< 0.07	< 0.07	NA	< 0.07	99%	60%	140%	NA	60%	140%	NA	60%	140%
Aroclor 1254	6898646		< 0.07	< 0.07	NA	< 0.07	100%	60%	140%	NA	60%	140%	NA	60%	140%
Aroclor 1260	6898646		< 0.07	< 0.07	NA	< 0.07	105%	60%	140%	NA	60%	140%	NA	60%	140%
Polychlorinated Biphenyls	6898646		< 0.07	< 0.07	NA	< 0.07	105%	60%	140%	88%	60%	140%	NA	60%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

O. Reg. 153(511) - OC Pesticides (Soil)															
Hexachloroethane	6898646		< 0.005	< 0.005	NA	< 0.005	104%	50%	140%	88%	50%	140%	100%	50%	140%
Gamma-Hexachlorocyclohexane	6898646		< 0.005	< 0.005	NA	< 0.005	113%	50%	140%	104%	50%	140%	87%	50%	140%
Heptachlor	6898646		< 0.005	< 0.005	NA	< 0.005	109%	50%	140%	111%	50%	140%	82%	50%	140%
Aldrin	6898646		< 0.005	< 0.005	NA	< 0.005	104%	50%	140%	105%	50%	140%	90%	50%	140%
Heptachlor Epoxide	6898646		< 0.005	< 0.005	NA	< 0.005	111%	50%	140%	85%	50%	140%	103%	50%	140%
Endosulfan I	6898646		< 0.005	< 0.005	NA	< 0.005	106%	50%	140%	100%	50%	140%	99%	50%	140%
Endosulfan II	6898646		< 0.005	< 0.005	NA	< 0.005	105%	50%	140%	87%	50%	140%	91%	50%	140%
Alpha-Chlordane	6898646		< 0.005	< 0.005	NA	< 0.005	105%	50%	140%	102%	50%	140%	82%	50%	140%
gamma-Chlordane	6898646		< 0.005	< 0.005	NA	< 0.005	105%	50%	140%	105%	50%	140%	97%	50%	140%
op'-DDE	6898646		< 0.005	< 0.005	NA	< 0.005	102%	50%	140%	100%	50%	140%	107%	50%	140%
pp'-DDE	6898646		< 0.005	< 0.005	NA	< 0.005	113%	50%	140%	96%	50%	140%	102%	50%	140%
op'-DDD	6898646		< 0.005	< 0.005	NA	< 0.005	107%	50%	140%	91%	50%	140%	93%	50%	140%
pp'-DDD	6898646		< 0.005	< 0.005	NA	< 0.005	111%	50%	140%	99%	50%	140%	93%	50%	140%
op'-DDT	6898646		< 0.005	< 0.005	NA	< 0.005	112%	50%	140%	108%	50%	140%	84%	50%	140%
pp'-DDT	6898646		< 0.005	< 0.005	NA	< 0.005	91%	50%	140%	99%	50%	140%	101%	50%	140%
Dieldrin	6898646		< 0.005	< 0.005	NA	< 0.005	109%	50%	140%	104%	50%	140%	85%	50%	140%
Endrin	6898646		< 0.005	< 0.005	NA	< 0.005	88%	50%	140%	87%	50%	140%	88%	50%	140%
Methoxychlor	6898646		< 0.005	< 0.005	NA	< 0.005	86%	50%	140%		50%	140%	92%	50%	140%
Hexachlorobenzene	6898646		< 0.005	< 0.005	NA	< 0.005	104%	50%	140%	108%	50%	140%	92%	50%	140%
Hexachlorobutadiene	6898646		< 0.01	< 0.01	NA	< 0.01	102%	50%	140%	87%	50%	140%	85%	50%	140%

O. Reg. 153(511) - PAHs (Soil)

AGAT Laboratories
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Quality Assurance

CLIENT NAME: RIGGS ASSOCIATES LTD
AGAT WORK ORDER: 25L321976
PROJECT: Port Rowan & Port Dover
ATTENTION TO: Andrew Marczenko
SAMPLING SITE:
SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Jul 24, 2025			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Naphthalene	6899930		<0.05	<0.05	NA	< 0.05	79%	50%	140%	93%	50%	140%	93%	50%	140%
Acenaphthylene	6899930		<0.05	<0.05	NA	< 0.05	88%	50%	140%	95%	50%	140%	95%	50%	140%
Acenaphthene	6899930		<0.05	<0.05	NA	< 0.05	102%	50%	140%	98%	50%	140%	98%	50%	140%
Fluorene	6899930		<0.05	<0.05	NA	< 0.05	112%	50%	140%	100%	50%	140%	98%	50%	140%
Phenanthrene	6899930		<0.05	<0.05	NA	< 0.05	116%	50%	140%	93%	50%	140%	90%	50%	140%
Anthracene	6899930		<0.05	<0.05	NA	< 0.05	119%	50%	140%	95%	50%	140%	90%	50%	140%
Fluoranthene	6899930		<0.05	<0.05	NA	< 0.05	122%	50%	140%	93%	50%	140%	88%	50%	140%
Pyrene	6899930		<0.05	<0.05	NA	< 0.05	119%	50%	140%	88%	50%	140%	90%	50%	140%
Benzo(a)anthracene	6899930		<0.05	<0.05	NA	< 0.05	99%	50%	140%	93%	50%	140%	88%	50%	140%
Chrysene	6899930		<0.05	<0.05	NA	< 0.05	108%	50%	140%	95%	50%	140%	93%	50%	140%
Benzo(b)fluoranthene	6899930		<0.05	<0.05	NA	< 0.05	112%	50%	140%	93%	50%	140%	95%	50%	140%
Benzo(k)fluoranthene	6899930		<0.05	<0.05	NA	< 0.05	131%	50%	140%	100%	50%	140%	95%	50%	140%
Benzo(a)pyrene	6899930		<0.05	<0.05	NA	< 0.05	115%	50%	140%	98%	50%	140%	95%	50%	140%
Indeno(1,2,3-cd)pyrene	6899930		<0.05	<0.05	NA	< 0.05	97%	50%	140%	98%	50%	140%	95%	50%	140%
Dibenz(a,h)anthracene	6899930		<0.05	<0.05	NA	< 0.05	83%	50%	140%	98%	50%	140%	88%	50%	140%
Benzo(g,h,i)perylene	6899930		<0.05	<0.05	NA	< 0.05	85%	50%	140%	95%	50%	140%	74%	50%	140%

Certified By:

AGAT Laboratories

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Method Summary

CLIENT NAME: RIGGS ASSOCIATES LTD

AGAT WORK ORDER: 25L321976

PROJECT: Port Rowan & Port Dover

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Aluminum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Iron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Manganese	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Phosphorus	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Strontium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Titanium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zirconium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER

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Method Summary

CLIENT NAME: RIGGS ASSOCIATES LTD

AGAT WORK ORDER: 25L321976

PROJECT: Port Rowan & Port Dover

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Cyanide, WAD	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	SEGMENTED FLOW ANALYSIS
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6075	modified from MSA PART 3, CH 14 and SM 2510 B	PC TITRATE
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6075	modified from EPA 9045D, MCKEAGUE 3.11 E3137	PC TITRATE
Total Organic Carbon(Walkley-Black Wet Oxidation)	INOR-93-6062	Skjemstad & Baldock, 2008 & Walkley & Black 1934	SPECTROPHOTOMETER
Total Kjeldahl Nitrogen	INOR-93-6048	modified from EPA 1687 and SM 4500-NORG D	LACHAT FIA
Sieve Analysis - 75 µm (retained)	INOR-93-6065	Modified from ASTM D1140-17	SIEVE
Sieve Analysis - 75 µm (passing)	INOR-93-6065	Modified from ASTM D1140-17	SIEVE

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Method Summary

CLIENT NAME: RIGGS ASSOCIATES LTD

AGAT WORK ORDER: 25L321976

PROJECT: Port Rowan & Port Dover

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SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Hexachloroethane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Gamma-Hexachlorocyclohexane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Heptachlor	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Aldrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Heptachlor Epoxide	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan I	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan II	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
Alpha-Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
gamma-Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
op'-DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
op'-DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
op'-DDT	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDT	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDT (Total)	ORG-91-5113	modified from EPA 3570, 3620C & 8081B	CALCULATION
Dieldrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Methoxychlor	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Hexachlorobenzene	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Hexachlorobutadiene	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
TCMX	ORG-91-5112	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Moisture Content	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE

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Method Summary

CLIENT NAME: RIGGS ASSOCIATES LTD

AGAT WORK ORDER: 25L321976

PROJECT: Port Rowan & Port Dover

ATTENTION TO: Andrew Marczenko

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
wet weight OC	ORG-91-5113		BALANCE
Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluorene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Chrysene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acridine-d9	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Terphenyl-d14	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Toluene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Ethylbenzene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
m & p-Xylene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
o-Xylene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Xylenes (Total)	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
F1 (C6 to C10)	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	modified from CCME Tier 1 Method	P&T GC/FID
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F3 (C16 to C34)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F4 (C34 to C50)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE

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Method Summary

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AGAT WORK ORDER: 25L321976

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SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Aroclor 1242	ORG-91-5113	EPA SW-846 3541 & 8082	GC/ECD
Aroclor 1248	ORG-91-5113	EPA SW-846 3541 & 8082	GC/ECD
Aroclor 1254	ORG-91-5113	EPA SW-846 3541 & 8082	GC/ECD
Aroclor 1260	ORG-91-5113	EPA SW-846 3541 & 8082	GC/ECD
Polychlorinated Biphenyls	ORG-91-5113	EPA SW-846 3541 & 8082	GC/ECD
Decachlorobiphenyl	ORG-91-5113	EPA SW-846 3541 & 8082	GC/ECD
PCB Extr	ORG-91-5113	EPA SW-846 3541 & 8082	N/A

AGAT Laboratories

Have feedback? Scan here for a quick survey!

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
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webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: Riggs Associates Ltd.
Contact: Andrew Marczenko
Address: 1249 Commissioners Rd. W. Suite 205
Phone: 519-872-7070 Fax:
Reports to be sent to:
1. Email: andrew@riggseng.ca
2. Email: dpacifico@riggseng.ca

Project Information:

Project: Port Rowan & Port Dover
Site Location: "
Sampled By: David Pacifico
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐
Company: Riggs Associates Ltd.
Contact: Shirley Riggs
Address: 1249 Commissioners Rd. W. Suite 205
Email: sriggs@riggseng.ca

Regulatory Requirements:

(Please check all applicable boxes)

☑ Regulation 153/04
Table (Indicate One): ☑ Ind/Com ☐ Res/Park ☐ Agriculture
Soil Texture (Check One): ☐ Coarse ☐ Fine

☐ Regulation 406
Table (Indicate One): ☐ Ind/Com ☐ Res/Park ☐ Agriculture

☐ Regulation 558
☐ CCME

☐ Sewer Use ☐ Sanitary ☐ Storm
Region
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
Indicate One

Is this submission for a **Record of Site Condition (RSC)**? ☐ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☐ Yes ☐ No

Legal Sample ☐

Sample Matrix Legend

GW	Ground Water	SD	Sediment
O	Oil	SW	Surface Water
P	Paint	R	Rock/Shale
S	Soil		

Laboratory Use Only

Work Order #: 25L321476
Cooler Quantity: 2 LRG
Arrival Temperatures: 7.1 | 7.9 | 7.1
~~Depot~~ Temperatures: 6.3 | 6.2 | 6.9
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes: 7.3, 7.9, 8.0 / 5/I

Turnaround Time (TAT) Required:

Regular TAT ☑ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CSR

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC (Y/N)	O. Reg 153: Metals & Inorganics	O. Reg 153: Metals - ☐ CrVI, ☐ Hg, ☐ HWSB	O. Reg 153: BTEX, F1-F4 PHCs	O. Reg 153: VOC	O. Reg 153: PAHs	O. Reg 153: PCBs: Arocolors ☑	O. Reg 406: Regulation 406 Characterization Package pH, Metals, BTEX, F1-F4	O. Reg 406: EC, SAR	O. Reg 406: Regulation 406 SPLP Rainwater Leach mSPLP: ☐ Metals ☐ VOCs ☐ SVOCs ☐ OC	O. Reg 558: Landfill Disposal Characterization TCLP: ☐ TCLP ☐ M&I ☐ VOCs ☐ ABNs ☐ BaP ☐ PCBs	Corrosivity: ☐ Moisture ☐ Sulphide	Particle Size	TOC	OC Pesticides					Potentially Hazardous or High Concentration (Y/N)
1. 2025-01	15 Jul/25	9:30 AM PM	6	SD			✓		✓			✓						↓	↓	↓				
2. 2025-02	↓	↓ AM PM	↓	↓			↓		↓			↓						↓	↓	↓				
3. 2025-03	↓	↓ AM PM	↓	↓			↓		↓			↓						↓	↓	↓				
4. 2025-04	↓	↓ AM PM	↓	↓			↓		↓			↓						↓	↓	↓				
5. 2025-N1	↓	13:30 AM PM	↓	↓			↓		↓			↓						↓	↓	↓				
6. 2025-N2	↓	↓ AM PM	↓	↓			↓		↓			↓						↓	↓	↓				
7. 2025-N3	↓	↓ AM PM	↓	↓			↓		↓			↓						↓	↓	↓				
8. 2025-S1	↓	↓ AM PM	↓	↓			↓		↓			↓						↓	↓	↓				
9. 2025-S2	↓	↓ AM PM	↓	↓			↓		↓			↓						↓	↓	↓				
10. 2025-S3	↓	↓ AM PM	↓	↓			↓		↓			↓						↓	↓	↓				
11.		AM PM																						

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
David Pacifico	13:20	16 Jul/25	Kelsey Anderson KA	07/16/25	1:30 PM
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign): Taylor. J	07/17/25	14:10
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

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Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT