



COULSON & ASSOCIATES LTD.
ENVIRONMENTAL INSPECTION & CONSULTING SERVICES

2024

SOIL ANALYSIS REPORT
6754 COUNTY ROAD 50, AMHERSTBURG, ONTARIO



Submitted to: 1461658 ONTARIO INC
C/O MR. TONY ABRAHAM

DECEMBER 2024
PROJECT #25-16

EXECUTIVE SUMMARY

In December 2024, Coulson & Associates Limited (CAL) was retained by 1461568 Ontario Inc c/o Tony Abraham to prepare a Soil Analysis Report of the property located at 6754 County Road 50 in Amherstburg, Ontario, referred to hereafter as the 'Site' or 'Property'.

In general, the purpose of the report is to analyze the soil samples from various locations on the property to determine the level of petroleum hydrocarbons. The report was completed using aspects of the *Canadian Standards Association CSA Z769-00 Phase II Environmental Site Assessments (2012)* and *Soil, Ground Water and Sediment Standards (Ontario Ministry of the Environment, 2011)* as general guides.

The subject property was used as a retail fuel outlet from 1940 to 1948

SCOPE OF WORK

On December 19, 2024, the following tasks were undertaken:

1. Supervision of the excavation of five test pits.
2. Retrieve soil samples from the test pit at a depth of six feet.
3. Analyze the soil samples for TPH – Total Petroleum Hydrocarbons (F1 – F4 fractions) and BTEX (Benzene, Toluene, Ethylbenzene and Xylene)
4. Compare the results to current Ministry of the Environment guidelines for commercial property.
5. Prepare the final report.

CONCLUSION

The results of the analysis for total petroleum hydrocarbons (F1 to F4) and BTEX (Benzene, Toluene, Ethylbenzene and Xylene) in the soil samples taken from Test Pits #1, #2, #3, #4 and #5, satisfies the relevant current MOE criteria for fine-grained soil with commercial land use and non-potable water resources.

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1.0 INTRODUCTION

1.1 TERMS OF REFERENCE

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The subject property was used as a retail fuel outlet from 1940 to 1948

1.2 SCOPE OF WORK

On December 19, 2024, the following tasks were undertaken:

6. Supervision of the excavation of five test pits.
7. Retrieve soil samples from the test pit at a depth of six feet.
8. Analyze the soil samples for TPH – Total Petroleum Hydrocarbons (F1 – F4 fractions) and BTEX (Benzene, Toluene, Ethylbenzene and Xylene)
9. Compare the results to current Ministry of the Environment guidelines for commercial property.
10. Prepare the final report.

1.3 LIMITING CONDITIONS

The site investigation and subsurface investigation was limited to the direct observation of visible and accessible locations. The excavation was limited by the presence of utilities on the property as well as concrete materials encountered during the excavations. Subsurface investigations, sampling and laboratory analyses were completed as detailed in the report.

CAL employs sound environmental auditing principles in the development of Environmental Site Assessments. The reported information is believed to provide a reasonable representation of the general environmental conditions at the site. However, the data were collected at specific locations and subsurface conditions may vary at other locations on the property. There is no warrant, expressed or implied, that this assessment has identified all potential contaminants at the site. Therefore, CAL waives any responsibility for undisclosed environmental concerns that may result in additional cost for remediation. No assurance is made regarding changes in conditions subsequent to the time of investigation.

It is understood that site conditions, environmental or otherwise, are not static and that this report documents site conditions at the time of subsurface investigation.

This report has been prepared for 1461658 Ontario Inc. c/o Tony Abraham. Any use made of this report by a third party are the responsibility of that party and CAL accepts no damages whatsoever which may be suffered by a third party as a result of that use. This report is confidential between CAL and the client and permission to distribute must be obtained.

2.0 SOIL ASSESSMENT CRITERIA

Owing to the relatively permeable native soil and the local use of a municipal piped water supply, chemical concentrations are compared to the fine-grained soil criteria for commercial land use with non-potable groundwater resources (Table 3, - MOE, 2012).

The parameters required for analysis were: TPH – Total Petroleum Hydrocarbons (F1 to F4 fractions) and BTEX (Benzene, Toluene, Ethylbenzene and Xylene). The F1 to F4 range of hydrocarbons represents the light fractions of gas and diesel to the heavier fractions of oil and grease, respectively.

3.0 INVESTIGATIVE METHODOLOGY

The methodology used for the subsurface investigation of the subject property is outlined in the sections below.

3.1 EXCAVATION AND SOIL SAMPLING

The test pits were excavated at the site on December 19, 2024 at the approximate locations shown on the Site Plan – Appendix A. A hydraulic backhoe was used to excavate the test pits to a depth six feet below existing grade (Pictures #1, #2, #3 and #4). Soil samples were collected from each test pit and taken to a local laboratory for analysis. The analytical results are presented in the subsequent section.

4.0 ANALYTICAL RESULTS

4.1 TPH (F1 TO F4) AND BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENE)

TABLE 1 – ANALYTICAL RESULTS – Area of Existing Concrete Pad

	Industrial Standard (ug/L)	Sample 1 (ug/L)	Sample 2 (ug/L)	Sample 3 (ug/L)	Sample 4 (ug/L)	Sample 5 (ug/L)
TPH F1 (C6-C10)	65	<7	<7	<7	<7	<7
TPH F2 (<C10-C16)	250	<4	<4	<4	<4	<4
TPH F3 (<C16-C34)	2500	<8	<8	<8	9	9
TPH F4 (>C34)	6600	<6	<6	<6	<6	<6
Benzene	0.4	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	78	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	19	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene, m,p,o	30	<0.05	<0.05	<0.05	<0.05	<0.05

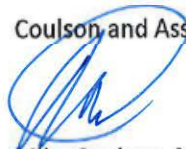
* Standard indicates Soil, Groundwater and Sediment Standards full depth restoration criteria for Commercial/Industrial sites having fine-grained soil and non-potable groundwater resources

5.0 CONCLUSION

The results of the analysis for total petroleum hydrocarbons (F1 to F4) and BTEX (Benzene, Toluene, ethylbenzene, Xylene) in the soil samples taken from Test Pits #1, #2, #3, #4 and #5 satisfies the relevant current MOE criteria for fine-grained soil with commercial land use and non-potable water resources.

Respectfully Submitted

Coulson and Associates Limited



Mike Coulson, M.Sc

President

REFERENCES

- 1) Environmental Site Assessments, Canadian Standards Association
(CSA-Z769-00) Phase II Environmental Site Assessments – 2012
- 2) Soil Map of Essex County, Soil Survey Report No. 11,
Department of Soils, Ontario Agricultural College, 1947
- 3) Ministry of the Environment:
Soil, Ground Water and Sediment Standards for Use
Under Part XV.1 of the Environmental Assessment Act – 2011
- 4) Protocols for Analytical Methods Used in the Assessments of Properties
Under Part XV.1 of the Environmental Protection Act – 2011

APPENDIX A

TEST PIT LOCATION

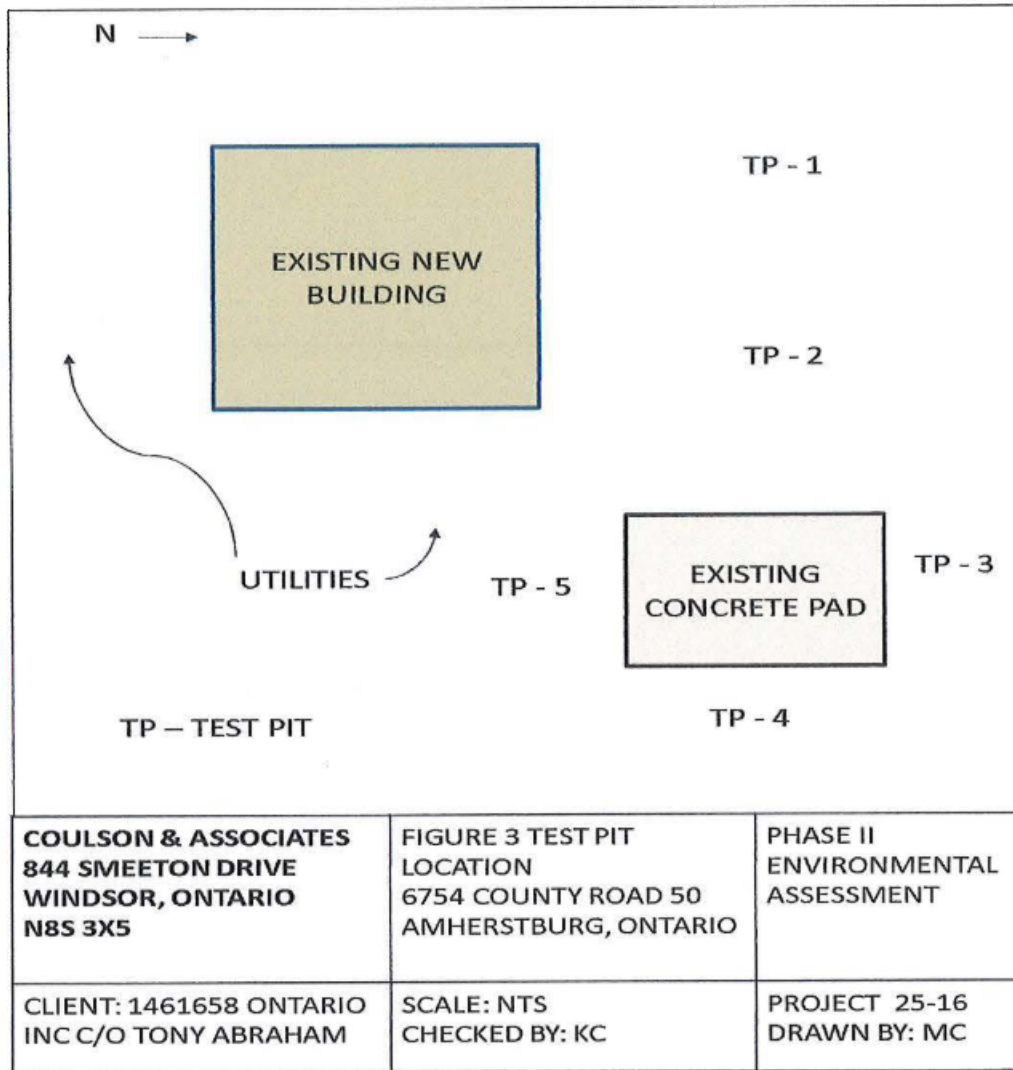


PHOTO 1 – EXCAVATION OF TEST PITS IN THE AREA OF THE EXISTING CONCRETE PAD – NORTH



PHOTO 2 – EXCAVATION OF TEST PITS IN THE AREA OF THE EXISTING CONCRETE PAD – EAST



PHOTO 3 – EXCAVATION OF TEST PITS IN THE AREA OF THE EXISTING CONCRETE PAD – SOUTH



PHOTO 4 – EXCAVATION OF TEST PITS IN THE AREA OF THE EXISTING CONCRETE PAD – WEST



APPENDIX B

DOCUMENTS

Certificate of Analysis

Coulson & Associates

844 Smeeton Drive
Windsor, ON N8S3X5
Attn: Mike Coulson

Client PO: MC 25-15
Project: Tony
Custody: 77192

Report Date: 30-Dec-2024
Order Date: 19-Dec-2024

Order #: 2451387

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Parcel ID	Client ID
2451387-01	Soil 1
2451387-02	Soil 2
2451387-03	Soil 3
2451387-04	Soil 4
2451387-05	Soil 5

Approved By:



Milan Ralitsch, PhD
Senior Technical Manager

Certificate of Analysis

Client: Coulson & Associates

Client PO: MC 25-15

Report Date: 30-Dec-2024

Order Date: 19-Dec-2024

Project Description: Tony

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	20-Dec-24	23-Dec-24
PHC F1	CWS Tier 1 - P&T GC-FID	20-Dec-24	23-Dec-24
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	23-Dec-24	30-Dec-24
Solids, %	CWS Tier 1 - Gravimetric	23-Dec-24	24-Dec-24

Certificate of Analysis
Client: Coulson & Associates
Client PO: MC 25-15

Report Date: 30-Dec-2024
Order Date: 19-Dec-2024
Project Description: Tony

Summary of Criteria Exceedances

(If this page is blank then there are no exceedances)
Only those criteria that a sample exceeds will be highlighted in red

Regulatory Comparison:

Paracel Laboratories has provided regulatory guidelines on this report for informational purposes only and makes no representations or warranties that the data is accurate or reflects the current regulatory values. The user is advised to consult with the appropriate official regulations to evaluate compliance. Sample results that are highlighted have exceeded the selected regulatory limit. Calculated uncertainty estimations have not been applied for determining regulatory exceedances.

Sample	Analyte	MDL / Units	Result	Reg 153/04 -T3 Ind/Com, fine	-
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Certificate of Analysis

Report Date: 30-Dec-2024

Client: Coulson & Associates

Order Date: 19-Dec-2024

Client PO: MC 25-15

Project Description: Tony

Client ID:	Soil 1	Soil 2	Soil 3	Soil 4	Criteria:
Sample Date:	19-Dec-24 14:00	19-Dec-24 14:00	19-Dec-24 14:00	19-Dec-24 14:00	Reg 153/04 -T3
Sample ID:	2451387-01	2451387-02	2451387-03	2451387-04	Ind/Com, fine
Matrix:	Soil	Soil	Soil	Soil	-
MDL/Units					

Physical Characteristics

% Solids	0.1 % by Wt.	87.8	88.0	84.8	85.7	-	-
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Volatiles

Benzene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	0.4 ug/g	-
Ethylbenzene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	19 ug/g	-
Toluene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	78 ug/g	-
m,p-Xylenes	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
o-Xylene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	30 ug/g	-
Toluene-d8	Surrogate	101%	101%	100%	101%	-	-

Hydrocarbons

F1 PHCs (C6-C10)	7 ug/g	<7	<7	<7	<7	65 ug/g	-
F2 PHCs (C10-C16)	4 ug/g	<4	<4	<4	<4	250 ug/g	-
F3 PHCs (C16-C34)	8 ug/g	<8	<8	<8	9	2500 ug/g	-
F4 PHCs (C34-C50)	6 ug/g	<6	<6	<6	<6	6600 ug/g	-

Certificate of Analysis

Report Date: 30-Dec-2024

Client: Coulson & Associates

Order Date: 19-Dec-2024

Client PO: MC 25-15

Project Description: Tony

Client ID:	Soil 5					Criteria:
Sample Date:	19-Dec-24 14:00					Reg 153/04 -T3
Sample ID:	2451387-05					Ind/Com, fine
Matrix:	Soil					-
MDL/Units						

Physical Characteristics

% Solids	0.1 % by Wt.	85.2	-	-	-	-
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Volatiles

Benzene	0.02 ug/g	<0.02	-	-	-	0.4 ug/g	-
Ethylbenzene	0.05 ug/g	<0.05	-	-	-	19 ug/g	-
Toluene	0.05 ug/g	<0.05	-	-	-	78 ug/g	-
m,p-Xylenes	0.05 ug/g	<0.05	-	-	-	-	-
o-Xylene	0.05 ug/g	<0.05	-	-	-	-	-
Xylenes, total	0.05 ug/g	<0.05	-	-	-	30 ug/g	-
Toluene-d8	Surrogate	99.8%	-	-	-	-	-

Hydrocarbons

F1 PHCs (C6-C10)	7 ug/g	<7	-	-	-	65 ug/g	-
F2 PHCs (C10-C16)	4 ug/g	<4	-	-	-	250 ug/g	-
F3 PHCs (C16-C34)	8 ug/g	9	-	-	-	2500 ug/g	-
F4 PHCs (C34-C50)	6 ug/g	<6	-	-	-	6600 ug/g	-

Certificate of Analysis

Report Date: 30-Dec-2024

Client: Coulson & Associates

Order Date: 19-Dec-2024

Client PO: MC 25-15

Project Description: Tony

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons								
F1 PHCs (C6-C10)	ND	7	ug/g					
F2 PHCs (C10-C16)	ND	4	ug/g					
F3 PHCs (C16-C34)	ND	8	ug/g					
F4 PHCs (C34-C50)	ND	6	ug/g					
Volatiles								
Benzene	ND	0.02	ug/g					
Ethylbenzene	ND	0.05	ug/g					
Toluene	ND	0.05	ug/g					
m,p-Xylenes	ND	0.05	ug/g					
o-Xylene	ND	0.05	ug/g					
Xylenes, total	ND	0.05	ug/g					
Surrogate: Toluene-d8	8.11		%	101	50-140			

Certificate of Analysis

Report Date: 30-Dec-2024

Client: Coulson & Associates

Order Date: 19-Dec-2024

Client PO: MC 25-15

Project Description: Tony

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g	ND			NC	30	
F3 PHCs (C16-C34)	ND	8	ug/g	9			NC	30	
F4 PHCs (C34-C50)	ND	6	ug/g	ND			NC	30	
Physical Characteristics									
% Solids	94.3	0.1	% by Wt.	94.6			0.3	25	
Volatiles									
Benzene	ND	0.02	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: Toluene-d8	7.30		%		102	50-140			

Certificate of Analysis

Report Date: 30-Dec-2024

Client: Coulson & Associates

Order Date: 19-Dec-2024

Client PO: MC 25-15

Project Description: Tony

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	68	7	ug/g	ND	81.6	0-200			
F2 PHCs (C10-C16)	103	4	ug/g	ND	82.6	60-140			
F3 PHCs (C16-C34)	229	8	ug/g	9	82.9	60-140			
F4 PHCs (C34-C50)	188	6	ug/g	ND	102	60-140			
Volatiles									
Benzene	39.0	0.02	ug/g	ND	97.5	50-140			
Ethylbenzene	38.6	0.05	ug/g	ND	96.5	50-140			
Toluene	37.8	0.05	ug/g	ND	94.6	50-140			
m,p-Xylenes	82.8	0.05	ug/g	ND	104	50-140			
o-Xylene	40.4	0.05	ug/g	ND	101	50-140			
Surrogate: Toluene-d8	7.32		%		94.8	50-140			

Certificate of Analysis

Client: Coulson & Associates

Client PO: MC 25-15

Report Date: 30-Dec-2024

Order Date: 19-Dec-2024

Project Description: Tony

Qualifier Notes:

Sample Data Revisions:

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

Soil results are reported on a dry weight basis unless otherwise noted.

Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.
- When reported, data for F4G has been processed using a silica gel cleanup.

Any use of these results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.



Client Name: COULSON & ASSOCIATES LTD	Project Ref: TONY	Page <u> </u> of <u> </u>
Contact Name: MIKE COULSON	Quote #: 25-15	Turnaround Time <input type="checkbox"/> 1 day <input type="checkbox"/> 3 day <input type="checkbox"/> 2 day <input checked="" type="checkbox"/> Regular
Address: 844 SREETON DRIVE WINDSOR, ONT N8S 3X5	PO #: MC 25-15	
Telephone: 519 796-2277	E-mail: M. COULSON @HOTMAIL-COM	
Date Required: _____		

<input checked="" type="checkbox"/> REG 153/04 <input type="checkbox"/> REG 406/19	Other Regulation	Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)		Required Analysis																	
<input type="checkbox"/> Table 1 <input type="checkbox"/> Agri/Other <input type="checkbox"/> Med/Fine	<input type="checkbox"/> REG 558 <input type="checkbox"/> PWQO	Matrix	Air Volume	# of Containers	Field Filtered	Sample Taken		TPH	BTEX												
<input type="checkbox"/> Table 2 <input type="checkbox"/> Res/Park <input type="checkbox"/> Coarse	<input type="checkbox"/> CCME <input type="checkbox"/> MISA					Date	Time														
<input checked="" type="checkbox"/> Table 3 <input checked="" type="checkbox"/> Ind/Comm	<input type="checkbox"/> SU - Sani <input type="checkbox"/> SU - Storm	Mun: _____																			
<input type="checkbox"/> Table _____	<input type="checkbox"/> Other: _____	For RSC: <input type="checkbox"/> Yes <input type="checkbox"/> No																			
Sample ID/Location Name																					
1	SOIL	S				19-12-24	2:00														
2	"																				
3	"																				
4	"																				
5	"																				
6																					
7																					
8																					
9																					
10																					

Comments:		Method of Delivery: Walk in	
Relinquished By (Sign): Mike Coulor	Received at Depot: Pat	Received at Lab: KM	Verified by: K. Jacobsen
Relinquished By (Print): MIKE COULSON	Date/Time: Dec 19/24 2:29	Date/Time: 12/20/24 10:40	Date/Time: Dec. 19/24 15:00
Date/Time: Dec 19 24	Temperature: 9.5 °C	Temperature: 4.9 °C	pH Verified: <input type="checkbox"/> By: _____