

09 June 2020  
Wood Project No. WX1905701

Mr. Warren Rospad  
Manitoba Sustainable Development  
Contaminated Sites Program Specialist  
1007 Century Street  
Winnipeg, Manitoba, R3H 0W4

**RE: Confirmatory Soil Sampling during Environmental Soil Remediation  
16 Speers Road, Manitoba**

## 1.0 Introduction

Wood Environment and Infrastructure Solutions, a division of Wood Canada Limited (Wood), was retained by Mr. Mark Kennedy of Star Building Materials Ltd. ("Client") to conduct confirmatory soil sampling during remedial excavations at 16 Speers Road, Winnipeg, Manitoba (herein referred to as 'the Site'). The location of the Site is presented on the attached Figure 1.

Wood previously completed two Phase II Environmental Site Assessments (ESAs) at the Site, one in June 2017 and one in April 2020, to confirm subsurface soil conditions in the area of two former diesel fuel above ground storage tanks (ASTs) which were once located on Site. The results of the previous Phase II ESAs are presented in the following reports:

- Limited Phase II Environmental Site Assessment, 16 Speers Road, Winnipeg, MB. Dated 1 June 2017.
- Limited Phase II Environmental Site Assessment, 16 Speers Road, Winnipeg, MB. Dated 15 April 2020.

Since the removal of the ASTs a new retail building and warehouse have been constructed over the area.

Both Phase II ESAs identified soil concentrations of the petroleum hydrocarbon (PHC) fraction F2 above the applicable guidelines from depths of approximately 1.5 to 2.1 m below grade level (bgl) in the area of the former ASTs.

The purpose of the soil sampling program was to confirm soil PHC concentrations at the extents (sidewalls and base) of the soil remediation excavation.

## 2.0 Scope of Work

Wood submitted a Remediation Plan detailing the scope of work on 23 April 2020 to the Client which included the following general tasks:

- Observe and advise on the removal of impacted material from the Site for disposal at the MidCanada Soil Treatment Facility near Ile des Chenes, Manitoba.
- Completion of a soil sampling program during the remedial excavation of impacts in the vicinity of the former ASTs which included:
  - Collection of soil samples from the sidewalls and base of the final excavation limits for laboratory analysis of benzene, toluene, ethylbenzene, xylenes (BTEX) and petroleum hydrocarbon (PHC) fractions F1 to F4.

- Preparation of a brief letter report summarizing the results of the field and laboratory analysis programs.

### 3.0 Assessment Criteria

Manitoba Conservation and Climate (MCC) has adopted the principles established by Canadian Council of Ministers of the Environment (CCME) for environmental management and assessment of sites in Manitoba, in addition to the requirements of the Manitoba Contaminated Sites Remediation Act (CSRA) and the Manitoba Contaminated Sites Remediation Regulation M.R. 105/97 (CSRR).

The following documents produced by CCME were selected as being applicable for assessment of the Site dependent on the contaminants of concern, pathways and receptors:

- CCME 1999 (updates to 2018). Canadian Environmental Quality Guidelines (EQGs).
- CCME 2001 (revised 2008). Canada-Wide Standards (CWS) for Petroleum Hydrocarbons in Soil.

Based on the listed published guideline documents (and their precursors), Wood conducted an evaluation of the applicable exposure pathways, land uses, key receptors and a visual evaluation of the predominant soil texture at the Site. The evaluation was conducted in accordance with CCME 2006 protocols and did not include the modification or recalculation of the formulas used to derive the Assessment Guideline values. The most stringent of the applicable exposure pathway guideline values was employed for assessment of each contaminant in soil.

The Site evaluation was conducted as a part of the 2017 Phase II ESA, and reaffirmed during the 2020 Phase II ESA. For a full rationale of the derivation of the applicable assessment criteria for the Phase II ESAs and the current soil remediation activities, please refer to the 2017 and 2020 reports.

The applicable assessment criteria remain applicable to the Site for the current soil remediation activities. The Site is currently developed with a large commercial retail building with an attached warehouse and as such the commercial land use as defined by CCME still applies to the Site. Additionally, grain size analysis was completed on two soil samples as part of the original Phase II ESA in 2017. Based on the results of the analysis the Site is classified as fine-grained for the purposes of this assessment.

Given the commercial land use of the Site, the fine-grained nature of the soil and the applicable exposure pathways, Wood determined assessment guidelines for each parameter. The most stringent of the applicable exposure pathway guideline values as produced by CCME was employed for assessment of each contaminant for both the surface soil and subsoil horizons, where applicable. Wood has chosen the following applicable guideline criteria for the Site which are further summarized in Table 2 (Appendix B).

#### 3.1 Soil Assessment Criteria - Petroleum Hydrocarbons

Commercial values at or above 1.5 m bgl in in a non-potable groundwater situation as limited by the:

- Indoor vapour inhalation for benzene; and,
- Ecological Soil Contact for toluene, ethylbenzene, xylenes, and PHC fractions F1 to F4.

Commercial values below 1.5 m bgl in in a non-potable groundwater situation as limited by the:

- Indoor vapour inhalation for benzene, toluene, ethylbenzene, and xylenes; and,
- Management Limits for PHC fractions F1 to F4.

## 4.0 Results

### 4.1 Excavation Activities

The soil remediation excavation was completed on 16 May 2020 utilizing a rubber tire backhoe excavator. A total of 60.49 metric tonnes (MT) of PHC impacted soil was removed and hauled to the MidCanada Soil Treatment Facility near Ile des Chenes, Manitoba. The final excavation measured approximately 2.5 m x 4.5 m and was approximately 3.0 m deep. Groundwater was not encountered during the excavation work. The location of the excavation is provided in Figure 1.

### 4.2 Soil Sampling and Combustible Vapour Concentrations

Wood personnel monitored the progress of the excavation activities and collected soil samples during the excavation of soil from the area of the former AST. Soil samples were collected with the assistance of a contractor operated backhoe excavator. Soil samples were collected throughout the excavation process to allow for the measurement of headspace vapour concentrations as well as at the extents of the final excavation for laboratory analysis.

A total of 49 soil samples were collected and measured for head space vapour concentrations, five of which were then submitted for laboratory analysis.

Soil sample headspace vapour concentrations and field observations made during the field investigations are summarized in attached Table 3. Soil headspace vapour concentrations as well as visual observations were used to identify potentially impacted soil for removal.

### 4.3 Soil Conditions

The Site soil stratigraphy observed below the concrete floor slab, in the vicinity of the former ASTs was generally similar the stratigraphy encountered during the test hole drilling programs and consisted of granular (sand) fill underlain by clay fill and silty, high plastic, clay.

A clayey, silt lense was also observed at approximately 1.5 m below grade level (m bgl) which generally extended to between approximately 1.7 m to 2.1 m bgl.

### 4.3 Laboratory Analysis

A total of five soil samples (one from each side-wall and one from the base), were collected from the final extents of the excavation. The soil samples submitted for analysis were selected based on being the areas with the highest soil sample headspace vapour concentrations. Soil samples were submitted to ALS Laboratory in Winnipeg for laboratory analysis of PHC parameters BTEX and PHC fractions F1 to F4.

The results of the analysis for PHCs are summarized in the attached Table 4 and shown on Figure 3. Copies of the detailed analytical reports are attached.

The soil samples collected from the final extents of the excavation and submitted for laboratory analysis had PHC concentrations less than the applicable guidelines.

## 5.0 Summary

The purpose of the soil remediation was to remove soils with PHC concentrations greater than the applicable guidelines from the vicinity of former diesel fuel ASTs. Based on the results of the soil remediation, approximately 60.49 MT of PHC impacted soils were removed from the Site. The final excavation extents were approximately 2.5 m x 4.5 m and approximately 3.0 m deep. Soil samples collected from the final extents of the excavation had BTEX and PHC F1 to F4 fraction concentrations below the applicable assessment guidelines.

## 6.0 Conclusion

Based on the results of the previous Phase II ESAs conducted at the Site, in 2017 and 2020, as well as the recent soil remediation activities, PHC impacted soils exceeding the applicable assessment criteria have been removed from the Site. No further assessment or remediation is considered warranted at this time and the Site is suitable for continued use as a commercial property.

## 7.0 Closure

The American Society for Testing and Materials Standard of Practice notes that no environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in the connection with a property. Performance of a standardized environmental site assessment protocol is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with the property, given reasonable limits of time and costs. The findings of this investigation are based on the interpretation of data from a limited number of boreholes and analytical results pertaining to specific samples. The evaluation and interpretations do not preclude the existence of chemical substances other than those identified herein, or the possibility that contamination levels can vary between the areas of the investigation.

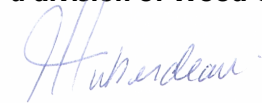
This report has been prepared for the exclusive use of Star Building Materials Ltd. and their agent(s) for specific application to the property identified in this report. The confirmatory sampling was conducted in accordance with generally accepted assessment practices.

The Limitations of this report are attached.

We trust that this report meets your present requirements. Please contact our office if you have any questions or if we can be of further assistance.

Yours truly,

**Wood Environment and Infrastructure Solutions  
a division of Wood Canada Limited**



Justin Huberdeau, C.E.T.  
Senior Environmental Technologist

Reviewed by:



Kevin Beechinor, B.Sc.,  
Senior Environmental Scientist

Attachments: Figures  
Tables  
Lab Results  
Limitations



## 6.0 References

Canadian Council of Ministers of the Environment (CCME) 1999 (updates to 2017). Canadian Environmental Quality Guidelines (EQG).

Canadian Council of Ministers of the Environment (CCME) 2001, Revised 2008. Canada-Wide Standards for Petroleum Hydrocarbons (CWS PHC) in soil.

Manitoba Sustainable Development Guideline June 2016. Manitoba Criteria for BTEX in Investigation Results.

Manitoba Sustainable Development *Contaminated Sites Remediation Act* (CSRA) C205 Updated 1 April 2014.

Manitoba Sustainable Development Guideline, October 2014, Dismantling and Removal of Petroleum Product and Allied Product Storage Tank Systems.


Limited Phase II Environmental Site Assessment, 16 Speers Road, Winnipeg, MB. Dated 15 April 2020.

Limited Phase II Environmental Site Assessment, 16 Speers Road, Winnipeg, MB. Dated 1 June 2017.

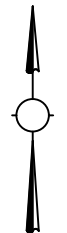
# Figures



STAR BUILDING MATERIALS LTD.

**LEGEND:**  
 APPROXIMATE BUILDING LAYOUT 

**NOTE:**  
 - SITE FEATURES AND LOCATIONS ARE APPROXIMATE.  
 - IMAGES FROM AUTODESK IMAGERY AND TOPO MAP.



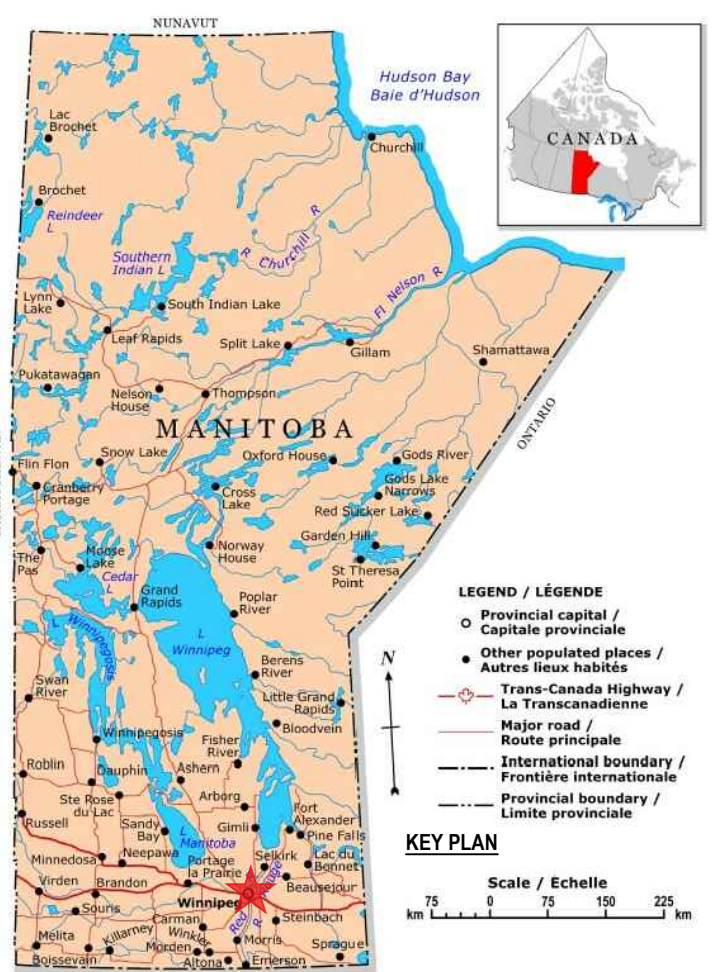
NO.	REVISION	DATE	BY

REMEDIATION ACTIVITIES  
  
 16 SPEERS ROAD  
 WINNIPEG, MANITOBA

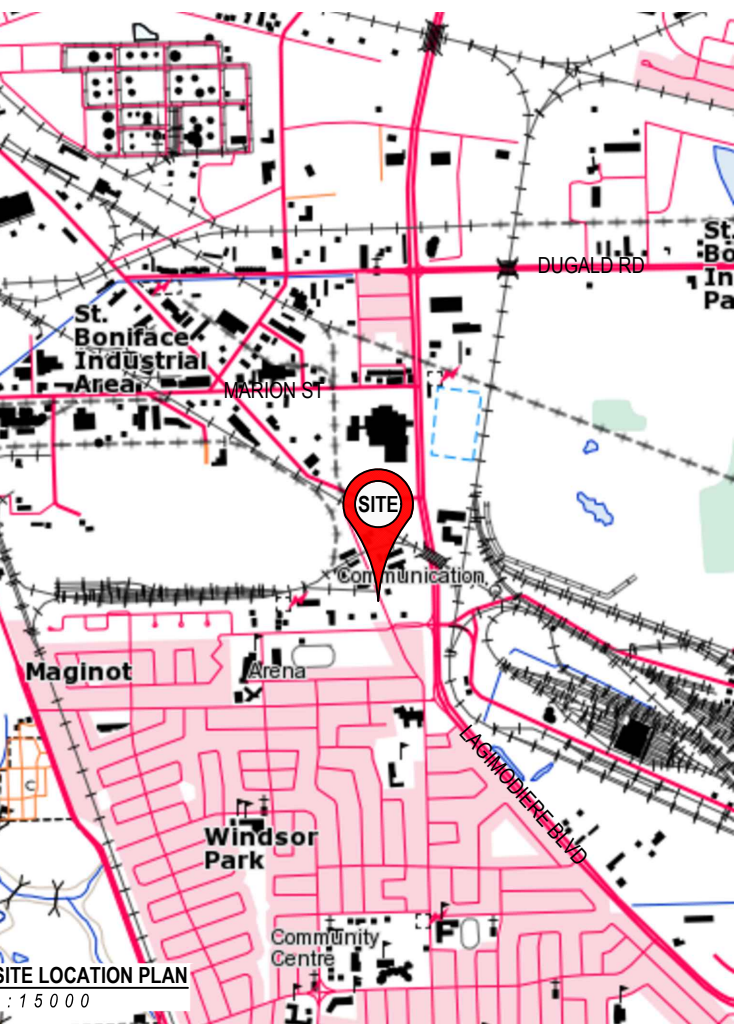
SITE LOCATION PLAN

SCALE: AS SHOWN  
 DATE: MAY 2020  
 DRAWN BY: MD  
 PROJECT NO.: WX1905701

FIGURE 1



UNITED STATES OF AMERICA © 2001. Her Majesty the Queen in Right of Canada, Natural Resources Canada.  
 ÉTATS-UNIS D'AMÉRIQUE Sa Majesté la Reine du chef du Canada, Ressources naturelles Canada.



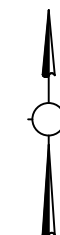
SITE LOCATION PLAN  
 1:15000

STAR BUILDING MATERIALS LTD.

**LEGEND:**

- APPROXIMATE BUILDING LAYOUT
- TEST HOLE ◆
- APPROXIMATE AREA OF EXCAVATION

**NOTE:**  
- SITE FEATURES AND LOCATIONS ARE APPROXIMATE.  
- IMAGES FROM AUTODESK IMAGERY.



NO.	REVISION	DATE	BY

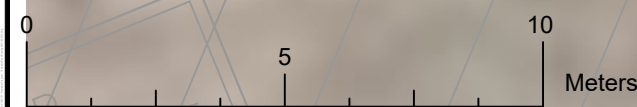
REMEDIATION ACTIVITIES

16 SPEERS ROAD  
WINNIPEG, MANITOBA

EXCAVATION EXTENT PLAN

SCALE: AS SHOWN  
DATE: MAY 2020  
DRAWN BY: MD  
PROJECT NO.: WX1905701

FIGURE 2

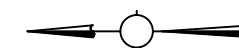


STAR BUILDING MATERIALS LTD.

**LEGEND:**

- EXCAVATION EXTENT □
- SAMPLE LOCATIONS •
- BELOW CRITERIA ●
- ABOVE CRITERIA ●

NOTE:  
- SITE FEATURES AND LOCATIONS ARE APPROXIMATE.



NO.	REVISION	DATE	BY

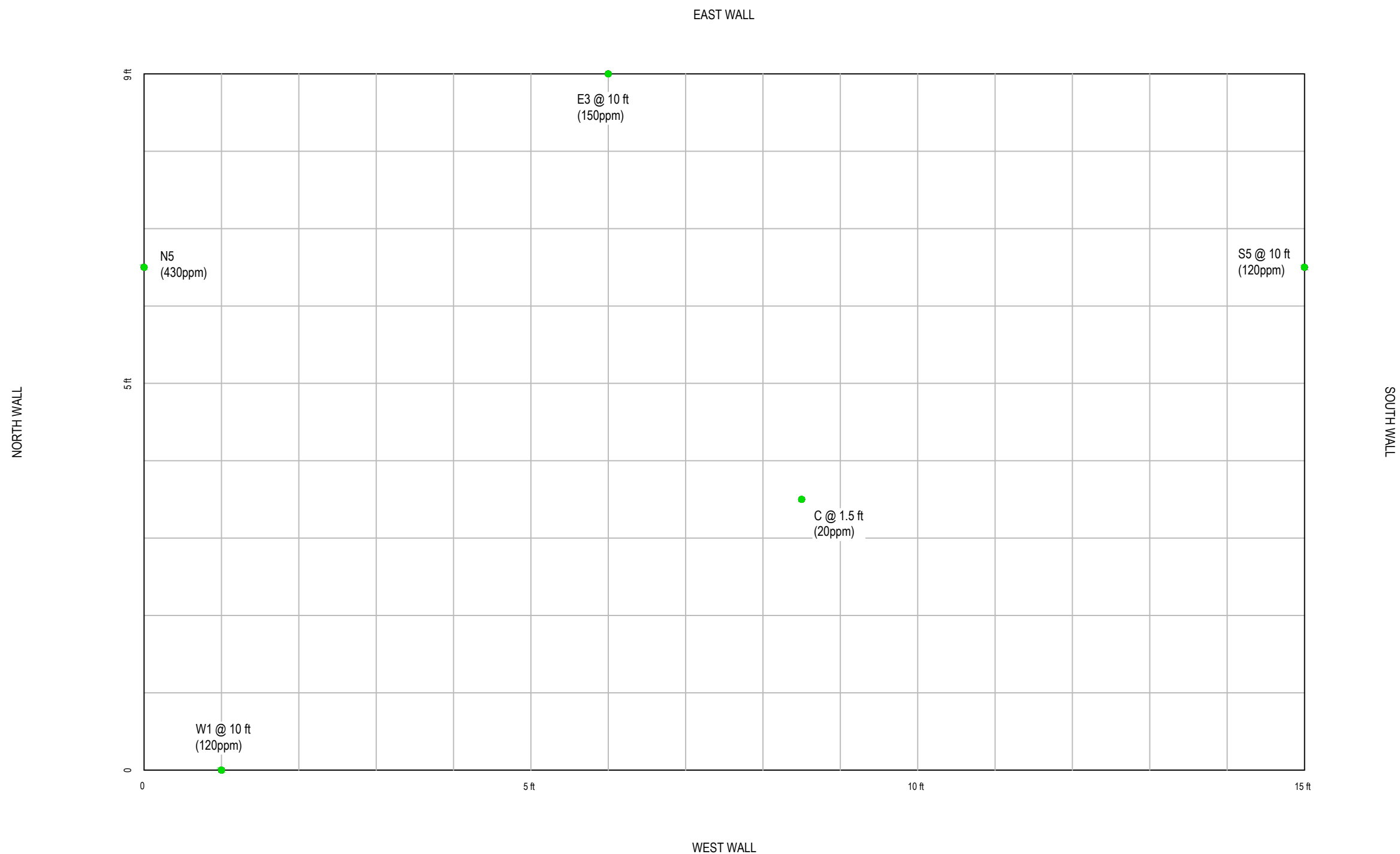
REMEDIATION ACTIVITIES

16 SPEERS ROAD  
WINNIPEG, MANITOBA

CLOSURE SAMPLE LOCATIONS

SCALE: AS SHOWN  
DATE: MAY 2020  
DRAWN BY: MD  
PROJECT NO.: WX1905701

FIGURE 3



# Tables



TABLE 1: SITE AND SURROUNDING LAND USE		
Direction	Land Use	Approx. Distance (m)
Site	Commercial Land Use (Star Building Materials)	Site
North	CN Rail spur line, followed by a building materials storage yard and vacant land.	adjacent/15m/40m
East	Utility corridor followed by Lagimodiere Boulevard and CN Rail main line.	adjacent/55m
South	Frontier School Division office followed by Maginot Street	adjacent/70m
West	Speers Road followed by commercial and industrial properties.	20 m

TABLE 2: ASSESSMENT GUIDELINES

Land Use	Exposure Pathway	Fine Grained Soil Guidelines (mg/kg) (PHCs)							
		Benzene <sup>1</sup>	Toluene	Ethylbenzene	Xylenes	PHC (F1)	PHC (F2)	PHC (F3)	PHC (F4)
Commercial (≤ 1.5 m depth)	Soil Ingestion	110	82000	36000	560000	19000	10000	23000	RES
	Dermal Contact	250	790000	21000	NG				
	Indoor Vapour Inhalation (slab on grade)	<b>2.8</b>	13000	6500	1600	4600	23000	NA	NA
	Ecological Soil Contact	310	<b>330</b>	<b>430</b>	<b>230</b>	<b>320</b>	<b>260</b>	<b>2500</b>	<b>6600</b>
	Management Limits	NG	NG	NG	NG	800	1000	5000	10000
	<i>MCC Reporting Standard</i> <sup>2</sup>	<i>2.8</i>	<i>330</i>	<i>430</i>	<i>230</i>	<i>320</i>	<i>260</i>	<i>2500</i>	<i>6600</i>
Commercial (> 1.5 m depth)	Indoor Vapour Inhalation (slab on grade)	<b>2.9</b>	<b>13000</b>	<b>6700</b>	<b>1600</b>	4600	23000	NA	NA
	Management Limits	NG	NG	NG	NG	<b>800</b>	<b>1000</b>	<b>5000</b>	<b>10000</b>
	<i>MCC Reporting Standard</i> <sup>2</sup>	<i>2.9</i>	<i>13000</i>	<i>6700</i>	<i>1600</i>	<i>800</i>	<i>1000</i>	<i>5000</i>	<i>10000</i>

Notes:

<sup>1</sup> Benzene guidelines were selected based on the 10<sup>-5</sup> incremental risk for human health

<sup>2</sup> As per the Contaminated Sites Remediation Act (CSRA) and the standards for reporting established by regulation (CSRR). Standards are based on CCME standards unless otherwise noted

- PHC (F1) - volatile petroleum hydrocarbons (C<sub>6</sub> - C<sub>10</sub>)
- PHC (F2) - extractable petroleum hydrocarbons (C<sub>10</sub> - C<sub>16</sub>)
- PHC (F3) - extractable petroleum hydrocarbons (C<sub>16</sub> - C<sub>34</sub>)
- PHC (F4) - extractable petroleum hydrocarbons (C<sub>34</sub> - C<sub>50</sub>)
- mg/kg - concentration in milligrams per kilogram equivalent to µg/g - micro gram per gram

• **BOLD** - selected guideline

• *Italics* - MCC Reporting Standard

• NA - not applicable, calculated value exceeds 1,000,000 mg/kg

• NG - no guideline available

• RES - Residual PHC formation. Calculated value exceeds 30,000 mg/kg and solubility limit for PHC fraction.

• CCME EQG Guideline - commercial land use criteria as outlined in the Canadian Council of the Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (updates to 2016).

• CCME CWS PHC Guideline - commercial land use criteria as outlined in the Canadian Council of the Ministers of the Environment (CCME) "Canada-Wide Standards for Hydrocarbons in Soil", 2001, revised 2008.

TABLE 3: SOIL VAPOUR TESTING					
Sample Location	Soil Vapour Concentration (ppm)	Sample Location	Soil Vapour Concentration (ppm)	Sample Location	Soil Vapour Concentration (ppm)
A-Mid 1ft	<5	Q-S Wall 8ft	200	E2	110
B-Mid 2ft	15.0	R-N Wall 8ft	100	E3 @ 10ft	150
C-Mid 3ft	20.0	S-W Wall 8ft	110	E4	100
D-Mid-South 3ft	45.0	T-E Wall 8ft	190	E5	90
E-Mid-North 3ft	60.0	U-NE Floor 10ft	120	S1	100
F-E Wall 4ft N	100.0	V-NW Floor 10ft	45	S2	25
G-E Wall 4ft S	70	W-SW Floor 10ft	110	S3	25
H-W Wall 4ft S	190	X-SE Floor 10ft	120	S4	40
I-S Floor 6ft	360	Y-W Wall 10ft	280	S5 @ 10ft	120
J-N Floor 6ft	400	N1	25	S6	90
K-S Wall 6ft	320	N2	45	W1	30
L-N Wall 6ft	440	N3	120	W2	35
M-S Floor 7ft	330	N4	190	W3	60
N-S Floor 8ft	190	N5 @ 10ft	430	W4	70
O-SW Floor 8.5ft	190	N6	270	W5	5
P-NW Floor 8.5ft	140	E1	120	W6	110
				W7 @ 10ft	120

Notes:

- ppm, – parts per million combustible vapour
- ft - feet
- Sample submitted for laboratory analysis

TABLE 4: SOIL ANALYTICAL RESULTS - PHCs										
Sample ID	Depth (m)	Soil FID Vapour Concentration (ppm <sub>v</sub> )	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	PHC F1 (mg/kg)	PHC F2 (mg/kg)	PHC F3 (mg/kg)	PHC F4 (mg/kg)
N5	2.7 - 3.1	430	0.0343	<0.050	0.887	0.521	228	808	214	<50
E3	2.7 - 3.1	150	<0.0050	<0.050	<0.015	<0.071	100	181	76	<50
S5	2.7 - 3.1	120	<0.0050	<0.050	0.029	<0.071	131	357	119	<50
W7	2.7 - 3.1	120	<0.0050	<0.050	<0.015	<0.071	88	107	56	<50
NE Floor	3.1	120	<0.0050	<0.050	<0.015	<0.071	77	246	92	<50
<b>CCME Commercial EQG (&gt;1.5m depth) <sup>1</sup></b>			<b>2.9</b>	<b>13000</b>	<b>6700</b>	<b>1600</b>	<b>NG</b>	<b>NG</b>	<b>NG</b>	<b>NG</b>
<b>CCME Commercial CWS PHC – fine grained soils (&gt;1.5m depth below grade) <sup>1</sup></b>			<b>NG</b>	<b>NG</b>	<b>NG</b>	<b>NG</b>	<b>800</b>	<b>1000</b>	<b>5000</b>	<b>10000</b>

Notes:

- ppm<sub>v</sub> – parts per million organic vapour
  - FID - Flame Ionization Detector
  - **BOLD** – exceeds the referenced guideline
  - PHC F1 - volatile petroleum hydrocarbons (C<sub>6</sub> – C<sub>10</sub>); corrected for BTEX concentrations
  - PHC F2 – extractable petroleum hydrocarbons (C<sub>10</sub>-C<sub>16</sub>)
  - PHC F3 – extractable petroleum hydrocarbon (C<sub>16</sub>-C<sub>34</sub>)
  - PHC F4 – extractable petroleum hydrocarbons (C<sub>34</sub>-C<sub>50</sub>)
  - < - less than the method detection limit
  - NG - No Guideline
  - CCME EQG – commercial land use guidelines as outlined in the Canadian Council of the Ministers of the Environment (CCME) "[Canadian Environmental Quality Guidelines](#)", 1999 (updates to 2016). The benzene concentration is based on one in one hundred thousand (10<sup>-5</sup>) incremental risk of cancer.
  - CCME CWS PHC - commercial land use guidelines as outlined in the Canadian Council of the Ministers of the Environment (CCME) "[Canada-Wide Standards for Hydrocarbons in Soil](#)", 2001, revised 2008.
  - See laboratory report for detection limits, testing protocols and QA/QC procedures. Laboratory analysis was performed by ALS Laboratory in Winnipeg.
- <sup>1</sup> As per the Contaminated Sites Remediation Act (CSRA) and the standards for reporting established by regulation (CSRR) . In this instance the reporting standards are equal to the guidelines and as such are not represented as a separate line

# Lab Results





Wood Environment & Infrastructure Solutions  
(Winnipeg)  
ATTN: JUSTIN HUBERDEAU  
440 Dovercourt Drive  
Winnipeg MB R3Y 1G4

Date Received: 19-MAY-20  
Report Date: 20-MAY-20 10:40 (MT)  
Version: FINAL

Client Phone: 204-488-2997

## Certificate of Analysis

**Lab Work Order #:** L2448510  
**Project P.O. #:** NOT SUBMITTED  
**Job Reference:**  
**C of C Numbers:**  
**Legal Site Desc:**

Judy Dalmaijer  
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721  
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2448510-1 N5 @ 10FT							
Sampled By: CLIENT on 16-MAY-20 @ 13:00							
Matrix: SOIL							
<b>BTEX and F1-F4 by Tumbler Method</b>							
<b>BTX plus F1 by GCMS</b>							
Benzene	0.0343		0.0050	mg/kg	16-MAY-20	20-MAY-20	R5092563
Toluene	<0.050		0.050	mg/kg	16-MAY-20	20-MAY-20	R5092563
Ethyl benzene	0.887		0.015	mg/kg	16-MAY-20	20-MAY-20	R5092563
o-Xylene	0.189		0.050	mg/kg	16-MAY-20	20-MAY-20	R5092563
m+p-Xylenes	0.333		0.050	mg/kg	16-MAY-20	20-MAY-20	R5092563
F1 (C6-C10)	230		10	mg/kg	16-MAY-20	20-MAY-20	R5092563
Surrogate: 4-Bromofluorobenzene (SS)	132.1	SOL:MI	70-130	%	16-MAY-20	20-MAY-20	R5092563
<b>CCME Total Extractable Hydrocarbons</b>							
F2 (C10-C16)	808		25	mg/kg	19-MAY-20	19-MAY-20	R5092478
F3 (C16-C34)	214		50	mg/kg	19-MAY-20	19-MAY-20	R5092478
F4 (C34-C50)	<50		50	mg/kg	19-MAY-20	19-MAY-20	R5092478
Surrogate: 2-Bromobenzotrifluoride	114.3		60-140	%	19-MAY-20	19-MAY-20	R5092478
Chrom. to baseline at nC50	YES				19-MAY-20	19-MAY-20	R5092478
<b>CCME Total Hydrocarbons</b>							
F1-BTEX	228		10	mg/kg		20-MAY-20	
Total Hydrocarbons (C6-C50)	1250		76	mg/kg		20-MAY-20	
<b>Sum of Xylene Isomer Concentrations</b>							
Xylenes (Total)	0.521		0.071	mg/kg		20-MAY-20	
<b>Miscellaneous Parameters</b>							
Moisture	28.3		0.10	%		19-MAY-20	R5092490
L2448510-2 E3 @ 10FT							
Sampled By: CLIENT on 16-MAY-20 @ 14:00							
Matrix: SOIL							
<b>BTEX and F1-F4 by Tumbler Method</b>							
<b>BTX plus F1 by GCMS</b>							
Benzene	<0.0050		0.0050	mg/kg	16-MAY-20	19-MAY-20	R5092563
Toluene	<0.050		0.050	mg/kg	16-MAY-20	19-MAY-20	R5092563
Ethyl benzene	<0.015		0.015	mg/kg	16-MAY-20	19-MAY-20	R5092563
o-Xylene	<0.050		0.050	mg/kg	16-MAY-20	19-MAY-20	R5092563
m+p-Xylenes	<0.050		0.050	mg/kg	16-MAY-20	19-MAY-20	R5092563
F1 (C6-C10)	100		10	mg/kg	16-MAY-20	19-MAY-20	R5092563
Surrogate: 4-Bromofluorobenzene (SS)	130.4	SOL:MI	70-130	%	16-MAY-20	19-MAY-20	R5092563
<b>CCME Total Extractable Hydrocarbons</b>							
F2 (C10-C16)	181		25	mg/kg	19-MAY-20	19-MAY-20	R5092478
F3 (C16-C34)	76		50	mg/kg	19-MAY-20	19-MAY-20	R5092478
F4 (C34-C50)	<50		50	mg/kg	19-MAY-20	19-MAY-20	R5092478
Surrogate: 2-Bromobenzotrifluoride	99.9		60-140	%	19-MAY-20	19-MAY-20	R5092478
Chrom. to baseline at nC50	YES				19-MAY-20	19-MAY-20	R5092478
<b>CCME Total Hydrocarbons</b>							
F1-BTEX	100		10	mg/kg		20-MAY-20	
Total Hydrocarbons (C6-C50)	358		76	mg/kg		20-MAY-20	
<b>Sum of Xylene Isomer Concentrations</b>							
Xylenes (Total)	<0.071		0.071	mg/kg		20-MAY-20	
<b>Miscellaneous Parameters</b>							
Moisture	30.4		0.10	%		19-MAY-20	R5092490
L2448510-3 W7 @ 10FT							
Sampled By: CLIENT on 16-MAY-20 @ 14:30							
Matrix: SOIL							
<b>BTEX and F1-F4 by Tumbler Method</b>							
<b>BTX plus F1 by GCMS</b>							

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2448510-3 W7 @ 10FT Sampled By: CLIENT on 16-MAY-20 @ 14:30 Matrix: SOIL							
<b>BTX plus F1 by GCMS</b>							
Benzene	<0.0050		0.0050	mg/kg	16-MAY-20	19-MAY-20	R5092563
Toluene	<0.050		0.050	mg/kg	16-MAY-20	19-MAY-20	R5092563
Ethyl benzene	<0.015		0.015	mg/kg	16-MAY-20	19-MAY-20	R5092563
o-Xylene	<0.050		0.050	mg/kg	16-MAY-20	19-MAY-20	R5092563
m+p-Xylenes	<0.050		0.050	mg/kg	16-MAY-20	19-MAY-20	R5092563
F1 (C6-C10)	88		10	mg/kg	16-MAY-20	19-MAY-20	R5092563
Surrogate: 4-Bromofluorobenzene (SS)	126.4		70-130	%	16-MAY-20	19-MAY-20	R5092563
<b>CCME Total Extractable Hydrocarbons</b>							
F2 (C10-C16)	107		25	mg/kg	19-MAY-20	19-MAY-20	R5092478
F3 (C16-C34)	56		50	mg/kg	19-MAY-20	19-MAY-20	R5092478
F4 (C34-C50)	<50		50	mg/kg	19-MAY-20	19-MAY-20	R5092478
Surrogate: 2-Bromobenzotrifluoride	99.7		60-140	%	19-MAY-20	19-MAY-20	R5092478
Chrom. to baseline at nC50	YES				19-MAY-20	19-MAY-20	R5092478
<b>CCME Total Hydrocarbons</b>							
F1-BTEX	88		10	mg/kg		20-MAY-20	
Total Hydrocarbons (C6-C50)	251		76	mg/kg		20-MAY-20	
<b>Sum of Xylene Isomer Concentrations</b>							
Xylenes (Total)	<0.071		0.071	mg/kg		20-MAY-20	
<b>Miscellaneous Parameters</b>							
Moisture	30.3		0.10	%		19-MAY-20	R5092490
L2448510-4 S5 @ 10FT Sampled By: CLIENT on 16-MAY-20 @ 15:00 Matrix: SOIL							
<b>BTEX and F1-F4 by Tumbler Method</b>							
<b>BTX plus F1 by GCMS</b>							
Benzene	<0.0050		0.0050	mg/kg	16-MAY-20	19-MAY-20	R5092563
Toluene	<0.050		0.050	mg/kg	16-MAY-20	19-MAY-20	R5092563
Ethyl benzene	0.029		0.015	mg/kg	16-MAY-20	19-MAY-20	R5092563
o-Xylene	<0.050		0.050	mg/kg	16-MAY-20	19-MAY-20	R5092563
m+p-Xylenes	<0.050		0.050	mg/kg	16-MAY-20	19-MAY-20	R5092563
F1 (C6-C10)	131		10	mg/kg	16-MAY-20	19-MAY-20	R5092563
Surrogate: 4-Bromofluorobenzene (SS)	137.5	SOL:MI	70-130	%	16-MAY-20	19-MAY-20	R5092563
<b>CCME Total Extractable Hydrocarbons</b>							
F2 (C10-C16)	357		25	mg/kg	19-MAY-20	19-MAY-20	R5092478
F3 (C16-C34)	119		50	mg/kg	19-MAY-20	19-MAY-20	R5092478
F4 (C34-C50)	<50		50	mg/kg	19-MAY-20	19-MAY-20	R5092478
Surrogate: 2-Bromobenzotrifluoride	101.4		60-140	%	19-MAY-20	19-MAY-20	R5092478
Chrom. to baseline at nC50	YES				19-MAY-20	19-MAY-20	R5092478
<b>CCME Total Hydrocarbons</b>							
F1-BTEX	131		10	mg/kg		20-MAY-20	
Total Hydrocarbons (C6-C50)	607		76	mg/kg		20-MAY-20	
<b>Sum of Xylene Isomer Concentrations</b>							
Xylenes (Total)	<0.071		0.071	mg/kg		20-MAY-20	
<b>Miscellaneous Parameters</b>							
Moisture	30.4		0.10	%		19-MAY-20	R5092490
L2448510-5 NE FLOOR @ 10FT Sampled By: CLIENT on 16-MAY-20 @ 15:30 Matrix: SOIL							
<b>BTEX and F1-F4 by Tumbler Method</b>							
<b>BTX plus F1 by GCMS</b>							
Benzene	<0.0050		0.0050	mg/kg	16-MAY-20	19-MAY-20	R5092563

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2448510-5 NE FLOOR @ 10FT Sampled By: CLIENT on 16-MAY-20 @ 15:30 Matrix: SOIL							
<b>BTX plus F1 by GCMS</b>							
Toluene	<0.050		0.050	mg/kg	16-MAY-20	19-MAY-20	R5092563
Ethyl benzene	<0.015		0.015	mg/kg	16-MAY-20	19-MAY-20	R5092563
o-Xylene	<0.050		0.050	mg/kg	16-MAY-20	19-MAY-20	R5092563
m+p-Xylenes	<0.050		0.050	mg/kg	16-MAY-20	19-MAY-20	R5092563
F1 (C6-C10)	77		10	mg/kg	16-MAY-20	19-MAY-20	R5092563
Surrogate: 4-Bromofluorobenzene (SS)	134.4	SOL:MI	70-130	%	16-MAY-20	19-MAY-20	R5092563
<b>CCME Total Extractable Hydrocarbons</b>							
F2 (C10-C16)	246		25	mg/kg	19-MAY-20	19-MAY-20	R5092478
F3 (C16-C34)	92		50	mg/kg	19-MAY-20	19-MAY-20	R5092478
F4 (C34-C50)	<50		50	mg/kg	19-MAY-20	19-MAY-20	R5092478
Surrogate: 2-Bromobenzotrifluoride	98.8		60-140	%	19-MAY-20	19-MAY-20	R5092478
Chrom. to baseline at nC50	YES				19-MAY-20	19-MAY-20	R5092478
<b>CCME Total Hydrocarbons</b>							
F1-BTEX	77		10	mg/kg		20-MAY-20	
Total Hydrocarbons (C6-C50)	415		76	mg/kg		20-MAY-20	
<b>Sum of Xylene Isomer Concentrations</b>							
Xylenes (Total)	<0.071		0.071	mg/kg		20-MAY-20	
<b>Miscellaneous Parameters</b>							
Moisture	31.2		0.10	%		19-MAY-20	R5092490
L2448510-6 MID @ 1.5FT Sampled By: CLIENT on 16-MAY-20 @ 12:30 Matrix: SOIL							
<b>BTEX and F1-F4 by Tumbler Method</b>							
<b>BTX plus F1 by GCMS</b>							
Benzene	<0.0050		0.0050	mg/kg	16-MAY-20	19-MAY-20	R5092563
Toluene	<0.050		0.050	mg/kg	16-MAY-20	19-MAY-20	R5092563
Ethyl benzene	<0.015		0.015	mg/kg	16-MAY-20	19-MAY-20	R5092563
o-Xylene	<0.050		0.050	mg/kg	16-MAY-20	19-MAY-20	R5092563
m+p-Xylenes	<0.050		0.050	mg/kg	16-MAY-20	19-MAY-20	R5092563
F1 (C6-C10)	<10		10	mg/kg	16-MAY-20	19-MAY-20	R5092563
Surrogate: 4-Bromofluorobenzene (SS)	111.6		70-130	%	16-MAY-20	19-MAY-20	R5092563
<b>CCME Total Extractable Hydrocarbons</b>							
F2 (C10-C16)	34		25	mg/kg	19-MAY-20	19-MAY-20	R5092478
F3 (C16-C34)	151		50	mg/kg	19-MAY-20	19-MAY-20	R5092478
F4 (C34-C50)	162		50	mg/kg	19-MAY-20	19-MAY-20	R5092478
Surrogate: 2-Bromobenzotrifluoride	98.6		60-140	%	19-MAY-20	19-MAY-20	R5092478
Chrom. to baseline at nC50	YES				19-MAY-20	19-MAY-20	R5092478
<b>CCME Total Hydrocarbons</b>							
F1-BTEX	<10		10	mg/kg		20-MAY-20	
Total Hydrocarbons (C6-C50)	347		76	mg/kg		20-MAY-20	
<b>Sum of Xylene Isomer Concentrations</b>							
Xylenes (Total)	<0.071		0.071	mg/kg		20-MAY-20	
<b>Miscellaneous Parameters</b>							
Moisture	14.1		0.10	%		19-MAY-20	R5092490

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## Reference Information

## Sample Parameter Qualifier Key:

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
SOL:MI	Surrogate recovery outside acceptable limits due to matrix interference

## Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BTEXS+F1-HSMS-WP	Soil	BTX plus F1 by GCMS	EPA 8260C
The soil methanol extract is added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.			
F1-F4-CALC-WP	Soil	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-S
Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.			
In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.			
In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.			
In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.			
Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:			
1. All extraction and analysis holding times were met.			
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.			
3. Linearity of gasoline response within 15% throughout the calibration range.			
Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:			
1. All extraction and analysis holding times were met.			
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.			
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.			
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.			
F2-F4-TMB-FID-WP	Soil	CCME Total Extractable Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001
A soil or sediment sample is extracted with 1:1 hexane/acetone in a tumbler, followed by a silica gel clean up to facilitate separation of the hydrocarbons from other polar extractions. An aliquot of the solvent is analyzed using a gas chromatograph equipped with a flame -ionization detector.			
MOISTURE-WP	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
Moisture content in solid matrices is determined gravimetrically after drying to constant weight at 105°C.			
XYLENES-SUM-CALC-WP	Soil	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

\*\* ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

Laboratory Definition Code	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

## Chain of Custody Numbers:

## Reference Information

### Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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#### GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

## Quality Control Report

Workorder: L2448510

Report Date: 20-MAY-20

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Client: Wood Environment & Infrastructure Solutions (Winnipeg)  
 440 Dovercourt Drive  
 Winnipeg MB R3Y 1G4

Contact: JUSTIN HUBERDEAU

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>BTEXS+F1-HSMS-WP</b>		<b>Soil</b>						
<b>Batch</b>	<b>R5092563</b>							
<b>WG3325025-2</b>	<b>LCS</b>							
Benzene			88.2		%		70-130	19-MAY-20
Toluene			89.0		%		70-130	19-MAY-20
Ethyl benzene			94.0		%		70-130	19-MAY-20
o-Xylene			95.9		%		70-130	19-MAY-20
m+p-Xylenes			94.4		%		70-130	19-MAY-20
<b>WG3325025-3</b>	<b>LCS</b>							
F1 (C6-C10)			104.3		%		70-130	19-MAY-20
<b>WG3325025-1</b>	<b>MB</b>							
Benzene			<0.0050		mg/kg		0.005	19-MAY-20
Toluene			<0.050		mg/kg		0.05	19-MAY-20
Ethyl benzene			<0.015		mg/kg		0.015	19-MAY-20
o-Xylene			<0.050		mg/kg		0.05	19-MAY-20
m+p-Xylenes			<0.050		mg/kg		0.05	19-MAY-20
F1 (C6-C10)			<10		mg/kg		10	19-MAY-20
Surrogate: 4-Bromofluorobenzene (SS)			87.3		%		70-130	19-MAY-20
<b>F2-F4-TMB-FID-WP</b>		<b>Soil</b>						
<b>Batch</b>	<b>R5092478</b>							
<b>WG3325140-8</b>	<b>DUP</b>	<b>L2448510-1</b>						
F2 (C10-C16)		808	1200		mg/kg	39	40	19-MAY-20
F3 (C16-C34)		214	335	DUP-H	mg/kg	44	40	19-MAY-20
F4 (C34-C50)		<50	<50	RPD-NA	mg/kg	N/A	40	19-MAY-20
<b>WG3325140-7</b>	<b>IRM</b>	<b>ALS PHC RM3</b>						
F2 (C10-C16)			88.8		%		70-130	19-MAY-20
F3 (C16-C34)			86.9		%		70-130	19-MAY-20
F4 (C34-C50)			97.7		%		70-130	19-MAY-20
<b>WG3325140-6</b>	<b>LCS</b>							
F2 (C10-C16)			112.7		%		70-130	19-MAY-20
F3 (C16-C34)			99.6		%		70-130	19-MAY-20
F4 (C34-C50)			111.2		%		70-130	19-MAY-20
<b>WG3325140-5</b>	<b>MB</b>							
F2 (C10-C16)			<25		mg/kg		25	19-MAY-20
F3 (C16-C34)			<50		mg/kg		50	19-MAY-20
F4 (C34-C50)			<50		mg/kg		50	19-MAY-20
Surrogate: 2-Bromobenzotrifluoride			98.5		%		60-140	19-MAY-20
<b>MOISTURE-WP</b>	<b>Soil</b>							



## Quality Control Report

Workorder: L2448510

Report Date: 20-MAY-20

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<b>MOISTURE-WP</b>	<b>Soil</b>							
<b>Batch</b>	<b>R5092490</b>							
<b>WG3325291-3</b>	<b>DUP</b>	<b>L2448510-1</b>						
Moisture		28.3	28.4		%	0.4	20	19-MAY-20
<b>WG3325291-2</b>	<b>LCS</b>							
Moisture			100.5		%		90-110	19-MAY-20
<b>WG3325291-1</b>	<b>MB</b>							
Moisture			<0.10		%		0.1	19-MAY-20

# Quality Control Report

Workorder: L2448510

Report Date: 20-MAY-20

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## Legend:

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Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

## Sample Parameter Qualifier Definitions:

---

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

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## Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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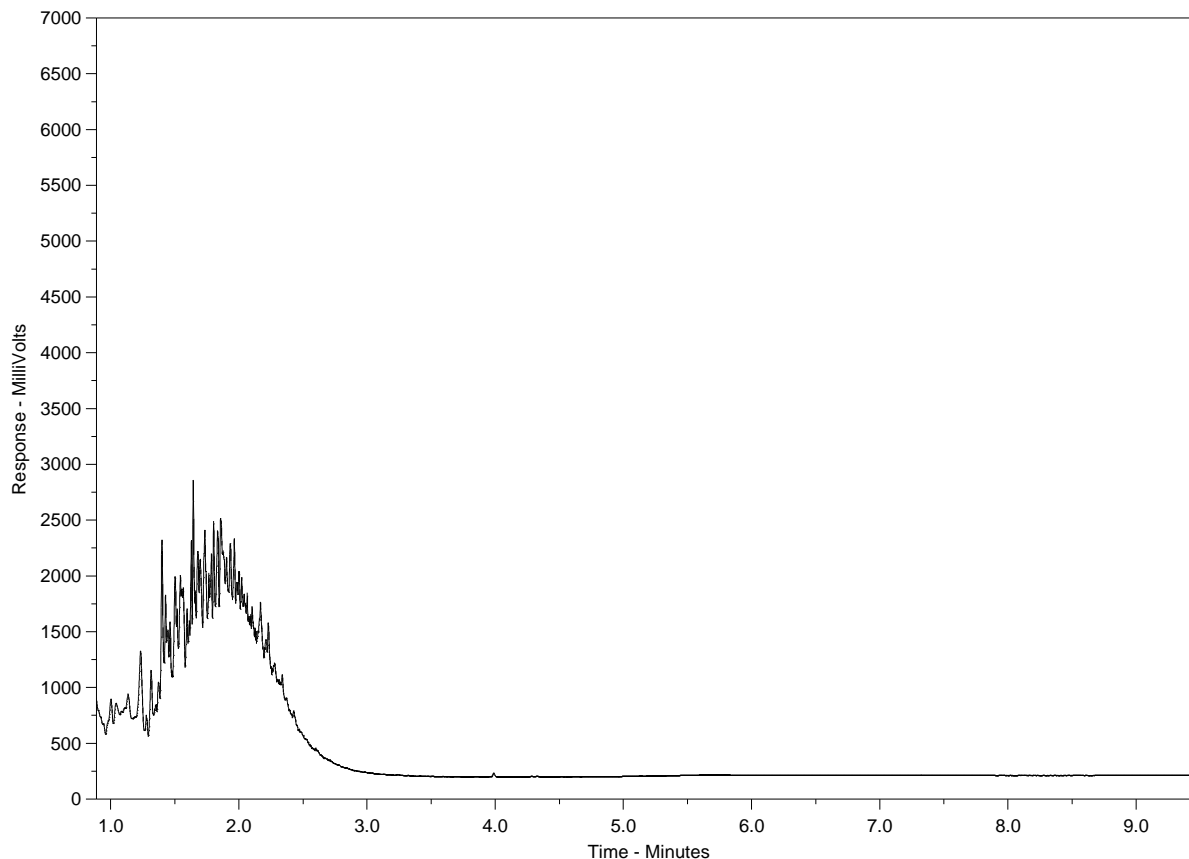
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2448510-1  
 Client Sample ID: N5 @ 10FT



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →			
← Diesel / Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2448510-2  
 Client Sample ID: E3 @ 10FT



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →			
← Diesel / Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

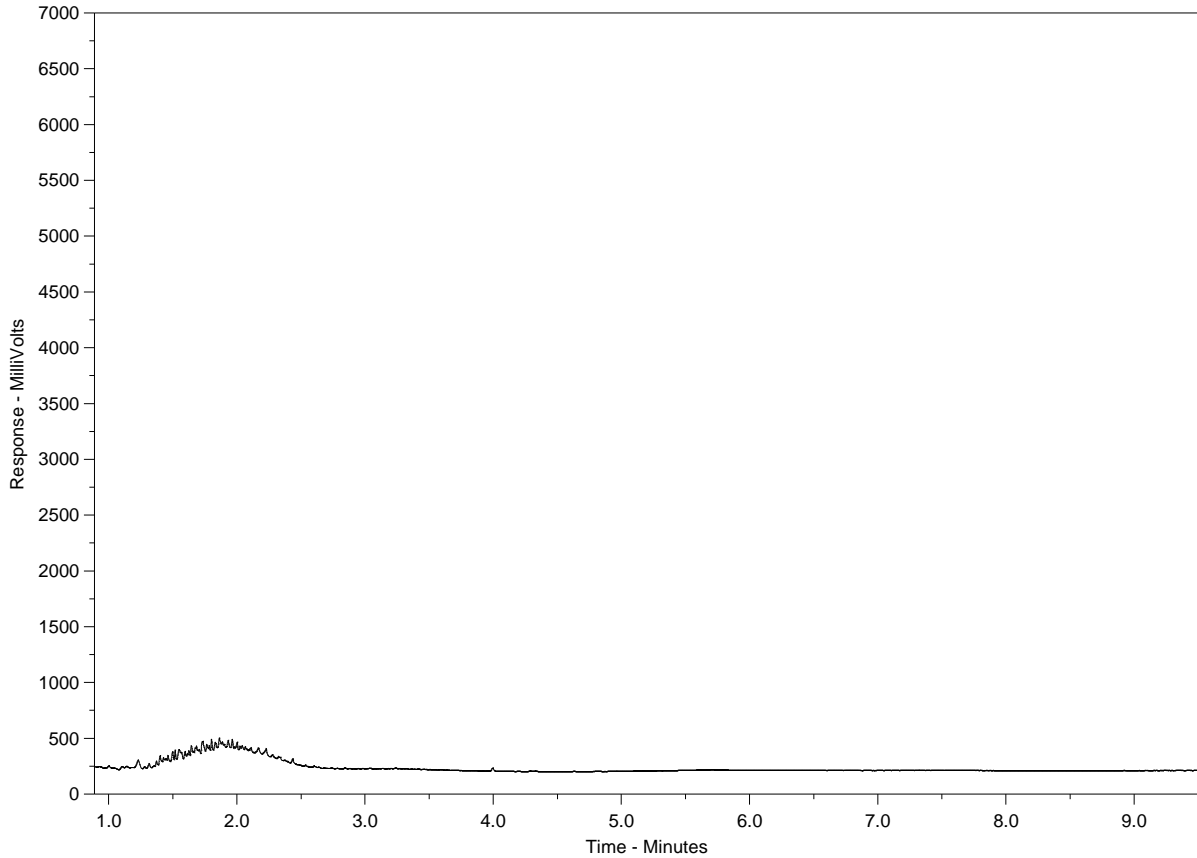
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2448510-3  
 Client Sample ID: W7 @ 10FT



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →			
← Diesel / Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

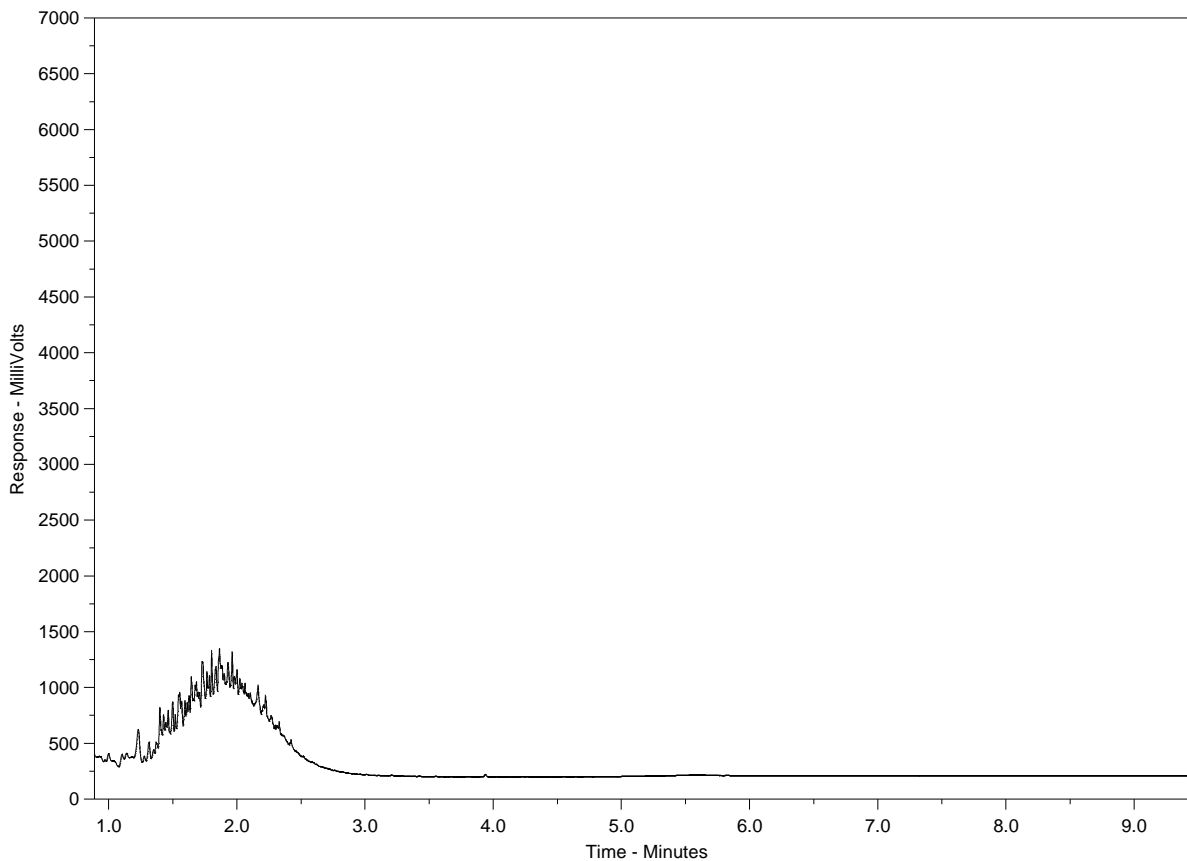
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2448510-4  
 Client Sample ID: S5 @ 10FT



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →			
← Diesel / Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

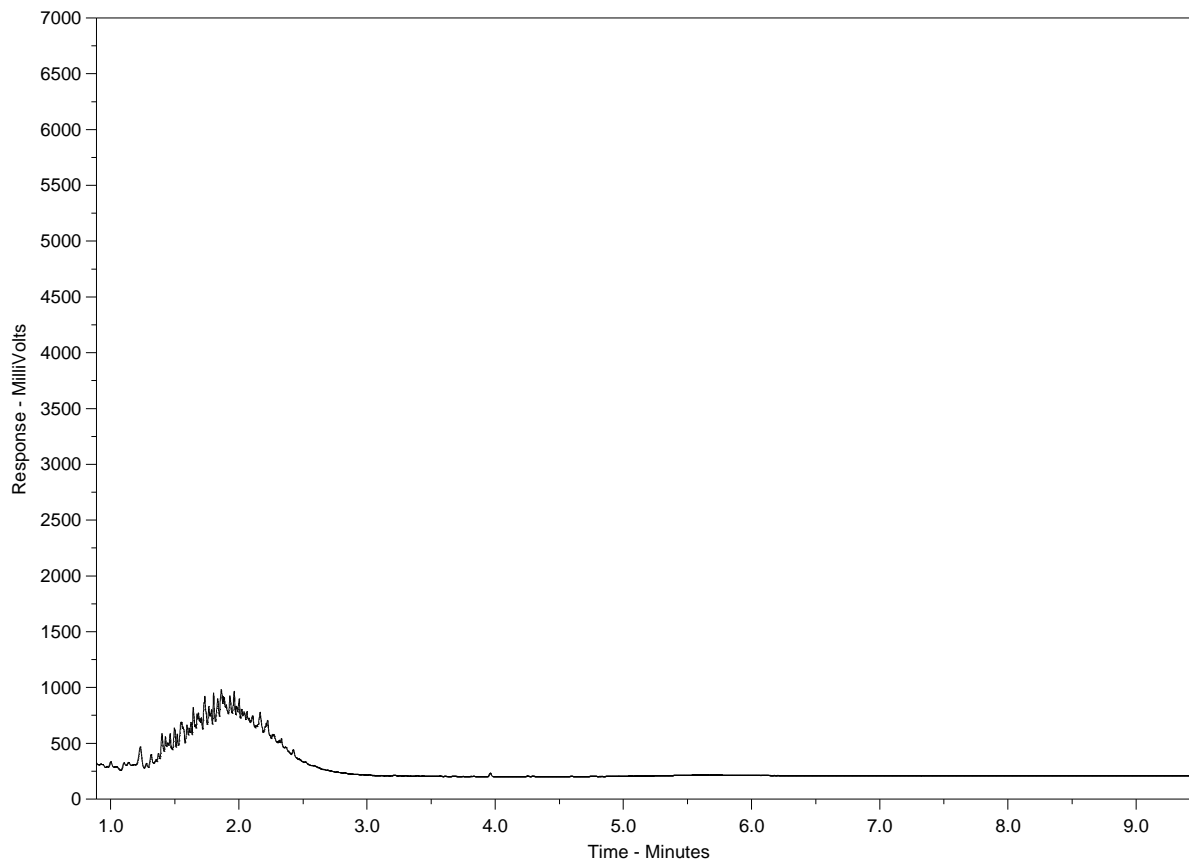
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2448510-5  
 Client Sample ID: NE FLOOR @ 10FT



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →			
← Diesel / Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

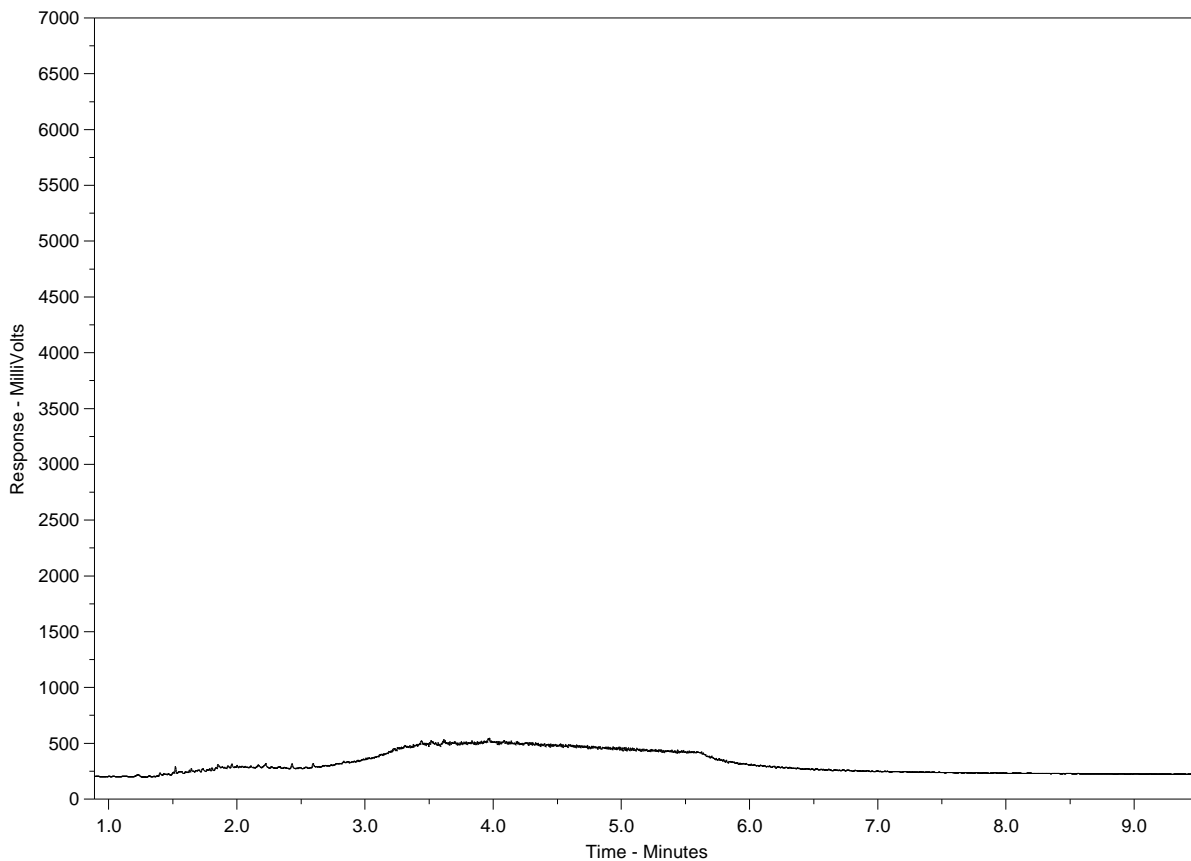
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at [www.alsglobal.com](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2448510-6  
 Client Sample ID: MID @ 1.5FT



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →			
← Diesel / Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at [www.alsglobal.com](http://www.alsglobal.com).



L2448510-COFC

COC Number: 17 - 781872

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<b>Report To</b> Contact and company name below will appear on the final report		<b>Report Format / Distribution</b>			<b>Select Service Level Below - Contact your AM to confirm all E&amp;P TATs (surcharges may apply)</b>							
Company:	WOOD	Select Report Format:	<input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)	Regular [R] <input type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply		EMERGENCY			1 Business day [E - 100%] <input checked="" type="checkbox"/>			
Contact:	Justin Huberdean	Quality Control (QC) Report with Report	<input type="checkbox"/> YES <input type="checkbox"/> NO	4 day [P4-20%] <input type="checkbox"/>		EMERGENCY			Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] <input type="checkbox"/>			
Phone:	204 793 2562	<input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked		3 day [P3-25%] <input type="checkbox"/>								
Company address below will appear on the final report		Select Distribution:	<input type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX	2 day [P2-50%] <input type="checkbox"/>								
Street:	440 Dover Court	Email 1 or Fax:	justin.huberdean@woodpic.com	Required for all E&P TATs:		dd-mmm-yy hh:mm						
City/Province:	Wpg	Email 2:	anjela.cerilli@woodpic.com	Requests that can not be performed according to the service level selected, you will be contacted.								
Postal Code:		Email 3:		<b>Analysis Request</b>								
<b>Invoice To</b>	Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	<b>Invoice Distribution</b>			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (FP) below							
	Copy of Invoice with Report <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Select Invoice Distribution:	<input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX								<b>SAMPLES ON HOLD</b>	
Company:		Email 1 or Fax:										
Contact:		Email 2:										
<b>Project Information</b>		<b>Oil and Gas Required Fields (client use)</b>										
ALS Account # / Quote #:		AFE/Cost Center:		PO#:								
Job #:		Major/Minor Code:		Routing Code:								
PO / AFE:		Requisitioner:										
LSD:		Location:										
ALS Lab Work Order # (lab use only):		ALS Contact:		Sampler:								
<b>ALS Sample # (lab use only)</b>	<b>Sample Identification and/or Coordinates (This description will appear on the report)</b>	<b>Date (dd-mmm-yy)</b>	<b>Time (hh:mm)</b>	<b>Sample Type</b>	<b>NUMBER OF CONTAINERS</b>							
	N5 @ 10ft	16 May 20	13:00	SOIL	5							
	E3 @ 10ft		14:00		5							
	W7 @ 10ft		14:30		5							
	SS @ 10ft		15:00		5							
	NE floor @ 10ft		15:30		5							
	Mid @ 1.5ft		12:30		5							
<b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>		<b>Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)</b>			<b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>							
Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input type="checkbox"/> NO		<b>NODW REPORTING REQUESTED</b>			Frozen <input type="checkbox"/>		SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>					
Are samples for human consumption/ use? <input type="checkbox"/> YES <input type="checkbox"/> NO					Ice Packs <input type="checkbox"/> Ice Cubes <input type="checkbox"/>		Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>					
					Cooling Initiated <input type="checkbox"/>		INITIAL COOLER TEMPERATURES °C		FINAL COOLER TEMPERATURES °C			
							4.3					
<b>SHIPMENT RELEASE (client use)</b>			<b>INITIAL SHIPMENT RECEPTION (lab use only)</b>			<b>FINAL SHIPMENT RECEPTION (lab use only)</b>						
Released by:	A Cerilli	Date:	16 May 2020	Time:	6:00pm	Received by:		Date:	MAY 18 2020	Time:	7:00	

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

# Limitations



## LIMITATIONS

1. The work performed in the preparation of this report and the conclusions presented are subject to the following:
  - (a) The Standard Terms and Conditions which form a part of our Professional Services Contract;
  - (b) The Scope of Services;
  - (c) Time and Budgetary limitations as described in our Contract; and
  - (d) The Limitations stated herein.
2. No other warranties or representations, either expressed or implied, are made as to the professional services provided under the terms of our Contract, or the conclusions presented.
3. The conclusions presented in this report were based, in part, on visual observations of the Site and attendant structures. Our conclusions cannot and are not extended to include those portions of the Site or structures, which are not reasonably available, in Wood's opinion, for direct observation.
4. The environmental conditions at the Site were assessed, within the limitations set out above, having due regard for applicable environmental regulations as of the date of the inspection. A review of compliance by past owners or occupants of the Site with any applicable local, provincial or federal by-laws, orders-in-council, legislative enactments and regulations was not performed.
5. The Site history research included obtaining information from third parties and employees or agents of the owner. No attempt has been made to verify the accuracy of any information provided, unless specifically noted in our report.
6. Where testing was performed, it was carried out in accordance with the terms of our contract providing for testing. Other substances, or different quantities of substances testing for, may be present on Site and may be revealed by different or other testing not provided for in our contract.
7. Because of the limitations referred to above, different environmental conditions from those stated in our report may exist. Should such different conditions be encountered, Wood must be notified in order that it may determine if modifications to the conclusions in the report are necessary.
8. The utilization of Wood's services during the implementation of any remedial measures will allow Wood to observe compliance with the conclusions and recommendations contained in the report. Wood's involvement will also allow for changes to be made as necessary to suit field conditions as they are encountered.
9. This report is for the sole use of the party to whom it is addressed unless expressly stated otherwise in the report or contract. Any use which any third party makes of the report, in whole or the part, or any reliance thereon or decisions made based on any information or conclusions in the report is the sole responsibility of such third party. Wood accepts no responsibility whatsoever for damages or loss of any nature or kind suffered by any such third party as a result of actions taken or not taken or decisions made in reliance on the report or anything set out therein.
10. This report is not to be given over to any third party for any purpose whatsoever without the written permission of Wood.