

9th April 2025

FAO Spencer Lamb at Miller Homes
(Via Email; Spencer.Lambn@miller.co.uk)

Dear Spencer

Former RSPCA Centre, Halewood, Liverpool – Remediation Measures Verification Report

Introduction

Betts Geo were requested by Miller Homes to prepare a remediation measures verification report that details soil validation undertaken on site. Cover system and sampling frequencies are as per Betts Geo Remediation Statement report number 17MIL024/RS rev 1 dated January 2022.

The assessment criteria to assess the suitability of imported/site-won soils is as shown below

5.5 Site Won Soils

Use of site won topsoil and subsoil is anticipated.

There is a significant visual difference between the Made Ground and natural material therefore, the two materials will be stockpiled separately following excavation. Any site won natural material will need to be chemically and visually assessed within the stockpile before re-use within garden areas.

The use of site won material will be subject to suitability testing as per the Local Authority's guidance. Confirmation of the testing will be required, as per the schedule below;

Intended End Use	Source / Origin of Material		
	Greenfield	Remediated	Brownfield / Unknown
Gardens	1:150m ³	1:100m ³	1:50m ³
Soft Landscaping	1:200m ³	1:150m ³	1:150m ³
Other	1:200m ³	1:200m ³	1:200m ³

Copies of all waste transfer documentation for material removed from site will need to be provided.

5.6 Imported Soils

Imported topsoil or subsoil being brought to site should be tested for contamination to ensure it is suitable for the proposed use, and it is generally advisable to test a minimum of three samples per source, and to be in line the Local Authority's testing specification, as show below;

Intended End Use	Source / Origin of Material		
	Greenfield	Remediated	Brownfield / Unknown
Gardens	1:150m ³	1:100m ³	1:50m ³
Soft Landscaping	1:200m ³	1:150m ³	1:150m ³
Other	1:200m ³	1:200m ³	1:200m ³

Garden areas accumulate to 2950m³ of soils placed. The majority of these was topsoil, although some site won subsoil was also used (circa 450m³).

Chemical Testing for soils is appended to this report and relates to the following:



Old Marsh Farm Barns
Welsh Road, Sealand
Flintshire CH5 2LY
Telephone: 01244 288179
www.betts-associates.co.uk

Sampling during SI

The majority of samples taken fell below guidance levels other than the hotspots indicated (in both the SI and remediation strategy). Where possible, as per the construction phase management plan, topsoil was stripped and placed in stockpiles for re-use, likewise site won subsoils were placed in stockpiles where site levels were cut and then infilled. The testing from greenfield areas of the site provides further evidence of the suitability for re-use on site. This includes 8 No subsoil samples and 4 topsoil samples. The following locations have been chosen, however it's noted that we have only used samples from the greenfield areas here, not the former building areas (although these samples and samples within the additional SI undertaken (TP301-TP308) did not generally encounter elevated determinant levels other than isolated hotspots.

Exploratory Hole Location	Soil Type
TP3	Subsoil
TP9	Subsoil
TP11	Topsoil
TP12	Subsoil
TP18	Subsoil
TP19	Topsoil
TP20	Subsoil
TP21	Subsoil
TP22	Topsoil
WS7	Subsoil
WS8	Topsoil
WS11	Subsoil

Sampling within Stockpiles

EnviroLab results sheet	Source	Soil type	Sample amounts
10655	Site won	Subsoil	3 (1:150m3)
06960	Site won	Topsoil	9 (1:150m3)
10667	Site won	Topsoil	3 (1:150m3)
12148	Lydiat Lane, Thornton (150m3)	Topsoil	3 (min 3)
06213	Drapers Yard (150m3)	Topsoil	3 (min 3)

Given the greenfield nature of the sites, 1:150m3 ratio is deemed appropriate, the stockpiles provided from offsite were small and tested at 1:150m3 rate.

The above relates to 2,550m3, this along with the testing during the SI is over and above the sampling requirements for the site. All representative sampling undertaken shows soils area suitable for re-use.

Conclusions

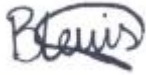
Betts Geo can also confirm that no unforeseen contamination has been identified across the site as a result of the site works.



Betts Geo can confirm that the remediation validation measures referenced above have been fulfilled and no further action is required. Relevant Validation Reports pertaining to re-use of topsoil and subsoil are attached to this report.

We trust that this information is satisfactory, and should you require any further clarification, please do not hesitate to contact us.

Yours sincerely,



Bev Lewis
Director
BETTS GEO ENVIRONMENTAL

Encl.

- Relevant topsoil and subsoil validation reports.



FINAL ANALYTICAL TEST REPORT

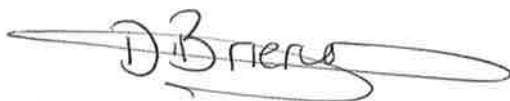
Envirolab Job Number: 21/10655
Issue Number: 1

Date: 08 October, 2021

Client: Betts Geo Environmental
Old Marsh Farm Barns
Welsh Road
Sealand
Flintshire
UK
CH5 2LY

Project Manager: Betts Geolab/Tommy McCormack
Project Name: RSPCA Centre, Halewood
Project Ref: 17MIL024
Order No: BG4363
Date Samples Received: 30/09/21
Date Instructions Received: 01/10/21
Date Analysis Completed: 08/10/21

Prepared by:



Danielle Brierley
Deputy Client Services Supervisor

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 21/10655

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	21/10655/1	21/10655/2	21/10655/3	21/10655/4	21/10655/5	21/10655/6		Units	Limit of Detection	Method ref
Client Sample No	SS	SS	SS	SS	SS	SS				
Client Sample ID	SP01 A	SP01 B	SP01 C	SP01 AS (A)	SP01 AS (B)	SP01 AS (C)				
Depth to Top										
Depth To Bottom										
Date Sampled	29-Sep-21	29-Sep-21	29-Sep-21	29-Sep-21	29-Sep-21	29-Sep-21				
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES				
Sample Matrix Code	6AE	6AE	6AE	6AE	4A	5A				
% Stones >10mm _A	4.9	6.6	13.6	-	-	-		% w/w	0.1	A-T-044
pH _D ^{M#}	7.91	8.30	8.31	-	-	-		pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.04	0.15	0.06	-	-	-		g/l	0.01	A-T-026s
Organic matter _D ^{M#}	3.4	2.1	4.1	-	-	-		% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	7	5	7	-	-	-		mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.6	0.9	0.6	-	-	-		mg/kg	0.5	A-T-024s
Copper _D ^{M#}	28	38	29	-	-	-		mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	-	-	-		mg/kg	1	A-T-040s
Lead _D ^{M#}	41	36	36	-	-	-		mg/kg	1	A-T-024s
Mercury _D	<0.17	0.40	0.90	-	-	-		mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	16	35	17	-	-	-		mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	-	-	-		mg/kg	1	A-T-024s
Zinc _D ^{M#}	67	105	91	-	-	-		mg/kg	5	A-T-024s
VPH total (>C5-C10)	2.39	<1.00	<1.00	-	-	-		mg/kg	1	Calc- stone+mois

Envirolab Job Number: 21/10655

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	21/10655/1	21/10655/2	21/10655/3	21/10655/4	21/10655/5	21/10655/6		Units	Limit of Detection	Method ref
Client Sample No	SS	SS	SS	SS	SS	SS				
Client Sample ID	SP01 A	SP01 B	SP01 C	SP01 AS (A)	SP01 AS (B)	SP01 AS (C)				
Depth to Top										
Depth To Bottom										
Date Sampled	29-Sep-21	29-Sep-21	29-Sep-21	29-Sep-21	29-Sep-21	29-Sep-21				
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES				
Sample Matrix Code	6AE	6AE	6AE	6AE	4A	5A				
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	NAD	NAD	NAD	NAD				A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A	N/A	N/A	N/A				A-T-045

Envirolab Job Number: 21/10655

Client Project Name: RSPCA Centre, Halewood

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Lab Sample ID	21/10655/1	21/10655/2	21/10655/3	21/10655/4	21/10655/5	21/10655/6		Units	Limit of Detection	Method ref
Client Sample No	SS	SS	SS	SS	SS	SS				
Client Sample ID	SP01 A	SP01 B	SP01 C	SP01 AS (A)	SP01 AS (B)	SP01 AS (C)				
Depth to Top										
Depth To Bottom										
Date Sampled	29-Sep-21	29-Sep-21	29-Sep-21	29-Sep-21	29-Sep-21	29-Sep-21				
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES				
Sample Matrix Code	6AE	6AE	6AE	6AE	4A	5A				
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	0.02	0.01	-	-	-		mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	0.05	0.04	0.03	-	-	-		mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.13	0.17	0.13	-	-	-		mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.13	0.19	0.14	-	-	-		mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.14	0.22	0.17	-	-	-		mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.06	0.11	0.07	-	-	-		mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	-	-	-		mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	0.17	0.21	0.18	-	-	-		mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	-	-	-		mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	0.27	0.33	0.26	-	-	-		mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	0.02	<0.01	-	-	-		mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.07	0.11	0.07	-	-	-		mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	-	-	-		mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	0.16	0.18	0.11	-	-	-		mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	0.25	0.33	0.24	-	-	-		mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	1.43	1.93	1.41	-	-	-		mg/kg	0.01	A-T-019s

Envirolab Job Number: 21/10655

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	21/10655/1	21/10655/2	21/10655/3	21/10655/4	21/10655/5	21/10655/6		Units	Limit of Detection	Method ref
Client Sample No	SS	SS	SS	SS	SS	SS				
Client Sample ID	SP01 A	SP01 B	SP01 C	SP01 AS (A)	SP01 AS (B)	SP01 AS (C)				
Depth to Top										
Depth To Bottom										
Date Sampled	29-Sep-21	29-Sep-21	29-Sep-21	29-Sep-21	29-Sep-21	29-Sep-21				
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES				
Sample Matrix Code	6AE	6AE	6AE	6AE	4A	5A				
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	-	-	-		mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	-	-	-		mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1	-	-	-		mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	<1	<1	-	-	-		mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	6	9	11	-	-	-		mg/kg	1	A-T-055s
Total Aliphatics _A	6	9	11	-	-	-		mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	2	<1	<1	-	-	-		mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1	-	-	-		mg/kg	1	A-T-055s
Aro >C12-C16 _A	2	1	2	-	-	-		mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	4	2	3	-	-	-		mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	12	13	16	-	-	-		mg/kg	1	A-T-055s
Total Aromatics _A	20	17	21	-	-	-		mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	26	26	32	-	-	-		mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	-	-	-		mg/kg	0.01	A-T-022s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Betts Geo Environmental, Old Marsh Farm Barns, Welsh Road, Sealand,
Flintshire, UK, CH5 2LY

Project: RSPCA Centre, Halewood

Clients Project No: 17MIL024

Project No: 21/10655

Date Received: 01/10/2021 (am)

Cool Box Temperatures (°C): 16.5

NO DEVIATIONS IDENTIFIED with respect to sampling dates or containers received.

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples $5 \pm 3^{\circ}\text{C}$), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	21/10655/1	21/10655/2	21/10655/3	21/10655/4	21/10655/5	21/10655/6
Client Sample No	SS	SS	SS	SS	SS	SS
Client Sample ID/Depth	SP01 A	SP01 B	SP01 C	SP01 AS (A)	SP01 AS (B)	SP01 AS (C)
Date Sampled	29/09/21	29/09/21	29/09/21	29/09/21	29/09/21	29/09/21
A-T-019s	05/10/2021	05/10/2021	05/10/2021			
A-T-022s	07/10/2021	07/10/2021	07/10/2021			
A-T-024s	08/10/2021	08/10/2021	08/10/2021			
A-T-026s	07/10/2021	07/10/2021	07/10/2021			
A-T-031s	08/10/2021	08/10/2021	08/10/2021			
A-T-032 OM	08/10/2021	08/10/2021	08/10/2021			
A-T-040s	07/10/2021	07/10/2021	07/10/2021			
A-T-044	07/10/2021	07/10/2021	07/10/2021			
A-T-045	04/10/2021	04/10/2021	04/10/2021	04/10/2021	04/10/2021	04/10/2021
A-T-055s	07/10/2021	07/10/2021	07/10/2021			
Calc-stone+mois	07/10/2021	07/10/2021	07/10/2021			

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

SUMMARY OF CONTAMINATION ANALYSIS: SOIL

SUMMARY OF CONTAMINATION ANALYSIS: METALS

Project Name RSCPA Cente, Halewood
Project No 17MIL024
Date 08/10/2021

SOIL TYPE	SS	SS	SS
SAMPLE LOCATION	SP01A	SP01B	SP01C
DEPTH (m)	0.00	0.00	
pH	7.91	8.3	8.31
Sulphate (water sol 2:1)	0.04	0.15	0.06
Organic matter	3.4	2.1	4.1
Arsenic	7	5	7
Cadmium	0.6	0.9	0.6
Copper	28	38	29
Chromium (hexavalent)	<1	<1	<1
Lead	41	36	36
Mercury	<0.17	0.4	0.9
Nickel	16	35	17
Selenium	<1	<1	<1
Zinc	67	105	91
Asbestos in Soil	NAD	NAD	NAD
Asbestos Matrix	N/A	N/A	N/A
Quantification	0	0	0
Organic matter	3.4	2.1	4.1

Metals	Range		AtRisk 2017 (mg/kg)	AtRisk 2017 (mg/kg)	DEFRA C4SL 2017
	Largest Value (mg/kg)	Smallest Value (mg/kg)	With Homegrown Produce (1% SOM)	With Homegrown Produce (6% SOM)	
pH	8.31	7.91			-
Sulphate (water sol 2:1)	0.15	0.04			-
Organic matter	4.10	2.10			
Arsenic	7.00	<1	32	32	37
Cadmium	0.90	0.60	10	10	22.1
Copper	38.00	28.00	4730	4790	-
Chromium (hexavalent)	<1	<1	3.62	3.63	20.5
Lead	41.00	36.00			200
Mercury	0.9	<0.17	8.81	15.8	-
Nickel	35.00	16.00	EA/AtRisk withdrawn Aug 2015		
Selenium	<1	<1	375	375	-
Zinc	105.00	67.00	20000	20300	-

NOTE:

Any individual results and mean value tests above SGVs are shown RED highlighted.

Any outlier values which exceed relevant SGVs are shown in red

* - The calculations for the mean value test include outliers

** - Results for this determinand are assessed with no background levels taken into account

Results are expressed as mg/kg unless otherwise stated

ALL RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

SGVs are derived from the EA 2009 SGV's which are taken from AtRisk 2015. Category 4 screening levels have been adopted by the EA and have been included as new guidance.

Note: The SGV for elemental mercury has been used to assess total mercury concentrations at the site. The Environment Agency's Science Report SC050021 /Mercury SGV states that 'for general surface contamination and to simplify the assessment the SGV's for inorganic mercury can normally be compared with chemical analysis for total mercury content....'. Based on the latter, SGV for elemental mercury (170mg/kg) in the soil assessment is used

NAD - NO ASBESTOS DETECTED

TS - Topsoil, MG - Made Ground and N - Natural Ground

SUMMARY OF CONTAMINATION ANALYSIS: TPH

Project Name RSCPA Cente, Halewood
Project No 17MIL024
Date 08/10/2021

SOIL TYPE	SS	SS	SS
SAMPLE LOCATION	SP01A	SP01B	SP01C
DEPTH (m)			
Ali >C5-C6	<0.01	<0.01	<0.01
Ali >C6-C8	<0.01	<0.01	<0.01
Ali >C8-C10	<1	<1	<1
Ali >C10-C12	<1	<1	<1
Ali >C12-C16	<1	2	<1
Ali >C16-C21	<1	5	2
Ali >C21-C35	6	9	11
Total Aliphatics	6	9	11
Aro >C5-C7	<0.01	<0.01	<0.01
Aro >C7-C8	<0.01	<0.01	<0.01
Aro >C8-C10	2	<1	<1
Aro >C10-C12	<1	<1	<1
Aro >C12-C16	2	1	2
Aro >C16-C21	4	2	4
Aro >C21-C35	12	13	16
Total Aromatics	20	17	21
TPH (Ali & Aro)	26	26	32
BTEX - Benzene	<0.01	<0.01	<0.01
BTEX - Toluene	<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	<0.01	<0.01	<0.01
BTEX - m & p Xylene	<0.01	<0.01	<0.01
BTEX - o Xylene	<0.01	<0.01	<0.01
MTBE	<0.01	<0.01	<0.01
Organic Matter	3.4	2.1	4.1

TPH	Range		AtRisk 2017 (mg/kg) Residential with Home Grown Produce	AtRisk 2017 (mg/kg) Residential with Home Grown Produce	DEFRA C4SL 2017
	Largest Value (mg/kg)	Smallest Value (mg/kg)	1% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***
Ali >C5-C6	<0.01	<0.01	42.7	369	-
Ali >C6-C8	<0.01	<0.01	99.3	1240	-
Ali >C8-C10	<1	<1	13.9	204	-
Ali >C10-C12	<1	<1	81.7	1180	-
Ali >C12-C16	2.00	<1	385	4130	-
Ali >C16-C21	5.00	<1	210000	210100	-
Ali >C21-C35	11.00	6.00			
Total Aliphatics	11.00	6.00			
Aro >C5-C7	<0.01	<0.01	0.137	0.871	-
Aro >C7-C8	<0.01	<0.01	113	780	-
Aro >C8-C10	2.00	<1	20.5	232	-
Aro >C10-C12	<1	<1	70	468	-
Aro >C12-C16	2.00	1.00	165	830	-
Aro >C16-C21	4.00	2.00	319	1040	-
Aro >C21-C35	16.00	12.00	1120	1710	-
Total Aromatics	21.00	17.00			
TPH (Ali & Aro)	32.00	26.00			
BTEX - Benzene	<0.01	<0.01	0.0493	0.33	0.871
BTEX - Toluene	<0.01	<0.01	113	780	-
BTEX - Ethyl Benzene	<0.01	<0.01	50.7	453	-
BTEX - m & p Xylene	<0.01	<0.01	24	312	-
BTEX - o Xylene	<0.01	<0.01	26.4	336	-
MTBE	<0.01	<0.01	27.6	220	

Results expressed as mg/kg air dried unless otherwise stated.

* - The calculations for the mean value test include outliers

*** THESE RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

NOTES:

For the Purpose of this investigation- results will be assessed against RESIDENTIAL GUIDELINES WITH HOMEGROWN PRODUCE WITH NO FREE PRODUCT.

UU Drinking Water Guidelines	
PE Threshold	
Total BTEX & MTBE	0.1
EC5-EC10 Ali-Aro	2
EC10-EC16 Ali-Aro	10
EC16-EC40 Ali-Aro	500

SUMMARY OF CONTAMINATION ANALYSIS: PAH

Project Name RSCPA Cente, Halewood
Project No 17MIL024
Date 08/10/21

SOIL TYPE	SS	SS	SS
SAMPLE LOCATION	SP01A	SP01B	SP01C
DEPTH (m)			
Acenaphthene	<0.01	0.02	0.01
Acenaphthylene	<0.01	<0.01	<0.01
Anthracene	0.05	0.04	0.03
Benzo(a)anthracene	0.13	0.17	0.13
Benzo(a)pyrene	0.13	0.19	0.14
Benzo(b)fluoranthene	0.14	0.22	0.17
Benzo(ghi)perylene	0.06	0.11	0.07
Benzo(k)fluoranthene	<0.07	<0.07	<0.07
Chrysene	0.17	0.21	0.18
Dibenzo(ah)anthracene	<0.04	<0.04	<0.04
Fluoranthene	0.27	0.33	0.26
Fluorene	<0.01	0.02	<0.01
Indeno(123-cd)pyrene	0.07	0.11	0.07
Naphthalene	<0.03	<0.03	<0.03
Phenanthrene	0.16	0.18	0.11
Pyrene	0.25	0.33	0.24
Organic Matter	3.4	2.1	4.1

PAH	Range		AtRisk 2017 (mg/kg) Residential with Home Grown Produce	AtRisk 2017 (mg/kg) Residential with Home Grown Produce	DEFRA's C4SL 2017
	Largest Value (mg/kg)	Smallest Value (mg/kg)	1% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***
Acenaphthene	0.02	0.01	608	2760	-
Acenaphthylene	<0.01	<0.01			-
Anthracene	0.05	0.03	10200	26200	-
Benzo(a)anthracene	0.17	0.13	4.52	8.54	-
Benzo(a)pyrene	0.19	0.13	1.51	2.05	4.95
Benzo(b)fluoranthene	0.22	0.14	7.72	9.86	-
Benzo(ghi)perylene	0.11	0.06	96.2	103	-
Benzo(k)fluoranthene	<0.07	<0.07	84.4	100	-
Chrysene	0.21	0.17	585	927	-
Dibenzo(ah)anthracene	<0.04	<0.04	0.838	1	-
Fluoranthene	0.33	0.26	983	2980	-
Fluorene	0.02	<0.01	735	2610	-
Indeno(123-cd)pyrene	0.11	0.07	7.31	9.75	-
Naphthalene	<0.03	<0.03	0.829	12.2	-
Phenanthrene	0.18	0.11			-
Pyrene	0.33	0.24	668	2120	-

Results expressed as mg/kg air dried unless otherwise stated.

* - The calculations for the mean value test include outliers

*** THESE RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

NOTES:

For the Purpose of this investigation- results will be assessed against **RESIDENTIAL GUIDELINES WITH HOMEGROWN PRODUCE WITH NO FREE PRODUCT.**

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 22/06960
Issue Number: 1

Date: 22 July, 2022

Client: Betts Geo Environmental
Old Marsh Farm Barns
Welsh Road
Sealand
Flintshire
UK
CH5 2LY

Project Manager: Betts Geolab/Beverley Lewis
Project Name: RSPCA Halewood
Project Ref: 17MIL024
Order No: BG4691
Date Samples Received: 15/07/22
Date Instructions Received: 15/07/22
Date Analysis Completed: 22/07/22

Approved by:



Holly Neary-King
Client Services Supervisor

Envirolab Job Number: 22/06960

Client Project Name: RSPCA Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/06960/1	22/06960/2	22/06960/3	22/06960/4	22/06960/5	22/06960/6	22/06960/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SP2-1	S92-2	SP2-3	SP3-1	SP3-2	SP3-3	SP4-1			
Depth to Top										
Depth To Bottom										
Date Sampled	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Sample Matrix Code	4AE	5AE	4AE	4AE	4AE	4AE	4AE			
% Stones >10mm _A	12.2	25.5	<0.1	<0.1	21.9	<0.1	1.4	% w/w	0.1	A-T-044
pH _D ^{M#}	7.72	7.62	7.39	7.40	7.35	7.36	7.36	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.03	0.03	<0.01	0.10	0.07	0.09	0.09	g/l	0.01	A-T-026s
Organic Matter _D ^{M#}	3.2	2.9	2.9	3.9	2.8	3.9	5.5	% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	11	6	7	9	6	9	16	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.8	0.6	0.7	0.8	0.6	0.9	0.8	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	42	43	40	50	34	50	47	mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-040s
Lead _D ^{M#}	55	45	51	54	46	62	56	mg/kg	1	A-T-024s
Mercury _D	<0.17	0.19	<0.17	<0.17	<0.17	<0.17	<0.17	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	20	17	20	22	16	20	21	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	3	<1	<1	<1	<1	mg/kg	1	A-T-024s
Zinc _D ^{M#}	85	86	86	89	64	85	89	mg/kg	5	A-T-024s
VPH total (>C5-C10)	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	mg/kg	1	Calc-stone+mols

Envirolab Job Number: 22/06960

Client Project Name: RSPCA Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/06960/1	22/06960/2	22/06960/3	22/06960/4	22/06960/5	22/06960/6	22/06960/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SP2-1	S92-2	SP2-3	SP3-1	SP3-2	SP3-3	SP4-1			
Depth to Top										
Depth To Bottom										
Date Sampled	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Sample Matrix Code	4AE	5AE	4AE	4AE	4AE	4AE	4AE			
Asbestos in Soil (inc. matrix)										
Asbestos in soil _D [#]	NAD	NAD	NAD	NAD	NAD	NAD	NAD			A-T-045
Asbestos Matrix (visual) _D	-	-	-	-	-	-	-			A-T-045
Asbestos Matrix (microscope) _D	-	-	-	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A	N/A	N/A	N/A	N/A			A-T-045

Envirolab Job Number: 22/06960

Client Project Name: RSPCA Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/06960/1	22/06960/2	22/06960/3	22/06960/4	22/06960/5	22/06960/6	22/06960/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SP2-1	S92-2	SP2-3	SP3-1	SP3-2	SP3-3	SP4-1			
Depth to Top										
Depth To Bottom										
Date Sampled	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Sample Matrix Code	4AE	5AE	4AE	4AE	4AE	4AE	4AE			
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	0.01	0.01	<0.01	<0.01	0.01	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	0.04	0.03	0.02	<0.02	<0.02	0.02	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.08	0.10	0.13	0.13	0.06	0.06	0.12	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.08	0.13	0.16	0.14	0.06	0.07	0.14	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.11	0.17	0.20	0.18	0.08	0.09	0.16	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	0.09	0.09	0.09	<0.05	<0.05	0.08	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	0.10	0.13	0.18	0.15	0.08	0.08	0.15	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	0.18	0.20	0.29	0.25	0.13	0.14	0.25	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.05	0.10	0.11	0.10	0.04	0.05	0.09	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	0.07	0.08	0.13	0.11	0.05	0.06	0.12	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	0.16	0.19	0.27	0.23	0.12	0.14	0.23	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	0.83	1.23	1.60	1.41	0.62	0.69	1.37	mg/kg	0.01	A-T-019s

Envirolab Job Number: 22/06960

Client Project Name: RSPCA Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/06960/1	22/06960/2	22/06960/3	22/06960/4	22/06960/5	22/06960/6	22/06960/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SP2-1	S92-2	SP2-3	SP3-1	SP3-2	SP3-3	SP4-1			
Depth to Top										
Depth To Bottom										
Date Sampled	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Sample Matrix Code	4AE	5AE	4AE	4AE	4AE	4AE	4AE			
TPH CWG with Clean Up										
Ali >C5-C6 _A [#]	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	<1	<1	1	<1	1	1	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	9	4	8	40	10	14	31	mg/kg	1	A-T-055s
Total Aliphatics _A	9	4	8	41	10	15	32	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C10-C12 _A	1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C12-C16 _A	1	<1	<1	1	<1	1	<1	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	7	2	2	3	2	3	3	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	8	5	6	11	8	9	8	mg/kg	1	A-T-055s
Total Aromatics _A	17	7	8	15	9	14	12	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	26	11	16	56	19	28	43	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s

Envirolab Job Number: 22/06960

Client Project Name: RSPCA Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/06960/8	22/06960/9	22/06960/10	22/06960/11	22/06960/12			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SP4-2	SP4-3	P16-1	P16-2	PLOT 106					
Depth to Top			0.5	0.1	0.4					
Depth To Bottom										
Date Sampled	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Sample Matrix Code	4AE	4AE	6AE	4AE	5AE					
% Stones >10mm _A	<0.1	5.4	1.3	6.8	3.9			% w/w	0.1	A-T-044
pH _D ^{M#}	7.42	7.45	8.73	5.39	7.34			pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.06	0.16	0.03	<0.01	0.20			g/l	0.01	A-T-026s
Organic Matter _D ^{M#}	3.5	2.9	0.7	6.5	3.6			% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	7	6	<1	25	10			mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.8	0.8	0.8	1.2	0.8			mg/kg	0.5	A-T-024s
Copper _D ^{M#}	50	57	20	78	47			mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1			mg/kg	1	A-T-040s
Lead _D ^{M#}	51	55	12	92	61			mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	<0.17	<0.17			mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	22	21	34	21	21			mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1	<1			mg/kg	1	A-T-024s
Zinc _D ^{M#}	81	106	42	122	122			mg/kg	5	A-T-024s
VPH total (>C5-C10)	<1.00	<1.00	<1.00	<1.00	1.10			mg/kg	1	Calc-stone+mols

Envirolab Job Number: 22/06960

Client Project Name: RSPCA Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/06960/8	22/06960/9	22/06960/10	22/06960/11	22/06960/12			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SP4-2	SP4-3	P16-1	P16-2	PLOT 106					
Depth to Top			0.5	0.1	0.4					
Depth To Bottom										
Date Sampled	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Sample Matrix Code	4AE	4AE	6AE	4AE	5AE					
Asbestos in Soil (inc. matrix)										
Asbestos in soil _D [#]	NAD	NAD	NAD	NAD	NAD					A-T-045
Asbestos Matrix (visual) _D	-	-	-	-	-					A-T-045
Asbestos Matrix (microscope) _D	-	-	-	-	-					A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A	N/A	N/A					A-T-045

Envirolab Job Number: 22/06960

Client Project Name: RSPCA Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/06960/8	22/06960/9	22/06960/10	22/06960/11	22/06960/12			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SP4-2	SP4-3	P16-1	P16-2	PLOT 106					
Depth to Top			0.5	0.1	0.4					
Depth To Bottom										
Date Sampled	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Sample Matrix Code	4AE	4AE	6AE	4AE	5AE					
PAH-16MS										
Acenaphthene _A ^{M#}	0.01	<0.01	<0.01	0.05	<0.01			mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	0.03	<0.02	<0.02	0.12	<0.02			mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.18	0.07	<0.04	0.37	0.05			mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.21	0.08	<0.04	0.39	0.07			mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.23	0.09	<0.05	0.50	0.09			mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.12	<0.05	<0.05	0.21	<0.05			mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	0.09	<0.07	<0.07	0.17	<0.07			mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	0.21	0.08	<0.06	0.43	0.08			mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	0.05	<0.04			mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	0.39	0.14	<0.08	0.81	0.14			mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	0.04	<0.01			mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.14	0.06	<0.03	0.24	0.04			mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03			mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	0.16	0.06	<0.03	0.50	0.05			mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	0.35	0.13	<0.07	0.74	0.13			mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	2.12	0.71	<0.08	4.62	0.65			mg/kg	0.01	A-T-019s

Envirolab Job Number: 22/06960

Client Project Name: RSPCA Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/06960/8	22/06960/9	22/06960/10	22/06960/11	22/06960/12			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SP4-2	SP4-3	P16-1	P16-2	PLOT 106					
Depth to Top			0.5	0.1	0.4					
Depth To Bottom										
Date Sampled	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Sample Matrix Code	4AE	4AE	6AE	4AE	5AE					
TPH CWG with Clean Up										
Ali >C5-C6 _A [#]	<0.03	<0.03	<0.03	<0.03	<0.03			mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	<1	<1			mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	<1	<1			mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1	1	<1			mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	<1	<1	2	<1			mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	23	39	2	37	8			mg/kg	1	A-T-055s
Total Aliphatics _A	23	40	2	40	8			mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	<1	<1	1			mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1	<1	<1			mg/kg	1	A-T-055s
Aro >C12-C16 _A	1	<1	<1	3	<1			mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	3	3	<1	8	2			mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	18	13	2	27	7			mg/kg	1	A-T-055s
Total Aromatics _A	22	17	2	39	10			mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	45	57	4	78	18			mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Subscript ""^" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.

EPH CWG results have humics mathematically subtracted through instrument calculation

TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these

humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Betts Geo Environmental, Old Marsh Farm Barns, Welsh Road, Sealand,
Flintshire, UK, CH5 2LY

Project: RSPCA Halewood

Clients Project No: 17MIL024

Project No: 22/06960

Date Received: 15/07/2022 (pm)

Cool Box Temperatures (°C): 16.2,17.1

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	22/06960/1	22/06960/2	22/06960/3	22/06960/4	22/06960/5	22/06960/6	22/06960/7	22/06960/8	22/06960/9	22/06960/10	22/06960/11	22/06960/12
Client Sample No												
Client Sample ID/Depth	SP2-1	S92-2	SP2-3	SP3-1	SP3-2	SP3-3	SP4-1	SP4-2	SP4-3	P16-1 0.5m	P16-2 0.1m	PLOT 106 0.4m
Date Sampled	13/07/22	13/07/22	13/07/22	13/07/22	13/07/22	13/07/22	13/07/22	13/07/22	13/07/22	13/07/22	13/07/22	13/07/22
A-T-019s	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022
A-T-022s	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022
A-T-024s	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022
A-T-026s	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022
A-T-031s	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022
A-T-032 OM	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022
A-T-040s	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022
A-T-044	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022
A-T-045	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022
A-T-055s	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022
Calc-stone+mois	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

SUMMARY OF CONTAMINATION ANALYSIS: METALS

Project Name RSPCA Halewood
Project No 17MIL024
Date 13/07/2022

SOIL TYPE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SAMPLE LOCATION	SP2-1	SP2-2	SP2-3	SP3-1	SP3-2	SP3-3	SP4-1	SP4-2	SP4-3	P16-1	P16-2	PLOT 106
DEPTH (m)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.5	0.1	0.4
pH	7.72	7.62	7.39	7.4	7.35	7.36	7.36	7.42	7.45	8.73	5.39	7.34
Sulphate (water sol 2:1)	0.03	0.03	<0.01	0.1	0.07	0.09	0.09	0.06	0.16	0.03	<0.01	0.2
Organic matter	3.2	2.9	2.9	3.9	2.8	3.9	5.5	3.5	2.9	0.7	6.5	3.6
Arsenic	11	6	7	9	6	9	16	7	6	<1	25	10
Cadmium	0.8	0.6	0.7	0.8	0.6	0.9	0.8	0.8	0.8	0.8	1.2	0.8
Copper	42	43	40	50	34	50	47	50	57	20	78	47
Chromium (hexavalent)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lead	55	45	51	54	46	62	56	51	55	12	92	61
Mercury	<0.17	0.19	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Nickel	20	17	20	22	16	20	21	22	21	34	21	21
Selenium	<1	<1	3	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc	85	86	86	89	64	85	89	81	106	42	122	122
Asbestos in Soil	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD
Asbestos Matrix	0	0	0	0	0	0	0	0	0	0	0	0
Quantification	0	0	0	0	0	0	0	0	0	0	0	0
Organic matter	3.2	2.9	2.9	3.9	2.8	3.9	5.5	3.5	2.9	0.7	6.5	3.6

Metals	Mean Value Test *	Range		AtRisk 2017 (mg/kg)		DEFRA CASL 2017
	US ₉₅	Largest Value (mg/kg)	Smallest Value (mg/kg)	With Homegrown Produce (1% SOM)	With Homegrown Produce (6% SOM)	
pH	7.76	8.73	5.39			-
Sulphate (water sol 2:1)	0.10	0.20	<0.01			-
Organic matter	4.27	6.50	0.70			
Arsenic	12.57	25.00	<0.01	32	32	37
Cadmium	0.88	1.20	0.60	10	10	22.1
Copper	53.62	78.00	20.00	4730	4790	-
Chromium (hexavalent)	1.00	<1	<1	3.62	3.63	20.5
Lead	62.56	92.00	12.00			200
Mercury	0.17	0.19	<0.17	8.81	15.8	-
Nickel	23.54	34.00	16.00	EA/AtRisk withdrawn Aug 2015		
Selenium	1.47	3.00	<1	375	375	-
Zinc	99.58	122.00	42.00	20000	20300	-

NOTE:

Any individual results and mean value tests above SGVs are shown RED highlighted.
Any outlier values which exceed relevant SGVs are shown in red

* - The calculations for the mean value test include outliers

** - Results for this determinant are assessed with no background levels taken into account

Results are expressed as mg/kg unless otherwise stated

Asbestos Quantification is expressed in %w/w.

ALL RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

SGVs are derived from the EA 2009 SGV's which are taken from AtRisk 2015. Category 4 screening levels have been adopted by the EA and have been included as new guidance.

Note: The SGV for elemental mercury has been used to assess total mercury concentrations at the site. The Environment Agency's Science Report SC050021 Mercury SGV states that "for general surface contamination and to simplify the assessment the SGV's for inorganic mercury can normally be compared with chemical analysis for total mercury content...". Based on the latter, SGV for elemental mercury (170mg/kg) in the soil assessment is used
NAD - NO ASBESTOS DETECTED

TS - Topsoil, MG - Made Ground and N - Natural Ground

SUMMARY OF CONTAMINATION ANALYSIS: SOIL

SUMMARY OF CONTAMINATION ANALYSIS: PAH

Project Name RSPCA Halewood
Project No 17MIL024
Date 13/07/22

SOIL TYPE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SAMPLE LOCATION	SP2-1	S92-2	SP2-3	SP3-1	SP3-2	SP3-3	SP4-1	SP4-2	SP4-3	P16-1	P16-2	PLOT 106
DEPTH (m)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.5	0.1	0.4
Acenaphthene	<0.01	<0.01	0.01	0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	0.05	<0.01
Acenaphthylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene	<0.02	0.04	0.03	0.02	<0.02	<0.02	0.02	0.03	<0.02	<0.02	0.12	<0.02
Benzo(a)anthracene	0.08	0.1	0.13	0.13	0.06	0.06	0.12	0.18	0.07	<0.04	0.37	0.05
Benzo(a)pyrene	0.08	0.13	0.16	0.14	0.06	0.07	0.14	0.21	0.08	<0.04	0.39	0.07
Benzo(b)fluoranthene	0.11	0.17	0.2	0.18	0.08	0.09	0.16	0.23	0.09	<0.05	0.5	0.09
Benzo(ghi)perylene	<0.05	0.09	0.09	0.09	<0.05	<0.05	0.08	0.12	<0.05	<0.05	0.21	<0.05
Benzo(k)fluoranthene	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	0.09	<0.07	<0.07	0.17	<0.07
Chrysene	0.1	0.13	0.18	0.15	0.08	0.08	0.15	0.21	0.08	<0.06	0.43	0.08
Dibenzo(ah)anthracene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.05	<0.04
Fluoranthene	0.18	0.2	0.29	0.25	0.13	0.14	0.25	0.39	0.14	<0.08	0.81	0.14
Fluorene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01
Indeno(123-cd)pyrene	0.05	0.1	0.11	0.1	0.04	0.05	0.09	0.14	0.06	<0.03	0.24	0.04
Naphthalene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Phenanthrene	0.07	0.08	0.13	0.11	0.05	0.06	0.12	0.16	0.06	<0.03	0.5	0.05
Pyrene	0.16	0.19	0.27	0.23	0.12	0.14	0.23	0.35	0.13	<0.07	0.74	0.13
Organic Matter	3.2	2.9	2.9	3.9	2.8	3.9	5.5	3.5	2.9	0.7	6.5	3.6

PAH	Mean Value Test *	Range		AtRisk 2017 (mg/kg) Residential with Home Grown Produce	AtRisk 2017 (mg/kg) Residential with Home Grown Produce	DEFRA's C4SL 2017
	US ₉₅	Largest Value (mg/kg)	Smallest Value (mg/kg)	1% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***
Acenaphthene	0.02	0.05	<0.01	608	2760	-
Acenaphthylene	0.01	<0.01	<0.01			-
Anthracene	0.05	0.12	<0.02	10200	26200	-
Benzo(a)anthracene	0.16	0.37	0.05	4.52	8.54	-
Benzo(a)pyrene	0.18	0.39	<0.04	1.51	2.05	4.95
Benzo(b)fluoranthene	0.22	0.50	<0.05	7.72	9.86	-
Benzo(ghi)perylene	0.11	0.21	<0.05	96.2	103	-
Benzo(k)fluoranthene	0.09	0.17	<0.07	84.4	100	-
Chrysene	0.20	0.43	<0.06	585	927	-
Dibenzo(ah)anthracene	0.04	0.05	<0.04	0.838	1	-
Fluoranthene	0.35	0.81	<0.08	983	2980	-
Fluorene	0.02	0.04	<0.01	735	2610	-
Indeno(123-cd)pyrene	0.12	0.24	<0.03	7.31	9.75	-
Naphthalene	0.03	<0.03	<0.03	0.829	12.2	-
Phenanthrene	0.18	0.50	<0.03			-
Pyrene	0.32	0.74	<0.07	668	2120	-

Results expressed as mg/kg air dried unless otherwise stated.

* - The calculations for the mean value test include outliers

*** THESE RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

NOTES:

For the Purpose of this investigation- results will be assessed against RESIDENTIAL GUIDELINES WITH HOMEGROWN PRODUCE WITH NO FREE PRODUCT.

SUMMARY OF CONTAMINATION ANALYSIS: SOIL

SUMMARY OF CONTAMINATION ANALYSIS: TPH

Project Name RSPCA Halewood
Project No 17MIL024
Date 13/07/2022

SOIL TYPE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SAMPLE LOCATION	SP2-1	S92-2	SP2-3	SP3-1	SP3-2	SP3-3	SP4-1	SP4-2	SP4-3	P16-1	P16-2	PLOT 106
DEPTH (m)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.5	0.1	0.4
Alii >C5-C6	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Alii >C6-C8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Alii >C8-C10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Alii >C10-C12	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Alii >C12-C16	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1
Alii >C16-C21	<1	<1	<1	1	<1	1	1	<1	<1	<1	2	<1
Alii >C21-C35	9	4	8	40	10	14	31	23	39	2	37	8
Total Aliphatics	9	4	8	41	10	15	32	23	40	2	40	8
Aro >C5-C7	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aro >C7-C8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aro >C8-C10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1
Aro >C10-C12	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C12-C16	1	<1	<1	1	<1	1	<1	1	<1	<1	3	<1
Aro >C16-C21	7	2	2	3	2	3	3	3	3	<1	8	2
Aro >C21-C35	8	5	6	11	8	9	8	18	13	2	27	7
Total Aromatics	17	7	8	15	9	14	12	22	17	2	39	10
TPH (Alii & Aro)	26	11	16	56	19	28	43	45	57	4	78	18
BTEX - Benzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Toluene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - m & p Xylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - o Xylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
MTBE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Organic Matter	3.2	2.9	2.9	3.9	2.8	3.9	5.5	3.5	2.9	0.7	6.5	3.6

TPH	Mean Value Test *	Range		AtRisk 2017 (mg/kg) Residential with Home Grown Produce	AtRisk 2017 (mg/kg) Residential with Home Grown Produce	DEFRA CASL 2017	UU Drinking Water Guidelines	
	US ₉₅	Largest Value (mg/kg)	Smallest Value (mg/kg)	1% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***	PE Threshold	
Ali >C5-C6	0.03	<0.03	<0.03	42.7	369	-	Total BTEX & MTBE	0.1
Ali >C6-C8	0.01	<0.01	<0.01	99.3	1240	-		
Ali >C8-C10	1.00	<1	<1	13.9	204	-	EC5-EC10 Ali-Aro	2
Ali >C10-C12	1.00	<1	<1	81.7	1180	-		
Ali >C12-C16	1.00	1.00	<1	385	4130	-	EC10-EC16 Ali-Aro	10
Ali >C16-C21	1.23	2.00	<1	210000	210100	-		
Ali >C21-C35	26.22	40.00	2.00					
Total Aliphatics	27.15	41.00	2.00				EC16-EC40 Ali-Aro	500
Aro >C5-C7	0.01	<0.01	<0.01	0.137	0.871	-		
Aro >C7-C8	0.01	<0.01	<0.01	113	780	-		
Aro >C8-C10	1.00	1.00	<0.01	20.5	232	-		
Aro >C10-C12	1.00	1.00	<0.01	70	468	-		
Aro >C12-C16	1.47	3.00	<0.01	165	830	-		
Aro >C16-C21	4.34	8.00	<0.01	319	1040	-		
Aro >C21-C35	13.63	27.00	2.00	1120	1710	-		
Total Aromatics	19.23	39.00	2.00					
TPH (Ali & Aro)	44.99	78.00	4.00					
BTEX - Benzene	0.01	<0.01	<0.01	0.0493	0.33	0.871		
BTEX - Toluene	0.01	<0.01	<0.01	113	780	-		
BTEX - Ethyl Benzene	0.01	<0.01	<0.01	50.7	453	-		
BTEX - m & p Xylene	0.01	<0.01	<0.01	24	312	-		
BTEX - o Xylene	0.01	<0.01	<0.01	26.4	336	-		
MTBE	0.01	<0.01	<0.01	27.6	220			

Results expressed as mg/kg air dried unless otherwise stated.

* - The calculations for the mean value test include outliers

*** THESE RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

NOTES:

For the Purpose of this investigation- results will be assessed against RESIDENTIAL GUIDELINES WITH HOMEGROWN PRODUCE WITH NO FREE PRODUCT.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 22/06960
Issue Number: 1

Date: 22 July, 2022

Client: Betts Geo Environmental
Old Marsh Farm Barns
Welsh Road
Sealand
Flintshire
UK
CH5 2LY

Project Manager: Betts Geolab/Beverley Lewis
Project Name: RSPCA Halewood
Project Ref: 17MIL024
Order No: BG4691
Date Samples Received: 15/07/22
Date Instructions Received: 15/07/22
Date Analysis Completed: 22/07/22

Approved by:



Holly Neary-King
Client Services Supervisor

Envirolab Job Number: 22/06960

Client Project Name: RSPCA Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/06960/1	22/06960/2	22/06960/3	22/06960/4	22/06960/5	22/06960/6	22/06960/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SP2-1	S92-2	SP2-3	SP3-1	SP3-2	SP3-3	SP4-1			
Depth to Top										
Depth To Bottom										
Date Sampled	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Sample Matrix Code	4AE	5AE	4AE	4AE	4AE	4AE	4AE			
% Stones >10mm _A	12.2	25.5	<0.1	<0.1	21.9	<0.1	1.4	% w/w	0.1	A-T-044
pH _D ^{M#}	7.72	7.62	7.39	7.40	7.35	7.36	7.36	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.03	0.03	<0.01	0.10	0.07	0.09	0.09	g/l	0.01	A-T-026s
Organic Matter _D ^{M#}	3.2	2.9	2.9	3.9	2.8	3.9	5.5	% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	11	6	7	9	6	9	16	mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.8	0.6	0.7	0.8	0.6	0.9	0.8	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	42	43	40	50	34	50	47	mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-040s
Lead _D ^{M#}	55	45	51	54	46	62	56	mg/kg	1	A-T-024s
Mercury _D	<0.17	0.19	<0.17	<0.17	<0.17	<0.17	<0.17	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	20	17	20	22	16	20	21	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	3	<1	<1	<1	<1	mg/kg	1	A-T-024s
Zinc _D ^{M#}	85	86	86	89	64	85	89	mg/kg	5	A-T-024s
VPH total (>C5-C10)	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	mg/kg	1	Calc-stone+mols

Envirolab Job Number: 22/06960

Client Project Name: RSPCA Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/06960/1	22/06960/2	22/06960/3	22/06960/4	22/06960/5	22/06960/6	22/06960/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SP2-1	S92-2	SP2-3	SP3-1	SP3-2	SP3-3	SP4-1			
Depth to Top										
Depth To Bottom										
Date Sampled	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Sample Matrix Code	4AE	5AE	4AE	4AE	4AE	4AE	4AE			
Asbestos in Soil (inc. matrix)										
Asbestos in soil _D [#]	NAD	NAD	NAD	NAD	NAD	NAD	NAD			A-T-045
Asbestos Matrix (visual) _D	-	-	-	-	-	-	-			A-T-045
Asbestos Matrix (microscope) _D	-	-	-	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A	N/A	N/A	N/A	N/A			A-T-045

Envirolab Job Number: 22/06960

Client Project Name: RSPCA Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/06960/1	22/06960/2	22/06960/3	22/06960/4	22/06960/5	22/06960/6	22/06960/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SP2-1	S92-2	SP2-3	SP3-1	SP3-2	SP3-3	SP4-1			
Depth to Top										
Depth To Bottom										
Date Sampled	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Sample Matrix Code	4AE	5AE	4AE	4AE	4AE	4AE	4AE			
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	0.01	0.01	<0.01	<0.01	0.01	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	0.04	0.03	0.02	<0.02	<0.02	0.02	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.08	0.10	0.13	0.13	0.06	0.06	0.12	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.08	0.13	0.16	0.14	0.06	0.07	0.14	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.11	0.17	0.20	0.18	0.08	0.09	0.16	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	0.09	0.09	0.09	<0.05	<0.05	0.08	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	0.10	0.13	0.18	0.15	0.08	0.08	0.15	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	0.18	0.20	0.29	0.25	0.13	0.14	0.25	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.05	0.10	0.11	0.10	0.04	0.05	0.09	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	0.07	0.08	0.13	0.11	0.05	0.06	0.12	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	0.16	0.19	0.27	0.23	0.12	0.14	0.23	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	0.83	1.23	1.60	1.41	0.62	0.69	1.37	mg/kg	0.01	A-T-019s

Envirolab Job Number: 22/06960

Client Project Name: RSPCA Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/06960/1	22/06960/2	22/06960/3	22/06960/4	22/06960/5	22/06960/6	22/06960/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SP2-1	S92-2	SP2-3	SP3-1	SP3-2	SP3-3	SP4-1			
Depth to Top										
Depth To Bottom										
Date Sampled	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Sample Matrix Code	4AE	5AE	4AE	4AE	4AE	4AE	4AE			
TPH CWG with Clean Up										
Ali >C5-C6 _A [#]	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	<1	<1	1	<1	1	1	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	9	4	8	40	10	14	31	mg/kg	1	A-T-055s
Total Aliphatics _A	9	4	8	41	10	15	32	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C10-C12 _A	1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C12-C16 _A	1	<1	<1	1	<1	1	<1	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	7	2	2	3	2	3	3	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	8	5	6	11	8	9	8	mg/kg	1	A-T-055s
Total Aromatics _A	17	7	8	15	9	14	12	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	26	11	16	56	19	28	43	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s

Envirolab Job Number: 22/06960

Client Project Name: RSPCA Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/06960/8	22/06960/9	22/06960/10	22/06960/11	22/06960/12			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SP4-2	SP4-3	P16-1	P16-2	PLOT 106					
Depth to Top			0.5	0.1	0.4					
Depth To Bottom										
Date Sampled	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Sample Matrix Code	4AE	4AE	6AE	4AE	5AE					
% Stones >10mm _A	<0.1	5.4	1.3	6.8	3.9			% w/w	0.1	A-T-044
pH _D ^{M#}	7.42	7.45	8.73	5.39	7.34			pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.06	0.16	0.03	<0.01	0.20			g/l	0.01	A-T-026s
Organic Matter _D ^{M#}	3.5	2.9	0.7	6.5	3.6			% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	7	6	<1	25	10			mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.8	0.8	0.8	1.2	0.8			mg/kg	0.5	A-T-024s
Copper _D ^{M#}	50	57	20	78	47			mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1			mg/kg	1	A-T-040s
Lead _D ^{M#}	51	55	12	92	61			mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	<0.17	<0.17			mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	22	21	34	21	21			mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1	<1			mg/kg	1	A-T-024s
Zinc _D ^{M#}	81	106	42	122	122			mg/kg	5	A-T-024s
VPH total (>C5-C10)	<1.00	<1.00	<1.00	<1.00	1.10			mg/kg	1	Calc-stone+mols

Envirolab Job Number: 22/06960

Client Project Name: RSPCA Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/06960/8	22/06960/9	22/06960/10	22/06960/11	22/06960/12			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SP4-2	SP4-3	P16-1	P16-2	PLOT 106					
Depth to Top			0.5	0.1	0.4					
Depth To Bottom										
Date Sampled	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Sample Matrix Code	4AE	4AE	6AE	4AE	5AE					
Asbestos in Soil (inc. matrix)										
Asbestos in soil _D [#]	NAD	NAD	NAD	NAD	NAD					A-T-045
Asbestos Matrix (visual) _D	-	-	-	-	-					A-T-045
Asbestos Matrix (microscope) _D	-	-	-	-	-					A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A	N/A	N/A					A-T-045

Envirolab Job Number: 22/06960

Client Project Name: RSPCA Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/06960/8	22/06960/9	22/06960/10	22/06960/11	22/06960/12			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SP4-2	SP4-3	P16-1	P16-2	PLOT 106					
Depth to Top			0.5	0.1	0.4					
Depth To Bottom										
Date Sampled	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Sample Matrix Code	4AE	4AE	6AE	4AE	5AE					
PAH-16MS										
Acenaphthene _A ^{M#}	0.01	<0.01	<0.01	0.05	<0.01			mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	0.03	<0.02	<0.02	0.12	<0.02			mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.18	0.07	<0.04	0.37	0.05			mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.21	0.08	<0.04	0.39	0.07			mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.23	0.09	<0.05	0.50	0.09			mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.12	<0.05	<0.05	0.21	<0.05			mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	0.09	<0.07	<0.07	0.17	<0.07			mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	0.21	0.08	<0.06	0.43	0.08			mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	0.05	<0.04			mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	0.39	0.14	<0.08	0.81	0.14			mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	0.04	<0.01			mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.14	0.06	<0.03	0.24	0.04			mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03			mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	0.16	0.06	<0.03	0.50	0.05			mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	0.35	0.13	<0.07	0.74	0.13			mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	2.12	0.71	<0.08	4.62	0.65			mg/kg	0.01	A-T-019s

Envirolab Job Number: 22/06960

Client Project Name: RSPCA Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/06960/8	22/06960/9	22/06960/10	22/06960/11	22/06960/12			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SP4-2	SP4-3	P16-1	P16-2	PLOT 106					
Depth to Top			0.5	0.1	0.4					
Depth To Bottom										
Date Sampled	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22	13-Jul-22					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Sample Matrix Code	4AE	4AE	6AE	4AE	5AE					
TPH CWG with Clean Up										
Ali >C5-C6 _A [#]	<0.03	<0.03	<0.03	<0.03	<0.03			mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	<1	<1			mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	<1	<1			mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1	1	<1			mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	<1	<1	2	<1			mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	23	39	2	37	8			mg/kg	1	A-T-055s
Total Aliphatics _A	23	40	2	40	8			mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	<1	<1	1			mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1	<1	<1			mg/kg	1	A-T-055s
Aro >C12-C16 _A	1	<1	<1	3	<1			mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	3	3	<1	8	2			mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	18	13	2	27	7			mg/kg	1	A-T-055s
Total Aromatics _A	22	17	2	39	10			mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	45	57	4	78	18			mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Subscript ""^" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.

EPH CWG results have humics mathematically subtracted through instrument calculation

TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these

humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Betts Geo Environmental, Old Marsh Farm Barns, Welsh Road, Sealand,
Flintshire, UK, CH5 2LY

Project: RSPCA Halewood

Clients Project No: 17MIL024

Project No: 22/06960

Date Received: 15/07/2022 (pm)

Cool Box Temperatures (°C): 16.2,17.1

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	22/06960/1	22/06960/2	22/06960/3	22/06960/4	22/06960/5	22/06960/6	22/06960/7	22/06960/8	22/06960/9	22/06960/10	22/06960/11	22/06960/12
Client Sample No												
Client Sample ID/Depth	SP2-1	S92-2	SP2-3	SP3-1	SP3-2	SP3-3	SP4-1	SP4-2	SP4-3	P16-1 0.5m	P16-2 0.1m	PLOT 106 0.4m
Date Sampled	13/07/22	13/07/22	13/07/22	13/07/22	13/07/22	13/07/22	13/07/22	13/07/22	13/07/22	13/07/22	13/07/22	13/07/22
A-T-019s	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022
A-T-022s	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022
A-T-024s	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022
A-T-026s	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022
A-T-031s	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022
A-T-032 OM	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022
A-T-040s	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022
A-T-044	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022
A-T-045	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022
A-T-055s	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022
Calc-stone+mois	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022	21/07/2022

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 22/10667
Issue Number: 1

Date: 07 November, 2022

Client: Betts Geo Environmental
Old Marsh Farm Barns
Welsh Road
Sealand
Flintshire
UK
CH5 2LY

Project Manager: Betts Geolab
Project Name: Halewood
Project Ref: 17MIL024
Order No: BG4784
Date Samples Received: 28/10/22
Date Instructions Received: 31/10/22
Date Analysis Completed: 07/11/22

Approved by:



Gemma Berrisford
Client Manager

Envirolab Job Number: 22/10667

Client Project Name: Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/10667/1	22/10667/2	22/10667/3					Units	Limit of Detection	Method ref
Client Sample No	TS	TS	TS							
Client Sample ID	SP03A	SP03B	SP03C							
Depth to Top	0.20	0.50	1.00							
Depth To Bottom										
Date Sampled	26-Oct-22	26-Oct-22	26-Oct-22							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	5AE	5A	5A							
% Stones >10mm _A	<0.1	<0.1	7.3					% w/w	0.1	A-T-044
pH _D ^{M#}	7.74	7.91	7.91					pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.10	0.06	0.05					g/l	0.01	A-T-026s
Organic Matter _D ^{M#}	2.6	2.6	2.6					% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	7	7	7					mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.5	<0.5	<0.5					mg/kg	0.5	A-T-024s
Copper _D ^{M#}	45	38	40					mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1					mg/kg	1	A-T-040s
Lead _D ^{M#}	60	53	57					mg/kg	1	A-T-024s
Mercury _D	0.36	<0.17	<0.17					mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	25	20	19					mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1					mg/kg	1	A-T-024s
Zinc _D ^{M#}	93	77	79					mg/kg	5	A-T-024s
VPH total (>C5-C10)	<2.00	<2.00	<2.00					mg/kg	1	Calc-stone+mols

Envirolab Job Number: 22/10667

Client Project Name: Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/10667/1	22/10667/2	22/10667/3					Units	Limit of Detection	Method ref
Client Sample No	TS	TS	TS							
Client Sample ID	SP03A	SP03B	SP03C							
Depth to Top	0.20	0.50	1.00							
Depth To Bottom										
Date Sampled	26-Oct-22	26-Oct-22	26-Oct-22							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	5AE	5A	5A							
Asbestos in Soil (inc. matrix)										
Asbestos in soil _D [#]	NAD	NAD	NAD							A-T-045
Asbestos Matrix (visual) _D	-	-	-							A-T-045
Asbestos Matrix (microscope) _D	-	-	-							A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A							A-T-045

Envirolab Job Number: 22/10667

Client Project Name: Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/10667/1	22/10667/2	22/10667/3					Units	Limit of Detection	Method ref
Client Sample No	TS	TS	TS							
Client Sample ID	SP03A	SP03B	SP03C							
Depth to Top	0.20	0.50	1.00							
Depth To Bottom										
Date Sampled	26-Oct-22	26-Oct-22	26-Oct-22							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	5AE	5A	5A							
PAH-16MS										
Acenaphthene _A ^{M#}	0.02	0.02	0.02					mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	0.04	0.05	0.02					mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.11	0.12	0.08					mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.13	0.11	0.08					mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.16	0.12	0.10					mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05					mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07					mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	0.18	0.15	0.14					mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	0.31	0.36	0.26					mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.06	0.05	0.05					mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03					mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	0.18	0.24	0.19					mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	0.30	0.31	0.24					mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	1.49	1.53	1.18					mg/kg	0.01	A-T-019s

Envirolab Job Number: 22/10667

Client Project Name: Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/10667/1	22/10667/2	22/10667/3					Units	Limit of Detection	Method ref
Client Sample No	TS	TS	TS							
Client Sample ID	SP03A	SP03B	SP03C							
Depth to Top	0.20	0.50	1.00							
Depth To Bottom										
Date Sampled	26-Oct-22	26-Oct-22	26-Oct-22							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	5AE	5A	5A							
TPH CWG with Clean Up										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	5	6	5					mg/kg	1	A-T-055s
Total Aliphatics _A	5	6	5					mg/kg	1	Calc-As Recd
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<2	<2	<2					mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1					mg/kg	1	A-T-055s
Aro >C12-C16 _A	<1	<1	1					mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	2	2	3					mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	6	7	8					mg/kg	1	A-T-055s
Total Aromatics _A	8	9	12					mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35) _A	13	15	17					mg/kg	1	Calc-As Recd
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Subscript ""^" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.

EPH CWG results have humics mathematically subtracted through instrument calculation

TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these

humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Betts Geo Environmental, Old Marsh Farm Barns, Welsh Road, Sealand,
Flintshire, UK, CH5 2LY

Project: Halewood

Clients Project No: 17MIL024

Project No: 22/10667

Date Received: 31/10/2022 (am)

Cool Box Temperatures (°C): 19.9

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	22/10667/1	22/10667/2	22/10667/3
Client Sample No	TS	TS	TS
Client Sample ID/Depth	SP03A 0.20m	SP03B 0.50m	SP03C 1.00m
Date Sampled	26/10/22	26/10/22	26/10/22
A-T-019s	03/11/2022	03/11/2022	03/11/2022
A-T-022s	03/11/2022	03/11/2022	03/11/2022
A-T-024s	04/11/2022	04/11/2022	04/11/2022
A-T-026s	03/11/2022	03/11/2022	03/11/2022
A-T-031s	03/11/2022	03/11/2022	03/11/2022
A-T-032 OM	07/11/2022	07/11/2022	07/11/2022
A-T-040s	03/11/2022	03/11/2022	03/11/2022
A-T-044	04/11/2022	04/11/2022	04/11/2022
A-T-045	01/11/2022	01/11/2022	01/11/2022
A-T-055s	02/11/2022	02/11/2022	02/11/2022
Calc-As Recd	03/11/2022	03/11/2022	03/11/2022
Calc-stone+mois	03/11/2022	03/11/2022	03/11/2022

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

SUMMARY OF CONTAMINATION ANALYSIS: SOIL

SUMMARY OF CONTAMINATION ANALYSIS: METALS

Project Name Halewood
 Project No 17MIL024
 Date 26/10/2022

SOIL TYPE	TS	TS	TS
SAMPLE LOCATION	SP03A	SP03B	SP03C
DEPTH (m)	-	-	-
pH	7.74	7.91	7.91
Sulphate (water sol 2:1)	0.1	0.06	0.05
Organic matter	2.6	2.6	2.6
Arsenic	7	7	7
Cadmium	0.5	<0.5	<0.5
Copper	45	38	40
Chromium (hexavalent)	<1	<1	<1
Lead	60	53	57
Mercury	0.36	<0.17	<0.17
Nickel	25	20	19
Selenium	<1	<1	<1
Zinc	93	77	79
Asbestos in Soil	NAD	NAD	NAD
Asbestos Matrix	-	-	-
Quantification	-	-	-
Organic matter	2.6	2.6	2.6

Metals	Mean Value Test *	Range		AtRisk 2017 (mg/kg)	AtRisk 2017 (mg/kg)	DEFRA C4SL 2017
	US ₉₅	Largest Value (mg/kg)	Smallest Value (mg/kg)	With Homegrown Produce (1% SOM)	With Homegrown Produce (6% SOM)	
pH	-	7.91	7.74			-
Sulphate (water sol 2:1)	-	0.10	0.05			-
Organic matter	-	2.60	2.60			
Arsenic	-	7.00	7.00	32	32	37
Cadmium	-	0.50	<0.5	10	10	22.1
Copper	-	45.00	38.00	4730	4790	-
Chromium (hexavalent)	-	<1	<1	3.62	3.63	20.5
Lead	-	60.00	53.00			200
Mercury	-	0.36	<0.17	8.81	15.8	-
Nickel	-	25.00	19.00	EA/AtRisk withdrawn Aug 2015		
Selenium	-	<1	<1	375	375	-
Zinc	-	93.00	77.00	20000	20300	-

NOTE:

Any individual results and mean value tests above SGVs are shown RED highlighted.

Any outlier values which exceed relevant SGVs are shown in red

* - The calculations for the mean value test include outliers

** - Results for this determinand are assessed with no background levels taken into account

Results are expressed as mg/kg unless otherwise stated

Asbestos Quantification is expressed in %w/w.

ALL RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

SGVs are derived from the EA 2009 SGV's which are taken from AtRisk 2015. Category 4 screening levels have been adopted by the EA and have been included as new guidance.

Note: The SGV for elemental mercury has been used to assess total mercury concentrations at the site. The Environment Agency's Science Report SC050021 /Mercury SGV states that 'for general surface contamination and to simplify the assessment the SGV's for inorganic mercury can normally be compared with chemical analysis for total mercury content....'. Based on the latter, SGV for elemental mercury (170mg/kg) in the soil assessment is used

NAD - NO ASBESTOS DETECTED

TS - Topsoil, MG - Made Ground and N - Natural Ground

SUMMARY OF CONTAMINATION ANALYSIS: TPH

Project Name Halewood
Project No 17MIL024
Date 26/10/2022

SOIL TYPE	TS	TS	TS
SAMPLE LOCATION	SP03A	SP03B	SP03C
DEPTH (m)	-	-	-
Ali >C5-C6	<0.01	<0.01	<0.01
Ali >C6-C8	<0.01	<0.01	<0.01
Ali >C8-C10	<1	<1	<1
Ali >C10-C12	<1	<1	<1
Ali >C12-C16	<1	<1	<1
Ali >C16-C21	<1	<1	<1
Ali >C21-C35	5	6	5
Total Aliphatics	5	6	5
Aro >C5-C7	<0.01	<0.01	<0.01
Aro >C7-C8	<0.01	<0.01	<0.01
Aro >C8-C10	<2	<2	<2
Aro >C10-C12	<1	<1	<1
Aro >C12-C16	<1	<1	1
Aro >C16-C21	2	2	3
Aro >C21-C35	6	7	8
Total Aromatics	8	9	12
TPH (Ali & Aro)	13	15	17
BTEX - Benzene	<0.01	<0.01	<0.01
BTEX - Toluene	<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	<0.01	<0.01	<0.01
BTEX - m & p Xylene	<0.01	<0.01	<0.01
BTEX - o Xylene	<0.01	<0.01	<0.01
MTBE	<0.01	<0.01	<0.01
Organic Matter	2.6	2.6	2.6

TPH	Mean Value Test *	Range		AtRisk 2017 (mg/kg) Residential with Home Grown Produce	AtRisk 2017 (mg/kg) Residential with Home Grown Produce	DEFRA C4SL 2017
	US ₉₅	Largest Value (mg/kg)	Smallest Value (mg/kg)	1% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***
Ali >C5-C6	-	<0.01	<0.01	42.7	369	-
Ali >C6-C8	-	<0.01	<0.01	99.3	1240	-
Ali >C8-C10	-	<1	<1	13.9	204	-
Ali >C10-C12	-	<1	<1	81.7	1180	-
Ali >C12-C16	-	<1	<1	385	4130	-
Ali >C16-C21	-	<1	<1	210000	210100	-
Ali >C21-C35	-	6.00	5.00			
Total Aliphatics	-	6.00	5.00			
Aro >C5-C7	-	<0.01	<0.01	0.137	0.871	-
Aro >C7-C8	-	<0.01	<0.01	113	780	-
Aro >C8-C10	-	<2	<2	20.5	232	-
Aro >C10-C12	-	<1	<1	70	468	-
Aro >C12-C16	-	<1	<1	165	830	-
Aro >C16-C21	-	3.00	2.00	319	1040	-
Aro >C21-C35	-	8.00	6.00	1120	1710	-
Total Aromatics	-	12.00	8.00			
TPH (Ali & Aro)	-	17.00	13.00			
BTEX - Benzene	-	<0.01	<0.01	0.0493	0.33	0.871
BTEX - Toluene	-	<0.01	<0.01	113	780	-
BTEX - Ethyl Benzene	-	<0.01	<0.01	50.7	453	-
BTEX - m & p Xylene	-	<0.01	<0.01	24	312	-
BTEX - o Xylene	-	<0.01	<0.01	26.4	336	-
MTBE	-	<0.01	<0.01	27.6	220	

Results expressed as mg/kg air dried unless otherwise stated.

* - The calculations for the mean value test include outliers

*** THESE RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

NOTES:

For the Purpose of this investigation- results will be assessed against RESIDENTIAL GUIDELINES WITH HOMEGROWN PRODUCE WITH NO FREE PRODUCT.

UU Drinking Water Guidelines	
PE Threshold	
Total BTEX & MTBE	0.1
EC5-EC10 Ali-Aro	2
EC10-EC16 Ali-Aro	10
EC16-EC40 Ali-Aro	500

SUMMARY OF CONTAMINATION ANALYSIS: PAH

Project Name Halewood
 Project No 17MIL024
 Date 26/10/22

SOIL TYPE	TS	TS	TS
SAMPLE LOCATION	SP03A	SP03B	SP03C
DEPTH (m)	-	-	-
Acenaphthene	0.02	0.02	0.02
Acenaphthylene	<0.01	<0.01	<0.01
Anthracene	0.04	0.05	0.02
Benzo(a)anthracene	0.11	0.12	0.08
Benzo(a)pyrene	0.13	0.11	0.08
Benzo(b)fluoranthene	0.16	0.12	0.1
Benzo(ghi)perylene	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	<0.07	<0.07	<0.07
Chrysene	0.18	0.15	0.14
Dibenzo(ah)anthracene	<0.04	<0.04	<0.04
Fluoranthene	0.31	0.36	0.26
Fluorene	<0.01	<0.01	<0.01
Indeno(123-cd)pyrene	0.06	0.05	0.05
Naphthalene	<0.03	<0.03	<0.03
Phenanthrene	0.18	0.24	0.19
Pyrene	0.3	0.31	0.24
Organic Matter	2.6	2.6	2.6

PAH	Mean Value Test *	Range		AtRisk 2017 (mg/kg) Residential with Home Grown Produce	AtRisk 2017 (mg/kg) Residential with Home Grown Produce	DEFRA's C4SL 2017
	US ₉₅	Largest Value (mg/kg)	Smallest Value (mg/kg)	1% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***
Acenaphthene	-	0.02	0.02	608	2760	-
Acenaphthylene	-	<0.01	<0.01			-
Anthracene	-	0.05	0.02	10200	26200	-
Benzo(a)anthracene	-	0.12	0.08	4.52	8.54	-
Benzo(a)pyrene	-	0.13	0.08	1.51	2.05	4.95
Benzo(b)fluoranthene	-	0.16	0.10	7.72	9.86	-
Benzo(ghi)perylene	-	<0.05	<0.05	96.2	103	-
Benzo(k)fluoranthene	-	<0.07	<0.07	84.4	100	-
Chrysene	-	0.18	0.14	585	927	-
Dibenzo(ah)anthracene	-	<0.04	<0.04	0.838	1	-
Fluoranthene	-	0.36	0.26	983	2980	-
Fluorene	-	<0.01	<0.01	735	2610	-
Indeno(123-cd)pyrene	-	0.06	0.05	7.31	9.75	-
Naphthalene	-	<0.03	<0.03	0.829	12.2	-
Phenanthrene	-	0.24	0.18			-
Pyrene	-	0.31	0.24	668	2120	-

Results expressed as mg/kg air dried unless otherwise stated.

* - The calculations for the mean value test include outliers

*** THESE RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

NOTES:

For the Purpose of this investigation- results will be assessed against **RESIDENTIAL GUIDELINES WITH HOMEGROWN PRODUCE WITH NO FREE PRODUCT.**

FINAL ANALYTICAL TEST REPORT

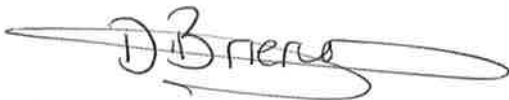
Envirolab Job Number: 22/12148
Issue Number: 1

Date: 15 December, 2022

Client: Betts Geo Environmental
Old Marsh Farm Barns
Welsh Road
Sealand
Flintshire
UK
CH5 2LY

Project Manager: Betts Geolab/Graham Clark
Project Name: Halewood
Project Ref: 17MIL024
Order No: BG4824
Date Samples Received: 12/12/22
Date Instructions Received: 12/12/22
Date Analysis Completed: 15/12/22

Approved by:



Danielle Brierley
Deputy Client Services Supervisor

Envirolab Job Number: 22/12148

Client Project Name: Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/12148/1	22/12148/2	22/12148/3					Units	Limit of Detection	Method ref
Client Sample No	TS	TS	TS							
Client Sample ID	SP04A	SP04B	SP04C							
Depth to Top										
Depth To Bottom										
Date Sampled	09-Dec-22	09-Dec-22	09-Dec-22							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	4A	4A	4AE							
% Stones >10mm _A	<0.1	<0.1	<0.1					% w/w	0.1	A-T-044
pH _D ^{M#}	7.56	7.94	8.01					pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.91	0.72	0.76					g/l	0.01	A-T-026s
Organic Matter _D ^{M#}	3.2	2.9	3.4					% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	4	5	5					mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.5	0.6	<0.5					mg/kg	0.5	A-T-024s
Copper _D ^{M#}	33	45	101					mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1					mg/kg	1	A-T-040s
Lead _D ^{M#}	84	85	84					mg/kg	1	A-T-024s
Mercury _D	0.53	0.54	0.62					mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	12	16	14					mg/kg	1	A-T-024s
Selenium _D ^{M#}	1	<1	<1					mg/kg	1	A-T-024s
Zinc _D ^{M#}	87	96	116					mg/kg	5	A-T-024s
VPH total (>C5-C10)	<2.00	<2.00	<2.00					mg/kg	1	Calc-stone+mols

Envirolab Job Number: 22/12148

Client Project Name: Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/12148/1	22/12148/2	22/12148/3					Units	Limit of Detection	Method ref
Client Sample No	TS	TS	TS							
Client Sample ID	SP04A	SP04B	SP04C							
Depth to Top										
Depth To Bottom										
Date Sampled	09-Dec-22	09-Dec-22	09-Dec-22							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	4A	4A	4AE							
Asbestos in Soil (inc. matrix)										
Asbestos in soil _D [#]	NAD	NAD	NAD							A-T-045
Asbestos Matrix (visual) _D	-	-	-							A-T-045
Asbestos Matrix (microscope) _D	-	-	-							A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A							A-T-045

Envirolab Job Number: 22/12148

Client Project Name: Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/12148/1	22/12148/2	22/12148/3					Units	Limit of Detection	Method ref
Client Sample No	TS	TS	TS							
Client Sample ID	SP04A	SP04B	SP04C							
Depth to Top										
Depth To Bottom										
Date Sampled	09-Dec-22	09-Dec-22	09-Dec-22							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	4A	4A	4AE							
PAH-16MS										
Acenaphthene _A ^{M#}	0.02	0.11	0.06					mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	0.01	0.01					mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	0.04	0.20	0.18					mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.17	0.68	0.67					mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.18	0.69	0.72					mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.20	0.79	0.78					mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.12	0.45	0.47					mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	0.29	0.30					mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	0.19	0.76	0.74					mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	0.10	0.10					mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	0.39	1.63	1.54					mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	0.02	0.08	0.05					mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.11	0.48	0.49					mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03					mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	0.20	0.90	0.73					mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	0.37	1.46	1.36					mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	2.01	8.63	8.20					mg/kg	0.01	A-T-019s

Envirolab Job Number: 22/12148

Client Project Name: Halewood

Client Project Ref: 17MIL024

Lab Sample ID	22/12148/1	22/12148/2	22/12148/3					Units	Limit of Detection	Method ref
Client Sample No	TS	TS	TS							
Client Sample ID	SP04A	SP04B	SP04C							
Depth to Top										
Depth To Bottom										
Date Sampled	09-Dec-22	09-Dec-22	09-Dec-22							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	4A	4A	4AE							
TPH CWG with Clean Up										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	1	<1					mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	1	2	<1					mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	2	4	2					mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	23	30	20					mg/kg	1	A-T-055s
Total Aliphatics _A	26	37	23					mg/kg	1	Calc-As Recd
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<2	<2	<2					mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1					mg/kg	1	A-T-055s
Aro >C12-C16 _A	4	4	2					mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	23	20	14					mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	80	79	72					mg/kg	1	A-T-055s
Total Aromatics _A	106	102	88					mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35) _A	132	139	111					mg/kg	1	Calc-As Recd
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	0.01	0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Subscript "A" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.

EPH CWG results have humics mathematically subtracted through instrument calculation

TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these

humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Betts Geo Environmental, Old Marsh Farm Barns, Welsh Road, Sealand,
Flintshire, UK, CH5 2LY

Project: Halewood

Clients Project No: 17MIL024

Project No: 22/12148

Date Received: 12/12/2022 (am)

Cool Box Temperatures (°C): 0.9

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	22/12148/1	22/12148/2	22/12148/3
Client Sample No	TS	TS	TS
Client Sample ID/Depth	SP04A	SP04B	SP04C
Date Sampled	09/12/22	09/12/22	09/12/22
A-T-019s	15/12/2022	15/12/2022	15/12/2022
A-T-022s	15/12/2022	15/12/2022	15/12/2022
A-T-024s	15/12/2022	15/12/2022	15/12/2022
A-T-026s	15/12/2022	15/12/2022	15/12/2022
A-T-031s	15/12/2022	15/12/2022	15/12/2022
A-T-032 OM	14/12/2022	14/12/2022	14/12/2022
A-T-040s	15/12/2022	15/12/2022	15/12/2022
A-T-044	15/12/2022	15/12/2022	15/12/2022
A-T-045	13/12/2022	13/12/2022	13/12/2022
A-T-055s	15/12/2022	15/12/2022	15/12/2022
Calc-As Recd	15/12/2022	15/12/2022	15/12/2022
Calc-stone+mois	15/12/2022	15/12/2022	15/12/2022

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

SUMMARY OF CONTAMINATION ANALYSIS: SOIL

SUMMARY OF CONTAMINATION ANALYSIS: METALS

Project Name RSPCA Halewood
Project No 17MIL024
Date 09/12/2022

SOIL TYPE	TS	TS	TS
SAMPLE LOCATION	SP04A	SP04B	SP04C
DEPTH (m)	-	-	-
pH	7.56	7.94	8.01
Sulphate (water sol 2:1)	0.91	0.72	0.76
Organic matter	3.2	2.9	3.4
Arsenic	4	5	5
Cadmium	0.5	0.6	<0.5
Copper	33	45	101
Chromium (hexavalent)	<1	<1	<1
Lead	84	85	84
Mercury	0.53	0.54	0.62
Nickel	12	16	14
Selenium	1	<1	<1
Zinc	87	96	116
Asbestos in Soil	NAD	NAD	NAD
Asbestos Matrix	-	-	-
Quantification	-	-	-
Organic matter	3.2	2.9	3.4

Metals	Mean Value Test *	Range		AtRisk 2017 (mg/kg)	AtRisk 2017 (mg/kg)	DEFRA C4SL 2017
	US ₉₅	Largest Value (mg/kg)	Smallest Value (mg/kg)	With Homegrown Produce (1% SOM)	With Homegrown Produce (6% SOM)	
pH	-	8.01	7.56			-
Sulphate (water sol 2:1)	-	0.91	0.72			-
Organic matter	-	3.40	2.90			
Arsenic	-	5.00	4.00	32	32	37
Cadmium	-	0.60	<0.5	10	10	22.1
Copper	-	101.00	33.00	4730	4790	-
Chromium (hexavalent)	-	<1	<1	3.62	3.63	20.5
Lead	-	85.00	84.00			200
Mercury	-	0.62	0.53	8.81	15.8	-
Nickel	-	16.00	12.00	EA/AtRisk withdrawn Aug 2015		
Selenium	-	1.00	<1	375	375	-
Zinc	-	116.00	87.00	20000	20300	-

NOTE:

Any individual results and mean value tests above SGVs are shown RED highlighted.
Any outlier values which exceed relevant SGVs are shown in red

* - The calculations for the mean value test include outliers

** - Results for this determinand are assessed with no background levels taken into account

Results are expressed as mg/kg unless otherwise stated

Asbestos Quantification is expressed in %w/w.

ALL RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

SGVs are derived from the EA 2009 SGV's which are taken from AtRisk 2015. Category 4 screening levels have been adopted by the EA and have been included as new guidance.

Note: The SGV for elemental mercury has been used to assess total mercury concentrations at the site. The Environment Agency's Science Report SC050021 /Mercury SGV states that 'for general surface contamination and to simplify the assessment the SGV's for inorganic mercury can normally be compared with chemical analysis for total mercury content....'. Based on the latter, SGV for elemental mercury (170mg/kg) in the soil assessment is used

NAD - NO ASBESTOS DETECTED

TS - Topsoil, MG - Made Ground and N - Natural Ground

SUMMARY OF CONTAMINATION ANALYSIS: SOIL

SUMMARY OF CONTAMINATION ANALYSIS: TPH

Project Name RSPCA Halewood
Project No 17MIL024
Date 09/12/2022

SOIL TYPE	TS	TS	TS
SAMPLE LOCATION	SP04A	SP04B	SP04C
DEPTH (m)	-	-	-
Ali >C5-C6	<0.01	<0.01	<0.01
Ali >C6-C8	<0.01	<0.01	<0.01
Ali >C8-C10	<1	<1	<1
Ali >C10-C12	<1	1	<1
Ali >C12-C16	1	2	<1
Ali >C16-C21	2	4	2
Ali >C21-C35	23	30	20
Total Aliphatics	26	37	23
Aro >C5-C7	<0.01	<0.01	<0.01
Aro >C7-C8	<0.01	<0.01	<0.01
Aro >C8-C10	<2	<2	<2
Aro >C10-C12	<1	<1	<1
Aro >C12-C16	4	4	2
Aro >C16-C21	23	20	14
Aro >C21-C35	80	79	72
Total Aromatics	106	102	88
TPH (Ali & Aro)	132	139	111
BTEX - Benzene	<0.01	<0.01	<0.01
BTEX - Toluene	<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	<0.01	<0.01	<0.01
BTEX - m & p Xylene	0.01	0.01	<0.01
BTEX - o Xylene	<0.01	<0.01	<0.01
MTBE	<0.01	<0.01	<0.01
Organic Matter	3.2	2.9	3.4

TPH	Mean Value Test *	Range		AtRisk 2017 (mg/kg) Residential with Home Grown Produce	AtRisk 2017 (mg/kg) Residential with Home Grown Produce	DEFRA C4SL 2017
	US ₉₅	Largest Value (mg/kg)	Smallest Value (mg/kg)	1% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***
Ali >C5-C6	-	<0.01	<0.01	42.7	369	-
Ali >C6-C8	-	<0.01	<0.01	99.3	1240	-
Ali >C8-C10	-	<1	<1	13.9	204	-
Ali >C10-C12	-	1.00	<1	81.7	1180	-
Ali >C12-C16	-	2.00	<1	385	4130	-
Ali >C16-C21	-	4.00	2.00	210000	210100	-
Ali >C21-C35	-	30.00	20.00			
Total Aliphatics	-	37.00	23.00			
Aro >C5-C7	-	<0.01	<0.01	0.137	0.871	-
Aro >C7-C8	-	<0.01	<0.01	113	780	-
Aro >C8-C10	-	<2	<2	20.5	232	-
Aro >C10-C12	-	<1	<1	70	468	-
Aro >C12-C16	-	4.00	2.00	165	830	-
Aro >C16-C21	-	23.00	14.00	319	1040	-
Aro >C21-C35	-	80.00	72.00	1120	1710	-
Total Aromatics	-	106.00	88.00			
TPH (Ali & Aro)	-	139.00	111.00			
BTEX - Benzene	-	<0.01	<0.01	0.0493	0.33	0.871
BTEX - Toluene	-	<0.01	<0.01	113	780	-
BTEX - Ethyl Benzene	-	<0.01	<0.01	50.7	453	-
BTEX - m & p Xylene	-	0.01	<0.01	24	312	-
BTEX - o Xylene	-	<0.01	<0.01	26.4	336	-
MTBE	-	<0.01	<0.01	27.6	220	

Results expressed as mg/kg air dried unless otherwise stated.

* - The calculations for the mean value test include outliers

*** THESE RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

NOTES:

For the Purpose of this investigation- results will be assessed against RESIDENTIAL GUIDELINES WITH HOMEGROWN PRODUCE WITH NO FREE PRODUCT.

UU Drinking Water Guidelines	
PE Threshold	
Total BTEX & MTBE	0.1
EC5-EC10 Ali-Aro	2
EC10-EC16 Ali-Aro	10
EC16-EC40 Ali-Aro	500

SUMMARY OF CONTAMINATION ANALYSIS: PAH

Project Name RSPCA Halewood
 Project No 17MIL024
 Date 09/12/22

SOIL TYPE	TS	TS	TS
SAMPLE LOCATION	SP04A	SP04B	SP04C
DEPTH (m)	-	-	-
Acenaphthene	0.02	0.11	0.06
Acenaphthylene	<0.01	0.01	0.01
Anthracene	0.04	0.2	0.18
Benzo(a)anthracene	0.17	0.68	0.67
Benzo(a)pyrene	0.18	0.69	0.72
Benzo(b)fluoranthene	0.2	0.79	0.78
Benzo(ghi)perylene	0.12	0.45	0.47
Benzo(k)fluoranthene	<0.07	0.29	0.3
Chrysene	0.19	0.76	0.74
Dibenzo(ah)anthracene	<0.04	0.1	0.1
Fluoranthene	0.39	1.63	1.54
Fluorene	0.02	0.08	0.05
Indeno(123-cd)pyrene	0.11	0.48	0.49
Naphthalene	<0.03	<0.03	<0.03
Phenanthrene	0.2	0.9	0.73
Pyrene	0.37	1.46	1.36
Organic Matter	3.2	2.9	3.4

PAH	Mean Value Test *	Range		AtRisk 2017 (mg/kg) Residential with Home Grown Produce	AtRisk 2017 (mg/kg) Residential with Home Grown Produce	DEFRA's C4SL 2017
	US ₉₅	Largest Value (mg/kg)	Smallest Value (mg/kg)	1% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***
Acenaphthene	-	0.11	0.02	608	2760	-
Acenaphthylene	-	0.01	<0.01			-
Anthracene	-	0.20	0.04	10200	26200	-
Benzo(a)anthracene	-	0.68	0.17	4.52	8.54	-
Benzo(a)pyrene	-	0.72	0.18	1.51	2.05	4.95
Benzo(b)fluoranthene	-	0.79	0.20	7.72	9.86	-
Benzo(ghi)perylene	-	0.47	0.12	96.2	103	-
Benzo(k)fluoranthene	-	0.30	<0.07	84.4	100	-
Chrysene	-	0.76	0.19	585	927	-
Dibenzo(ah)anthracene	-	0.10	<0.04	0.838	1	-
Fluoranthene	-	1.63	0.39	983	2980	-
Fluorene	-	0.08	0.02	735	2610	-
Indeno(123-cd)pyrene	-	0.49	0.11	7.31	9.75	-
Naphthalene	-	<0.03	<0.03	0.829	12.2	-
Phenanthrene	-	0.90	0.20			-
Pyrene	-	1.46	0.37	668	2120	-

Results expressed as mg/kg air dried unless otherwise stated.

* - The calculations for the mean value test include outliers

*** THESE RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

NOTES:

For the Purpose of this investigation- results will be assessed against **RESIDENTIAL GUIDELINES WITH HOMEGROWN PRODUCE WITH NO FREE PRODUCT.**

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 23/06213
Issue Number: 1

Date: 29 June, 2023

Client: Betts Geo Environmental
Old Marsh Farm Barns
Welsh Road
Sealand
Flintshire
UK
CH5 2LY

Project Manager: Betts Geolab/Robert Davies
Project Name: RSPCA Centre, Halewood
Project Ref: 17MIL024
Order No: BG5040
Date Samples Received: 22/06/23
Date Instructions Received: 22/06/23
Date Analysis Completed: 29/06/23

Approved by:



Danielle Brierley
Deputy Client Services Supervisor

Envirolab Job Number: 23/06213

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	23/06213/1	23/06213/2	23/06213/3					Units	Limit of Detection	Method ref
Client Sample No	TS	TS	TS							
Client Sample ID	SP06 A	SP06 B	SP06 C							
Depth to Top										
Depth To Bottom										
Date Sampled	21-Jun-23	21-Jun-23	21-Jun-23							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	1A	1A	1AE							
% Stones >10mm _A	0.8	1.8	0.9					% w/w	0.1	A-T-044
pH _D ^{M#}	7.05	7.17	7.33					pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.05	0.04	0.08					g/l	0.01	A-T-026s
Organic Matter _D ^{M#}	4.6	4.2	3.7					% w/w	0.1	A-T-032s
Arsenic _D ^{M#}	12	14	14					mg/kg	1	A-T-024s
Cadmium _D ^{M#}	<0.5	<0.5	<0.5					mg/kg	0.5	A-T-024s
Copper _D ^{M#}	27	27	31					mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1					mg/kg	1	A-T-040s
Lead _D ^{M#}	58	58	62					mg/kg	1	A-T-024s
Mercury _D	<0.17	0.33	0.22					mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	11	11	11					mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1					mg/kg	1	A-T-024s
Zinc _D ^{M#}	51	52	55					mg/kg	5	A-T-024s
VPH total (>C5-C10)	<4.00	<4.00	<4.00					mg/kg	1	Calc-stone+mols

Envirolab Job Number: 23/06213

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	23/06213/1	23/06213/2	23/06213/3					Units	Limit of Detection	Method ref
Client Sample No	TS	TS	TS							
Client Sample ID	SP06 A	SP06 B	SP06 C							
Depth to Top										
Depth To Bottom										
Date Sampled	21-Jun-23	21-Jun-23	21-Jun-23							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	1A	1A	1AE							
Asbestos in Soil (inc. matrix)										
Asbestos in soil ^o	NAD	NAD	NAD							A-T-045
Asbestos Matrix (visual) ^o	-	-	-							A-T-045
Asbestos Matrix (microscope) ^o	-	-	-							A-T-045
Asbestos ACM - Suitable for Water Absorption Test? ^o	N/A	N/A	N/A							A-T-045

Envirolab Job Number: 23/06213

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	23/06213/1	23/06213/2	23/06213/3					Units	Limit of Detection	Method ref
Client Sample No	TS	TS	TS							
Client Sample ID	SP06 A	SP06 B	SP06 C							
Depth to Top										
Depth To Bottom										
Date Sampled	21-Jun-23	21-Jun-23	21-Jun-23							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	1A	1A	1AE							
PAH-16MS										
Acenaphthene _A ^{M#}	0.11	0.14	0.04					mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	0.02	0.02	<0.01					mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	0.23	0.26	0.09					mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.66	0.56	0.32					mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.51	0.37	0.33					mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.70	0.52	0.50					mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.23	0.16	0.25					mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	0.32	0.22	0.20					mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	0.69	0.55	0.44					mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	1.55	1.41	0.69					mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	0.07	0.10	0.02					mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.29	0.21	0.27					mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03					mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	0.95	1.02	0.36					mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	1.32	1.17	0.67					mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	7.65	6.71	4.18					mg/kg	0.01	A-T-019s

Envirolab Job Number: 23/06213

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	23/06213/1	23/06213/2	23/06213/3					Units	Limit of Detection	Method ref
Client Sample No	TS	TS	TS							
Client Sample ID	SP06 A	SP06 B	SP06 C							
Depth to Top										
Depth To Bottom										
Date Sampled	21-Jun-23	21-Jun-23	21-Jun-23							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	1A	1A	1AE							
TPH CWG with Clean Up										
Ali >C5-C6 _A [#]	<0.02	<0.02	<0.02					mg/kg	0.01	A-T-022s
Ali >C6-C8 _A	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	<1	2					mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	6	8	40					mg/kg	1	A-T-055s
Total Aliphatics _A	6	8	42					mg/kg	1	Calc-As Recd
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<4	<4	<4					mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1					mg/kg	1	A-T-055s
Aro >C12-C16 _A	2	2	4					mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	10	12	20					mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	29	31	50					mg/kg	1	A-T-055s
Total Aromatics _A	42	45	75					mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35) _A	48	53	117					mg/kg	1	Calc-As Recd
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s

Report Notes

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **six weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and Interpretations expressed are outside our scope of accreditation.

The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client.

A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "A"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
N/A	Not applicable

Asbestos

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing, and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:

For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.

Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:

EPH CWG results have humics mathematically subtracted through instrument calculation.

Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the accreditation range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Betts Geo Environmental, Old Marsh Farm Barns, Welsh Road, Sealand,
Flintshire, UK, CH5 2LY

Project: RSPCA Centre, Halewood
Clients Project No: 17MIL024

Project No: 23/06213
Date Received: 22/06/2023 (am)
Cool Box Temperatures (°C): 16.6

NO DEVIATIONS IDENTIFIED with respect to sampling dates or containers received.

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples $5 \pm 3^{\circ}\text{C}$), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	23/06213/1	23/06213/2	23/06213/3
Client Sample No	TS	TS	TS
Client Sample ID/Depth	SP06 A	SP06 B	SP06 C
Date Sampled	21/06/23	21/06/23	21/06/23
A-T-019s	29/06/2023	29/06/2023	29/06/2023
A-T-022s	27/06/2023	27/06/2023	27/06/2023
A-T-024s	29/06/2023	29/06/2023	29/06/2023
A-T-026s	29/06/2023	29/06/2023	29/06/2023
A-T-031s	28/06/2023	28/06/2023	28/06/2023
A-T-032s	29/06/2023	29/06/2023	29/06/2023
A-T-040s	29/06/2023	29/06/2023	29/06/2023
A-T-044	27/06/2023	27/06/2023	27/06/2023
A-T-045	26/06/2023	26/06/2023	26/06/2023
A-T-055s	27/06/2023	27/06/2023	27/06/2023
Calc-As Recd	27/06/2023	27/06/2023	27/06/2023
Calc-stone+mois	27/06/2023	27/06/2023	27/06/2023

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

SUMMARY OF CONTAMINATION ANALYSIS: SOIL

SUMMARY OF CONTAMINATION ANALYSIS: METALS

Project Name RSPCA Halewood
Project No 17MIL024
Date 21/06/2023

SOIL TYPE	TS	TS	TS
SAMPLE LOCATION	SP06 A	SP06 B	SP06 C
DEPTH (m)	-	-	-
pH	7.05	7.17	7.33
Sulphate (water sol 2:1)	0.05	0.04	0.08
Organic matter	4.6	4.2	3.7
Arsenic	12	14	14
Cadmium	<0.5	<0.5	<0.5
Copper	27	27	31
Chromium (hexavalent)	<1	<1	<1
Lead	58	58	62
Mercury	<0.17	0.33	0.22
Nickel	11	11	11
Selenium	<1	<1	<1
Zinc	51	52	55
Asbestos in Soil	NAD	NAD	NAD
Asbestos Matrix	-	-	-
Quantification	-	-	-
Organic matter	4.6	4.2	3.7

Metals	Mean Value Test *	Range		AtRisk 2017 (mg/kg)	AtRisk 2017 (mg/kg)	DEFRA C4SL 2017
	US ₉₅	Largest Value (mg/kg)	Smallest Value (mg/kg)	With Homegrown Produce (1% SOM)	With Homegrown Produce (6% SOM)	
pH	-	7.33	7.05			-
Sulphate (water sol 2:1)	-	0.08	0.04			-
Organic matter	-	4.60	3.70			
Arsenic	-	14.00	12.00	32	32	37
Cadmium	-	<0.5	<0.5	10	10	22.1
Copper	-	31.00	27.00	4730	4790	-
Chromium (hexavalent)	-	<1	<1	3.62	3.63	20.5
Lead	-	62.00	58.00			200
Mercury	-	0.33	<0.17	8.81	15.8	-
Nickel	-	11.00	11.00	EA/AtRisk withdrawn Aug 2015		
Selenium	-	<1	<1	375	375	-
Zinc	-	55.00	51.00	20000	20300	-

NOTE:

Any individual results and mean value tests above SGVs are shown RED highlighted.
Any outlier values which exceed relevant SGVs are shown in red

* - The calculations for the mean value test include outliers

** - Results for this determinand are assessed with no background levels taken into account
Results are expressed as mg/kg unless otherwise stated

ALL RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE GUIDANCE NOTES ON CONTAMINATION.

SGVs are derived from the EA 2009 SGVs which are taken from AtRisk 2015. Category 4 screening levels have been adopted by the EA and have been included as new guidance.

Note: The SGV for elemental mercury has been used to assess total mercury concentrations at the site. The Environment Agency's Science Report SC050021 /Mercury SGV states that 'for general surface contamination and to simplify the assessment the SGVs for inorganic mercury can normally be compared with chemical analysis for total mercury content...'. Based on the latter, SGV for elemental mercury (170mg/kg) in the soil assessment is used

NAD - NO ASBESTOS DETECTED

TS - Topsoil, MG - Made Ground and N - Natural Ground

SUMMARY OF CONTAMINATION ANALYSIS: SOIL

SUMMARY OF CONTAMINATION ANALYSIS: TPH

Project Name RSPCA Halewood
Project No 17MIL024
Date 21/06/2023

SOIL TYPE	TS	TS	TS
SAMPLE LOCATION	SP06 A	SP06 B	SP06 C
DEPTH (m)	-	-	-
Ali >C5-C6	<0.02	<0.02	<0.02
Ali >C6-C8	<0.01	<0.01	<0.01
Ali >C8-C10	<1	<1	<1
Ali >C10-C12	<1	<1	<1
Ali >C12-C16	<1	<1	<1
Ali >C16-C21	<1	<1	2
Ali >C21-C35	6	8	40
Total Aliphatics	6	8	42
Aro >C5-C7	<0.01	<0.01	<0.01
Aro >C7-C8	<0.01	<0.01	<0.01
Aro >C8-C10	<4	<4	<4
Aro >C10-C12	<1	<1	<1
Aro >C12-C16	2	2	4
Aro >C16-C21	10	12	20
Aro >C21-C35	29	31	50
Total Aromatics	42	45	75
TPH (Ali & Aro)	48	53	117
BTEX - Benzene	<0.01	<0.01	<0.01
BTEX - Toluene	<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	<0.01	<0.01	<0.01
BTEX - m & p Xylene	<0.01	<0.01	<0.01
BTEX - o Xylene	<0.01	<0.01	<0.01
MTBE	<0.01	<0.01	<0.01
Organic Matter	4.6	4.2	3.7

TPH	Mean Value Test *	Range		AtRisk 2017 (mg/kg) Residential with Home Grown Produce	AtRisk 2017 (mg/kg) Residential with Home Grown Produce	DEFRA C4SL 2017
	US ₉₅	Largest Value (mg/kg)	Smallest Value (mg/kg)	1% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***
Ali >C5-C6	-	<0.02	<0.02	42.7	369	-
Ali >C6-C8	-	<0.01	<0.01	99.3	1240	-
Ali >C8-C10	-	<1	<1	13.9	204	-
Ali >C10-C12	-	<1	<1	81.7	1180	-
Ali >C12-C16	-	<1	<1	385	4130	-
Ali >C16-C21	-	2.00	<1	210000	210100	-
Ali >C21-C35	-	40.00	6.00			
Total Aliphatics	-	42.00	6.00			
Aro >C5-C7	-	<0.01	<0.01	0.137	0.871	-
Aro >C7-C8	-	<0.01	<0.01	113	780	-
Aro >C8-C10	-	<4	<4	20.5	232	-
Aro >C10-C12	-	<1	<1	70	468	-
Aro >C12-C16	-	4.00	2.00	165	830	-
Aro >C16-C21	-	20.00	10.00	319	1040	-
Aro >C21-C35	-	50.00	29.00	1120	1710	-
Total Aromatics	-	75.00	42.00			
TPH (Ali & Aro)	-	117.00	48.00			
BTEX - Benzene	-	<0.01	<0.01	0.0493	0.33	0.871
BTEX - Toluene	-	<0.01	<0.01	113	780	-
BTEX - Ethyl Benzene	-	<0.01	<0.01	50.7	453	-
BTEX - m & p Xylene	-	<0.01	<0.01	24	312	-
BTEX - o Xylene	-	<0.01	<0.01	26.4	336	-
MTBE	-	<0.01	<0.01	27.6	220	

Results expressed as mg/kg air dried unless otherwise stated.

* - The calculations for the mean value test include outliers

*** THESE RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE GUIDANCE NOTES ON CONTAMINATION.

NOTES:

For the Purpose of this investigation- results will be assessed against RESIDENTIAL GUIDELINES WITH HOME GROWN PRODUCE WITH NO FREE PRODUCT.

UU Drinking Water Guidelines	
PE Threshold	
Total BTEX & MTBE	0.1
EC5-EC10 Ali-Aro	2
EC10-EC16 Ali-Aro	10
EC16-EC40 Ali-Aro	500

SUMMARY OF CONTAMINATION ANALYSIS: SOIL

SUMMARY OF CONTAMINATION ANALYSIS: PAH

Project Name RSPCA Halewood
Project No 17MIL024
Date 21/06/23

SOIL TYPE	TS	TS	TS
SAMPLE LOCATION	SP06 A	SP06 B	SP06 C
DEPTH (m)	-	-	-
Acenaphthene	0.11	0.14	0.04
Acenaphthylene	0.02	0.02	<0.01
Anthracene	0.23	0.26	0.09
Benzo(a)anthracene	0.66	0.56	0.32
Benzo(a)pyrene	0.51	0.37	0.33
Benzo(b)fluoranthene	0.7	0.52	0.5
Benzo(ghi)perylene	0.23	0.16	0.25
Benzo(k)fluoranthene	0.32	0.22	0.2
Chrysene	0.69	0.55	0.44
Dibenzo(ah)anthracene	<0.04	<0.04	<0.04
Fluoranthene	1.55	1.41	0.69
Fluorene	0.07	0.1	0.02
Indeno(123-cd)pyrene	0.29	0.21	0.27
Naphthalene	<0.03	<0.03	<0.03
Phenanthrene	0.95	1.02	0.36
Pyrene	1.32	1.17	0.67
Organic Matter	4.6	4.2	3.7

PAH	Mean Value Test *	Range		AtRisk 2017 (mg/kg) Residential with Home Grown Produce	AtRisk 2017 (mg/kg) Residential with Home Grown Produce	DEFRA's C4SL 2017
	US ₉₅	Largest Value (mg/kg)	Smallest Value (mg/kg)	1% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***
Acenaphthene	-	0.14	0.04	608	2760	-
Acenaphthylene	-	0.02	<0.01			-
Anthracene	-	0.26	0.09	10200	26200	-
Benzo(a)anthracene	-	0.66	0.32	4.52	8.54	-
Benzo(a)pyrene	-	0.51	0.33	1.51	2.05	4.95
Benzo(b)fluoranthene	-	0.70	0.50	7.72	9.86	-
Benzo(ghi)perylene	-	0.25	0.16	96.2	103	-
Benzo(k)fluoranthene	-	0.32	0.20	84.4	100	-
Chrysene	-	0.69	0.44	585	927	-
Dibenzo(ah)anthracene	-	<0.04	<0.04	0.838	1	-
Fluoranthene	-	1.55	0.69	983	2980	-
Fluorene	-	0.10	0.02	735	2610	-
Indeno(123-cd)pyrene	-	0.29	0.21	7.31	9.75	-
Naphthalene	-	<0.03	<0.03	0.829	12.2	-
Phenanthrene	-	1.02	0.36			-
Pyrene	-	1.32	0.67	668	2120	-

Results expressed as mg/kg air dried unless otherwise stated.

* - The calculations for the mean value test include outliers

*** THESE RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

NOTES:

For the Purpose of this investigation- results will be assessed against RESIDENTIAL GUIDELINES WITH HOMEGROWN PRODUCE WITH NO FREE PRODUCT.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 23/06213
Issue Number: 1

Date: 29 June, 2023

Client: Betts Geo Environmental
Old Marsh Farm Barns
Welsh Road
Sealand
Flintshire
UK
CH5 2LY

Project Manager: Betts Geolab/Robert Davies
Project Name: RSPCA Centre, Halewood
Project Ref: 17MIL024
Order No: BG5040
Date Samples Received: 22/06/23
Date Instructions Received: 22/06/23
Date Analysis Completed: 29/06/23

Approved by:



Danielle Brierley
Deputy Client Services Supervisor

Envirolab Job Number: 23/06213

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	23/06213/1	23/06213/2	23/06213/3					Units	Limit of Detection	Method ref
Client Sample No	TS	TS	TS							
Client Sample ID	SP06 A	SP06 B	SP06 C							
Depth to Top										
Depth To Bottom										
Date Sampled	21-Jun-23	21-Jun-23	21-Jun-23							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	1A	1A	1AE							
% Stones >10mm _A	0.8	1.8	0.9					% w/w	0.1	A-T-044
pH _D ^{M#}	7.05	7.17	7.33					pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.05	0.04	0.08					g/l	0.01	A-T-026s
Organic Matter _D ^{M#}	4.6	4.2	3.7					% w/w	0.1	A-T-032s
Arsenic _D ^{M#}	12	14	14					mg/kg	1	A-T-024s
Cadmium _D ^{M#}	<0.5	<0.5	<0.5					mg/kg	0.5	A-T-024s
Copper _D ^{M#}	27	27	31					mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1					mg/kg	1	A-T-040s
Lead _D ^{M#}	58	58	62					mg/kg	1	A-T-024s
Mercury _D	<0.17	0.33	0.22					mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	11	11	11					mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1					mg/kg	1	A-T-024s
Zinc _D ^{M#}	51	52	55					mg/kg	5	A-T-024s
VPH total (>C5-C10)	<4.00	<4.00	<4.00					mg/kg	1	Calc-stone+mols

Envirolab Job Number: 23/06213

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	23/06213/1	23/06213/2	23/06213/3					Units	Limit of Detection	Method ref
Client Sample No	TS	TS	TS							
Client Sample ID	SP06 A	SP06 B	SP06 C							
Depth to Top										
Depth To Bottom										
Date Sampled	21-Jun-23	21-Jun-23	21-Jun-23							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	1A	1A	1AE							
Asbestos in Soil (inc. matrix)										
Asbestos in soil ^o	NAD	NAD	NAD							A-T-045
Asbestos Matrix (visual) ^o	-	-	-							A-T-045
Asbestos Matrix (microscope) ^o	-	-	-							A-T-045
Asbestos ACM - Suitable for Water Absorption Test? ^o	N/A	N/A	N/A							A-T-045

Envirolab Job Number: 23/06213

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	23/06213/1	23/06213/2	23/06213/3					Units	Limit of Detection	Method ref
Client Sample No	TS	TS	TS							
Client Sample ID	SP06 A	SP06 B	SP06 C							
Depth to Top										
Depth To Bottom										
Date Sampled	21-Jun-23	21-Jun-23	21-Jun-23							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	1A	1A	1AE							
PAH-16MS										
Acenaphthene _A ^{M#}	0.11	0.14	0.04					mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	0.02	0.02	<0.01					mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	0.23	0.26	0.09					mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.66	0.56	0.32					mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.51	0.37	0.33					mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.70	0.52	0.50					mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.23	0.16	0.25					mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	0.32	0.22	0.20					mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	0.69	0.55	0.44					mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	1.55	1.41	0.69					mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	0.07	0.10	0.02					mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.29	0.21	0.27					mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03					mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	0.95	1.02	0.36					mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	1.32	1.17	0.67					mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	7.65	6.71	4.18					mg/kg	0.01	A-T-019s

Envirolab Job Number: 23/06213

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	23/06213/1	23/06213/2	23/06213/3					Units	Limit of Detection	Method ref
Client Sample No	TS	TS	TS							
Client Sample ID	SP06 A	SP06 B	SP06 C							
Depth to Top										
Depth To Bottom										
Date Sampled	21-Jun-23	21-Jun-23	21-Jun-23							
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES							
Sample Matrix Code	1A	1A	1AE							
TPH CWG with Clean Up										
Ali >C5-C6 _A [#]	<0.02	<0.02	<0.02					mg/kg	0.01	A-T-022s
Ali >C6-C8 _A	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	<1	2					mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	6	8	40					mg/kg	1	A-T-055s
Total Aliphatics _A	6	8	42					mg/kg	1	Calc-As Recd
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<4	<4	<4					mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1					mg/kg	1	A-T-055s
Aro >C12-C16 _A	2	2	4					mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	10	12	20					mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	29	31	50					mg/kg	1	A-T-055s
Total Aromatics _A	42	45	75					mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35) _A	48	53	117					mg/kg	1	Calc-As Recd
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s

Report Notes

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **six weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and Interpretations expressed are outside our scope of accreditation.

The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client.

A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "A"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
N/A	Not applicable

Asbestos

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing, and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:

For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.

Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:

EPH CWG results have humics mathematically subtracted through instrument calculation.

Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the accreditation range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Betts Geo Environmental, Old Marsh Farm Barns, Welsh Road, Sealand,
Flintshire, UK, CH5 2LY

Project: RSPCA Centre, Halewood
Clients Project No: 17MIL024

Project No: 23/06213
Date Received: 22/06/2023 (am)
Cool Box Temperatures (°C): 16.6

NO DEVIATIONS IDENTIFIED with respect to sampling dates or containers received.

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples $5 \pm 3^{\circ}\text{C}$), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	23/06213/1	23/06213/2	23/06213/3
Client Sample No	TS	TS	TS
Client Sample ID/Depth	SP06 A	SP06 B	SP06 C
Date Sampled	21/06/23	21/06/23	21/06/23
A-T-019s	29/06/2023	29/06/2023	29/06/2023
A-T-022s	27/06/2023	27/06/2023	27/06/2023
A-T-024s	29/06/2023	29/06/2023	29/06/2023
A-T-026s	29/06/2023	29/06/2023	29/06/2023
A-T-031s	28/06/2023	28/06/2023	28/06/2023
A-T-032s	29/06/2023	29/06/2023	29/06/2023
A-T-040s	29/06/2023	29/06/2023	29/06/2023
A-T-044	27/06/2023	27/06/2023	27/06/2023
A-T-045	26/06/2023	26/06/2023	26/06/2023
A-T-055s	27/06/2023	27/06/2023	27/06/2023
Calc-As Recd	27/06/2023	27/06/2023	27/06/2023
Calc-stone+mois	27/06/2023	27/06/2023	27/06/2023

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 17/07026
Issue Number: 1
Date: 30 October, 2017

Client: Betts Geo Environmental
Old Marsh Farm Barns
Welsh Road
Sealand
Flintshire
UK
CH5 2LY

Project Manager: Betts Geolab
Project Name: RSPCA Centre, Halewood
Project Ref: 17MIL024
Order No: BG2467
Date Samples Received: 16/10/17
Date Instructions Received: 16/10/17
Date Analysis Completed: 30/10/17

Prepared by:


Melanie Marshall
Laboratory Coordinator

Approved by:


Iain Haslock
Analytical Consultant

Envirolab Job Number: 17/07026

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07026/1	17/07026/2	17/07026/3	17/07026/4	17/07026/5	17/07026/6	17/07026/7	17/07026/8	Units	Method ref
Client Sample No										
Client Sample ID	TP1	TP2	TP3	TP4	TP5	TP5	WS1	TP7		
Depth to Top	0.30	0.60	0.80	0.30	0.30	0.80	0.50	0.10		
Depth To Bottom										
Date Sampled	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	6E	5	6A	6AE	6E	5	6AB	6AE		
% Stones >10mm _A	<0.1	<0.1	<0.1	5.9	<0.1	<0.1	19.3	9.2	% w/w	A-T-044
pH _D	7.83	8.63	8.37	6.63	7.21	8.88	7.85	8.30	pH	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	g/l	A-T-026s
Organic matter _D ^{M#}	1.8	0.2	0.5	3.0	4.6	<0.1	9.8	3.0	% w/w	A-T-032 OM
Arsenic _D ^{M#}	4	<1	2	8	7	<1	242	9	mg/kg	A-T-024s
Cadmium _D ^{M#}	<0.5	<0.5	0.5	0.6	0.6	<0.5	0.9	<0.5	mg/kg	A-T-024s
Copper _D ^{M#}	19	10	16	37	48	5	398	35	mg/kg	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	A-T-040s
Lead _D ^{M#}	28	6	9	55	35	3	113	59	mg/kg	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	mg/kg	A-T-024s
Nickel _D ^{M#}	20	24	41	19	26	18	48	17	mg/kg	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1	1	<1	<1	<1	mg/kg	A-T-024s
Zinc _D ^{M#}	50	20	35	71	59	16	120	78	mg/kg	A-T-024s
VPH total (>C5-C10) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s

Envirolab Job Number: 17/07026

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07026/1	17/07026/2	17/07026/3	17/07026/4	17/07026/5	17/07026/6	17/07026/7	17/07026/8	Units	Method ref
Client Sample No										
Client Sample ID	TP1	TP2	TP3	TP4	TP5	TP5	WS1	TP7		
Depth to Top	0.30	0.60	0.80	0.30	0.30	0.80	0.50	0.10		
Depth To Bottom										
Date Sampled	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	6E	5	6A	6AE	6E	5	6AB	6AE		
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	-	NAD	NAD	NAD	NAD	NAD		A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	-	N/A	N/A	N/A	N/A	N/A		

Envirolab Job Number: 17/07026

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07026/1	17/07026/2	17/07026/3	17/07026/4	17/07026/5	17/07026/6	17/07026/7	17/07026/8	Units	Method ref
Client Sample No										
Client Sample ID	TP1	TP2	TP3	TP4	TP5	TP5	WS1	TP7		
Depth to Top	0.30	0.60	0.80	0.30	0.30	0.80	0.50	0.10		
Depth To Bottom										
Date Sampled	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	6E	5	6A	6AE	6E	5	6AB	6AE		
PAH 16										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	<0.04	0.13	<0.04	<0.04	<0.04	0.09	mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	<0.04	0.10	<0.04	<0.04	<0.04	0.10	mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	<0.05	0.13	<0.05	<0.05	<0.05	0.12	mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	<0.06	0.13	<0.06	<0.06	<0.06	0.10	mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	<0.08	0.17	<0.08	<0.08	<0.08	0.12	mg/kg	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	<0.03	0.07	<0.03	<0.03	<0.03	0.07	mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	<0.03	0.14	<0.03	<0.03	<0.03	0.07	mg/kg	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	<0.07	0.15	<0.07	<0.07	<0.07	0.12	mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	<0.08	<0.08	<0.08	1.08	<0.08	<0.08	<0.08	0.86	mg/kg	A-T-019s

Envirolab Job Number: 17/07026

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07026/1	17/07026/2	17/07026/3	17/07026/4	17/07026/5	17/07026/6	17/07026/7	17/07026/8	Units	Method ref
Client Sample No										
Client Sample ID	TP1	TP2	TP3	TP4	TP5	TP5	WS1	TP7		
Depth to Top	0.30	0.60	0.80	0.30	0.30	0.80	0.50	0.10		
Depth To Bottom										
Date Sampled	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	6E	5	6A	6AE	6E	5	6AB	6AE		
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C8-C10 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Ali >C12-C16 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Ali >C16-C21 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Ali >C21-C35 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Total Aliphatics _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C9-C10 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C12-C16 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C16-C21 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C21-C35 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Total Aromatics _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
TPH (Ali & Aro) _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s

Envirolab Job Number: 17/07026

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07026/9	17/07026/10	17/07026/11	17/07026/12	17/07026/13	17/07026/14	17/07026/15	17/07026/16	Units	Method ref
Client Sample No										
Client Sample ID	WS2	TP8	TP9	WS3	WS4	WS4	WS5	TP11		
Depth to Top	0.40	0.40	1.00	0.50	0.25	0.80	0.60	0.25		
Depth To Bottom										
Date Sampled	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	12-Oct-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	6A	6AE	3	3A	6AE	5	5A	6E		
% Stones >10mm _A	36.3	10.9	<0.1	13.9	4.7	<0.1	4.9	<0.1	% w/w	A-T-044
pH _D	8.46	8.42	8.94	8.90	6.58	7.59	7.74	7.47	pH	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.01	<0.01	0.01	<0.01	<0.01	0.05	0.02	0.03	g/l	A-T-026s
Organic matter _D ^{M#}	1.6	1.9	0.2	0.3	6.0	1.2	1.1	1.0	% w/w	A-T-032 OM
Arsenic _D ^{M#}	5	6	1	<1	7	1	2	2	mg/kg	A-T-024s
Cadmium _D ^{M#}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	mg/kg	A-T-024s
Copper _D ^{M#}	29	32	12	11	36	16	10	10	mg/kg	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	A-T-040s
Lead _D ^{M#}	27	43	7	6	51	11	15	48	mg/kg	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	mg/kg	A-T-024s
Nickel _D ^{M#}	11	19	33	28	18	34	10	11	mg/kg	A-T-024s
Selenium _D ^{M#}	<1	<1	1	<1	<1	<1	<1	<1	mg/kg	A-T-024s
Zinc _D ^{M#}	48	73	35	28	83	35	22	19	mg/kg	A-T-024s
VPH total (>C5-C10) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s

Envirolab Job Number: 17/07026

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07026/9	17/07026/10	17/07026/11	17/07026/12	17/07026/13	17/07026/14	17/07026/15	17/07026/16	Units	Method ref
Client Sample No										
Client Sample ID	WS2	TP8	TP9	WS3	WS4	WS4	WS5	TP11		
Depth to Top	0.40	0.40	1.00	0.50	0.25	0.80	0.60	0.25		
Depth To Bottom										
Date Sampled	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	12-Oct-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	6A	6AE	3	3A	6AE	5	5A	6E		
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	-	NAD	NAD	-	NAD	NAD		A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	-	N/A	N/A	-	N/A	N/A		

Envirolab Job Number: 17/07026

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07026/9	17/07026/10	17/07026/11	17/07026/12	17/07026/13	17/07026/14	17/07026/15	17/07026/16	Units	Method ref
Client Sample No										
Client Sample ID	WS2	TP8	TP9	WS3	WS4	WS4	WS5	TP11		
Depth to Top	0.40	0.40	1.00	0.50	0.25	0.80	0.60	0.25		
Depth To Bottom										
Date Sampled	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	12-Oct-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	6A	6AE	3	3A	6AE	5	5A	6E		
PAH 16										
Acenaphthene _A ^{M#}	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-019s
Anthracene _A ^{M#}	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.09	0.18	<0.04	<0.04	0.10	<0.04	<0.04	<0.04	mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.10	0.18	<0.04	<0.04	0.12	<0.04	<0.04	<0.04	mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.11	0.20	<0.05	<0.05	0.17	<0.05	<0.05	<0.05	mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.06	0.10	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	0.09	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	mg/kg	A-T-019s
Chrysene _A ^{M#}	0.09	0.18	<0.06	<0.06	0.15	<0.06	<0.06	<0.06	mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	A-T-019s
Fluoranthene _A ^{M#}	0.12	0.24	<0.08	<0.08	0.17	<0.08	<0.08	<0.08	mg/kg	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.07	0.13	<0.03	<0.03	0.10	<0.03	<0.03	<0.03	mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	A-T-019s
Phenanthrene _A ^{M#}	0.08	0.11	<0.03	<0.03	0.09	<0.03	<0.03	<0.03	mg/kg	A-T-019s
Pyrene _A ^{M#}	0.11	0.22	<0.07	<0.07	0.15	<0.07	<0.07	<0.07	mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	0.92	1.66	<0.08	<0.08	1.14	<0.08	<0.08	<0.08	mg/kg	A-T-019s

Envirolab Job Number: 17/07026

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07026/9	17/07026/10	17/07026/11	17/07026/12	17/07026/13	17/07026/14	17/07026/15	17/07026/16	Units	Method ref
Client Sample No										
Client Sample ID	WS2	TP8	TP9	WS3	WS4	WS4	WS5	TP11		
Depth to Top	0.40	0.40	1.00	0.50	0.25	0.80	0.60	0.25		
Depth To Bottom										
Date Sampled	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	12-Oct-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	6A	6AE	3	3A	6AE	5	5A	6E		
Speciated PCB-EC7 & WHO12										
PCB BZ 28 _A ^{M#}	-	<0.002	-	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	-	<0.002	-	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 81 _A	-	<0.005	-	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	-	<0.004	-	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 105 _A	-	<0.005	-	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 114 _A	-	<0.005	-	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	-	<0.007	-	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 123 _A	-	<0.005	-	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 126 _A	-	<0.005	-	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	-	<0.006	-	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	-	<0.004	-	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 156 _A	-	<0.005	-	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 157 _A	-	<0.005	-	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 167 _A	-	<0.005	-	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 169 _A	-	<0.005	-	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	-	<0.004	-	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 189 _A	-	<0.005	-	-	-	-	-	-	mg/kg	A-T-004s
PCB BZ 77 _A	-	<0.005	-	-	-	-	-	-	mg/kg	A-T-004s

Envirolab Job Number: 17/07026

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07026/9	17/07026/10	17/07026/11	17/07026/12	17/07026/13	17/07026/14	17/07026/15	17/07026/16	Units	Method ref
Client Sample No										
Client Sample ID	WS2	TP8	TP9	WS3	WS4	WS4	WS5	TP11		
Depth to Top	0.40	0.40	1.00	0.50	0.25	0.80	0.60	0.25		
Depth To Bottom										
Date Sampled	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	11-Oct-17	12-Oct-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	6A	6AE	3	3A	6AE	5	5A	6E		
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C8-C10 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Ali >C12-C16 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Ali >C16-C21 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Ali >C21-C35 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Total Aliphatics _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C9-C10 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C12-C16 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C16-C21 _A [#]	<0.1	0.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C21-C35 _A [#]	<0.1	0.7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Total Aromatics _A	<0.1	1.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
TPH (Ali & Aro) _A	<0.1	1.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s

Envirolab Job Number: 17/07026

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07026/17	17/07026/18	17/07026/19	17/07026/20	17/07026/21	17/07026/22	17/07026/23	17/07026/24	Units	Method ref
Client Sample No										
Client Sample ID	TP12	WS7	TP14	WS8	WS10	WS11	TP1	TP4		
Depth to Top	0.60	0.70	0.30	0.25	0.60	0.40	1.50	1.70		
Depth To Bottom										
Date Sampled	12-Oct-17	12-Oct-17	12-Oct-17	12-Oct-17	12-Oct-17	12-Oct-17	11-Oct-17	11-Oct-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - D	Soil - D		
Sample Matrix Code	5A	3A	6E	6E	5	6E	5	3		
% Stones >10mm _A	9.2	11.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	A-T-044
pH _D	8.87	8.92	7.85	7.13	8.14	8.40	8.36	8.86	pH	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	<0.01	<0.01	<0.01	0.02	0.01	<0.01	<0.01	<0.01	g/l	A-T-026s
Organic matter _D ^{M#}	0.2	0.3	3.0	2.8	0.3	1.3	-	-	% w/w	A-T-032 OM
Arsenic _D ^{M#}	2	<1	10	6	1	5	-	-	mg/kg	A-T-024s
Cadmium _D ^{M#}	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	-	-	mg/kg	A-T-024s
Copper _D ^{M#}	10	11	36	26	11	14	-	-	mg/kg	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1	<1	-	-	mg/kg	A-T-040s
Lead _D ^{M#}	18	12	55	65	7	17	-	-	mg/kg	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	-	-	mg/kg	A-T-024s
Nickel _D ^{M#}	25	28	23	14	37	18	-	-	mg/kg	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1	<1	<1	-	-	mg/kg	A-T-024s
Zinc _D ^{M#}	28	28	65	54	29	33	-	-	mg/kg	A-T-024s
VPH total (>C5-C10) _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	mg/kg	A-T-022s
1.01 % Moisture BS1377 1990 pt2 cl3.2 _A [#]	-	-	-	-	-	-	Appended	Appended		Subcon
1.02 Atterburg 4Pt BS1377 1990 pt2 cl4.4,5.3+5.4 _A [#]	-	-	-	-	-	-	Appended	Appended		Subcon

Envirolab Job Number: 17/07026

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07026/17	17/07026/18	17/07026/19	17/07026/20	17/07026/21	17/07026/22	17/07026/23	17/07026/24	Units	Method ref
Client Sample No										
Client Sample ID	TP12	WS7	TP14	WS8	WS10	WS11	TP1	TP4		
Depth to Top	0.60	0.70	0.30	0.25	0.60	0.40	1.50	1.70		
Depth To Bottom										
Date Sampled	12-Oct-17	12-Oct-17	12-Oct-17	12-Oct-17	12-Oct-17	12-Oct-17	11-Oct-17	11-Oct-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - D	Soil - D		
Sample Matrix Code	5A	3A	6E	6E	5	6E	5	3		
Asbestos in Soil (inc. matrix)										
Asbestos in soil _A [#]	NAD	NAD	NAD	NAD	NAD	NAD	-	-		A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A	N/A	N/A	N/A	-	-		

Envirolab Job Number: 17/07026

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07026/17	17/07026/18	17/07026/19	17/07026/20	17/07026/21	17/07026/22	17/07026/23	17/07026/24	Units	Method ref
Client Sample No										
Client Sample ID	TP12	WS7	TP14	WS8	WS10	WS11	TP1	TP4		
Depth to Top	0.60	0.70	0.30	0.25	0.60	0.40	1.50	1.70		
Depth To Bottom										
Date Sampled	12-Oct-17	12-Oct-17	12-Oct-17	12-Oct-17	12-Oct-17	12-Oct-17	11-Oct-17	11-Oct-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - D	Soil - D		
Sample Matrix Code	5A	3A	6E	6E	5	6E	5	3		
PAH 16										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	-	-	mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	mg/kg	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	0.02	0.04	<0.02	<0.02	-	-	mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	0.16	0.17	<0.04	0.06	-	-	mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	0.16	0.16	<0.04	0.07	-	-	mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	0.17	0.18	<0.05	0.07	-	-	mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	0.08	0.09	<0.05	<0.05	-	-	mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	-	-	mg/kg	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	0.17	0.21	<0.06	0.07	-	-	mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	-	-	mg/kg	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	0.21	0.24	<0.08	<0.08	-	-	mg/kg	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	0.11	0.10	<0.03	0.05	-	-	mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	-	mg/kg	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	0.11	0.15	<0.03	0.05	-	-	mg/kg	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	0.19	0.23	<0.07	<0.07	-	-	mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	<0.08	<0.08	1.38	1.57	<0.08	0.36	-	-	mg/kg	A-T-019s

Envirolab Job Number: 17/07026

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07026/17	17/07026/18	17/07026/19	17/07026/20	17/07026/21	17/07026/22	17/07026/23	17/07026/24	Units	Method ref
Client Sample No										
Client Sample ID	TP12	WS7	TP14	WS8	WS10	WS11	TP1	TP4		
Depth to Top	0.60	0.70	0.30	0.25	0.60	0.40	1.50	1.70		
Depth To Bottom										
Date Sampled	12-Oct-17	12-Oct-17	12-Oct-17	12-Oct-17	12-Oct-17	12-Oct-17	11-Oct-17	11-Oct-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - D	Soil - D		
Sample Matrix Code	5A	3A	6E	6E	5	6E	5	3		
Speciated PCB-EC7 & WHO12										
PCB BZ 28 _A ^{M#}	-	-	-	-	-	<0.002	-	-	mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	-	-	-	-	-	<0.002	-	-	mg/kg	A-T-004s
PCB BZ 81 _A	-	-	-	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	-	-	-	-	-	<0.004	-	-	mg/kg	A-T-004s
PCB BZ 105 _A	-	-	-	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 114 _A	-	-	-	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	-	-	-	-	-	<0.007	-	-	mg/kg	A-T-004s
PCB BZ 123 _A	-	-	-	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 126 _A	-	-	-	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	-	-	-	-	-	<0.006	-	-	mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	-	-	-	-	-	<0.004	-	-	mg/kg	A-T-004s
PCB BZ 156 _A	-	-	-	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 157 _A	-	-	-	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 167 _A	-	-	-	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 169 _A	-	-	-	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	-	-	-	-	-	<0.004	-	-	mg/kg	A-T-004s
PCB BZ 189 _A	-	-	-	-	-	<0.005	-	-	mg/kg	A-T-004s
PCB BZ 77 _A	-	-	-	-	-	<0.005	-	-	mg/kg	A-T-004s

Envirolab Job Number: 17/07026

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07026/17	17/07026/18	17/07026/19	17/07026/20	17/07026/21	17/07026/22	17/07026/23	17/07026/24	Units	Method ref
Client Sample No										
Client Sample ID	TP12	WS7	TP14	WS8	WS10	WS11	TP1	TP4		
Depth to Top	0.60	0.70	0.30	0.25	0.60	0.40	1.50	1.70		
Depth To Bottom										
Date Sampled	12-Oct-17	12-Oct-17	12-Oct-17	12-Oct-17	12-Oct-17	12-Oct-17	11-Oct-17	11-Oct-17		
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - D	Soil - D		
Sample Matrix Code	5A	3A	6E	6E	5	6E	5	3		
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	mg/kg	A-T-022s
Ali >C8-C10 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	mg/kg	A-T-022s
Ali >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	mg/kg	A-T-023s
Ali >C12-C16 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	mg/kg	A-T-023s
Ali >C16-C21 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	mg/kg	A-T-023s
Ali >C21-C35 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	mg/kg	A-T-023s
Total Aliphatics _A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	mg/kg	A-T-022s
Aro >C9-C10 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	mg/kg	A-T-022s
Aro >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	mg/kg	A-T-023s
Aro >C12-C16 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	mg/kg	A-T-023s
Aro >C16-C21 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	-	-	mg/kg	A-T-023s
Aro >C21-C35 _A [#]	<0.1	<0.1	<0.1	<0.1	<0.1	0.5	-	-	mg/kg	A-T-023s
Total Aromatics _A	<0.1	<0.1	<0.1	<0.1	<0.1	0.8	-	-	mg/kg	A-T-023s
TPH (Ali & Aro) _A	<0.1	<0.1	<0.1	<0.1	<0.1	0.8	-	-	mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	mg/kg	A-T-022s

Envirolab Job Number: 17/07026

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07026/25	17/07026/26	17/07026/27						Units	Method ref
Client Sample No										
Client Sample ID	WS1	WS4	WS7							
Depth to Top	1.50	1.30	1.60							
Depth To Bottom										
Date Sampled	11-Oct-17	11-Oct-17	12-Oct-17							
Sample Type	Soil - D	Soil - D	Soil - D							
Sample Matrix Code	3	3	5E							
% Stones >10mm _A	<0.1	<0.1	<0.1						% w/w	A-T-044
pH _D	8.87	8.81	9.02						pH	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.04	0.03	0.01						g/l	A-T-026s
1.01 % Moisture BS1377 1990 pt2 cl3.2 _A [#]	Appended	Appended	Appended							Subcon
1.02 Atterburg 4Pt BS1377 1990 pt2 cl4.4,5.3+5.4 _A [#]	Appended	Appended	Appended							Subcon

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

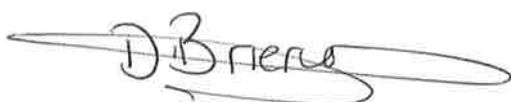
Envirolab Job Number: 17/07484
Issue Number: 1

Date: 17 November, 2017

Client: Betts Geo Environmental
Old Marsh Farm Barns
Welsh Road
Sealand
Flintshire
UK
CH5 2LY

Project Manager: Betts Geolab/Paul Harrison
Project Name: RSPCA Centre, Halewood
Project Ref: 17MIL024
Order No: BG2495
Date Samples Received: 02/11/17
Date Instructions Received: 03/11/17
Date Analysis Completed: 16/11/17

Prepared by:



Danielle Brierley
Client Manager

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 17/07484

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07484/1	17/07484/2	17/07484/3	17/07484/4	17/07484/5	17/07484/6	17/07484/7	17/07484/8	Units	Method ref
Client Sample No										
Client Sample ID	TP15	TP22	TP15	TP16	TP17	TP18	TP19	TP20		
Depth to Top	1.50	1.70	0.20	0.60	0.15	0.45	0.20	0.70		
Depth To Bottom										
Date Sampled	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17		
Sample Type	Soil - D	Soil - D	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	3A	3A	6E	5A	6AE	5A	6AE	6		
% Stones >10mm _A	0.8	0.3	<0.1	6.8	14.2	9.6	1.3	<0.1	% w/w	A-T-044
pH _D	8.76	8.63	6.93	7.16	7.09	7.42	7.04	7.59	pH	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.02	0.02	<0.01	0.03	<0.01	0.10	0.02	<0.01	g/l	A-T-026s
Organic matter _D ^{M#}	-	-	3.2	<0.1	3.5	0.5	2.9	1.1	% w/w	A-T-032 OM
Arsenic _D ^{M#}	-	-	6	<1	9	<1	8	<1	mg/kg	A-T-024s
Cadmium _D ^{M#}	-	-	0.5	<0.5	0.6	0.5	<0.5	<0.5	mg/kg	A-T-024s
Copper _D ^{M#}	-	-	36	8	37	<1	37	5	mg/kg	A-T-024s
Chromium (hexavalent) _D	-	-	<1	<1	<1	<5	<1	<1	mg/kg	A-T-040s
Lead _D ^{M#}	-	-	52	6	54	7	65	12	mg/kg	A-T-024s
Mercury _D	-	-	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	mg/kg	A-T-024s
Nickel _D ^{M#}	-	-	18	17	21	18	18	11	mg/kg	A-T-024s
Selenium _D ^{M#}	-	-	<1	<1	<1	<1	<1	<1	mg/kg	A-T-024s
Zinc _D ^{M#}	-	-	115	18	78	24	80	14	mg/kg	A-T-024s
VPH total (>C5-C10) _A [#]	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
1.01 % Moisture BS1377 1990 pt2 cl3.2 _A [#]	Appended	Appended	-	-	-	-	-	-		Subcon
1.02 Atterburg 4Pt BS1377 1990 pt2 cl4.4,5.3+5.4 _A [#]	Appended	Appended	-	-	-	-	-	-		Subcon

Envirolab Job Number: 17/07484

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07484/1	17/07484/2	17/07484/3	17/07484/4	17/07484/5	17/07484/6	17/07484/7	17/07484/8	Units	Method ref
Client Sample No										
Client Sample ID	TP15	TP22	TP15	TP16	TP17	TP18	TP19	TP20		
Depth to Top	1.50	1.70	0.20	0.60	0.15	0.45	0.20	0.70		
Depth To Bottom										
Date Sampled	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17		
Sample Type	Soil - D	Soil - D	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	3A	3A	6E	5A	6AE	5A	6AE	6		
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	-	-	NAD	NAD	NAD	NAD	NAD	-		A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	-	-	N/A	N/A	N/A	N/A	N/A	-		

Envirolab Job Number: 17/07484

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07484/1	17/07484/2	17/07484/3	17/07484/4	17/07484/5	17/07484/6	17/07484/7	17/07484/8	Units	Method ref
Client Sample No										
Client Sample ID	TP15	TP22	TP15	TP16	TP17	TP18	TP19	TP20		
Depth to Top	1.50	1.70	0.20	0.60	0.15	0.45	0.20	0.70		
Depth To Bottom										
Date Sampled	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17		
Sample Type	Soil - D	Soil - D	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	3A	3A	6E	5A	6AE	5A	6AE	6		
PAH 16										
Acenaphthene _A ^{M#}	-	-	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-019s
Anthracene _A ^{M#}	-	-	<0.02	<0.02	0.05	<0.02	<0.02	<0.02	mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	-	-	0.10	<0.04	0.25	<0.04	0.15	<0.04	mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	-	-	0.10	<0.04	0.24	<0.04	0.13	<0.04	mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	-	-	0.12	<0.05	0.27	<0.05	0.17	<0.05	mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	-	-	0.06	<0.05	0.12	<0.05	0.07	<0.05	mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	-	-	<0.07	<0.07	0.13	<0.07	<0.07	<0.07	mg/kg	A-T-019s
Chrysene _A ^{M#}	-	-	0.12	<0.06	0.27	<0.06	0.16	<0.06	mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	-	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	A-T-019s
Fluoranthene _A ^{M#}	-	-	0.14	<0.08	0.43	<0.08	0.19	<0.08	mg/kg	A-T-019s
Fluorene _A ^{M#}	-	-	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	-	-	0.06	<0.03	0.13	<0.03	0.09	<0.03	mg/kg	A-T-019s
Naphthalene _A ^{M#}	-	-	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	A-T-019s
Phenanthrene _A ^{M#}	-	-	0.08	<0.03	0.29	<0.03	0.11	<0.03	mg/kg	A-T-019s
Pyrene _A ^{M#}	-	-	0.14	<0.07	0.40	<0.07	0.19	<0.07	mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	-	-	0.93	<0.08	2.62	<0.08	1.26	<0.08	mg/kg	A-T-019s

Envirolab Job Number: 17/07484

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07484/1	17/07484/2	17/07484/3	17/07484/4	17/07484/5	17/07484/6	17/07484/7	17/07484/8	Units	Method ref
Client Sample No										
Client Sample ID	TP15	TP22	TP15	TP16	TP17	TP18	TP19	TP20		
Depth to Top	1.50	1.70	0.20	0.60	0.15	0.45	0.20	0.70		
Depth To Bottom										
Date Sampled	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17	01-Nov-17		
Sample Type	Soil - D	Soil - D	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES		
Sample Matrix Code	3A	3A	6E	5A	6AE	5A	6AE	6		
TPH CWG										
Ali >C5-C6 _A [#]	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C6-C8 _A [#]	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C8-C10 _A [#]	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Ali >C10-C12 _A [#]	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Ali >C12-C16 _A [#]	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Ali >C16-C21 _A [#]	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Ali >C21-C35 _A [#]	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Total Aliphatics _A	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C5-C7 _A [#]	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C7-C8 _A [#]	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C8-C9 _A [#]	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C9-C10 _A [#]	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
Aro >C10-C12 _A [#]	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C12-C16 _A [#]	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C16-C21 _A [#]	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Aro >C21-C35 _A [#]	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
Total Aromatics _A	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
TPH (Ali & Aro) _A	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	A-T-023s
BTEX - Benzene _A [#]	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - Toluene _A [#]	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
BTEX - o Xylene _A [#]	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s
MTBE _A [#]	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	A-T-022s

Envirolab Job Number: 17/07484

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07484/9	17/07484/10							Units	Method ref
Client Sample No										
Client Sample ID	TP21	TP22								
Depth to Top	1.00	0.30								
Depth To Bottom										
Date Sampled	01-Nov-17	01-Nov-17								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	3	6E								
% Stones >10mm _A	<0.1	0.9							% w/w	A-T-044
pH _D	8.67	6.60							pH	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	<0.01	<0.01							g/l	A-T-026s
Organic matter _D ^{M#}	<0.1	5.0							% w/w	A-T-032 OM
Arsenic _D ^{M#}	<1	16							mg/kg	A-T-024s
Cadmium _D ^{M#}	<0.5	0.9							mg/kg	A-T-024s
Copper _D ^{M#}	10	68							mg/kg	A-T-024s
Chromium (hexavalent) _D	<1	<1							mg/kg	A-T-040s
Lead _D ^{M#}	7	107							mg/kg	A-T-024s
Mercury _D	<0.17	<0.17							mg/kg	A-T-024s
Nickel _D ^{M#}	35	26							mg/kg	A-T-024s
Selenium _D ^{M#}	<1	<1							mg/kg	A-T-024s
Zinc _D ^{M#}	37	146							mg/kg	A-T-024s
VPH total (>C5-C10) _A [#]	<0.01	<0.01							mg/kg	A-T-022s

Envirolab Job Number: 17/07484

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07484/9	17/07484/10							Units	Method ref
Client Sample No										
Client Sample ID	TP21	TP22								
Depth to Top	1.00	0.30								
Depth To Bottom										
Date Sampled	01-Nov-17	01-Nov-17								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	3	6E								
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	-	NAD								A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	-	N/A								

Envirolab Job Number: 17/07484

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07484/9	17/07484/10							Units	Method ref
Client Sample No										
Client Sample ID	TP21	TP22								
Depth to Top	1.00	0.30								
Depth To Bottom										
Date Sampled	01-Nov-17	01-Nov-17								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	3	6E								
PAH 16										
Acenaphthene _A ^{M#}	<0.01	0.05							mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01							mg/kg	A-T-019s
Anthracene _A ^{M#}	<0.02	0.08							mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	0.23							mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	0.19							mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	0.24							mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	0.09							mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	0.11							mg/kg	A-T-019s
Chrysene _A ^{M#}	<0.06	0.28							mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04							mg/kg	A-T-019s
Fluoranthene _A ^{M#}	<0.08	0.50							mg/kg	A-T-019s
Fluorene _A ^{M#}	<0.01	0.07							mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	0.11							mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03							mg/kg	A-T-019s
Phenanthrene _A ^{M#}	<0.03	0.72							mg/kg	A-T-019s
Pyrene _A ^{M#}	<0.07	0.46							mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	<0.08	3.11							mg/kg	A-T-019s

Envirolab Job Number: 17/07484

Client Project Name: RSPCA Centre, Halewood

Client Project Ref: 17MIL024

Lab Sample ID	17/07484/9	17/07484/10							Units	Method ref
Client Sample No										
Client Sample ID	TP21	TP22								
Depth to Top	1.00	0.30								
Depth To Bottom										
Date Sampled	01-Nov-17	01-Nov-17								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	3	6E								
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01							mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01							mg/kg	A-T-022s
Ali >C8-C10 _A [#]	<0.01	<0.01							mg/kg	A-T-022s
Ali >C10-C12 _A [#]	<0.1	<0.1							mg/kg	A-T-023s
Ali >C12-C16 _A [#]	<0.1	<0.1							mg/kg	A-T-023s
Ali >C16-C21 _A [#]	<0.1	<0.1							mg/kg	A-T-023s
Ali >C21-C35 _A [#]	<0.1	<0.1							mg/kg	A-T-023s
Total Aliphatics _A	<0.1	<0.1							mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01	<0.01							mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01							mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01	<0.01							mg/kg	A-T-022s
Aro >C9-C10 _A [#]	<0.01	<0.01							mg/kg	A-T-022s
Aro >C10-C12 _A [#]	<0.1	<0.1							mg/kg	A-T-023s
Aro >C12-C16 _A [#]	<0.1	<0.1							mg/kg	A-T-023s
Aro >C16-C21 _A [#]	<0.1	<0.1							mg/kg	A-T-023s
Aro >C21-C35 _A [#]	<0.1	<0.1							mg/kg	A-T-023s
Total Aromatics _A	<0.1	<0.1							mg/kg	A-T-023s
TPH (Ali & Aro) _A	<0.1	<0.1							mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01	<0.01							mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01							mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01							mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01							mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01							mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01							mg/kg	A-T-022s

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

SUMMARY OF CONTAMINATION ANALYSIS: PAH

Project Name RSPCA Centre, Halewood
 Project No 17MIL024
 Date 23/10/17

SOIL TYPE	TS	NS	NS	TS	TS	NS	MG	TS	MG	TS	NS	MG	TS	NS	NS	TS	NS	NS	TS	TS	NS	NS
SAMPLE LOCATION	TP1	TP2	TP3	TP4	TP5	TP5	WS1	TP7	WS2	TP8	TP9	WS3	WS4	WS4	WS5	TP11	TP12	WS7	TP14	WS8	WS10	WS11
DEPTH (m)	0.30	0.60	0.80	0.30	0.30	0.80	0.50	0.10	0.40	0.40	1.00	0.50	0.25	0.80	0.60	0.25	0.60	0.70	0.30	0.25	0.60	0.40
Acenaphthene	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
Acenaphthylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.04	<0.02
Benzo(a)anthracene	<0.04	<0.04	<0.04	0.13	<0.04	<0.04	<0.04	0.09	0.09	0.18	<0.04	<0.04	0.1	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.16	0.17	<0.04
Benzo(a)pyrene	<0.04	<0.04	<0.04	0.1	<0.04	<0.04	<0.04	0.1	0.1	0.18	<0.04	<0.04	0.12	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.16	0.16	<0.04
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	0.13	<0.05	<0.05	<0.05	0.12	0.11	0.2	<0.05	<0.05	0.17	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.17	0.18	<0.05
Benzo(ghi)perylene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.06	0.1	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	0.09	<0.05
Benzo(k)fluoranthene	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	0.09	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Chrysene	<0.06	<0.06	<0.06	0.13	<0.06	<0.06	<0.06	0.1	0.09	0.18	<0.06	<0.06	0.15	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.17	0.21	<0.06
Dibenzo(a,h)anthracene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Fluoranthene	<0.08	<0.08	<0.08	0.17	<0.08	<0.08	<0.08	0.12	0.12	0.24	<0.08	<0.08	0.17	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	0.21	0.24	<0.08
Fluorene	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno(123-cd)pyrene	<0.03	<0.03	<0.03	0.07	<0.03	<0.03	<0.03	0.07	0.07	0.13	<0.03	<0.03	0.1	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.11	0.1	<0.03
Naphthalene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Phenanthrene	<0.03	<0.03	<0.03	0.14	<0.03	<0.03	<0.03	0.07	0.08	0.11	<0.03	<0.03	0.09	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.11	0.15	<0.03
Pyrene	<0.07	<0.07	<0.07	0.15	<0.07	<0.07	<0.07	0.12	0.11	0.22	<0.07	<0.07	0.15	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	0.19	0.23	<0.07
Organic Matter	1.8	0.2	0.5	3	4.6	<0.1	9.8	3	1.6	1.9	0.2	0.3	6	1.2	1.1	1	0.2	0.3	3	2.8	0.3	1.3

PAH	Mean Value Test *	Range		AtRisk 2017 (mg/kg) Residential with Home Grown Produce	AtRisk 2017 (mg/kg) Residential with Home Grown Produce	DEFRA's C4SL 2017
	US ₉₅	Largest Value (mg/kg)	Smallest Value (mg/kg)	1% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***
Acenaphthene	0.01	0.02	<0.01	608	2760	-
Acenaphthylene	0.01	<0.01	<0.01			-
Anthracene	0.02	0.04	<0.02	10200	26200	-
Benzo(a)anthracene	0.09	0.18	<0.04	4.52	8.54	-
Benzo(a)pyrene	0.09	0.18	<0.04	1.51	2.05	4.95
Benzo(b)fluoranthene	0.10	0.20	<0.05	7.72	9.86	-
Benzo(ghi)perylene	0.06	0.10	<0.05	96.2	103	-
Benzo(k)fluoranthene	0.07	0.09	<0.07	84.4	100	-
Chrysene	0.11	0.21	<0.06	585	927	-
Dibenzo(a,h)anthracene	0.04	<0.04	<0.04	0.838	1	-
Fluoranthene	0.13	0.24	<0.08	983	2980	-
Fluorene	0.01	0.01	<0.01	735	2610	-
Indeno(123-cd)pyrene	0.06	0.13	<0.03	7.31	9.75	-
Naphthalene	0.03	<0.03	<0.03	0.829	12.2	-
Phenanthrene	0.07	0.15	<0.03			-
Pyrene	0.12	0.23	<0.07	668	2120	-

Results expressed as mg/kg air dried unless otherwise stated.

* - The calculations for the mean value test include outliers

*** THESE RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE GUIDANCE NOTES ON CONTAMINATION.

NOTES:

For the Purpose of this investigation- results will be assessed against RESIDENTIAL GUIDELINES WITH HOMEGROWN PRODUCE WITH NO FREE PRODUCT.

SUMMARY OF CONTAMINATION ANALYSIS: TPH

Project Name RSPCA Centre, Halewood
Project No 17MIL024
Date 23/10/2017

SOIL TYPE	TS	NS	NS	TS	TS	NS	MG	TS	MG	TS	NS	MG	TS	NS	NS	TS	NS	NS	TS	TS	NS	NS
SAMPLE LOCATION	TP1	TP2	TP3	TP4	TP5	TP5	WS1	TP7	WS2	TP8	TP9	WS3	WS4	WS4	WS5	TP11	TP12	WS7	TP14	WS8	WS10	WS11
DEPTH (m)	0.30	0.60	0.80	0.30	0.30	0.80	0.50	0.10	0.40	0.40	1.00	0.50	0.25	0.80	0.60	0.25	0.60	0.70	0.30	0.25	0.60	0.40
Ali >C5-C6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ali >C6-C8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ali >C8-C10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ali >C10-C12	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ali >C12-C16	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ali >C16-C21	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ali >C21-C35	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Aliphatics	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aro >C5-C7	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aro >C7-C8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aro >C8-C9	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aro >C9-C10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aro >C10-C12	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aro >C12-C16	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aro >C16-C21	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3
Aro >C21-C35	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.5
Total Aromatics	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.8
TPH (Ali & Aro)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.8
BTEX - Benzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Toluene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - m & p Xylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - o Xylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
MTBE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Organic Matter	1.8	0.2	0.5	3	4.6	<0.1	8.8	3	1.6	1.9	0.2	0.3	6	1.2	1.1	1	0.2	0.3	3	2.8	0.3	1.3

TPH	Mean Value Test *	Range		ARisk 2017 (mg/kg) Residential with Home Grown Produce	ARisk 2017 (mg/kg) Residential with Home Grown Produce	DEFRA CASL 2017
	US _B	Largest Value (mg/kg)	Smallest Value (mg/kg)	1% SOM WITHOUT Free Product***	8% SOM WITHOUT Free Product***	8% SOM WITHOUT Free Product***
Ali >C5-C6	0.01	<0.01	<0.01	42.7	369	-
Ali >C6-C8	0.01	<0.01	<0.01	99.3	1240	-
Ali >C8-C10	0.01	<0.01	<0.01	13.9	204	-
Ali >C10-C12	0.10	<0.1	<0.1	81.7	1180	-
Ali >C12-C16	0.10	<0.1	<0.1	385	4130	-
Ali >C16-C21	0.10	<0.1	<0.1	210000	210100	-
Ali >C21-C35	0.10	<0.1	<0.1			
Total Aliphatics	0.10	<0.1	<0.1			
Aro >C5-C7	0.01	<0.01	<0.01	0.137	0.871	-
Aro >C7-C8	0.01	<0.01	<0.01	113	780	-
Aro >C8-C9	0.01	<0.01	<0.01	20.5	232	-
Aro >C9-C10	0.01	<0.01	<0.01	20.5	232	-
Aro >C10-C12	0.10	<0.1	<0.1	70	468	-
Aro >C12-C16	0.10	<0.1	<0.1	165	830	-
Aro >C16-C21	0.20	0.80	<0.1	319	1040	-
Aro >C21-C35	0.20	0.70	<0.1	1120	1710	-
Total Aromatics	0.33	1.60	<0.1			
TPH (Ali & Aro)	0.33	1.60	<0.1			
BTEX - Benzene	0.01	<0.01	<0.01	0.0493	0.33	0.871
BTEX - Toluene	0.01	<0.01	<0.01	113	780	-
BTEX - Ethyl Benzene	0.01	<0.01	<0.01	50.7	453	-
BTEX - m & p Xylene	0.01	<0.01	<0.01	24	312	-
BTEX - o Xylene	0.01	<0.01	<0.01	26.4	336	-
MTBE	0.01	<0.01	<0.01	27.6	220	-

Results expressed as mg/kg air dried unless otherwise stated.

* - The calculations for the mean value test include outliers

*** THESE RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SP4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK - SEE GUIDANCE NOTES ON CONTAMINATION.

NOTES:

For the Purpose of this investigation - results will be assessed against RESIDENTIAL GUIDELINES WITH HOME GROWN PRODUCE WITH NO FREE PRODUCT.

UU Drinking Water Guidelines	
PE Threshold	
Total BTEX & MTBE	0.1
EC5-EC10 Ali-Aro	2
EC10-EC16 Ali-Aro	10
EC16-EC40 Ali-Aro	500

SUMMARY OF CONTAMINATION ANALYSIS: METALS

Project Name RSPCA Centre, Halewood
Project No 17MIL024
Date 23/10/2017

SOIL TYPE	TS	NS	NS	TS	TS	NS	MG	TS	MG	TS	NS	MG	TS	NS	NS
SAMPLE LOCATION	TP1	TP2	TP3	TP4	TP5	TP5	WS1	TP7	WS2	TP8	TP9	WS3	WS4	WS4	WS5
DEPTH (m)	0.30	0.60	0.80	0.30	0.30	0.80	0.50	0.10	0.40	0.40	1.00	0.50	0.25	0.80	0.60
pH	7.83	8.63	8.37	6.63	7.21	8.88	7.85	8.3	8.46	8.42	8.94	8.9	6.58	7.59	7.74
Sulphate (water sol 2:1) (g/l)	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	0.01	<0.01	0.01	<0.01	<0.01	0.05	0.02
Organic matter	1.8	0.2	0.5	3	4.6	<0.1	9.8	3	1.6	1.9	0.2	0.3	6	1.2	1.1
Arsenic	4	<1	2	8	7	<1	242	9	5	6	1	<1	7	1	2
Cadmium	<0.5	<0.5	0.5	0.6	0.6	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	19	10	16	37	48	5	398	35	29	32	12	11	36	16	10
Chromium (hexavalent)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lead	28	6	9	55	35	3	113	59	27	43	7	6	51	11	15
Mercury	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Nickel	20	24	41	19	26	18	48	17	11	19	33	28	18	34	10
Selenium	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1
Zinc	50	20	35	71	59	16	120	78	48	73	35	28	83	35	22
Asbestos in Soil	NAD	NAD	-	NAD	NAD	NAD	NAD	NAD	NAD	NAD	-	NAD	NAD	-	NAD
Asbestos Matrix	N/A	N/A	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	-	N/A
Quantification	N/A	N/A	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	-	N/A

Metals	Mean Value Test *	Range		AtRisk 2017 (mg/kg)	AtRisk 2017 (mg/kg)	DEFRA C4SL 2017
	US ₉₅	Largest Value (mg/kg)	Smallest Value (mg/kg)	With Homegrown Produce (1% SOM)	With Homegrown Produce (6% SOM)	
pH	8.32	8.94	6.58			-
Sulphate (water sol 2:1) (g/l)	0.02	0.050	0.010			-
Organic matter	2.87	9.80	0.20			-
Arsenic	33	242.0	1.0	32	32	37
Cadmium	0.56	0.90	0.50	10	10	22.1
Copper	68	398.0	5.0	4730	4790	-
Chromium (hexavalent)	1.00	<1	<1	3.62	3.63	20.5
Lead	41	113.0	3.0			200
Mercury**	0.17	<0.17	<0.17	8.81	15.8	-
Nickel	27	48.0	10.0	EA/AtRisk withdrawn Aug 2015		
Selenium	1	1.00	<1	375	375	-
Zinc	56	120.0	16.0	20000	20300	-

NOTE:

Any individual results and mean value tests above SGVs are shown RED highlighted.

Any outlier values which exceed relevant SGVs are shown in red

* - The calculations for the mean value test include outliers

SUMMARY OF CONTAMINATION ANALYSIS: PAH

Project Name RSPCA Centre, Halewood
Project No 17MIL024
Date 23/11/2017

SOIL TYPE	TS	NS	TS	NS	TS	NS	NS	TS
SAMPLE LOCATION	TP15	TP16	TP17	TP18	TP19	TP20	TP21	TP22
DEPTH (m)	0.20	0.60	0.15	0.45	0.20	0.70	1.00	0.30
Acenaphthene	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.05
Acenaphthylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene	<0.02	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	0.08
Benzo(a)anthracene	0.1	<0.04	0.25	<0.04	0.15	<0.04	<0.04	0.23
Benzo(a)pyrene	0.1	<0.04	0.24	<0.04	0.13	<0.04	<0.04	0.19
Benzo(b)fluoranthene	0.12	<0.05	0.27	<0.05	0.17	<0.05	<0.05	0.24
Benzo(ghi)perylene	0.06	<0.05	0.12	<0.05	0.07	<0.05	<0.05	0.09
Benzo(k)fluoranthene	<0.07	<0.07	0.13	<0.07	<0.07	<0.07	<0.07	0.11
Chrysene	0.12	<0.06	0.27	<0.06	0.16	<0.06	<0.06	0.28
Dibenzo(ah)anthracene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Fluoranthene	0.14	<0.08	0.43	<0.08	0.19	<0.08	<0.08	0.5
Fluorene	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.07
Indeno(123-cd)pyrene	0.06	<0.03	0.13	<0.03	0.09	<0.03	<0.03	0.11
Naphthalene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Phenanthrene	0.08	<0.03	0.29	<0.03	0.11	<0.03	<0.03	0.72
Pyrene	0.14	<0.07	0.4	<0.07	0.19	<0.07	<0.07	0.46
Organic Matter	3.2	<0.1	3.5	0.5	2.9	1.1	<0.1	5

PAH	Mean Value Test *	Range		AtRisk 2017 (mg/kg) Residential with Home Grown Produce	AtRisk 2017 (mg/kg) Residential with Home Grown Produce	DEFRA's C4SL 2017
	US ₉₅	Largest Value (mg/kg)	Smallest Value (mg/kg)	1% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***
Acenaphthene	0.03	0.05	<0.01	608	2760	-
Acenaphthylene	0.01	<0.01	<0.01			-
Anthracene	0.05	0.08	<0.02	10200	26200	-
Benzo(a)anthracene	0.17	0.25	<0.04	4.52	8.54	-
Benzo(a)pyrene	0.15	0.24	<0.04	1.51	2.05	4.95
Benzo(b)fluoranthene	0.19	0.27	<0.05	7.72	9.86	-
Benzo(ghi)perylene	0.08	0.12	<0.05	96.2	103	-
Benzo(k)fluoranthene	0.10	0.13	<0.07	84.4	100	-
Chrysene	0.20	0.28	<0.06	585	927	-
Dibenzo(ah)anthracene	0.04	<0.04	<0.04	0.838	1	-
Fluoranthene	0.31	0.50	<0.08	983	2980	-
Fluorene	0.03	0.07	<0.01	735	2610	-
Indeno(123-cd)pyrene	0.09	0.13	<0.03	7.31	9.75	-
Naphthalene	0.03	<0.03	<0.03	0.829	12.2	-
Phenanthrene	0.33	0.72	<0.03			-
Pyrene	0.29	0.46	<0.07	668	2120	-

Results expressed as mg/kg air dried unless otherwise stated.

* - The calculations for the mean value test include outliers

*** THESE RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

NOTES:

For the Purpose of this investigation- results will be assessed against RESIDENTIAL GUIDELINES WITH HOMEGROWN PRODUCE WITH NO FREE PRODUCT.

SUMMARY OF CONTAMINATION ANALYSIS: TPH

Project Name RSPCA Centre, Halewood
 Project No 17MIL024
 Date 23/11/2017

SOIL TYPE	TS	NS	TS	NS	TS	NS	NS	TS
SAMPLE LOCATION	TP15	TP16	TP17	TP18	TP19	TP20	TP21	TP22
DEPTH (m)	0.20	0.60	0.15	0.45	0.20	0.70	1.00	0.30
Ali >C5-C6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ali >C6-C8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ali >C8-C10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ali >C10-C12	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ali >C12-C16	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ali >C16-C21	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ali >C21-C35	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Aliphatics	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aro >C5-C7	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aro >C7-C8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aro >C8-C9	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aro >C9-C10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aro >C10-C12	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aro >C12-C16	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aro >C16-C21	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aro >C21-C35	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Aromatics	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TPH (Ali & Aro)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BTEX - Benzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Toluene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - m & p Xylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - o Xylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
MTBE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Organic Matter	3.2	<0.1	3.5	0.5	2.9	1.1	<0.1	5

TPH	Mean Value Test *	Range		AtRisk 2017 (mg/kg) Residential with Home Grown Produce	AtRisk 2017 (mg/kg) Residential with Home Grown Produce	DEFRA C4SL 2017
	US ₉₅	Largest Value (mg/kg)	Smallest Value (mg/kg)	1% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***
Ali >C5-C6	0.01	<0.01	<0.01	42.7	369	-
Ali >C6-C8	0.01	<0.01	<0.01	99.3	1240	-
Ali >C8-C10	0.01	<0.01	<0.01	13.9	204	-
Ali >C10-C12	0.10	<0.1	<0.1	81.7	1180	-
Ali >C12-C16	0.10	<0.1	<0.1	385	4130	-
Ali >C16-C21	0.10	<0.1	<0.1	210000	210100	-
Ali >C21-C35	0.10	<0.1	<0.1			
Total Aliphatics	0.10	<0.1	<0.1			
Aro >C5-C7	0.01	<0.01	<0.01	0.137	0.871	-
Aro >C7-C8	0.01	<0.01	<0.01	113	780	-
Aro >C8-C9	0.01	<0.01	<0.01	20.5	232	-
Aro >C9-C10	0.01	<0.01	<0.01	20.5	232	-
Aro >C10-C12	0.10	<0.1	<0.1	70	468	-
Aro >C12-C16	0.10	<0.1	<0.1	165	830	-
Aro >C16-C21	0.10	<0.1	<0.1	319	1040	-
Aro >C21-C35	0.10	<0.1	<0.1	1120	1710	-
Total Aromatics	0.10	<0.1	<0.1			
TPH (Ali & Aro)	0.10	<0.1	<0.1			
BTEX - Benzene	0.01	<0.01	<0.01	0.0493	0.33	0.871
BTEX - Toluene	0.01	<0.01	<0.01	113	780	-
BTEX - Ethyl Benzene	0.01	<0.01	<0.01	50.7	453	-
BTEX - m & p Xylene	0.01	<0.01	<0.01	24	312	-
BTEX - o Xylene	0.01	<0.01	<0.01	26.4	336	-
MTBE	0.01	<0.01	<0.01	27.6	220	

Results expressed as mg/kg air dried unless otherwise stated.

* - The calculations for the mean value test include outliers

*** THESE RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

NOTES:

For the Purpose of this investigation- results will be assessed against RESIDENTIAL GUIDELINES WITH HOMEGROWN PRODUCE WITH NO FREE PRODUCT.

UU Drinking Water Guidelines	
PE Threshold	
Total BTEX & MTBE	0.1
EC5-EC10 Ali-Aro	2
EC10-EC16 Ali-Aro	10
EC16-EC40 Ali-Aro	500

SUMMARY OF CONTAMINATION ANALYSIS: METALS

Project Name RSPCA Centre, Halewood
Project No 17MIL024
Date 23/11/2017

SOIL TYPE	TS	NS	TS	NS	TS	NS	NS	TS
SAMPLE LOCATION	TP15	TP16	TP17	TP18	TP19	TP20	TP21	TP22
DEPTH (m)	0.20	0.60	0.15	0.45	0.20	0.70	1.00	0.30
pH	6.93	7.16	7.09	7.42	7.04	7.59	8.67	6.6
Sulphate (water sol 2:1) (g/l)	<0.01	0.03	<0.01	0.1	0.02	<0.01	<0.01	<0.01
Organic matter	3.2	<0.1	3.5	0.5	2.9	1.1	<0.1	5
Arsenic	6	<1	9	<1	8	<1	<1	16
Cadmium	0.5	<0.5	0.6	0.5	<0.5	<0.5	<0.5	0.9
Copper	36	8	37	<1	37	5	10	68
Chromium (hexavalent)	<1	<1	<1	<5	<1	<1	<1	<1
Lead	52	6	54	7	65	12	7	107
Mercury	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Nickel	18	17	21	18	18	11	35	26
Selenium	<1	<1	<1	<1	<1	<1	<1	<1
Zinc	115	18	78	24	80	14	37	146
Asbestos in Soil	NAD	NAD	NAD	NAD	NAD	-	-	NAD
Asbestos Matrix	N/A	N/A	N/A	N/A	N/A	-	-	N/A
Quantification	-	-	-	-	-	-	-	-

Metals	Mean Value Test *	Range		AtRisk 2017 (mg/kg)	AtRisk 2017 (mg/kg)	DEFRA C4SL 2017
	US ₉₅	Largest Value (mg/kg)	Smallest Value (mg/kg)	With Homegrown Produce (1% SOM)	With Homegrown Produce (6% SOM)	
pH	7.73	8.67	6.60			-
Sulphate (water sol 2:1) (g/l)	0.05	0.100	<0.01			-
Organic matter	3.28	5.00	<0.1			-
Arsenic	9	16.0	<1	32	32	37
Cadmium	0.66	0.90	<0.5	10	10	22.1
Copper	41	68.0	5.0	4730	4790	-
Chromium (hexavalent)	2.45	<5	<1	3.62	3.63	20.5
Lead	64	107.0	6.0			200
Mercury**	0.17	<0.17	<0.17	8.81	15.8	-
Nickel	25	35.0	11.0	EA/AtRisk withdrawn Aug 2015		
Selenium	1	<1	<1	375	375	-
Zinc	97	146.0	14.0	20000	20300	-

NOTE:

Any individual results and mean value tests above SGVs are shown RED highlighted.

Any outlier values which exceed relevant SGVs are shown in red

* - The calculations for the mean value test include outliers

** - Results for this determinand are assessed with no background levels taken into account

Results are expressed as mg/kg unless otherwise stated

ALL RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

SGVs are derived from the EA 2009 SGVs which are taken from AtRisk 2015. Category 4 screening levels have been adopted by the EA and have been included as new guidance.

Note: The SGV for elemental mercury has been used to assess total mercury concentrations at the site. The Environment Agency's Science Report SC050021 /Mercury SGV states that 'for general surface contamination and to simplify the assessment the SGV's for inorganic mercury can normally be compared with chemical analysis for total mercury content.....'. Based on the latter, SGV for elemental mercury (170mg/kg) in the soil assessment is used

NAD - NO ASBESTOS DETECTED

TS - Topsoil, MG - Made Ground and N - Natural Ground