



CONSULTING ENGINEERS

**CIVIL • STRUCTURAL
GEOTECHNICAL • ENVIRONMENTAL**

MD/VAL/17188

30th June 2021

Portway Rd GB C/O Gustav Bonnier Holdings Ltd
Didsbury House,
748 Wilmslow Rd
Didsbury
Manchester
M20 2DW

Att: Mr T Morgan

**RE: RESIDENTIAL DEVELOPMENT AT THE FORMER PORTWAY PUBLIC HOUSE,
WYTHENSHAW – PLOTS 1 - 10**

Dear Mr Morgan,

Further to your recent instructions, we have now revisited this site to inspect and validate the topsoil material within the rear and front garden areas of plots 1 - 10 identified upon the appended remediation progress plan 17188/03.

The site has undergone a previous phase of geo-environmental investigation by REFA (report reference 17188/GEIR dated January 2018) which identified the absence of topsoil deposits within the site and a requirement to import topsoil for the garden and landscaped areas of the development. REFA recommended a sampling frequency of 1 sample/50m³ and therefore for this assessment we have obtained six (6 No.) topsoil samples from the front and rear garden areas as shown upon the appended topsoil validation plan (17188/03).

The source of the topsoil material has not been provided by the client so we have assumed that the topsoil has been sourced from a brownfield site as a precautionary measure. We have visited this site to obtain representative samples of the topsoil installed within the garden areas to allow a program of chemical analyses to determine the suitability of the capping materials.

All samples were submitted to the laboratories of Element, who are a UKAS and MCERTS accredited laboratory facility. Each sample has been subject to a wide ranging program of analyses which includes metals, inorganics, organics and PAH (USEPA 16) compounds, TPH(CWG) and asbestos screen. The range of determinands considered is in accordance with the specification detailed within the remediation strategy document. The full results of the laboratory chemical analyses are attached to this correspondence for reference.

Assessment of the Element test results as shown in tables 1 & 4 has confirmed that the topsoil material does not contain any determinants at concentrations above the adopted assessment criteria. The topsoil is suitable for installation within a residential development.

ROBERT E FRY & ASSOCIATES LTD.
45, Bridgeman Terrace
Wigan, WN1 1TT

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**Table 1: Summary of Contamination Analysis: Metals & Inorganics –
Topsoil – Plots 1 - 10**

	No. of Samples	Range of Values (mg/kg)	Assessment Criteria (mg/kg)	No. of Samples Failing	Locations
Arsenic	6	5.9 – 14.1	37 ⁴	0	-
Cadmium	6	0.1 – 0.3	11.0 ⁴	0	-
Chromium (total)	6	11.7 – 39.4	910 ⁴	0	-
Copper	6	15.0 – 237.0	2400 ⁴	0	-
Lead	6	18.0 – 131.0	200 ¹	0	-
Mercury	6	<0.1 – 0.2	40 ⁴	0	-
Nickel	6	9.8 – 24.8	180 ⁴	0	-
Selenium	6	<1.0	250 ⁴	0	-
Zinc	6	47.0 – 231.0	3700 ⁴	0	-
Total Cyanide	6	<0.5	34.0 ³	0	-
Phenol	6	<0.15	380 ⁴	0	-
pH	6	6.33 – 7.74	-	0	-
SOM (%)	6	1.99 – 7.36	-	0	-
Asbestos	6	ND	ND – Present	0	-
¹ DEFRA : SP1010 : Category 4 Screening Levels ² Revised SGV – SC050021 (values based upon "Residential" land use). ³ Atkins Atrisk SSV residential with home grown produce (6% SOM) ⁴ LQM and CIEH S4UL's for Human Health Risk Assessment (Registration No. S4UL 3265) residential with home grown produce (6.0% SOM) ⁵ BRE Special Digest 1:2005 DS-1 ND – None Detected					

**Table 2: Summary of Contamination Analysis: Organics: PAH USEPA 16 Suite –
Topsoil – Plots 1 - 10**

	No. of Samples	Range of Values (mg/kg)	Assessment Criteria ¹ (mg/kg)	No. of Samples Failing	Locations
Acenaphthene	6	<0.05 – 0.16	1100	0	-
Acenaphthylene	6	<0.03 – 0.11	920	0	-
Anthracene	6	<0.04 – 0.56	11000	0	-
Benzo[a]anthracene	6	<0.06 – 1.91	13.0	0	-
Benzo[a]pyrene	6	<0.04 – 2.27	5.00 ²	0	-
Benzo[b]fluoranthene	6	<0.05 – 2.86	3.7	0	-
Benzo[ghi]perylene	6	<0.04 – 1.42	350	0	-
Benzo[k]fluoranthene	6	<0.02 – 1.11	100	0	-
Chrysene	6	<0.02 – 2.06	27.0	0	-
Dibenzo[ah]anthracene	6	<0.04 – 0.27	0.30	0	-
Fluoranthene	6	0.05 – 3.71	890	0	-
Fluorene	6	<0.04 – 0.13	860	0	-
Indeno[123-cd]pyrene	6	<0.04 – 1.52	41.0	0	-
Naphthalene	6	<0.04 – 0.22	13.0	0	-
Phenanthrene	6	<0.03 – 1.67	440	0	-
Pyrene	6	0.04 – 3.37	2000	0	-
¹ LQM & CIEH S4UL's for human health risk assessment (Registration No. S4UL 3265) – Residential with home grown produce (6.0% SOM) ² DEFRA : SP1010 : Category 4 Screening Levels					

Table 3: Summary of Contamination Analysis: Organics: TPH (CWG) Suite

	No. of Samples	Range of Values mg/kg	Assessment* Criteria mg/kg	No. of Samples Failing	Notes
Aliphatic EC> 5 - 6	6	<0.1	160	0	-
Aliphatic EC> 6 - 8	6	<0.1	530	0	-
Aliphatic EC> 8 - 10	6	<0.1 – 1.9	150	0	-
Aliphatic EC> 10 - 12	6	<0.2 – 17.5	760	0	-
Aliphatic EC> 12 - 16	6	<4.0	4300	0	-
Aliphatic EC> 16 - 35	6	<7.0 – 95.0	11000	0	-
Aliphatic EC> 35 - 44	6	<7.0 – 20.0	11000	0	-
Aromatic EC> 5 - 7	6	<0.1	300	0	-
Aromatic EC> 7 - 8	6	<0.1	660	0	-
Aromatic EC> 8 - 10	6	<0.1	190	0	-
Aromatic EC> 10 - 12	6	<0.2	380	0	-
Aromatic EC> 12 - 16	6	<4.0	660	0	-
Aromatic EC> 16 - 21	6	<7.0 – 42.0	930	0	-
Aromatic EC> 21 - 35	6	<7.0 – 149.0	1700	0	-
Aromatic EC> 35 - 44	6	<7.0 – 175.0	1700	0	-

*Criteria values based upon LQM & CIEH S4UL's for human health risk assessment (Registration No. S4UL 3265) – Residential with home grown produce (6.0% SOM)

Table 4: Summary of Contamination Analysis: Organics: BTEX Suite

	No. of Samples	Range of Values (mg/kg)	Assessment* Criteria (mg/kg)	No. of Samples Failing	Notes
Benzene	6	<0.005	0.37	0	
Toluene	6	<0.005	660	0	
EthylBenzene	6	<0.005	260	0	
M/PXylenes	6	<0.005	320	0	
O - Xylene	6	<0.005	330	0	
Methyl tert-Butyl Ether	6	<0.005	20 ¹	0	

Criteria values based upon LQM & CIEH S4UL's for human health risk assessment (Registration No. S4UL 3265) – Residential with home grown produce (6.0% SOM)

¹Atkins Atrisk SSV residential with home grown produce (6% SOM)

During the sampling process we have also carried out a series of hand pits (plots 1-2,3-5 & 8) to confirm that at least 100mm (in accordance with NHBC guidance) of topsoil has been placed for horticultural purposes. Each location has shown at least 100mm of topsoil placed in the garden areas. Photographs of the hand pits are appended to this report for reference.

In conclusion we can advise that the topsoil material is suitable for use within the garden and landscaped areas of the site. We can also confirm that the topsoil has been placed at a thickness of at least 100mm.

We trust that this information meets with your requirements at this time and would recommend that copies of this correspondence along with the relevant attachments should be provided to the various regulatory authorities for their consent and approval. Should you require any further assistance, then please do not hesitate to contact us directly.

Signed for and on behalf of
R E FRY & ASSOCIATES LIMITED

A handwritten signature in black ink, appearing to be "M. Davies", written over a horizontal line.

Mark Davies B.Sc(Hons)
R E FRY & ASSOCIATES LTD

Enc: Element Test Results
REFA Drawing No. 17188/03
Site Photographs

Robert E Fry & Associates Ltd
45 Bridgeman Terrace
Wigan
WN1 1TT



Attention :	Mark Davies
Date :	29th June, 2021
Your reference :	17188
Our reference :	Test Report 21/9521 Batch 1
Location :	Former Portway Public House
Date samples received :	24th June, 2021
Status :	Final report
Issue :	1

Six samples were received for analysis on 24th June, 2021 of which six were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Robert E Fry & Associates Ltd
Reference: 17188
Location: Former Portway Public House
Contact: Mark Davies
EMT Job No: 21/9521

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18					Please see attached notes for all abbreviations and acronyms		
Sample ID	PLOT 1 REAR	PLOT 1/2 FRONT	PLOT 3/5 FRONT	PLOT 3/5 REAR	PLOT 8 FRONT	PLOT 9 REAR							
Depth	0.10	0.10	0.10	0.10	0.10	0.10							
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T							
Sample Date	22/06/2021	22/06/2021	22/06/2021	22/06/2021	22/06/2021	22/06/2021							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1					LOD/LOR	Units	Method No.
Date of Receipt	24/06/2021	24/06/2021	24/06/2021	24/06/2021	24/06/2021	24/06/2021							
Arsenic #	10.0	6.3	7.0	14.1	5.9	13.7					<0.5	mg/kg	TM30/PM15
Cadmium #	0.2	0.2	0.1	0.3	0.1	0.3					<0.1	mg/kg	TM30/PM15
Chromium #	33.7	11.7	15.5	39.4	14.7	23.8					<0.5	mg/kg	TM30/PM15
Copper #	237 ^{AA}	85	32	56	15	55					<1	mg/kg	TM30/PM15
Lead #	36	25	22	131	18	111					<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	0.1	<0.1	0.2					<0.1	mg/kg	TM30/PM15
Nickel #	16.4	9.8	14.1	19.7	11.0	24.8					<0.7	mg/kg	TM30/PM15
Selenium #	<1	<1	<1	<1	<1	<1					<1	mg/kg	TM30/PM15
Zinc #	231	103	121	110	47	113					<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	0.22	<0.04	0.07					<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	0.08	<0.03	0.11					<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	0.16	<0.05	0.12					<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	0.13	<0.04	0.11					<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.08	0.09	0.04	1.67	<0.03	1.48					<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	0.56	<0.04	0.50					<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.19	0.19	0.12	3.71	0.05	3.43					<0.03	mg/kg	TM4/PM8
Pyrene #	0.17	0.17	0.10	3.37	0.04	3.22					<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.11	0.10	0.09	1.91	<0.06	1.60					<0.06	mg/kg	TM4/PM8
Chrysene #	0.12	0.10	0.08	2.06	0.03	1.85					<0.02	mg/kg	TM4/PM8
Benzo(b)fluoranthene #	0.21	0.17	0.11	3.97	<0.07	3.25					<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.10	0.08	0.06	2.27	<0.04	1.86					<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	0.09	0.07	0.04	1.52	<0.04	1.24					<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	0.27	<0.04	0.27					<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.09	0.07	0.06	1.42	<0.04	1.30					<0.04	mg/kg	TM4/PM8
PAH 16 Total	1.2	1.0	0.7	23.3	<0.6	20.4					<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.15	0.12	0.08	2.86	<0.05	2.34					<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.06	0.05	0.03	1.11	<0.02	0.91					<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	86	102	99	87	101	101					<0	%	TM4/PM8
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1 ^{SV}	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1 ^{SV}	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	1.9 ^{SV}	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	17.5	<0.2	<0.2					<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #	<4	<4	<4	<4	<4	<4					<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	<7	<7	<7	15	<7	<7					<7	mg/kg	TM5/PM8/PM16
>C21-C35 #	<7	<7	<7	95	<7	34					<7	mg/kg	TM5/PM8/PM16
>C35-C44	<7	<7	<7	20	<7	<7					<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-44	<26	<26	<26	149	<26	34					<26	mg/kg	TM5/PM8/PM16/PM12/PM15

Element Materials Technology

Client Name: Robert E Fry & Associates Ltd
Reference: 17188
Location: Former Portway Public House
Contact: Mark Davies
EMT Job No: 21/9521

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18					Please see attached notes for all abbreviations and acronyms		
Sample ID	PLOT 1 REAR	PLOT 1/2 FRONT	PLOT 3/5 FRONT	PLOT 3/5 REAR	PLOT 8 FRONT	PLOT 9 REAR							
Depth	0.10	0.10	0.10	0.10	0.10	0.10							
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T							
Sample Date	22/06/2021	22/06/2021	22/06/2021	22/06/2021	22/06/2021	22/06/2021							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1							
Date of Receipt	24/06/2021	24/06/2021	24/06/2021	24/06/2021	24/06/2021	24/06/2021					LOD/LOR	Units	Method No.
TPH CWG													
Aromatics													
>C5-EC7 #	<0.1	<0.1	<0.1	<0.1 ^{SV}	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1	<0.1	<0.1 ^{SV}	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1 ^{SV}	<0.1	<0.1					<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2					<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	<4	<4	<4	<4	<4	<4					<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	<7	<7	<7	11	<7	42					<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	<7	<7	<7	49	<7	149					<7	mg/kg	TM5/PM8/PM16
>EC35-EC44	<7	<7	<7	175	<7	20					<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-44	<26	<26	<26	235	<26	211					<26	mg/kg	TM5/PM8/PM16/PM12/PM10
Total aliphatics and aromatics(C5-44)	<52	<52	<52	384	<52	245					<52	mg/kg	TM5/PM8/PM16/PM12/PM10
MTBE #	<5	<5	<5	<5 ^{SV}	<5	<5					<5	ug/kg	TM36/PM12
Benzene #	<5	<5	<5	<5 ^{SV}	<5	<5					<5	ug/kg	TM36/PM12
Toluene #	<5	<5	<5	6 ^{SV}	<5	<5					<5	ug/kg	TM36/PM12
Ethylbenzene #	<5	<5	<5	7 ^{SV}	<5	<5					<5	ug/kg	TM36/PM12
m/p-Xylene #	<5	<5	<5	35 ^{SV}	<5	<5					<5	ug/kg	TM36/PM12
o-Xylene #	<5	<5	<5	27 ^{SV}	<5	<5					<5	ug/kg	TM36/PM12
Total Phenols HPLC	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15					<0.15	mg/kg	TM26/PM21B
Natural Moisture Content	12.2	10.1	11.7	17.7	7.7	12.9					<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	10.9	9.1	10.5	15.0	7.1	11.4					<0.1	%	PM4/PM0
Sulphate as SO4 (2:1 Ext) #	<0.0015	0.0274	0.0093	0.1591	<0.0015	0.0815					<0.0015	g/l	TM38/PM20
Total Cyanide #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	1.64	2.06	1.16	3.20	1.39	4.28					<0.02	%	TM21/PM24
Sulphide	<10	<10	<10	<10	<10	<10					<10	mg/kg	TM107/PM45
pH #	6.80	6.90	6.33	7.74	6.33	7.61					<0.01	pH units	TM73/PM11

Client Name: Robert E Fry & Associates Ltd
Reference: 17188
Location: Former Portway Public House
Contact: Mark Davies

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Date Of Analysis	Analysis	Result
21/9521	1	PLOT 1 REAR	0.10	3	25/06/2021	General Description (Bulk Analysis)	Soil
					25/06/2021	Asbestos Fibres	NAD
					25/06/2021	Asbestos ACM	NAD
					25/06/2021	Asbestos Type	NAD
					25/06/2021	Asbestos Level Screen	NAD
21/9521	1	PLOT 1/2 FRONT	0.10	6	25/06/2021	General Description (Bulk Analysis)	Soil
					25/06/2021	Asbestos Fibres	NAD
					25/06/2021	Asbestos ACM	NAD
					25/06/2021	Asbestos Type	NAD
					25/06/2021	Asbestos Level Screen	NAD
21/9521	1	PLOT 3/5 FRONT	0.10	9	25/06/2021	General Description (Bulk Analysis)	Soil
					25/06/2021	Asbestos Fibres	NAD
					25/06/2021	Asbestos ACM	NAD
					25/06/2021	Asbestos Type	NAD
					25/06/2021	Asbestos Level Screen	NAD
21/9521	1	PLOT 3/5 REAR	0.10	12	25/06/2021	General Description (Bulk Analysis)	Soil/Stones
					25/06/2021	Asbestos Fibres	NAD
					25/06/2021	Asbestos ACM	NAD
					25/06/2021	Asbestos Type	NAD
					25/06/2021	Asbestos Level Screen	NAD
21/9521	1	PLOT 8 FRONT	0.10	15	25/06/2021	General Description (Bulk Analysis)	Soil
					25/06/2021	Asbestos Fibres	NAD
					25/06/2021	Asbestos ACM	NAD
					25/06/2021	Asbestos Type	NAD
					25/06/2021	Asbestos Level Screen	NAD
21/9521	1	PLOT 9 REAR	0.10	18	25/06/2021	General Description (Bulk Analysis)	Soil/Stones
					25/06/2021	Asbestos Fibres	NAD
					25/06/2021	Asbestos ACM	NAD
					25/06/2021	Asbestos Type	NAD
					25/06/2021	Asbestos Level Screen	NAD

Client Name: Robert E Fry & Associates Ltd

Reference: 17188

Location: Former Portway Public House

Contact: Mark Davies

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 21/9521

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

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REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

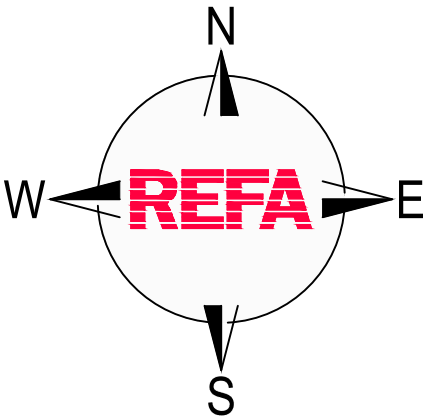
#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution

EMT Job No: 21/9521

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

EMT Job No: 21/9521

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 First edition (2006)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.	Yes		AR	Yes
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.			AR	Yes



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Client: PORTWAY RD GB C/O GUSTAV BONNIER

Project: THE PORTWAY

Drawing Title: TOPSOIL VALIDATION PLAN

Scale: 1:250

Sheet Size: A2

Drawing No: 17188/03

Drawn: AP

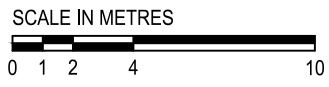
Date: 28.06.21

Approved: MD

Rev

Date

Revision Details



Legend:	
—	Approximate Site Boundary
● TS	Approximate topsoil sample location
	Garden areas validated showing at least 100mm of imported topsoil present

Photographs for Topsoil Validation



Photo 1 – Front Garden to plots 1-2



Photo 2 – At least 100mm of topsoil applied to front garden of plots 1- 2



Photo 3 – Rear Garden to plot 1



Photo 4 – At least 100mm of topsoil applied to rear garden of plot 1



Photo 5 – Front garden area to plots 3-5



Photo 6 – At least 100mm of topsoil applied to front garden of plots 3-5



Photo 7 – Front garden area to plot 8



Photo 8 – At least 100mm of topsoil applied to front garden of plot 8