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Ref: 12-123 V18
Date: 19th December 2022

Countryside Properties
301 Bridgewater Place
Birchwood Park
Birchwood
Warrington
WA3 6XG

BY email

Dear Sir/Madam,

GARDEN VALIDATION - BELLE VIEW PLOTS 113-124

An E3P engineer attended the above site to validate the thickness of the cover system that had been placed within the rear garden of plots 113-124 at Belle View.

In total 12 No hand excavated trial pits were advanced with the resulting strata detailed to the rear of this letter.

All trial pits were completed to highlight the required cover system of 600mm (150mm topsoil and 450mm subsoil).

E3P can confirm that our independent validation demonstrates that all gardens have been installed with 150mm of certified topsoil and at least 450mm subsoil in accordance with the NHBC requirements for a site of this nature.

TOPSOIL

E3P attended site on 6th June to obtain three samples of the stockpiled topsoil deposits which were analysed in accordance with the E3P Remediation Strategy. Chemical analysis confirmed that these topsoil deposits were chemically suitable for use within the proposed garden areas.

Chemical analysis results are included within lab report 22-63323 (attached to this letter).

SUBSOIL

E3P attended site on 6th June 2022 to obtain three samples of the stockpiled subsoil deposits which were analysed in accordance with the E3P Remediation Strategy. Chemical analysis confirmed that these subsoil deposits were chemically suitable for use within the proposed garden areas.



Chemical analysis results are included within lab report 22-63323 (attached to this letter).

Cover system validation photographs are enclosed within this letter.

I trust this information is satisfactory to your requirements, and should I be able to be of any further assistance, please do not hesitate to contact me.

Yours sincerely,

For and on behalf of E3P Ltd

Stuart Ellis
Senior Geo environmental Consultant



Site: Belle View Stadium

Date: 16-12-2022	Project Number: 12-123
Project Manager: S. Ellis	E3P Engineer: T.Newall
Plot Numbers Validated: 113-124	

Chemical Laboratory Analysis

Analysis for topsoil and subsoil undertaken by I2 Analytical Laboratory using UKAS accredited methods where applicable.

Chemical analysis suite comprises heavy metals, sulphates, phenols, speciated Polycyclic Aromatic Hydrocarbons (PAHs), speciated and total Petroleum Hydrocarbons (TPH) and asbestos. Sampling frequency in accordance with the agreed Remediation Strategy. Laboratory analysis certificates attached to this validation certificate.

	Topsoil	Subsoil
<i>Chemical analysis confirmed materials suitable?</i>	Pass	Pass
<i>Further Comments</i>	N/A	N/A



Garden Cover System Validation

Complete

Score	100%
Site Name	Belle vue
Location	309 Stanley Grove Manchester England M18 7DP United Kingdom (53.4607752715844, - 2.1823864157946615)
Project Number	12123
Project Manager	Stuart Ellis
Conducted By	Tobey Newall
Date of visit	16 Dec 2022 10:01 AM GMT



Plot Validation - 100%

100%

Plot Validation - 100%

100%

Plot Validation 1 - 100%

100%

Plot Number

113

Is Plot Ready

Yes

Installation Standard

Pass

Depth of Cover System Materials (record the depth and support with Photo down the hole)

0.6

Depth of Topsoil (mm)

150

Depth of Subsoil (mm)

450

Depth of Cover System at Ground Level (Photo)



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)



Photo 10

Photo 11

Photo 12

Soil suitable

Yes

Geotextile membrane present

N/A



Plot Validation 2 - 100% 100%

Plot Number 114

Is Plot Ready Yes

Installation Standard Pass

Depth of Cover System Materials (record the depth and support with Photo down the hole) 0.6

Depth of Topsoil (mm) 150

Depth of Subsoil (mm) 450

Depth of Cover System at Ground Level (Photo) ☒



Photo 13



Photo 14



Photo 15



Photo 16



Photo 17



Photo 18



Photo 19



Photo 20

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo) ☒



Photo 21

Photo 22

Photo 23

Soil suitable Yes

Geotextile membrane present N/A

Plot Validation 3 - 100% 100%

Plot Validation 3 - 100%



Plot Number 115

Is Plot Ready

Yes

Installation Standard

Pass

Depth of Cover System Materials (record the depth and support with Photo down the hole)

0.6

Depth of Topsoil (mm)

150

Depth of Subsoil (mm)

450

Depth of Cover System at Ground Level (Photo)



Photo 24



Photo 25



Photo 26



Photo 27



Photo 28



Photo 29



Photo 30



Photo 31

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)



Photo 32

Photo 33

Photo 34

Soil suitable

Yes

Geotextile membrane present

N/A

100%

Plot Validation 4 - 100%



Plot Number 116

Is Plot Ready Yes

Installation Standard Pass

Depth of Cover System Materials (record the depth and support with Photo down the hole) 0.6

Depth of Topsoil (mm) 150

Depth of Subsoil (mm) 450

Depth of Cover System at Ground Level (Photo) ☒



Photo 35



Photo 36



Photo 37



Photo 38



Photo 39



Photo 40

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo) ☒



Photo 41

Photo 42

Soil suitable Yes

Geotextile membrane present N/A

Plot Validation 5 - 100% 100%

Plot Number 117

Is Plot Ready Yes

Installation Standard Pass

Depth of Cover System Materials (record the depth and support with Photo down the hole) 0.6

Depth of Topsoil (mm) 150

Depth of Subsoil (mm) 450

Depth of Cover System at Ground Level (Photo) ☒





Photo 43



Photo 44



Photo 45



Photo 46



Photo 47



Photo 48



Photo 49



Photo 50

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)



Photo 51

Photo 52

Photo 53

Soil suitable

Yes

Geotextile membrane present

N/A

Plot Validation 6 - 100%

100%

Plot Number

118

Is Plot Ready

Yes

Installation Standard

Pass

Depth of Cover System Materials (record the depth and support with Photo down the hole)

0.6

Depth of Topsoil (mm)

150

Depth of Subsoil (mm)

450

Depth of Cover System at Ground Level (Photo)



Photo 54



Photo 55



Photo 56



Photo 57



Photo 58



Photo 59





Photo 60



Photo 61

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)



Photo 62

Photo 63

Photo 64

Soil suitable

Yes

Geotextile membrane present

N/A

Plot Validation 7 - 100%

100%

Plot Number

119

Is Plot Ready

Yes

Installation Standard

Pass

Depth of Cover System Materials (record the depth and support with Photo down the hole)

0.6

Depth of Topsoil (mm)

150

Depth of Subsoil (mm)

450

Depth of Cover System at Ground Level (Photo)



Photo 65



Photo 66



Photo 67



Photo 68



Photo 69



Photo 70





Photo 71

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)



Photo 72



Photo 73



Photo 74



Photo 75

Soil suitable

Yes

Geotextile membrane present

N/A

Plot Validation 8 - 100%

100%

Plot Number

120

Is Plot Ready

Yes

Installation Standard

Pass

Depth of Cover System Materials (record the depth and support with Photo down the hole)

0.6

Depth of Topsoil (mm)

150

Depth of Subsoil (mm)

450

Depth of Cover System at Ground Level (Photo)



Photo 76



Photo 77



Photo 78



Photo 79



Photo 80



Photo 81



Photo 82



Photo 83



Photo 84



Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)



Photo 85

Photo 86

Soil suitable

Yes

Geotextile membrane present

N/A

Plot Validation 9 - 100%

100%

Plot Number

121

Is Plot Ready

Yes

Installation Standard

Pass

Depth of Cover System Materials (record the depth and support with Photo down the hole)

0.6

Depth of Topsoil (mm)

150

Depth of Subsoil (mm)

450

Depth of Cover System at Ground Level (Photo)



Photo 87



Photo 88



Photo 89



Photo 90



Photo 91



Photo 92



Photo 93



Photo 94



Photo 95



Photo 96

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)





Photo 97

Photo 98

Photo 99

Soil suitable

Yes

Geotextile membrane present

N/A

Plot Validation 10 - 100%

100%

Plot Number

122

Is Plot Ready

Yes

Installation Standard

Pass

Depth of Cover System Materials (record the depth and support with Photo down the hole)

0.6

Depth of Topsoil (mm)

150

Depth of Subsoil (mm)

450

Depth of Cover System at Ground Level (Photo)



Photo 100



Photo 101



Photo 102



Photo 103



Photo 104



Photo 105



Photo 106



Photo 107



Photo 108

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)



Photo 109



Photo 110



Soil suitable	Yes
Geotextile membrane present	N/A
Plot Validation 11 - 100%	100%
Plot Number	123
Is Plot Ready	Yes
Installation Standard	Pass
Depth of Cover System Materials (record the depth and support with Photo down the hole)	0.6
Depth of Topsoil (mm)	150
Depth of Subsoil (mm)	450
Depth of Cover System at Ground Level (Photo)	☒
<div>       </div> <div>  </div>	
Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)	☒
<div>    </div>	
Soil suitable	Yes
Geotextile membrane present	N/A



100%

Plot Validation 12 - 100%

Plot Number 124

Is Plot Ready Yes

Installation Standard Pass

Depth of Cover System Materials (record the depth and support with Photo down the hole) 0.6

Depth of Topsoil (mm) 150

Depth of Subsoil (mm) 450

Depth of Cover System at Ground Level (Photo) ☒



Photo 121



Photo 122



Photo 123



Photo 124



Photo 125



Photo 126



Photo 127



Photo 128



Photo 129

Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo) ☒



Photo 130

Photo 131

Photo 132

Soil suitable Yes

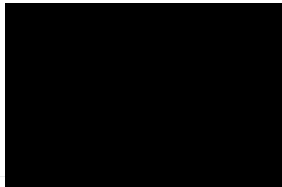
Geotextile membrane present N/A



Site Manager or Representative

Name Niel leadbeater

Signature



16 Dec 2022 10:41 AM GMT



Appendix



Photo 1



Photo 2



Photo 3



Photo 4





Photo 5



Photo 6



Photo 7



Photo 8





Photo 9



Photo 10



Photo 11



Photo 12





Photo 13



Photo 14



Photo 15



Photo 16





Photo 17



Photo 18



Photo 19



Photo 20





Photo 21



Photo 22



Photo 23



Photo 24





Photo 25



Photo 26



Photo 27



Photo 28





Photo 29



Photo 30



Photo 31



Photo 32





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Photo 35



Photo 36





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Photo 38



Photo 39



Photo 40





Photo 41



Photo 42



Photo 43



Photo 44





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Photo 48





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Photo 50



Photo 51



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Photo 55



Photo 56





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Photo 60





Photo 61



Photo 62



Photo 63



Photo 64





Photo 65



Photo 66



Photo 67



Photo 68





Photo 69



Photo 70



Photo 71



Photo 72





Photo 73



Photo 74



Photo 75



Photo 76





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Photo 104





Photo 105



Photo 106



Photo 107



Photo 108





Photo 109



Photo 110



Photo 111



Photo 112





Photo 113



Photo 114



Photo 115



Photo 116





Photo 117



Photo 118



Photo 119



Photo 120





Photo 121



Photo 122



Photo 123



Photo 124





Photo 125



Photo 126



Photo 127



Photo 128





Photo 129



Photo 130



Photo 131



Photo 132



Olivia Jackson

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M41 7JQ

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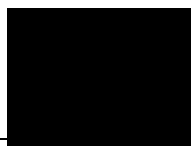
i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
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e: reception@i2analytical.com

Analytical Report Number : 22-63323

Project / Site name:	Belle Vue	Samples received on:	07/06/2022
Your job number:	12 123	Samples instructed on/ Analysis started on:	08/06/2022
Your order number:	001821	Analysis completed by:	15/06/2022
Report Issue Number:	1	Report issued on:	15/06/2022
Samples Analysed:	6 soil samples		

Signed:



Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-63323
 Project / Site name: Belle Vue
 Your Order No: 001821

Lab Sample Number				2304896	2304897	2304898	2304899	2304900
Sample Reference				TS101	TS102	TS103	SS101	SS102
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				06/06/2022	06/06/2022	06/06/2022	06/06/2022	06/06/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	27	16	22	23	21
Total mass of sample received	kg	0.001	NONE	0.3	0.3	0.3	0.3	0.3

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MDA	MDA	MDA	MDA	MDA

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.8	7.3	7.1	7.4	7.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	740	610	890	580	510
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.093	0.12	0.14	0.091	0.086
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	190	240	270	180	170
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	93.1	120	137	91.1	85.6
Sulphide	mg/kg	1	MCERTS	2.1	1.3	12	4.5	4.2
Total Sulphur	mg/kg	50	MCERTS	590	550	530	320	360
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	3.3	2	2.7	1.4	1.6

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.21	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.44	0.5	1	0.75	0.51
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.23	0.2	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.51	0.6	1	0.78	0.86
Pyrene	mg/kg	0.05	MCERTS	0.42	0.54	0.82	0.64	0.76
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.26	0.3	0.45	0.38	0.53
Chrysene	mg/kg	0.05	MCERTS	0.2	0.27	0.39	0.29	0.37
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.35	0.27	0.38
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.2	0.15	0.21
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.39	0.29	0.34
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.2	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.21	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	1.83	2.21	5.47	3.75	3.96
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Analytical Report Number: 22-63323
Project / Site name: Belle Vue
Your Order No: 001821

Lab Sample Number				2304896	2304897	2304898	2304899	2304900
Sample Reference				TS101	TS102	TS103	SS101	SS102
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				06/06/2022	06/06/2022	06/06/2022	06/06/2022	06/06/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.4	8.8	9.8	7.4	6.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	35	32	36	45	47
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	20	23	28	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	26	23	27	32	36
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	22	21	24	29	31
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	52	46	57	85	92

Petroleum Hydrocarbons

TPH (C5 - C6) <small>HS_1D_TOTAL</small>	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) <small>HS_1D_TOTAL</small>	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) <small>HS_1D_TOTAL</small>	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) <small>EH_CU_1D_TOTAL</small>	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) <small>EH_CU_1D_TOTAL</small>	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) <small>EH_CU_1D_TOTAL</small>	mg/kg	1	MCERTS	< 1.0	< 1.0	8.1	< 1.0	< 1.0
TPH (C21 - C35) <small>EH_CU_1D_TOTAL</small>	mg/kg	1	MCERTS	< 1.0	< 1.0	22	< 1.0	< 1.0
TPH (C35 - C40) <small>EH_CU_1D_TOTAL</small>	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH Total C5 - C40 <small>EH_CU+HS_1D_TOTAL</small>	mg/kg	10	MCERTS	< 10	< 10	30	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-63323

Project / Site name: Belle Vue

Your Order No: 001821

Lab Sample Number				2304901
Sample Reference				SS103
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				06/06/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	18
Total mass of sample received	kg	0.001	NONE	0.3

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MDB

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	320
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.088
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	180
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	88
Sulphide	mg/kg	1	MCERTS	1.9
Total Sulphur	mg/kg	50	MCERTS	280
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.2

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.82
Anthracene	mg/kg	0.05	MCERTS	0.21
Fluoranthene	mg/kg	0.05	MCERTS	0.92
Pyrene	mg/kg	0.05	MCERTS	0.79
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.37
Chrysene	mg/kg	0.05	MCERTS	0.42
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.44
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.13
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.33
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	4.43
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Analytical Report Number: 22-63323

Project / Site name: Belle Vue

Your Order No: 001821

Lab Sample Number				2304901
Sample Reference				SS103
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				06/06/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	50
Copper (aqua regia extractable)	mg/kg	1	MCERTS	29
Lead (aqua regia extractable)	mg/kg	1	MCERTS	28
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	34
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	91

Petroleum Hydrocarbons

TPH (C5 - C6) <small>HS_1D_TOTAL</small>	mg/kg	1	NONE	< 1.0
TPH (C6 - C8) <small>HS_1D_TOTAL</small>	mg/kg	0.1	MCERTS	< 0.1
TPH (C8 - C10) <small>HS_1D_TOTAL</small>	mg/kg	0.1	MCERTS	< 0.1
TPH (C10 - C12) <small>EH_CU_1D_TOTAL</small>	mg/kg	2	MCERTS	< 2.0
TPH (C12 - C16) <small>EH_CU_1D_TOTAL</small>	mg/kg	4	MCERTS	< 4.0
TPH (C16 - C21) <small>EH_CU_1D_TOTAL</small>	mg/kg	1	MCERTS	< 1.0
TPH (C21 - C35) <small>EH_CU_1D_TOTAL</small>	mg/kg	1	MCERTS	< 1.0
TPH (C35 - C40) <small>EH_CU_1D_TOTAL</small>	mg/kg	10	MCERTS	< 10
TPH Total C5 - C40 <small>EH_CU+HS_1D_TOTAL</small>	mg/kg	10	MCERTS	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

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* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2304896	TS101	None Supplied	None Supplied	Brown clay and loam with gravel and vegetation.
2304897	TS102	None Supplied	None Supplied	Brown clay and sand with gravel and vegetation.
2304898	TS103	None Supplied	None Supplied	Brown clay and sand with gravel and vegetation.
2304899	SS101	None Supplied	None Supplied	Brown clay and sand with gravel and vegetation.
2304900	SS102	None Supplied	None Supplied	Brown clay and sand with gravel.
2304901	SS103	None Supplied	None Supplied	Brown clay and sand with gravel and vegetation.

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Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

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Project / Site name: Belle Vue

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total