

14092/RJH

26 June 2024

Lovell Partnerships Ltd
Greenmeadow Business Park
Unit 5
Cae Gwyrdd
Cardiff
CF15 7AB

For the attention of Mr Neil Thomas

Dear Sirs,

Former Whiteheads Steelworks, Mendalgief Road, Newport, NP20 2HY
NHBC Outstanding Land Quality Conditions, Ref: 216335 LQ conditions LQ5 & LQ6.
Planning Permission Number RM1-18/1039, RM2-18/1142 and RM3-21/0464
Validation of Imported Clean Cover to Plots 422 to 429.

Intégral Géotechnique were appointed by the Lovell Partnerships Limited to carry out the clean cover validation inspections to soft landscaped and garden areas within the above development as the site build program progresses. We can report the clean cover soil validation works within the above development site as follows.

This report (including all appendices to it and any subsequent addendums or correspondence) has been prepared for the sole benefit, use and information of the Lovell Partnerships Limited and no third party is entitled to rely on it. This report may not be used, reproduced or circulated (in whole or part) for any purpose without the written consent of Intégral Géotechnique (Wales) Limited. Intégral Géotechnique (Wales) Limited shall not be liable to any third party who does not have such written permission to rely on the report for any losses they may suffer.

This information is submitted in support of the discharge of conditions of the following consents and/or warranties.

Regulator	Reference
Local Authority Planning Permission Number	RM1-18/1039, RM2-18/1142 and RM3-21/0464
NHBC outstanding Land Quality Conditions Ref	216335 LQ conditions LQ5 & LQ6

The required remedial measures regarding the requirement to mitigate land contamination risks at the above site comprise the placement of a clean 600mm capping layer to be incorporated within the soft landscaped and garden areas of the new development. This capping layer is to be underlain by a hi-visibility geotextile membrane.

Remedial Strategy Requirements (Clean Capping Layer)

1. The upper 600 mm of fill used in the clean capping layer in all garden and soft finished areas are to be chemically tested and UKAS accredited laboratory analysis certificates supplied. The capping system is to comprise of imported clean inert materials conforming to the Requirements for the Chemical Testing of Imported Materials for Various End Uses and Validation of Cover Systems prepared by Welsh Land Contamination Working Group and to satisfy appropriate soil guideline values for residential developments with gardens. Samples of the topsoil and subsoil will be taken for laboratory analysis, at a frequency of 1 in every 4 gardens.
2. Topsoil brought to the site will require a laboratory analysis certificate confirming its suitability for use and sampling prior to placement to confirm its chemical suitability (minimum of three samples per source).
3. Subsoil will require a laboratory analysis certificate confirming its suitability for use and sampling prior to placement to confirm its chemical suitability (minimum of three samples per source).
4. Following placement of the imported topsoil and subsoil within garden areas, a validation trial pit excavation depth check will be undertaken at a frequency of 1 in 4 plots, so as to confirm the sufficient depth of the clean capping layer, along with observation of a hi-visibility geotextile membrane placed at the base of the capping soils.

An additional sample of topsoil and subsoil will also be taken from each trial pit excavated to further confirm the chemical quality of the topsoil and subsoil on an ongoing basis.

Validation of Clean Capping Layer to Plots 422 to 429

An engineer from Intégral Géotechnique attended site on 26th June 2024 and observed hand/machine dug trial pit for validation purposes at 2No. trial pits within the above garden areas of plots 422 to 429. The topsoil resembled a cohesive dry silty clay strata and was underlain by a subsoil material found to be a granular material comprising a medium dense becoming dense orangish brown and brown very sandy clayey gravel with medium cobble content. The trial pit was found to exhibit the required total of a minimum 600mm of clean cover soil material placed in the garden areas along with observation of the hi-visibility geotextile membrane placed at the base of the capping soils.

Various photographs of capping depths and infilled constructed gardens are shown in Figures.

Representative samples of the 'as placed' topsoil and subsoil soil materials in the above trial pit excavated within the garden areas inspected have been further, sampled and sent to the accredited laboratories of i2 Analytical for chemical analysis. The soil analysis report is available and included within this report.

In-situ chemical soil test reports are attached in Appendix A.

The results of the topsoil and subsoil sampled from within plots 422 to 429 have been summarised and compared to the appropriate screening criteria for a residential end use. The results have been compared to appropriate Suitable 4 Use Levels (S4ULs) derived by LQM, in the first instance. In their absence, the results will have been compared to the Category 4 Screening Levels (C4SL) and the Soil Guideline Values (SGVs) and Soil Screening Values (SSVs) derived by Atkins ATRISKsoil for residential with the consumption of home grown produce end use, to assess the potential risk to human health.

Summary of the in-situ chemical testing results are attached in Appendix B.

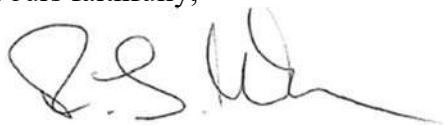
Conclusion

This report based on the above information, therefore confirms that the final remediation works regarding the 600mm capping layer, hi-visibility geotextile membrane and chemical analysis of the placed soils required for plots 422 to 429 in completed to a satisfactory standard.

Provision of clean cover to the remaining plots at site and at the required inspection frequency will be provided in due course.

We trust that the above is to your satisfaction. However, if you have any queries or require any further information, please do not hesitate to contact us.

Yours faithfully,



Roger J Hawkins
For
Intégral Géotechnique (Wales) Limited

Figures.

APPENDIX A

IN-SITU CHEMICAL SOIL TEST REPORTS



Integral Geotechnique
Integral House
7 Beddau Way
Castlegate Business Park
CF83 2AX

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

t: 02920807991

e: roger@integralgeotec.com

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

Analytical Report Number : 24-024187

Project / Site name:	Whiteheads Newport	Samples received on:	11/06/2024
Your job number:	14092 RJH	Samples instructed on/ Analysis started on:	11/06/2024
Your order number:	14092 RJH	Analysis completed by:	19/06/2024
Report Issue Number:	1	Report issued on:	19/06/2024
Samples Analysed:	6 soil samples		

Signed: _____

Anna Goc
PL Head of Reporting Team
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: 24-024187
Project / Site name: Whiteheads Newport
Your Order No: 14092 RJH

Lab Sample Number				222586	222587	222588	222589	222590
Sample Reference				Plot 423 Topsoil	Plot 423 Subsoil	Plot 427 Topsoil	Plot 427 Subsoil	Block L Topsoil
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.50	0.10	0.50	0.10
Date Sampled				10/06/2024	10/06/2024	10/06/2024	10/06/2024	10/06/2024
Time Taken				1230	1250	1315	1335	1345
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	18.8	6.2	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	11	11	12	13	11
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.5	0.6	0.5

Asbestos

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

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.5	7.6	7.5	7.4	7.4
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	460	470	470	440	420
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	80	90	96	87	82
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0401	0.0451	0.0478	0.0433	0.041
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	40.1	45.1	47.8	43.3	41
Sulphide	mg/kg	1	MCERTS	1	< 1.0	1.1	< 1.0	< 1.0
Total Sulphur	mg/kg	50	MCERTS	240	280	260	250	230
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.4	1.4	1.4	1.5	1.4
Loss on Ignition @ 450°C	%	0.2	MCERTS	4.1	3.8	4.1	4	3.8

Total Phenols

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

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	< 0.05	< 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	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.08	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.07	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 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	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
-----------------------------	-------	-----	-----------	--------	--------	--------	--------	--------

Analytical Report Number: 24-024187
 Project / Site name: Whiteheads Newport
 Your Order No: 14092 RJH

Lab Sample Number				222586	222587	222588	222589	222590
Sample Reference				Plot 423 Topsoil	Plot 423 Subsoil	Plot 427 Topsoil	Plot 427 Subsoil	Block L Topsoil
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.50	0.10	0.50	0.10
Date Sampled				10/06/2024	10/06/2024	10/06/2024	10/06/2024	10/06/2024
Time Taken				1230	1250	1315	1335	1345
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	15	17	20	17
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.58	0.57	0.64	0.62	0.61
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	0.9	0.9	0.8	0.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.9	1.1	1	1.1	0.9
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	18	18	19	19	18
Copper (aqua regia extractable)	mg/kg	1	MCERTS	33	19	16	17	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	38	43	42	44	39
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	15	17	16	16	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	1.1	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	28	27	29	30	28
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	120	110	120	100

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC16 - EC35 _{EH_CU_1D_AL}	mg/kg	10	MCERTS	< 10	13	< 10	< 10	< 10
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	13	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC35 - EC44 _{EH_CU_1D_AL}	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	13	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC44 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	13	< 10	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	13	< 10	< 10	< 10
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC35 - EC44 _{EH_CU_1D_AR}	mg/kg	8.4	NONE	< 8.4	12	< 8.4	< 8.4	< 8.4
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	13	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC44 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	24	< 10	< 10	< 10

TPH Total >EC5 - EC44 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	< 10	37	< 10	< 10	< 10
--	-------	----	------	------	----	------	------	------

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-024187
Project / Site name: Whiteheads Newport
Your Order No: 14092 RJH

Lab Sample Number				222591
Sample Reference				Block L Subsoil
Sample Number				None Supplied
Depth (m)				0.50
Date Sampled				10/06/2024
Time Taken				1405
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	11
Total mass of sample received	kg	0.1	NONE	0.5

Asbestos

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

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	460
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	86
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0431
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	43.1
Sulphide	mg/kg	1	MCERTS	1.1
Total Sulphur	mg/kg	50	MCERTS	280
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.4
Loss on Ignition @ 450°C	%	0.2	MCERTS	3.5

Total Phenols

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

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	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.05
Pyrene	mg/kg	0.05	MCERTS	0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
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	ISO 17025	< 0.80
-----------------------------	-------	-----	-----------	--------

Analytical Report Number: 24-024187
 Project / Site name: Whiteheads Newport
 Your Order No: 14092 RJH

Lab Sample Number				222591
Sample Reference				Block L Subsoil
Sample Number				None Supplied
Depth (m)				0.50
Date Sampled				10/06/2024
Time Taken				1405
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	19
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.58
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.9
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18
Copper (aqua regia extractable)	mg/kg	1	MCERTS	16
Lead (aqua regia extractable)	mg/kg	1	MCERTS	35
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	28
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.02	NONE	< 0.020
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.02	NONE	< 0.020
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.05	NONE	< 0.050
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >EC16 - EC35 _{EH_CU_1D_AL}	mg/kg	10	MCERTS	< 10
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >EC35 - EC44 _{EH_CU_1D_AL}	mg/kg	8.4	NONE	< 8.4
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10
TPHCWG - Aliphatic >EC5 - EC44 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	NONE	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	NONE	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.05	NONE	< 0.050
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC35 - EC40 _{EH_CU_1D_AR}	mg/kg	10	NONE	< 10
TPHCWG - Aromatic >EC35 - EC44 _{EH_CU_1D_AR}	mg/kg	8.4	NONE	< 8.4
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10
TPHCWG - Aromatic >EC5 - EC44 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10

TPH Total >EC5 - EC44 _{EH_CU+HS_1D_TOTAL}	mg/kg	10	NONE	< 10
--	-------	----	------	------

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-024187

Project / Site name: Whiteheads Newport

* 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 *
222586	Plot 423 Topsoil	None Supplied	0.1	Brown loam and clay with gravel and vegetation
222587	Plot 423 Subsoil	None Supplied	0.5	Brown loam and clay with stones and vegetation
222588	Plot 427 Topsoil	None Supplied	0.1	Brown loam and clay with stones and vegetation
222589	Plot 427 Subsoil	None Supplied	0.5	Brown loam and clay with gravel and vegetation
222590	Block L Topsoil	None Supplied	0.1	Brown loam and clay with gravel and vegetation
222591	Block L Subsoil	None Supplied	0.5	Brown loam and clay with gravel and vegetation

Analytical Report Number : 24-024187

Project / Site name: Whiteheads Newport

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
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, 2021	A001B	D	ISO 17025
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	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	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
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.	L019B	D	NONE
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	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	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	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
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	L038B	D	MCERTS
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	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	W	MCERTS
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	L080	W	MCERTS

Analytical Report Number : 24-024187
Project / Site name: Whiteheads Newport

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
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	L080	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
 For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
 For method numbers ending in 'PL' or 'B' 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 30°C.
 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 - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
 The result for sum should be interpreted with caution

APPENDIX B

IN-SITU SUMMARY OF CHEMICAL TEST RESULTS

SUMMARY OF LABORATORY SOIL TEST RESULTS

METALS AND SEMI-METALS

Job No.: 14092
 Site: Whiteheads Newport
 Soil Type: Capping Soils
 Soil Organic Matter: 1%

No.	Location	Depth (m)	Arsenic (mg/kg)	Boron (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (Elemental) (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
25	Plot 423 Topsoil	0.10	16	0.7	0.58	0.9	18	< 1.8	33	38	< 0.3	15	< 1.0	28	110
26	Plot 423 Subsoil	0.50	15	0.9	0.57	1.1	18	< 1.8	19	43	< 0.3	17	< 1.0	27	120
27	Plot 427 Topsoil	0.10	17	0.9	0.64	1	19	< 1.8	16	42	< 0.3	16	1.1	29	110
28	Plot 427 Subsoil	0.50	20	0.8	0.62	1.1	19	< 1.8	17	44	< 0.3	16	< 1.0	30	120
Screening Criteria Value			37.0	290.0	1.7	11.0	-	6.0	2400.0	168.0	1.2	130.0	250.0	410.0	3700.0
Source of Screening Criteria Value			S4UL	S4UL	S4UL	S4UL	-	S4UL	S4UL	GAC	S4UL	S4UL	S4UL	S4UL	S4UL

SUMMARY OF LABORATORY SOIL TEST RESULTS
INORGANIC CHEMICALS & OTHERS

Job No.: 14092
 Site: Whiteheads Newport
 Soil Type: Capping Soils
 Soil Organic Matter: 1%

No.	Location	Depth (m)	Cyanide (mg/kg)	Loss on Ignition, dried solids (%)	Moisture content at 30 C (%)	Phenol (mg/kg)	pH (pH units)	Water Soluble Sulphate (g/l)	Sulphate Total as SO4 (mg/kg)	Sulphide (mg/kg)	Total Sulphur (mg/kg)	TOC by Ignition in O2 (%)	Equivalent SOM (%)	Asbestos in Soil	Asbestos Quantification (%)
25	Plot 423 Topsoil	0.10	< 1.0	4.10	11.00	< 1.0	7.50	0.040	460.00	1.00	240.00	1.40	2.41	Not-detected	#N/A
26	Plot 423 Subsoil	0.50	< 1.0	3.80	11.00	< 1.0	7.60	0.045	470.00	< 1.0	280.00	1.40	2.41	Not-detected	#N/A
27	Plot 427 Topsoil	0.10	< 1.0	4.10	12.00	< 1.0	7.50	0.048	470.00	1.10	260.00	1.40	2.41	Not-detected	#N/A
28	Plot 427 Subsoil	0.50	< 1.0	4.00	13.00	< 1.0	7.40	0.043	440.00	< 1.0	250.00	1.50	2.58	Not-detected	#N/A
Screening Criteria Value			34.0	-	-	120.0	-	-	-	-	-	-	-	-	0.001
Source of Screening Criteria Value			ATRISK	-	-	S4UL	-	-	-	-	-	-	-	-	IOM

SUMMARY OF LABORATORY SOIL TEST RESULTS

POLYAROMATIC HYDROCARBONS (PAH)

Job No.: 14092
 Site: Whiteheads Newport
 Soil Type: Capping Soils
 Soil Organic Matter: 1%

No.	Location	Depth (m)	Acenaphthene (mg/kg)	Acenaphthylene (mg/kg)	Anthracene (mg/kg)	Benzo(a)anthracene (mg/kg)	Benzo(a)pyrene (mg/kg)	Benzo(b)fluoranthene (mg/kg)	Benzo(ghi)perylene (mg/kg)	Benzo(k)fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenzo(ah)anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno(123cd)pyrene (mg/kg)	Naphthalene (mg/kg)	Phenanthrene (mg/kg)	Pyrene (mg/kg)
25	Plot 423 Topsoil	0.10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
26	Plot 423 Subsoil	0.50	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	< 0.05	< 0.05	< 0.05	0.07
27	Plot 427 Topsoil	0.10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
28	Plot 427 Subsoil	0.50	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Screening Criteria Value			210.0	170.0	2400.0	7.2	2.2	2.6	320.0	77.0	15.0	0.24	280.0	170.0	27.0	2.3	95.0	620.0
Source of Screening Criteria Value			S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL

SUMMARY OF LABORATORY SOIL TEST RESULTS

PETROLEUM HYDROCARBONS

Job No.: 14092
 Site: Whiteheads Newport
 Soil Type: Capping Soils
 Soil Organic Matter: 1%

No.	Location	Depth (m)	Aliphatic C5-C6 (mg/kg)	Aliphatic C6-C8 (mg/kg)	Aliphatic C8-C10 (mg/kg)	Aliphatic C10- C12 EPH (mg/kg)	Aliphatic C12- C16 EPH (mg/kg)	Aliphatic C16-C35 EPH (mg/kg)	Aliphatic C35- C44 EPH (mg/kg)	Aromatic C5-C7 (mg/kg)	Aromatic C7-C8 (mg/kg)	Aromatic C8-C10 (mg/kg)	Aromatic C10- C12 EPH (mg/kg)	Aromatic C12- C16 EPH (mg/kg)	Aromatic C16- C21 EPH (mg/kg)	Aromatic C21- C35 EPH (mg/kg)	Aromatic C35- C40 EPH (mg/kg)
25	Plot 423 Topsoil	0.10	< 0.020	< 0.020	< 0.050	< 1.0	< 2.0	< 8.0	< 8.4	< 0.010	< 0.010	< 0.050	< 1.0	< 2.0	< 10	< 10	< 10
26	Plot 423 Subsoil	0.50	< 0.020	< 0.020	< 0.050	< 1.0	< 2.0	13	< 8.4	< 0.010	< 0.010	< 0.050	< 1.0	< 2.0	< 10	13	< 10
27	Plot 427 Topsoil	0.10	< 0.020	< 0.020	< 0.050	< 1.0	< 2.0	< 8.0	< 8.4	< 0.010	< 0.010	< 0.050	< 1.0	< 2.0	< 10	< 10	< 10
28	Plot 427 Subsoil	0.50	< 0.020	< 0.020	< 0.050	< 1.0	< 2.0	< 8.0	< 8.4	< 0.010	< 0.010	< 0.050	< 1.0	< 2.0	< 10	< 10	< 10
Screening Criteria Value			42.0	100.0	27.0	130.0	1100.0	65000.0	65000.0	0.1	130.0	34.0	74.0	140.0	260.0	1100.0	1100.0
Source of Screening Criteria Value			S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL	S4UL

FIGURES



Plot 422 to 429 Capping Deph Check



Plot 422 to 429 Excavation Trial Pit

14092: Remedial Capping Works to Gardens and Landscape Areas

Former Whiteheads Steelworks, Mendalgief Road, Newport.

Intégral
Géotechnique

Integral House
Castlegate Business Park
Caerphilly
CF83 2AX
Tel: 029 20807991
Fax: 029 20862176



Plot 422 to 429 Membrane Placement (Visable Through Water Ingress)



Plot 422 to 429 Infilled Rear Gardens

**14092: Remedial Capping Works to Gardens and
Landscape Areas**

**Former Whiteheads Steelworks, Mendalgief Road,
Newport.**

Intégral
Géotechnique

Integral House
Castlegate Business Park
Caerphilly
CF83 2AX
Tel: 029 20807991
Fax: 029 20862176



Plot 422 to 429 Capping Deph Check



Plot 422 to 429 Excavation Trial Pit

**14092: Remedial Capping Works to Gardens and
Landscape Areas**

**Former Whiteheads Steelworks, Mendalgief Road,
Newport.**

Intégral
Géotechnique

Integral House
Castlegate Business Park
Caerphilly
CF83 2AX
Tel: 029 20807991
Fax: 029 20862176



Plot 422 to 429 Membrane Placement



Plot 429 to 422 Infilled Rear Gardens

**14092: Remedial Capping Works to Gardens and
Landscape Areas**

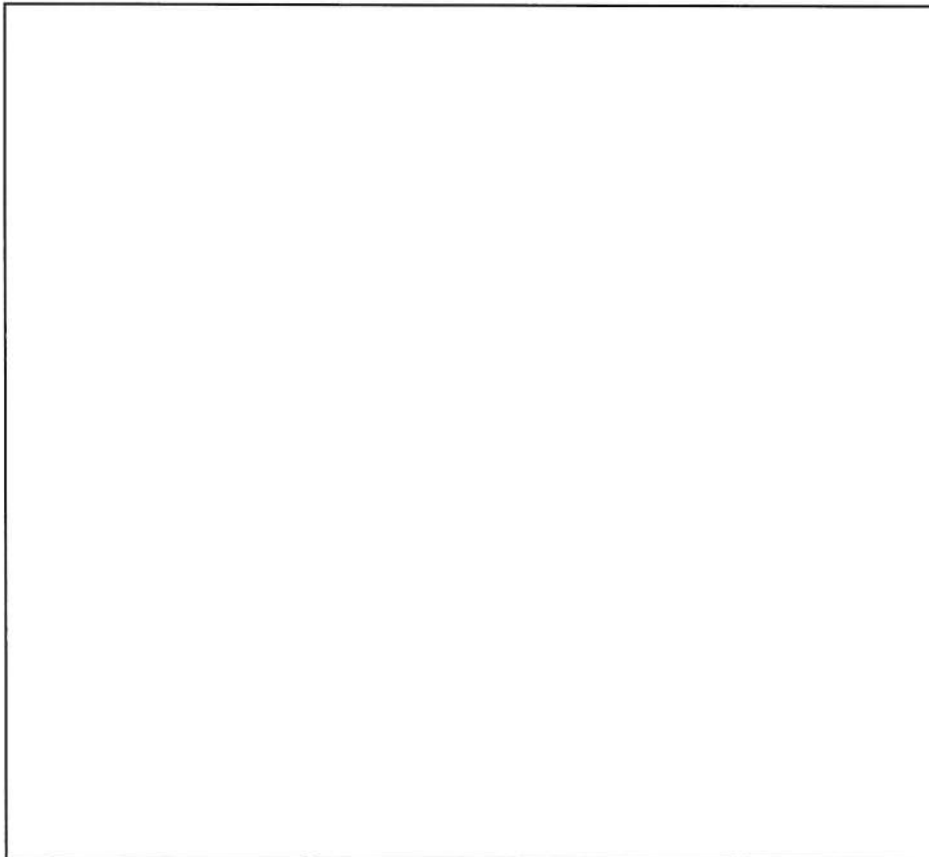
**Former Whiteheads Steelworks, Mendalgief Road,
Newport.**

Intégral
Géotechnique

Integral House
Castlegate Business Park
Caerphilly
CF83 2AX
Tel: 029 20807991
Fax: 029 20862176



Plot 422 to 429 Infilled Front Garden Areas



Left Blank

14092: Remedial Capping Works to Gardens and Landscape Areas

Former Whiteheads Steelworks, Mendalgief Road, Newport.

Intégral
Géotechnique

Integral House
Castlegate Business Park
Caerphilly
CF83 2AX
Tel: 029 20807991
Fax: 029 20862176