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Topsoil Validation Report

Project: Heckmondwike Bus Hub

Project No: EGE-24-08-07-07

Client: RG Carter (Lincoln) Limited

Evolve Geo-Environmental Limited
C/O 15 Newland, Lincoln LN1 1 XG
www.evolvegeo-env.co.uk

Report Details

Project Name	Heckmondwike Bus Hub
Client	RG Carter (Lincoln) Limited
Service	Topsoil Validation Report
Date of Issue	23rd September 2026
Project number	EGE-24-08-07-07

Author Details

Prepared By	Paul Huteson *CEnv* Director	
Reviewed and Authorised By	Paul Bennett Director	

Quality Control

Revision	Date	Made by	Description
00	23rd September 2026	PB	-

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Paul Bennett
Director
paulb@evolvegeo-env.co.uk
Tel: 07946 041587

Paul Huteson
Director
paulh@evolvegeo-env.co.uk
Tel: 07946 041571

Evolve Geo-Environmental Limited
C/O 15 Newland, Lincoln LN1 1 XG
www.evolvegeo-env.co.uk

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1.0 Authorisation, Context and Purpose

1.1 Authorisation

Evolve Geo-Environmental Limited (EGE) was instructed by RG Carter (Lincoln) Limited (the 'Client') to undertake a Topsoil Validation Report for the Proposed New Bus Hub at Royle Fold, Heckmondwike, WF16 0HW (the 'Site').

1.2 Context and Purpose

The proposed Heckmondwike Bus Hub project forms part of a wider Dewsbury-Cleckheaton Sustainable Travel Corridor Road scheme, which includes improvement works along the A638 Corridor.

The Site was granted Planning Approval by Kirklees Council (Planning Ref. 2022/48/92471/E) for the *'Redevelopment of Heckmondwike Bus Station, including a new Concourse Building with Witing Room, Changing Places, WC, Driver Offices, 6 No. Bus Stands, Landscaping and Associated Works' subject to Planning Conditions relating to contaminated land, specifically Planning Condition 11.*

Planning Condition 11

'Following completion of any measures identified in the approved Remediation Strategy or any approved revised Remediation Strategy a Validation Report by a suitably competent person shall be submitted to the Local Planning Authority. No part of the site shall be brought into use until such time as the remediation measures have been completed for the site in accordance with the approved Remediation Strategy or the approved revised Remediation Strategy and a Validation Report in respect of those remediation measures has been approved in writing by the Local Planning Authority'

A Remediation Strategy (RS) was undertaken by a third-party (WSP) and reported under the following cover:

- Remediation Strategy, Heckmondwike Bus Hub, Project No. 70079085_RS, dated October 2023.

It is assumed that the third-party RS methodology was deemed acceptable by Kirklees Council and suitable to support a discharge of Planning Condition 11.

As such, this Validation Report is required to provide evidential information that the construction phase remediation requirements, as detailed with in the RS, have been undertaken to deem the Site suitable for its intended use.

Familiarity with the above report and other third-party reports pertaining to the Site is assumed.

1.3 Remediation Requirements

The following remediation requirements were considered appropriate for the development scheme to mitigate potential risks to Human Health and Controlled Waters:

1. **Localised contamination / hotspots -** Additional areas of localised contamination, or "hotspots", may be encountered during groundworks. An appropriate protocol is therefore required to identify, assess and address any such occurrences;
2. **Cover system -** A cover system comprising "suitable for use" subsoil and/or topsoil is required within landscaped areas to a minimum thickness of 300 mm, installed over a geotextile membrane;

3. **Ground gas protection -** Appropriate ground gas protection measures are required; and
4. **Asbestos -** Appropriate measures are required for the control and management of asbestos.

It is understood that the design, installation and verification of the ground gas protection measures have been undertaken by others and agreed with the Local Authority as acceptable. Accordingly, verification of the ground gas protection measures falls outside the scope of this Report.

Furthermore, although asbestos was not identified during the third-party investigations, the works were required to be undertaken in accordance with the principles of the Control of Asbestos Regulations 2012 (CAR 2012). It is understood that these requirements were agreed between the Client and the Client's appointed sub-contractor. Accordingly, asbestos management and verification fall outside the scope of this Report.

Therefore, as agreed with the Client, this Report is intended to provide **evidential information in relation to Point 1 (localised contamination/hotspots) and Point 2 (the cover system) only**.

1.4 Limitations

The EGE standard limitations are included as Appendix I.

2.0 Evidential Information

The evidential information collected by EGE and/or provided by the Client/Client sub-contractors are included in the following Sections.

2.1 Reporting of Unexpected Contamination

Confirmation from the Client that no additional areas of contamination were identified during the groundworks is provided as Appendix II.

2.2 Clean Cover Layer

2.2.1 Topsoil

As part of the remediation requirements, a clean cover system in soft landscaped areas of the Site was required for the protection of future Site users (Human Health) to a minimum depth of 300 mm with geotextile membrane.

A Landscape Design Plan is included as Drawing IV.

Topsoil was sourced from:

- Fastsource Ltd, The Old Coal Yard, Wakefield, WF1 5PH

Pre-Import Testing was undertaken by Blackburn Material Solutions Limited 19th March 2025, for a general suite of contaminants. The material was considered suitable for use. The pre-import test certification is included as Appendix III.

Post import testing and soil thickness validation was undertaken by EGE on 24th August 2026 and comprised the excavation of five (5 no.) hand dug trial pits (HDTP101 to HDTP105) to confirm the thickness of topsoil and chemical suitability as per the agreed RS.

Soils were identified as greyish brown sandy gravelly clay. Gravel was identified as fine to coarse sub-rounded to limestone. No visual or olfactory evidence of contamination was identified, including anthropogenic materials such as brick/ concrete or glass.

In summary, the following evidential information was obtained:

1. HDTP101 – HDTP105 all comprised the required thickness of topsoil as per the RS (>300 mm);
2. HDTP104 and HDTP105 identified a geotextile membrane below imported topsoil; and
3. Concentrations of target contaminants were not identified above the most stringent Generic Assessment Criteria (GAC) for a residential with plant uptake end-use scenario.

The locations of the hand dug trial pit is shown on Figure I.

A photograph log is included as Appendix IV and post-placement laboratory chemical soil analytical results are included as Appendix V.

3.0 Summary

On the basis of the evidential information collected and provided in Section 2.0, it is considered that the imported topsoil and required thickness has met the chemical quality and thickness as set out within the third-party RS and as such, is suitable for use.

Drawings

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Drawing I – Landscape Plan

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KEY:

Softscape

- Wildflower Meadow
- Neutral Grassland
- Mixed Ornamental and Native Shrub Planting
- SuDs
- Verge cut into wildflower meadow
- Green Wall
- Green roof on Bus hub building
- Green roof on bin store
- Proposed Trees

Street Furniture

- Seating
- Indicative Recycled Sculpture/ Art
- Litter bin

Hardscape

- Scoutmoor Diamond Sawn 600mm x 600m
- Conservation Sett 100 mm x 100 mm
- Myriad Priora permeable paving 100 mm x 100 mm
- Conservation Kerb 125 mm
- Walled planter 250mm -500mm x 500mm

REV	DATE	BY	DESCRIPTION	CHK	APP
P04	20/07/22	LA	RIBA Stage 3 submission - Updates for BNG	KM	KM
P03	04/07/22	LA	RIBA Stage 3 submission - Updated to kerb lines	KM	KM
P02	01/04/2022	LA	RIBA STAGE 3 SUBMISSION	ARL	KM
P01	28/07/21	LA	Issue for comments	ARL	KM

DRAWING STATUS: S2 - FOR INFORMATION

wsp
4th Floor, 6 Devonshire Square, London, EC2M 4YE, UK
T+ 44 (0) 207 337 1700, F+ 44 (0) 207 337 1701
wsp.com

CLIENT: Kirklees Council

SITE/PROJECT: Heckmondwike Bus Station

TITLE: Landscape Design

SCALE @ A1:	CHECKED:		APPROVED:
1:200	ARL		KM
PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70079085	LA	LA	20/07/2022

DRAWING No: TCF-WSP-KHBH-XXX-DR-LE-000001 REV: P04

SCALE(m) Custom 0 10

N

© WSP UK Ltd

This drawing may contain: Ordnance Survey data © Crown copyright and database right 2021.

File name: \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\70079XXX\70079085 - HYCA TCF KIRKLEES - HECKMONDWIKE BUS HUB\03 WIP\LA LANDSCAPE AND URBAN DESIGN\WIP\CAD\TCF-HWP-XHBH-XXX-DR-LE-000001.LANDSCAPE MODEL STAGED.PVJ.DWG, printed on 21 July 2022 10:39:55 by Ashcroft, Laura

Figures

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Figure I – Approximate Clean Cover Sampling Plan

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HDTPXX - Hand excavated trial pit

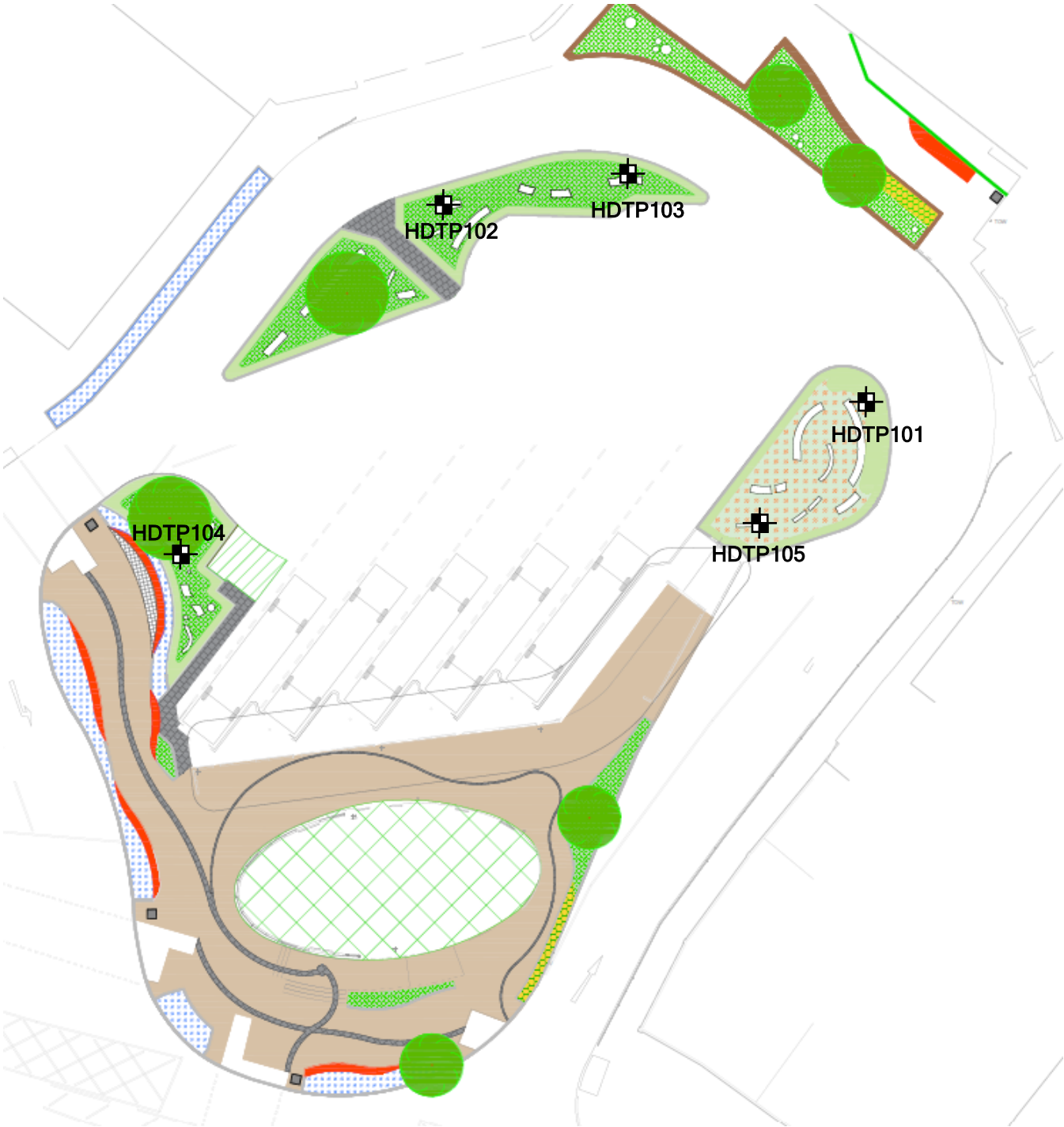


Figure No. and Title	Fig I - Approximate Clean Cover Sampling Plan
Project Name	New Bus Station, Heckmondwike
Client	RG Carter (Lincoln) Limited
Service	Topsoil Validation Report
Date of Issue	September 2026
Project number	EGE-24-08-07-07

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Appendices

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Appendix I – Standard Limitations

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Limitations

The conclusions and recommendations made in this Report are limited to those that can be made based on the findings of the investigation and in the context of the proposed development.

Where comments are made based on information obtained from third parties, EGE assumes that all third party information is true and correct. No independent action has been undertaken to validate the findings of third parties, unless specifically stated.

This Report has been prepared in accordance with our understanding of current best practice. However changes to best practice, guidance or legislation may necessitate revision of this Report after the date of issue.

EGE has prepared this Report for the sole use and reliance of the Client, in accordance with our Standard Conditions and Limitations issued with the proposal. This Report may not be used or relied upon by any unauthorised third party without the explicit written agreement of EGE. Third parties use the information at their own risk.

Appendix II – Client Correspondence (Hotspots)

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Josh Redmond

From: Josh Redmond
Sent: 23 September 2026 08:52
To: Josh Redmond
Subject: FW: LN0112 - LN0112 - YORBuild3 - New Bus Station, Heckmondwike

From: Miles Foden <Miles.Foden@rgcarter.co.uk>
Date: 23 September 2026 at 08:24:31 BST
To: Paul Huteson <pauth@evolvegeo-env.co.uk>
Subject: LN0112 - LN0112 - YORBuild3 - New Bus Station, Heckmondwike

Good Morning Paul,

To further the generation of the RMS in relation to the above scheme we confirm no unexpected contamination was discovered in relation to the Bus Station scheme.

Regards,

Miles

Miles Foden
Construction Manager

CARTER

R G Carter
Regatta Building
Henley Way
Lincoln
Lincolnshire, LN6 3QR

01522 561540
07760 624905
www.rgcarter-construction.co.uk

To see our email disclaimer, Click here

R G Carter Lincoln Limited Registered in England, Company Number 1685443
Registered address: Drayton, Norwich, Norfolk NR8 6AH.

Appendix III – Pre-Import Topsoil Analytical Results

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Blackburn Material Solutions Ltd

BS3882 Topsoil Assessment

Fastsource Ltd
The Old Coal Yard
Wakefield
WF1 5PH



04/04/2025

Lee Blackburn TMIQ (WAMITAB), Blackburn Material Solutions Ltd, 6 The Chestnuts, Hensall, DN14 0QB. TEL: 07949939004/01977663291

EMAIL: lee@blckburnmaterialsolutions.co.uk WEB: www.blackburnmaterials.co.uk

Introduction

Blackburn Material Solutions Ltd has been commissioned to undertake topsoil sampling at the above address to determine suitability of the topsoil product produced for BS3882:2015 multipurpose topsoil on 19/03/2025. Additional chemical analysis scheduled to support.

The report findings are representative of the sample submitted to UKAS and MCERTS accredited laboratory I2 Analytical Ltd of Doncaster and are believed to be a true representation of the product on offer at the time of sampling on site. No guarantee is provided once the material has left the Fastsource Ltd production facility.

The product is considered for use on general landscaping projects. Should site specific planting schemes be specified, additional advice from an appropriate qualified agronomist may be required.

Should excess materials on a supply site be considered waste, appropriate characterisation and waste classification testing should be undertaken using WM3 guidance.

Soil handling guide

Please refer to annex A of BS3882:2015 standard which provides guidance on handling and preparing topsoil for laying. This should be considered by the receiving site after material has left the Fastsource Ltd facility. Fastsource Ltd are assumed to follow the guidance of handling and storing soils on site and the guidance in annex A CL2. Note – compaction of topsoil can change the material properties.

Topsoil description

Mid to dark brown silty clay loam of predominant <0.125mm grain size. Noted occasional organics 2-10mm within. No deleterious materials were observed like sharps, metal or plastics. No olfactory contamination noted.

Testing schedule

The sample was submitted to UKAS and MCERTS laboratory Chemtech Environmental for the following tests below. The tests scheduled demonstrate material grading, chemical levels for suitability of use on specific project types and the fertility of the soil. See the BS3882 certificate below and chemical analysis.

1. Stone content (2-20mm, 20-50mm and >50mm)
2. Particle size through sedimentation analysis to split sand from silt and clay fractions
3. Carbon:nitrogen ratio
4. Nitrogen %
5. Organic matter/LOI
6. PH

7. Electrical conductivity
8. Sharps %
9. Plastics %
10. >2mm visual contamination
11. Key nutrients and phytotoxic contaminants

DECLARATION OF COMPLIANCE
(BS3882:2015)

CHEMTECH environmental part of Cawood

Lab ref	41986	**Date received**	27/03/2025
Contract name	Fastsourse Wakefield	**Analysis started**	01/04/2025
Sample ID	1-Topsoil	**Analysis completed**	31/03/2025
OS Grid reference	Not supplied	**Report issued**	03/04/2025
Date sampled	19/03/2025		

Test	Units	Result	Compliant with Multipurpose? (Y/N)	Compliant with specific purpose? (Y/N)				
				Acidic	Calcareous	Low Fertility	Low F Acidic	Low F Calcareous
Texture								
Clay content	% w/w	31						
Silt content	% w/w	50						
Sand content	% w/w	19						
Soil texture	**class**	**SILTY CLAY LOAM**	Y	Y	Y	Y	Y	Y
Stone content								
>2mm	% w/w	11	Y	Y	Y	Y	Y	Y
>20mm	% w/w	0	Y	Y	Y	Y	Y	Y
>50mm	% w/w	0	Y	Y	Y	Y	Y	Y
Mass loss on ignition								
Clay 5-20%	% w/w	-	-	-	-	-	-	-
Clay 20-35%	% w/w	11.4	Y	Y	Y	Y	Y	Y
pH[1]	pH units	7.2	Y	N	N	Y	N	N
Carbonate (calcareous only)	% w/w $CaCO_3$	1.7			Y			Y
Nitrogen (total)	% w/w N	0.38	Y	Y	Y			
Carbon:Nitrogen ratio	-	17.6	Y	Y	Y	Y	Y	Y
Phosphorus (extractable)	mg/l P	44	Y	Y	Y	N	N	N
Potassium (extractable)	mg/l K	218	Y	Y	Y			
Magnesium (extractable)	mg/l Mg	238	Y	Y	Y			
Electrical conductivity[2]	µS/cm	127	Y					
Phytotoxic contaminants (by soil pH)								
Copper (Nitric acid extract)	mg/kg Cu	79	Y	Y	Y	Y	Y	Y
Nickel (Nitric acid extract)	mg/kg Ni	20	Y	Y	Y	Y	Y	Y
Zinc (Nitric acid extract)	mg/kg Zn	126	Y	Y	Y	Y	Y	Y
VISIBLE CONTAMINANTS								
(air-dried soil)	% w/w	<0.1	Y	Y	Y	Y	Y	Y
...of which plastics	% w/w	0	Y	Y	Y	Y	Y	Y
Sharps	% w/w	None	Y	Y	Y	Y	Y	Y

[1] Results are accredited to MCERTS if matrix confirmed as soil
[2] Results in leachate are accredited to ISO17025

Disclaimer: The limits in this report are provided for guidance only and values are transcribed from BS3882:2015

Chemtech Environmental Ltd does not take responsibility for any errors or omissions in the transcription, and all data should be verified by the end user.

Any assessments made are based on the published results from the Laboratory and make no assessment of uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. Method uncertainty levels can be provided independently upon request.

Assessment is outside the scope of the laboratory's UKAS accreditation.

Chemical analysis

Lab Number			41986	41987
Client Reference			BULK	BULK
Sample ID Fastsource, The Old Coal Yard			1-Topsoil	2-Topsoil
Sampling Date			19/03/2025	19/03/2025
Test	**Method**	**Units**		
Asbestos				
Asbestos Identification	SUBCON	-		NAD
Metals				
Extractable Potassium	CE088	mg/l	218.	
Extractable Magnesium	CE088	mg/l	238.	
Extractable phosphorus	CE089	mg/l	44.	
Acid Soluble Sulphate (SO4)	CE062	mg/kg		729.
Water Soluble Boron	CE063	mg/kg		1.22
Arsenic	CE264	mg/kg		12.1
Cadmium	CE264	mg/kg		< 1.6
Chromium	CE264	mg/kg		27.0
Copper	CE264	mg/kg		31.1
Lead	CE264	mg/kg		54.1
Mercury	CE264	mg/kg		1.4
Nickel	CE264	mg/kg		20.6
Selenium	CE264	mg/kg		< 3.0
Zinc	CE264	mg/kg		106.0
Copper (HNO3 Extractable)	CE054	mg/kg	79.20	
Nickel (HNO3 Extractable)	CE054	mg/kg	19.70	
Zinc (HNO3 Extractable)	CE054	mg/kg	126.00	
Colourimetric				

Total Monohydric Phenols	CE078	mg/kg		< 0.50
Total Cyanide	CE077	mg/kg		< 1.0
Total Sulphide	CE167	mg/kg		85.
Combustion				
Moisture Content	CE001	%	23.1	22.9
Total Carbon	CE198	%	5.59	
Total nitrogen	CE198	%	0.38	
Total Organic Carbon	CE197	%	5.25	5.26
Loss on Ignition	CE006	%	11.40	
Miscellaneous				
% >2mm	CE118	%	10.9	
% > 20mm	CE118	%	0.0	
% >50mm	CE118	%	0.0	
% Clay	CE118	%	31.4	
% Sand	CE118	%	18.7	
% Silt	CE118	%	49.8	
% Plastics	CE118	%	0.0	
% Sharps	CE118	%	0.0	
Polyaromatic hydrocarbons				
Naphthalene	CE087	mg/kg		0.079
Acenaphthylene	CE087	mg/kg		< 0.015
Acenaphthene	CE087	mg/kg		0.145
Fluorene	CE087	mg/kg		0.099
Phenanthrene	CE087	mg/kg		0.962
Anthracene	CE087	mg/kg		0.217
Fluoranthene	CE087	mg/kg		1.280
Pyrene	CE087	mg/kg		1.100

Benzo(a)anthracene	CE087	mg/kg		0.618
Chrysene	CE087	mg/kg		0.643
Benzo(b)fluoranthene	CE087	mg/kg		0.668
Benzo(k)fluoranthene	CE087	mg/kg		0.255
Benzo(a)pyrene	CE087	mg/kg		0.567
Indeno(1,2,3-cd)pyrene	CE087	mg/kg		0.392
Dibenzo(a,h)anthracene	CE087	mg/kg		0.094
Benzo(g,h,i)perylene	CE087	mg/kg		0.362
Total PAH(16)	CE087	mg/kg		7.480
Total Petroleum Hydrocarbons				
>C5-C6 Aliphatic (HS_1D_AL)	CE267	mg/kg		< 0.10
>C6-C8 Aliphatic (HS_1D_AL)	CE267	mg/kg		< 0.10
>C8-C10 Aliphatic (HS_1D_AL)	CE267	mg/kg		< 0.10
>C10-C12 Aliphatic (EH_2D_AL)	CE250	mg/kg		< 1.0
>C12-C16 Aliphatic (EH_2D_AL)	CE250	mg/kg		< 0.5
>C16-C21 Aliphatic (EH_2D_AL)	CE250	mg/kg		< 0.7
>C21-C35 Aliphatic (EH_2D_AL)	CE250	mg/kg		< 4.0
>C35-C40 Aliphatic (EH_2D_AL)	CE250	mg/kg		< 0.5
>C35-C44 Aliphatic (EH_2D_AL)	CE250	mg/kg		< 0.5
>C5-C7 Aromatic (HS_1D_AR)	CE267	mg/kg		< 0.010
>C7-C8 Aromatic (HS_1D_AR)	CE267	mg/kg		< 0.010
>C8-C10 Aromatic (HS_1D_AR)	CE267	mg/kg		< 0.010
>C10-C12 Aromatic (EH_2D_AR)	CE250	mg/kg		0.8
>C12-C16 Aromatic (EH_2D_AR)	CE250	mg/kg		1.3
>C16-C21 Aromatic (EH_2D_AR)	CE250	mg/kg		< 2.0
>C21-C35 Aromatic (EH_2D_AR)	CE250	mg/kg		7.2
>C35-C40 Aromatic (EH_2D_AR)	CE250	mg/kg		< 1.5

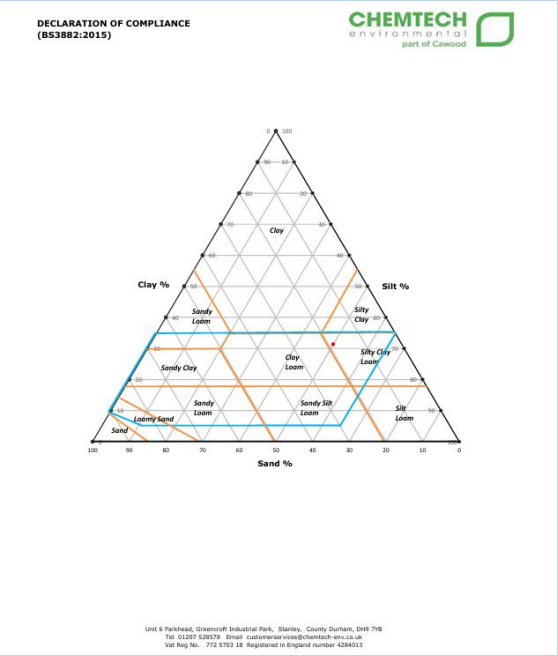
>C35-C44 Aromatic (EH_2D_AR)	CE250	mg/kg		< 2.0
>C5-C10 Total (HS_1D_Total)	CE267	mg/kg		< 0.10
>C10-C12 Soil (EH_1D_Total)	CE033	mg/kg		< 6.0
>C12-C16 Soil (EH_1D_Total)	CE033	mg/kg		< 6.0
>C16-C21 Soil (EH_1D_Total)	CE033	mg/kg		26.0
>C21-C35 Soil (EH_1D_Total)	CE033	mg/kg		105.0
>C35-C40 Soil (EH_1D_Total)	CE033	mg/kg		17.7
>C35-C44 Soil (EH_1D_Total)	CE033	mg/kg		21.6
Wet Chem				
Electrical Conductivity	CE007	µS/cm	127.0	
pH	CE004	pH units	7.2	7.1

Assessment of the analysis

Stone content and texture

The stone coarse fragment % is very low and will not effect drainage characteristics of the soil for the intended multipurpose use.

The sample texture falls under **'silty clay loam'** texture and is within the BS3882:2015 textural specification as below.



Nutrient values and organic matter

Available plant nutrients, phosphate, potassium and magnesium are all within BS3882:2015 parameters for a multipurpose soil suitable for general landscaping. Nitrogen percentage is >0.15%, and carbon:nitrogen ratio is <20:1. Organic matter/mass LOI is suitable within the BS3882:2015 parameters for the clay %.

Electrical conductivity and PH

The soil PH at 7.1-8.2 is slightly alkaline, and within BS3882:2015 parameters. The electrical conductivity is below the BS3882:2015 limit. ESP (exchangeable sodium percentage) therefore not required, indicating a low risk to general planting from sodium. Should a specific planting scheme be required which is not suited to the multipurpose BS3882:2015 grade soil and wide PH guide, seek further advice from a qualified agronomist.

Phytotoxic contaminants

The zinc, copper and nickel levels are below limits for BS3882:2015 and suitable for a multipurpose topsoil. There is no risk of the levels being harmful to plants.

General chemical analysis

Fastsource Ltd have a duty of care to confirm that their topsoil material is chemically suitable for use on any proposed development. See notes 3 & 4 of BS3882:2015 table 1. This includes **'residential with home grown produce'** levels (most sensitive of uses chemically) from S4UL (suitable for use limits) LQM/CIEH for human health 2015 and C4SL (category four screening level), DEFRA 2010 assessment of land effected by contamination (policy comp Doc 2014).

As sampled there are no chemical elevations for any end use, including residential with home grown produce sites.

Conclusion and recommendations

The material as tested and sampled from the production facility is suitable for general landscaping purposes in line with the requirements of BS3882:2015 'multipurpose topsoil'.

The planting scheme should include plants with a wide PH tolerance or which are suitable for slightly alkaline conditions. The material is also slightly calcareous, therefore also suitable for 'calcareous topsoil' where required.

It is assumed the supply site conditions and soil handling has been in line with annex A of BS3822:2015.

The **silty clay loam** textured soil will offer the draining characteristics/ water retention of a BS3882:2015 multipurpose soil and is chemically suitable for introduction on any project under S4UL and C4SL with the necessary nutrient capacity to support healthy plant growth.

Note – no testing has been undertaken focussing specifically on any organic structure within the soil (no specific weed testing).

The sample is compliant with BS3882:2015 as a multipurpose topsoil and is chemically suitable for any end use.

Should a specific planting scheme be required, seek the advice from a qualified agronomist.

Further details provided within the British standard BS3882:2015 34 page document available from BSI standards publication on-line and hard copy.

End of report

Appendix IV – Photographic Log

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Photograph Record



Photograph I - HDTP101



Photograph II - HDTP102



Photograph III - HDTP103



Photograph IV - HDTP104



Photograph V - HDTP105

Appendix V – Post Import Soil Analytical Results

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Evolve Geo-Environmental Limited
15 Newland
Lincoln
Lincolnshire

t:

e: paulh@evolvegeo-env.co.uk

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

t: 01923 225404
f: 01923 237404
e: info-i2analytical@normecgroup.com

Analytical Report Number : 26-049670

Project / Site name:	Heckmondwike	**Samples received on:**	26/08/2026
Your job number:	Heckmondwike	**Samples instructed on/ Analysis started on:**	26/08/2026
Your order number:		**Analysis completed by:**	07/09/2026
Report Issue Number:	1	**Report issued on:**	07/09/2026
Samples Analysed:	5 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
air	- once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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.

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Lab Sample Number				1043155	1043156	1043157	1043158	1043159
Sample Reference				HDTP101	HDTP102	HDTP103	HDTP104	HDTP105
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.20	0.20	0.20	0.20	0.20
Date Sampled				24/08/2026	24/08/2026	24/08/2026	24/08/2026	24/08/2026
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Mass of stone >10mm	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	23	24	25	25	25
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.7	0.8	0.7
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	PNI	PNI	PNI	PNI	PNI
Analysis completed	N/A	N/A	N/A	15/09/2026	15/09/2026	15/09/2026	15/09/2026	15/09/2026
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	7.8	7.9	7.9	7.6	7.2
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	2.9	3.1	3.7	3	3
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.38	0.71	0.52	0.3	0.38
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	4.9	3.5	4	3.7	3.1
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	U/S *U/S g	U/S *U/S g	U/S *U/S g	U/S *U/S g	U/S *U/S g
Chromium (III)	mg/kg	1	NONE	U/S *U/S g	U/S *U/S g	U/S *U/S g	U/S *U/S g	U/S *U/S g
Chromium (hexavalent) by IC	mg/kg	1.8	NONE	< 1.80	< 1.80	< 1.80	< 1.80	< 1.80
Chromium (III) by IC	mg/kg	1	NONE	10	7.6	8.5	8.3	8.5
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	10	7.6	8.5	8.3	8.5
Copper (aqua regia extractable)	mg/kg	1	MCERTS	43	87	31	25	38
Lead (aqua regia extractable)	mg/kg	1	MCERTS	28	22	32	26	22
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	8.7	8	8	10	6.8
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	70	59	71	64	61
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
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 >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0	14	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC35 - EC44 $_{EH_CU_1D_AL}$	mg/kg	8.4	NONE	< 8.4	8.6	< 8.4	< 8.4	< 8.4
TPHCWG - Aliphatic >EC5 - EC35 $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	< 10	14	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC44 $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	< 10	23	< 10	< 10	< 10

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Lab Sample Number				1043155	1043156	1043157	1043158	1043159
Sample Reference				HDTP101	HDTP102	HDTP103	HDTP104	HDTP105
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.20	0.20	0.20	0.20	0.20
Date Sampled				24/08/2026	24/08/2026	24/08/2026	24/08/2026	24/08/2026
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
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	14	13	< 10	< 10
TPHCWG - Aromatic >EC35 - EC44 EH_CU_1D_AR	mg/kg	8.4	NONE	< 8.4	13	11	< 8.4	< 8.4
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10	14	13	< 10	< 10
TPHCWG - Aromatic >EC5 - EC44 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10	27	25	< 10	< 10

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

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

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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 *
1043155	HDTP101	None Supplied	0.2	Brown loam and sand with gravel and vegetation
1043156	HDTP102	None Supplied	0.2	Brown loam and sand with gravel and vegetation
1043157	HDTP103	None Supplied	0.2	Brown loam and sand with gravel and vegetation
1043158	HDTP104	None Supplied	0.2	Brown loam and sand with gravel and vegetation
1043159	HDTP105	None Supplied	0.2	Brown loam and sand with gravel and vegetation

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Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI 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
Moisture Content (Wet Weight)	Moisture content (% wet weight), determined gravimetrically (up to 30°C)	In-house-procedure based on BS EN 12880:2000	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
Hexavalent chromium in soil by Ion Chromatography	Determination of hexavalent chromium in alkaline soil extract by use of ion chromatography with spectrophotometric detection	In-house method	L130B	W	NONE
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
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID in soil	Determination of total petroleum hydrocarbons in soil by GC-FID with carbon banding aliphatic and aromatic	In-house method	L076B	D	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil (Summed Bands)	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic (Summed Bands).	Calculation	L076B/L088-PL	D/W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Total petroleum hydrocarbons with carbon banding by HS-GC/MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC/MS with carbon banding aliphatic and aromatic	In-house method	L088-PL	W	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
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

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 30oC.

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Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

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.

Where coal tar is reported as "indicative/not indicative", PAH source attribution has been assessed using the ratio of parent PAHs to alkylated PAHs to indicate a likely pyrogenic (coal tar–related) or petrogenic (bitumen-related) origin. This assessment is independent of total residue and/or benzo(a)pyrene concentrations and is provided for indicative purposes only; it represents a single line of evidence and does not, in isolation, constitute confirmation or classification as hazardous under WM3 guidance.

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

*U/S g- Unsuitable for analysis due to high colour intensity.

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This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container/Insufficient material provided c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
HDTP101	None Supplied	S	1043155	c	BTEX and/or Volatile organic compounds in soil	L073B	c
HDTP101	None Supplied	S	1043155	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
HDTP101	None Supplied	S	1043155	c	Total petroleum hydrocarbons with carbon banding by GC-FID in soil	L076B	c
HDTP101	None Supplied	S	1043155	c	Total petroleum hydrocarbons with carbon banding by HS-GC/MS in soil	L088-PL	c
HDTP101	None Supplied	S	1043155	c	pH in soil (automated)	L099-PL	c
HDTP102	None Supplied	S	1043156	c	BTEX and/or Volatile organic compounds in soil	L073B	c
HDTP102	None Supplied	S	1043156	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
HDTP102	None Supplied	S	1043156	c	Total petroleum hydrocarbons with carbon banding by GC-FID in soil	L076B	c
HDTP102	None Supplied	S	1043156	c	Total petroleum hydrocarbons with carbon banding by HS-GC/MS in soil	L088-PL	c
HDTP102	None Supplied	S	1043156	c	pH in soil (automated)	L099-PL	c
HDTP103	None Supplied	S	1043157	c	BTEX and/or Volatile organic compounds in soil	L073B	c
HDTP103	None Supplied	S	1043157	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
HDTP103	None Supplied	S	1043157	c	Total petroleum hydrocarbons with carbon banding by GC-FID in soil	L076B	c
HDTP103	None Supplied	S	1043157	c	Total petroleum hydrocarbons with carbon banding by HS-GC/MS in soil	L088-PL	c
HDTP103	None Supplied	S	1043157	c	pH in soil (automated)	L099-PL	c
HDTP104	None Supplied	S	1043158	c	BTEX and/or Volatile organic compounds in soil	L073B	c
HDTP104	None Supplied	S	1043158	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
HDTP104	None Supplied	S	1043158	c	Total petroleum hydrocarbons with carbon banding by GC-FID in soil	L076B	c
HDTP104	None Supplied	S	1043158	c	Total petroleum hydrocarbons with carbon banding by HS-GC/MS in soil	L088-PL	c
HDTP104	None Supplied	S	1043158	c	pH in soil (automated)	L099-PL	c
HDTP105	None Supplied	S	1043159	c	BTEX and/or Volatile organic compounds in soil	L073B	c
HDTP105	None Supplied	S	1043159	c	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	c
HDTP105	None Supplied	S	1043159	c	Total petroleum hydrocarbons with carbon banding by GC-FID in soil	L076B	c
HDTP105	None Supplied	S	1043159	c	Total petroleum hydrocarbons with carbon banding by HS-GC/MS in soil	L088-PL	c
HDTP105	None Supplied	S	1043159	c	pH in soil (automated)	L099-PL	c

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