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Ms C Day
Orion Homes Ltd
5 Benton Office Park
Bennett Avenue
Benton Hill
Horbury, Wakefield

BY E-MAIL

Our Ref: ORH/25L7/OGjc

7th April 2026

Dear Candy

195 Leeds Road Heckmondwike
Garden Soils Validation

In accordance with your instruction, we visited the above site on the 20th March 2026 to undertake additional topsoil sampling to address comments from Kirklees Council.

Background

The site investigation carried out by ARP on the 17th and 22nd of October 2024 consisting of ten trial pits (TP1 to TP10) and six windowless sample boreholes (WS1 to WS6) to between 1.4m and 3.0m depth. The ground conditions encountered topsoil to between 0.2m and 0.3m depth with isolated made ground encountered in WS1 to 0.4m depth. The made ground or topsoil was underlain by cohesive becoming granular residual soil with intact bedrock encountered at between 1.6m and 2.3m depth.

Contamination testing identified isolated exceedance of arsenic at 39mg/kg within one of the three samples of natural topsoil when compared to the residential with plant uptake screening value of 37mg/kg. Furthermore, marginally elevated nickel was identified within one of the four samples of natural clay when compared against the conservative agricultural screening value. However, based on the pH recorded the concentration is comfortably lower than the human health screening value for residential with plant uptake.

Based on the results discussed above it was concluded that the topsoil/subsoil was suitable for reuse on site and no further assessment was required.

Following the submission of our Stage 1/Stage 2 Geo Environmental Report ref ORH/25, dated 18th November 2024 the Environmental Health department at Kirklees Council provided comments on the 27th August 2025 (reference WK202524579). Kirklees Council disagree with the conclusion that no further assessment of remediation measures is required. They recommended that further sampling should be undertaken to support the conclusions reached.



They also had concerns that insufficient information has been given regarding the buildings and area to be demolished in the southeast. Although they appreciate that sampling in this area would have to wait until demolition of the buildings, they do expect a survey for obvious contaminants and asbestos to be undertaken to better inform and target sampling and safe demolition.

Site Work

In order to address these comments supplementary sampling was undertaken on the 20th March 2026.

At the time of the site visit the area to the southeast comprised a pair of semi-detached houses and a single storey garage in the south fronting onto Leeds Road with small lawns to the front and long narrow garden to the rear. A large building, possibly stables, was present at the northern boundary and a greenhouse, and several other smaller structures are also present towards the centre of the site. No obvious signs of contamination were identified during the site walkover, other than the presence of possible asbestos sheet roof on the shed at southern end of the site.

There has been no change to the main site to the north which remains as agricultural fields.

The supplementary sampling within the main site comprised the excavation of eight hand pits TS1 to TS8. The sampling locations were positioned in areas not covered in the original investigation, as shown on the attached combined exploratory hole investigation plan. Topsoil samples were collected at each location together with three samples of natural clay subsoil. The eleven samples were sent to i2 laboratory in Watford and tested for Arsenic and Nickel only.

In addition a total of four hand pits were excavated within lawned areas surrounding the buildings in the southeastern end of the site. Topsoil samples were collected at each location and tested for a suite of testing (As, Cd, Cr (VI), Cr (III), Cu, Hg, Ni, Pb, Se, Zn, Total Sulphate, Water Soluble Sulphate, pH, Phenol-monohydric, Speciated PAH, Total TPH, Asbestos, and Organic Matter).

Laboratory Testing

Main Site

Across the main site to the north a combined total of 11 topsoil samples were tested for arsenic and nickel during the original investigation and the supplementary investigation. The results are attached and are discussed below.

No elevated nickel was identified within topsoil in the original investigation and all results from the supplementary investigation were below screening values. The arsenic results are summarised in the table below.



Sample	Depth (m)	Arsenic	Material
WS3		12	Natural Topsoil
TP3		39	Natural Topsoil
TP10		16	Natural Topsoil
TS1	0-0.2	29	Natural Topsoil
TS2	0-0.2	24	Natural Topsoil
TS3	0-0.2	25	Natural Topsoil
TS4	0-0.2	28	Natural Topsoil
TS5	0-0.2	30	Natural Topsoil
TS6	0-0.2	29	Natural Topsoil
TS7	0-0.1	19	Natural Topsoil
TS8	0-0.2	15	Natural Topsoil

Screen Values **37.0**

95% UCL * **28.6**

All values in mg/kg unless indicated otherwise

Exceedance

Acceptance (and no outlier)

As shown on the table above the only instance of elevated arsenic was in TP3, 39mg/kg from the original investigation, all other results were below the screening value ranging between 12mg/kg and 30mg/kg. The 95% UCL concentration is below the screening value with no outlier.

In total seven samples of natural clay subsoil were tested for nickel with concentrations ranging between 17mg/kg and 54mg/kg, with only one result marginally above the conservative agricultural screening value of 50mg/kg. As stated previously, based on the pH recorded on site the concentration was actually comfortably lower than the S4UL human health screening value for residential with plant uptake (180mg/kg).

Proposed access road to the southeast

A total of four samples of topsoil were tested within lawned areas in the southeast. The results attached show elevated concentrations of Benzo a Pyrene within the topsoil at HP1 at 12mg/kg, above the POS near residential screening values. Also microscopic amosite asbestos fibres (sheeting board debris) were identified at this location. This will need to be considered further. The results for HP2, HP3 and HP4 were all below screening values and no asbestos fibres detected.

Conclusion

The supplementary topsoil sampling within the main field supports the original finding that the isolated slight exceedance of arsenic concentration within the topsoil is attributed to part of the range caused by random variation. We feel that given the site history and size of site, eleven samples are considered sufficient to provide a robust statistical assessment.



Furthermore the exceedance of arsenic at 39mg/kg was only 2mg/kg higher than the screening value for residential with plant uptake, but it is actually lower than the average concentrations of arsenic in topsoil adjacent to the site (see attached plan – average topsoil concentration is 44mg/kg). This suggests that the arsenic concentrations are natural for this geology. Therefore, the topsoil across the main site is considered suitable for reuse on site within gardens.

The 95% Upper Confidence Limit (UCL) of 28.6 mg/kg for Arsenic across the 11 samples is significantly below the Residential with Plant Uptake screening value (37 mg/kg), statistically demonstrating that the 39 mg/kg result at TP3 is not a representative hotspot but part of the natural statistical distribution for this geology.

The marginally elevated nickel identified within the original investigation is not considered to be a risk to human health, as this was assessed against a very conservative agricultural screening value. The usual screening value for residential with plant uptake is 180mg/kg.

The topsoil identified in the southeast at HP1 is not considered to be suitable for retention on site due to the presence of asbestos fibres and elevated benzo(a)pyrene. This area of the site is within the footprint of the proposed access road, therefore the risk to human health would be negligible. However, topsoil is not geotechnically suitable to be retained beneath the road and would need to be stripped during preparation for the road. The topsoil from this location would need to be removed from site to a suitable landfill. The topsoil identified at HP2, HP3 and HP4 is considered to be suitable for reuse within the landscaped areas along the side of the access road.

It is recommended that further investigation is undertaken following the demolition of the existing building. However, as stated previously it should be noted that this area will comprise the proposed access road and a grass verge.

A remediation Strategy has been prepared to supersede the original Method of import statement to include the remediation measures at HP1.

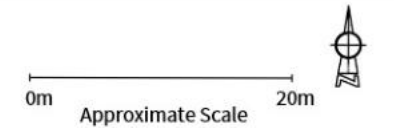
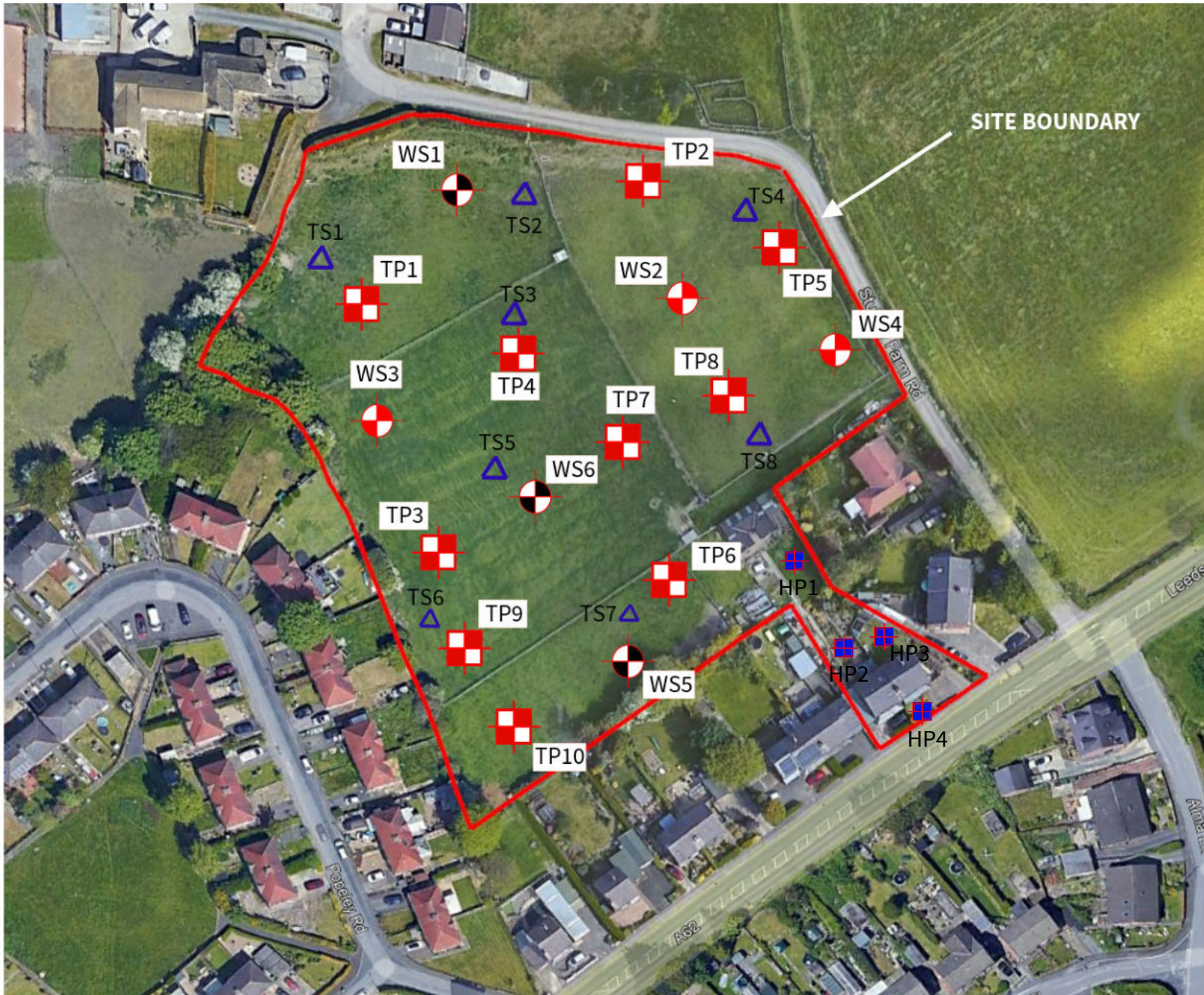
We trust the above and attachments are satisfactory, but should you have any queries, please do not hesitate to contact us at your convenience.

Yours sincerely
for ARP GEOTECHNICAL LTD

A handwritten signature in black ink, appearing to read 'O Gwilym'.

O Gwilym

Encs



- Trial Pit
- Window Sample Borehole
- Window Sample Borehole and Gas Well Installation
- Supplementary topsoil sample Locations.
- Supplementary hand pit locations

ARP
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Project	
LAND AT 195 LEEDS ROAD HECKMONDWIKE	
Client	
ORION HOMES LTD	
Title	
TOPSOIL SAMPLING PLAN AND SITE INVESTIGATION PLAN	
Date	
APRIL 2026	
Drawn	Scale
OG	AS SHOWN
Job No.	
ORH/25	



Photograph 1: Hand pit HP1.



Photograph 2: Hand pit HP2.



Photograph 3: Hand pit HP3.



Photograph 4: Hand pit HP4.



Photograph 5: Topsoil sample TS1.



Photograph 6: Topsoil sample TS2.



Photograph 7: Topsoil sample TS3.



Photograph 8: Topsoil sample TS4.



Photograph 9: Topsoil sample TS5.



Photograph 10: Topsoil sample TS6.



Photograph 11: Topsoil sample TS7.



Photograph 12: Topsoil sample TS8.



ARP GEOTECHNICAL LIMITED
IMPORTED SOIL CONTAMINANT SCREENING VALUES
RESIDENTIAL WITH HOME-GROWN PRODUCE

Determinand	S4UL (unless stated otherwise) (mg/kg)			C4SL (mg/kg)		
	1% SOM	2.5% SOM	6% SOM	1% SOM	2.5% SOM	6% SOM
Arsenic	37			37		
Cadmium	11			22		
Chromium (trivalent) (MAFF)	400					
Chromium (hexavalent)	6			21		
Copper (MAFF)	80#					
Lead				200		
Inorganic Mercury	40			200		
Nickel (MAFF)	50#					
Selenium	250					
Zinc (MAFF)	200#					
Acidity (pH)	*Should be Greater Than 5			*Should be Greater Than 5		
	1% SOM	2.5% SOM	6% SOM	1% SOM	2.5% SOM	6% SOM
Naphthalene	2.3	5.6	13	15	36	85
Acenaphthylene	170	420	920			
Acenaphthene	210	510	1,100			
Fluorene	170	400	860			
Phenanthrene	95	220	440			
Anthracene	2,400	5,400	11,000			
Fluoranthene	280	560	890			
Pyrene	620	1,200	2,000			
Benzo(a)anthracene	7.2	11	13			
Chrysene	15	22	27			
Benzo(b)fluoranthene	2.6	3.3	3.7			
Benzo(k)fluoranthene	77	93	100			
Benzo(a)pyrene	2.2	2.7	3			5
Indeno(1,2,3-cd)pyrene	27	36	41			
Dibenzo(a,h)anthracene	0.24	0.28	0.30			
Benzo(g,h,i)perylene	320	340	350			
Phenols	120	200	380			
Total TPH	*Above 500, speciate and compare with values below:					
C5 to C6 Aliphatic	42	78	160			
C6 to C8 Aliphatic	100	230	530			
C8 to C10 Aliphatic	27	65	150			
C10 to C12 Aliphatic	130	330	760			
C12 to C16 Aliphatic	1100	2,400	4,300			
C16 to C35 Aliphatic	65,000	92,000	110,000			
C35 TO C44 Aliphatic	65,000	92,000	110,000			
C5 to C7 Aromatic (Benzene)	70	140	300			
C7 to C8 Aromatic (Toluene)	130	290	660			
C8 to C10 Aromatic	34	83	190			
C10 to C12 Aromatic	74	180	380			
C12 to C16 Aromatic	140	330	660			
C16 to C21 Aromatic	260	540	930			
C21 TO C35 Aromatic	1100	1,500	1,700			
C35 TO C44 Aromatic	1100	1,500	1,700			
Asbestos	*Should be None Detected			*Should be None Detected		

* In House Value/Approach S4UL = Suitable 4 Use Level, CIEH/LQM 2014 C4SL = Cat 4 Screening Level, DEFRA, 2014

Blank cell indicates no published value or in-house value. Some values presented are above saturation limits.

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MAFF: Ministry of Agriculture, Fisheries and Food - "Code of Good Agricultural Practice for the Protection of Soil

#pH dependent. If exceeded, to be compared against appropriate MAFF value for the pH



ARP GEOTECHNICAL LIMITED
SOIL CONTAMINANT SCREENING VALUES
PUBLIC OPEN SPACE NEAR RESIDENTIAL

Determinand	S4UL (mg/kg)			C4SL (mg/kg)		
	Arsenic	79			79	
Cadmium	120			220		
Chromium (trivalent)	1500					
Chromium (hexavalent)	7.7			21		
Copper	12000					
Lead				630		
Inorganic Mercury	120			610		
Nickel	230					
Selenium	1100					
Zinc	81000					
Acidity (pH)	*Should be Greater Than 5					
	1% SOM	2.5% SOM	6% SOM	1% SOM	2.5% SOM	6% SOM
Naphthalene**	4900	4900	4900	11,000	15,000	17,000
Acenaphthylene	15000	15000	15000			
Acenaphthene	15000	15000	15000			
Fluorene	9900	9900	9900			
Phenanthrene	3100	3100	3100			
Anthracene	74000	74000	74000			
Fluoranthene	3100	3100	3100			
Pyrene	7400	7400	7400			
Benzo(a)anthracene	29	29	29			
Chrysene	57	57	57			
Benzo(b)fluoranthene	7.1	7.2	7.2			
Benzo(k)fluoranthene	190	190	190			
Benzo(a)pyrene	5.7	5.7	5.7			10
Indeno(1,2,3-cd)pyrene	82	82	82			
Dibenzo(a,h)anthracene	0.57	0.57	0.57			
Benzo(g,h,i)perylene	640	640	640			
Phenols	440	690	1300			
Total TPH	*Above 3,800, speciate and compare with values below:					
C5 to C6 Aliphatic	570000	590000	600000			
C6 to C8 Aliphatic	600000	610000	620000			
C8 to C10 Aliphatic	13000	13000	13000			
C10 to C12 Aliphatic	13000	13000	13000			
C12 to C16 Aliphatic	13000	13000	13000			
C16 to C35 Aliphatic	250000	250000	250000			
C35 TO C44 Aliphatic	250000	250000	250000			
C5 to C7 Aromatic (Benzene)	56000	56000	56000			
C7 to C8 Aromatic (Toluene)	56000	56000	56000			
C8 to C10 Aromatic	5000	5000	5000			
C10 to C12 Aromatic	5000	5000	5000			
C12 to C16 Aromatic	5100	5100	5000			
C16 to C21 Aromatic	3800	3800	3800			
C21 TO C35 Aromatic	3800	3800	3800			
C35 TO C44 Aromatic	3800	3800	3800			
Asbestos	*Should be None Detected			*Should be None Detected		

* In House Value/Approach S4UL = Suitable 4 Use Level, CIEH/LQM 2014 C4SL = Cat 4 Screening Level, DEFRA, 2014

Blank cell indicates no published value or in-house value. Some values presented are above saturation limits. Considered separately.

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Analytical Report Number : 26-015195

Project / Site name:	Leeds Road Heckmondwike	Samples received on:	20/03/2026
Your job number:	ORH 25	Samples instructed on/ Analysis started on:	24/03/2026
Your order number:	ORH 25	Analysis completed by:	02/04/2026
Report Issue Number:	1	Report issued on:	02/04/2026
Samples Analysed:	15 soil samples		

Signed: _____

Trevor Hill
Customer Service
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.



4041



Analytical Report Number: 26-015195

Project / Site name: Leeds Road Heckmondwike

Your Order No: ORH 25

Lab Sample Number	868597			868598			868599			868600			868601			
Sample Reference	TS1			TS2			TS3			TS4			TS5			
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)	0.00-0.20			0.00-0.20			0.00-0.20			0.00-0.20			0.00-0.20			
Date Sampled	20/03/2026			20/03/2026			20/03/2026			20/03/2026			20/03/2026			
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	28	20	32	29	42
Total mass of sample received	kg	0.1	NONE	0.4	0.5	0.7	0.8	0.9

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A	-	-	-	-	-
Analysis completed	N/A	N/A	N/A	-	-	-	-	-
Actinolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	-	-

Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	-	-	-	-	-
Total Sulphate as SO ₄	mg/kg	50	MCERTS	-	-	-	-	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-	-
Organic Matter (automated)	%	0.1	MCERTS	-	-	-	-	-

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	-	-	-	-
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Analytical Report Number: 26-015195

Project / Site name: Leeds Road Heckmondwike

Your Order No: ORH 25

Lab Sample Number	868597			868598			868599			868600			868601		
Sample Reference	TS1			TS2			TS3			TS4			TS5		
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)	0.00-0.20			0.00-0.20			0.00-0.20			0.00-0.20			0.00-0.20		
Date Sampled	20/03/2026			20/03/2026			20/03/2026			20/03/2026			20/03/2026		
Time Taken	None Supplied			None Supplied			None Supplied			None Supplied			None Supplied		
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status												

Heavy Metals / Metalloids

	mg/kg	1	MCERTS	29	24	25	28	30
Arsenic (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-	-	-	-
Cadmium (aqua regia extractable)	mg/kg	1.8	MCERTS	-	-	-	-	-
Chromium (hexavalent)	mg/kg	1	NONE	-	-	-	-	-
Chromium (III)	mg/kg	1.8	NONE	-	-	-	-	-
Chromium (hexavalent) by IC	mg/kg	1	NONE	-	-	-	-	-
Chromium (III) by IC	mg/kg	1	MCERTS	-	-	-	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-
Lead (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-	-	-	-
Mercury (aqua regia extractable)	mg/kg	1	MCERTS	28	25	19	20	20
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-

Petroleum Hydrocarbons

TPH (EC10 - EC40) <small>EH_CU_1D_TOTAL</small>	mg/kg	10	MCERTS	-	-	-	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



4041



Analytical Report Number: 26-015195

Project / Site name: Leeds Road Heckmondwike

Your Order No: ORH 25

Lab Sample Number				868602	868603	868604	868605	868606
Sample Reference				TS6	TS7	TS8	TS2	TS6
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)				0.00-0.20	0.00-0.20	0.00-0.20	0.30-0.40	0.30-0.50
Date Sampled				20/03/2026	20/03/2026	20/03/2026	20/03/2026	20/03/2026
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	30	27	37	18	25
Total mass of sample received	kg	0.1	NONE	0.9	2	0.8	0.8	0.9

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A	-	-	-	-	-
Analysis completed	N/A	N/A	N/A	-	-	-	-	-
Actinolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	-	-

Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	-	-	-	-	-
Total Sulphate as SO ₄	mg/kg	50	MCERTS	-	-	-	-	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-	-
Organic Matter (automated)	%	0.1	MCERTS	-	-	-	-	-

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	-	-	-	-
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Analytical Report Number: 26-015195

Project / Site name: Leeds Road Heckmondwike

Your Order No: ORH 25

Lab Sample Number	868602			868603			868604			868605			868606		
Sample Reference	TS6			TS7			TS8			TS2			TS6		
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)	0.00-0.20			0.00-0.20			0.00-0.20			0.30-0.40			0.30-0.50		
Date Sampled	20/03/2026			20/03/2026			20/03/2026			20/03/2026			20/03/2026		
Time Taken	None Supplied			None Supplied			None Supplied			None Supplied			None Supplied		
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status												

Heavy Metals / Metalloids

Parameter	Unit	Limit	Accreditation	868602	868603	868604	868605	868606
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	29	19	15	17	31
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-	-	-	-
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-	-	-	-	-
Chromium (III)	mg/kg	1	NONE	-	-	-	-	-
Chromium (hexavalent) by IC	mg/kg	1.8	NONE	-	-	-	-	-
Chromium (III) by IC	mg/kg	1	NONE	-	-	-	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-	-	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	26	16	13	27	42
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-

Petroleum Hydrocarbons

Parameter	Unit	Limit	Accreditation	868602	868603	868604	868605	868606
TPH (EC10 - EC40) <small>EH_CU_1D_TOTAL</small>	mg/kg	10	MCERTS	-	-	-	-	-

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



Analytical Report Number: 26-015195
Project / Site name: Leeds Road Heckmondwike
Your Order No: ORH 25

Lab Sample Number
 Sample Reference
 Sample Number
 Water Matrix
 Depth (m)
 Date Sampled
 Time Taken

Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status
Mass of stone >10mm	%	0.1	NONE
Moisture Content	%	0.01	NONE
Total mass of sample received	kg	0.1	NONE
Asbestos			
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025

Analytical Report Number: 26-015195

Project / Site name: Leeds Road Heckmondwike

Your Order No: ORH 25

Lab Sample Number	868607			868608			868609			868610			868611		
Sample Reference	TS8			HP1			HP2			HP3			HP4		
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)	0.25-0.45			0.00-0.20			0.10-0.25			0.00-0.20			0.00-0.20		
Date Sampled	20/03/2026			20/03/2026			20/03/2026			20/03/2026			20/03/2026		
Time Taken	None Supplied			None Supplied			None Supplied			None Supplied			None Supplied		
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status												

Heavy Metals / Metalloids

Element	Unit	Limit	MCERTS	868607	868608	868609	868610	868611
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	24	8.1	19	22
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	0.5	< 0.2	< 0.2	0.3
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-	U/S ^{*U/S g}	< 1.8	U/S ^{*U/S g}	U/S ^{*U/S g}
Chromium (III)	mg/kg	1	NONE	-	U/S ^{*U/S g}	13	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
Chromium (III) by IC	mg/kg	1	NONE	-	25	-	18	29
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	25	13	18	29
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	58	23	41	71
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	160	39	110	170
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	0.3	< 0.3	0.4	0.4
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	17	21	22	19	24
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	1.3	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	170	69	130	160

Petroleum Hydrocarbons

Parameter	Unit	Limit	MCERTS	868607	868608	868609	868610	868611
TPH (EC10 - EC40) _{EH_CU_ID_TOTAL}	mg/kg	10	MCERTS	-	180	< 10	44	52

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

Analytical Report Number : 26-015195

Project / Site name: Leeds Road Heckmondwike

* 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 *
868597	TS1	None Supplied	0.00-0.20	Brown loam and sand with vegetation
868598	TS2	None Supplied	0.00-0.20	Brown loam and sand with gravel and vegetation
868599	TS3	None Supplied	0.00-0.20	Brown loam and sand with vegetation
868600	TS4	None Supplied	0.00-0.20	Brown loam and sand with vegetation
868601	TS5	None Supplied	0.00-0.20	Brown clay and loam with vegetation
868602	TS6	None Supplied	0.00-0.20	Brown loam and clay with gravel and vegetation
868603	TS7	None Supplied	0.00-0.20	Brown loam and clay with gravel and vegetation
868604	TS8	None Supplied	0.00-0.20	Brown loam and clay with gravel and vegetation
868605	TS2	None Supplied	0.30-0.40	Brown loam and clay with gravel and vegetation
868606	TS6	None Supplied	0.30-0.50	Brown loam and sand with gravel and vegetation
868607	TS8	None Supplied	0.25-0.45	Brown clay and sand with vegetation
868608	HP1	None Supplied	0.00-0.20	Brown loam and sand with vegetation
868609	HP2	None Supplied	0.10-0.25	Brown clay and sand with gravel and vegetation
868610	HP3	None Supplied	0.00-0.20	Brown loam and clay with gravel and vegetation
868611	HP4	None Supplied	0.00-0.20	Brown loam and clay with gravel and vegetation

Analytical Report Number : 26-015195

Project / Site name: Leeds Road Heckmondwike

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
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
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE
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
Organic matter (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
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
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
Total petroleum hydrocarbons by GC-FID in soil	Determination of total petroleum hydrocarbons in soil by GC-FID	In-house method	L076B	D	MCERTS
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
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-PL	W	MCERTS

Analytical Report Number : 26-015195

Project / Site name: Leeds Road Heckmondwike

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
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

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.

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.

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.

UKSO

1. Choose where you would like to investigate by navigating the map, or searching for a location below

Q heckmondwike

2. Use the map layers tool to learn more about the different soil properties in the United Kingdom



Map Layers

NSI - GBASE Topsoil Arsenic



Click on plus button to add layers to the

NSI - GBASE Topsoil Arsenic

mg/kg 44.02



3D

