STOCKPILE VALIDATION RECORD

Project No:	C5984	**Date of Visit:**	23/07/2025
Site Name:	Gwernaffield Road, Mold	**Weather Conditions:**	Sunny
Client:	Anwyl Homes	**Site Manager:**	Sam
Engineer/technician:	MB	**Visit Time:**	13:30 – 14:30pm

Description of site works

13:30pm – Meg onsite

Attended site to complete a site walkover over of the north and south field to access site progress, check Eurogold are completion works in line with the remedial strategy and to collect water samples.

North field

- Original bund remains in the centre of the site separating the high and low lead contaminated areas.
- Historical sluice feature still remains consisting of stone constructed walls with shrubbery overgrown.
- Drainage pipes are being installed near to the badger set.
- Large volumes of groundwater have been encountered during the excavation of the drainage pipes, groundwater is now being pumped out of the excavations into the 'dirty' area of the site in the south.
- Surface water from the pumped groundwater drainage has now started to seep into the area of the historical sluice feature, it should be noted that the groundworkers have placed hay bales in this area to limit silt movement.
- Subsoil stockpiles in the dirty area of the northern field remain unchanged and have not been riddled.
- All other stockpiles have remained the same across the north field.

South field

- Foundations and bricklaying is commencing within the north of the southern field.
- Red stakes are still intact segregating the two areas of the southern field.
- Large volumes of groundwater have been encountered during the excavation of the drainage pipes.

Water sampling was undertaken at 3 different locations:

Sample W1 = located off site within an interceptor where groundwater is being pumped into. Interceptor is located east of the southern field within the adjoining field.

Sample W2 = surface water located within the north field which has been pumped out of the groundwater encountered within the drainage excavations.

Sample W3 = Offsite within an outlet which is entering the River Alyn.

Samples Collected		
Reference	**Samples names**	**Location of water sample**
Water sampling	W1 W2 W3	Sample W1 = located off site within an interceptor where groundwater is being pumped into. Interceptor is located east of the southern field within the adjoining field. Sample W2 = surface water located within the north field which has been pumped out of the groundwater encountered within the drainage excavations. Sample W3 = Offsite within an outlet which is entering the River Alyn.
Additional Notes:		
No odour or sheen noted on the water samples.		

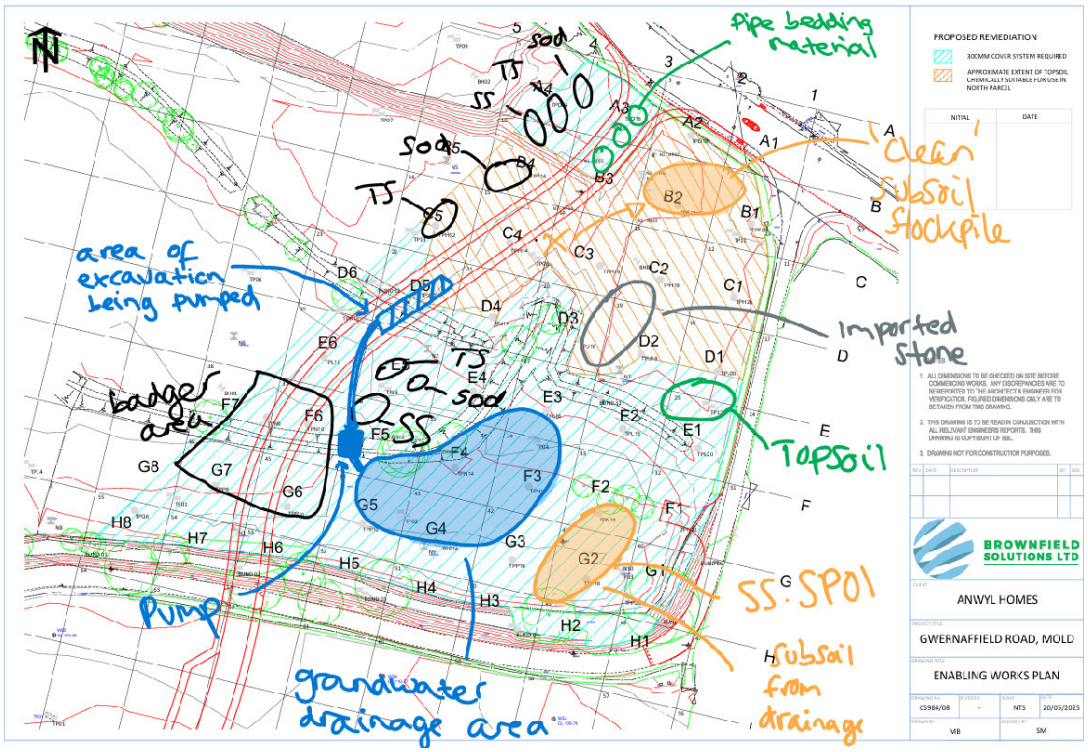
Testing requirements:	
The material was tested in line with the remedial strategy for the below contaminants: • BSL Default Water Suite: Metals, sulphates, carbonates and PAHs	
Screening criteria:	UK Drinking Water Standards
Suitable usage/intended use	Lead levels are below the relevant screening criteria. Elevated levels of nitrate (N02) have been identified within the groundwater, however these are thought to be naturally occurring and are unlikely to pose a risk to end users.

Schematic of Sample Locations :

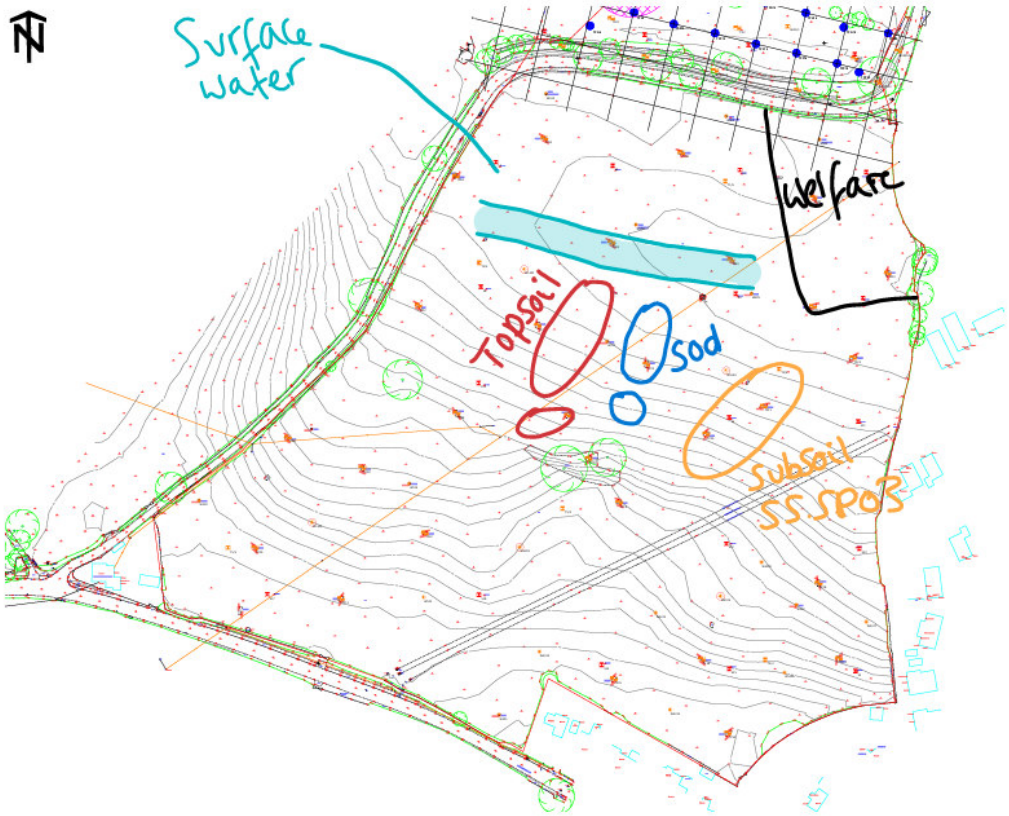
WATER SAMPLING LOCATIONS

Schematic of Sample Locations :

NORTH FIELD



SOUTH FIELD



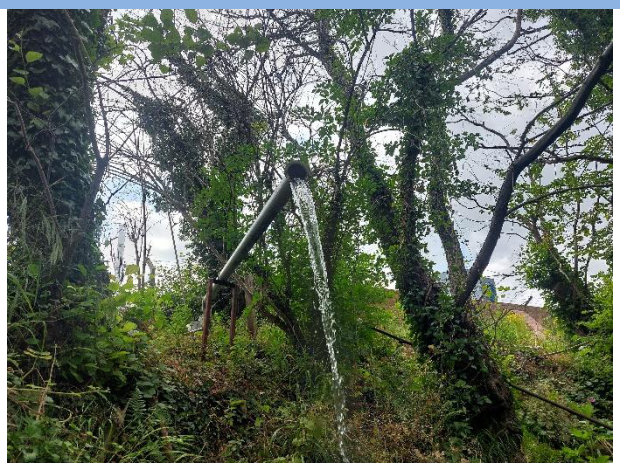
Photographs

Photograph 1 – Water sample location 1

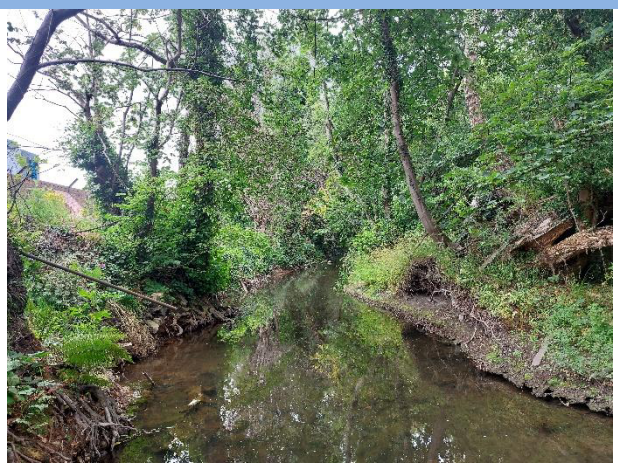
Photograph 2 – Water sample location 1

Photograph 3 – Water sample location 2

Photograph 4 – Hay bales and minimum surface water within the area of the historical sluice



Photograph 5 – Water sample location 3



Photograph 6 – River Alyn

Photograph 7 – Imported stone in north field

Photograph 8 – SS.SP01

Photograph 9 – Surface water in south field

Photograph 10 – Surface water in north field

Controlled Waters Assessment Summary			Surface/Groundwater Body:			Freshwater		
			Location:			W1	W2	W3
			Well Screen Stratum:					
Contaminant	Screening Level (EQS/DWS) (ug/l)	No. Samples	Min. Value	Max. Value	No. Samples ≥ Screening Level			
pH	-	3	7.40	7.60	-	8	7	8
Electrical Conductivity	-	3	65.00	170.00	-	170	65	150
Hardness	-	3	341.00	380.00	-	341	380	364
Disolved Organic Carbon (DOC)	-	3	1580.00	2410.00	-	2330	2410	1580
Arsenic	10	3	0.22	0.33	0	0	0	0
Boron	1000	3	28.00	39.00	0	39	28	37
Cadmium	5	3	< LOD	0.12	0	< 0.02	0	< 0.02
Calcium	250	3	120.00	140.00	0	120	140	130
Chromium (Total)	50	3	0.30	1.40	0	1	1	0
Chromium (III)	No WQT	3	< LOD	<LOD	0	< 5.0	< 5.0	< 5.0
Chromium (VI)	No WQT	3	< LOD	<LOD	0	< 5.0	< 5.0	< 5.0
Copper	2000	3	3.90	4.40	0	4	4	4
Lead	10	3	< LOD	2.60	0	< 0.2	3	< 0.2
Manganese	50	3	2.60	12.00	0	12	3	7
Mercury	1	3	< LOD	0.06	0	0	< 0.05	< 0.05
Nickel	20	3	< LOD	3.20	0	3	< 0.5	1
Selenium	10	3	1.40	3.00	0	2	3	1
Zinc	3000	3	11.00	72.00	0	72	32	11
Ammonium (NH4)	500	3	16.00	38.00	0	37	16	38
Chloride	250000	3	29000.00	89000.00	0	34000	29000	89000
Sulphate	250000	3	< LOD	<LOD	0	< 0.01	< 0.01	< 0.01
Sulphide	0	3	< LOD	<LOD	0	< 5.0	< 5.0	< 5.0
Nitrate (as N03)	50000	3	< LOD	<LOD	0	< 0.01	< 0.01	< 0.01
Nitrate (as N02)	100	3	23.00	350.00	1	350	23	39
Phenol (Total)	No WQT	3	< LOD	<LOD	0	< 0.01	< 0.01	< 0.01
Naphthalene	No WQT	3	< LOD	<LOD	0	< 0.01	< 0.01	< 0.01
Acenaphthylene	No WQT	3	< LOD	<LOD	0	< 0.01	< 0.01	< 0.01
Anthracene	No WQT	3	< LOD	<LOD	0	< 0.01	< 0.01	< 0.01
Fluoranthene	No WQT	3	< LOD	<LOD	0	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	0.1	3	< LOD	<LOD	0	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	0.1	3	< LOD	<LOD	0	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	0.01	3	< LOD	<LOD	0	< 0.01	< 0.01	< 0.01
Indeno(1,2,3,cd)pyrene	0.1	3	< LOD	<LOD	0	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	0.1	3	< LOD	<LOD	0	< 0.01	< 0.01	< 0.01
Mean Average pH	**7.5**							
Mean Average Hardness	**361.7**							
	UK Drinking Water Standard (DWS)							

Values in RED are > the relevant screening levels and further assessment is required. Exceedance of the screening levels alone may not mean a risk is posed.

No WQT - there are no generic Water Quality Targets availble (EQS, DWS or WHO guidelines).

Job Number: C5984
Client: Anwyl Homes
Site: Gwernaffield Road, Mold

Brownfield Solutions Ltd
William Smith House
173 - 183 Witton Street
Northwich
Cheshire
CW9 5LP

e: m.buckley@brownfield-solutions.co.uk
M.Sutterby@brownfield-solutions.co.uk
s.murray@brownfield-solutions.co.uk

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

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 25-039544

Project / Site name:	Gwarnaffield Road, Mold	**Samples received on:**	24/07/2025
Your job number:	C5984	**Samples instructed on/ Analysis started on:**	24/07/2025
Your order number:	C5984 5647 MB	**Analysis completed by:**	31/07/2025
Report Issue Number:	1	**Report issued on:**	31/07/2025
Samples Analysed:	3 water 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.

Analytical Report Number: 25-039544
Project / Site name: Gwarnaffield Road, Mold

Your Order No: C5984 5647 MB

Lab Sample Number				626419	626420	626421
Sample Reference				W1	W2	W3
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				Other water	Other water	Other water
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				23/07/2025	23/07/2025	23/07/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**			
General Inorganics						
pH (L099)	pH Units	N/A	NONE	7.5	7.4	7.6
Electrical Conductivity at 20°C	µS/cm	10	NONE	170	65	150
Sulphate as SO_4	mg/l	0.045	NONE	52.1	36.8	43.1
Sulphide	µg/l	5	NONE	< 5.0	< 5.0	< 5.0
Chloride	mg/l	0.15	NONE	34	29	89
Ammoniacal Nitrogen as NH_4^+	µg/l	15	NONE	37	16	38
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	2.33	2.41	1.58
Nitrate as N	mg/l	0.01	NONE	14.4	20.9	10.3
Nitrate as NO_3	mg/l	0.05	NONE	63.9	92.6	45.8
Nitrite as NO_2	µg/l	5	NONE	350	23	39
Hardness - Total	mgCaCO3/l	1	NONE	341	380	364
Speciated PAHs						
Naphthalene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Total PAH						
Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	< 0.16

Analytical Report Number: 25-039544
Project / Site name: Gwarnaffield Road, Mold

Your Order No: C5984 5647 MB

Lab Sample Number				626419	626420	626421
Sample Reference				W1	W2	W3
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				Other water	Other water	Other water
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				23/07/2025	23/07/2025	23/07/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**			
Heavy Metals / Metalloids						
Arsenic (dissolved)	µg/l	0.15	NONE	0.33	0.22	0.22
Cadmium (dissolved)	µg/l	0.02	NONE	< 0.02	0.12	< 0.02
Chromium (dissolved)	µg/l	0.2	NONE	1.4	0.5	0.3
Copper (dissolved)	µg/l	0.5	NONE	3.9	4.4	4
Lead (dissolved)	µg/l	0.2	NONE	< 0.2	2.6	< 0.2
Manganese (dissolved)	µg/l	0.05	NONE	12	2.6	6.5
Mercury (dissolved)	µg/l	0.05	NONE	0.06	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	NONE	3.2	< 0.5	0.7
Selenium (dissolved)	µg/l	0.6	NONE	1.5	3	1.4
Zinc (dissolved)	µg/l	0.5	NONE	72	32	11
Boron (dissolved)	µg/l	10	NONE	39	28	37
Calcium (dissolved)	mg/l	0.012	NONE	120	140	130
Chromium (hexavalent)	µg/l	5	NONE	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0	< 5.0

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

Analytical Report Number : 25-039544
Project / Site name: Gwarnaffield Road, Mold

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
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited matrices: SW, PW, GW, except B - SW,GW, Hg - SW,PW, Al - SW,PW	In-house method based on USEPA Method 6020 & 200.8 for the determination of trace elements in water by ICP-MS	L012B	W	NONE
Sulphide in water	Determination of sulphide in water by ion selective electrode	In-house method	L029-PL	W	NONE
Electrical Conductivity at 20°C in water	Determination of electrical conductivity in water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE	In-house method	L031B	W	NONE
Dissolved Organic Carbon in water	Determination of dissolved organic carbon in water by TOC/DOC NDIR Analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, FSE, LL; PrW, DI PrW (Al, Cu, Fe,Zn)	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	NONE
Total Hardness of water	Determination of total hardness of water by calculation from calcium and magnesium. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045B	W	NONE
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08	L078-PL	W	NONE
Nitrate in water	Determination of nitrate by reaction with sodium salicylate followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08	L078-PL	W	NONE
Chromium(III) in water	In-house method by calculation from total Cr and Cr(VI)	In-house method by calculation	L080-PL	W	NONE
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5-diphenylcarbazide, followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method by continuous flow analyser	L080-PL	W	NONE
Chloride in water	Determination of chloride in water by colorimetry using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house based on MEWAM Method ISBN 0117516260	L082B	W	NONE
Ammonium as NH4 in water	Determination of ammonium/ammonia/ammoniacal nitrogen by the colorimetric salicylate/nitroprusside method using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	NONE
Nitrite in water	Determination of nitrite in water by addition of sulphanilamide and NED followed by colorimetry using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	NONE
pH of water at 20°C (automated)	Determination of pH of water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE, LL	In-house method	L099-PL	W	NONE
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAHs) in water by extraction in dichloromethane followed by GC-MS. Accredited matrices (PAHs): SW, PW, GW	In-house method based on USEPA 8270	L102B	W	NONE

Analytical Report Number : 25-039544
Project / Site name: Gwarnaffield Road, Mold

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
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, PrW, DI PrW, FSE, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	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.
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