



TANK REMOVAL VALIDATION REPORT

FOR

J10 PLANNING

AT

GWERSYLLT

BFG1042 R01

FEBRUARY 2024

Prepared For

Justin Paul

J10 Planning

Prepared By

Bigfoot Environmental Consultants Ltd

DISTRIBUTION LIST

Issued To	Title / Company / Location	Email
Justin Paul	J10 Planning	Justin@j10planning.com

QUALITY ASSURANCE

Issue / Revision	Issue 1	Revision 1	Revision 2
Remarks	Final		
Date	February 2024		
Prepared By	Bigfoot Geo-environmental Consultants Ltd		
Project Number	BFG1042		

1.0	INTRODUCTION.....	1
1.1.	Background.....	1
1.2.	Limitations	1
1.3.	Development Proposals.....	1
1.4.	Planning Status & Requirements	2
1.5.	Previous Investigations.....	2
1.6.	Objectives and Scope of Works	2
2.0	SITE OVERVIEW.....	2
2.1.	Site Location & Description	2
3.0	PREVIOUS GROUND INVESTIGATIONS	3
3.1	Clancy Consulting Ltd, Phase II Geo-environmental Appraisal Report, Mold Road, Wrexham, November 2017 Ref:10/1014/001.	3
3.2	Bigfoot Geoenvironmental Consultants Ltd, Remediation Strategy, June 2023.	4
4.0	TANK VALIDATION WORKS	4
4.1	Summary.....	4
4.2	Tank Removal	5
4.3	Tank Validation Sampling	5
4.4	Tank Validation Sample Results.....	5
5.0	CONCLUSION	6
6.0	REFERENCES.....	6
APPENDIX I – LIMITATIONS.....		
APPENDIX II – GLOSSARY		
APPENDIX III – BIGFOOT GEO-ENVIRONMENTAL EXPLORATORY HOLE LOGS.....		
APPENDIX IV – BIGFOOT LABORATORY RESULTS		

1.0 INTRODUCTION

1.1. Background

Bigfoot Geo-environmental Consultants Ltd (BFG) were commissioned by J10 Planning, hereafter referred to as (the client) to prepare a Validation Report (VR) for the proposed development at Gwersyllt, Wrexham, specifically relating to the removal of underground tanks located on site.

This report has been devised to generally comply with the relevant principles and requirements of a range of guidance including:

- Part IIA of the Environment Protection Act, 1990.
- Contaminated Land (England) (Amendment) Regulations 2012 and Contaminated Land Statutory Guidance (DEFRA, April 2012).
- National Planning Policy Framework (HCA, February 2019).
- BS5930:2015: "Code of practice for site investigations".
- BS10175: 2011 +A2:2017 "Investigation of Potentially Contaminated Sites - Code of Practice".
- The Building Regulations 2010. Part C (HM Government 2013).
- Environment Agency: Land Contamination Risk Management (LCRM), Version 3, October 2020.
- Environment Agency (2017) "The Environment Agency's Approach to Groundwater Protection" November 2017 Version 1.1.
- Environment Agency Guidance (October 2020) Land Contamination Risk Management Land Contamination (LCRM).

1.2. Limitations

Report limitations are presented in **Appendix I** and a Glossary is presented in **Appendix II**.

1.3. Development Proposals

It is understood that the proposed development comprises the construction of a Low Secure Unit development with associated landscaping.

An extract of the proposed site development plan is presented as **Figure 1**, below.

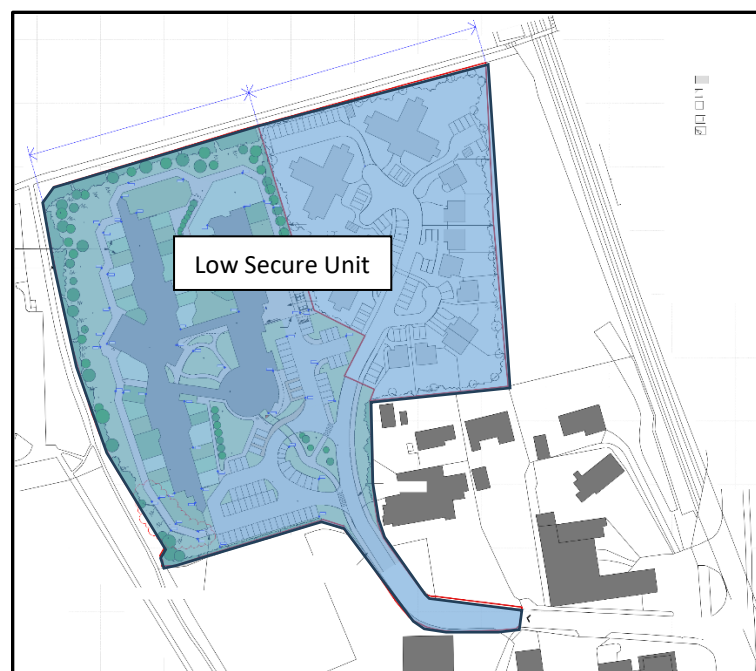


Figure 1 Proposed Site Development Plan

The findings and conclusions of the risk assessments have been set out and recommendations given for the proposed commercial end use. If there is a subsequent change in the proposed land, the risk assessments and conclusions should be reviewed to determine whether they are still applicable for the revised end use.

1.4. Planning Status & Requirements

This Validation Report is part of a suite of supporting documents submitted with the applications. These supporting documents are in addition to the formal application documents comprising the application forms and the accompanying plans, sections, and elevations.

1.5. Previous Investigations

Clancy Consulting have completed a Phase 2 Site Investigation summarised below which should be read in conjunction with this report:

- Clancy Consulting Ltd, Phase II Geo-Environmental Appraisal Report, (ref: 10/1014/001, dated November 2017);

1.6. Objectives and Scope of Works

The purpose of the Validation Report is to provide evidence of remedial activities undertaken at the site relating to the removal of underground storage tanks on site.

2.0 SITE OVERVIEW

2.1. Site Location & Description

The site is indicated in **Figure 1** above and the site location and description is summarised in **Tables 2.1 and 2.2**.

Table 2.1 Summary of Site Location

Summary of Site Location	Description
Location	Mold Road, Gwersyllt, Wrexham
Grid Reference	331536, 352823
Site Area (ha)	2 ha (approx.)

Table 2.2 Summary of Site Description and its Environs

	Description
Current Use	At the time of writing the Validation Report, the site was derelict land with no buildings present. The site was generally level with a cut embankment in the northwest of the site (along the western and northern boundaries).
Access	Access to site is via Mold Road to the south-east of the site
Existing Buildings & Structures	No buildings present
Site Surface	Demolition rubble, grass and scrub vegetation.
Asbestos	No ACMs noted.

Waste Disposal / Materials Storage	No waste materials or uncontrollable storage of waste materials were noted on site.
Surrounding Area	North: Farmland East: Mold Road with residential properties beyond South: Gwersyllt Sports and Social Club and Commercial/ Industrial Buildings West: Leisure Centre, school with sports fields

3.0 PREVIOUS GROUND INVESTIGATIONS

3.1 Clancy Consulting Ltd, Phase II Geo-environmental Appraisal Report, Mold Road, Wrexham, November 2017 Ref:10/1014/001.

Site History	The historical OS maps dating back to 1872 indicate that the site was first occupied by colliery stockpiles belonging to an adjacent colliery along the western boundary of the site. The stockpile extended in size from 1872 to 1961 covering the whole of the western and part of the northern site area before being removed around 1969. From 1974 the development of industrial buildings occurred including a council depot, works and unidentified industrial buildings along with an electrical sub- station as part of the wider Westminster Industrial Estate. The surrounding area has been occupied by mixed residential and industrial land with a colliery located to the south of the site along with tanks, smithy, brickworks, disused tip and drill shed. Alongside this a railway is located adjacent to the eastern boundary of the site running north south.
Geology	Geological maps indicate the site is underlain by superficial deposits of Glacial Till in the west and Glaciofluvial Deposits in the east. The superficial deposits are anticipated to be underlain by sandstone of the Cefn Rock, a member of the Pennine Middle Coal Measures Formation.
Environmental Setting	The superficial deposits underlying the west of the site (Glacial Till) are classified as an Unproductive Aquifer with the superficial deposits in the east of the site (Glaciofluvial Deposits) are classified as a Secondary A Aquifer. The solid strata located beneath site is classified as a Secondary A Aquifer. The site is not located within a Groundwater Source Protection Zone and there are no groundwater abstraction points within 2km of the site. The nearest surface watercourse is located 700m distant.
Radon	The Radon Guidance on protective measures for new dwellings indicates that the site is in an area where 3% to 5% of properties are above action level and basic radon protection is required for all new structures.
Ground Conditions	The ground investigation has identified Made Ground across the site which is typically between 0.5m and 1.5m in depth. In one location (WS6) the Made Ground was found to be deeper reaching 2.45m. The filled ground typically comprises concrete, tarmac or gravel hardstanding underlain by clayey sand or clay with inclusions of limestone, sandstone, brick, slate, metal, siltstone and mudstone. Natural strata have been found to be variable in nature and comprising very clayey sand with gravel inclusions of sandstone, siltstone and coal and sandy gravelly clay. These strata are often found to be interbedded. The strength / density of the natural strata has also been found to be variable with the granular soils typically in a loose to medium dense condition with the cohesive strata in a firm to stiff condition. Very weak weathered micaceous sandstone was recorded in five locations in the north-western portion of the site at depths between 1.1m and 3.9m. Possible highly weathered sandstone bedrock was also recorded in a number of other locations, recovered as very dense reddish- brown fine to coarse sand with gravel of sandstone

	at depths between 2.6m and 4.1m. Perched groundwater was encountered across the site at depths ranging from 0.35m to 2.0m.
Contamination	Chemical testing carried out on the Made Ground and natural soils beneath the proposed development site did not identify any elevated levels of contaminants when compared to the LQM/CIEH S4ULs for Human Health Risk Assessment 2015 along with DEFRA Category 4 Screening Levels (C4SLs) SSVs for a residential end use. An asbestos cement tile has been recorded in one location in the south western part of the site and although this in itself does not warrant additional investigations we have recommended that the appointed ground works contractor carry out a watching brief during any excavations in this area of the site to check for the presence of asbestos containing materials.
Hazardous Ground Gases	Gas monitoring wells have been installed across the site and the results to date have recorded a maximum steady carbon dioxide concentration of 8.0% during the first visit with concentrations of 4.0% also recorded in two locations with associated oxygen depletion. Whilst gas flow rates have so far been absent, given the above, along with the presence of hydrocarbon contamination in the western portion of the site we would recommend that allowance is made for the installation of gas protective measures in accordance CS2 conditions as set out in BS8485 "Code of Practice for The Design of Protective Measures for Methane & Carbon Dioxide Ground Gases for New Buildings" (2015). Given the presence of hydrocarbons in the western portion of the site, we would recommend that the secure unit buildings also be provided with a hydrocarbon vapour resistant membrane. It must also be ensured that the gas protective measures installed are suitable to mitigate the risk posed from radon gas.
Further Works	Based on the findings of this investigation, we would recommend the following additional works will be required: • Supervision and inspection of the removal of all above ground fuel storage tanks. Excavation of trial pits should then be carried out directly beneath and around the tanks with further soil samples recovered for chemical testing. • Additional trial pits to be excavated beneath existing building footprints following demolition to confirm the ground conditions and depth of filled ground. • Provision of gas protective measures in accordance with CS2 conditions with allowance for a hydrocarbon vapour resistant membrane in the western portion of the site. The gas protective measures must also be suitable to comply with the requirement for basic radon gas protection.

3.2 Bigfoot Geoenvironmental Consultants Ltd, Remediation Strategy, June 2023.

Remediation Strategy – Tank Validation	Previously identified tanks located on site require removal followed by appropriate validation sampling to confirm the resultant ground and soil conditions and the potential presence of contamination.
---	--

4.0 TANK VALIDATION WORKS

4.1 Summary

The Clancy Phase 2 report confirmed the presence of underground storage tanks and recommended the inspection and removal of fuel storage tanks prior to site development. Recommendations also included the excavation of trial pits to be carried out directly beneath and around the tanks, with further soil samples recovered for chemical testing.



Figure 2 UST Location

4.2 Tank Removal

The appointed contractor, Peter Walling, confirmed the tanks were inspected prior to works, confirming all tanks were empty.

Peter confirmed the tanks (three) were excavated down the front and sides, prior to removing for disposal as scrap metal off-site. Once the tanks were removed, excavated materials were placed back in the excavation and tracked to provide a compacted surface.

All works were undertaken during good weather and the tanks were subsequently removed from site as scrap.

4.3 Tank Validation Sampling

Following removal of the tanks, Bigfoot Geoenvironmental attended the site (May 2023) to undertake validation sampling. The sampling investigation was guided by Peter Walling with the soil sampling undertaken by Bigfoot Geoenvironmental.

6No. validation samples were taken in the area of the former USTs (TP01) in order to confirm removal of the tank and any potential residual contamination. All samples were submitted for TPH CWG and BTEX. (one sample per face and one sample from the base of the excavation and one sample from the backfill).

A description of the validation excavation is included in Appendix III.

4.4 Tank Validation Sample Results

All concentrations of contaminants were found to be below residential without plant up take guidance criteria, confirming no elevated hydrocarbon concentrations remained in situ, following the removal of the tank.

Results are included in **Appendix IV** of this report.

5.0 CONCLUSION

Three underground storage tanks were present on site as part of the former land use. It was recommended these tanks were removed prior to future development, followed by a round of validation sampling in and around the base of the former tanks, to ensure no residual contamination risk remained.

The tanks were subsequently removed by the client's appointed contractor, Peter Walling, and disposed off-site as scrap.

Validation sampling was undertaken by Bigfoot Geoenvironmental Consultants under the direction of the principal contractor. All chemical analysis results were found to be below guidance criteria for residential land without plant uptake.

The validation sampling exercise confirmed that no residual risk from contamination was present, that could impact on future site development.

6.0 REFERENCES

1. BS 5930: 2015: Code of practice for site investigation. British Standards Institution.
2. BS 10175: 2011+A2 2017: Investigation of potentially contaminated sites – Code of Practice. British Standards Institution
3. BS 3882: 2015: Specification for topsoil and requirements for use. British Standards Institution.
4. BS 8601: 2013: Specification for subsoil and requirements for use. British Standards Institution.
5. Building Research Establishment: 1994: Performance of building materials in contaminated land. Author Paul, V
6. Cheshire East Council, Developing Land Within Cheshire East Council. A Guide to Submitting Planning Applications, Land Contamination, January 2020.
7. CL:AIRE: 2011: The Definition of Waste: Development Industry Code of Practice Version 2. Contaminated Land: Applications in Real Environments
8. CL:AIRE: 2016: CAR-SOIL – Control of Asbestos Regulations 2012. Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials. Industrial Guidance. Contaminated Land: Applications in Real Environments
9. Department for Communities and Local Government: 2012: National Planning Policy Framework, 27th March 2012.
10. Department for Environment, Food and Rural Affairs and the Environment Agency: 2002: Toxicological Reports for Individual Soil Contaminants, Reports TOX 1-10.
11. Department for Environment, Food and Rural Affairs: 2013: Development of Category 4 Screening Levels for assessment of land affected by contamination - SP1010 (December 2013).
12. Environment Agency: 2005: Environment Agency Guidance on Requirements for Land Contamination Reports. Version 1, July 2005.
13. Environment Agency: 2008: Updated Technical Background to the CLEA model Science Report SC050021/SR3 and CLEA Model 1.071 (2014)
14. Environment Agency: 2015: Hazardous Waste – Interpretation of the Definition and Classification of Hazardous Waste. WM3, May 2015.
15. Environment Agency: 2010: GPLC1 – Guiding principles for land contamination. GPLC2 – FAQs, technical information, and references. GPLC3 – Reporting checklists.
16. Environment Agency: 2015: Guidance on the classification and assessment of waste (1st edition May 2015). Technical Guidance WM3
17. Environment Agency: 2008: Human Health Toxicological Assessment of Contaminants in Soil SC050021/SR2
18. Environment Agency: 2008: A review of Bodyweight and Height Data Used within the Contaminated Land Exposure Assessment model (CLEA) SC050021/Technical Review 1
19. Environment Agency: 2008: Guidance for the Safe Development of Housing on Land Affected by Contamination. EA/NHBC/CIEH R & D Publication 66.
20. Environment Agency: 2020: Land Contamination Risk Management (LCRM), Version 3, 8 October 2020
21. Health & Safety Executive: 2013: Approved Code of Practice: Managing & working with asbestos. Control of Asbestos Regulations 2012.

22. HMSO: 1995: Part 2A of the Environmental Protection Act 1990, as inserted by Section 57 of the Environment Act 1995, was brought into force on 1 April 2000.
23. LQM/CIEH: 2009 Nathaniel CP, McCaffrey C, Ashmore MH, Cheng YY, Gillett A, Ogden R & Scott D: 2009. The LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment (2nd edition). Land Quality Press, Nottingham.
24. MAFF: 1998: Code of Good Agricultural Practice for the Protection of Soils
25. Ministry of Housing, Communities & Local Government: 2019: National Planning Policy Framework, February 2019.
26. NHBC: 2020: NHBC Standards.
27. Statutory Instruments: 2012: Health and Safety. The Control of Asbestos Regulations 2012. No. 632 coming into force 6th April 2012.
28. Statutory Instruments: 2012: Environmental Protection, England. Contaminated Land (England) (Amendment) Regulations 2012 No. 263 coming into force 6th April 2012.
29. Statutory Instruments: 2015: The Construction (Design and Management) Regulations 2015 (CDM 2015).
30. UKWIR: 2010: Guidance for the selection of Water Supply Pipes to be Used in Brownfield Sites. Report Ref No 10/WM/03/21. UK Water Industry Research Limited.

APPENDIX I – LIMITATIONS

APPENDIX I - LIMITATIONS

LIMITATIONS

1. This report and its findings should be considered in relation to the terms of reference and objectives agreed between Bigfoot Geo-environmental Consultants and the Client as indicated in Section 1.0.
2. For the work, reliance has been placed on publicly available data obtained from the sources identified. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. When using the information, it has been assumed it is correct. No attempt has been made to verify the information.
3. This report has been produced in accordance with current UK policy and legislative requirements for land and groundwater contamination which are enforced by the local authority and the Environment Agency. Liabilities associated with land contamination are complex and requires advice from legal professionals.
4. During the site walkover reasonable effort has been made to obtain an overview of the site conditions. However, during the site walkover no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown, or the location of the area has not be made known or accessible.
5. Access considerations, the presence of services and the activities being carried out on the site limited the locations where sampling locations could be installed and the techniques that could be used.
6. In addition to the above Bigfoot Geo-environmental Consultants note that when investigating, or developing, potentially contaminated land it is important to recognise that sub-surface conditions may vary spatially and also with time. The absence of certain ground, ground gas, and contamination or groundwater conditions at the positions tested is not a guarantee that such conditions do not exist anywhere across the site. Due to the presence of existing buildings and structures access could not be obtained to all areas. Additional contamination may be identified following the removal of the buildings or hard standing.
7. Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.
8. Where mention has been made to the identification of Japanese Knotweed and other invasive plant species and asbestos or asbestos-containing materials this is for indicative purposes only and do not constitute or replace full and proper surveys.
9. The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.
10. This report presents an interpretation of the geotechnical information established by excavation, observation, and testing. Whilst every effort is made in interpretative reporting to assess the soil conditions over the Site it should be noted that natural strata vary from point to point and that manmade deposits are subject to an even greater diversity. Groundwater conditions are dependent on seasonal and other factors. Consequently, there may be conditions present not revealed by this investigation.
11. Bigfoot Geo-environmental Consultants cannot be held responsible for any use of the report or its contents for any purpose other than that for which it was prepared. The copyright in this report and other plans and documents prepared by Bigfoot Geo-environmental Consultants is owned by them and no such plans or documents may be reproduced, published or adapted without written consent. Complete copies of this may, however, be made and distributed by the client as is expected in dealing with matters related to its commission. Should the client pass copies of the report to other parties for information, the whole report should be copied, but no professional liability or warranties shall be extended to other parties by Bigfoot Geo-environmental Consultants in this connection without their explicit written agreement there to by Bigfoot Geo-environmental Consultants.
12. Rather, this investigation has been undertaken to provide a preliminary characterisation of the existing sub-surface geotechnical characteristics and make up and the findings of this study are our best interpretation of the data collected, within the scope of work and agreed budget. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.
13. This investigation has been undertaken to reasonably characterise existing sub-surface conditions and the findings of this study are our best interpretation of the data collected, within the scope of work and agreed budget. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.



APPENDIX II – GLOSSARY

APPENDIX II - GLOSSARY

GLOSSARY

AST	Above Ground Storage Tank
BGS	British Geological Survey
BSI	British Standards Institute
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CIEH	Chartered Institute of Environmental Health
CIRIA	Construction Industry Research Association
CLEA	Contaminated Land Exposure Assessment
CSM	Conceptual Site Model
DNAPL	Dense Non-Aqueous Phase Liquid (chlorinated solvents, PCB)
DWS	Drinking Water Standard
EA	Environment Agency
EQS	Environmental Quality Standard
GAC	General Assessment Criteria
GL	Ground Level
GSV	Gas Screening Value
HCV	Health Criteria Value
ICSM	Initial Conceptual Site Model
LNAPL	Light Non-Aqueous Phase Liquid (petrol, diesel, kerosene)
ND	Not Detected
LMRL	Lower Method Reporting Limit
NR	Not Recorded
PAH	Poly Aromatic Hydrocarbon
PCB	Poly-Chlorinated Biphenyl
PID	Photo Ionisation Detector
QA	Quality Assurance
SGV	Soil Guideline Value
SPH	Separate Phase Hydrocarbon
Sp.TPH (CWG)	Total Petroleum Hydrocarbon (Criteria Working Group)
SPT	Standard Penetration Test
SVOC	Semi Volatile Organic Compound
UST	Underground Storage Tank
VCCs	Vibro Concrete Columns
VOC	Volatile Organic Compound
WTE	Water Table Elevation



APPENDIX III – BIGFOOT GEO-ENVIRONMENTAL EXPLORATORY HOLE LOGS

APPENDIX III – EXPLORATORY HOLE LOGS

PROJECT	Gwersyllt	 TRIAL PIT LOG TP01
PROJECT NO.	BFG1042	
EXPLORATORY HOLE ID	TP01	
DATE	05/05/2023	
DESCRIBED BY	JL	
LOGGER SIGNATURE	JL	

Strata			Samples and Tests		
From (m)	To (m)	Description	Depth,m	Type	Result
0.00	0.90	MADE GROUND: Brownish grey mottled black gravelly fine to coarse SAND. Gravel is fine to coarse angular to subangular of sandstone, brick and concrete. Cobbles of sandstone and concrete.	0.70	ES	
0.90	2.00	Firm reddish brown mottled grey slightly sandy CLAY. Sand is fine to medium.			
			1.20	ES	

Remarks	
Stable ground conditions	
Method/ Plant	Mechanical Excavator
Stability	Stable
Shoring	None
Weather	
U=Undisturbed, P=Piston, D=Disturbed, B= Bulk, W=Water, ES=Environmental Soil Sample, EW=Environmental Water Sample	



APPENDIX IV – LABORATORY RESULTS

Bradley Hall
Bigfoot Geo-Environmental Consultants Ltd
Trimble House
9 Bold Street
Warrington
WA1 1DN

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

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

e: brad@bfgeo.co.uk

Analytical Report Number : 23-32937

Project / Site name:	Gwersylit, Wrexham	Samples received on:	09/05/2023
Your job number:	BFG1042	Samples instructed on/ Analysis started on:	11/05/2023
Your order number:	105	Analysis completed by:	17/05/2023
Report Issue Number:	1	Report issued on:	17/05/2023
Samples Analysed:	16 soil samples		

Signed:

Elżbieta Suchy
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

Analytical Report Number: 23-32937
Project / Site name: Gwersyllit, Wrexham
Your Order No: 105

Lab Sample Number				2674092	2674093	2674094	2674095	2674096
Sample Reference				SA1	SA1	SA2	SA2	SA3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.50	0.10	0.50	0.30
Date Sampled				04/05/2023	04/05/2023	05/05/2023	05/05/2023	04/05/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	11	11	4.8	9.4	9.3
Total mass of sample received	kg	0.001	NONE	0.9	0.9	0.9	0.9	0.9

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.5	7.2	10.6	7.9	7.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	70	260	170	10	170
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.035	0.13	0.087	0.005	0.086
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	34.8	132	87.4	5	86.1
Organic Matter (automated)	%	0.1	MCERTS	3.5	0.5	1.5	0.5	1.4
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	2	0.3	0.9	0.3	0.8

Total Phenols

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

SS

Speciated PAHs

Naphthalene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	NONE	0.21	< 0.05	0.13	< 0.05	0.1
Anthracene	mg/kg	0.05	NONE	0.07	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	NONE	0.32	< 0.05	0.16	< 0.05	0.2
Pyrene	mg/kg	0.05	NONE	0.32	< 0.05	0.16	< 0.05	0.18
Benzo(a)anthracene	mg/kg	0.05	NONE	0.17	< 0.05	0.11	< 0.05	0.14
Chrysene	mg/kg	0.05	NONE	0.22	< 0.05	0.17	< 0.05	0.21
Benzo(b)fluoranthene	mg/kg	0.05	NONE	0.33	< 0.05	< 0.05	< 0.05	0.35
Benzo(k)fluoranthene	mg/kg	0.05	NONE	0.12	< 0.05	< 0.05	< 0.05	0.12
Benzo(a)pyrene	mg/kg	0.05	NONE	0.25	< 0.05	< 0.05	< 0.05	0.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	0.19	< 0.05	< 0.05	< 0.05	0.15
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	NONE	0.24	< 0.05	< 0.05	< 0.05	0.18

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	NONE	2.44	< 0.80	< 0.80	< 0.80	1.83
-----------------------------	-------	-----	------	------	--------	--------	--------	------

Analytical Report Number: 23-32937
Project / Site name: Gwersyllt, Wrexham
Your Order No: 105

Lab Sample Number				2674092	2674093	2674094	2674095	2674096
Sample Reference				SA1	SA1	SA2	SA2	SA3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.50	0.10	0.50	0.30
Date Sampled				04/05/2023	04/05/2023	05/05/2023	05/05/2023	04/05/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	15	6.9	6	8.2	7.4
Barium (aqua regia extractable)	mg/kg	1	MCERTS	92	69	60	76	63
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.94	0.62	0.33	0.68	0.54
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	< 0.2	0.4	0.3	0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	15	17	9.1	17	14
Copper (aqua regia extractable)	mg/kg	1	MCERTS	25	17	14	22	23
Lead (aqua regia extractable)	mg/kg	1	MCERTS	82	35	33	23	58
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	18	16	7.8	25	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	23	21	12	19	19
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	98	35	42	47	58

Monoaromatics & Oxygenates

Benzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Petroleum Hydrocarbons

TPH C10 - C40 _{EH, CU, 1D, TOTAL}	mg/kg	10	NONE	57	< 10	120	< 10	< 10
--	-------	----	------	----	------	-----	------	------

TPH2 (C6 - C10) _{HS, 1D, TOTAL}	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
--	-------	-----	------	-------	-------	-------	-------	-------

TPH C6 - C40 _{EH, CU+HS, CU, 1D, TOTAL}	mg/kg	10	NONE	57	< 10	120	< 10	< 10
--	-------	----	------	----	------	-----	------	------

TPH-CWG - Aliphatic >EC5 - EC6 _{HS, 1D, AL}	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 _{HS, 1D, AL}	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 _{HS, 1D, AL}	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 _{EH, CU, 1D, AL}	mg/kg	1	NONE	1.2	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 _{EH, CU, 1D, AL}	mg/kg	2	NONE	2.3	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 _{EH, CU, 1D, AL}	mg/kg	8	NONE	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 _{EH, CU, 1D, AL}	mg/kg	8	NONE	23	< 8.0	41	< 8.0	9.1
TPH-CWG - Aliphatic >EC35 - EC40 _{EH, CU, 1D, AL}	mg/kg	10	NONE	11	< 10	13	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7 _{HS, 1D, AR}	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 _{HS, 1D, AR}	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 _{HS, 1D, AR}	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 _{EH, CU, 1D, AR}	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 _{EH, CU, 1D, AR}	mg/kg	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 _{EH, CU, 1D, AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 _{EH, CU, 1D, AR}	mg/kg	10	NONE	< 10	< 10	44	< 10	< 10
TPH-CWG - Aromatic >EC35 - EC40 _{EH, CU, 1D, AR}	mg/kg	10	NONE	< 10	< 10	15	< 10	< 10
TPH Total C5 - C40 _{EH, CU+HS, 1D, TOTAL}	mg/kg	10	NONE	57	< 10	120	< 10	< 10

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

Analytical Report Number: 23-32937
Project / Site name: Gwersyllit, Wrexham
Your Order No: 105

Lab Sample Number				2674097	2674098	2674099	2674100	2674101
Sample Reference				SA3	SA4	SA4	SA5	SA5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.40	1.10	0.60	1.50
Date Sampled				04/05/2023	05/05/2023	05/05/2023	04/05/2023	04/05/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	9.1	13	10	22	17
Total mass of sample received	kg	0.001	NONE	0.9	0.9	0.9	0.9	0.9

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8	7.9	7.8	6.7	7.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	100	38	62	470	370
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.052	0.019	0.031	0.24	0.19
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	51.6	18.9	31.1	237	185
Organic Matter (automated)	%	0.1	MCERTS	0.9	4.5	0.9	4.2	1.8
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.5	2.6	0.5	2.4	1

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	NONE	< 0.05	0.48	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	NONE	< 0.05	0.32	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	NONE	< 0.05	2	0.3	0.21	< 0.05
Anthracene	mg/kg	0.05	NONE	< 0.05	0.39	0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	NONE	< 0.05	1.1	0.15	0.08	< 0.05
Pyrene	mg/kg	0.05	NONE	< 0.05	0.92	0.13	0.06	< 0.05
Benzo(a)anthracene	mg/kg	0.05	NONE	< 0.05	0.37	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	NONE	< 0.05	0.4	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	NONE	< 0.05	0.36	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	NONE	< 0.05	0.17	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	NONE	< 0.05	0.26	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	< 0.05	0.17	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	NONE	< 0.05	0.23	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	NONE	< 0.80	7.07	< 0.80	< 0.80	< 0.80
-----------------------------	-------	-----	------	--------	------	--------	--------	--------

Analytical Report Number: 23-32937
Project / Site name: Gwersyllt, Wrexham
Your Order No: 105

Lab Sample Number				2674097	2674098	2674099	2674100	2674101
Sample Reference				SA3	SA4	SA4	SA5	SA5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.40	1.10	0.60	1.50
Date Sampled				04/05/2023	05/05/2023	05/05/2023	04/05/2023	04/05/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.7	15	7.4	15	3.5
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	110	75	110	77
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.8	0.89	0.66	1.2	0.5
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	0.3	< 0.2	0.6	1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	15	17	17	14
Copper (aqua regia extractable)	mg/kg	1	MCERTS	26	37	18	35	13
Lead (aqua regia extractable)	mg/kg	1	MCERTS	21	54	20	49	30
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	26	26	22	26	12
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	27	23	21	35	15
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	60	76	47	50	28

Monoaromatics & Oxygenates

Benzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Petroleum Hydrocarbons

TPH C10 - C40 _{EH,CU,1D,TOTAL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
---	-------	----	------	------	------	------	------	------

TPH2 (C6 - C10) _{HS,1D,TOTAL}	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
--	-------	-----	------	-------	-------	-------	-------	-------

TPH C6 - C40 _{EH,CU+HS,CU,1D,TOTAL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
--	-------	----	------	------	------	------	------	------

TPH-CWG - Aliphatic >EC5 - EC6 _{HS,1D,AL}	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 _{HS,1D,AL}	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 _{HS,1D,AL}	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 _{EH,CU,1D,AL}	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 _{EH,CU,1D,AL}	mg/kg	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 _{EH,CU,1D,AL}	mg/kg	8	NONE	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 _{EH,CU,1D,AL}	mg/kg	8	NONE	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC35 - EC40 _{EH,CU,1D,AL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7 _{HS,1D,AR}	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 _{HS,1D,AR}	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 _{HS,1D,AR}	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 _{EH,CU,1D,AR}	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 _{EH,CU,1D,AR}	mg/kg	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 _{EH,CU,1D,AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 _{EH,CU,1D,AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC35 - EC40 _{EH,CU,1D,AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH Total C5 - C40 _{EH,CU+HS,1D,TOTAL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

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

Analytical Report Number: 23-32937
Project / Site name: Gwersyllt, Wrexham
Your Order No: 105

Lab Sample Number				2674102	2674103	2674104	2674105	2674106
Sample Reference				TP01 ES1 -North	TP01 ES2 -East	TP01 ES3 -South	TP01 ES4 -West	TP01 ES5 -Base
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20	1.20	1.20	1.20	1.20
Date Sampled				04/05/2023	04/05/2023	04/05/2023	04/05/2023	04/05/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	36	< 0.1	< 0.1	39	< 0.1
Moisture Content	%	0.01	NONE	9.1	10	9.6	8.9	11
Total mass of sample received	kg	0.001	NONE	0.9	0.9	0.9	0.9	0.9

Asbestos in Soil	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	-	-	-	-
Total Cyanide	mg/kg	1	MCERTS	-	-	-	-	-
Complex Cyanide	mg/kg	1	MCERTS	-	-	-	-	-
Free Cyanide	mg/kg	1	MCERTS	-	-	-	-	-
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-	-
Organic Matter (automated)	%	0.1	MCERTS	-	-	-	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	-	-	-	-

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	NONE	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	NONE	-	-	-	-	-
Acenaphthene	mg/kg	0.05	NONE	-	-	-	-	-
Fluorene	mg/kg	0.05	NONE	-	-	-	-	-
Phenanthrene	mg/kg	0.05	NONE	-	-	-	-	-
Anthracene	mg/kg	0.05	NONE	-	-	-	-	-
Fluoranthene	mg/kg	0.05	NONE	-	-	-	-	-
Pyrene	mg/kg	0.05	NONE	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	NONE	-	-	-	-	-
Chrysene	mg/kg	0.05	NONE	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	NONE	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	NONE	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	NONE	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	NONE	-	-	-	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	NONE	-	-	-	-	-
-----------------------------	-------	-----	------	---	---	---	---	---

Analytical Report Number: 23-32937
Project / Site name: Gwersyllt, Wrexham
Your Order No: 105

Lab Sample Number				2674102	2674103	2674104	2674105	2674106
Sample Reference				TP01 ES1 -North	TP01 ES2 -East	TP01 ES3 -South	TP01 ES4 -West	TP01 ES5 -Base
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20	1.20	1.20	1.20	1.20
Date Sampled				04/05/2023	04/05/2023	04/05/2023	04/05/2023	04/05/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	-	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	-	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-	-	-	-
Chromium (hexavalent)	mg/kg	1.2	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	-	-	-	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Petroleum Hydrocarbons								
TPH C10 - C40 _{EH,CU,1D,TOTAL}	mg/kg	10	NONE	-	-	-	-	-
TPH2 (C6 - C10) _{HS,1D,TOTAL}	mg/kg	0.1	NONE	-	-	-	-	-
TPH C6 - C40 _{EH,CU+HS,CU,1D,TOTAL}	mg/kg	10	NONE	-	-	-	-	-
TPH-CWG - Aliphatic >EC5 - EC6 _{HS,1D,AL}	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 _{HS,1D,AL}	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 _{HS,1D,AL}	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 _{EH,CU,1D,AL}	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 _{EH,CU,1D,AL}	mg/kg	2	NONE	< 2.0	2.2	< 2.0	4.2	3.8
TPH-CWG - Aliphatic >EC16 - EC21 _{EH,CU,1D,AL}	mg/kg	8	NONE	14	13	< 8.0	35	9
TPH-CWG - Aliphatic >EC21 - EC35 _{EH,CU,1D,AL}	mg/kg	8	NONE	24	< 8.0	< 8.0	28	< 8.0
TPH-CWG - Aliphatic >EC35 - EC40 _{EH,CU,1D,AL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7 _{HS,1D,AR}	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 _{HS,1D,AR}	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 _{HS,1D,AR}	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 _{EH,CU,1D,AR}	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 _{EH,CU,1D,AR}	mg/kg	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 _{EH,CU,1D,AR}	mg/kg	10	NONE	< 10	< 10	< 10	16	< 10
TPH-CWG - Aromatic >EC21 - EC35 _{EH,CU,1D,AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC35 - EC40 _{EH,CU,1D,AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH Total C5 - C40 _{EH,CU+HS,1D,TOTAL}	mg/kg	10	NONE	42	21	< 10	94	15

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

Analytical Report Number: 23-32937
Project / Site name: Gwersyllit, Wrexham
Your Order No: 105

Lab Sample Number				2674107
Sample Reference				TP01 ES6-Blackfill
Sample Number				None Supplied
Depth (m)				0.90
Date Sampled				04/05/2023
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	10
Total mass of sample received	kg	0.001	NONE	0.9

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	140
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.072
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	72.2
Organic Matter (automated)	%	0.1	MCERTS	1
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.6

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	NONE	1
Acenaphthylene	mg/kg	0.05	NONE	< 0.05
Acenaphthene	mg/kg	0.05	NONE	1.8
Fluorene	mg/kg	0.05	NONE	1.4
Phenanthrene	mg/kg	0.05	NONE	6.6
Anthracene	mg/kg	0.05	NONE	1.3
Fluoranthene	mg/kg	0.05	NONE	4.3
Pyrene	mg/kg	0.05	NONE	3.5
Benzo(a)anthracene	mg/kg	0.05	NONE	1.2
Chrysene	mg/kg	0.05	NONE	1.1
Benzo(b)fluoranthene	mg/kg	0.05	NONE	1
Benzo(k)fluoranthene	mg/kg	0.05	NONE	0.49
Benzo(a)pyrene	mg/kg	0.05	NONE	0.93
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	0.39
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	0.08
Benzo(ghi)perylene	mg/kg	0.05	NONE	0.5

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	NONE	25.6
-----------------------------	-------	-----	------	------