GroundSolve Ltd
Consulting Geotechnical Engineers

WYNNSTAY TECHNOLOGY PARK - VERIFICATION REPORT - AREA 1

GSL3224

VERSION 1

13/10/2025

Final

Prepared for: Castlemead Group Ltd

Prepared by: Alex Ridge

Castlemead
GROUP LIMITED

GroundSolve Ltd
Consulting Geotechnical Engineers

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This report has been prepared by GroundSolve Ltd with all reasonable care and diligence, within the best practice and guidance current at the time of issue within the proposed redline boundary and proposed Site end use as presented by the Client.

This report is confidential to the Client and GroundSolve Ltd accepts no responsibility whatsoever to third parties to whom this report is presented.

Version No.	Description of Issue / Revision	Date of Issue	Author	Reviewed By	Approved By
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1 INTRODUCTION

GroundSolve Ltd was commissioned by Castle Mead to undertake a verification report for the residential development referred to as Wynnstay Technology Park (the "Site").

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

- Welsh Local Government Assoc- Development of Land Affected By Contamination Guide for Developers 2017
- Wrexham County Council, The Development of Sites with Land Contamination. Local planning guidance note, No.23
- Part IIA of the Environment Protection Act, 1990
- 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)

1.1 Proposed Development

The proposed development comprises of 43No. residential properties with associated parking and garden areas. This verification report relates to Area 1 highlighted within **Figure 1** below.



Extract from proposed development plan (see Appendix A, Figure 1)

The findings and conclusions of the risk assessments have been set out and recommendations given for the proposed residential end use.

1.2 Objectives

The report provides verification of site material, compares site conditions and soil chemical parameters to the specification for verification as agreed with Wrexham County Council in the Remediation Strategy outlined in GroundSolve Ltd report 3060/02 Issue 02, 28th March 2024.

1.3 Previous Investigations

A number of previous investigations have been undertaken by GroundSolve Ltd in relation to the proposed and current residential development. A list of these reports is presented below:

- Phase II Geo-environmental Report (Ref:2387, issued October 2020).
- Phase I Preliminary Risk Assessment (Ref: 2949, issued August 2023).
- Phase II Preliminary Risk Assessment (Ref: 2949, issued Sept 2023).
- Phase II – Additional Phase 2 Ground Investigation (Ref:3060, issued March 2024)

The previous site investigation reports are discussed and summarised in **Section 3** of this report.

1.4 Limitations

This report has been prepared for the sole use of Castle Mead. No other third party may rely upon or reproduce the contents of this report without the written approval of GroundSolve Ltd. If any unauthorised third party comes into possession of this report, they rely on it entirely at their own risk.

2 SITE DETAILS AND DESCRIPTION

Table 2.1 Current Site Overview.

Site name	Wynnstay Technology Park
Site address	Wynnstay Technology Park, Ruabon, Wrexham LL14 6EN
National Grid Reference (NGR)	329226 343570
Approximate Site area	2.07Ha
Site shape	Roughly Rectangular
Current land use on the Site	Residential development
Surrounding land uses	Two commercial sites border to the east (Oakland Egg Packing Plant) and south (Wrexham Mineral Cables). Residential properties are present to the west, and an electricity substation is present to the north. The site is bordered by Llangollen Road to the north and Wynnstay Lane to the west.
General topography and ground levels	The central part of the site is relatively flat with a general slope from northeast 126m OD to southwest 123m OD. The northern and eastern boundary are formed by raised embankments which are typically 2.0m to 4.0m higher than the rest of the site.

3 PREVIOUS INVESTIGATIONS

3.1 Site History Review

A number of previous investigations have been carried out on the site. A summary of the findings from the previous investigations are given below:

Table 3.1: Summary of Previous Investigations.

Site History	The earliest available mapping (1873) indicates a shaft located within the southern half, which was associated with the adjacent Wynnstay Colliery with the remainder agricultural fields. By 1899 the shaft is marked as disused, and a secondary air shaft is also identified immediately to the northeast. From 1899 onwards the site is used for the tipping of mining spoil from the colliery via a tramway until its closure in 1962. By 1989 the site and the surrounding areas had extensive earthworks which had reprofiled the ground levels for the site to be redeveloped into Wynnstay Technology Park. The embankment has remained along the western and northern boundaries. The mine shaft was grouted and capped as part of the redevelopment. The site remains broadly undeveloped to the present.
Geological Setting	Made Ground is present typically to 1.0m comprising colliery spoil – gravelly sand / sandy gravel including ash, clinker, coal brick, concrete. The superficial deposits present on site are shown to comprise Glacial Till overlying the solid geology of the Pennine Lower Coal Measures Formation and Pennine Middle Coal Measures Formation (Undifferentiated) - Mudstone, Siltstone and Sandstone. The superficial aquifer on site is classed as Secondary Undifferentiated of low groundwater vulnerability. The bedrock aquifer on site is classed as Secondary A of low groundwater vulnerability.
Mining	The mining risk assessment indicates that the site could be affected by underground mining from 6 coal seams, however these are very deep ranging from 140m to 320m depth, and last worked in 1927. The Coal Authority have indicated that any movement in the ground due to coal mining activity associated with these workings should have stopped by now. The coal shaft present to the south of the residential development was grouted and capped in 1990. An associated air shaft was shown to be present on the 1899 mapping however this is not identified within the coal consultant's report included as **Appendix D**
Waste	Waste material from the past mining activities it likely to be on site in the form of made ground.
Contamination Sources	**Onsite** The previous ground investigations identified elevated metal concentrations within the shallow soils within the northern area. The installation of a validated cover system was agreed with the local authority.

4 VERIFICATION OF TOPSOIL AND SUBSOIL

4.1 Introduction

The risk assessments have concluded remediation measures are required in the form of 0.15m thickness of topsoil with 0.45m thickness of subsoil to address risks to human health and provide a clean cover system.

It should be noted that the construction has been largely completed with clean cover systems in place within the residential properties and areas of open space.

The remedial actions required are:

Area 1

- A 600mm thick layer of clean material (0.15m of topsoil with 0.45m of subsoil) was required to be installed to enable provision of uncontaminated cover soils in areas of garden/soft landscaping.

Topsoil will be required to be analysed for a suitable suite of contaminants in relation to human health (in addition to topsoil being compliant with BS3882:2015).

4.2 Unexpected Contamination

No unexpected contamination has been encountered.

4.3 Site works

The garden areas were completed in two phases (Area 1 and Area 2). GroundSolve were present at the site on the 8th September 2025 to verify thickness and obtain topsoil samples from Area 1. Samples from a stockpile of subsoil material was tested in September 2024, and samples from stockpiled site won material for use as topsoil in area 1 were taken in March 2024. The purposes of these visits were to describe and take samples of the topsoil and subsoil for chemical analysis for later use within residential garden and communal soft standing areas. Photos are provided in **Appendix B** (topsoil and subsoil in garden areas).

4.4 Description of Topsoil and Thickness

12 No. trial pits were excavated in the garden area of Plots 1-11 and 34, in a location selected at random by a suitably qualified Geo-Environmental engineer, the locations of which are shown on the Validation Location Plan, enclosed in **Appendix A.**

Table 4.1 – Depth of Topsoil, Subsoil

Plot Number	Depth/Stratum	Pass/Fail
Plot 1	Topsoil (0.15m) Subsoil (0.45m)	Pass
Plot 2	Topsoil (0.17m) Subsoil (0.43m)	Pass
Plot 3	Topsoil (0.15m) Subsoil (0.45m)	Pass
Plot 4	Topsoil (0.16m) Subsoil (0.44m)	Pass
Plot 5	Topsoil (0.16m) Subsoil (0.44m)	Pass
Plot 6	Topsoil (0.15m) Subsoil (0.45m)	Pass
Plot 7	Topsoil (0.17m) Subsoil (0.43m)	Pass
Plot 8	Topsoil (0.15m) Subsoil (0.50m)	Pass
Plot 9	Topsoil (0.15m) Subsoil (0.45m)	Pass
Plot 10	Topsoil (0.15m) Subsoil (0.45m)	Pass
Plot 11	Topsoil (0.15m) Subsoil (0.45m)	Pass
Plot 34	Topsoil (0.15m) subsoil (0.45m)	Pass

Topsoil – Dark brown silty gravelly fine to coarse SAND with frequent rootlets. Gravel is fine-coarse sub-rounded

Subsoil – Dark brown to grey very sandy gravelly CLAY. Gravel is fine to coarse sub-rounded to sub angular.

Verification photographs gardens area are presented in **Appendix B**.

All areas of rear gardens show a thickness of topsoil which is a minimum of 150 mm depth and a depth of subsoil which is a minimum of 600mm. All areas comply with the requirements detailed in remediation strategy.

4.5 Verification of Topsoil and Subsoil – Sampling and Testing

A total of 22 no. samples of topsoil's and 6 No. subsoil were analysed. From visual observation, the materials constituted topsoil comprising of "Dark brown silty gravelly fine to coarse SAND with frequent rootlets. Gravel is fine-coarse sub-rounded"

The soil samples were sent to UKAS accredited labs in accordance with ISO17025 and is also MCERTS accredited for soil analysis in accordance with the Environment Agency's scheme. The laboratory analysis results are presented in **Appendix C.**

Table **4.2** – Acceptance Criteria for imported material (Topsoil and Subsoil)

Analyte	Soil Re-Use and Importation Criteria		Analyte	Soil Re-Use and Importation Criteria	
	mg/kg	Reference		mg/kg	Reference
Metals			**BTEX**		
Arsenic (total)	37	S4UL	Benzene	0.087	S4UL
Cadmium (total)	11	S4UL	Toluene	130	S4UL
Chromium (total)	520	HWT	Ethyl Benzene	47	S4UL
Chromium (hexavalent)	6	S4UL	Xylene – 0	60	S4UL
Copper (total)	200	BS3882	Xylene – M or P	56	S4UL
Lead (total)	200	C4SL			
Mercury (total inorganic)	40	S4UL	**Petroleum Hydrocarbons$**		
Nickel (total)	130	S4UL	Aliphatic > EC5 - EC6	42	S4UL
Selenium	250	S4UL	Aliphatic >EC6 - EC8	100	S4UL
Vanadium	410	S4UL	Aliphatic >EC8 - EC10	27	S4UL
Zinc (total)	2,009**	HWT	Aliphatic >EC10 - EC12	130	S4UL
			Aliphatic >EC12 - EC16	1000**	HWT
Inorganic			Aliphatic >EC16 - EC21	1000**	HWT
Sulphate	2400***	-	Aliphatic >EC21 - EC35	1000**	HWT
Phenol	120	S4UL			
			Aromatic >EC5 - EC7	70	S4UL
PAH&			Aromatic >EC7 - EC8	130	S4UL
Naphthalene	2.3	S4UL	Aromatic >EC8 - EC10	34	S4UL
Acenaphthylene	170	S4UL	Aromatic >EC10 - EC12	74	S4UL
Acenaphthene	210	S4UL	Aromatic >EC12 - EC16	140	S4UL
Fluorene	170	S4UL	Aromatic >EC16 - EC21	260	S4UL
Phenanthrene	95	S4UL	Aromatic >EC21 - EC35	1000**	HWT
Anthracene	2400	S4UL	Aromatic>EC35-44	1000**	HWT
Fluoranthene	280	S4UL	Aromatic>EC44-EC77	1000**	HWT
Pyrene	620	S4UL			
Benz(a)anthracene	7.2	S4UL	Asbestos	Not detected (<0.001%) for topsoil and subsoil	Lab LoD
Chrysene	15	S4UL			
Benzo(b)fluoranthene	2.6	S4UL			
Benzo(k)fluoranthene	77	S4UL			
Benzo(a)pyrene	2.2	S4UL			
Indeno(123cd)pyrene	27	S4UL			
Benzo(ghi)perylene	320	S4UL			
Dibenzo(ah)anthracene	0.24	S4UL			

The results of the samples collected were screened against Generic Assessment Criteria (GAC) for Human Health Risk Assessment (LQM/CIEH 2015) for a residential with gardens end-use, sandy soil with 1% SOM and pH 7.0 (presented in Table 3 and **Appendix D**).

Topsoil / Subsoil

22No. samples were selected from the topsoil and subsoil material. All the topsoil and subsoil results pass the relevant screening criteria for residential land use with plant uptake, therefore are suitable for use within the garden areas. The results are summarised in **Appendix D.**

5 CONCLUSIONS

5.1 Clean Cover Depth

The remediation strategy details the requirement details the requirement for a 0.60 m clean cover comprising a minimum of 150 mm topsoil across garden areas.

Visual inspection visits were performed by GroundSolve. Photographs showing the verification of depth across selected plots were found to comprise a sufficient clean cover system in accordance with the agreed remedial strategy and Wrexham Council Guidance.

5.2 Topsoil and subsoil Material

Laboratory chemical analysis results from both the recovered sub-soil and topsoil material show the samples do not exceed the agreed GACs (1% SOM).

Laboratory analysis results of recovered samples show topsoil and subsoil are generally in compliance with BS3883:2015 and BS8601:2013.

5.3 Conclusions

The report indicates that the site inspections and chemical tests results from Area 1 have met all the requirements of the remediation as outlined in the remediation strategy agreed with the Wrexham Council Guidance.

No unexpected contamination has been encountered within Plots within Area 1. Material has been stockpiled prior to removal. To date, no material has been sent to landfill yet.

6 REFERENCES

BRE BR211 (2015). Radon: Guidance on Protective Measures for New Dwellings. IHS BRE Press, Bracknell.

BRE SD1 (2005). Concrete in Aggressive Ground. Special Digest 1 (revised edition). IHS BRE Press, Bracknell.

BRE 414 (2001) Protective measures for housing on gas-contaminated land. BRE.

BS 10175:2011+A2:2017 Investigation of Potentially Contaminated Sites - Code of Practice. British Standards Institution, London.

BS5930:2015+A12020 Code of practice for ground investigations BSI

BS8485 2015 Code of Practice for the design of protective measures for methane and carbon dioxide ground gases in new buildings. British Standards

BS8576-2013 Guidance on investigations for ground gas – permanent gases and volatile organic compounds (VOCs). BSI,

CIRIA Rep R 149 (1995a) Protecting Development from Methane. Report 149, CIRIA, London.

CIRIA Rep R 150 (1995b) Methane Investigation Strategies. Report 150, CIRIA, London.

CIRIA Rep R 132 (1996) A Guide for Safe Working on Contaminated Sites. Report 132, CIRIA, London.

CIRIA C552 (2001) Contaminated land risk assessment. A guide to good practice (report no. C552).

CIRIA C665 (2007) Assessing the risks posed by hazardous gases to buildings CIRIA, London

CIRIA C681 (2009) Unexploded ordnance (UXO) A guide for the construction industry (C681)

CIRIA C785 (2019) Unexploded ordnance (UXO) risk management guide for land-based projects (C785)

CIRIA C758D (2019) Abandoned mine workings manual (C758D)

Contaminated Land: Applications in Real Environments (CL:AIRE) (2011) Definition of Waste Code of Practice (version 2).

Department of Environment Food and Rural Affairs (DEFRA) (2012) Environmental Protection Act 1990:Part 2A Contaminated Land Statutory Guidance (report no. PB13735).

Environment Agency (2000) Technical Aspects of Site Investigation. Report P5-065/TR, Environment Agency, Bristol.

Environment Agency (2002) Guidance on Monitoring Landfill Leachate, Groundwater and Surface Water. Report LFTGN02, Environment Agency, Bristol.

Environment Agency (2007) Evaluation of Models for Predicting Plant Uptake of Chemicals from Soil. Report SC050021/SR, Environment Agency, Bristol.

Environment Agency (2015) Guidance on the Classification and Assessment of Waste Technical Guidance WM3 (1st edition).European Union (1998) Drinking Water Directive (Council Directive 98/83/EC).

Land Contamination Risk Management (LCRM) Environment Agency October 2020 https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm .

LQM/CIEH Ltd (2015) S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham.

SoBRA (2017) Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater – Version 1.0.

The Water Framework Directive, (Standards and Classification) Directions (England and Wales).

World Health Organisation (2017) Guidelines for Drinking Water Quality (4th edition).

Britain From Above - https://britainfromabove.org.uk/en/image/WPW060399

http://www.warstateandsociety.com/Bombing-Britain

https://www.epa.gov/pfas/basic-information-pfas

UK Maps of Radon, http://www.ukradon.org/information/ukmaps

Health and Safety Executive (2015) Construction (Design and Management) Regulations.

Coal Authority Interactive Map Viewer, http://mapapps2.bgs.ac.uk/coalauthority/home.html

BGS Geology of Britain Viewer http://mapapps.bgs.ac.uk/geologyofbritain/home.html

7 DEFINITIONS

AOD	Above Ordnance Datum
bgl	Below ground level
BGS	British Geological Survey
BRE	Building Research Establishment
CBR	California Bearing Ratio (test)
COMAH	Control of Major Accident Hazards (regulations)
DQRA	Detailed Quantitative Risk Assessment
DWS	Drinking Water Standard
EQS	Environmental Quality Standard
GAC	Generic Assessment Criterion
GQA	General Quality Assessment (Environment Agency)
GQRA	Generic Quantitative Risk Assessment
GSV	Gas Screening Value
HCV	Health Criteria Value
IPPC	Integrated Pollution Prevention and Control (regulations)
NGR	National Grid Reference
NIHHS	Notification of Installations Handling Hazardous Substances (regulations)
OS	Ordnance Survey
Ppm	Parts per million
Ppmv	Parts per million by volume
SAC	Special Area of Conservation
SPZ	Source Protection Zone (see **Error! Reference source not found.**)
SSAC	Site-Specific Assessment Criterion
SSSI	Site of Special Scientific Interest

APPENDIX A - DRAWINGS

A3



Verification Pits

Revision	Description	Date
A		

GroundSolve Ltd
Consulting Geotechnical Engineers

Unit 1, 85 Station Road
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Job Title

Wynnstay Verification Works

Drawing Title

Clean cover system thickness verification pits area 1

Drawing Scale	Drawn By	Approved By
Not to scale		SF

Drawing Status	Date of Issue
Draft	10/10/2025

Drawing No	Revision
DR001	1

APPENDIX B – SITE PHOTOGRAPH AREA 1



Plot 1 – Topsoil



Plot 2 – Topsoil



Plot 3 – Topsoil



Plot 3 – Subsoil



Plot 4 – Topsoil



Plot 5 - Topsoil



Plot 6 – Topsoil



Plot 6 – Subsoil



Plot 7 – Topsoil



Plot 8 – Topsoil



Plot 8 – Subsoil



Plot 9 – Subsoil



Plot 10 – Topsoil



Plot 10 – Subsoil



Plot 11 – Topsoil



Plot 11 – Subsoil



Plot 34 Subsoil

APPENDIX C – CHEMICAL TEST RESULTS

ANALYTICAL TEST REPORT

Report Number	24-02046, issue number 1
Contract name:	Wynnstay
Client reference:	3120
Clients name:	GroundSolve Ltd
Clients address:	GroundSolve Ltd Unit 1 Well House Barns Chester Road Bretton Flintshire CH4 0DH
Samples received:	24/09/2024
Analysis started:	25/09/2024
Analysis completed:	02/10/2024
Report issued:	02/10/2024

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
U/S	Sample not suitable for testing
NAD	No Asbestos Detected

[redacted]

Approved by: Sam Rogerson
Manager

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Lab ref	Sample ID	Depth (m)	Sample description	Material removed	% Removed	% Moisture
14435	J1	-	Brown Loamy Sand with Gravel.	-	-	< 0.1
14436	J2	-	Brown Loamy Sand with Gravel.	-	-	< 0.1
14437	J3	-	Brown Loamy Clayey Sand with Gravel.	-	-	< 0.1
14438	J4	-	Brown Loamy Sand with Gravel.	-	-	< 0.1
14439	J5	-	Brown Loamy Sand with Gravel.	-	-	< 0.1
14440	J6	-	Brown Loamy Sand with Gravel.	-	-	< 0.1

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

a	Sampling date not provided
b	Sampling time not provided (waters only)
c	Sample not received in appropriate containers
d	Storage Temperature
e	Headspace present in sample container
f	Sample exceeded sampling to reciept
g	Sample exceeded holding time(s)

Lab ref	Sample ID	Depth (m)	Deviating	Tests (Reason for deviation)
14435	J1	-	N	
14436	J2	-	N	
14437	J3	-	N	
14438	J4	-	N	
14439	J5	-	N	
14440	J6	-	N	

SOILS

Lab Number					14435	14436	14437	14438	14439
Client Reference					Soil	Soil	Soil	Soil	Soil
Sample ID					J1	J2	J3	J4	J5
Sample Location					0.10	0.10	0.10	0.10	0.10
Sampling Date					21/09/2024	21/09/2024	21/09/2024	21/09/2024	21/09/2024
Test	**Method**	**Accred**	**LoD**	**Units**					
Asbestos									
Asbestos Identification	SUBCON	SU	0	-	NAD	NAD	NAD	NAD	NAD
Soil sample preparation parameters									
Stones Content	CE001	N	0.1	%	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Metals									
Water Soluble Sulphate	CE061	M	0.01	g/l	0.1	0.1	0.0	0.1	0.1
Acid Soluble Sulphate (SO4)	CE062	M	0.01	%	0.45	0.56	0.49	0.53	0.35
Arsenic	CE264	U	1.8	mg/kg	14.9	12.4	23.8	12.7	12.3
Cadmium	CE264	M	1.6	mg/kg	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
Chromium	CE264	U	2	mg/kg	19.5	15.1	20.3	17.0	15.2
Copper	CE264	M	1.6	mg/kg	23.4	23.5	22.0	29.5	21.4
Lead	CE264	U	2.3	mg/kg	28.4	21.7	31.2	28.0	22.5
Mercury	CE264	U	0.7	mg/kg	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Nickel	CE264	M	2.1	mg/kg	29.7	30.4	46.5	35.0	30.8
Selenium	CE264	U	3	mg/kg	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Zinc	CE264	M	4	mg/kg	53.5	39.1	58.4	44.6	47.4
Volatile Petroleum Hydrocarbons									
>C5-C6 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
>C6-C8 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
>C8-C10 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
>C8-C10 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
>C6-C7 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
>C7-C8 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Colourimetric									
Total Monohydric Phenols	CE078	N	0.5	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Cyanide	CE077	N	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Combustion									
Moisture Content	CE001	N	0.1	%	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Organic Carbon	CE197	N	0.1	%	4.91	4.97	2.89	6.22	6.68

SOILS

Soil Organic Matter	CE072	N	0.1	%	8.47	8.57	4.98	10.7	11.5
TPH Ali/Aro									
>C12-C16 Aliphatic (EH_2D_AL)	CE250	N	0.5	mg/kg	1.6	< 0.5	< 0.5	< 0.5	< 0.5
>C12-C16 Aromatic (EH_2D_AR)	CE250	N	1	mg/kg	3.9	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic (EH_2D_AL)	CE250	N	0.7	mg/kg	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
>C16-C21 Aromatic (EH_2D_AR)	CE250	N	2	mg/kg	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
>C21-C35 Aliphatic (EH_2D_AL)	CE250	N	4	mg/kg	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
>C21-C35 Aromatic (EH_2D_AR)	CE250	N	4.5	mg/kg	5.3	< 4.5	< 4.5	< 4.5	< 4.5
>C35-C40 Aliphatic (EH_2D_AL)	CE250	N	0.5	mg/kg	0.9	< 0.5	< 0.5	< 0.5	< 0.5
>C35-C40 Aromatic (EH_2D_AR)	CE250	N	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
>C10-C12 Aliphatic (EH_2D_AL)	CE250	N	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic (EH_2D_AR)	CE250	N	0.6	mg/kg	1.3	< 0.6	< 0.6	< 0.6	< 0.6
Polyaromatic hydrocarbons									
Naphthalene	CE087	M	0.016	mg/kg	0.020	< 0.016	< 0.016	0.021	0.027
Acenaphthylene	CE087	M	0.015	mg/kg	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015
Acenaphthene	CE087	M	0.013	mg/kg	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013
Fluorene	CE087	U	0.013	mg/kg	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013
Phenanthrene	CE087	M	0.014	mg/kg	0.132	0.017	< 0.014	0.084	0.076
Anthracene	CE087	U	0.017	mg/kg	< 0.017	< 0.017	< 0.017	< 0.017	< 0.017
Fluoranthene	CE087	M	0.017	mg/kg	< 0.017	< 0.017	< 0.017	0.028	0.021
Pyrene	CE087	M	0.016	mg/kg	< 0.016	< 0.016	< 0.016	0.023	0.017
Benzo(a)anthracene	CE087	U	0.012	mg/kg	< 0.012	< 0.012	< 0.012	0.018	0.015
Chrysene	CE087	M	0.028	mg/kg	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028
Benzo(b)fluoranthene	CE087	M	0.02	mg/kg	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Benzo(k)fluoranthene	CE087	M	0.025	mg/kg	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Benzo(a)pyrene	CE087	U	0.019	mg/kg	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019
Indeno(1,2,3-cd)pyrene	CE087	M	0.019	mg/kg	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019
Dibenzo(a,h)anthracene	CE087	M	0.017	mg/kg	< 0.017	< 0.017	< 0.017	< 0.017	< 0.017
Benzo(g,h,i)perylene	CE087	M	0.019	mg/kg	< 0.019	< 0.019	< 0.019	0.025	< 0.019
Coronene	CE087	N	0.02	mg/kg	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Total PAH(17)	CE087	N	0.3	mg/kg	< 0.300	< 0.300	< 0.300	< 0.300	< 0.300
BTEX									
Benzene	CE192	U	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Toluene	CE192	U	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Ethylbenzene	CE192	U	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
MTBE	CE192	N	0.02	mg/kg	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Total BTEX	CE192	N	0.06	mg/kg	< 0.060	< 0.060	< 0.060	< 0.060	< 0.060
m,p-Xylene	CE192	U	0.02	mg/kg	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
oXylenes	CE192	U	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Wet Chem									
pH	CE004	M	0.1	pH units	6.9	6.6	6.1	6.5	6.4
EPH									
Diesel Range Organics (>C10-C25) (EH_1D_	CE033	M	12	mg/kg	37	29	21	19	38
>C10-C40 Soil (EH_1D_Total)	CE033	M	19	mg/kg	73.3	58.1	43.2	37.8	75.1
Mineral Oil (>C10-C40 Total) (EH_CU_1D_To	CE162	N	19	mg/kg	33	27	24	< 19	60

SOILS

Lab Number					14440
Client Reference					Soil
Sample ID					J6
Sample Location					0.10
Sampling Date					21/09/2024
Test	**Method**	**Accred**	**LoD**	**Units**	
Asbestos					
Asbestos Identification	SUBCON	SU	0	-	NAD
Soil sample preparation parameters					
Stones Content	CE001	N	0.1	%	< 0.1
Metals					
Water Soluble Sulphate	CE061	M	0.01	g/l	0.1
Acid Soluble Sulphate (SO4)	CE062	M	0.01	%	0.24
Arsenic	CE264	U	1.8	mg/kg	11.1
Cadmium	CE264	M	1.6	mg/kg	< 1.6
Chromium	CE264	U	2	mg/kg	14.6
Copper	CE264	M	1.6	mg/kg	38.4
Lead	CE264	U	2.3	mg/kg	23.3
Mercury	CE264	U	0.7	mg/kg	< 0.7
Nickel	CE264	M	2.1	mg/kg	34.0
Selenium	CE264	U	3	mg/kg	< 3.0
Zinc	CE264	M	4	mg/kg	47.6
Volatile Petroleum Hydrocarbons					
>C5-C6 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10
>C6-C8 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10
>C8-C10 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10
>C8-C10 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010
>C6-C7 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010
>C7-C8 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010
Colourimetric					
Total Monohydric Phenols	CE078	N	0.5	mg/kg	< 0.50
Total Cyanide	CE077	N	1	mg/kg	< 1.0
Combustion					
Moisture Content	CE001	N	0.1	%	< 0.1
Total Organic Carbon	CE197	N	0.1	%	7.82

SOILS

Soil Organic Matter	CE072	N	0.1	%	13.5
TPH Ali/Aro					
>C12-C16 Aliphatic (EH_2D_AL)	CE250	N	0.5	mg/kg	< 0.5
>C12-C16 Aromatic (EH_2D_AR)	CE250	N	1	mg/kg	< 1.0
>C16-C21 Aliphatic (EH_2D_AL)	CE250	N	0.7	mg/kg	< 0.7
>C16-C21 Aromatic (EH_2D_AR)	CE250	N	2	mg/kg	< 2.0
>C21-C35 Aliphatic (EH_2D_AL)	CE250	N	4	mg/kg	< 4.0
>C21-C35 Aromatic (EH_2D_AR)	CE250	N	4.5	mg/kg	< 4.5
>C35-C40 Aliphatic (EH_2D_AL)	CE250	N	0.5	mg/kg	< 0.5
>C35-C40 Aromatic (EH_2D_AR)	CE250	N	1.5	mg/kg	< 1.5
>C10-C12 Aliphatic (EH_2D_AL)	CE250	N	1	mg/kg	< 1.0
>C10-C12 Aromatic (EH_2D_AR)	CE250	N	0.6	mg/kg	< 0.6
Polyaromatic hydrocarbons					
Naphthalene	CE087	M	0.016	mg/kg	0.036
Acenaphthylene	CE087	M	0.015	mg/kg	< 0.015
Acenaphthene	CE087	M	0.013	mg/kg	< 0.013
Fluorene	CE087	U	0.013	mg/kg	< 0.013
Phenanthrene	CE087	M	0.014	mg/kg	0.130
Anthracene	CE087	U	0.017	mg/kg	0.021
Fluoranthene	CE087	M	0.017	mg/kg	0.053
Pyrene	CE087	M	0.016	mg/kg	0.046
Benzo(a)anthracene	CE087	U	0.012	mg/kg	0.027
Chrysene	CE087	M	0.028	mg/kg	< 0.028
Benzo(b)fluoranthene	CE087	M	0.02	mg/kg	< 0.020
Benzo(k)fluoranthene	CE087	M	0.025	mg/kg	< 0.025
Benzo(a)pyrene	CE087	U	0.019	mg/kg	< 0.019
Indeno(1,2,3-cd)pyrene	CE087	M	0.019	mg/kg	< 0.019
Dibenzo(a,h)anthracene	CE087	M	0.017	mg/kg	< 0.017
Benzo(g,h,i)perylene	CE087	M	0.019	mg/kg	0.020
Coronene	CE087	N	0.02	mg/kg	< 0.020
Total PAH(17)	CE087	N	0.3	mg/kg	0.334
BTEX					
Benzene	CE192	U	0.01	mg/kg	< 0.010
Toluene	CE192	U	0.01	mg/kg	< 0.010
Ethylbenzene	CE192	U	0.01	mg/kg	< 0.010
MTBE	CE192	N	0.02	mg/kg	< 0.020
Total BTEX	CE192	N	0.06	mg/kg	< 0.060
m,p-Xylene	CE192	U	0.02	mg/kg	< 0.020
oXylenes	CE192	U	0.01	mg/kg	< 0.010
Wet Chem					
pH	CE004	M	0.1	pH units	7.1
EPH					
Diesel Range Organics (>C10-C25) (EH_1D_	CE033	M	12	mg/kg	29
>C10-C40 Soil (EH_1D_Total)	CE033	M	19	mg/kg	68.5
Mineral Oil (>C10-C40 Total) (EH_CU_1D_To	CE162	N	19	mg/kg	29

METHOD DETAILS

METHOD	TESTNAME	METHOD SUMMARY	ANALYSIS BASIS
CE267	VPH in Soil	HS-GCFID	As submitted sample
SUBCON	Asbestos Solid	HSG248	Air Dried Sample
CE061	W. Sol Metals	ICPOES	Air dried sample
CE062	Acid Soluble Sulphate in Solids	Primacs	Air dried sample
CE264	Metals by ICP in Soil	ICPOES	Air dried sample
CE192	BTEX in solids	Analysis by HSGCFID	As submitted sample
CE033	EPH in Solids	Acetone:Hexane Extraction and GCFID	As submitted sample
CE250	GCXGC in Solids	DCM Extraction and GCxGC-FID	As submitted sample
CE087	PAH in Soil	DCM Extraction and GCMS	As submitted sample
CE078	Phenols in Solids	Continuous Flow Analyser	As submitted sample
CE077	Cyanides in Solids	Continuous Flow Analyser	As submitted sample
CE197	Primacs in Solids	Primacs	Air dried sample
CE162	Mineral Oil in Solids	Acetone:Hexane extract, Floriil clean up and GCFID	As submitted sample

REPORT INFORMATION

Report No.:24-02046, issue number 1

Key	
U	ISO17025 Accredited Result
M	ISO17025 and MCERTS Accredited Result
N	Do not currently hold accreditation
^	MCERTS accreditation not applicable for sample matrix
*	ISO17025 accreditation not applicable for sample matrix
S	Subcontracted
I/S	Insufficient Sample
U/S	Unsuitable sample
N/T	Not tested
<	Means "less than"
>	Means "greater than"

LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.

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Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

The results relate only to the sample received.

Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Moisture Content Calculated on a Wet Weight basis

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

Sampling was undertaken by Chemtech Environmental Limited and is outside the UKAS accreditation scope.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

BTEX compounds are identified by retention time only and may include interference from co-eluting compounds.

For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying

For soils and solids, analytical results are inclusive of stones, where applicable.

Sample Retention and Disposal

All soil samples will be retained for a period of 4 weeks from the point of receipt

All water samples will be retained for a period of 2 weeks from the point of Reporting

Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

ANALYTICAL TEST REPORT

Report Number	24-04982, issue number 1
Contract name:	Wynstay Verification Works
Client reference:	3224
Clients name:	GroundSolve Ltd
Clients address:	GroundSolve Ltd Unit 1 Well House Barns Chester Road Bretton Flintshire CH4 0DH
Samples received:	09/12/2024
Analysis started:	09/12/2024
Analysis completed:	16/12/2024
Report issued:	16/12/2024

Key	U UKAS accredited test M MCERTS & UKAS accredited test $ Test carried out by an approved subcontractor I/S Insufficient sample to carry out test U/S Sample not suitable for testing NAD No Asbestos Detected
Approved by:	[redacted] Abbie Neasham-Bourn Senior Reporting Administrator

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Lab ref	Sample ID	Depth (m)	Sample description	Material removed	% Removed	% Moisture
26526	Plot 7	0.00 - 0.20	Brown Clay with Gravel and Vegetation.	-	-	14.5
26527	Plot 5	0.00 - 0.30	Brown Clay with Gravel and Vegetation.	-	-	12.3
26528	Plot 3	0.00 - 0.40	Brown Clay with Gravel and Vegetation.	-	-	12.6

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

a	Sampling date not provided
b	Sampling time not provided (waters only)
c	Sample not received in appropriate containers
d	Storage Temperature
e	Headspace present in sample container
f	Sample exceeded sampling to reciept
g	Sample exceeded holding time(s)

Lab ref	Sample ID	Depth (m)	Deviating	Tests (Reason for deviation)
26526	Plot 7	0.00 - 0.20	N	
26527	Plot 5	0.00 - 0.30	N	
26528	Plot 3	0.00 - 0.40	N	

SOILS

Lab Number					26526	26527	26528
Sample ID					Plot 7	Plot 5	Plot 3
Depth (m)					0.00 - 0.20	0.00 - 0.30	0.00 - 0.40
Sampling Date					06/12/2024	06/12/2024	06/12/2024
Test	**Method**	**Accred**	**LoD**	**Units**			
Asbestos							
Asbestos Identification	SUBCON	SU	0	-	NAD	NAD	NAD
Soil sample preparation parameters							
Stones Content	CE001	N	0.1	%	< 0.1	< 0.1	< 0.1
Metals							
Water Soluble Sulphate	CE061	M	0.01	g/l	0.156	0.219	0.164
Acid Soluble Sulphate (SO4)	CE062	M	0.01	%	0.29	0.36	0.26
Arsenic	CE264	U	1.8	mg/kg	29.7	17.3	9.3
Cadmium	CE264	M	1.6	mg/kg	2.4	< 1.6	< 1.6
Chromium	CE264	U	2	mg/kg	38.7	20.8	18.8
Copper	CE264	M	1.6	mg/kg	92.3	55.5	31.3
Lead	CE264	U	2.3	mg/kg	150	37.9	46.6
Mercury	CE264	U	0.7	mg/kg	3.5	< 0.7	< 0.7
Nickel	CE264	M	2.1	mg/kg	39.4	34.6	25.9
Selenium	CE264	U	3	mg/kg	< 3.0	< 3.0	< 3.0
Zinc	CE264	M	4	mg/kg	104	62.7	51.3
Volatile Petroleum Hydrocarbons							
>C5-C6 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10
>C6-C8 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10
>C8-C10 Aliphatic (HS_1D_AL)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10
>C8-C10 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010
>C6-C7 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010
>C7-C8 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010
Colourimetric							
Total Monohydric Phenols	CE078	N	0.5	mg/kg	< 0.50	< 0.50	< 0.50
Total Cyanide	CE077	N	1	mg/kg	< 1.0	< 1.0	< 1.0
Combustion							
Moisture Content	CE001	N	0.1	%	14.5	12.3	12.6
Total Organic Carbon	CE197	N	0.1	%	5.00	3.97	< 0.10
Soil Organic Matter	CE072	N	0.1	%	8.62	6.84	< 0.10
TPH Ali/Aro							

SOILS

>C12-C16 Aliphatic (EH_2D_AL)	CE250	N	0.5	mg/kg	< 0.5	< 0.5	< 0.5
>C12-C16 Aromatic (EH_2D_AR)	CE250	N	1	mg/kg	1.4	< 1.0	2.2
>C16-C21 Aliphatic (EH_2D_AL)	CE250	N	0.7	mg/kg	< 0.7	< 0.7	< 0.7
>C16-C21 Aromatic (EH_2D_AR)	CE250	N	2	mg/kg	< 2.0	< 2.0	< 2.0
>C21-C35 Aliphatic (EH_2D_AL)	CE250	N	4	mg/kg	< 4.0	< 4.0	< 4.0
>C21-C35 Aromatic (EH_2D_AR)	CE250	N	4.5	mg/kg	< 4.5	< 4.5	< 4.5
>C35-C40 Aliphatic (EH_2D_AL)	CE250	N	0.5	mg/kg	< 0.5	< 0.5	< 0.5
>C35-C40 Aromatic (EH_2D_AR)	CE250	N	1.5	mg/kg	< 1.5	< 1.5	< 1.5
>C10-C12 Aliphatic (EH_2D_AL)	CE250	N	1	mg/kg	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic (EH_2D_AR)	CE250	N	0.6	mg/kg	0.7	< 0.6	1.0
Polyaromatic hydrocarbons							
Naphthalene	CE087	M	0.016	mg/kg	0.052	0.020	0.027
Acenaphthylene	CE087	M	0.015	mg/kg	< 0.015	< 0.015	< 0.015
Acenaphthene	CE087	M	0.013	mg/kg	< 0.013	< 0.013	< 0.013
Fluorene	CE087	U	0.013	mg/kg	< 0.013	< 0.013	< 0.013
Phenanthrene	CE087	M	0.014	mg/kg	0.188	0.060	0.088
Anthracene	CE087	U	0.017	mg/kg	0.053	< 0.017	< 0.017
Fluoranthene	CE087	M	0.017	mg/kg	0.527	0.068	0.064
Pyrene	CE087	M	0.016	mg/kg	0.404	0.057	0.053
Benzo(a)anthracene	CE087	U	0.012	mg/kg	0.223	0.049	0.042
Chrysene	CE087	M	0.028	mg/kg	0.205	0.044	0.035
Benzo(b)fluoranthene	CE087	M	0.02	mg/kg	0.177	0.046	0.035
Benzo(k)fluoranthene	CE087	M	0.025	mg/kg	0.070	< 0.025	< 0.025
Benzo(a)pyrene	CE087	U	0.019	mg/kg	0.148	0.035	0.023
Indeno(1,2,3-cd)pyrene	CE087	M	0.019	mg/kg	0.097	0.040	0.023
Dibenzo(a,h)anthracene	CE087	M	0.017	mg/kg	0.021	< 0.017	< 0.017
Benzo(g,h,i)perylene	CE087	M	0.019	mg/kg	0.086	0.036	0.021
Coronene	CE087	N	0.02	mg/kg	< 0.020	< 0.020	< 0.020
Total PAH(17)	CE087	N	0.3	mg/kg	2.25	0.456	0.410
BTEX							
Benzene	CE267	U	0.0005	mg/kg	< 0.0005	< 0.0005	< 0.0005
Toluene	CE267	U	0.001	mg/kg	< 0.001	< 0.001	< 0.001
Ethylbenzene	CE267	U	0.001	mg/kg	< 0.001	< 0.001	< 0.001
MTBE	CE267	N	0.002	mg/kg	< 0.002	< 0.002	< 0.002
Total BTEX	CE267	N	0.006	mg/kg	< 0.006	< 0.006	< 0.006
m,p-Xylene	CE267	U	0.002	mg/kg	< 0.002	< 0.002	< 0.002
oXylenes	CE267	U	0.002	mg/kg	< 0.002	< 0.002	< 0.002

SOILS

Wet Chem							
pH	CE004	M	0.1	pH units	7.8	7.6	7.8
EPH							
Diesel Range Organics (>C10-C25) (EH_1D_	CE033	M	12	mg/kg	< 12	< 12	< 12
>C10-C40 Soil (EH_1D_Total)	CE033	M	19	mg/kg	21.6	23.1	< 19.0
Mineral Oil (>C10-C40 Total) (EH_CU_1D_T	CE162	N	19	mg/kg	< 19	< 19	< 19

METHOD DETAILS

METHOD	TESTNAME	METHOD SUMMARY	ANALYSIS BASIS
CE267	VPH in Soil	HS-GCFID	As submitted sample
SUBCON	Asbestos Solid	HSG248	Air Dried Sample
CE061	W. Sol Metals	ICPOES	Air dried sample
CE062	Acid Soluble Sulphate in Solids	Primacs	Air dried sample
CE264	Metals by ICP in Soil	ICPOES	Air dried sample
CE267	BTEX in solids	Analysis by HSGCFID	As submitted sample
CE033	EPH in Solids	Acetone:Hexane Extraction and GCFID	As submitted sample
CE250	GCXGC in Solids	DCM Extraction and GCxGC-FID	As submitted sample
CE087	PAH in Soil	DCM Extraction and GCMS	As submitted sample
CE078	Phenols in Solids	Continuous Flow Analyser	As submitted sample
CE077	Cyanides in Solids	Continuous Flow Analyser	As submitted sample
CE197	Primacs in Solids	Primacs	Air dried sample
CE162	Mineral Oil in Solids	Acetone:Hexane extract, Floriil clean up and GCFID	As submitted sample

REPORT INFORMATION

Report No.:24-04982, issue number 1

Key	
U	ISO17025 Accredited Result
M	ISO17025 and MCERTS Accredited Result
N	Do not currently hold accreditation
^	MCERTS accreditation not applicable for sample matrix
*	ISO17025 accreditation not applicable for sample matrix
S	Subcontracted
I/S	Insufficient Sample
U/S	Unsuitable sample
N/T	Not tested
<	Means "less than"
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All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

The results relate only to the sample received.

Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Moisture Content Calculated on a Wet Weight basis

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

Sampling was undertaken by Chemtech Environmental Limited and is outside the UKAS accreditation scope.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

BTEX compounds are identified by retention time only and may include interference from co-eluting compounds.

For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying

For soils and solids, analytical results are inclusive of stones, where applicable.

Sample Retention and Disposal

All soil samples will be retained for a period of 4 weeks from the point of receipt

All water samples will be retained for a period of 2 weeks from the point of Reporting

Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

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UKAS TESTING 2683

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Certificate of Analysis

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	24-52895
Issue:	1a
Date of Issue:	27/03/2024
Contact:	Aaron Bell
Customer Details:	GroundSolve Ltd Unit 1 Well House Barns Chester Road Bretton FlintshireCH4 0DH
Quotation No:	Q24-04319
Order No:	Not Supplied
Customer Reference:	3066
Date Received:	19/03/2024
Date Approved:	27/03/2024
Details:	Wynnstay Technology Park, Ruabon
Approved by:	[redacted]

Tim Reeve, Technical Coordinator

Sample Summary

Report No.: 24-52895, issue number 1a

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
355835	SP1 ES1	15/03/2024	19/03/2024	Silty loam	
355836	SP1 ES2	15/03/2024	19/03/2024	Silty loam	
355837	SP1 ES3	15/03/2024	19/03/2024	Silty loam	
355838	SP2 ES1	15/03/2024	19/03/2024	Silty loam	
355839	SP3 ES1	15/03/2024	19/03/2024	Silty loam	
355840	SP4 ES1	15/03/2024	19/03/2024	Silty loam	
355841	SP5 ES1	15/03/2024	19/03/2024	Silty loam	
355842	SP5 ES2	15/03/2024	19/03/2024	Silty loam	
355843	SP6 ES1	15/03/2024	19/03/2024	Silty loam	

Results Summary

Report No.: 24-52895, issue number 1a

				ELAB Reference	355835	355836	355837	355838	355839	355840	355841	355842	355843
				Customer Reference	ES1	ES2	ES3	ES1	ES1	ES1	ES1	ES2	ES1
				Sample ID									
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Sample Location	SP1	SP1	SP1	SP2	SP3	SP4	SP5	SP5	SP6
				Sample Depth (m)									
				Sampling Date	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024
Determinand	**Codes**	**Units**	**LOD**										
Soil sample preparation parameters													
Moisture Content	N	%	0.1		19.0	17.6	18.4	17.5	22.5	15.9	16.4	13.9	16.1
Stones Content	N	%	0.1		6.7	< 0.1	10.6	12.5	< 0.1	4.0	< 0.1	< 0.1	< 0.1
Material removed	N	%	0.1		6.7	< 0.1	10.6	12.5	< 0.1	4.0	< 0.1	< 0.1	< 0.1
Description of Inert material removed	N		0		Stones	None	Stones	Stones	None	Stones	None	None	None
Metals													
Arsenic	M	mg/kg	1		25.4	21.4	25.5	11.9	10.9	15.8	16.9	10.9	14.1
Cadmium	M	mg/kg	0.5		1.6	1.4	1.6	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	M	mg/kg	5		23.0	19.3	23.5	17.6	15.7	13.8	13.2	14.7	15.1
Copper	M	mg/kg	5		43.9	37.3	44.2	30.8	32.2	45.2	54.7	31.3	40.4
Lead	M	mg/kg	5		65.6	58.4	71.0	97.2	84.1	45.3	45.4	66.1	66.1
Mercury	M	mg/kg	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5		39.2	34.2	42.0	17.9	18.7	32.6	46.3	24.1	25.5
Selenium	M	mg/kg	1		1.2	1.1	1.1	< 1.0	< 1.0	1.0	1.3	< 1.0	< 1.0
Zinc	M	mg/kg	5		168	148	176	87.3	82.3	62.5	77.1	72.5	76.3
Anions													
Water Soluble Sulphate	M	g/l	0.02		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02	< 0.02	0.05	< 0.02
Inorganics													
Total Cyanide	M	mg/kg	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.2	< 1.0
Acid Soluble Sulphate (SO4)	U	%	0.02		0.14	0.13	0.13	0.10	0.08	0.29	0.46	0.11	0.16
Miscellaneous													
pH	M	pH units	0.1		7.7	7.7	7.7	7.0	6.5	5.7	5.8	5.7	6.6
Soil Organic Matter	U	%	0.1		4.0	5.1	4.8	5.5	6.4	9.9	9.6	5.5	7.6
Total Organic Carbon	N	%	0.01		4.9	4.7	3.6	6.4	8.8	12	16	4.7	8.2

Results Summary

Report No.: 24-52895, issue number 1a

			ELAB Reference	355835	355836	355837	355838	355839	355840	355841	355842	355843
			Customer Reference	ES1	ES2	ES3	ES1	ES1	ES1	ES1	ES2	ES1
			Sample ID									
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	SP1	SP1	SP1	SP2	SP3	SP4	SP5	SP5	SP6
			Sample Depth (m)									
			Sampling Date	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024
Determinand	**Codes**	**Units**	**LOD**									
Organics												
>C8-C10 BCB (EH_1D_Total)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 BCB (EH_1D_Total)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 BCB (EH_1D_Total)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 BCB (EH_1D_Total)	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Diesel Range Organics (>C8-C21) (EH_1D_Total)	N	mg/kg	1	< 1	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Phenols												
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Polyaromatic hydrocarbons												
Naphthalene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	1.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	2.4	2.5	< 0.5	< 0.5	5.2	< 0.5
Anthracene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	1.2	1.3	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	0.7	< 0.5	0.7	< 0.5	< 0.5	< 0.5
Pyrene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.6	< 0.5	< 0.5	< 0.5
Benzo(a)anthracene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b)fluoranthene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dibenzo(a,h)anthracene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo[g,h,i]perylene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Coronene	N	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH(16)	N	mg/kg	2	< 2	< 2	2.4	7.3	5.8	4.5	< 2	6.5	< 2

Results Summary

Report No.: 24-52895, issue number 1a

				ELAB Reference	355835	355836	355837	355838	355839	355840	355841	355842	355843
				Customer Reference	ES1	ES2	ES3	ES1	ES1	ES1	ES1	ES2	ES1
				Sample ID									
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Sample Location	SP1	SP1	SP1	SP2	SP3	SP4	SP5	SP5	SP6
				Sample Depth (m)									
				Sampling Date	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024	15/03/2024
Determinand	**Codes**	**Units**	**LOD**										
BTEX													
Benzene	M	ug/kg	10		< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Toluene	M	ug/kg	10		< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10		< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Xylenes	M	ug/kg	10		< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
MTBE	N	ug/kg	10		< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
TPH CWG													
>C5-C6 Aliphatic (HS_1D_MS_AL)	N	mg/kg	0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic (HS_1D_MS_AL)	N	mg/kg	0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C35 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	7.5	< 1.0	< 1.0	2.6
>C21-C35 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	7.4	< 1.0	< 1.0	2.7
>C35-C40 Aliphatic (EH_CU_1D_AL)	N	mg/kg	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total (>C5-C40) Aliphatic (HS_1D_MS+EH_CU_1D_AL)	N	mg/kg	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	7.4	< 1.0	< 1.0	2.7
>C5-C7 Aromatic (HS_1D_MS_AR)	N	mg/kg	0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic (HS_1D_MS_AR)	N	mg/kg	0.01		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic (EH_CU_1D_AR)	N	mg/kg	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic (EH_CU_1D_AR)	N	mg/kg	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic (EH_CU_1D_AR)	N	mg/kg	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic (EH_CU_1D_AR)	N	mg/kg	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C21-C35 Aromatic (EH_CU_1D_AR)	N	mg/kg	1		< 1.0	< 1.0	1.3	< 1.0	< 1.0	6.4	< 1.0	< 1.0	2.0
>C35-C40 Aromatic (EH_CU_1D_AR)	N	mg/kg	1		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.3	< 1.0	< 1.0	< 1.0
Total (>C5-C40) Aromatic (HS_1D_MS+EH_CU_1D_AR)	N	mg/kg	1		< 1.0	< 1.0	1.3	< 1.0	< 1.0	7.7	< 1.0	< 1.0	2.0
Total (>C5-C40) Ali/Aro (HS_1D_MS+EH_CU_1D_Total)	N	mg/kg	1		< 1.0	< 1.0	1.3	< 1.0	< 1.0	15.2	< 1.0	< 1.0	4.7
Total Petroleum Hydrocarbons													
Mineral Oil w Florisil (EH_CU_1D_Total)	N	mg/kg	5		< 5	< 5	< 5	< 5	< 5	< 5	6	< 5	< 5

Tests marked N are not UKAS accredited.
The Environmental Laboratory Ltd. Reg. No. 3882193

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Tel: +44 (0)1424 718618, Email: info@elab-uk.co.uk, Web: www.elab-uk.co.uk

Results Summary

Report No.: 24-52895, issue number 1a

Asbestos Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #) in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

In accordance with procedures, a 1kg soil sample should be analysed. For amounts less than this caution should be used when analysing the data as sample size is smaller than the recommended amount, therefore samples could be deemed as not being representative of the materials present on site.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Asbestos Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)	F/mm2 (I)
355835		SP1 ES1	Brown Sandy Soil, Stones	No asbestos detected	n/t	n/t	n/t	n/t	n/t
355836		SP1 ES2	Brown Sandy Soil, Stones	No asbestos detected	n/t	n/t	n/t	n/t	n/t
355837		SP1 ES3	Brown Sandy Soil, Stones	No asbestos detected	n/t	n/t	n/t	n/t	n/t
355838		SP2 ES1	Brown Sandy Soil, Stones	No asbestos detected	n/t	n/t	n/t	n/t	n/t
355839		SP3 ES1	Brown Sandy Soil, Stones,	No asbestos detected	n/t	n/t	n/t	n/t	n/t
355840		SP4 ES1	Brown Sandy Soil, Stones	No asbestos detected	n/t	n/t	n/t	n/t	n/t
355841		SP5 ES1	Brown Sandy Soil, Stones	No asbestos detected	n/t	n/t	n/t	n/t	n/t
355842		SP5 ES2	Brown Sandy Soil, Stones	No asbestos detected	n/t	n/t	n/t	n/t	n/t
355843		SP6 ES1	Brown Sandy Soil, Stones	No asbestos detected	n/t	n/t	n/t	n/t	n/t

Method Summary

Report No.: 24-52895, issue number 1a

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	21/03/2024	113	Electromeric
Acid Soluble Sulphate	U	Air dried sample	22/03/2024	115	Ion Chromatography
Aqua regia extractable metals	M	Air dried sample	21/03/2024	300	ICPMS
W. Sol Metals	N	Air dried sample	26/03/2024	300	ICPMS
Phenols in solids	N	As submitted sample	21/03/2024	121	HPLC
PAH (GC-FID)	N	As submitted sample	20/03/2024	133	GC-FID
Water soluble anions	M	Air dried sample	21/03/2024	172	Ion Chromatography
Low range Aliphatic hydrocarbons soil	N	As submitted sample	22/03/2024	181	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	22/03/2024	181	GC-MS
BTEX in solids	M	As submitted sample	22/03/2024	181A	GC-MS
Total cyanide	M	As submitted sample	22/03/2024	204	Colorimetry
Total organic carbon/Total sulphur	N	Air dried sample	25/03/2024	210	IR
Aliphatic hydrocarbons in soil	N	As submitted sample	25/03/2024	214	GC-FID
Aliphatic/Aromatic hydrocarbons in soil	N	As submitted sample	25/03/2024	214	GC-FID
Aromatic hydrocarbons in soil	N	As submitted sample	25/03/2024	214	GC-FID
Total organic carbon/Total sulphur	N	Air dried sample	25/03/2024	216	IR
Basic carbon banding in soil	N	As submitted sample	20/03/2024	218	GC-FID
Diesel range organics in soil	N	As submitted sample	22/03/2024	257	GC-FID
Asbestos identification	U	Air dried sample	25/03/2024	281	Microscopy
Soil organic matter	U	Air dried sample	21/03/2024	BS1377:P3	Titrimetry
TPH with Florisil clean up solids	N	As submitted sample	20/03/2024	GCL117	GC-FID

Tests marked N are not UKAS accredited

Report Information

Report No.: 24-52895, issue number 1a

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"
LOD	LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.
	Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed.
	ELAB are unable to provide an interpretation or opinion on the content of this report.
	The results relate only to the sample received.
	PCB congener results may include any coeluting PCBs
	Uncertainty of measurement for the determinands tested are available upon request
	Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

End of Report

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Interim Report

Report No.: 25-17003-0

Initial Date of Issue:

Re-Issue Details:

Client *Groundsolve Ltd*

Client Address: *Unit 1 Well House Barns*
Chester Road
Bretton
Chester
CH4 0DH

Contact(s): *James Thorburn*

Project *Wynnstay*

Quotation No.:	*Q25-38001*	**Date Received:**	22-May-2025
Order No.:	PO002524	**Date Instructed:**	22-May-2025
No. of Samples:	*3*		
Turnaround (Wkdays):	5	**Results Due:**	29-May-2025

Date Approved:

Approved By:

Details:
For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Please note that the interim data available has passed our Quality Control Criteria but has not been verified by an approved signatory and may be subject to amendment on approval. Chemtest cannot therefore be held responsible for decisions made on interim data sets but only for the data submitted on a final report containing an approval date and signature.

Results - Soil

Project: Wynnstay

Client: Groundsolve Ltd				**Chemtest Job No.:**		25-17003	25-17003	25-17003
Quotation No.: Q25-38001				**Chemtest Sample ID.:**		1976557	1976558	1976559
Order No.: PO002524				*Client Sample Ref.:*		*A*	*B*	*C*
				Client Reference:		*SP401 (A)*	*SP401 (B)*	*SP401 (C)*
				Sample Type:		*SOIL*	*SOIL*	*SOIL*
				Top Depth (m):		*0.10*	*0.10*	*0.10*
				Date Sampled:		*21-May-2025*	*21-May-2025*	*21-May-2025*
				Time Sampled:		*9:05*	*9:05*	*9:05*
				Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
ACM Type		N	2192		N/A	-	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	13	14	13
Soil Colour		N	2030		N/A	Brown	Brown	Brown
Other Material		N	2030		N/A	Stones, Roots and	Stones, Roots and	Stones, Roots, Wood and
Soil Texture		N	2030		N/A	Clay	Clay	Loam
pH at 20C		M	2010		4.0	7.8	7.8	7.6
Cyanide (Total)		M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Sulphate (Total)		U	2430	%	0.010	To Follow	To Follow	To Follow
Sulphate (Acid Soluble)		U	2430	%	0.010	To Follow	To Follow	To Follow
Arsenic		M	2455	mg/kg	0.5	8.6	9.4	6.6
Cadmium		M	2455	mg/kg	0.10	0.32	0.43	0.20
Chromium		M	2455	mg/kg	0.5	18	26	13
Copper		M	2455	mg/kg	0.50	22	120	17
Mercury		M	2455	mg/kg	0.05	0.11	0.12	0.07
Nickel		M	2455	mg/kg	0.50	17	21	12
Lead		M	2455	mg/kg	0.50	110	120	87
Selenium		M	2455	mg/kg	0.25	0.38	0.41	< 0.25
Zinc		M	2455	mg/kg	0.50	97	190	70
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25	< 0.25	< 0.25	< 0.25
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	< 2.0	< 2.0	< 2.0
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00	< 1.0	< 1.0	< 1.0
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00	5.7	5.5	< 2.0
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00	18	17	11
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	< 10	< 10	< 10
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00	26	24	12
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00	26	24	12
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05

Results - Soil

Project: Wynnstay

Client: Groundsolve Ltd				**Chemtest Job No.:**		25-17003	25-17003	25-17003
Quotation No.: Q25-38001				**Chemtest Sample ID.:**		1976557	1976558	1976559
Order No.: PO002524				*Client Sample Ref.:*		*A*	*B*	*C*
				Client Reference:		*SP401 (A)*	*SP401 (B)*	*SP401 (C)*
				Sample Type:		*SOIL*	*SOIL*	*SOIL*
				Top Depth (m):		*0.10*	*0.10*	*0.10*
				Date Sampled:		*21-May-2025*	*21-May-2025*	*21-May-2025*
				Time Sampled:		*9:05*	*9:05*	*9:05*
				Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25	< 0.25	< 0.25	< 0.25
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	< 1.0	< 1.0	< 1.0
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00	< 1.0	< 1.0	< 1.0
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	11	8.9	6.4
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00	41	32	19
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00	7.2	6.0	2.8
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00	52	41	25
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00	60	47	28
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00	78	65	37
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00	85	71	40
Organic Matter		M	2625	%	0.40	2.9	3.1	2.2
Total Organic Carbon		M	2625	%	0.20	1.7	1.8	1.3
TPH >C6-C10	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0
TPH >C10-C21	EH_1D_Total	N	2670	mg/kg	1.0	4.2	11	4.9
TPH >C21-C40	EH_1D_Total	N	2670	mg/kg	1.0	34	39	31
Total TPH >C6-C40	EH_1D_Total	U	2670	mg/kg	10	38	50	35
Benzene		M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Toluene		M	2760	µg/kg	1.0	2.0	< 1.0	< 1.0
Ethylbenzene		M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene		M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
o-Xylene		M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether		M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Naphthalene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluorene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene		M	2800	mg/kg	0.10	0.35	0.22	0.20
Anthracene		M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene		M	2800	mg/kg	0.10	0.93	0.37	0.43
Pyrene		M	2800	mg/kg	0.10	0.78	0.36	0.43
Benzo[a]anthracene		M	2800	mg/kg	0.10	0.43	0.19	0.21
Chrysene		M	2800	mg/kg	0.10	0.42	0.18	0.23
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	0.49	0.29	0.34
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	0.18	0.14	0.12
Benzo[a]pyrene		M	2800	mg/kg	0.10	0.40	0.20	0.25

Results - Soil

Project: Wynnstay

Client: Groundsolve Ltd				**Chemtest Job No.:**		25-17003	25-17003	25-17003
Quotation No.: Q25-38001				**Chemtest Sample ID.:**		1976557	1976558	1976559
Order No.: PO002524				*Client Sample Ref.:*		*A*	*B*	*C*
				Client Reference:		*SP401 (A)*	*SP401 (B)*	*SP401 (C)*
				Sample Type:		*SOIL*	*SOIL*	*SOIL*
				Top Depth (m):		*0.10*	*0.10*	*0.10*
				Date Sampled:		*21-May-2025*	*21-May-2025*	*21-May-2025*
				Time Sampled:		*9:05*	*9:05*	*9:05*
				Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	0.27	0.17	0.18
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	0.34	0.18	0.21
Coronene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Total Of 17 PAH's		N	2800	mg/kg	2.0	4.6	2.3	2.6

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection
Text example	All items indicated in italic font represent customer-supplied information that may not be independently verified by the laboratory

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at ≤ 30°C prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

NEW_ASB	Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL
DURHAM	Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - The required amount of sample for analysis was not received

H - Appropriate cooling measures were not taken for sample transportation

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

Report Information

Water Sample Category Key for Accreditation

DW - Drinking Water
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

APPENDIX D – SUMMARY OF CHEMICAL TEST DATA

Job No: 3224
Site Name: Wynnstay Topsoil Verification
Residential with gardens (1% SOM)

Metals & Non-Metals	SP10	SP401 (A)	SP401 (B)	SP401 (C)	Plot 7	Plot 5	Plot 3	TS - Plot 34	J1	J2	J3	J4	J5	J6	Min (mg/kg)	Max (mg/kg)	Average (Unround	Average (mg/kg)	Count	Adopted Guideline (mg/kg)	Source	Exceedances
	0.00 - 0.05	0.1	0.1	0.1	0.00 - 0.20	0.00 - 0.30	0.00 - 0.40	0.15	subsoil	subsoil	subsoil	subsoil	subsoil	subsoil								
Arsenic	8.4	8.6	9.4	6.6	29.7	17.3	9.3	4.2	14.9	12.4	23.8	12.7	12.3	11.1	4.2	29.7	12.91	12.91	14	37	C4SL	0
Cadmium	< 1.6	0.32	0.43	0.2	2.4	< 1.6	< 1.6	< 0.10	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	0.2	2.4	1.28	1.28	14	22	C4SL	0
Chromium	26.4	18	26	13	38.7	20.8	18.8	6.8	19.5	15.1	20.3	17	15.2	14.6	6.8	38.7	19.30	19.3	14	910	S4UL	0
Copper	31.3	22	120	17	92.3	55.5	31.3	4.5	23.4	23.5	22	29.5	21.4	38.4	4.5	120	38.01	38.01	14	2400	S4UL	0
Lead	99.3	110	120	87	150	37.9	46.6	29	28.4	21.7	31.2	28	22.5	23.3	21.7	150	59.64	59.64	14	200	C4SL	0
Mercury	< 0.7	0.11	0.12	0.07	3.5	< 0.7	< 0.7	< 0.05	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	0.07	3.5	0.73	0.73	14	40	S4UL	0
Nickel	19.4	17	21	12	39.4	34.6	25.9	5.8	29.7	30.4	46.5	35	30.8	34	5.8	46.5	27.25	27.25	14	130	S4UL	0
Total Monohydric Phenols	< 0.50	-	-	-	< 0.50	< 0.50	< 0.50	-	-	-	-	-	-	-	0	0	0.50	0.5	4	120	S4UL	0
Selenium	< 3.0	0.38	0.41	< 0.25	< 3.0	< 3.0	< 3.0	< 0.25	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	0.38	0.41	2.24	2.24	14	250	S4UL	0
Zinc	107	97	190	70	104	62.7	51.3	45	53.5	39.1	58.4	44.6	47.4	47.6	39.1	190	72.69	72.69	14	3700	S4UL	0

Petroleum Hydrocarbons	SP10	SP401 (A)	SP401 (B)	SP401 (C)	Plot 7	Plot 5	Plot 3	TS - Plot 34	J1	J2	J3	J4	J5	J6	Min (mg/kg)	Max (mg/kg)	Average (Unround	Average (mg/kg)	Count	Adopted Guideline (mg/kg)	Source	Exceedances
	0.00 - 0.05	0.1	0.1	0.1	0.00 - 0.20	0.00 - 0.30	0.00 - 0.40	0.15	subsoil	subsoil	subsoil	subsoil	subsoil	subsoil								
Benzene	< 0.0005	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 1.0	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0	0	0.08	0.08	14	0.87	C4SL	0
Toluene	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 1.0	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.002	0.002	0.08	0.08	14	130	S4UL	0
Ethylbenzene	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 1.0	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0	0	0.08	0.08	14	47	S4UL	0
m,p-Xylene	< 0.002	< 0.001	< 0.001	< 0.001	< 0.002	< 0.002	< 0.002	< 1.0	-	-	-	-	-	-	0	0	0.13	0.13	8	56	S4UL	0
>C5-C6 Aliphatic	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.05	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0	0	0.10	0.1	14	42	S4UL	0
>C6-C8 Aliphatic	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0	0	0.10	0.1	14	100	S4UL	0
>C8-C10 Aliphatic	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10	< 0.10	< 0.05	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0	0	0.09	0.09	14	27	S4UL	0
>C10-C12 Aliphatic	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0	0	1.07	1.07	14	130	S4UL	0
>C12-C16 Aliphatic	2.4	< 1.0	< 1.0	< 1.0	< 0.5	< 0.5	< 0.5	< 1.0	1.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	1.6	2.4	0.86	0.86	14	1100	S4UL	0
>C16-C35 Aliphatic	7.4	23.7	22.5	11	< 4.0	< 4.0	< 4.0	3.5	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	3.5	23.7	7.44	7.44	14	65000	S4UL	0
>C35-C40 Aliphatic	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 10	0.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.9	0.9	1.21	1.21	14	65000	S4UL	0
>C6-C7 Aromatic	< 0.010	< 0.05	< 0.05	< 0.05	< 0.010	< 0.010	< 0.010	< 0.05	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0	0	0.03	0.03	14	70	S4UL	0
>C7-C8 Aromatic	< 0.010	< 0.05	< 0.05	< 0.05	< 0.010	< 0.010	< 0.010	< 0.05	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0	0	0.03	0.03	14	130	S4UL	0
>C8-C10 Aromatic	< 0.010	< 0.05	< 0.05	< 0.05	< 0.010	< 0.010	< 0.010	< 0.05	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0	0	0.03	0.03	14	34	S4UL	0
>C10-C12 Aromatic	3	< 1.0	< 1.0	< 1.0	< 0.010	< 0.010	< 0.010	< 1.0	1.3	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	1.3	3	0.81	0.81	14	74	S4UL	0
>C12-C16 Aromatic	6.2	< 1.0	< 1.0	< 1.0	1.4	< 1.0	2.2	< 1.0	3.9	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.4	6.2	1.69	1.69	14	140	S4UL	0
>C16-C21 Aromatic	2.6	11	8.9	6.4	< 2.0	< 2.0	< 2.0	4.8	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	2.6	11	3.69	3.69	14	260	S4UL	0
>C21-C35 Aromatic	19.2	41	32	19	< 4.5	< 4.5	< 4.5	< 2.0	5.3	< 4.5	< 4.5	< 4.5	< 4.5	< 4.5	5.3	41	11.04	11.04	14	1100	S4UL	0
>C35-C40 Aromatic	1.8	7.2	6	2.8	< 1.5	< 1.5	< 1.5	< 1.0	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	1.8	7.2	2.31	2.31	14	1100	S4UL	0

Polyaromatic Hydrocarbons (PAH)	SP10	SP401 (A)	SP401 (B)	SP401 (C)	Plot 7	Plot 5	Plot 3	TS - Plot 34	J1	J2	J3	J4	J5	J6	Min (mg/kg)	Max (mg/kg)	Average (Unround	Average (mg/kg)	Count	Adopted Guideline (mg/kg)	Source	Exceedances
	0.00 - 0.05	0.1	0.1	0.1	0.00 - 0.20	0.00 - 0.30	0.00 - 0.40	0.15	subsoil	subsoil	subsoil	subsoil	subsoil	subsoil								
Acenaphthene	< 0.013	< 0.10	< 0.10	< 0.10	< 0.013	< 0.013	< 0.013	< 0.10	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013	0	0	0.04	0.04	14	210	S4UL	0
Acenaphthylene	< 0.015	< 0.10	< 0.10	< 0.10	< 0.015	< 0.015	< 0.015	< 0.10	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	0	0	0.04	0.04	14	170	S4UL	0
Anthracene	< 0.017	< 0.10	< 0.10	< 0.10	0.053	< 0.017	< 0.017	< 0.10	< 0.017	< 0.017	< 0.017	< 0.017	< 0.017	0.021	0.021	0.053	0.04	0.04	14	2400	S4UL	0
Benzo(a)anthracene	0.07	0.43	0.19	0.21	0.223	0.049	0.042	< 0.10	< 0.012	< 0.012	< 0.012	0.018	0.015	0.027	0.015	0.43	0.10	0.1	14	7.2	S4UL	0
Benzo(a)pyrene	0.05	0.4	0.2	0.25	0.148	0.035	0.023	< 0.10	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	0.023	0.4	0.09	0.09	14	5	C4SL	0
Benzo(b)fluoranthene	0.057	0.49	0.29	0.34	0.177	0.046	0.035	< 0.10	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.035	0.49	0.12	0.12	14	2.6	S4UL	0
Benzo(g,h,i)perylene	0.033	0.34	0.18	0.21	0.086	0.036	0.021	< 0.10	< 0.019	< 0.019	< 0.019	0.025	< 0.019	0.02	0.02	0.34	0.08	0.08	14	320	S4UL	0
Benzo(k)fluoranthene	0.025	0.18	0.14	0.12	0.07	< 0.025	< 0.025	< 0.10	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	0.025	0.18	0.06	0.06	14	77	S4UL	0
Chrysene	0.043	0.42	0.18	0.23	0.205	0.044	0.035	< 0.10	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	0.035	0.42	0.10	0.1	14	15	S4UL	0
Dibenzo(a,h)anthracene	< 0.017	< 0.10	< 0.10	< 0.10	0.021	< 0.017	< 0.017	< 0.10	< 0.017	< 0.017	< 0.017	< 0.017	< 0.017	< 0.017	0.021	0.021	0.04	0.04	14	0.24	S4UL	0
Fluoranthene	0.08	0.93	0.37	0.43	0.527	0.068	0.064	< 0.10	< 0.017	< 0.017	< 0.017	0.028	0.021	0.053	0.021	0.93	0.19	0.19	14	280	S4UL	0
Fluorene	< 0.013	< 0.10	< 0.10	< 0.10	< 0.013	< 0.013	< 0.013	< 0.10	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013	0	0	0.04	0.04	14	170	S4UL	0
Indeno(1,2,3-cd)pyrene	0.032	0.27	0.17	0.18	0.097	0.04	0.023	< 0.10	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	0.023	0.27	0.07	0.07	14	27	S4UL	0
Naphthalene	< 0.016	< 0.10	< 0.10	< 0.10	0.052	0.02	0.027	< 0.10	0.02	< 0.016	< 0.016	0.021	0.027	0.036	0.02	0.052	0.05	0.05	14	2.3	S4UL	0
Phenanthrene	0.031	0.35	0.22	0.2	0.188	0.06	0.088	< 0.10	0.132	0.017	< 0.014	0.084	0.076	0.13	0.017	0.35	0.12	0.12	14	95	S4UL	0
Pyrene	0.077	0.78	0.36	0.43	0.404	0.057	0.053	< 0.10	< 0.016	< 0.016	< 0.016	0.023	0.017	0.046	0.017	0.78	0.17	0.17	14	620	S4UL	0

Other Contaminants / Testing	SP10	SP401 (A)	SP401 (B)	SP401 (C)	Plot 7	Plot 5	Plot 3	TS - Plot 34	J1	J2	J3	J4	J5	J6	Min (mg/kg)	Max (mg/kg)	Average (Unround	Average (mg/kg)	Count	Adopted Guideline (mg/kg)	Source	Exceedances
	0.00 - 0.05	0.1	0.1	0.1	0.00 - 0.20	0.00 - 0.30	0.00 - 0.40	0.15	subsoil	subsoil	subsoil	subsoil	subsoil	subsoil								
Total Organic Carbon	3.14	1.7	1.8	1.3	5	3.97	< 0.10	1.1	4.91	4.97	2.89	6.22	6.68	7.82	1.1	7.82	3.69	3.69	14	-	-	-
pH	7.7	7.8	7.8	7.6	7.8	7.6	7.8	7.9	6.9	6.6	6.1	6.5	6.4	7.1	6.1	7.9	7.26	7.26	14	-	-	-
Total Cyanide	< 1.0	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0	0	0.64	0.64	14	-	-	-