RHONDDA GEOTECHNICAL SERVICES

PHASE 2 CONTAMINATED LAND REPORT

NEATH PORT TALBOT C.B.C. PLANNING APP. P2022/0622

SINGLE TRAVELLER/GYPSY PITCH

LAND BETWEEN CWMAVON AND DANYBONT

MAES Y BETTWS

PONTRHYDYFEN

SA12 9SD

12/06/2025

RICHARD DAVIES – BSc.(hons), MSc., F.G.S.

All Ordnance Survey mapping used in this report has been purchased from Groundsure or Promap and remains Crown Copyright. All mapping is orientated to grid north unless otherwise stated. S4UL values contained in The Phase 2 report are copyright of L.Q.M. and their unauthorised use is a breach of copyright.

This report is supplied in confidence to the client as a Contaminated Land Report. The author cannot be held responsible for any other use of the report. The author owes no duty of care caused by the unauthorised use of this report by third parties. This report remains the intellectual property of the author. Unauthorised use of any part not in the public domain will result in legal action.

INTRODUCTION

Planning application P2022/0622 to Neath Port Talbot L.P.A. is for a single Gypsy/Traveller pitch for a static caravan, with an existing building to be converted into a dayroom. The full details of the application have been covered adequately in other submissions to the L.P.A. and it is assumed that anyone reviewing this report is familiar with the nature of the application. The site is at Maes y Bettws adjacent to the B4286 main road. The site location is shown in Figure 1 with the site boundary for the purposes of this report shown in Figure 2. Rhondda Geotechnical Services have previously produced a Coal Mining Risk Assessment and a Phase 1 Contaminated Land Risk Assessment for the site (see below). These should currently be held on file by N.P.T. and should be reviewed in conjunction with this report.

1. INFORMATION GAPS AND UNCERTAINTIES

The Phase 1 Contaminated Land Risk Assessment was produced by R.G.S. following the template guidelines set out in the document *Development of Land Affected by Contamination: A Guide for Developers (Version 3).* The contaminated land exposure assessment (henceforth CLEA) produced by The Environment Agency was used in the conceptual model, particularly regarding the source-pathway-receptor concept for pollutant linkages. The entire project was guided by the 2021 C.L.R.M which has now superseded the withdrawn 2004 Defra/E.A. document CLR11 (Model Procedures for the Management of Land Contamination). The Phase 1 assessment concluded the following:-

Both the Quantitative Risk Assessment (Table 1) and Ground Gas Risk Assessment (Table 2) for the site show no possible sources of contamination at the site and therefore no pathways to receptors. Therefore, a Conceptual Site Model (C.S.M.) of the site is superfluous. In the author's opinion there is no valid reason for N.P.T. not to discharge conditions 3, 4 and 5 in their entirety. Condition 6 is a standard pre-occupation condition. Since no groundworks are involved in the proposed development it is difficult to see how unexpected contamination could be found. Nonetheless an application to discharge this condition will be made separately at the appropriate time.

Historic mapping and a walkover survey (which included viewing open service trenches) had established that the site was a former colliery waste tip. The author has worked on numerous similar sites in the past. This work has included sampling and laboratory testing of similar material throughout South Wales. This experience led to the author making the following statement regarding the risk of soil contamination at the site:-

To summarise, there are no contaminants of concern on the site. Colliery spoil is essentially benign and the tramways which formerly ran on the site involved no motive power based on the site. Moreover, the trams carried only the natural bedrock which constituted the spoil. All the spoil beneath the site can be considered homogenous. Therefore, there are no specific areas of contamination that can be differentiated within the site.

The N.P.T. Environmental Health Officer apparently did not accept this argument and informed the planning officer that soil sampling and laboratory testing would be required before the contamination conditions 3 parts ii-iv could be discharged. Presumably the Phase 1 Report satisfies condition 3i although this has not been specifically stated in the correspondence.

FIGURE 1
SITE LOCATION.

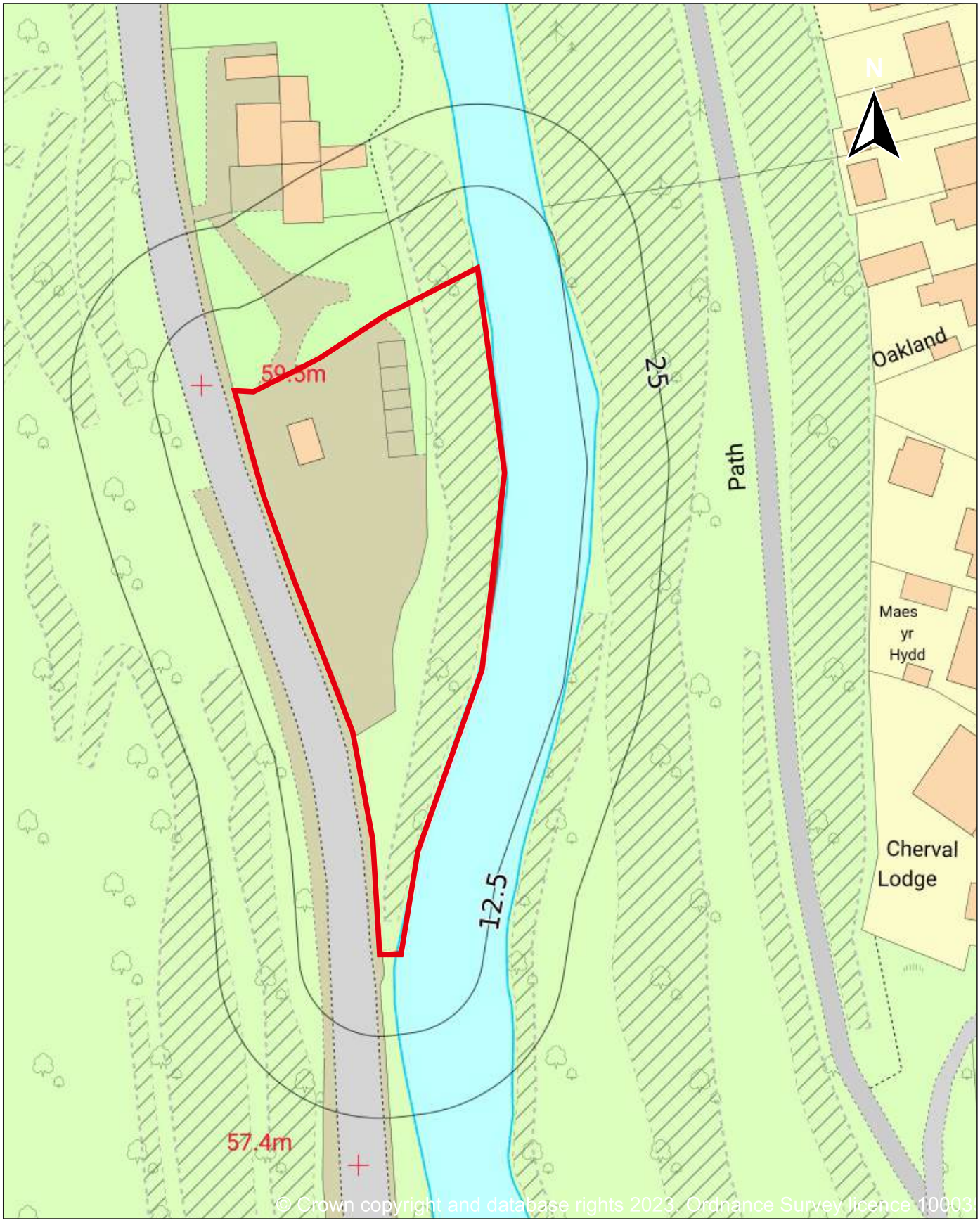

FIGURE 2
THE SITE ON THE ORDNANCE SURVEY MASTERMAP.

2. SITE INVESTIGATION AND SAMPLING METHODOLOGY

Intrusive site investigations were carried out on 25th February 2025 under the supervision of Richard Davies. Works consisted of the digging of five trial pits with a 3-ton tracked excavator. The trial pit locations are shown in Figure 3 together with the depths of any samples taken. Normally the trial pitting would concentrate on garden areas and other areas of soft landscaping. There are no such areas at the site, nor are there ever likely to be any. The entire area within the planning application area is a hardstanding finished off with an average of 100mm of clean limestone aggregate laid on a geotextile covering the colliery spoil. A cursory check on the steep embankment leading down to the river confirmed the slope is entirely colliery spoil. For this reason, the pits were only excavated to a depth of 1.0m- 1.1m as there was no prospect of encountering any different material at a lower level. Contaminants at shallow levels would have the most potential impact on above ground receptors according to the source-pathway=receptor model. Samples were taken at random depths between 0.3m-1.0m. There was no sensory evidence of contamination in any of the pits. Groundwater was not encountered in any of the pits. Soil conditions were visually homogenous through all depth profiles in all five pits. Full logs to BS5930:2015 are included in Appendix A.

Samples of soils were collected, placed in British Standard sealed containers and immediately labelled with depth, location and sample number. Each sampling location had four samples taken. These comprised two one litre plastic tubs, one 60ml. amber glass jar and one 120ml. amber glass jar. This is the recommended quantity required for a broad general suite of testing. The samples were taken with a stainless steel trowel, cleaned between samples to avoid cross contamination. The samples were stored in cool boxes and dispatched by courier to the laboratory the following morning. This meant that the lab was in receipt of the samples within 48 hours of them being taken, and the samples were kept under correct conditions throughout. This is important to ensure the samples are “non-deviating” particularly in the case of testing for organic contaminants.

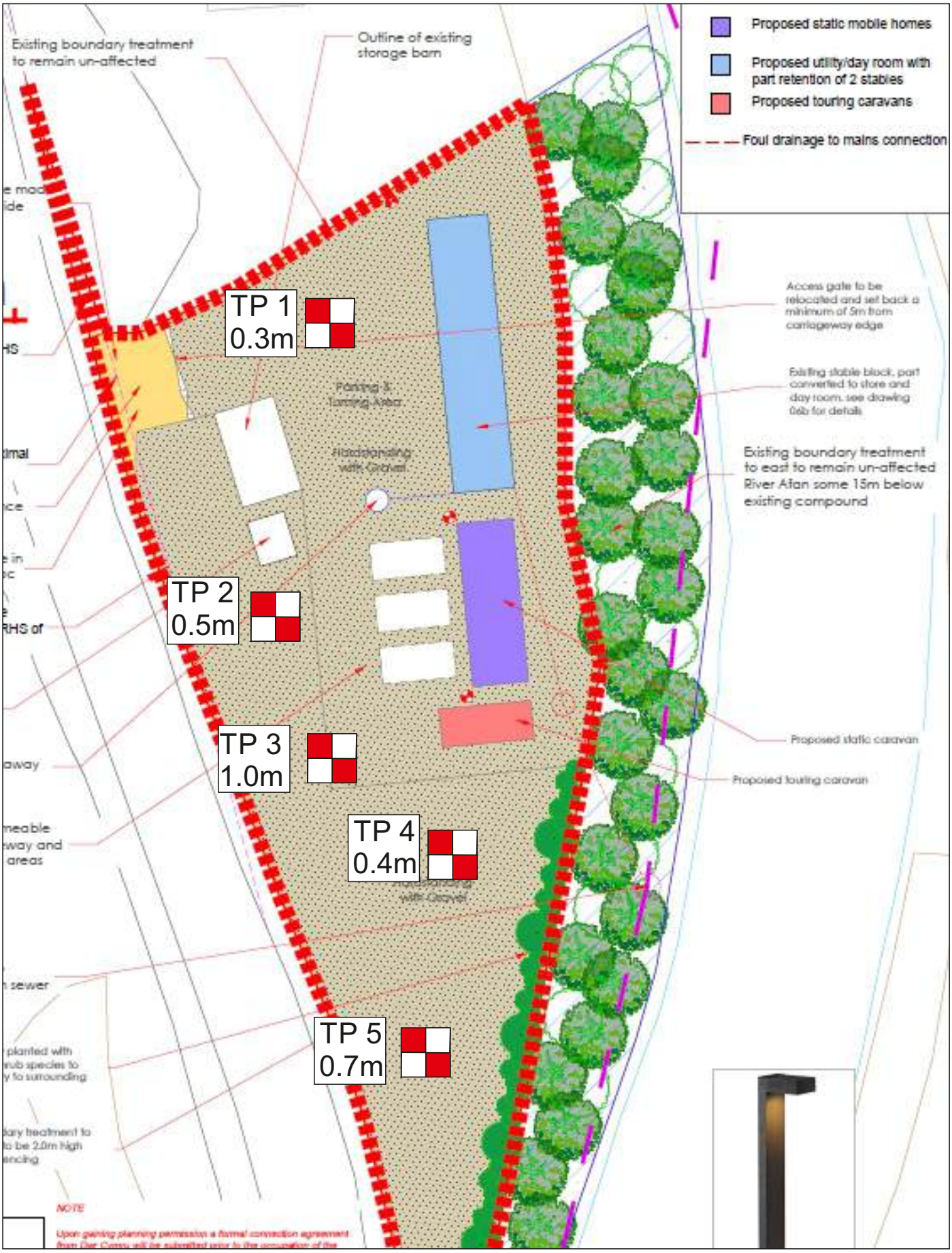

FIGURE 3

TRIAL PIT POSITIONS AND SAMPLING DEPTHS AT PONTRHYDYFEN.

3. TESTING STRATEGY

All the samples were tested by Chemtech Ltd (reg. 3882193) at their laboratory in County Durham. They hold both MCERTS and UKAS accreditation (UKAS lab no.2531). Their full details can be seen on page 1 of the laboratory report 25-01872-01. The complete report is attached as Appendix B.

A review of the site history in the Enviroinsight Report and the walkover survey meant the Phase 1 had concluded that the only possible sources of contamination was imported Made Ground. The testing scheduled was the CLEA 2.1 Suite with the addition of an asbestos screen. The substances tested for could be described as a broad general suite in common use in British contaminated land studies. There was no identified source of Asbestos, but its ubiquitous presence in the urban environment means it should always be tested for. The substances tested for can be split into two main categories. Organic and Inorganic compounds.

The inorganic contaminants tested for were metals:-

Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium and Zinc.

In addition, Free Cyanide was measured, and all samples were screened for Asbestos.

Total Organic Carbon and moisture were both measured. From this, a calculation is used to derive Soil Organic Matter. This is needed to risk assess levels of organic contaminants. The risk assessments for organic contaminants differ with varying S.O.M. values. A wide range of organic contaminants were tested for.

All samples were tested for P.A.H.s (Polycyclic Aromatic Hydrocarbons). Sixteen different compounds were measured. These are the USEPA16. Originating from the U.S.A. they are an internationally recognised, representative and indicative group amongst the huge number of these compounds.

T.P.H. (total petroleum hydrocarbons) analysis was split up by Carbon Banding, along conventionally normal lines (Texas Banding). An aromatic/aliphatic split analysis was also carried out to allow further speciation of any hydrocarbon contamination detected. The samples were also tested for a range of Semi-volatile Organic Contaminants (SVOCs)

The analysis for Organic contaminants also included a Phenol Suite. This contained a range of six Monohydric Phenols commonly found on contaminated sites.

4. CHOICE OF SUITABLE FOR USE VALUES (S4ULs) USED IN PHASE 2

Much work has been done in recent years on human health risk assessment for exposure to contaminated land. Originally the E.A. produced figures known as Soil

Guidance Values (SGVs). These were later withdrawn, and this has resulted in the production of Generic Assessment Criteria (GACs). These are figures produced for individual substances. If the concentration of a contaminant is above its GAC, there is a potential for harm to human health (or controlled waters). Each contaminant has different levels for different exposure scenarios. For example, for any given contaminant, its GAC is far higher for a commercial development than it would be for Residential Use with consumption of homegrown produce. Many GACs have been published by Contaminated Land: Applications in real environments (CL:AIRE), Land Quality Management Ltd. (LQM) and the Environmental Industries Commission (EIC).

Due to different non-government bodies producing GACS over the years since they were introduced, LQM have produced a complete revision of their figures and renamed them Suitable for Use Levels (S4ULs). The values used in this report are S4ULs except for Lead which has a Category 4 Screening Level (C4SL) produced by the Department for the Environment, Food and Rural Affairs. Cyanide is not assessed in this way, instead it has an acute GAC, rather than one modelled on long term exposure. Asbestos also has its own safety levels governing land use.

The LQM S4ULs have been derived in accordance with the changes in exposure modelling presented within the C4SL framework, whilst still using a set of toxicological criteria that are set within the "minimal risk" range. The LQM/CIEH S4ULs were published to offer a set of collated information on the toxicity and transport properties for numerous common contaminants. They are widely considered to be suitable for use in planning assessments such as this. The most recent update was published in 2017 and reflects changes in UK human health risk assessment since the previous figures were published in 2009. All the data inputs used in the derivation of the S4ULs are presented in full in the publication *LQM/CIEH Suitable 4 Use Levels*, and there is no intention to provide them here. These values are intended for use by professionals who have purchased them. To authenticate this the purchaser is supplied with an individual number to validate the report writer's entitlement to use the LQM/CIEH S4ULs. This number can be seen on the result summary sheets in Tables 1-6. The author has the right to reproduce these values here, but they remain copyright of LQM, a specialist environmental consultancy based in Nottingham.

The proposed development consists of a single Gypsy/Traveller pitch. This consists of a single static caravan, a place for a touring caravan and a dayroom/Washroom. Gypsies are not well known as horticulturists. Even if they were, there is no soil substrate at the site suitable for plant growth. Technically, given the nature of the development, the appropriate S4ULs would be those for residential use with no homegrown produce. However, to make the strongest possible case that there is no contamination at the site the S4ULs for Residential *with* homegrown produce have

been used to risk assess the site. These values are the most conservative of all the land use scenarios.

5. SUMMARY OF GROUND CONDITIONS AND TEST RESULTS

The full trial pit logs to BS5930:2015 can be found in Appendix B. In summary, all five trial pits in the planning application area were entirely excavated in colliery spoil after the overlying virgin quarry stone layer was removed and the geotextile cut. The colliery spoil was homogenous across the site and consisted of a sandy, slightly clayey gravel. There were no natural soils present.

A summary of the laboratory results from the report in Appendix B has been produced overleaf in Tables 1-6. These compare the test results for each substance with its relevant S4UL value (Residential with homegrown produce scenario).

With the organic contaminants, the samples are normally subdivided based on their Soil Organic Matter (S.O.M.) as the S4UL value for each organic contaminant is controlled by the S.O.M. value. All the samples tested fell in the S.O.M. band >6% Because of this there is only one S4UL value column for all the organic contaminants in Tables 1-4.

Table 1 shows that there were no S4UL value exceedances in any of the samples, for any of the compounds in the USEPA16 range of Polycyclic Aromatic Hydrocarbons (P.A.H.s). P.A.H. levels were very low and in the range that would be expected to occur naturally in carbonaceous rock.

In Table 2, all the volatile range T.P.H. substances (C5-C10) were below the limit of detection (LoD) in all five samples. There were detectable levels of some heavy end aromatic TPHs, but these were massively below the S4UL values. The levels would be in line with expected levels in an area with vehicular use such as a public car park.

Table 3 shows all SVOC levels were below the LoD in all five samples. Monohydric Phenols were also below the level of detection in all five samples. Only the Phenol Index is shown in Table 4, without speciation.

With the inorganic substances in Table 5, there were no exceedances of the S4UL/C4SL values for any Metal in any sample.

Cyanide levels were below the limit of detection in all five samples. No Asbestos was detected in any of the five samples.

To summarise, there were no exceedances of residential S4ULs or their equivalents for any common contaminants in any of the samples taken at the site. The contaminants tested for included P.A.H.s, Petroleum Hydrocarbons, SVOCs, Heavy Metals, Phenols, Cyanide or Asbestos.

ALL S4ULs COPYRIGHT LAND QUALITY MANAGEMENT LIMITED. REPRODUCED WITH PERMISSION.PUBLICATION NUMBER S4UL3694. ALL RIGHTS RESERVED

ALL VALUES ARE IN mg/kg

ALL S4ULs REFER TO RESIDENTIAL WITH HOMEGROWN PRODUCE SCENARIO

SOIL ORGANIC MATTER(S.O.M.)						>6%
CONTAMINANT	TP1 0.3m	TP2 0.5m	TP3 1.0m	TP4 0.4m	TP5 0.7m	S4UL
NAPHTHALENE	1.09	1.49	0.461	0.716	0.217	13
ACENAPHTHYLENE	<0.015	<0.015	<0.015	0.065	0.022	920
ACENAPHTHENE	0.02	0.03	0.024	0.042	0.074	1100
FLOURENE	0.1778	0.17	0.223	0.231	0.143	860
PHENANTHRENE	1.53	1.7	0.918	1.3	1.12	440
ANTHRACENE	0.187	0.227	0.151	0.28	0.262	11000
FLOURANTHENE	0.93	1.4	0.511	1.08	2.5	890
PYRENE	0.705	0.99	0.368	0.696	1.84	2000
BENZO[a]ANTHRACENE	0.566	1.05	0.299	0.761	1.5	13
CHRYSENE	0.77	1.17	0.491	0.887	1.48	27
BENZO[b]FLOURANTHENE	0.706	1.3	0.505	1.18	1.91	3.7
BENZO[k]FLOURANTHENE	0.22	0.464	0.172	0.393	0.668	100
BENZO[a]PYRENE	0.452	0.865	0.237	0.723	1.31	3
INDENO[1,2,3-cd]PYRENE	0.389	0.732	0.273	0.739	1.11	41
DIBENZO[a,h]ANTHRACENE	0.126	0.219	0.103	0.281	0.288	0.3
BENZO[g,h,i]PERYLINE	0.319	0.546	0.203	0.546	0.858	350
TOTAL(USEPA 16) PAHs	8.19	12.3	4.94	9.91	15.3	N/A

TABLE 1 POLYCYCLIC AROMATIC HYDROCARBONS (USEPA16)

SUMMARY OF TEST RESULTS MAES Y BETTWS, PONTRHYDYFEN

ALL S4ULs COPYRIGHT LAND QUALITY MANAGEMENT LIMITED. REPRODUCED WITH PERMISSION.PUBLICATION NUMBER S4UL3694. ALL RIGHTS RESERVED

ALL VALUES ARE IN mg/kg

ALL S4ULs REFER TO RESIDENTIAL WITH HOMEGROWN PRODUCE SCENARIO

SOIL ORGANIC MATTER(S.O.M.)						>6%
CARBON BANDING	TP1 0.3m	TP2 0.5m	TP3 1.0m	TP4 0.4m	TP5 0.7m	S4UL
>C5-C6 ALI	<0.1	<0.1	<0.1	<0.1	<0.1	160
>C6-C8 ALI	<0.1	<0.1	<0.1	<0.1	<0.1	530
>C8-C10 ALI	<0.1	<0.1	<0.1	<0.1	<0.1	150
>C10-C12 ALI	<1.0	<1.0	<1.0	<1.0	<1.0	760
>C12-C16 ALI	<0.5	1.2	0.9	<0.5	<0.5	4300
>C16-C21 ALI	<0.7	1.6	1.1	0.7	<0.7	110000
>C21-C35 ALI	<4.0	7.7	8.5	5.5	<4.0	
>C35-C40 ALI	<0.5	<0.5	0.5	<0.5	<0.5	110000
>C5-C7 ARO	<0.01	<0.01	<0.01	<0.01	<0.01	300
>C7-C8 ARO	<0.01	<0.01	<0.01	<0.01	<0.01	660
>C8-C10 ARO	<0.01	<0.01	<0.01	<0.01	<0.01	190
>C10-C12 ARO	4.2	10.9	8.1	4.1	<0.6	380
>C12-C16 ARO	13.5	51.1	27	10.9	<1	660
>C16-C21 ARO	8.9	85.6	30.3	10.9	<2	930
>C21-C35 ARO	33.5	284	143	45.3	<4.5	1700
>C35-C40 ARO	4.6	37.6	19.3	5.5	<1.5	1700
TOTAL TPH >C5-C10	<0.1	<0.1	<0.1	<0.1	<0.1	N/A
TOTAL TPH >C10-C40	66.3	481	240	82.9	<11.5	N/A

TABLE 2 TOTAL PETROLEUM HYDROCARBONS WITH TEXAS CARBON BANDING AND ALIPHATIC/AROMATIC SPLIT

SUMMARY OF TEST RESULTS MAES Y BETTWS, PONTRHYDYFEN

ALL S4ULs COPYRIGHT LAND QUALITY MANAGEMENT LIMITED.
REPRODUCED WITH PERMISSION.PUBLICATION NUMBER S4UL3694.
ALL RIGHTS RESERVED

ALL VALUES ARE IN mg/kg

ALL S4ULs REFER TO RESIDENTIAL WITH HOMEGROWN PRODUCE SCENARIO

SOIL ORGANIC MATTER(S.O.M.)						>6%
CONTAMINANT	TP1 0.3m	TP2 0.5m	TP3 1.0m	TP4 0.4m	TP5 0.7m	S4UL
PHENOL	<0.1	<0.1	<0.1	<0.1	<0.1	1100
CRESOLS	<0.1	<0.1	<0.1	<0.1	<0.1	
XYLENOLS	<0.1	<0.1	<0.1	<0.1	<0.1	
NAPTHOLS	<0.1	<0.1	<0.1	<0.1	<0.1	
TRIMETHYLPHENOLS	<0.1	<0.1	<0.1	<0.1	<0.1	

TABLE 3 BTEX SUBSTANCES

SOIL ORGANIC MATTER(S.O.M.)						>6%
	TP1 0.3m	TP2 0.5m	TP3 1.0m	TP4 0.4m	TP5 0.7m	S4UL
TOTAL	<5	<5	<5	<5		1100

TABLE 4 TOTAL MONOHYDRIC PHENOLS

SUMMARY OF TEST RESULTS MAES Y BETTWS, PONTRHYDYFEN

ALL S4ULs COPYRIGHT LAND QUALITY MANAGEMENT LIMITED. REPRODUCED WITH PERMISSION.PUBLICATION NUMBER S4UL3694. ALL RIGHTS RESERVED

ALL VALUES ARE IN mg/kg

ALL S4ULs REFER TO RESIDENTIAL WITH HOMEGROWN PRODUCE SCENARIO

CONTAMINANT	TP1 0.3m	TP2 0.5m	TP3 1.0m	TP4 0.4m	TP5 0.7m	S4UL	
ARSENIC	24.0	26.5	29.9	24.9	24.1	37	
CADMIUM	<1.6	<1.6	<1.6	<1.6	<1.6	11	
CHROMIUM	13.3	17.9	15.8	12.0	16.6	910	
COPPER	42.4	48.5	44.9	37.6	23.8	2400	
LEAD	32.3	27.8	34.5	26.0	28.5	200	(C4SL)
MERCURY	<0.7	<0.7	0.8	1.1	1.0	40	
NICKEL	19	38.3	24.4	16.7	14.1	180	
SELENIUM	<3.0	<3.0	<3.0	<3.0	<3.0	250	
ZINC	51.5	85.4	63.9	29.9	32.2	3700	
CYANIDE	<1.0	<1.0	<1.0	<1.0	<1.0	22	GACacute

TABLE 5 TOXIC/HEAVY METALS AND CYANIDE

	TP1 0.3m	TP2 0.5m	TP3 1.0m	TP4 0.4m	TP5 0.7m	
WEIGHT (g)	0	0	0	0	0	
% DRY WEIGHT OF SAMPLE	0	0	0	0	0	

TABLE 6 ASBESTOS ANALYSIS

SUMMARY OF TEST RESULTS MAES Y BETTWS, PONTRHYDYFEN

6. REVISED RISK ASSESSMENT FOR GROUND GAS

The Phase 1 desk study established there was no risk of ground gas migration from landfills or mines. There are no landfills within 500m of the site. There are no coal workings beneath the site at any depth.

The risk from on-site gas generation was also considered unlikely in the Phase 1 but required quantification. The trial pitting established that soil beneath the site was entirely colliery spoil. Colliery spoil contains no biodegradable material and there is no potential for on-site gas generation. There are no viable sources of ground gas production on or off the site.

The Enviroinsight Report stated that 1%-3% of local properties are above the Radon Action Threshold. No Radon Protection Measures will need to be incorporated into the development. All the information above is reflected in the revised gas risk assessment in Table 7 overleaf. Here the only residual ground gas risk from the Phase 1 has been removed. No gas protection measures will need to be incorporated into the development design.

7. RISK ASSESSMENT FOR CONTROLLED WATERS

With no contaminants in the soil on-site (see below) there is no source for any onward pathway to more distant environmental receptors. The risk to controlled waters has been removed from Table 9.

8. REVISED RISK ASSESSMENT FOR SOILS

The S4Uls used for the risk assessment were more stringent than was necessary for a traveller site. All test results for the shallow soil samples taken in the site investigation were massively below acceptable levels for residential properties with gardens for home grown produce. For this reason, all potential risks have been removed from Table 8.

9. CONCLUSIONS AND REMEDIATION STRATEGY

The objective of any remediation strategy is to make the land suitable for its intended use. In this case a development consisting of a single Gypsy/Traveller pitch. The Phase 1 report put forward the view that there was no potential contamination at the site. This was not accepted by N.P.T. The Phase 2 investigation physically proved that there is no contamination at the site, therefore no remediation will be required. The Phase 1 and Phase 2 reports should be sufficient to allow Environmental Health to recommend the discharge of contamination conditions 3i-iv with conditions 4 and 5 no longer applicable.

Richard Davies BSc.(Hons.), MSc., F.G.S.

12/06/2025

TABLE 7 FINAL GROUND GAS RISK ASSESSMENT MAES Y BETTWS, PONTRHYDYFEN					
SOURCE	PATHWAY	RECEPTOR	CONSEQUENCE CLASSIFICATION	RISK	FURTHER ACTION
HAZARDOUS GROUND GAS FROM OFF SITE SOURCE	INHALATION, INJURY FROM EXPLOSION	SITE USERS, VISITORS, CONSTRUCTION WORKERS	SEVERE	LOW. NO POTENTIAL SOURCE. GEOLOGICAL RESEARCH SHOWED NO COAL MINING WAS POSSIBLE BENEATH SITE SITE. NO VIABLE PATHWAY FROM MINING ABOVE THE SITE. NO LANDFILL WITHIN 500m	NO FURTHER ACTION REQUIRED
HAZARDOUS GROUND GAS FROM OFF SITE SOURCE	DAMAGE FROM EXPLOSION	BUILDINGS	SEVERE		
HAZARDOUS GROUND GAS FROM ON SITE SOURCE	INHALATION, INJURY FROM EXPLOSION	SITE USERS, VISITORS, CONSTRUCTION WORKERS	SEVERE	LOW. NO POSSIBILITY OF ON SITE GENERATION FROM MADE GROUND OR ORGANIC SOILS.	NO FURTHER ACTION REQUIRED
HAZARDOUS GROUND GAS FROM ON SITE SOURCE	DAMAGE FROM EXPLOSION	BUILDINGS	SEVERE		
RADON GAS	LONG TERM HAZARD FROM INHALATION	SITE USERS	SEVERE	LOW. 1% - 3% OF PROPERTIES AFFECTED BY RADON	NO RADON PROTECTIVE MEASURES NECESSARY

TABLE 8						
FINAL QUANTITATIVE HUMAN HEALTH RISK ASSESSMENT AND ENVIRONMENTAL RISK ASSESSMENT AT MAES Y BETTWS,						
CONTAMINANT SOURCE	PATHWAYS	RECEPTORS	POTENTIAL SEVERITY	PROBABILITY OF RISK	LEVEL OF RISK	FURTHER ACTION REQUIRED
ON SITE: POTENTIAL CONTAMINATION IN SOILS/MADE GROUND. POSSIBLY ELEVATED LEVELS OF METALS AND PAH	INGESTION, DERMAL CONTACT, INHALATION	FUTURE END USERS, VISITORS	MEDIUM	LOW	LOW	SAMPLING AND TESTING OF SOILS AT THE SITE SHOWED NO LEVELS OF CONTAMINATION OVER ACCEPTABLE LIMITS FOR RESIDENTIAL USE WITH HOMEGROWN PRODUCE. NO FURTHER ACTION REQUIRED
	CONTACT WITH CONTAMINATED GROUNDWATER	FUTURE END USERS, VISITORS AND CONSTRUCTION WORKERS	MEDIUM			
	PERMEATION OF WATER PIPES	FUTURE END USERS AND SITE VISITORS	MEDIUM			
	INGESTION OF HOME GROWN PRODUCE	FUTURE END USERS	N/A			
ON SITE: ASBESTOS AT OR NEAR GROUND SURFACE IN SOILS/MADE GROUND	INHALATION OF FIBRES IN AIRBORNE DUST	FUTURE END USERS AND SITE VISITORS	HIGH	LOW	LOW	NO ASBESTOS WAS DETECTED IN ANY OF THE SOIL SAMPLES FROM THE SITE. NO FURTHER QUANTIFICATION REQUIRED.
		CONSTRUCTION WORKERS	HIGH	LOW	LOW	
ON SITE: POTENTIAL CONTAMINATION IN SOILS/MADE GROUND. POSSIBLY ELEVATED LEVELS OF CONTAMINANTS	RUN OFF	SURFACE DRAINAGE	MEDIUM	LOW	LOW	THE ABSENCE OF CONTAMINANTS IN THE SOIL AT THE SITE MEANS FURTHER QUANTIFICATION OF ANY POSIBLE THREAT TO CONTROLLED WATERS/ ENVIRONMENTAL RECEPTORS IS UNNECESSARY. NO FURTHER ACTION REQUIRED.
	MIGRATION THROUGH SOIL VIA LEACHING	SHALLOW GROUNDWATER				
	ONWARD MIGRATION OF GROUNDWATER	BEDROCK AQUIFER				

APPENDIX A

TRIAL PIT LOGS TO BS5930:2015

WITH PHOTOGRAPHS

MAES Y BETTWS

PONTRHYDYFEN

Rhondda Geotechnical Services Trial Pit

Project: PONTRHYDYFEN	Project No: WSM141
Described By: R.DAVIES	Trial Pit No. TP1
Date: 25.02.2025	Sheet: 1 of 1
Method / Plant TRACKED EXCAVATOR	Groundwater Observations: DRY
Stability GOOD	Strike of Face A:
Shoring NONE	Loggers Signature

FACE SKETCHES - INCLUDING ANY SIGNIFICANT FINDINGS WITHIN TRIAL PIT

Samples and Tests		Strata	
Depth (m)	Type (B,D,ES)	Depth (m)	Strata Description
		G.L.-0.1	LIMESTONE AGGREGATE
0.3	ES1	1.0	MADE GROUND. Medium dense, black and dark grey sandy, slightly clayey GRAVEL. Gravel is angular, fine to coarse of Siltstone and Mudstone with some fine coal dust.

Notes: ES-Environmental Soil
EW - Environmental Water
B - Bulk Disturbed
D - Small Disturbed

TRIAL PIT NUMBER
TP1

ESG
25/2/25
PROJECT
PONTRHYDYFEN
PROJECT NO
WSM 141
TP
TP1
DEPTH (M)
1.0
FACE

S
25/2/25
PROJECT
PONTRHYDYFEN
PROJECT NO
WSM 141
TP
TP1
DEPTH (M)
1.0
FACE

TP 1

Rhondda Geotechnical Services Trial Pit

Project: PONTRHYDYFEN	Project No: WSM141
Described By: R.DAVIES	Trial Pit No. TP2
Date: 25.02.2025	Sheet: 1 of 1
Method / Plant TRACKED EXCAVATOR	Groundwater Observations: DRY
Stability GOOD	Strike of Face A:
Shoring NONE	Loggers Signature

FACE SKETCHES - INCLUDING ANY SIGNIFICANT FINDINGS WITHIN TRIAL PIT

Samples and Tests		Strata	
Depth (m)	Type (B,D,ES)	Depth (m)	Strata Description
		G.L.-0.1	LIMESTONE AGGREGATE
0.5	ES2	1.1	MADE GROUND. Medium dense, black and dark grey sandy, slightly clayey GRAVEL. Gravel is angular, fine to coarse of Siltstone and Mudstone with occasional Sandstone.

Notes: ES-Environmental Soil
EW - Environmental Water
B - Bulk Disturbed
D - Small Disturbed

TRIAL PIT NUMBER
TP2

S
25/2/25
PROJECT
PONTRHYDYFEN
PROJECT NO
WSM 141
TP
TP2
DEPTH (M)
1.1
FACE

ESG
25/2/25
PROJECT
PONTRHYDYF
PROJECT NO
WSM 141
TP
TP2
DEPTH (M)
1.1
FACE

TP 2

Rhondda Geotechnical Services Trial Pit

Project: PONTRHYDYFEN	Project No: WSM141
Described By: R.DAVIES	Trial Pit No. TP3
Date: 25.02.2025	Sheet: 1 of 1
Method / Plant TRACKED EXCAVATOR	Groundwater Observations: DRY
Stability GOOD	Strike of Face A:
Shoring NONE	Loggers Signature

FACE SKETCHES - INCLUDING ANY SIGNIFICANT FINDINGS WITHIN TRIAL PIT

Samples and Tests		Strata	
Depth (m)	Type (B,D,ES)	Depth (m)	Strata Description
		G.L.-0.1	LIMESTONE AGGREGATE
1.0	ES3	1.0	MADE GROUND. Medium dense, black and dark grey sandy, slightly clayey GRAVEL. Gravel is angular, fine to coarse of Siltstone and Mudstone with coal dust.

Notes: ES-Environmental Soil
EW - Environmental Water
B - Bulk Disturbed
D - Small Disturbed

TRIAL PIT NUMBER
TP3

ESG
25/2/25
PROJECT
PONTRHYDYFEN
PROJECT NO
WSM 141
TP
TP3
DEPTH (M)
1·0
FACE

25/2/25
PROJECT
PONTRHYDYFEN
PROJECT NO
WSM 141
TP
TP3
DEPTH (M)
1·0
FACE

TP 3

Rhondda Geotechnical Services Trial Pit

Project: PONTRHYDYFEN	Project No: WSM141
Described By: R.DAVIES	Trial Pit No. TP4
Date: 25.02.2025	Sheet: 1 of 1
Method / Plant TRACKED EXCAVATOR	Groundwater Observations: DRY
Stability GOOD	Strike of Face A:
Shoring NONE	Loggers Signature

FACE SKETCHES - INCLUDING ANY SIGNIFICANT FINDINGS WITHIN TRIAL PIT

Samples and Tests		Strata	
Depth (m)	Type (B,D,ES)	Depth (m)	Strata Description
		G.L.-0.1	LIMESTONE AGGREGATE
0.4	ES4	1.1	MADE GROUND. Medium dense, black and dark grey sandy, slightly clayey GRAVEL. Gravel is angular, fine to coarse of Siltstone and Mudstone with occasional brick fragments.

Notes: ES-Environmental Soil
EW - Environmental Water
B - Bulk Disturbed
D - Small Disturbed

TRIAL PIT NUMBER
TP4

ESG
25/2/25
PROJECT
PONTRHYDYFEN
PROJECT NO
WSM 141
TP
TP4.
DEPTH (M)
1·1
FACE
S
25/2/25
PROJECT
PONTRHYDYFEN
PROJECT NO
WSM 141
TP
TP4.
DEPTH (M)
1·1
FACE

TP 4

Rhondda Geotechnical Services Trial Pit

Project: PONTRHYDYFEN	Project No: WSM141
Described By: R.DAVIES	Trial Pit No. TP5
Date: 25.02.2025	Sheet: 1 of 1
Method / Plant TRACKED EXCAVATOR	Groundwater Observations: DRY
Stability GOOD	Strike of Face A:
Shoring NONE	Loggers Signature

FACE SKETCHES - INCLUDING ANY SIGNIFICANT FINDINGS WITHIN TRIAL PIT

Samples and Tests		Strata	
Depth (m)	Type (B,D,ES)	Depth (m)	Strata Description
		G.L.-0.1	LIMESTONE AGGREGATE
0.7	ES5	1.0	MADE GROUND. Medium dense, black and dark grey sandy, slightly clayey GRAVEL. Gravel is angular, fine to coarse of Siltstone and Mudstone with coal dust.

Notes: ES-Environmental Soil
EW - Environmental Water
B - Bulk Disturbed
D - Small Disturbed

TRIAL PIT NUMBER
TP5

ESG
25/2/25
PROJECT
PONTRHYDYFEN
PROJECT NO
WSM 141
TP
TP5
DEPTH (M)
1·0
FACE

ESG
25/2/25
PROJECT
PONTRHYDYFEN
PROJECT NO
WSM 141
TP
TP5
DEPTH (M)
1·0
FACE

TP 5

APPENDIX B

CHEMTECH REPORT

25-01872-01

MAES Y BETTWS

PONTRHYDYFEN

ANALYTICAL TEST REPORT

Report Number	25-01872, issue number 1
Contract name:	WSM141 Pontrhydyren Traveller Site
Client reference:	-
Clients name:	Rhondda Geotechnical Services
Clients address:	RHONGEOSER 56 Meyler Street Thomastown Porth CF39 8EA
Samples received:	27/02/2025
Analysis started:	27/02/2025
Analysis completed:	06/03/2025
Report issued:	06/03/2025

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:

Georgia Hunter
Reporting Administrator

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB

Telephone: (01207) 528578, Email supportsquad@chemtech-env.co.uk

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
37354	TP1-ES1	0.30	N/A.	-	-	8.5
37355	TP2-ES2	0.50	N/A.	-	-	9.2
37356	TP3-ES3	1.00	N/A.	-	-	11.1
37357	TP4-ES4	0.40	N/A.	-	-	10.0
37358	TP5-ES5	0.70	N/A.	-	-	8.1

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)
37354	TP1-ES1	0.30	N	
37355	TP2-ES2	0.50	N	
37356	TP3-ES3	1.00	N	
37357	TP4-ES4	0.40	N	
37358	TP5-ES5	0.70	N	

SOILS

Lab Number					37354	37355	37356	37357	37358
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					TP1-ES1	TP2-ES2	TP3-ES3	TP4-ES4	TP5-ES5
Depth (m)					0.30	0.50	1.00	0.40	0.70
Sampling Date					25/02/2025	25/02/2025	25/02/2025	25/02/2025	25/02/2025
Test	**Method**	**Accred**	**LoD**	**Units**					
Asbestos									
Asbestos Identification	SUBCON	SU	0	-	NAD	NAD	NAD	NAD	NAD
Metals									
Arsenic	CE264	U	1.8	mg/kg	24.0	26.5	29.9	24.9	24.1
Cadmium	CE264	M	1.6	mg/kg	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
Chromium	CE264	U	2	mg/kg	13.3	17.9	15.8	12.0	16.6
Copper	CE264	M	1.6	mg/kg	42.4	48.5	44.9	37.6	23.8
Lead	CE264	U	2.3	mg/kg	32.3	27.8	34.5	26.0	28.5
Mercury	CE264	U	0.7	mg/kg	< 0.7	< 0.7	0.8	1.1	1.0
Nickel	CE264	M	2.1	mg/kg	19.0	38.3	24.4	16.7	14.1
Selenium	CE264	U	3	mg/kg	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Zinc	CE264	M	4	mg/kg	51.5	85.4	63.9	29.9	32.2
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	%	8.5	9.2	11.1	10.0	8.1
Total Organic Carbon	CE197	N	0.1	%	10.8	16.8	19.5	42.5	5.16
Soil Organic Matter	CE192	N	0.1	%	18.7	29.0	33.6	73.3	8.90
Polyaromatic hydrocarbons									
Naphthalene	CE087	M	0.016	mg/kg	1.09	1.49	0.461	0.716	0.217
Acenaphthylene	CE087	M	0.015	mg/kg	< 0.015	< 0.015	< 0.015	0.065	0.022
Acenaphthene	CE087	M	0.013	mg/kg	0.020	0.030	0.024	0.042	0.074
Fluorene	CE087	U	0.013	mg/kg	0.178	0.170	0.223	0.231	0.143
Phenanthrene	CE087	M	0.014	mg/kg	1.53	1.70	0.918	1.30	1.12
Anthracene	CE087	U	0.017	mg/kg	0.187	0.227	0.151	0.280	0.262
Fluoranthene	CE087	M	0.017	mg/kg	0.930	1.40	0.511	1.08	2.50
Pyrene	CE087	M	0.016	mg/kg	0.705	0.990	0.368	0.696	1.84
Benzo(a)anthracene	CE087	U	0.012	mg/kg	0.566	1.05	0.299	0.761	1.50
Chrysene	CE087	M	0.028	mg/kg	0.770	1.17	0.491	0.887	1.48
Benzo(b)fluoranthene	CE087	M	0.02	mg/kg	0.706	1.30	0.505	1.18	1.91

SOILS

Lab Number					37354	37355	37356	37357	37358
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					TP1-ES1	TP2-ES2	TP3-ES3	TP4-ES4	TP5-ES5
Depth (m)					0.30	0.50	1.00	0.40	0.70
Sampling Date					25/02/2025	25/02/2025	25/02/2025	25/02/2025	25/02/2025
Benzo(k)fluoranthene	CE087	M	0.025	mg/kg	0.220	0.464	0.172	0.393	0.668
Benzo(a)pyrene	CE087	U	0.019	mg/kg	0.452	0.865	0.237	0.723	1.31
Indeno(1,2,3-cd)pyrene	CE087	M	0.019	mg/kg	0.389	0.732	0.273	0.739	1.11
Dibenzo(a,h)anthracene	CE087	M	0.017	mg/kg	0.126	0.219	0.103	0.281	0.288
Benzo(g,h,i)perylene	CE087	M	0.019	mg/kg	0.319	0.546	0.203	0.546	0.858
Total PAH(16)	CE087	N	0.28	mg/kg	8.19	12.3	4.94	9.91	15.3
Total 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
>C10-C12 Aliphatic (EH_2D_AL)	CE250	N	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic (EH_2D_AL)	CE250	N	0.5	mg/kg	< 0.5	1.2	0.9	< 0.5	< 0.5
>C16-C21 Aliphatic (EH_2D_AL)	CE250	N	0.7	mg/kg	< 0.7	1.6	1.1	0.7	< 0.7
>C21-C35 Aliphatic (EH_2D_AL)	CE250	N	4	mg/kg	< 4.0	7.7	8.5	5.5	< 4.0
>C35-C40 Aliphatic (EH_2D_AL)	CE250	N	0.5	mg/kg	< 0.5	< 0.5	0.5	< 0.5	< 0.5
>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
>C8-C10 Aromatic (HS_1D_AR)	CE267	N	0.01	mg/kg	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
>C10-C12 Aromatic (EH_2D_AR)	CE250	N	0.6	mg/kg	4.2	10.9	8.1	4.1	< 0.6
>C12-C16 Aromatic (EH_2D_AR)	CE250	N	1	mg/kg	13.5	51.1	27.0	10.9	< 1.0
>C16-C21 Aromatic (EH_2D_AR)	CE250	N	2	mg/kg	8.9	85.6	30.3	10.9	< 2.0
>C21-C35 Aromatic (EH_2D_AR)	CE250	N	4.5	mg/kg	33.5	284	143	45.3	< 4.5
>C35-C40 Aromatic (EH_2D_AR)	CE250	N	1.5	mg/kg	4.6	37.6	19.3	5.5	< 1.5
>C5-C10 Total (HS_1D_Total)	CE267	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
>C10-C40 Total (EH_2D_Total)	CE250	N	11.5	mg/kg	66.3	481	240	82.9	< 11.5
Total Hydrocabons C5-C40 (HS_1D+EH_2D_	CE250	N	11.5	mg/kg	66.3	481	240	82.9	< 11.5
Wet Chem									
pH	CE004	M	0.1	pH units	7.8	8.4	8.2	8.1	8.7

SOIL SVOCS

Lab Number					37354	37355	37356	37357	37358
Client Reference					SOIL	SOIL	SOIL	SOIL	SOIL
Sample ID					TP1-ES1	TP2-ES2	TP3-ES3	TP4-ES4	TP5-ES5
Depth (m)					0.30	0.50	1.00	0.40	0.70
Sampling Date					25/02/2025	25/02/2025	25/02/2025	25/02/2025	25/02/2025
Test	**Method**	**Accred**	**LoD**	**Units**					
SVOC									
Phenol	CE189	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Cresols	CE189	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Xylenols	CE189	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Naphthols	CE189	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Trimethylphenols	CE189	N	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

METHOD DETAILS

METHOD	TESTNAME	METHOD SUMMARY	ANALYSIS BASIS
CE267	VPH in Soil	HS-GCFID	As submitted sample
CE250	GCXGC in Solids	DCM Extraction and GCxGC-FID	As submitted sample
SUBCON	Asbestos Solid	HSG248	Air Dried Sample
CE189	SVOC in solids	DCM Extraction and GCMS	As submitted sample
CE264	Metals by ICP in Soil	ICPOES	Air dried 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

REPORT INFORMATION

Report No.:25-01872, 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.
This report shall not be reproduced except in full, without prior written approval.
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