Intelligent Ground Solutions

Supplementary Investigation Report

Land at 1 Salop Road,

Wrexham

For D T Filling Stations Ltd

11 April 2025

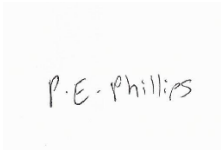
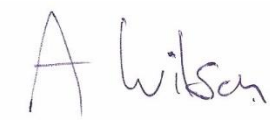
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1.0 Introduction

Geo^2 Limited were commissioned by D T Filling Stations Ltd to conduct a Supplementary Investigation of:

Land at
1 Salop Road, Wrexham, LL13 7AF

The site is approximately 0.15 hectares in area and located at grid reference 333736, 349936.

The study was undertaken prior to the lease and proposed redevelopment of the site as a car wash and vehicle maintenance unit.

1.1 Scope of Works

The scope of the investigation has been designed with consideration of guidance on Planning Practice Guidance (Land Affected by Contamination), Land Contamination: Risk Management pages of the GOV.UK web pages and the relevant requirements of the National Planning Policy Framework (NPPF) (as revised 2023) (paragraphs 174 & 183-184).

The assessment has been undertaken consisting of supplementary intrusive sub-surface ground investigation works, soil and groundwater sampling, groundwater modelling and updating of the conceptual site model and qualitative risk assessment. This was conducted in order to delineate and characterise sub-surface contaminants identified in the previously completed Phase II Site Investigation.

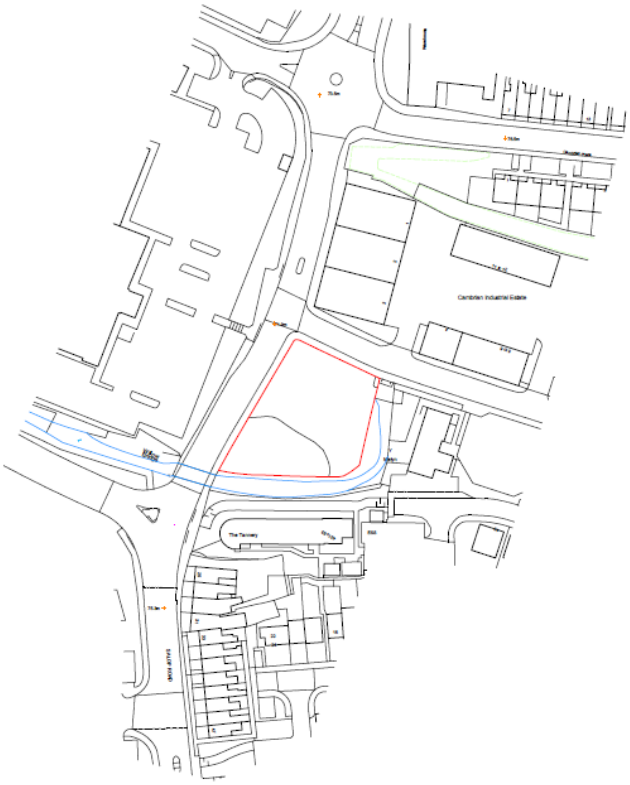
The supplementary intrusive investigation was conducted on 4th March 2025. The investigation was undertaken in accordance with Geo^2's Method Statement SMS SI 4495. A ground and surface water sampling visit were undertaken on 13th March 2025. The findings of the investigation are presented herein.

2.0 Description of the Site and Surroundings

2.1 Site Description

The site is situated in the town of Wrexham, approximately 400m south of the town centre, with access provided by one ingress/egress point on the northern boundary, from Rivulet Road. It is currently a disused site which predominantly comprises an area of tarmac with a vegetated area in the south of the site. The River Gwenfro flows along the south and east boundaries of the site, flowing south-west to north-east.

The area shown within the red site boundary on Figure A below, will be referred to throughout this document as 'the site'.



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Figure A: Site Location Plan. Red is approximate site boundary. Blue indicates watercourse. Extract from Carbana Location Plan.

Geo^2 were instructed by DT Filling Stations to undertake a Supplementary Site Investigation following the identification of contamination in soil and groundwater in excess of Generic Acceptance Criteria in the Phase II Environmental Assessment.

2.2 Current Site Condition

A site walkover was undertaken on 11th of November 2024 with a photographic survey included in Appendix B.

The site was observed to be predominantly occupied by a historical car park. An area of vegetation was present in the south of the site which was noted to be overgrown with access for a drilling rig only possible to a small portion of this area.

The site was observed to be bounded by a brick wall, with a wooden access gate along the northern boundary.

The River Gwenfro bounds the site to the south and east, flowing south-west to north-east. It was noted that the river water level was approximately 2m below the ground level of the site and approximately 15cm deep.

The site walkover identified a historical monitoring well in the centre of the site (EX1). A historical well, marked on historical maps was also identified beneath a manhole in the north-east of the site.

The site was observed to be generally flat.

2.3 Previous Works

A list of previous reports undertaken for the site is provided below.

- Earth Environmental and Geotechnical – Phase I Geo Environmental Desk Study (Report ref: A4428/21) – November 2021
- Geo^2 – Groundwater and Stream Sampling Letter Report (Report ref: 24/4495.1.1) – November 2024
- Geo^2 – Phase II Contaminated Land Site Assessment (Report ref: 24/4495.2.1) – December 2024

A Phase II intrusive site investigation was completed on 21st November 2024 with seven soil bores being extended (WS1-5, WS7, WS9). Three monitoring wells (WS2, WS3, WS9) were installed as part of these works to allow for groundwater samples to be obtained.

The report identified concentrations of hydrocarbon compounds, BTEX, SVOCs, VOCs and Metals in groundwater above Generic Acceptance Criteria (GAC), indicating a potential risk to surface water and groundwater. Due to the proximity of the River Gwenfro, the surface water body is considered the primary environmental receptor. Samples were obtained from upstream and downstream of the river with no concentrations of hydrocarbon, BTEX, VOC or SVOC compounds recorded above laboratory detection limits.

This Supplementary Investigation Report further develops the conceptual site mode, building upon the information obtained in the above reports. The above reports should be referred to separately for detail in full.

2.4 Planning Summary

The Phase I report provides detailed information of planning applications for the site. In summary, a planning application was made in May 2000 for the continuation of hazardous substances consent for part of the site, with no further details provided. This was followed by an application for the demolition of the theatre building in April 2016, with Japanese Knotweed being noted on the riverbank as part of these works. A planning application was submitted in August 2020 for the proposed development of a car wash and tyre fitting unit. This application was rejected on the grounds of the site being located within a Zone 2 floodplain and is at an unacceptable risk of flooding which could give rise to flooding offsite. The application was also rejected due to proposed access passing onto Salop Road. In September 2020 Wrexham Council issued a recommendation of a contaminated land phased investigation.

Geo^2 have also been provided with correspondence between the local Contaminated Land Officer and the planning team from June 2024, detailing the need for an intrusive investigation to be undertaken to assess the potential for contamination at the site. This correspondence is presented in Appendix F.

2.5 Proposed Redevelopment

The site is proposed to be redeveloped as a car wash and vehicle maintenance unit. The latest proposed site layout plans that have been made available to Geo^2 indicate the presence of a vehicle maintenance building in the south-west corner of the site, with car wash units along the western site boundary. A bin store is to be located immediately to the south of the vehicle maintenance building and a pole sign is proposed in the north-west corner. An automated laundromat unit is proposed in the south-east corner with two vacuum and two air units proposed close to the eastern site boundary. The remainder of the site is to be covered in tarmac hardstanding and used for traffic routes, parking bays and waiting areas. A gully outfall is proposed on the eastern boundary discharging to the River Gwenfro. The ingress and egress point is proposed to be located in the north-east of the site along the northern boundary, passing onto Rivulet Road.

A figure detailing the proposed redevelopment is presented in Appendix A.

3.0 Detailed Site History Summary

Residential properties were located on site from 1874, with a Well marked in the north-west corner of the site from 1899. The residential buildings were demolished with a works being constructed on site by 1958. This is noted as being part of the Cambrian Leather Works from circa 1966 to 1990. By 1994 the buildings on the site had been demolished and replaced with one building in the south-west corner labelled as the Wrexham Musical Theatre from circa 2007. The rest of the site is a tarmac car park. The theatre building was demolished by 2016 with the site comprising tarmac hard standing with a vegetated area in the south in the present day.

Offsite sources comprise a gas works is present to the east of the site, a tannery to the north and two breweries to the west in the earliest mapping from 1873. By 1899 the tannery has expanded and is now identified as the Cambrian Leather Works. The river was culverted from the north-east corner of the site at this time. By 1912 one of the breweries to the west had been redeveloped as a tram depot and an additional tank had been constructed at the gas works to the east. By circa 1966 three tanks at the gas works had been demolished and replaced with one large tank. The site is now identified as a gas holder station. The Cambrian Leather Works have been redeveloped into the Cambrian Industrial Estate by 1990. The Gas Holder Station was demolished by 2007 with residential properties constructed on the site (Willow Bridge Crescent and Cefn-y-Nant) by 2016.

Information pertaining to remedial works undertaken on the neighbouring gas works site were provided to Geo^2 by the Environmental Health Officer, sourced through the Planning Portal. This included the following documents:

- WSP, Former Gasworks, Rivulet Road, Wrexham. Post Remediation Validation Report, 2004
- R.E. Fry & Associates (REFA), Summary of Remediation Policy, Proposed Residential Development – Rivulet Road, Wrexham, 2012

Former Gas Holder 1 and 'Area B' (the former Rivulet Road Gasworks) were located immediately adjacent to the River Gwenfro to the south-west of the main Rivulet Road Gasworks site, on the opposite bank to the Carbana site. Area B was described as a former gas processing area and a tar tank was discovered immediately adjacent to the River Gwenfro wall with the eastern side of the tank being attached to the wall. Immediately to the north of this, black viscous tar was observed on the river wall. Works identified extensive gasworks contamination associated with this infrastructure in soils and groundwater. The river channel was observed to be bounded by brick walls on either side and in some areas a concrete base was evident. The channel is culverted as it leaves the site in the north-west corner. As it such it is likely that the river channel adjacent to the site boundary has historically been redirected in a man made channel which may sever migration pathways between the river and groundwater underlying the site.

Information made available through the planning portal which detailed the remediation works undertaken as part of the gasworks site redevelopment were reported as including excavation of contaminated soils from these areas. The contamination in Area B was noted to be present in the

top of the sandy gravel strata at approximately 2.0-2.3m depth. Gasholder 1 was noted to have a discontinuous concrete base at a depth of 5.0m below ground level (m bgl). Contaminated soils were noted in the gasholder from 1.5m bgl. Excavations of the base of the holder identified underlying contaminated natural silty sand indicating that the contaminative source was not contained in the gasholder. Whilst this site has been developed into a residential end use no information regarding the remediation or information demonstrating the absence of contamination within the groundwater or at depth in proximity to the subject site has been encountered.

The available information indicates that widespread gasworks contamination was identified on the opposing bank of the River Gwenfro to the site, immediately adjacent to the river. Although remedial works have been undertaken, any contamination that had migrated offsite was not addressed. This is considered a potential offsite source of contamination that could impact the site.

Images 1 overleaf shows historical mapping of the gasworks with the site outlined in red, and Area B and Gasholder 1 and wider gasworks outlined in blue.

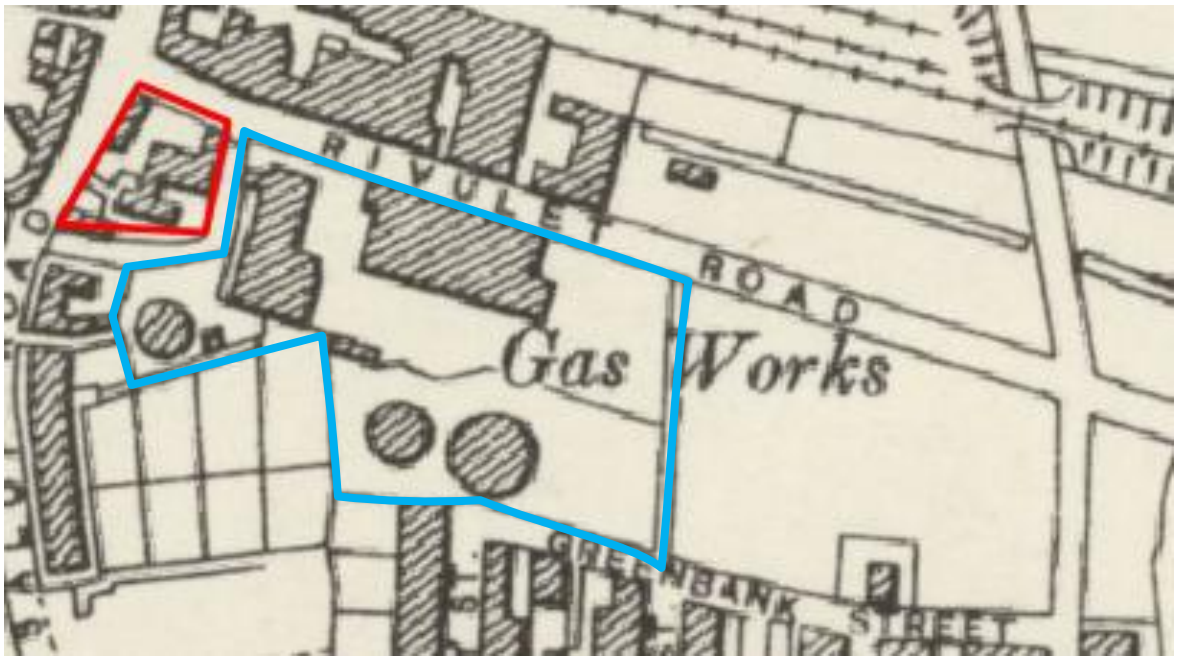


Figure B: Historical map detailing proximity of gasworks to the site. The site is outlined in red and Area B and Gasholder 1 are outlined in blue.Detailed Site History Summary

In order to further characterise each of the identified contamination linkages, a supplementary shallow intrusive investigation was specified to obtain further information regarding the severity and extent of contamination identified at the site in the Phase II investigation.

4.0 Supplementary Investigation

Six further soil bores (WS101-106) were extended on 4th of March 2025, to a maximum depth of 4.0 metres below ground level (m bgl) at locations indicated on Figure 3 presented in Appendix A. The soil bores were constructed using window sampling techniques. As a result of the drilling techniques, relatively undisturbed soils were able to be obtained for field and laboratory analysis and for logging of ground conditions. Field analysis comprised the examination of each of the samples for visual and olfactory indications of contamination. Analysis was also conducted for volatile hydrocarbons using a photo-ionisation detector (PID).

The site investigation was designed to delineate and characterise contamination identified in the initial site investigation, and to allow for the installation of further groundwater monitoring wells.

Table 1 below, shows the location rationale of boreholes.

Target / Rationale for Investigation Locations	Exploratory Hole					
	WS101	WS102	WS103	WS104	WS105	WS106
General site coverage	✓	✓	✓	✓	✓	✓
Historical tannery to north	✓			✓		✓
Gas works to east		✓		✓	✓	
Natural groundwater body	✓	✓		✓	✓	
Made ground perched water			✓			✓

Table 1. Exploratory Hole Location Rationale

4.1 Ground Conditions

The logs of the boreholes, which are presented in Appendix D, detail the ground conditions and the sampling depths together with the visual and olfactory characteristics of the soils. The below descriptions take into account the ground conditions identified in both the Phase II investigation and Supplementary investigation.

Made ground across the site is described as a silty sand and gravel including mixed fill and brick proven to a maximum depth of 2.0m bgl. The base of the made ground was recorded between 1.0m and 2.0m bgl across the site.

Natural soils generally comprised soft to stiff gravelly silts and clays proven to between 1.5m and 4.0m bgl. This was underlain by wet sand, gravel and cobbles proven to a maximum depth of 5.0m bgl. Water strikes were encountered between 2.5 and 2.9m in the soil bores. It is considered likely that natural superficial material is associated with river deposits given the proximity of the River Gwenfro.

It should be noted that the water strikes were observed in the gravel layer underlying the silts/clays. Sub-artesian effects were observed within the wells, with water level rising higher than the strike observed during drilling. It is considered that the silts/clays are acting as a confining layer with the water body being confined in the underlying gravels.

No bedrock was encountered in any location.

4.1.1 Observed Potential Contamination

Contamination was identified during the supplementary investigation in WS102 (2.8-4.0m), WS104 (2.8-3.5m) and WS105 (3.6-4.0m). This contamination was observed in wet gravels underlying the silts and clays. In the case of WS105, contamination was observed in the sand layer underlying the silt/clay. Contamination was observed to comprise black staining with a hydrocarbon sheen on the water and a very strong coal tar odour.

Each of the newly installed and existing monitoring wells were dipped during the investigation. Coal tar smearing was noted on the interface probe in WS2, WS102, WS104 and WS105. These locations are in the south and east of the site, in close proximity to the river.

4.1.2 Obstructions

No obstructions were encountered during the drilling works. Window sampling methods refused at a maximum of 4.0m on compact gravels.

4.2 Groundwater

Groundwater was encountered during the investigation; with six new monitoring wells being installed in WS101-WS106 in addition to the five existing monitoring wells onsite, discussed in the Phase II report. A groundwater monitoring visit was undertaken following the supplementary investigation on 13th March 2025.

All monitoring wells were dipped with an interface probe to record any thickness of free phase fuel (NAPL), groundwater and the base of the wells. The installation details of the historical monitoring well (EX1) is unknown.

It was also noted that the River Gwenfro is approximately 2m below the site surface level.

The groundwater monitoring data is overleaf in Table 2, below.

Exploratory Hole	Response zone	Target Strata	Depth to Water (m bgl)	Depth to Base (m bgl)	Observations
WS101	1.0-4.0m	Clay and Gravel	1.375	2.180	
WS102	1.7-4.0	Silts and Gravel	1.553	3.035	Coal tar odour and sheen
WS103	0.5-2.0m	Made Ground	1.540	1.842	
WS104	1.2-4.0m	Silts, Clay and Gravel	1.556	2.700	Coal tar smearing on IP
WS105	1.8-4.0m	Sand	1.440	2.925	Coal tar smearing on IP
WS106	0.5-2.0m	Made Ground	1.623	1.885	
EX1	Unknown	Unknown	1.482	3.353	
Well	Unknown	Unknown	0.200	8.230	Organic Sheen
WS2	1.0-3.7m	Made Ground, Clay, Gravel	1.596	1.88	Strong coal tar odour and sheen
WS3	0.5-4.0m	Made Ground, Sand, Silt	1.262	2.555	
WS9	1.0-4.0m	Clay and Gravel	1.405	2.36	

Table 2. Groundwater Monitoring Data 13.03.2025

All monitoring wells were sampled, and upstream and downstream river samples were obtained during the follow up groundwater monitoring visit on 13th March 2025.

The depths to groundwater on site suggest a plausible connection given the depth to the River Gwenfro. However, it should be noted that groundwater strikes during drilling works were observed to be deeper (2.5-2.8m) in the gravel layer, confined by overlying silts and clays. The base of the River Gwenfro is approximately 2.15m (surveyed by Geo^2 during a site inspection) and as such, groundwater was struck deeper than the base of the river. Groundwater displayed sub artesian effects in the monitoring wells and rose to settle at a higher level than the strike, once the confining silts/clays had been breached.

Groundwater flow modelling has also been undertaken using data obtained during the supplementary investigation. Figures C and D overleaf show groundwater flow direction from data obtained on 4th March (Figure C) and 13th March 2025 (Figure D). Both figures indicate a groundwater flow towards the north east.



Figure C: Groundwater flow direction – 4th March 2025

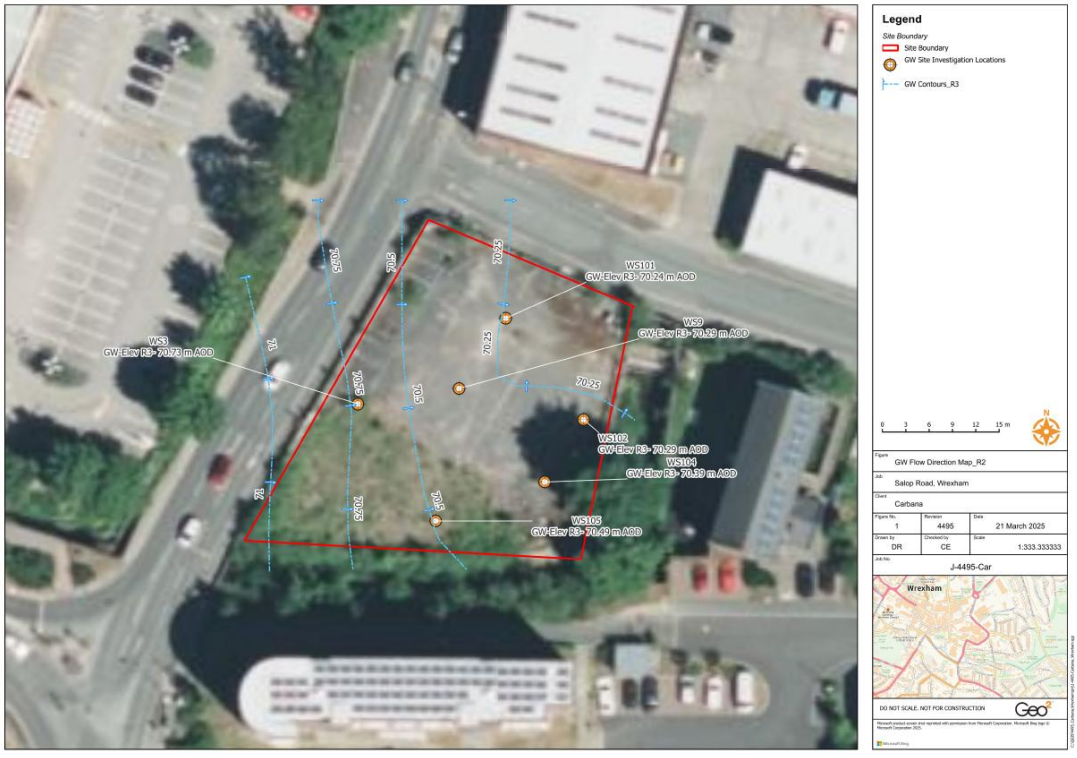


Figure D: Groundwater flow direction – 13th March 2025

5.0 Laboratory Analysis

5.1 Analysis Rational

Six soil samples, eleven groundwater samples and two surface water samples (River Gwenfro) were selected for laboratory analysis for an environmental suite reflecting the historical onsite and offsite land use as a leather works/tannery, and the neighbouring historical gasworks land use in line with guidance provided in CIRIA's Contaminated Land Risk Assessment: a guide to good practise (CIRIA C552, 2001).

Deeper soil samples were selected from the gravel layer to assess contamination observed in this stratum.

All samples were placed in laboratory provided containers and stored in cool boxes prior to being transported to the laboratory under the laboratory's chain of custody documentation. The laboratory used for the ground investigation sample analysis on this occasion was Envirolab, a UKAS accredited laboratory.

5.2 Soils Analysis

All soil samples were analysed for TPH-CWG, VOC, SVOC, CLEA metals, Asbestos, Total Cyanide and Free Cyanide.

The analysis, conducted by a Gas Chromatography / Flame Ionisation Detector (GC/FID) and Gas Chromatography / Mass Spectrometry (GC / MS) comprised fractionation and speciation of hydrocarbons including analysis for benzene, toluene, ethylbenzene and xylenes (BTEX) and MTBE compounds. Selected samples were also analysed by:

- Heavy metals by IRIS emission spectroscopy.
- Volatile and semi volatile components (including PAHs), by GC/MS.
- Asbestos Containing Materials (ACMs) by polarised light microscopy / gravimetry.

The results of soil analysis were compared using the following UK guidance:

- LQM/CIEH's Suitable for Use Levels (S4ULs)
- DEFRA Category 4 Screening Levels (C4SLs);
- EIC Soil Generic Assessment Criteria for Human Health (2010).
- SoBRA Development of Acute Generic Assessment Criteria for Assessing Risks to Human Health from Contaminants in Soil. April 2009 (AGAC)

5.2.1 Soil Testing Results

The results of laboratory analyses on the soil samples undertaken are presented in Appendix E.

Due to the site's proposed use as a car wash and vehicle maintenance unit, the soil analysis testing results have been compared against 'Commercial' end use Generic Assessment Criteria (GACs) thresholds. GAC concentrations associated with a conservative 1% Soil Organic Matter (SOM) have been utilised.

Exceedances of 2-Methylnaphthalene GAC were recorded in WS102 (3.6m) and WS104 (3.2m).

No other contaminants have been recorded above Commercial GAC threshold concentrations.

5.3 Groundwater Analysis

5.3.1 Groundwater Samples

Groundwater samples were taken from wells WS101-WS106, EX1, Well, WS2, WS3 and WS9 with surface water samples being obtained from the River Gwenfro, upstream and downstream of the site. The samples were analysed for pH, Cyanide (free), Cyanide (total) CLEA metals, VOC, SVOC, TPH-CWG, BTEX and MTBE.

The analysis, conducted by a Gas Chromatography / Flame Ionisation Detector (GC/FID) and Gas Chromatography / Mass Spectrometry (GC / MS) comprised fractionation and speciation of hydrocarbons including analysis for hydrocarbons, benzene, toluene, ethylbenzene and xylenes (BTEX) compounds and MTBE.

The results of analyses of the water samples were compared to screening criteria sourced from the following legislation:

- World Health Organisation Guidelines of Drinking-Water Quality, 4th Edition, 2022.
- SoBRA Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater.
- WFD 2015b - Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015
- Environmental Quality Standards (EQS) as presented in the River Basin Districts Typology, Standards and Groundwater Threshold Values (England and Wales) Directions 2010.
- DWQS 2016 - The Water Supply (Water Quality) Regulations 2016 [UK Drinking Water Standard]

5.3.2 Groundwater Testing Results

The results of laboratory analyses on the groundwater sample undertaken are presented in Appendix E.

No exceedances above SoBRA Commercial GAC threshold levels have been recorded, indicating an unlikely risk to site end users or neighbouring residents from volatile contaminants in groundwater.

The groundwater results have been assessed relating to potential risks to controlled water receptors. Due to the surface watercourse bounding the site to the south and east, the groundwater testing results have been compared against inland surface water GAC thresholds (Water Framework Directive/Environmental Quality Standard).

A summary of the groundwater results, where analysis exceeding the relevant GACs is presented in Table 3 below and overleaf. A detailed summary showing laboratory data compared to GAC is presented in Appendix E.

Contaminant	GAC (µg/l)	Maximum Concentration (µg/l)	Exceedance Location
Metals			
Copper	1.0 (bioavailable)	7	WS105, WS106, WS9, Upstream
Chromium	4.7	8	Upstream, Downstream
Lead	1.2 (bioavailable)	20	WS101, WS103, WS104, WS105, WS106, WS2, WS3, WS9, EX1
Nickel	4 (bioavailable)	15	WS2,
Zinc	12.1 (bioavailable)	22	Well
SVOCs			
2-Chloronapthalene	1.6	83	WS102, WS105
Anthracene	0.1	386	WS102, WS105, WS2
Benzo(a)pyrene	0.27	76	WS102, WS105
Fluoranthene	0.12	201	WS102, WS105, WS2
Naphthalene	2	612	WS101, WS102, WS104, WS105, WS2, WS9, EX1
VOCs			
1,2,4-Trimethylbenzene	36	327	WS102, WS104, WS105, WS2

Contaminant	GAC (µg/l)	Maximum Concentration (µg/l)	Exceedance Location
BTEX			
Ethylbenzene	20	37	WS102, WS104, WS105, WS2
m & p Xylene	30	160	WS102, WS105, WS2
o-Xylene	30	88	WS102, WS104, WS105, WS2
TPHs			
Aliphatic >C8-C10	57	206	WS102, WS104, WS2
Aliphatic >C10-C12	37	564	WS102, WS104, WS105, WS2
Total Aliphatics	2500	3020	WS2
Aromatic >C8-C10	20	4250	WS102, WS104, WS105, WS2, WS9, EX1
Aromatic >C10-C12	100	16700	WS102, WS104, WS105, WS2, EX1
Aromatic >C12-C16	100	24300	WS102, WS104, WS105, WS2, WS9, EX1
Aromatic >C16-C21	90	6690	WS102, WS104, WS105, WS2, EX1
Aromatic >C21-C35	90	2670	WS102, WS104, WS105, WS2, EX1
Total Aromatics	2500	52600	WS102, WS104, WS105, WS2, EX1

Table 3. Groundwater sampling GAC exceedances

Elevated concentrations of petroleum hydrocarbons, BTEX, SVOCs, metals and 1,2,4-Trimethylbenzene were identified above Surface Water GAC in the groundwater at the site particularly in monitoring wells WS102, WS104, WS105 and WS2. These exceedances correspond with the locations in which coal tar contamination was observed during works. Exceedances of petroleum hydrocarbon, metals and naphthalene GACs were also identified in EX1, the historical monitoring well onsite.

Exceedances of chromium GAC was identified onsite as well as in the Upstream and Downstream samples from the River Gwenfro.

An exceedance of Zinc GAC was also identified in the water sample obtained from the historical well on site (Well).

Exceedances of appropriate water quality GAC were also identified in WS102, WS104, WS105, WS106, EX1, WS2 and WS9. This indicates a potential risk to the Secondary A Aquifers underlying the site. However, due to the proximity of the River Gwenfro the primary receptor from contamination identified onsite is considered to be the surface water body.

6.0 Risk Estimation

6.1 Discussion of Investigation Findings

6.1.1 Site Soils

Made ground soils were recorded as silty sand and gravel fill to depths of up to 2.0m bgl across the site.

Natural superficial deposits comprised gravelly silts and clays which in turn were underlain by wet gravel and cobbles. All exploratory holes were terminated upon reaching the desired depth or refusal in natural soils.

Evidence of coal tar contamination was identified in the wet gravel layer in WS102, WS104 and WS105 during the advancement of the new exploratory holes.

Environmental laboratory assessment of shallow soil samples has recorded low concentrations of naphthalene in WS102 (3.6m) and WS104 (3.2m) that exceed Generic Assessment Criteria for Human Health in a commercial setting.

These exceedances were identified in the wet deep gravel strata and corresponded with observed coal tar contamination.

6.1.2 Controlled Waters

Groundwater was struck between 2.5m and 3.0m bgl in natural strata during the investigation. This was observed in the gravel strata, with groundwater displaying sub artesian effects and rising within the well. Evidence of coal tar contamination was identified in the groundwater of WS102, WS104, WS105 and WS2 during supplementary works. This was observed as black viscous smearing with a strong gasworks odour. Significant hydrocarbon, VOC and SVOC contamination was identified in the laboratory analysis exceeding controlled waters GAC, confirming the presence of contamination observed onsite.

No concentrations of volatile hydrocarbon compounds presenting a potential vapour risk to Commercial site users were recorded in the groundwater samples.

Monitoring wells were installed to target two separate potential water bodies on the site. WS103 and WS106 were installed to assess made ground perched water conditions. Minor exceedances of GAC were identified in WS106 for lead and Aromatic >C12-C16.

6.2 Updated Conceptual Site Model

Analysis of results and observations from the supplementary investigation, paired with information from the Phase II report allows for review and updating of the conceptual site model.

Information obtained during the supplementary investigation indicates the presence of coal tar contamination in the natural gravel strata at depth. This was observed as viscous, black smearing with a very strong gasworks odour. No evidence of gasworks contamination was identified in the made ground (the presence of which might suggest removal of material which may have been impacted by historic onsite activities) or within the underlying natural silts/clays on site. This indicates that the source of the contamination is unlikely to have arisen from on site activities. Figure E below shows a Total TPH hotspot plan for the site demonstrating the location of the highest concentrations of hydrocarbon compounds being adjacent to the river.

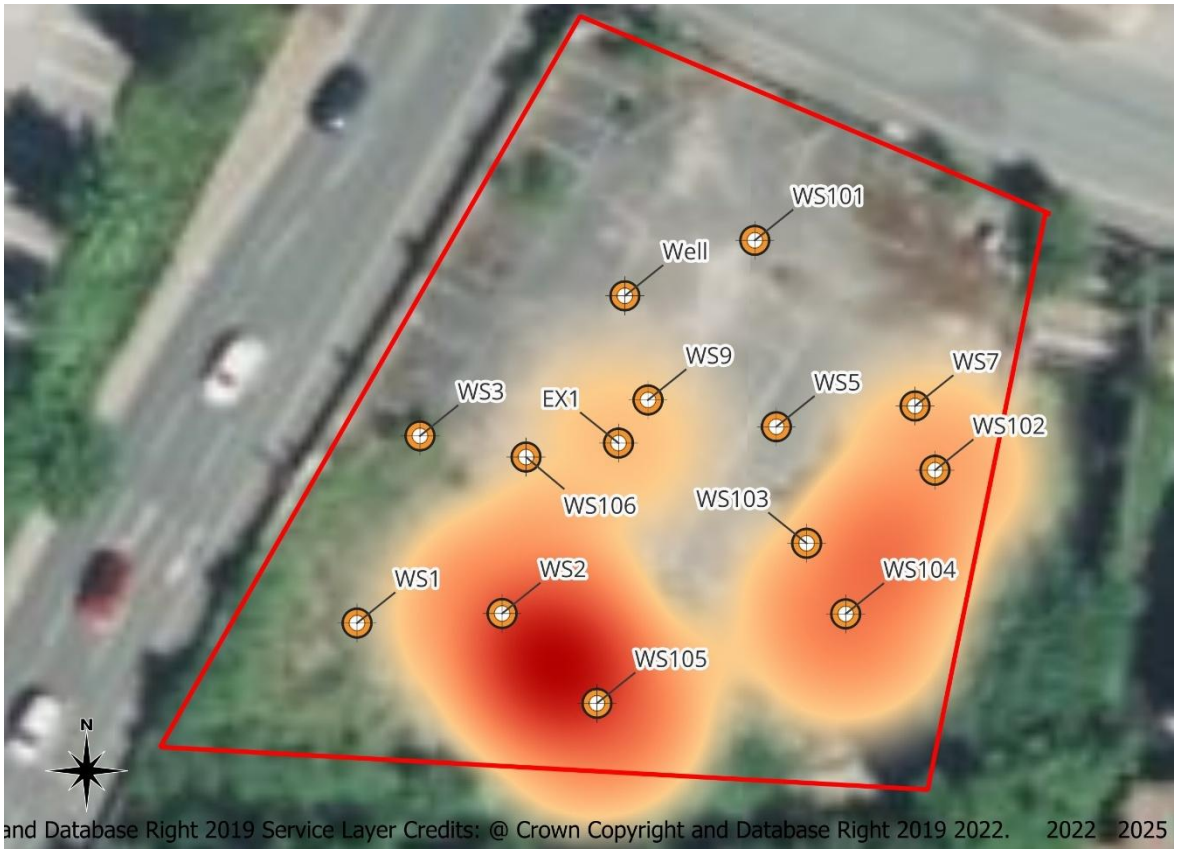


Figure E. Total TPH Hotspot Plan

Section 3.0 of this report details known historical coal tar contamination associated with the gas works site to the south and east, on the opposing bank of the River Gwenfro. As such it can be inferred that the source of the identified contamination is offsite and associated with the historical gasworks to the south and east. This is further supported by the locations in which contamination was identified. The highest concentrations and observations of tar smearing were located in WS102, WS104, WS105 and WS2, which are located in the west and south of the site, adjacent to the River

Gwenfro. Contaminant concentrations in groundwater and soils decrease moving through the site away from the river.

No evidence of gasworks contamination was identified in the limited available sampling from the river suggesting the plume is not impacting the watercourse. Comparison of the water strikes during drilling and the depth of the river indicate the water level in the gravels is approximately 0.5m below the base of the river. Sub artesian effects were observed indicating the water in the gravels is confined by the overlying clays/silts, which are likely to also act to sever the pathway between the contaminated superficial aquifer and the watercourse. Table 4 overleaf provides information showing drilling water strikes relative to the level at which groundwater settled, demonstrating the previously discussed sub artesian effects.

Exploratory Hole	Water Strike Level (m)	Water Strike Strata	Groundwater Resting Level (m)
WS101	2.50	Gravel	1.375
WS102	2.70	Gravel	1.553
WS103	-	N/A	1.540
WS104	2.80	Gravel	1.556
WS105	2.90	Sand	1.440
WS106	-	N/A	1.623
EX1	Unknown	Unknown	1.482
Well	Unknown	Unknown	0.200
WS2	2.00	Clay	1.596
WS3	3.00	Silt	1.262
WS9	3.00	Gravel	1.405

Table 4. Groundwater strikes and resting levels

Figure F overleaf shows a cross section from west to east across the site, illustrating the presence of the boundary between the confining layer and gravels at a greater depth than the base of the river.

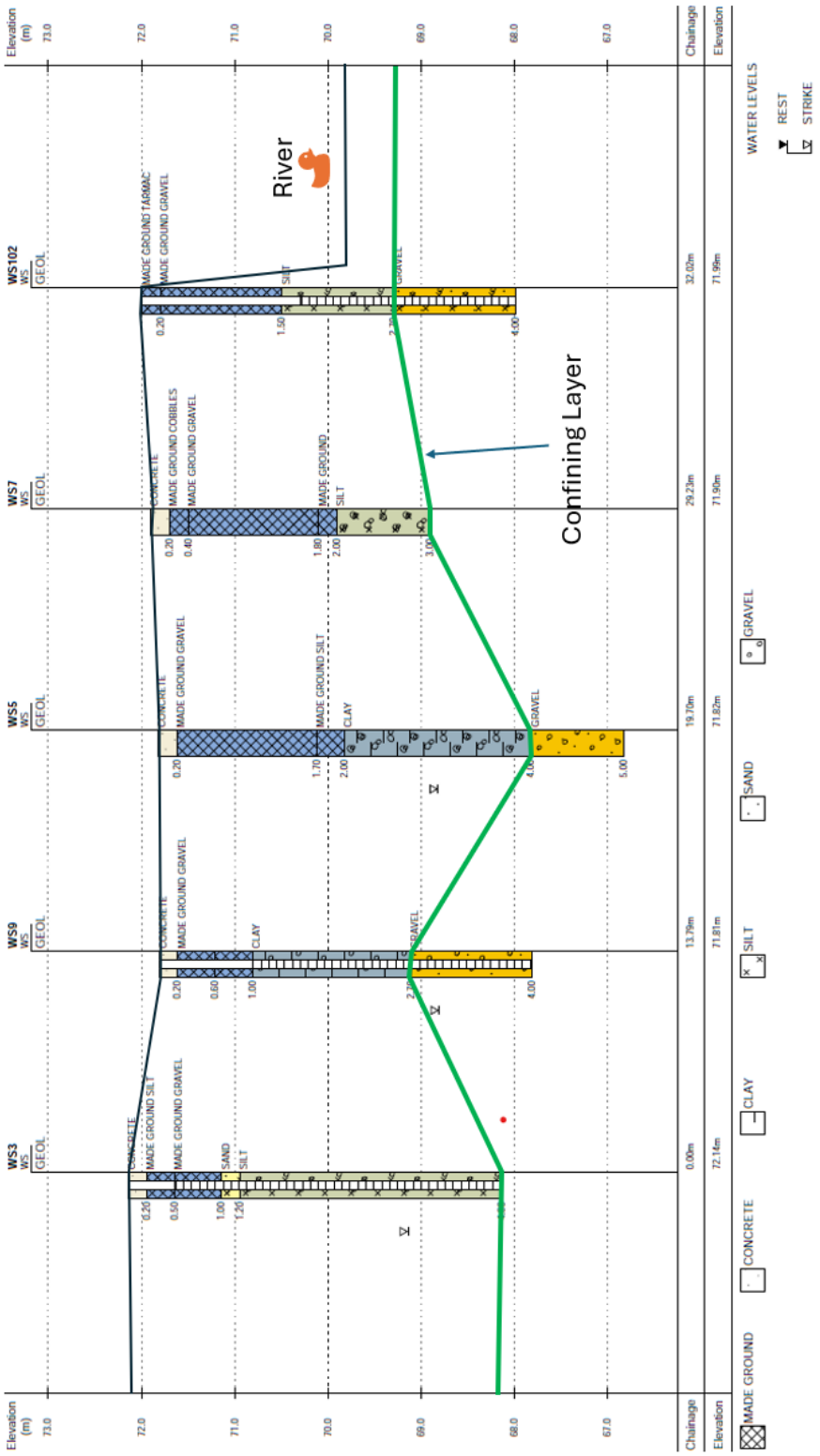


Figure F: Cross section detailing confining layer depth in relation to river base

The above figure indicates that currently there is evidence to suggest that no pathway is present linking the deeper gravel aquifer with the watercourse. This is supported by the absence of contamination in the surface water samples, the absence of a shallower perched waterbody, the lack of shallower impact and allows for revision to the qualitative risk assessment. Figure F below shows a cross section taken from the south and east areas of the site detailing the location of observed coal tar contamination in relation to the projected river base.

As the source is considered to be offsite, a historical plume associated with the gas works is assessed to be the most likely source. The main source of this plume is likely to have been removed during remediation of the gas works site. As such, it must be considered possible that further contamination may migrate through the gravel strata and further impact the site from the offsite source Contamination on site is currently located in the south and east and is unlikely to rapidly migrate across site given the age and location of the source to the south and east. Also, given the likely age of the impact and likely absence of any ongoing source it is also feasible that the plume may be stable or reducing.

Whilst groundwater flow direction is towards the river, coal tar presents as a DNAPL and will not necessarily follow the groundwater flow direction but will travel along the gradient of the boundary between the gravel and an underlying impermeable stratum. This mechanism allows the apparent migration of gas works contamination onsite which is considered to have passed through the confined gravel strata beneath the river and migrated against the hydraulic gradient.

Given the size of the site, the data quality does provide reasonable confidence in this model, however the presence of an offsite source is reliant upon historical and partial information and no current information is available to confirm this. It is not impossible that activities could have occurred onsite entailing the use or disposal of coal tar however Geo^2 has been unable to find any historical or direct site evidence to support the plausibility of this.

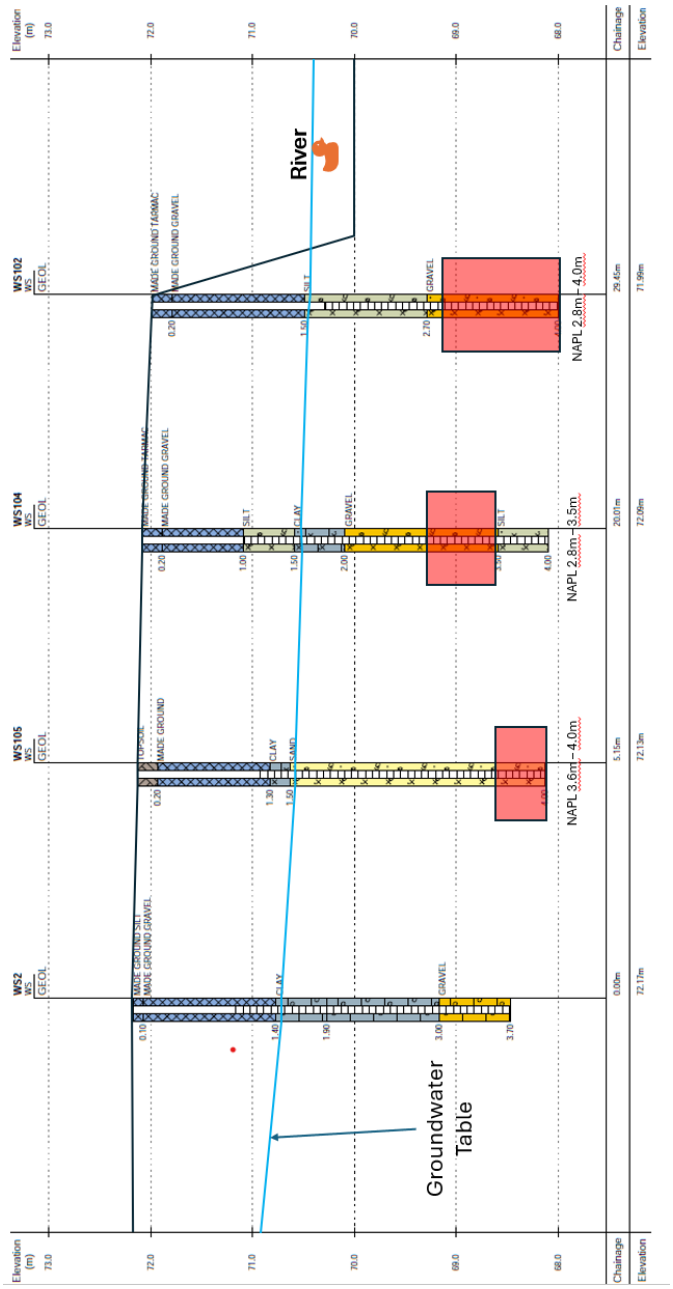


Figure G: Cross section detailing location of contaminated soils in comparison to the river base. Please note, the water table detailed is the hydrostatic head level dipped on site and not the actual depth of the groundwater.

6.3 Revised Qualitative Risk Assessment

UK legislation and guidance on assessing potentially contaminated land recommends the use of a risk assessment process based on a review of source/pathway/receptor relationships for various environmental media. The first stage of any risk assessment is to identify, using the desk study data and site information, the presence and extent of any hazard at the site, theoretical or demonstrable.

A key component of the overall risk assessment process is identification of "significant contaminant linkages" between contaminants and receptors. This can be accomplished through development of a site-specific conceptual model in which the potential contaminants, pathways and receptors identified on-site are described.

Each element can be defined as follows:

- **Contaminant source:** A substance either on or under the land and which has the potential to cause harm or pollution to human or environmental receptors.
- **Pathway:** A route or means by which a receptor can be exposed to or affected by a source.
- **Receptor:** A living organism or an ecological system, or controlled water, or property including buildings, crops and livestock.

The presence of all three of the above elements identifies a contamination linkage and a potentially unacceptable risk. To ensure that any risk present to, or, from the site can be appropriately managed each of these contamination linkages will be targeted by the investigation.

The objective of the qualitative risk assessment is to determine the significance of the risk, if any, which may occur as a result of the creation of pollutant linkages, which connect a potential receptor to an identified potential contaminant source at the site.

Each of the identified potential contamination linkages in the Phase II qualitative risk assessment (Section 4.3) has been reviewed based upon the findings of the supplementary investigation which allows for a greater understanding of the ground conditions at the site, site observations, contaminant profile and revision to the conceptual site model.

The qualitative risk assessment is undertaken, detailed in Table 5 on the following pages, in line with guidance provided in CIRIA's Contaminated Land Risk Assessment: a guide to good practice CIRIA C552, 2001. The purpose of this assessment is to determine the relative significance of the identified contamination linkages by assessing the probability of an impact occurring and by assessing the perceived severity of an impact to a receptor.

The perceived risk is based on a consideration of both the likelihood of an event (probability) occurring, and the severity of the potential consequence. Classification of these two factors is detailed in Appendix G.

Those linkages considered of low risk or less on the basis of the available site data will not be considered any further in this assessment. Linkages considered to be more significant are identified as presenting potentially unacceptable risk to the identified receptor. In these instances, further works may be considered necessary.

Source	Pathway	Receptor	Risk Assessment (Probability x Severity)	Justification
Shallow soil contamination on site E.g., Heavy Metals, PAH, TPH, BTEX, ACM and ground gases.	Dermal contact, ingestion, and inhalation of soils dust	Future land users	**Low** (Unlikely x Medium)	No evidence of shallow contamination was identified during the investigations. No evidence of ACMs was detected in shallow soils. The proposed hard cover use of the site will act to sever pathways.
		Construction Workers	**Low** (Unlikely x Medium)	
	Vertical or lateral migration of ground gas	Adjacent land users	**Low** (Unlikely x Medium)	No evidence of shallow soil contamination or extensive thicknesses of made ground that could act as a source of hazardous ground gasses were identified during the investigation.
		Future land users	**Low** (Unlikely x Medium)	
		Construction Workers	**Low** (Unlikely x Medium)	
Offsite source with onsite component in deeper soil and groundwater TPH, VOC, SVOC, BTEX	Lateral migration in surface waters	Surface water	**Moderate/Low** (Low Likelihood x Medium)	Soil contamination was identified in deeper gravels and groundwater onsite that have been impacted by an offsite source. The presence of an overlying confining layer currently severs the pathway between the River Gwenfro and the contaminated groundwater/soils. A risk would become present where a pathway is made between deep and shallow soils.

Source	Pathway	Receptor	Risk Assessment (Probability x Severity)	Justification
	Vertical migration of contaminants in groundwater	Superficial and Bedrock Secondary A aquifers	**Moderate/low** (Low likelihood x Medium)	Contamination was identified within the deeper gravels on site. Due to the proximity of the River Gwenfro, surface waters are assessed to be the primary receptor. The source of contamination is assessed to be offsite.
	Dermal contact, ingestion, and inhalation of soils dust	Future land users	**Low** (Unlikely x Medium)	Contamination was identified as being from an offsite source migrating towards the site. The presence of an overlying confining layer currently severs the pathway between the site users and the contaminant plume. The depth to the contaminated strata reduces the risk to site users further.
		Construction Workers	**Low** (Unlikely x Medium)	
	Vertical or lateral migration of ground gas	Future land users	**Low** (Unlikely x Medium)	
		Construction Workers	**Low** (Unlikely x Medium)	

Table 5. Revised Qualitative Risk Assessment

7.0 Conclusions and Recommendations

A Supplementary Investigation of 1 Salop Road, Wrexham, LL13 7AF was undertaken prior to the potential redevelopment of the site as a car wash and vehicle maintenance unit.

The purpose of the assessment was to undertake delineation and further characterisation of contamination identified in the Phase II site investigation. The location of the River Gwenfro immediately adjacent to the site is considered to be the key environmental receptor in the site's locality.

Evidence of coal tar contamination was observed within the soil bores in the south and east of the site, close to the boundary with the river. Laboratory analysis recorded exceedances of 2-methylnaphthalene GAC in the natural gravels of WS102 and WS104. No concentrations of other contaminants were identified above soil commercial threshold levels.

Laboratory analysis of groundwater samples recorded concentrations of hydrocarbon compounds, BTEX, SVOCs, VOCs and Metals. Observations made during works indicate that this contamination is associated with gas works, with coal tar smearing noted on the interface probe during groundwater monitoring in WS102, WS104 and WS105 which are located in the south and east of the site, in close prximity to the river.

Due to the characterisation of the identified contamination as coal tar, and the lack of evidence pointing to an on-site source, it is reasonable to interpret the likely source as being offsite and associated with the historical gasworks to the south and east. Information provided to Geo^2 informed of remedial works undertaken at the gas works and the historical presence of significant coal tar contamination immediately adjacent to the river on the opposing bank to the site. This is further supported by the location of contamination onsite being predominantly located in monitoring wells adjacent to the river in the south and east of the site.

Due to the proximity of the River Gwenfro, the surface water body is considered the primary environmental receptor. Ground modelling indicates that the contamination is in the gravel stratum at depths deeper than the base of the river. This gravel stratum is confined by an overlying clay/silt layer evidenced by observations of sub-artesian effects during supplementary investigation works. Revisions to the conceptual site model indicate that this confining layer is likely to sever the pathway between the impacted groundwater the river. Samples were obtained from upstream and downstream of the river with no concentrations of hydrocarbon, BTEX, VOC or SVOC compounds recorded above laboratory detection limits indicating that the identified contamination is not impacting the watercourse.

The shallow ground investigation undertaken in November 2024 has identified a **Low** risk to site end users and neighbouring residents from volatile contamination within soils and groundwater and from contamination within shallow site soils. A **Low** risk is also considered suitable as no significant sources of harmful ground gases have been identified on or close to the site. It should be noted that the site is located in a radon affected area.

Samples of groundwater from within the contaminated gravels, confined below the natural silts and clays is considered to be elevated, however this assessment makes provides numerous lines of evidence to indicate that the pathway is considered to be severed by overlying confining strata presenting a barrier between the top of the impacted gravel stratum and the base of the river. As such, a **Moderate/Low** risk to surface waters has been designated. An impact to groundwater was identified on site in exceedance of GACs, indicating a **Moderate/Low** risk to groundwater and uncertainty over nature of the strata underlying the impacted gravels due to the potential for the proposed development to breach the pathway and allow contamination of the shallower groundwater.

7.1 Recommendations

The following works are recommended to address the identified risk to surface water and receptors:

- Correspondence with the planning authority should be undertaken to present the findings of this report and to discuss next steps.
- A remediation strategy should be completed to address how exposure and presence of contamination will be controlled during the construction phase of works. This should pay particular attention to works which might puncture the underlying confining strata.
- Construction workers should be provided with appropriate PPE and welfare facilities if coming into contact with shallow soils during any future groundworks and have appropriate training.
- A watching brief should be imposed during any future groundworks to ensure that any impacts unidentified in the site investigation can be characterised and treated appropriately. Any unidentified contaminated material should be considered in the event of a redevelopment as costs for offsite disposal of these materials may be significant.

8.0 Report Limitations

This Report was prepared by Geo^2 for the sole and exclusive use of the Client and for the specific purpose for which Geo^2 was instructed. Unless explicitly agreed otherwise, in writing, this Report has been prepared under Geo^2's Standard Terms and Conditions.

Geo^2 does not intend, without its written consent through a formal letter of reliance or warranty, for this Report to be disseminated to any party other than the named Client or to be used or relied upon by any party other than the named Client. Use of the Report by any other party is unauthorised and such use is at the sole risk of the user. Any party using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Geo^2 from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by Geo^2.

The recommendations contained within this Report represent Geo^2's professional opinions, based upon the information detailed within the Report, exercising the reasonable skill and care to be expected of a professional consultant holding itself out as having the competence, experience, and resources necessary for the purpose of carrying out similar work in scope and character to the services performed. The Report needs to be considered in the light of the proposal and associated limitations of scope. The Report needs to be read and considered in full and isolated sections cannot be used without full reference to other elements of the Report and any previous works referenced within the Report.

9.0 References

British Standards Institute

BS10175:2011 "Investigation of potentially contaminated land sites – code of practice"

British Geological Society

Geology of Britain Viewer, https://mapapps2.bgs.ac.uk/geoindex/home.html

CIRIA

C552 Contaminated Land Risk Assessment, a guide to good practise, 2001.

C665, Assessing risks posed by hazardous ground gases to buildings, 2007.

CL:AIRE

Good Practice For Risk Assessment For Coal Mine Gas Emissions, October 2021.

Environmental Agency

Land Contamination Risk Management (LCRM) Guidance, 2020

The Coal Authority

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

Zetica UXO

Risk Maps Viewer, https://zeticauxo.com/guidance/risk-maps/

Historical reports

Earth Environmental and Geotechnical – Phase I GeoEnvironmental Desk Study (Report ref: A4428/21) – November 2021

Geo^2 – Groundwater and Stream Sampling Letter Report (Report ref: 24/4495.1.1) – November 2024

Geo^2 – Phase II Contaminated Land Site Assessment (Report ref: 24/4495.2.1) – December 2024

Appendix A – Figures

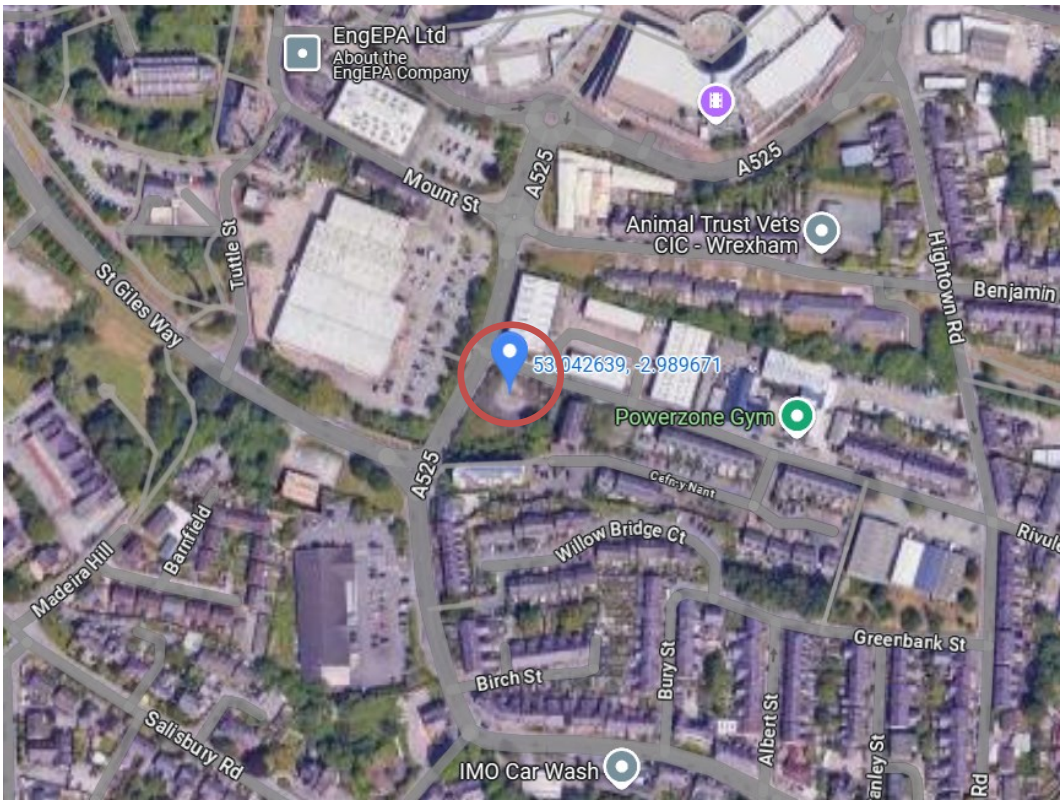


Figure 1 - Site Location

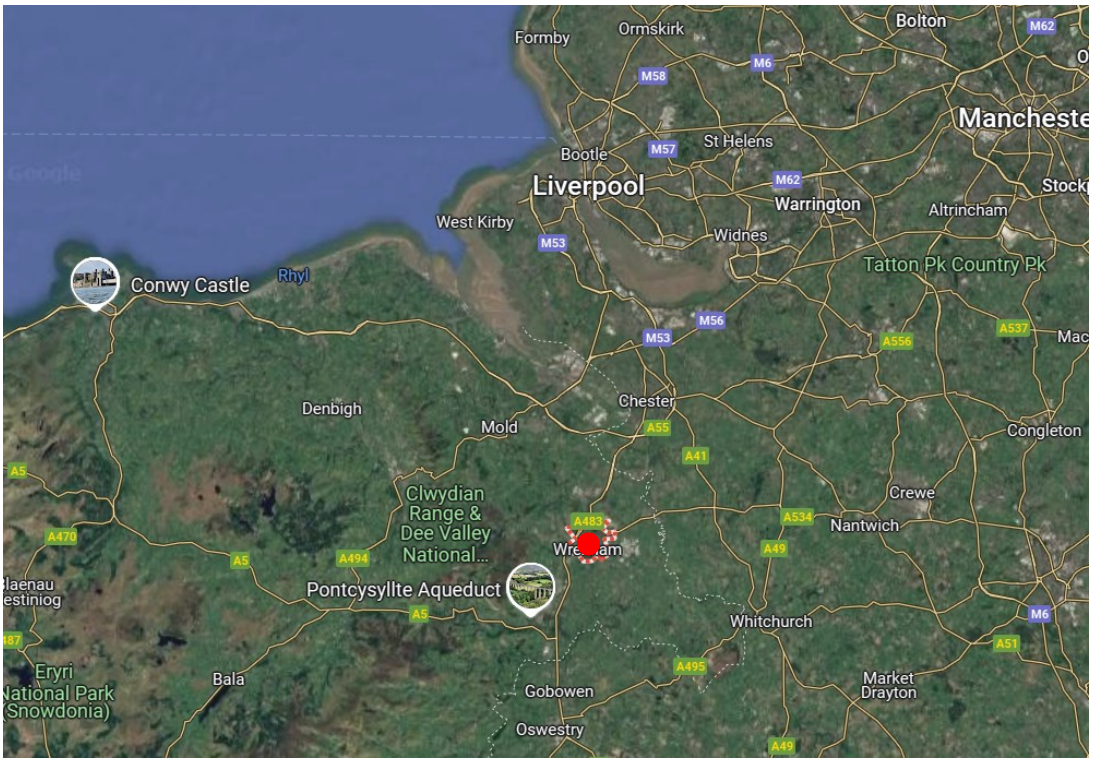


Figure 2 - Site Location

Ref: https://www.google.com/maps

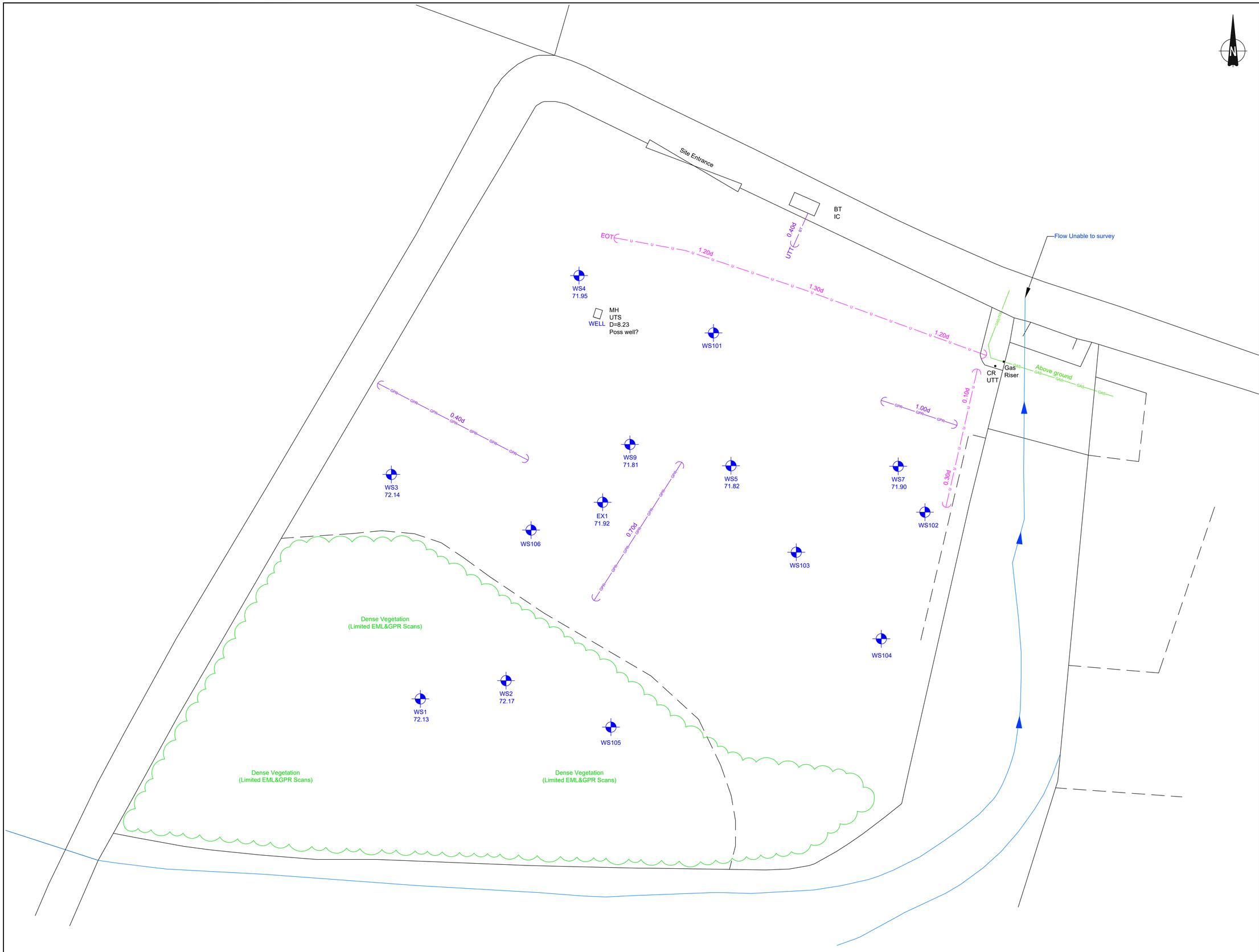
Figures 1 & 2 - 1 Salop Road, Wrexham, LL13 7AF

NOT TO SCALE

Geo² Remediation Limited, The Coniston, Louisa Street, Idle, West Yorkshire, BD10 8NE

Tel: (0113) 2575397

www.geo2.co.uk



LEGEND

- Foul Drainage
- Surface Drainage
- Combined Drainage
- Electricity
- Electricity High Voltage
- Electricity Low Voltage
- Gas
- Ground Probing Radar
- Water
- Cable Television
- Close Circuit Television
- Communication
- British Telecom
- Compressed Air
- Offset Fill-Line
- Oil Pipe
- Pipe
- Ventilation
- Fuel Line
- Vapour Recovery
- Gauge Line
- Telemetry
- Fibre Optics
- Unknown
- Fence
- Edge of Canopy
- Gully Run
- Electricity (TFR) Taken From Records
- BT (TFR) Taken From Records
- Gas (TFR) Taken From Records
- Water (TFR) Taken From Records
- End Of Trace
- Do Not Drill / Banded Pipes
- T TANK* - W= Water U=Unknown F=Foam P=Product C=Concrete
- Borehole
- Trial Pit Location
- Excavated Area
- Window Sample
- Soil Vapour Sample

ABBREVIATIONS

AR	Assumed Route	MW	Monitoring Well
BO	Bollard	NPV	No Pipes Visible
BO/ILL	Illuminated Bollard	OH	Overhead Service
BH	Borehole	OSA	Off Survey Area
BTB	British Telecom Box	OSBM	Ordnance Survey Bench Mark
BTIC	British Telecom Cover	PR	Pipe Riser
C/BOX	Control Box	P	Post
C/B FENCE	Closeboard Fence	P&R FENCE	Post & Rail Fence
CR	Cable Riser	RET WALL	Retaining Wall
CATV	Cable TV	RWP	Rain Water Pipe
CP	Catch Pit	RS	Road Sign
Co	Concrete	RE	Rodding Eye
CON	Conifer	S/A	Soakaway
CL	Cover Level	S/BIRCH	Silver Birch
d	Depth (in metres)	SAP	Sapling
D/CHAN	Drainage Channel	SEC FENCE	Security Fence
DP	Down Pipe	SL	Spot Light
ER	Earth Rod	SP	Soil Pipe
EIC	Electricity IC	ST	Stop Tap
EP	Electricity Pole	SV	Sluice Valve
EOC	Edge of Canopy	SVP	Soil Vent Pipe
EOT	End of Trace	SVS	Soil Vapour Sample
F/BED	Flower Bed	TBM	Temporary Bench Mark
FH	Fire Hydrant	TFR	Taken From Records
FS	Fire Switch	TL	Traffic Light
GV	Gas Valve	TP	Telegraph Pole
G	Gully	TS	Traffic Sensor
GPR	Ground Probing Radar	UTL	Unable to Locate
G/RUN	Gully Run	UTR	Unable to Raise
HT	Height	UTS	Unable to Survey
H/CHESTNUT	Horse Chestnut	UTT	Unable to Trace
H/THORN	Hawthorn	VR	Vapour Recovery
IC	Inspection Cover	VP	Vent Pipe
IL	Invert Level	WM	Water Meter
INT	Interceptor	WFC	Water Filled Chamber
KO	Kerb Outlet	WP	Waste Pipe
LP	Lamp Post	WR	Water Riser
LC	Lighting Column	WS	Window Sample
LH	Lamp Hole	U/S	Underside
MH	Manhole Cover	Ø	Pipe Diameter

General Notes:

Only Gas/Electric service plans provided at time of survey.

UTT Gas - TFR.

Large part of site overgrown UTS.

Some services may go undetected where active connections cannot be applied.

Hand Pits advised at WS locations.

AVOIN MAA SURVEYS LTD

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Client

GEO2

Site Location

1 Salop Road
Wrexham
LL13 7AF

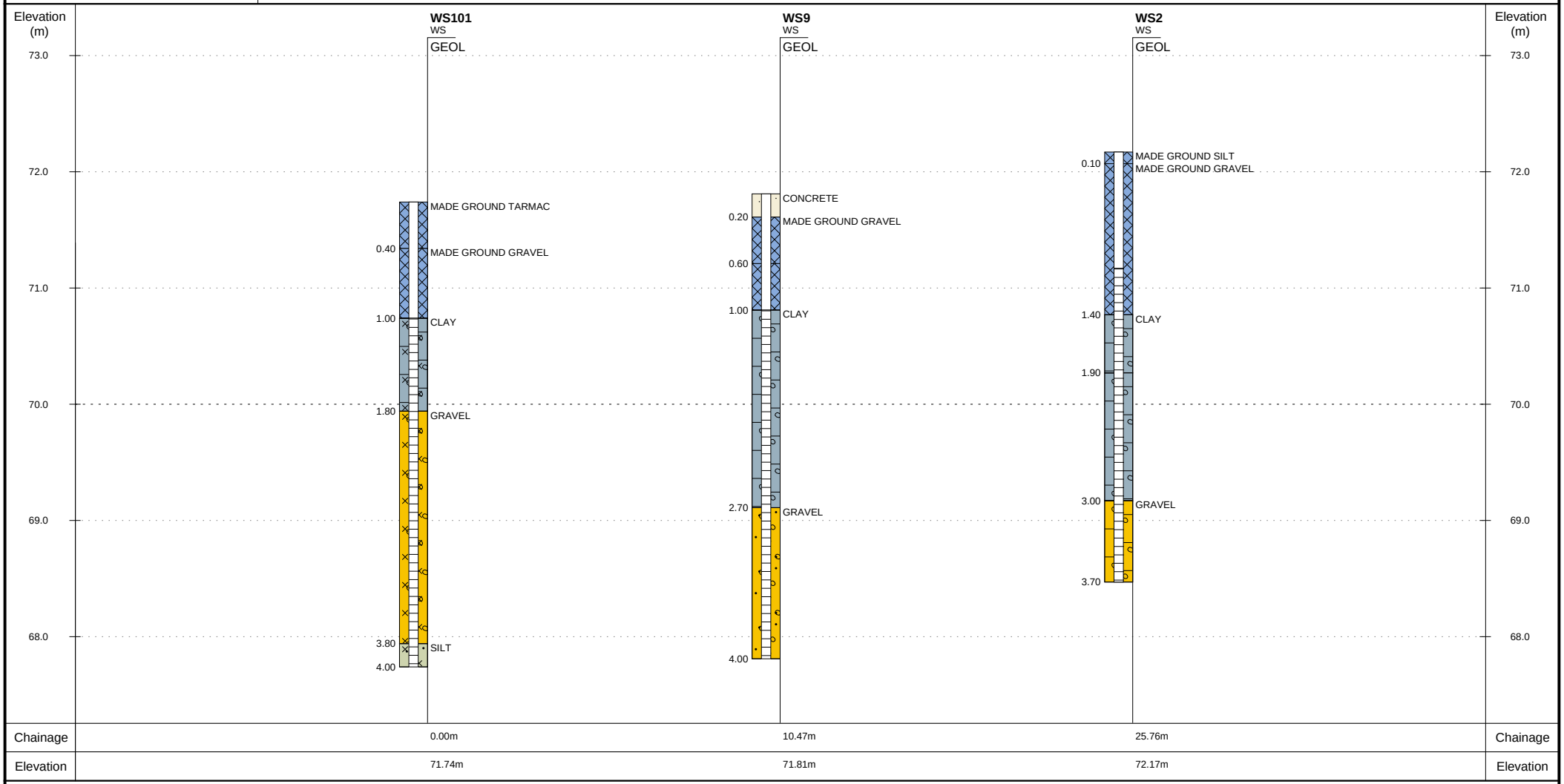
Surveyed by AD	Drawn by AC	Approved by -
Drawing No. 1124/GEO2/11333		Revision -
Scale 1:100 @ A1	Date 11/11/2024	Sheet No. 1 of 1

DISCLAIMER: The location of under ground services shown on this drawing has been determined using electro-magnetic (and/or ground probing radar, where requested) techniques and visual observations. the limitations of this drawing should be realised and no guarantee can be given that all services have been identified. This drawing may not include the location of all public services that may cross the site and therefore the relevant service drawings should be obtained from the appropriate utility company and used in conjunction with this drawing. Additional services, structures or other below ground obstructions not indicated on this drawing may be present on site. reference should be made to historical plans and as built drawings. Excavations in the vicinity of services should be carried out with due diligence ref: HSG47 document "avoiding dangers from underground services". Location accuracy is determined by refering to manufacturers guidelines for the systems deployed. Reference should be made to the latest version of AMS Ltd site procedures document for utility location surveys Please note ground penetrating radar depths are approximate only.

Cross-Section

Project Name	Project No.	Vertical Scale	Horizontal Scale
Carbana Wrexham	4495	1:48	NOT SCALED

Client	Contractor	Consultant
Carbana Group	RP Drilling Ltd	Geo2



MADE GROUND | CONCRETE | CLAY | SILT | GRAVEL

WATER LEVELS

REST

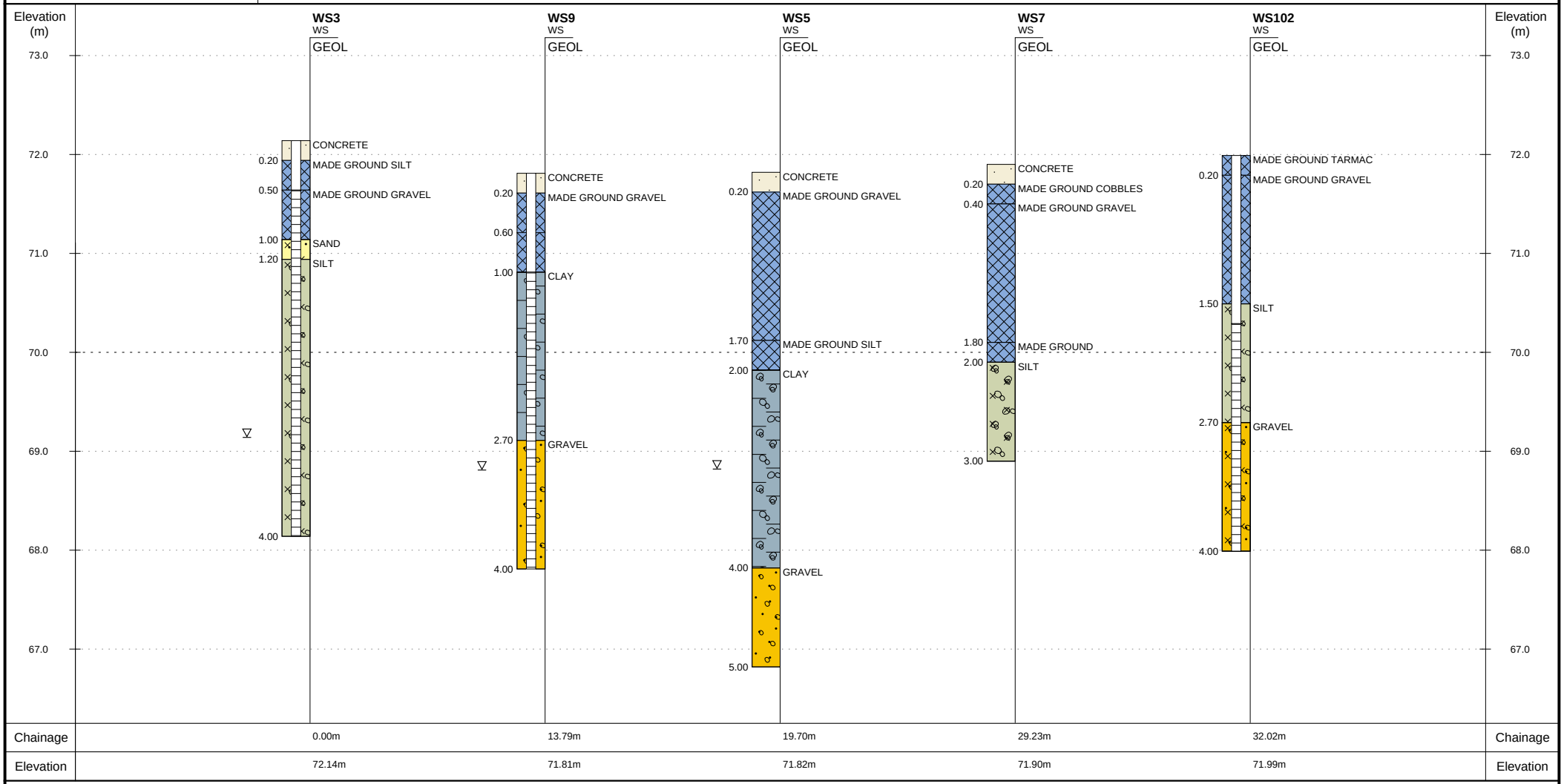
STRIKE

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Cross-Section

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Client	Contractor	Consultant
Carbana Group	RP Drilling Ltd	Geo2



MADE GROUND | CONCRETE | CLAY | SILT | SAND | GRAVEL

WATER LEVELS

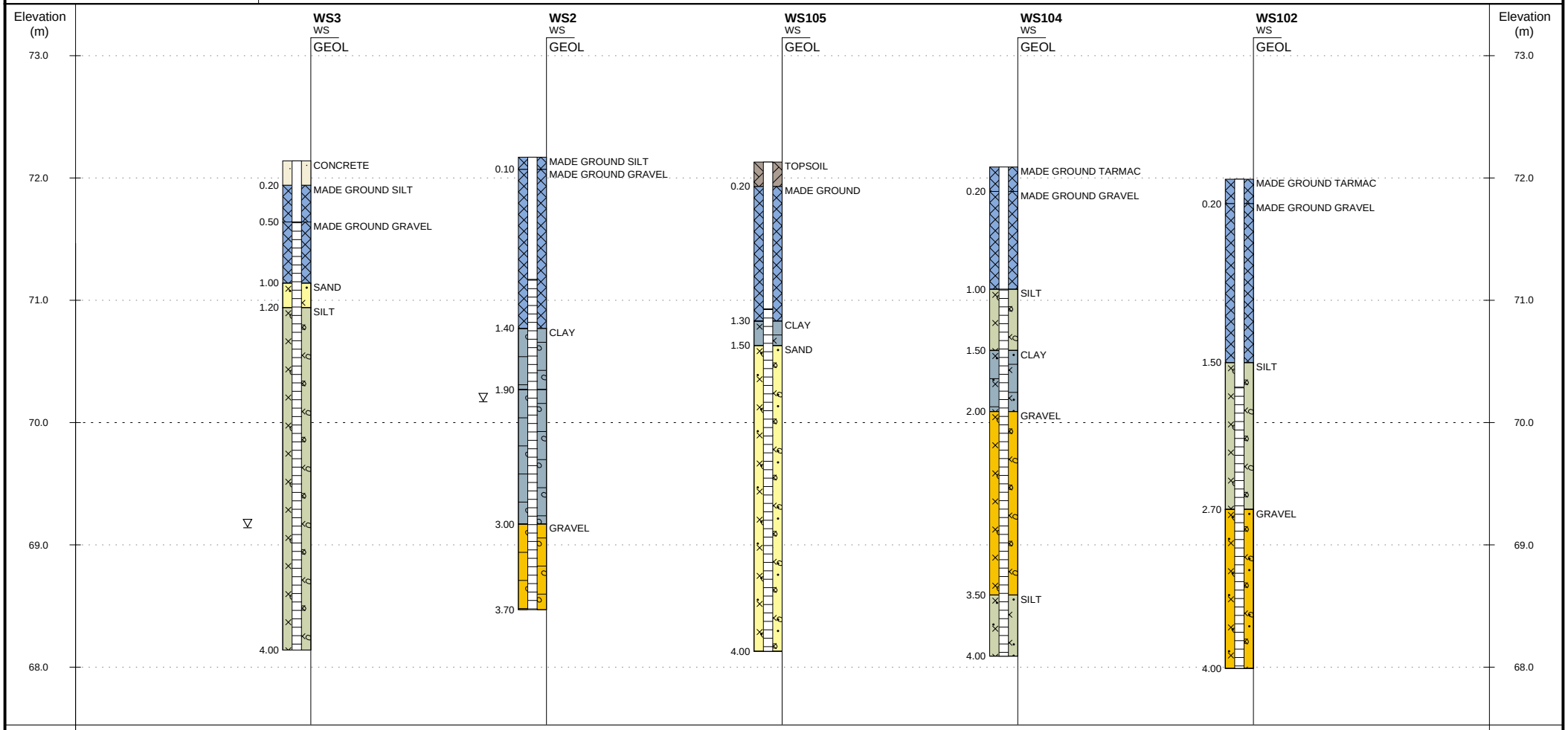
REST

STRIKE

Created using Pebble Geo

Cross-Section

Project Name Carbana Wrexham	**Project No.** 4495	**Vertical Scale** 1:46	**Horizontal Scale** NOT SCALED
Client Carbana Group	**Contractor** RP Drilling Ltd	**Consultant** Geo2	



TOPSOIL | MADE GROUND | CONCRETE | CLAY | CLAY | SILT | SAND | GRAVEL

WATER LEVELS

REST

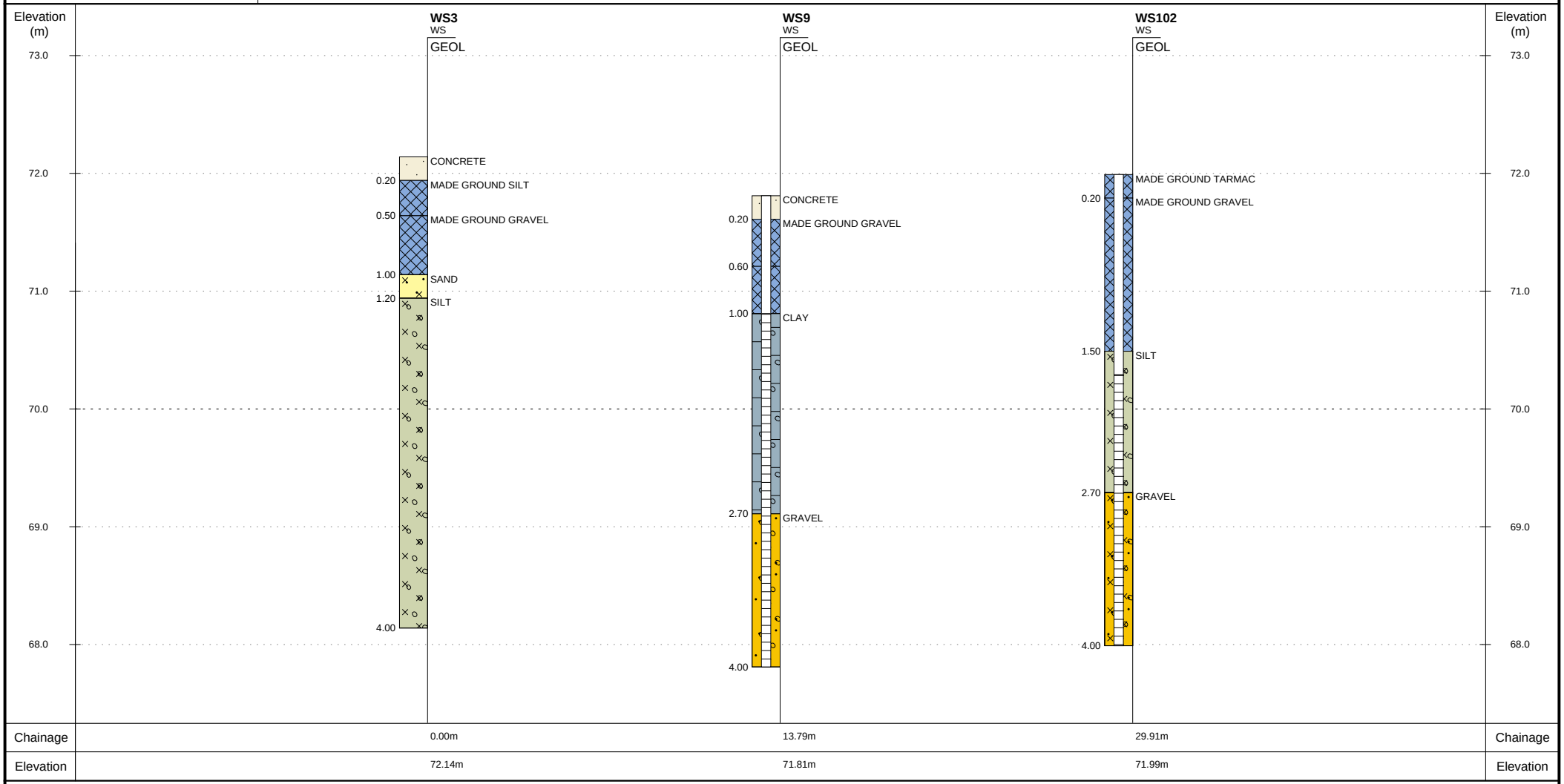
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Cross-Section

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Client	Contractor	Consultant
Carbana Group	RP Drilling Ltd	Geo2



MADE GROUND | CONCRETE | CLAY | SILT | SAND | GRAVEL

WATER LEVELS

REST

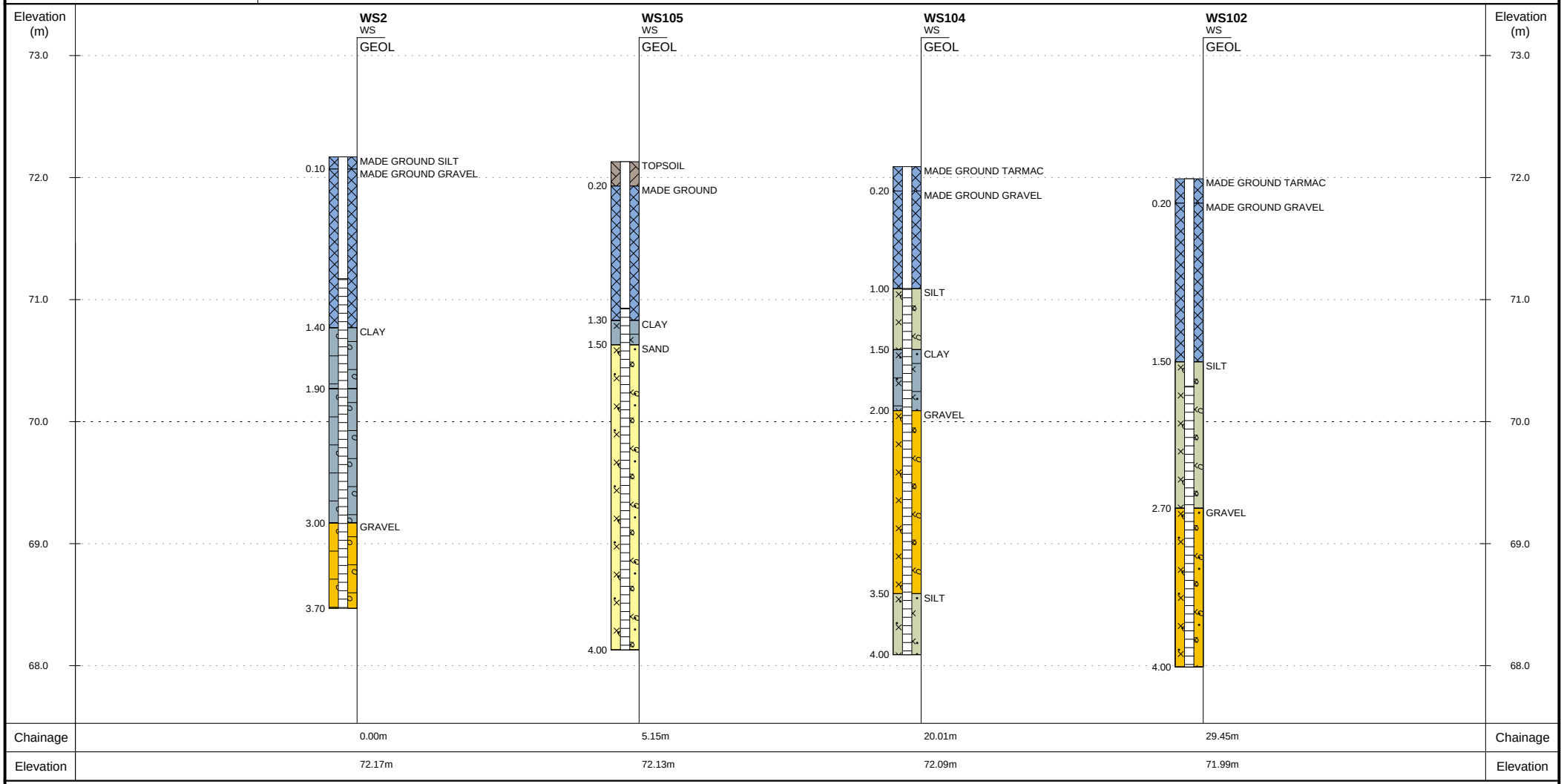
STRIKE

Created using Pebble Geo

Cross-Section

Project Name	Project No.	Vertical Scale	Horizontal Scale
Carbana Wrexham	4495	1:46	NOT SCALED

Client	Contractor	Consultant
Carbana Group	RP Drilling Ltd	Geo2



TOPSOIL | MADE GROUND | CLAY | CLAY | SILT | SAND | GRAVEL

WATER LEVELS

REST

STRIKE

Created using Pebble Geo

Appendix B – Photographic Survey

4495 – Salop Road – Photographic Survey 1

Image 1: Image of site from SE corner



Image 2: Image of SW corner of site, area of proposed building.



Image 3: Image of SE corner of site.



Image 4: Image of overgrown vegetation in S of site.



Image 5: Image of River Gwenfro.



Image 6: Image of River Gwenfro.



4495 – Salop Road – Photographic Survey 2

Image 7: Image of E area of site.



Image 8: Image of existing monitoring well (EX1).



Image 9: Image of concrete base of river.



Image 10: Image of soil bores.



Image 11: Image of newly installed monitoring well.



Image 12: Image of soil bores.



4495 – Salop Road – Photographic Survey 3

Image 13: Image of river channel.



Image 14: Image of tar contamination in sample liner.



Image 15: Image of contaminated gravels.



Image 16: Image of tar smearing on bailer.



Image 17: Image of sheen on groundwater in sample liner.



Image 18: Image of tar smearing on interface probe.



Appendix C – Phase II Geo-Environmental Assessment Report

Intelligent Ground Solutions

Phase II Contaminated Land Site Assessment

For D T Filling Stations Ltd

13 December 2024

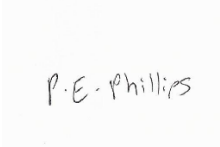
Report ref. 24/4495.2.1

Registered in England number 4638532.
Address Coniston House, Louisa Street, Idle, BD10 8NE. VAT number 809080436

Report ref. 24/4495.2.1

Revision log

Issue No.	Date	Description
1	13 November 2024	Issue of report to Client

Report Prepared By	Signature	Date
Peter Phillips Principal Project Manager		13 December 2024
Reviewed and Authorised By	**Signature**	**Date**
Steven Jackson Operations Manager		13 December 2024

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1.0 Introduction

Geo^2 Limited were commissioned by D T Filling Stations Ltd to conduct a Phase II Contaminated Land Site Assessment of:

Carbana,
1 Salop Road, Wrexham, LL13 7AF

The site is approximately 0.15 hectares in area and located at grid reference 333736, 349936.

The study was undertaken prior to the redevelopment of the site as a car wash and vehicle maintenance unit.

1.1 Scope of Works

The scope of the investigation has been designed with consideration of guidance on Planning Practice Guidance (Land Affected by Contamination), Land Contamination: Risk Management pages of the GOV.UK web pages and the relevant requirements of the National Planning Policy Framework (NPPF) (as revised 2023) (paragraphs 174 & 183-184).

The assessment has been undertaken consisting of a Phase I report review and preliminary risk assessment followed by an intrusive sub-surface ground investigation and generic quantitative risk assessment, conducted in order to establish the presence and extent of sub-surface contaminants, if any, resulting from the site's current and historic land use.

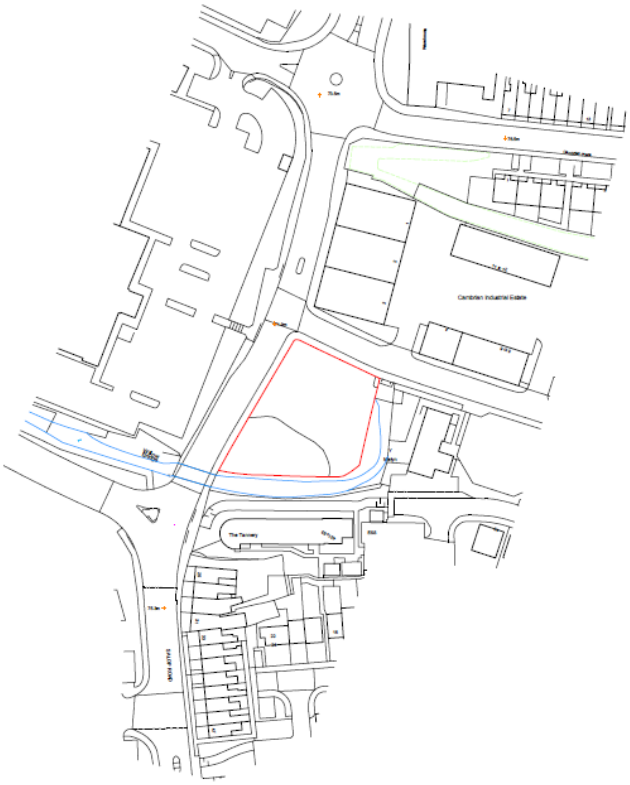
A ground and surface water sampling visit was undertaken on 11th November 2024. The intrusive investigation was conducted on 21st November 2024. The investigation was undertaken in accordance with Geo^2's Method Statement SMS SI 4495A. The findings of the investigation are presented herein.

2.0 Description of the Site and Surroundings

2.1 Site Description

The site is situated in the town of Wrexham, approximately 400m south of the town centre, with access provided by one ingress/egress point on the northern boundary, from Rivulet Road. It is currently a disused site which predominantly comprises an area of tarmac with a vegetated area in the south of the site. The River Gwenfro flows along the south and east boundaries of the site, flowing south-west to north-east.

The area shown within the red site boundary on Figure A below, will be referred to throughout this document as 'the site'.



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Figure A: Site Location Plan. Red is approximate site boundary. Blue indicates watercourse. Extract from Carbana Location Plan.

Geo^2 were instructed by DT Filling Stations to undertake a Phase II Environmental Assessment and intrusive investigation at the site. As part of this, Geo^2 were provided from the client with a Phase I Environmental Desk Study Report completed by Earth Environmental & Geotechnical in November 2021, a site layout and proposed layout plan, and planning correspondence between the local Contaminated Land Officer and planning team.

2.2 Site Walkover

A site walkover was undertaken on 11th of November 2024 with a photographic survey included in Appendix B. The site walkover findings are detailed below. A site walkover was also undertaken by Earth Environmental and Geotechnical as part of the Phase I desk study works (detailed in the Phase I report).

The site was observed to be predominantly occupied by a historical car park. An area of vegetation was present in the south of the site which was noted to be overgrown with access for a drilling rig only possible to a small portion of this area.

The site was observed to be bounded by a brick wall, with a wooden access gate along the northern boundary. A gas pipeline was identified crossing the stream in the north-east corner of the site before passing below ground. A service trace indicated that this pipeline then passes north into Rivulet Road.

The River Gwenfro bounds the site to the south and east, flowing south-west to north-east. It was noted that the river water level was approximately 2m below the ground level of the site and approximately 15cm deep.

The site walkover identified a historical monitoring well in the centre of the site (EX1). A historical well, marked on historical maps was also identified beneath a manhole in the north-east of the site.

The site was observed to be generally flat.

2.3 Site Infrastructure

2.3.1 Surfacing and Drainage

The site was noted to be predominantly surfaced in tarmac hardstanding, observed to be in fair condition. The southern area of the site was covered in dense vegetation.

A historical flooded well was identified in the north-west of the site. Historical borehole information from the British Geological Survey (BGS) indicates this well to be approximately 30 feet (9.1m) deep and noted on historical maps from 1899.

The Phase I report (discussed in Section 2.4 below) identified a drainage outlet discharging to the River Gwenfro in the south of the site. Dense vegetation during the Geo^2 walkover prevented this outlet from being further investigated.

A GPR service plan showing the location of services is provided in Appendix A.

2.4 Previous Works

Evidence of a previous investigation on site was noted, with one installed monitoring well present. This was named ‘EX1’ with the historical well being named ‘Well’ for sampling

purposes. These were monitored as part of the initial walkover of the site, with further information presented within Sections 5.8 and 6.3.

A 'Phase I GeoEnvironmental Desk Study' (Report ref: A4428/21), was undertaken by Earth Environmental & Geotechnical in November 2021 a copy of which was provided to Geo^2 by the client. It should be noted that Geo^2 have not independently verified the conclusions of the Phase I report.

A site visit was undertaken on 11th of November, the date of the originally planned site investigation. However, intrusive works on this date were cancelled due to a delay in receiving the relevant permissions. A walkover survey, service trace and sampling of groundwater from the existing historical wells and surface water from upstream and downstream of the River Gwenfro were completed. A letter report was issued following receipt of the laboratory analysis of the water samples. Please note a review of Generic Acceptance Criteria (GAC) has been undertaken since the writing of the water sampling letter report and as such GAC concentrations for Boron and Lead have been updated for this report. The results of laboratory analysis are also assessed in this report as part of the overarching site investigation works.

A list of previous reports undertaken for the site is provided below.

- Earth Environmental and Geotechnical – Phase I GeoEnvironmental Desk Study (Report ref: A4428/21) – November 2021
- Geo^2 – Groundwater and Stream Sampling Letter Report (Report ref: 24/4495.1.1) – November 2024

2.5 Site Surroundings

The site is located within the town of Wrexham.

Neighbouring properties include commercial units to the north and west, and residential properties the opposite side of the river to the south and east. Online mapping tools indicate the presence of a possible historical gas holder 30m to the east. This can be seen as a large circular concrete scar from aerial photography.

The site is bounded by Rivulet Road to the north, Salop Road to the west, and the River Gwenfro to the south and east.

2.6 Planning Summary

The Phase I report provides detailed information of planning applications for the site. In summary, a planning application was made in May 2000 for the continuation of hazardous substances consent for part of the site, with no further details provided. This was followed by an application for the demolition of the theatre building in April 2016, with Japanese Knotweed being noted on the riverbank as part of these works. A planning application was submitted in August 2020 for the

proposed development of a car wash and tyre fitting unit. This application was rejected on the grounds of the site being located within a Zone 2 floodplain and is at an unacceptable risk of flooding which could give rise to flooding offsite. The application was also rejected due to proposed access passing onto Salop Road. In September 2020 Wrexham Council issued a recommendation of a contaminated land phased investigation.

Geo^2 have also been provided with correspondence between the local Contaminated Land Officer and the planning team from June 2024, detailing the need for an intrusive investigation to be undertaken to assess the potential for contamination at the site. This correspondence is presented in Appendix F

2.7 Proposed Redevelopment

The site is proposed to be redeveloped as a car wash and vehicle maintenance unit. The latest proposed site layout plans that have been made available to Geo^2 indicate the presence of a vehicle maintenance building in the south-west corner of the site, with car wash units along the western site boundary. A bin store is to be located immediately to the south of the vehicle maintenance building and a pole sign is proposed in the north-west corner. An automated laundromat unit is proposed in the south-east corner with two vacuum and two air units proposed close to the eastern site boundary. The remainder of the site is to be covered in tarmac hardstanding and used for traffic routes, parking bays and waiting areas. A gully outfall is proposed on the eastern boundary discharging to the River Gwenfro. The ingress and egress point is proposed to be located in the north-east of the site along the northern boundary, passing onto Rivulet Road.

A figure detailing the proposed redevelopment is presented in Appendix A.

3.0 Desk Study

Information regarding the environmental setting of the site was obtained from the 'Phase I GeoEnvironmental Desk Study' (Report ref: A4428/21), undertaken by Earth Environmental & Geotechnical in November 2021. A copy of the Phase I report is presented in Appendix C.

Site Geology	British Geological Survey (BGS) data indicates bedrock comprises the Salop Formation (mudstone, sandstone and conglomerate) formed between 309.5 and 272.3 million years ago during the Carboniferous and Permian periods. Superficial deposits are indicated to comprise Alluvium – Clay, silt, sand and gravel formed between 11.8 thousand years ago and the present during the Quaternary period. There is one BGS borehole record for the site. No information regarding geology is provided however, it is indicated that a 30ft (9.1m) well was installed at the site with information being supplied by the Welsh National Water Development Authority when the site was known as Cambrian Leather Works (B). This relates to the location named 'Well' during the walkover and groundwater sampling. The Phase I report shows the site has a very low hazard rating for running sands, shrink/swell clays, compressible deposits and landslides. It is also indicated that the site has a negligible hazard rating for collapsible deposits and the dissolution of soluble rock.
Mining	The site is located within an identified coal mining area however, it is not located within a Development High Risk Area. There are no records of extractions, cavities or underground workings within 250m of the site.
Radon	The site is in a Radon Affected Area (5 to 10% of homes are estimated to be at or above the Action Level) and as such, basic radon protection measures are required.
Site Hydrogeology	The bedrock and superficial deposits are classified as a Secondary A aquifer. The site is located within a high groundwater vulnerability zone. The site is not located within a source protection zone. The Phase I report indicates there are 4 groundwater abstraction licence records within 2km of the site. The nearest of these is located 1km to the north-west. The report indicates there is 1 historical potable water abstraction licence record within 2km of the site belonging to the national trust. It is not indicated how far from the site this abstraction was or whether it is active. However, as the Phase I report indicates the nearest groundwater abstraction is 1km north-west of the site it can be assumed it is no closer than 1km to the site.

Site Hydrology	The nearest surface water feature is the River Gwenfro that bounds the site to the south and east. There are 7 surface water abstraction points within 2km with the nearest being located 567m north-west. The site is located in a Zone 2 and Zone 3 flood plain as designated by the Environment Agency. The risk of flooding from rivers and sea within 50m of the site is considered high.
Waste and Infilled Land	There are two EA/NRW records of historical landfill sites within 500m of the site with the nearest being located 450m to the east. There are two local authority and historical mapping records of historical landfill sites within 500m of the site with the nearest being located 479m to the west.
Sensitive Environmental Receptors	There are 2 Sites of Special Scientific Interest (SSSI) within 2km of the site with the nearest being located 1.6km south.

Table 1. Environmental Assessment of the Site.

4.0 Site History Summary

Residential properties were located on site from 1874, with a well being marked in the north-west corner of the site from 1899. The residential buildings were demolished with a works being constructed on site by 1958. This is noted as being part of the Cambrian Leather Works from circa 1966 to 1990. By 1994 the buildings on the site had been demolished and replaced with one building in the south-west corner labelled as the Wrexham Musical Theatre from circa 2007. The rest of the site is a tarmac car park. The theatre building was demolished by 2016 with the site comprising tarmac hard standing with a vegetated area in the south in the present day.

Important offsite historical land uses were also assessed in the Phase I report. A gas works is present to the east of the site, a tannery to the north and two breweries to the west in the earliest mapping from 1873. By 1899 the tannery has expanded and is now identified as the Cambrian Leather Works. The river was culverted from the north-east corner of the site at this time. By 1912 one of the breweries to the west had been redeveloped as a tram depot and an additional tank had been constructed at the gas works to the east. By circa 1966 three tanks at the gas works had been demolished and replaced with one large tank. The site is now identified as a gas holder station. The Cambrian Leather Works have been redeveloped into the Cambrian Industrial Estate by 1990. The Gas Holder Station was demolished by 2007 with residential properties constructed on the site (Willow Bridge Crescent and Cefn-y-Nant) by 2016.

5.0 Preliminary Risk Assessment

5.1 Source – Pathway – Receptor

UK legislation and guidance on assessing potentially contaminated land recommends the use of a risk assessment process based on a review of source/pathway/receptor relationships for various environmental media. The first stage of any risk assessment is to identify, using the desk study data and site information, the presence and extent of any hazard at the site, theoretical or demonstrable.

A key component of the overall risk assessment process is identification of "significant contaminant linkages" between contaminants and receptors. This can be accomplished through development of a site-specific conceptual model in which the potential contaminants, pathways and receptors identified on-site are described.

Each element can be defined as follows:

- **Contaminant source:** A substance either on or under the land and which has the potential to cause harm or pollution to human or environmental receptors.
- **Pathway:** A route or means by which a receptor can be exposed to or affected by a source.
- **Receptor:** A living organism or an ecological system, or controlled water, or property including buildings, crops and livestock.

The presence of all three of the above elements identifies a contamination linkage and a potentially unacceptable risk. To ensure that any risk present to, or, from the site can be appropriately managed each of these contamination linkages will be targeted by the investigation.

5.2 Hazard Identification

5.2.1 Potential On-Site Sources

Potentially contaminative on-site activities relate to the historic use of the site as a leather works between circa 1966 and 1990. This may have led to the deposition of tannery waste onsite. Infrastructure associated with the leather works such as above and underground storage tanks used for fuel storage may historically have been present which could have led to leaks and spills of hydrocarbons on site.

Made ground soils are anticipated across the site associated with phases of construction that have occurred since the mid-19th century, leading to the potential for asbestos fibres or fragments of asbestos containing materials (ACMs) in shallow made ground soils due to phases of works taking place pre-2000.

The site is currently vacant with no structures present. No evidence of underground infrastructure such as decommissioned tanks was identified during the walkover surveys.

The close proximity of the historical gasworks may have led to historical deposition of gasworks waste on site.

While not confirmed, Geo^2 consider it likely that local groundwater flow is to the south or east, towards the adjacent River Gwenfro. This watercourse is therefore considered at risk from any contamination arising from the site.

5.2.2 Potential Off-Site Sources

The historical use of land to the north as a tannery/leather works (of which the site was a part) is a potential source of tannery waste contamination. It is likely that fuels were stored in tanks at the leather works which could be a potential source of hydrocarbon contamination that could migrate beneath the site.

The historical gasworks to the east could be a potential source of gasworks contamination such as coal tar. Contamination arising from sources on this site may have the potential to migrate beneath the site. The presence of the river between the two sites is a likely mitigating factor.

5.3 Initial Conceptual Site Model

Contamination linkages arise as a result of the interconnection of the contaminant source, contamination pathways and potential receptors. These contamination linkages are used to design the site investigation (if required), guiding the type of investigation, location of exploratory boreholes and the required sample analysis.

5.4 Risk Estimation

The objective of the qualitative risk assessment is to determine the significance of the risk, if any, which may occur as a result of the creation of pollutant linkages, which connect a potential receptor to an identified potential contaminant source at the site.

The perceived risk is based on a consideration of both the likelihood of an event (probability) occurring, and the severity of the potential consequence. Classification of these two factors is detailed in Appendix G.

5.5 Preliminary Qualitative Risk Assessment

A qualitative risk assessment was undertaken in the Phase I report, in line with guidance provided in CIRIA's Contaminated Land Risk Assessment: a guide to good practice CIRIA C552, 2001. The purpose of this assessment was to determine the relative significance of the identified contamination linkages by assessing the probability of an impact occurring and by assessing the perceived severity of an impact to a receptor.

Those linkages considered of low risk or less in the Phase I report will not be considered any further in this assessment. Linkages considered to be more significant are identified as presenting potentially unacceptable risk to the identified receptor. Table 2 overleaf identifies the linkages that

pose a potential moderate risk or higher as identified in the Phase I report completed by Earth Environmental and Geotechnical. Further detail regarding the contamination linkages is provided in the Phase I report.

Following a review of the Phase I report Geo^2 have assessed a potential risk to the Secondary A aquifers underlying the site. This risk was characterised as Low in the Phase I report however, Geo^2 feel it is prudent to alter this assessment to accurately reflect the risk to groundwater.

Source	Pathway	Receptor	Preliminary Risk Assessment (Probability x Severity)
Potential soil contamination E.g., Heavy Metals, PAH, TPH, BTEX and ground gases.	Dermal contact, ingestion, and inhalation of soils dust	Future land users	**Moderate / Low** (Likely x Medium)
		Construction Workers	**Moderate / Low** (Low Likelihood x Medium)
	Lateral migration in surface waters	Surface water	**High** (High Likelihood x Medium)
	Vertical migration of contaminants in groundwater	Superficial and Bedrock Secondary A aquifers	**Moderate** (Likely x Medium)
	Vertical or lateral migration of ground gas	Current Site Users	**Moderate** (Likely x Medium)
		Adjacent land users	**Moderate / Low** (Low Likelihood x Medium)
		Future land users	**Moderate / Low** (Low Likelihood x Medium)
		Construction Workers	**Moderate / Low** (Low Likelihood x Medium)

Source	Pathway	Receptor	Preliminary Risk Assessment (Probability x Severity)
Asbestos Containing Material (ACM)	Assumed direct contact (missing from Phase I)	Future land users	**Moderate / Low** (Low Likelihood x Medium)
		Construction Workers	**Moderate / Low** (Low Likelihood x Medium)

Table 2. Identified Contamination Linkages from Phase I report

In order to provide an assessment of each of the identified contamination linkages, a shallow intrusive investigation was specified to obtain further information regarding the geology of the site and the quality of the soils and groundwater.

5.6 Site Investigation

Seven soil bores (WS1-5, WS7, WS9) were extended on 21st of November 2024, to a maximum depth of 5.0 metres below ground level (m bgl) at locations indicated on the GPR survey presented in Appendix A. The soil bores were constructed using window sampling techniques. As a result of the drilling techniques, relatively undisturbed soils were able to be obtained for field and laboratory analysis and for logging of ground conditions. Field analysis comprised the examination of each of the samples for visual and olfactory indications of contamination. Analysis was also conducted for volatile hydrocarbons using a photo-ionisation detector (PID).

The site investigation was limited in the south of the site due to an area of overgrown vegetation preventing access to much of this area. Borehole positions were chosen to provide good site coverage.

Table 3 below, shows the location rationale of boreholes.

Target / Rationale for Investigation Locations	Exploratory Hole						
	WS1	WS2	WS3	WS4	WS5	WS7	WS9
General site coverage	✓	✓	✓	✓	✓	✓	✓
Historical tannery to north				✓		✓	
Gas works to east					✓	✓	
Area of proposed building	✓	✓	✓				
River	✓	✓				✓	

Table 3. Exploratory Hole Location Rationale

5.7 Ground Conditions

The logs of the boreholes, which are presented in Appendix D, detail the ground conditions and the sampling depths together with the visual and olfactory characteristics of the soils. Soil Penetration Test (SPT) data is also presented in the logs. An approximate cross section is also shown in Appendix D.

WS1 and WS2 recorded made ground from the surface. These two locations were located in the area of overgrown vegetation in the south of the site. All other exploratory holes recorded hard standing over made ground, with hardstanding comprising tarmac.

Made ground across the site is described as a silty sand and gravel including mixed fill and brick proven to a maximum depth of 2.0m bgl. The base of the made ground was recorded between 1.0m and 2.0m bgl across the site.

Natural soils generally comprised soft to stiff gravelly silts and clays overlying wet gravel and cobbles. Water strikes were encountered between 1.7 and 3.0m in the soil bores. It is considered likely that natural superficial material is associated with river deposits given the proximity of the River Gwenfro.

No bedrock was encountered.

5.7.1 Observed Potential Contamination

Locations WS4 (northwest of the site), WS7 (east of the site) and WS9 (central to the site) identified hydrocarbon odour in the deeper gravels (2.0 – 3.8m bgl). An oily sheen was observed in this horizon in WS7 and WS9. PID readings were taken, peaking at 60.3ppm at 4.0m bgl in WS9.

A hydrocarbon odour was noted in the groundwater of the newly installed monitoring wells (WS2, WS3 and WS9), with a sheen being noted in the groundwater of WS2 and WS9. Oily streaks were also observed in the groundwater of WS9.

5.7.2 Obstructions

An obstruction was encountered at 1.0m in WS1 located in the south-west of the site. This is in the area of the historical theatre building on site.

All other exploratory holes were terminated upon refusal within the natural strata or at the desired depth.

5.8 Groundwater

Groundwater was encountered during the investigation; with three new monitoring wells being installed in WS2, WS3 and WS9.

Additionally, 2no existing monitoring wells were identified on site during the walkover, as indicated upon the GPR survey included in Appendix A. These have been labelled as EX1 and Well by Geo^2. EX1 is considered to be related to a historical investigation with 'Well' relating to the well observed on historical maps.

All monitoring wells were dipped with an interface probe to record any thickness of free phase fuel (LNAPL), groundwater and the base of the wells. The installation details of the historical monitoring wells are unknown.

It was also noted that the River Gwenfro is approximately 2m below the site surface level.

The groundwater monitoring data is detailed in Table 4, below.

Exploratory Hole	Depth to Product (m bgl)	Depth to Water (m bgl)	Depth to Base (m bgl)	Observations
EX1	-	1.535	3.560	
Well	-	0.241	8.230	Organic Sheen
WS2	-	1.550	2.070	Black sheen and hydrocarbon odour
WS3	-	1.440	2.900	Mild hydrocarbon odour
WS9	-	1.280	2.710	Hydrocarbon sheen and odour. Oily streaks observed.

Table 4. Groundwater Monitoring Data

The existing wells and upstream and downstream river samples were obtained during the initial visit of cancelled intrusive works on 11th November 2024 as detailed in the Geo^2 Groundwater Sampling Letter Report (Report Ref: Geo^2_4495.1.1)

Newly installed monitoring wells were sampled on the day of the site investigation on 21st November 2024.

The depths to groundwater on site correlate with the depth to the River Gwenfro and as such it should be assumed that the water bodies are in connectivity.

6.0 Laboratory Analysis

6.1 Analysis Rational

Six soil samples, five groundwater samples and two surface water samples (River Gwenfro) were selected for laboratory analysis for an environmental suite reflecting the historical onsite and offsite land use as a leather works/tannery, and the neighbouring historical gasworks land use in line with guidance provided in CIRIA's Contaminated Land Risk Assessment: a guide to good practise (CIRIA C552, 2001).

The soil samples were selected from a range of depths and from across the site, to gain an understanding of site-wide ground conditions.

All samples were placed in laboratory provided containers and stored in cool boxes prior to being transported to the laboratory under the laboratory's chain of custody documentation. The laboratory used for the ground investigation sample analysis on this occasion was Envirolab, a UKAS accredited laboratory.

6.2 Soils Analysis

All soil samples were analysed for TPH-GWG. Four made ground samples were analysed for CLEA metals with three of these also being analysed for Asbestos ID. Three samples were analysed for Volatile Organic Compounds (VOC) and Semi Organic Volatile Compounds (SVOC). Due to the site history as part of a leather works, three samples were analysed for Phenols, and Hexachlorocyclohexanes (HCH). Three samples were also analysed for Total Organic Carbon (TOC).

The analysis, conducted by a Gas Chromatography / Flame Ionisation Detector (GC/FID) and Gas Chromatography / Mass Spectrometry (GC / MS) comprised fractionation and speciation of hydrocarbons including analysis for benzene, toluene, ethylbenzene and xylenes (BTEX) and MTBE compounds. Selected samples were also analysed by:

- Heavy metals by IRIS emission spectroscopy.
- HCH, Volatile and semi volatile components (including PAHs), by GC/MS.
- Asbestos Containing Materials (ACMs) by polarised light microscopy / gravimetry.
- TOC by Combustion IR.

The results of soil analysis were compared using the following UK guidance:

- LQM/CIEH's Suitable for Use Levels (S4ULs)
- DEFRA Category 4 Screening Levels (C4SLs);
- EIC Soil Generic Assessment Criteria for Human Health (2010).

- SoBRA Development of Acute Generic Assessment Criteria for Assessing Risks to Human Health from Contaminants in Soil. April 2009 (AGAC)

6.2.1 Soil Testing Results

The results of laboratory analyses on the soil samples undertaken are presented in Appendix E.

Due to the site's proposed use as a car wash and vehicle maintenance unit, the soil analysis testing results have been compared against 'Commercial' end use Generic Assessment Criteria (GACs) thresholds. GAC concentrations associated with a conservative 1% Soil Organic Matter (SOM) have been utilised.

No contaminants have been recorded above Commercial GAC threshold concentrations.

6.3 Groundwater Analysis

6.3.1 Groundwater Samples

Groundwater samples were taken from wells EX1, Well, WS2, WS3 and WS9 with surface water samples being obtained from the River Gwenfro, upstream and downstream of the site. The samples were analysed for pH, CLEA metals, VOC, SVOC, BTEX and TPH-CWG.

The analysis, conducted by a Gas Chromatography / Flame Ionisation Detector (GC/FID) and Gas Chromatography / Mass Spectrometry (GC / MS) comprised fractionation and speciation of hydrocarbons including analysis for hydrocarbons, benzene, toluene, ethylbenzene and xylenes (BTEX) compounds and MTBE.

The results of analyses of the water samples were compared to screening criteria sourced from the following legislation:

- World Health Organisation Guidelines of Drinking-Water Quality, 4th Edition, 2022.
- SoBRA Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater.
- WFD 2015b - Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015
- SEPA 2014 - SEPA Assigning Groundwater Assessment Criteria for Pollutant Inputs (Aug 2014, v3) Resource Protection Value (Non-hazardous substances and Significant pollution)
- DWQS 2016 - The Water Supply (Water Quality) Regulations 2016 [UK Drinking Water Standard]

6.3.2 Groundwater Testing Results

The results of laboratory analyses on the groundwater sample undertaken are presented in Appendix E.

No exceedances above SoBRA Commercial GAC threshold levels have been recorded, indicating an unlikely risk to site end users or neighbouring residents from volatile contaminants in groundwater.

The groundwater results have been assessed relating to potential risks to controlled water receptors. Due to the surface watercourse bounding the site to the south and east, the groundwater testing results have been compared against inland surface water GAC thresholds (Water Framework Directive/Environmental Quality Standard). A comparison against potable water GAC was also undertaken.

A summary of the groundwater results, where analysis exceeding the relevant GACs is presented in Table 5 below and overleaf. A detailed summary showing laboratory data compared to GAC is presented in Appendix E.

The detailed results of laboratory analyses undertaken on groundwater samples are presented in Appendix E.

Contaminant	GAC (µg/l)	Maximum Concentration (µg/l)	Exceedance Location
Metals			
Cadmium	0.08 – 0.25	2.4	WS2, WS3
Copper	1.0 (bioavailable)	55	WS2, WS3
Chromium	4.7	18	Downstream, WS2, WS9
Lead	1.2 (bioavailable)	420	EX1, WS2, WS3, WS9
Nickel	4 (bioavailable)	29	WS2, WS3
Vanadium	20	30	EX1, WS2
Zinc	12.1 (bioavailable)	290	Well, EX1, WS2, WS3
SVOCs			
Anthracene	0.1	172	WS2
Benzo(a)pyrene	0.27	29	WS2
Fluoranthene	0.12	108	WS2

Contaminant	GAC (µg/l)	Maximum Concentration (µg/l)	Exceedance Location
Naphthalene	2	591	WS2, WS3, WS9
VOCs			
1,2,4-Trimethylbenzene	36	503	WS2, WS3, WS9
BTEX			
Toluene	74	108	WS2
Ethylbenzene	20	444	WS2, WS9
m & p Xylene	30	803	WS2, WS9
o-Xylene	30	437	WS2, WS9
TPHs			
Aliphatic >C8-C10	57	246	WS2
Aliphatic >C10-C12	37	866	WS2, WS9
Total Aliphatics	2500	2560	WS2
Aromatic >C7-C8	74	104	WS2
Aromatic >C8-C10	20	13800	EX1, WS2, WS3, WS9
Aromatic >C10-C12	100	57800	EX1, WS2, WS3, WS9
Aromatic >C12-C16	100	27100	EX1, WS2, WS3, WS9
Aromatic >C16-C21	90	3980	WS2, WS3, WS9
Aromatic >C21-C35	90	1080	WS2, WS9
Total Aromatics	2500	104000	WS2, WS9

Table 5. Groundwater Monitoring Data

Elevated concentrations of petroleum hydrocarbons, BTEX, SVOCs, metals and 1,2,4-Trimethylbenzene were identified above GAC in the groundwater at the site particularly in the newly installed monitoring wells (WS2, WS3 and WS9). Exceedances of petroleum hydrocarbon and metal GACs were also identified in EX1, the historical monitoring well onsite.

Exceedances of chromium GAC was identified onsite as well as in the Downstream sample (6µg/l) from the River Gwenfro. It should be noted that chromium concentrations were identified above laboratory detection limits in the Upstream sample (2µg/l) however, this concentration does not exceed chromium GAC for inland surface waters. With the concentration differences between the two samples being so small it is difficult to confidently

attribute the increase (4µg/l) to chromium levels on the site and it is likely that these are local background concentrations of the River Gwenfro.

An exceedance of Zinc GAC was also identified in the water sample obtained from the historical well on site (Well).

Exceedances of DWQS were also identified in EX1, WS2, WS3 and WS9. This indicates a potential risk to the Secondary A Aquifers underlying the site. However, due to the proximity of the River Gwenfro the primary receptor from contamination identified onsite is considered to be the surface water body.

A figure and cross section are presented in Appendix A as a visual tool for identifying areas of contamination at the site.

7.0 Risk Estimation

7.1 Discussion of Investigation Findings

7.1.1 Site Soils

Made ground soils were recorded as silty sand and gravel fill to depths of up to 2.0m bgl across the site.

Natural superficial deposits comprised gravelly silts and clays which in turn were underlain by wet gravel and cobbles. WS1 encountered an obstruction at 1.0m bgl. All other exploratory holes were terminated upon reaching the desired depth or refusal in natural soils.

Evidence of hydrocarbon contamination was identified in the natural soils of WS4, WS7 and WS9 during the advancement of the new exploratory holes.

The Preliminary Risk Assessment (Section 5.5) identified a potential Moderate risk to site end users and controlled waters from contamination within shallow site soils, reflecting the unknown depth of made ground soils, the sites historical use as a tannery/leather works.

Environmental laboratory assessment of shallow soil samples has recorded low concentrations of contamination that do not exceed Generic Assessment Criteria for Human Health in a commercial setting.

The highest concentrations of contaminants were identified in deep soils (4.0m bgl in WS9) however, these concentrations did not exceed Human Health GAC.

7.1.2 Controlled Waters

The Preliminary Risk Assessment (Section 5.5) identified a potential 'High' risk to the nearby surface water receptor adjacent to the south and east and a 'moderate' risk to the Secondary A Aquifers due to the sensitivity and proximity of these receptors.

Groundwater was encountered between 1.7m and 3.0m bgl in natural strata during the investigation. Three monitoring wells were installed in WS2, WS3 and WS9. Significant hydrocarbon, VOC, SVOC and heavy metal contamination was encountered in the groundwater, indicating that there is a potential risk to the surface water receptor via migration through the subsurface. Analysis of samples from the surface water body did not identify any hydrocarbon, VOC or SVOC contamination above laboratory detection limits. However, given that a potential source has been identified on site, and permeable strata has been identified underlying the site it can be assumed that a pathway may exist by which the contamination present on site has the potential to impact this receptor.

Concentrations of chromium were identified in the downstream sample above GAC however, these concentrations only marginally exceed upstream concentrations by 4µg/l.

Exceedances of Drinking Water Standards GAC were identified in the groundwater concentrations in EX1, WS2, WS3 and WS9. The nearest groundwater abstraction point is 1km to the north-west, some distance from the site.

However, due to the proximity of the River Gwenfro, it is assessed that the surface water is the key potential receptor from contamination identified at the site.

No concentrations of volatile hydrocarbon compounds presenting a potential vapour risk to Commercial site users were recorded in the groundwater samples.

No evidence of a potential contaminative source was identified during site works; however, it can be assumed that the contamination is likely to be associated with the sites historical use as a works. It is possible that the contamination has migrated from an offsite source associated with the historical land uses in the area (tannery, gasworks).

7.1.3 Ground Gases

The Preliminary Risk Assessment (Section 5.5) identified a potential 'Moderate / Low' risk to site end users from ground gases arising from potentially significant thicknesses of made ground soils with organic content underlying or close to the site.

However, the investigation recorded no significant thicknesses of made ground soils, encountered to a maximum depth of 2.00m bgl and that made ground deposits were lacking in putrescible material.

7.2 Limitations and Uncertainty

It is important to note that the investigation was restricted in areas due to the presence of overgrown vegetation in the south of the site.

Localised areas of deeper made ground around unidentified historical infrastructure cannot be discounted.

7.3 Qualitative Risk Assessment

Each of the identified potential contamination linkages in the preliminary conceptual site model (Section 5.5) is reviewed based upon the findings of the site investigation which allows a greater understanding of the ground conditions at the site, site observations, soil quality and chemical analysis.

The qualitative risk assessment is undertaken, detailed in Table 6 on the following pages, in line with guidance provided in CIRIA's Contaminated Land Risk Assessment: a guide to good practice CIRIA C552, 2001. The purpose of this assessment is to determine the relative significance of the identified contamination linkages by assessing the probability of an impact occurring and by assessing the perceived severity of an impact to a receptor.

The perceived risk is based on a consideration of both the likelihood of an event (probability) occurring, and the severity of the potential consequence. Classification of these two factors is detailed in Appendix G.

Those linkages considered of low risk or less on the basis of the available site data will not be considered any further in this assessment. Linkages considered to be more significant are identified as presenting potentially unacceptable risk to the identified receptor. In these instances, further works may be considered necessary.

Source	Pathway	Receptor	Comments	Preliminary Risk Assessment (Probability x Severity)	Requires further work?
Potential soil contamination E.g., Heavy Metals, PAH, TPH, BTEX and ground gases.	Dermal contact, ingestion, and inhalation of soils dust	Future land users	No exceedances of human health GAC were identified in any soil samples obtained during the investigation. The proposed hard cover use of the site will act to sever any pathways.	**Low** (Unlikely x Medium)	**No**
		Construction Workers	No exceedances of human health GAC were identified in any soil samples obtained during the investigation. Contaminant concentrations were however above laboratory detection limits and hotspots may be present that could potentially be exposed by excavation works during the redevelopment.	**Moderate / Low** (Low Likelihood x Medium)	**Yes (watching brief)**
	Lateral migration in surface waters	Surface water	Exceedances of inland surface water GAC were identified in groundwater at the site. Groundwater levels indicate that groundwater onsite is likely in connectivity with the surface water body.	**High** (High Likelihood x Medium)	**Yes**

Source	Pathway	Receptor	Comments	Preliminary Risk Assessment (Probability x Severity)	Requires further work?
	Vertical migration of contaminants in groundwater	Superficial and Bedrock Secondary A aquifers	Exceedances of DWQS GAC were identified within groundwaters on site. The distance to the nearest groundwater abstraction (1km) somewhat mitigates the risk.	**Moderate** (Likely x Medium)	**Yes**
	Vertical or lateral migration of ground gas	Current Site Users	Site is currently derelict and not occupied. No buildings are present on site within which harmful ground gasses could accumulate.	**Low** (Unlikely x Medium)	**No**
		Adjacent land users	No SoBRA exceedances in the groundwater samples were identified with no extensive thicknesses of made ground observed.	**Low** (Unlikely x Medium)	**No**
		Future land users	No SoBRA exceedances in the groundwater samples were identified with no extensive thicknesses of made ground observed. Use of the site for commercial purposes will reduce exposure times. The site is in a radon affected area and basic protection measures will be necessary.	**Low** (Unlikely x Medium)	**No**
		Construction Workers	No SoBRA exceedances in the groundwater samples were identified with no extensive thicknesses of made ground observed.	**Low** (Unlikely x Medium)	**No**

Source	Pathway	Receptor	Comments	Preliminary Risk Assessment (Probability x Severity)	Requires further work?
Asbestos Containing Material (ACM)	Assumed direct contact (missing from Phase I)	Future land users	No contaminants were identified in shallow soils that present a likely risk to site users or neighbouring residents, with existing hardstanding covering the majority of the site preventing contact with soils and no asbestos fibres identified in made ground soils. The proposed hardcover use of the site will act to sever this pathway.	**Low** (Unlikely x Medium)	**No**
		Construction Workers		**Low** (Unlikely x Medium)	**No**

Table 6. Summary of Qualitative Risk Assessment

8.0 Conclusions and Recommendations

A Phase II Contaminated Land Site Assessment of 1 Salop Road, Wrexham, LL13 7AF was undertaken prior to the potential redevelopment of the site as a car wash and vehicle maintenance unit.

The purpose of the assessment was to evaluate the potential for risk to be posed to human health and local surface water and groundwater receptors from historical industrial use of the site and local historical land uses.

The investigation generally recorded hardstanding over made ground of silty sand and gravel including mixed fill and brick up to between 1.0-2.0m bgl. The made ground was observed to be underlain by soft-stiff gravelly silts and clays, transitioning into wet gravel and cobbles.

Evidence of contamination was observed within the soil bores of WS4, WS7 and WS9. However, lab analysis recorded no concentrations of contaminants above Commercial threshold levels.

Two existing monitoring wells (Well & EX1) were noted by Geo^2 during the investigation, with three new wells, WS2, WS3 & WS9, also installed.

Laboratory analysis of groundwater samples recorded concentrations of hydrocarbon compounds, BTEX, SVOCs, VOCs and Metals above GACs, indicating a potential risk to surface water and groundwater. Due to the proximity of the River Gwenfro, the surface water body is considered the primary environmental receptor. Analysis of groundwater levels at the site suggest it is likely to be in connectivity with the river. Samples were obtained from upstream and downstream of the river with no concentrations of hydrocarbon, BTEX, VOC or SVOC compounds recorded above laboratory detection limits.

Concentrations of chromium were noted to exceed GAC in the groundwater on site and in the downstream sample. However, the increase in concentration between the upstream and downstream sample of 4µg/l is considered marginal and may be indicative of background concentrations rather than an impact caused by groundwater from the site.

It can be reasonably assumed that historical site activities are the source of the contaminative plume identified onsite. It is possible that the contamination is the result of offsite migration from neighbouring properties that have an industrial history such as the tannery/leather works to the north, of which the site was a part, and the gasworks to the east. No historical infrastructure such as underground storage tanks, was identified during the investigation and it is considered unlikely that the contamination is associated with a current issue. As such, it can be assumed the contamination is historical in nature and is likely to have been present for a number of years.

No evidence of volatile compounds of hydrocarbons presenting a risk to site users or neighbouring residents was identified during the investigation.

The shallow ground investigation undertaken in November 2024 has identified a **Low** risk to site end users and neighbouring residents from volatile contamination within soils and groundwater

and from contamination within shallow site soils. A **Low** risk is also considered suitable as no significant sources of noxious ground gases have been identified on or close to the site. It should be noted that the site is located in a radon affected area.

The identified contamination in exceedance of GACs, along with a plausible pathway is considered to present a **High** risk to surface water particularly given the proximity of the River Gwenfro. An impact to groundwater was identified on site in exceedance of GACs, indicating a **Moderate** risk to groundwater. This is mitigated by the lack of potable abstractions and distance to the nearest groundwater abstraction in the local area (1km north-west).

8.1 Recommendations

The following works are recommended to address the identified risk to surface water and receptors:

- As contaminant concentrations in onsite groundwater were found to exceed Generic Acceptance Criteria, consideration should be given to undertaking a Detailed Quantitative Risk Assessment (DQRA) to fully assess the risk to the adjacent receptors. This should include groundwater flow direction modelling based on current site data. Further characterisation may be required to accurately delineate the extent of the contaminative plume and revise the risk posed to the surface water body.
- Construction workers should be provided with appropriate PPE and welfare facilities if coming into contact with shallow soils during any future groundworks and have appropriate training.
- A watching brief should be imposed during any future groundworks to ensure that any impacts unidentified in the site investigation can be characterised and treated appropriately. Any unidentified contaminated material should be considered in the event of a redevelopment as costs for offsite disposal of these materials may be significant.

9.0 Report Limitations

This Report was prepared by Geo^2 for the sole and exclusive use of the Client and for the specific purpose for which Geo^2 was instructed. Unless explicitly agreed otherwise, in writing, this Report has been prepared under Geo^2's Standard Terms and Conditions.

Geo^2 does not intend, without its written consent through a formal letter of reliance or warranty, for this Report to be disseminated to any party other than the named Client or to be used or relied upon by any party other than the named Client. Use of the Report by any other party is unauthorised and such use is at the sole risk of the user. Any party using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Geo^2 from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by Geo^2.

The recommendations contained within this Report represent Geo^2's professional opinions, based upon the information detailed within the Report, exercising the reasonable skill and care to be expected of a professional consultant holding itself out as having the competence, experience, and resources necessary for the purpose of carrying out similar work in scope and character to the services performed. The Report needs to be considered in the light of the proposal and associated limitations of scope. The Report needs to be read and considered in full and isolated sections cannot be used without full reference to other elements of the Report and any previous works referenced within the Report.

10.0 References

British Standards Institute

BS10175:2011 "Investigation of potentially contaminated land sites – code of practice"

British Geological Society

Geology of Britain Viewer, https://mapapps2.bgs.ac.uk/geoindex/home.html

CIRIA

C552 Contaminated Land Risk Assessment, a guide to good practise, 2001.

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Land Contamination Risk Management (LCRM) Guidance, 2020

The Coal Authority

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

Zetica UXO

Risk Maps Viewer, https://zeticauxo.com/guidance/risk-maps/

Historical reports

Earth Environmental and Geotechnical – Phase I GeoEnvironmental Desk Study (Report ref: A4428/21) – November 2021

Geo^2 – Groundwater and Stream Sampling Letter Report (Report ref: 24/4495.1.1) – November 2024

Appendix D – Exploratory Hole Logs

Window Sampler

WS1

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333728.40	349925.56	72.13	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2024-11-21	2024-11-21

Client
Carbana Group

Contractor
RP Drilling Ltd

Consultant
Geo2

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Samples and Tests: Type/ Ref	Samples and Tests: Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Strata: Description
						(0.50)		MADE GROUND: Brown sandy cobbley GRAVEL, medium to coarse, subrounded to subangular of mixed lithologies and brick.
		0.50	PID	0.00	71.63	0.50		
						(0.50)		MADE GROUND: Soft dark brown/grey sandy gravelly SILT.
					71.13	1.00		Refusal on hard surface
								End of Borehole at 1.00m

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0

Remarks
Refusal on hard surface at 1.0m bgl

Method, Plant, Stability, Dimensions **Logger**
0.00 - 1.00m WS

Window Sampler

WS2

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333733.32	349926.60	72.17	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2024-11-21	2024-11-21

Client
Carbana Group

Contractor
RP Drilling Ltd

Consultant
Geo2

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Description
		0.00	PID	1.50	72.07	(0.10) 0.10		MADE GROUND: Firm black gravelly SILT, fine to medium, subangular gravels with organics present.
								MADE GROUND: Brown sandy cobbley GRAVEL, medium to coarse, subrounded to subangular of mixed lithologies and brick
		1.00	ES			(1.30)		
		1.50	PID	0.00	70.77	1.40		Soft brown gravelly CLAY, fine to coarse, subrounded to subangular of mixed lithologies. Becoming firmer.
						(0.50)		
	▽				70.27	1.90		Stiff to very stiff gravelly CLAY, fine to medium, subrounded of mixed lithologies, becoming gravellier.
								Water strike (2.00m)
		2.50	PID	0.00		(1.10)		
					69.17	3.00		Brown clayey GRAVEL, coarse, rounded to subrounded bedrock gravels with stiff clay matrix.
						(0.70)		
		3.50	PID	0.00	68.47	3.70		*End of Borehole at 3.70m*

Remarks

Method, Plant, Stability, Dimensions **Logger**

0.00 - 3.70m WS

Window Sampler

WS2

SUPPLEMENTARY INFO

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333733.32	349926.60	72.17	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2024-11-21	2024-11-21

Client	Contractor	Consultant
Carbana Group	RP Drilling Ltd	Geo2

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
2.00				

Water Strike - Details

Struck (m)	Rose To (m)	Time (mins)	Remarks
2.00			

Remarks

Method, Plant, Stability, Dimensions **Logger**

0.00 - 3.70m WS

Window Sampler

WS3

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333726.74	349938.42	72.14	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2024-11-21	2024-11-21

Client
Carbana Group

Contractor
RP Drilling Ltd

Consultant
Geo2

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Description
					71.94	(0.20) 0.20		CONCRETE
						(0.30)		MADE GROUND: Stiff red/black gravelly SILT, fine to coarse, subangular to angular of brick, mudstone and mixed lithologies
		0.50 0.50	PID ES	1.30	71.64	0.50		MADE GROUND: Red GRAVEL, fine to coarse, subangular to angular of mixed lithologies and brick.
						(0.50)		
					71.14	1.00		Brown silty SAND
					70.94	(0.20) 1.20		Soft dark brown gravelly SILT, medium to coarse, subrounded with occasional angular cobbles.
		1.50	PID	1.50				
		2.50	PID	2.30		(2.80)		
		3.50	PID	1.40				
					68.14	4.00		*End of Borehole at 4.00m*

Remarks

Method, Plant, Stability, Dimensions
0.00 - 4.00m WS

Logger

Window Sampler

WS3

SUPPLEMENTARY INFO

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333726.74	349938.42	72.14	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2024-11-21	2024-11-21

Client	Contractor	Consultant
Carbana Group	RP Drilling Ltd	Geo2

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
3.00				

Water Strike - Details

Struck (m)	Rose To (m)	Time (mins)	Remarks
3.00			

Remarks

Method, Plant, Stability, Dimensions **Logger**

0.00 - 4.00m WS

Window Sampler

WS4

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333737.50	349949.82	71.94	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2024-11-21	2024-11-21

Client
Carbana Group

Contractor
RP Drilling Ltd

Consultant
Geo2

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Description
					71.74	(0.20) 0.20		CONCRETE
		0.50	PID	2.20				MADE GROUND: Grey/red silty sandy cobbley GRAVEL, medium to coarse, subangular to angular of mixed lithologies and brick.
						(0.80)		
					70.94	1.00		MADE GROUND: Firm brown gravelly SILT, subangular, fine to medium of mixed lithologies and brick
	▽	1.50	PID	1.40		(0.70)		
					70.24	1.70		Dark grey silty GRAVEL, fine to coarse, rounded to subrounded of mixed lithologies.
		2.50	PID	14.80				
						(2.10)		
		3.50	PID	13.70				
					68.14	3.80		Dark grey firm gravelly SILT, fine to coarse, rounded to subrounded of mixed lithologies with mild hydrocarbon odour
		4.00	ES					
						(1.20)		
		4.50	PID	16.30				
					66.94	5.00		*End of Borehole at 5.00m*

Remarks

Method, Plant, Stability, Dimensions **Logger**

0.00 - 5.00m WS

Window Sampler

WS4

SUPPLEMENTARY INFO

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333737.50	349949.82	71.94	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2024-11-21	2024-11-21

Client	Contractor	Consultant
Carbana Group	RP Drilling Ltd	Geo2

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
1.70				

Water Strike - Details

Struck (m)	Rose To (m)	Time (mins)	Remarks
1.70			

Remarks

Method, Plant, Stability, Dimensions **Logger**

0.00 - 5.00m WS

Window Sampler

WS5

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333746.21	349938.92	71.82	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2024-11-21	2024-11-21

Client
Carbana Group

Contractor
RP Drilling Ltd

Consultant
Geo2

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Description
					71.62	(0.20) 0.20		CONCRETE
		0.50 0.50	PID ES	0.10		(1.50)		MADE GROUND: Grey/brown silty sandy GRAVEL, medium to coarse, subrounded to angular of mixed lithologies and brick
		1.50	PID	0.30	70.12	1.70		
						(0.30)		MADE GROUND: Drk grey soft sandy gravelly SILT, fine to medium, subrounded to subangular of mixed litholoigies.
					69.82	2.00		Soft to firm brown gravelly cobbly CLAY, fine to coarse, rounded to subrounded gravels of mixed lithologies.
		2.50	PID	3.10				Limited Recovery (2.00 - 3.00m)
	▽					(2.00)		Water strike (3.00m)
		3.50	PID	0.30				
					67.82	4.00		Brown sandy cobbly GRAVEL, medium to coarse, rounded to subrounded of bedrock.
		4.50	PID	0.50		(1.00)		
					66.82	5.00		*End of Borehole at 5.00m*

Remarks

Method, Plant, Stability, Dimensions **Logger**

0.00 - 5.00m WS

Window Sampler

WS5

SUPPLEMENTARY INFO

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333746.21	349938.92	71.82	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2024-11-21	2024-11-21

Client	Contractor	Consultant
Carbana Group	RP Drilling Ltd	Geo2

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
3.00				

Water Strike - Details

Struck (m)	Rose To (m)	Time (mins)	Remarks
3.00			

Remarks

Method, Plant, Stability, Dimensions **Logger**

0.00 - 5.00m WS

Window Sampler

WS7

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333755.73	349938.78	71.90	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2024-11-21	2024-11-21

Client
Carbana Group

Contractor
RP Drilling Ltd

Consultant
Geo2

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Description
					71.70	(0.20) 0.20		CONCRETE
						(0.20)		MADE GROUND: Red/brown gravelly COBBLES of brick and mixed lithologies.
					71.50	0.40		
		0.50	PID	1.00				MADE GROUND: Black sandy GRAVEL, fine, subrounded to subangular gravels with low density.
		1.00	ES			(1.40)		
		1.50	PID	0.90				
					70.10	1.80		MADE GROUND: Red/brown sandy GRAVEl, fine to coarse, subrounded to angular of mixed lithologies and brick.
						(0.20)		
					69.90	2.00		Soft brown gravelly cobbly SILT. Medium to coarse, subrounded bedrock with mild hydrocarbon odour and sheen
		2.50	PID	2.20		(1.00)		
					68.90	3.00		*End of Borehole at 3.00m*

Remarks

Method, Plant, Stability, Dimensions **Logger**

0.00 - 3.00m WS

Window Sampler

WS9

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333740.42	349940.14	71.81	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2024-11-21	2024-11-21

Client
Carbana Group

Contractor
RP Drilling Ltd

Consultant
Geo2

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Description
					71.61	(0.20) 0.20		CONCRETE
		0.50	PID	0.90		(0.40)		MADE GROUND: Black sandy GRAVEL, fine, subrounded to subangular of mixed lithiologies and satined.
					71.21	0.60		MADE GROUND: Brown sandy cobbley GRAVEL, medium to coarse, subrounded to subangular of mixed lithiologies and brick
						(0.40)		
		1.50	PID	0.00	70.81	1.00		Soft brown gravelly CLAY, fine to coarse, subrounded to subangular of mixed lithologies. Occasional cobbles.
						(1.70)		
		2.50	PID	0.00				
					69.11	2.70		Brown/grey sandy GRAVEL. Black stained gravels, strong hydrocarbon odour and sheen with occasional cobbles
								Water strike (3.00m)
		3.50	PID	0.00		(1.30)		
		4.00	PID	60.30	67.81	4.00		*End of Borehole at 4.00m*
		4.00	ES					

Remarks

Method, Plant, Stability, Dimensions
0.00 - 4.00m WS

Logger

Window Sampler

WS9

SUPPLEMENTARY INFO

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333740.42	349940.14	71.81	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2024-11-21	2024-11-21

Client	Contractor	Consultant
Carbana Group	RP Drilling Ltd	Geo2

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
3.00				

Water Strike - Details

Struck (m)	Rose To (m)	Time (mins)	Remarks
3.00			

Remarks

Method, Plant, Stability, Dimensions **Logger**

0.00 - 4.00m WS

Window Sampler

WS101

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333746.00	349949.00	71.74	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2025-03-04	2025-03-04

Client	Contractor	Consultant
Carbana Group	RP Drilling Ltd	Geo2

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Description
		0.30	PID	0.00		(0.40)		MADE GROUND - TARMAC
					71.34	0.40		MADE GROUND - Brown slighly clayey silty fine to coarse subangluar to subrounded GRAVEL with brick fragments.
		0.80	PID	0.00		(0.60)		
					70.74	1.00		Brown/grey gravelly silty CLAY. Gravels are fine to coarse subangular to aubrounded.
		1.30	PID	0.00		(0.80)		
		1.80	PID	0.60	69.94	1.80		Grey/dark grey sandy silty fine to coarse subangular to subrounded GRAVEL.
	▽	2.30	PID	0.00				Gravel changes to light brown and then to yellowish. (2.00 - 3.80m)
		2.30	ES					
		2.80	PID	0.00		(2.00)		
		3.30	PID	0.00				
		3.80	PID	0.00	67.94	3.80		Brown sandy SILT.
					67.74	(0.20) 4.00		*End of Borehole at 4.00m*

Remarks

Method, Plant, Stability, Dimensions — **Logger**

0.00 - 4.00m WS

Window Sampler

WS101

SUPPLEMENTARY INFO

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333746.00	349949.00	71.74	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2025-03-04	2025-03-04

Client	Contractor	Consultant
Carbana Group	RP Drilling Ltd	Geo2

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
2.50				

Water Strike - Details

Struck (m)	Rose To (m)	Time (mins)	Remarks
2.50			

Remarks

Method, Plant, Stability, Dimensions **Logger**

0.00 - 4.00m WS

Window Sampler

WS102

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333756.00	349936.00	71.99	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2025-03-04	2025-03-04

Client
Carbana Group

Contractor
RP Drilling Ltd

Consultant
Geo2

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Description
		0.20	PID	0.00	71.79	(0.20) 0.20		MADE GROUND - TARMAC
								MADE GROUND - Brown sandy silty fine to coarse subangluar to subrounded GRAVEL with brick fragments.
		0.80	PID	0.00		(1.30)		
		1.30	PID	1.50	70.49	1.50		Brown slightly clayey gravelly SILT. Gravels are fine to coarse subangular to subrounded.
		2.30	PID	9.80		(1.20)		Peat layer with organic odour. (2.50m)
	▽	2.80	PID	32.40	69.29	2.70		Brown silty sandy GRAVEL with sheen and product and hydrocarbon odour.
								Hydrocarbon odour. (2.80m)
		3.60	PID	11.70		(1.30)		
		3.60	ES		67.99	4.00		*End of Borehole at 4.00m*

Remarks

Method, Plant, Stability, Dimensions
0.00 - 4.00m WS

Logger

Window Sampler

WS102

SUPPLEMENTARY INFO

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333756.00	349936.00	71.99	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2025-03-04	2025-03-04

Client	Contractor	Consultant
Carbana Group	RP Drilling Ltd	Geo2

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
2.70				

Water Strike - Details

Struck (m)	Rose To (m)	Time (mins)	Remarks
2.70			

Remarks

Method, Plant, Stability, Dimensions **Logger**

0.00 - 4.00m WS

Window Sampler

WS103

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS				1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2025-03-04	2025-03-04

Client
Carbana Group

Contractor
RP Drilling Ltd

Consultant
Geo2

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Description
						(0.20) 0.20		MADE GROUND - TARMAC
		0.30	PID	1.80				MADE GROUND - Brown/grey sandy silty fine to coarse subangular to subrounded GRAVEL with brick fragments.
		0.80	PID	1.00		(1.40)		
		0.80	ES					
		1.30	PID	0.90				
						1.60		Brown silty SAND.
		1.80	PID	1.00		(0.40)		
						2.00		*End of Borehole at 2.00m*

Remarks

Method, Plant, Stability, Dimensions **Logger**

0.00 - 2.00m WS

Window Sampler

WS104

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333751.00	349928.00	72.09	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2025-03-04	2025-03-04

Client
Carbana Group

Contractor
RP Drilling Ltd

Consultant
Geo2

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Description
					71.89	(0.20) 0.20		MADE GROUND - TARMAC
		0.30	PID	6.30				MADE GROUND - Brown silty fine to coarse subangluar to subrounded GRAVEL with brick fragments.
						(0.80)		
					71.09	1.00		Dark brown slightly gravelly clayey SILT. Gravels are fine to medium subangular/subrounded.
		1.30	PID	1.60		(0.50)		
					70.59	1.50		Brown silty sandy CLAY.
		1.80	PID	1.70		(0.50)		
					70.09	2.00		Dark grey/grey sandy silty GRAVEL. Gravel is fine to coarse subangular to subrounded.
		2.30	PID	5.80				
	▽	2.80	PID	120.50		(1.50)		Hydrocarbon odour and product present. (2.80 - 3.50m)
		3.50	ES		68.59	3.50		Brown/light brown sandy SILT.
						(0.50)		
					68.09	4.00		*End of Borehole at 4.00m*

Remarks

Method, Plant, Stability, Dimensions
0.00 - 4.00m WS

Logger

Window Sampler

WS104

SUPPLEMENTARY INFO

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333751.00	349928.00	72.09	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2025-03-04	2025-03-04

Client	Contractor	Consultant
Carbana Group	RP Drilling Ltd	Geo2

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
2.80				

Water Strike - Details

Struck (m)	Rose To (m)	Time (mins)	Remarks
2.80			

Remarks

Method, Plant, Stability, Dimensions **Logger**

0.00 - 4.00m WS

Window Sampler

WS105

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333737.00	349923.00	72.13	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2025-03-04	2025-03-04

Client
Carbana Group

Contractor
RP Drilling Ltd

Consultant
Geo2

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Description
					71.93	(0.20) 0.20		TOPSOIL
		0.30	PID	6.90				MADE GROUND - Brown/light brown silty fine to coarse subangular to subrounded gravel with brick fragments.
		0.80	PID	16.40		(1.10)		
		1.30	PID	2.30	70.83	1.30		
						(0.20)		Brown silty CLAY.
					70.63	1.50		
								Brown/light brown silty gravelly SAND. Gravel is fine to coarse subangular to subrounded.
		2.50	PID	2.10		(2.50)		
		3.60	PID	14.30				Sheen and product with hydrocarbon odour. (3.60m)
		3.60	ES					
					68.13	4.00		*End of Borehole at 4.00m*

Remarks

Method, Plant, Stability, Dimensions — **Logger**

0.00 - 4.00m WS

Window Sampler

WS105

SUPPLEMENTARY INFO

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS	333737.00	349923.00	72.13	1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2025-03-04	2025-03-04

Client	Contractor	Consultant
Carbana Group	RP Drilling Ltd	Geo2

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
2.90				

Water Strike - Details

Struck (m)	Rose To (m)	Time (mins)	Remarks
2.90			

Remarks

Method, Plant, Stability, Dimensions **Logger**

0.00 - 4.00m WS

Window Sampler

WS106

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
WS				1:50

Project Name	Project No.	Start Date	End Date
Carbana Wrexham	4495	2025-03-04	2025-03-04

Client
Carbana Group

Contractor
RP Drilling Ltd

Consultant
Geo2

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Description
		0.30	PID	0.70		(0.20) 0.20		MADE GROUND - TARMAC
								MADE GROUND - Brown/grey sandy silty fine to coarse subangular to subrounded GRAVEL with brick fragments.
		0.80	PID	0.40		(0.80)		
		0.80	ES			1.00		Brown silty SAND.
						(1.00)		
						2.00		*End of Borehole at 2.00m*

Remarks

Method, Plant, Stability, Dimensions **Logger**

0.00 - 2.00m WS

Appendix E – Environmental Testing Results

envirolab
Hattersley Science & Technology Park
Stockport Road, Hattersley, SK14 3QU

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 25/02736
Issue Number: 1 **Date:** 26 March, 2025

Client:
Geo2 Remediation Ltd
Coniston House,
Louisa Street
Bradford
BD10 8NE

Project Manager: Daniel Routledge/Oliver Moreton/Peter Phillips
Project Name: Salop Road
Project Ref: 4495
Order No: 4495/LAB
Date Samples Received: 17/03/25
Date Instructions Received: 18/03/25
Date Analysis Completed: 26/03/25

Approved by:



Gemma Berrisford
Deputy Client Services Supervisor

UKAS TESTING
1247

Envirolab Job Number: 25/02736

Client Project Name: Salop Road

Client Project Ref: 4495

Lab Sample ID	25/02736/1	25/02736/2	25/02736/3	25/02736/4	25/02736/5	25/02736/6	25/02736/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS3	WS9	WS2	EX1	Well	Upstream	Downstream			
Depth to Top										
Depth To Bottom										
Date Sampled	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - EW	WATER - SW	WATER - SW	WATER - SW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
pH (w)$_A^\#$	6.70	7.15	7.10	7.23	7.28	8.09	8.12	pH	0.01	A-T-031w
Cyanide (free) (w)$_A^\#$	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/l	0.005	A-T-042wFCN
Cyanide (total) (w)$_A^\#$	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/l	0.005	A-T-042wTCN
Arsenic (dissolved)$_A^\#$	3	1	10	6	5	<1	<1	µg/l	1	A-T-025w
Boron (dissolved)$_A^\#$	193	41	139	81	27	54	57	µg/l	10	A-T-025w
Barium (dissolved)$_A^\#$	119	103	103	783	49	62	64	µg/l	1	A-T-025w
Beryllium (dissolved)$_A^\#$	<1	<1	<1	<5	<1	<1	<1	µg/l	1	A-T-025w
Cadmium (dissolved)$_A^\#$	<0.2	<0.2	<0.2	<1.0	<0.2	<0.2	<0.2	µg/l	0.2	A-T-025w
Copper (dissolved)$_A^\#$	<4	4	<4	<20	<4	4	<4	µg/l	4	A-T-025w
Chromium (dissolved)$_A^\#$	<1	<1	<1	<5	2	7	8	µg/l	1	A-T-025w
Chromium (hexavalent) (w)$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	0.01	A-T-040w
Chromium (trivalent) (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	0.01	Calc
Lead (dissolved)$_A^\#$	3	12	6	20	<1	<1	<1	µg/l	1	A-T-025w
Mercury (dissolved)$_A^\#$	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	µg/l	0.1	A-T-025w
Nickel (dissolved)$_A^\#$	3	<2	15	<10	<2	<2	2	µg/l	2	A-T-025w
Selenium (dissolved)$_A^\#$	<1	<1	<1	<5	<1	<1	<1	µg/l	1	A-T-025w
Vanadium (dissolved)$_A^\#$	<1	2	3	<5	<1	<1	<1	µg/l	1	A-T-025w
Zinc (dissolved)$_A^\#$	3	7	3	11	22	2	<2	µg/l	2	A-T-025w

Envirolab Job Number: 25/02736

Client Project Name: Salop Road

Client Project Ref: 4495

Lab Sample ID	25/02736/1	25/02736/2	25/02736/3	25/02736/4	25/02736/5	25/02736/6	25/02736/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS3	WS9	WS2	EX1	Well	Upstream	Downstream			
Depth to Top										
Depth To Bottom										
Date Sampled	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - EW	WATER - SW	WATER - SW	WATER - SW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
SVOC (w)										
1,2,4-Trichlorobenzene$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
1,2-Dichlorobenzene$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
1,3-Dichlorobenzene$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
1,4-Dichlorobenzene$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
2,4,5-Trichlorophenol$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
2,4,6-Trichlorophenol$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
2,4-Dichlorophenol$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
2,4-Dimethylphenol$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
2,4-Dinitrotoluene$_A$	<1	<2	76	<10	<1	<1	<1	µg/l	1	A-T-052w
2,6-Dinitrotoluene$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
2-Chloronaphthalene$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
2-Chlorophenol$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
2-Methylnaphthalene$_A$	<1	3	474	183	<1	<1	<1	µg/l	1	A-T-052w
2-Methylphenol$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
2-Nitrophenol$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
4-Bromophenyl phenyl ether$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
4-Chloro-3-methylphenol$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Bis(2-chloroisopropyl)ether$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
3+4-Methylphenol$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
4-Nitrophenol$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Acenaphthene$_A$	2	10	268	74	<1	<1	<1	µg/l	1	A-T-052w
Acenaphthylene$_A$	<1	<2	42	<10	<1	<1	<1	µg/l	1	A-T-052w
Anthracene$_A$	<1	<2	41	<10	<1	<1	<1	µg/l	1	A-T-052w
Bis(2-chloroethyl)ether$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Bis(2-chloroethoxy)methane$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Bis(2-ethylhexyl)phthalate$_A$	<10	<20	<100	<100	<10	<10	<10	µg/l	10	A-T-052w
Benzo(a)anthracene$_A$	<1	<2	10	<10	<1	<1	<1	µg/l	1	A-T-052w
Butylbenzyl phthalate$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Benzo(b)fluoranthene$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Benzo(k)fluoranthene$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Benzo(a)pyrene$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Benzo(ghi)perylene$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w

Envirolab Job Number: 25/02736

Client Project Name: Salop Road

Client Project Ref: 4495

Lab Sample ID	25/02736/1	25/02736/2	25/02736/3	25/02736/4	25/02736/5	25/02736/6	25/02736/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS3	WS9	WS2	EX1	Well	Upstream	Downstream			
Depth to Top										
Depth To Bottom										
Date Sampled	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - EW	WATER - SW	WATER - SW	WATER - SW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Carbazole$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Chrysene$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Dibenzofuran$_A$	<1	<2	30	<10	<1	<1	<1	µg/l	1	A-T-052w
n-Dibutylphthalate$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
n-Dioctylphthalate$_A$	<10	<20	<100	<100	<10	<10	<10	µg/l	10	A-T-052w
n-Nitroso-n-dipropylamine$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Diethyl phthalate$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Dimethyl phthalate$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Dibenzo(ah)anthracene$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Fluorene$_A$	<1	3	119	17	<1	<1	<1	µg/l	1	A-T-052w
Fluoranthene$_A$	<1	<2	16	<10	<1	<1	<1	µg/l	1	A-T-052w
Hexachlorobutadiene$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Hexachlorobenzene SVOC$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Pentachlorophenol SVOC$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Phenol$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Hexachloroethane$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Nitrobenzene$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Naphthalene$_A$	<1	3	209	>296	1	1	<1	µg/l	1	A-T-052w
Isophorone$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Phenanthrene$_A$	<1	3	186	<10	<1	<1	<1	µg/l	1	A-T-052w
Pyrene$_A$	<1	<2	24	<10	<1	<1	<1	µg/l	1	A-T-052w
Indeno(1,2,3-cd)pyrene$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w
Perylene$_A$	<1	<2	<10	<10	<1	<1	<1	µg/l	1	A-T-052w

Envirolab Job Number: 25/02736

Client Project Name: Salop Road

Client Project Ref: 4495

Lab Sample ID	25/02736/1	25/02736/2	25/02736/3	25/02736/4	25/02736/5	25/02736/6	25/02736/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS3	WS9	WS2	EX1	Well	Upstream	Downstream			
Depth to Top										
Depth To Bottom										
Date Sampled	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - EW	WATER - SW	WATER - SW	WATER - SW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
VOC excl. BTEX										
Dichlorodifluoromethane$_A$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Chloromethane$_A$	<10	<10	<10	<10	<10	<10	<10	µg/l	10	A-T-006w
Vinyl Chloride$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Bromomethane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Chloroethane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Trichlorofluoromethane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
trans 1,2-Dichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Dichloromethane$_A$	<5	<5	<5	<5	<5	<5	<5	µg/l	5	A-T-006w
Carbon Disulphide$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1-Dichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1-Dichloroethane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
cis 1,2-Dichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Bromochloromethane$_A^{\#}$	<5	<5	<5	<5	<5	<5	<5	µg/l	5	A-T-006w
Chloroform$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
2,2-Dichloropropane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2-Dichloroethane$_A^{\#}$	<2	<2	<2	<2	<2	<2	<2	µg/l	2	A-T-006w
1,1,1-Trichloroethane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1-Dichloropropene$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Carbon Tetrachloride$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Dibromomethane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2-Dichloropropane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Bromodichloromethane$_A^{\#}$	<10	<10	<10	<10	<10	<10	<10	µg/l	10	A-T-006w
Trichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
cis 1,3-Dichloropropene$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
trans 1,3-Dichloropropene$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1,2-Trichloroethane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,3-Dichloropropane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Dibromochloromethane$_A^{\#}$	<3	<3	<3	<3	<3	<3	<3	µg/l	3	A-T-006w
1,2-Dibromoethane$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Tetrachloroethene$_A$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1,1,2-Tetrachloroethane$_A$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Chlorobenzene$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w

Envirolab Job Number: 25/02736 **Client Project Name: Salop Road**

Client Project Ref: 4495

Lab Sample ID	25/02736/1	25/02736/2	25/02736/3	25/02736/4	25/02736/5	25/02736/6	25/02736/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS3	WS9	WS2	EX1	Well	Upstream	Downstream			
Depth to Top										
Depth To Bottom										
Date Sampled	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - EW	WATER - SW	WATER - SW	WATER - SW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Bromoform$_{A}^{\#}$	<3	<3	<3	<3	<3	<3	<3	µg/l	3	A-T-006w
Styrene$_{A}^{\#}$	<1	<1	<2	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1,2,2-Tetrachloroethane$_{A}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2,3-Trichloropropane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Isopropylbenzene$_{A}^{\#}$	<1	<1	21	<1	<1	<1	<1	µg/l	1	A-T-006w
Bromobenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
2-Chlorotoluene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
n-propylbenzene$_{A}^{\#}$	<1	<1	4	<1	<1	<1	<1	µg/l	1	A-T-006w
4-Chlorotoluene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2,4-Trimethylbenzene$_{A}^{\#}$	<1	<1	262	2	<1	<1	<1	µg/l	1	A-T-006w
4-Isopropyltoluene$_{A}^{\#}$	<1	<1	14	<1	<1	<1	<1	µg/l	1	A-T-006w
1,3,5-Trimethylbenzene$_{A}^{\#}$	<1	<1	93	11	<1	<1	<1	µg/l	1	A-T-006w
1,2-Dichlorobenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,4-Dichlorobenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
sec-Butylbenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
tert-Butylbenzene$_{A}^{\#}$	<2	<2	<2	<2	<2	<2	<2	µg/l	2	A-T-006w
1,3-Dichlorobenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
n-butylbenzene$_{A}^{\#}$	<1	<1	<8	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2-Dibromo-3-chloropropane$_{A}^{\#}$	<2	<2	<2	<2	<2	<2	<2	µg/l	2	A-T-006w
1,2,4-Trichlorobenzene$_{A}^{\#}$	<3	<3	<3	<3	<3	<3	<3	µg/l	3	A-T-006w
1,2,3-Trichlorobenzene$_{A}^{\#}$	<3	<3	<3	<3	<3	<3	<3	µg/l	3	A-T-006w
Hexachlorobutadiene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w

Envirolab Job Number: 25/02736

Client Project Name: Salop Road

Client Project Ref: 4495

Lab Sample ID	25/02736/1	25/02736/2	25/02736/3	25/02736/4	25/02736/5	25/02736/6	25/02736/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS3	WS9	WS2	EX1	Well	Upstream	Downstream			
Depth to Top										
Depth To Bottom										
Date Sampled	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - EW	WATER - SW	WATER - SW	WATER - SW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
TPH CWG (w) with Clean Up										
Ali >C5-C6 (w)$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
Ali >C6-C8 (w)$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
Ali >C8-C10 (w)$_A^{\#}$	<5	<10	206	<50	<5	<5	<5	µg/l	5	A-T-055w
Ali >C10-C12 (w)$_A^{\#}$	<5	11	564	<50	<5	<5	<5	µg/l	5	A-T-055w
Ali >C12-C16 (w)$_A^{\#}$	<5	21	1200	<50	<5	<5	<5	µg/l	5	A-T-055w
Ali >C16-C21 (w)$_A^{\#}$	<5	10	444	<50	<5	<5	<5	µg/l	5	A-T-055w
Ali >C21-C35 (w)$_A^{\#}$	<5	55	605	1160	<5	<5	<5	µg/l	5	A-T-055w
Total Aliphatics (w)$_A^{\#}$	<5	97	3020	1160	<5	<5	<5	µg/l	5	Calc-As Recd
Aro >C5-C7 (w)$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
Aro >C7-C8 (w)$_A^{\#}$	<1	<1	9	<1	<1	<1	<1	µg/l	1	A-T-022w
Aro >C8-C10 (w)$_A$	<5	42	4250	2240	<5	<5	<5	µg/l	5	A-T-055w
Aro >C10-C12 (w)$_A^{\#}$	<5	77	14700	8730	<5	<5	<5	µg/l	5	A-T-055w
Aro >C12-C16 (w)$_A^{\#}$	<5	139	24300	2920	<5	<5	<5	µg/l	5	A-T-055w
Aro >C16-C21 (w)$_A^{\#}$	<5	77	6690	160	<5	<5	<5	µg/l	5	A-T-055w
Aro >C21-C35 (w)$_A^{\#}$	<10	49	2670	126	<10	<10	<10	µg/l	10	A-T-055w
Total Aromatics (w)$_A^{\#}$	<10	384	52600	14200	<10	<10	<10	µg/l	10	Calc-As Recd
TPH (Ali & Aro >C5-C35) (w)$_A$	<10	481	55600	15300	<10	<10	<10	µg/l	10	Calc-As Recd
BTEX - Benzene (w)$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
BTEX - Toluene (w)$_A^{\#}$	<1	<1	9	<1	<1	<1	<1	µg/l	1	A-T-022w
BTEX - Ethyl Benzene (w)$_A^{\#}$	<1	<1	37	<1	<1	<1	<1	µg/l	1	A-T-022w
BTEX - m & p Xylene (w)$_A^{\#}$	<1	<1	160	<1	<1	<1	<1	µg/l	1	A-T-022w
BTEX - o Xylene (w)$_A^{\#}$	<1	<1	88	1	<1	<1	<1	µg/l	1	A-T-022w
MTBE (w)$_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w

Report Notes

General

•This report shall not be reproduced, except in full, without written approval from Envirolab.
•The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
•The results reported herein relate only to the material supplied to the laboratory.
•The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
•Analytical results reflect the quality of the sample at the time of analysis only.
•Opinions and Interpretations expressed are outside our scope of accreditation.
•A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
•If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
•Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "D" on Asbestos	Analysis performed on a dried aliquot of sample provided.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
Trace	Asbestos found not suitable for Gravimetric Quantification – not enough to accurately weigh.
N/A	Not applicable

Asbestos

Identification: Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
"Trace Asbestos Identified" will be reported if there is not enough present to verify the type.
Quantification: Generally a 2 stage process including visual identification, hand picking and weighing, and fibre counting. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres). "TRACE" will be reported as a quantification result.
PLEASE INFORM THE LABORATORY IF YOU WOULD LIKE THE STAGE 3 SEDIMENTATION PROCESS CARRIED OUT. Note this will be subcontracted.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25^0C / 11550µS/cm @ 20^0C fall outside the calibration range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Geo2 Remediation Ltd, Coniston House,, Louisa Street, Bradford, BD10 8NE

Project No: 25/02736

Date Received: 18/03/2025 (am)

Project: Salop Road

Cool Box Temperatures (°C): 10.8

Clients Project No: 4495

Lab Sample ID	25/02736/1	25/02736/2	25/02736/3	25/02736/4	25/02736/5	25/02736/6	25/02736/7
Client Sample No							
Client Sample ID/Depth	WS3	WS9	WS2	EX1	Well	Upstream	Downstream
Date Sampled	13/03/25	13/03/25	13/03/25	13/03/25	13/03/25	13/03/25	13/03/25
Deviation Code							
A7 (no HNO3)	✓	✓	✓	✓	✓	✓	✓
F	✓	✓	✓	✓	✓	✓	✓

Key

A7 (no HNO3) *No HNO3 preserved bottle provided (dissolved metals will be deviating)*

F *Maximum holding time exceeded between sampling date and analysis for analytes listed below*

HOLDING TIME EXCEEDANCES

Lab Sample ID	25/02736/1	25/02736/2	25/02736/3	25/02736/4	25/02736/5	25/02736/6	25/02736/7
Client Sample No							
Client Sample ID/Depth	WS3	WS9	WS2	EX1	Well	Upstream	Downstream
Date Sampled	13/03/25	13/03/25	13/03/25	13/03/25	13/03/25	13/03/25	13/03/25
pH (w)	✓	✓	✓	✓	✓	✓	✓

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	25/02736/1	25/02736/2	25/02736/3	25/02736/4	25/02736/5	25/02736/6	25/02736/7
Client Sample No							
Client Sample ID/Depth	WS3	WS9	WS2	EX1	Well	Upstream	Downstream
Date Sampled	13/03/25	13/03/25	13/03/25	13/03/25	13/03/25	13/03/25	13/03/25
A-T-006w	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
A-T-022w	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
A-T-025w	24/03/2025	24/03/2025	24/03/2025	24/03/2025	24/03/2025	24/03/2025	24/03/2025
A-T-031w	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
A-T-040w	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
A-T-042wFCN	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
A-T-042wTCN	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
A-T-052w	20/03/2025	20/03/2025	26/03/2025	24/03/2025	20/03/2025	20/03/2025	20/03/2025
A-T-055w	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Calc	24/03/2025	24/03/2025	24/03/2025	24/03/2025	24/03/2025	24/03/2025	24/03/2025
Calc-As Recd	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

envirolab
Hattersley Science & Technology Park
Stockport Road, Hattersley, SK14 3QU

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 25/02734
Issue Number: 1 **Date:** 26 March, 2025

Client: Geo2 Remediation Ltd
Coniston House,
Louisa Street
Bradford
BD10 8NE

Project Manager: Daniel Routledge/Oliver Moreton/Peter Phillips
Project Name: Salop Road
Project Ref: 4495
Order No: 4495/LAB
Date Samples Received: 17/03/25
Date Instructions Received: 18/03/25
Date Analysis Completed: 26/03/25

Approved by:



Gemma Berrisford
Deputy Client Services Supervisor

UKAS TESTING
1247

Envirolab Job Number: 25/02734

Client Project Name: Salop Road

Client Project Ref: 4495

Lab Sample ID	25/02734/1	25/02734/2	25/02734/3	25/02734/4	25/02734/5	25/02734/6		Units	Limit of Detection	Method ref
Client Sample No	WS101	WS102	WS103	WS104	WS105	WS106				
Client Sample ID										
Depth to Top										
Depth To Bottom										
Date Sampled	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25				
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW				
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A				
pH (w)$_A^\#$	7.39	7.43	7.73	7.36	7.25	7.02		pH	0.01	A-T-031w
Cyanide (free) (w)$_A^\#$	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		mg/l	0.005	A-T-042wFCN
Cyanide (total) (w)$_A^\#$	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		mg/l	0.005	A-T-042wTCN
Arsenic (dissolved)$_A^\#$	3	5	1	9	7	3		µg/l	1	A-T-025w
Boron (dissolved)$_A^\#$	35	53	83	108	96	191		µg/l	10	A-T-025w
Barium (dissolved)$_A^\#$	126	184	126	129	81	75		µg/l	1	A-T-025w
Beryllium (dissolved)$_A^\#$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-025w
Cadmium (dissolved)$_A^\#$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		µg/l	0.2	A-T-025w
Copper (dissolved)$_A^\#$	<4	<4	<4	<4	7	7		µg/l	4	A-T-025w
Chromium (dissolved)$_A^\#$	<1	<1	2	<1	<1	3		µg/l	1	A-T-025w
Chromium (hexavalent) (w)$_A^\#$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/l	0.01	A-T-040w
Chromium (trivalent) (w)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		mg/l	0.01	Calc
Lead (dissolved)$_A^\#$	9	1	10	13	10	16		µg/l	1	A-T-025w
Mercury (dissolved)$_A^\#$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		µg/l	0.1	A-T-025w
Nickel (dissolved)$_A^\#$	<2	<2	3	<2	<2	4		µg/l	2	A-T-025w
Selenium (dissolved)$_A^\#$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-025w
Vanadium (dissolved)$_A^\#$	<1	<1	1	<1	<1	2		µg/l	1	A-T-025w
Zinc (dissolved)$_A^\#$	<2	<2	6	<2	<2	12		µg/l	2	A-T-025w

Envirolab Job Number: 25/02734

Client Project Name: Salop Road

Client Project Ref: 4495

Lab Sample ID	25/02734/1	25/02734/2	25/02734/3	25/02734/4	25/02734/5	25/02734/6		Units	Limit of Detection	Method ref
Client Sample No	WS101	WS102	WS103	WS104	WS105	WS106				
Client Sample ID										
Depth to Top										
Depth To Bottom										
Date Sampled	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25				
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW				
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A				
SVOC (w)										
1,2,4-Trichlorobenzene$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
1,2-Dichlorobenzene$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
1,3-Dichlorobenzene$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
1,4-Dichlorobenzene$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
2,4,5-Trichlorophenol$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
2,4,6-Trichlorophenol$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
2,4-Dichlorophenol$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
2,4-Dimethylphenol$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
2,4-Dinitrotoluene$_A$	<2	496	<2	<200	114	<2		µg/l	1	A-T-052w
2,6-Dinitrotoluene$_A$	<2	<50	<2	<200	118	<2		µg/l	1	A-T-052w
2-Chloronaphthalene$_A$	<2	83	<2	<200	32	<2		µg/l	1	A-T-052w
2-Chlorophenol$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
2-Methylnaphthalene$_A$	<2	227	<2	463	657	<2		µg/l	1	A-T-052w
2-Methylphenol$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
2-Nitrophenol$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
4-Bromophenyl phenyl ether$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
4-Chloro-3-methylphenol$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
Bis(2-chloroisopropyl)ether$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
3+4-Methylphenol$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
4-Nitrophenol$_A$	<2	287	<2	<200	104	11		µg/l	1	A-T-052w
Acenaphthene$_A$	<2	961	8	512	456	10		µg/l	1	A-T-052w
Acenaphthylene$_A$	<2	452	<2	<200	36	<2		µg/l	1	A-T-052w
Anthracene$_A$	<2	386	<2	<200	74	<2		µg/l	1	A-T-052w
Bis(2-chloroethyl)ether$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
Bis(2-chloroethoxy)methane$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
Bis(2-ethylhexyl)phthalate$_A$	<20	<500	<20	<2000	<100	<20		µg/l	10	A-T-052w
Benzo(a)anthracene$_A$	<2	131	<2	<200	21	<2		µg/l	1	A-T-052w
Butylbenzyl phthalate$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
Benzo(b)fluoranthene$_A$	<2	97	<2	<200	16	<2		µg/l	1	A-T-052w
Benzo(k)fluoranthene$_A$	<2	103	<2	<200	17	<2		µg/l	1	A-T-052w
Benzo(a)pyrene$_A$	<2	76	<2	<200	12	<2		µg/l	1	A-T-052w
Benzo(ghi)perylene$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w

Envirolab Job Number: 25/02734

Client Project Name: Salop Road

Client Project Ref: 4495

Lab Sample ID	25/02734/1	25/02734/2	25/02734/3	25/02734/4	25/02734/5	25/02734/6		Units	Limit of Detection	Method ref
Client Sample No	WS101	WS102	WS103	WS104	WS105	WS106				
Client Sample ID										
Depth to Top										
Depth To Bottom										
Date Sampled	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25				
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW				
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A				
Carbazole$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
Chrysene$_A$	<2	116	<2	<200	19	<2		µg/l	1	A-T-052w
Dibenzofuran$_A$	<2	123	<2	<200	42	<2		µg/l	1	A-T-052w
n-Dibutylphthalate$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
n-Dioctylphthalate$_A$	<20	<500	<20	<2000	<100	<20		µg/l	10	A-T-052w
n-Nitroso-n-dipropylamine$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
Diethyl phthalate$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
Dimethyl phthalate$_A$	<2	58	<2	<200	24	<2		µg/l	1	A-T-052w
Dibenzo(ah)anthracene$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
Fluorene$_A$	<2	580	<2	<200	178	<2		µg/l	1	A-T-052w
Fluoranthene$_A$	<2	201	<2	<200	32	<2		µg/l	1	A-T-052w
Hexachlorobutadiene$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
Hexachlorobenzene SVOC$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
Pentachlorophenol SVOC$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
Phenol$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
Hexachloroethane$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
Nitrobenzene$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
Naphthalene$_A$	3	59	<2	>612	584	<2		µg/l	1	A-T-052w
Isophorone$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
Phenanthrene$_A$	<2	1390	<2	417	309	<2		µg/l	1	A-T-052w
Pyrene$_A$	<2	307	<2	<200	49	<2		µg/l	1	A-T-052w
Indeno(1,2,3-cd)pyrene$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w
Perylene$_A$	<2	<50	<2	<200	<10	<2		µg/l	1	A-T-052w

Envirolab Job Number: 25/02734

Client Project Name: Salop Road

Client Project Ref: 4495

Lab Sample ID	25/02734/1	25/02734/2	25/02734/3	25/02734/4	25/02734/5	25/02734/6		Units	Limit of Detection	Method ref
Client Sample No	WS101	WS102	WS103	WS104	WS105	WS106				
Client Sample ID										
Depth to Top										
Depth To Bottom										
Date Sampled	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25				
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW				
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A				
VOC excl. BTEX										
Dichlorodifluoromethane$_A$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
Chloromethane$_A$	<10	<10	<10	<10	<10	<10		µg/l	10	A-T-006w
Vinyl Chloride$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
Bromomethane$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
Chloroethane$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
Trichlorofluoromethane$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
trans 1,2-Dichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
Dichloromethane$_A$	<5	<5	<5	<5	<5	<5		µg/l	5	A-T-006w
Carbon Disulphide$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
1,1-Dichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
1,1-Dichloroethane$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
cis 1,2-Dichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
Bromochloromethane$_A^{\#}$	<5	<5	<5	<5	<5	<5		µg/l	5	A-T-006w
Chloroform$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
2,2-Dichloropropane$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
1,2-Dichloroethane$_A^{\#}$	<2	<2	<2	<2	<2	<2		µg/l	2	A-T-006w
1,1,1-Trichloroethane$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
1,1-Dichloropropene$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
Carbon Tetrachloride$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
Dibromomethane$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
1,2-Dichloropropane$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
Bromodichloromethane$_A^{\#}$	<10	<10	<10	<10	<10	<10		µg/l	10	A-T-006w
Trichloroethene$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
cis 1,3-Dichloropropene$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
trans 1,3-Dichloropropene$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
1,1,2-Trichloroethane$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
1,3-Dichloropropane$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
Dibromochloromethane$_A^{\#}$	<3	<3	<3	<3	<3	<3		µg/l	3	A-T-006w
1,2-Dibromoethane$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
Tetrachloroethene$_A$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
1,1,1,2-Tetrachloroethane$_A$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
Chlorobenzene$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w

Envirolab Job Number: 25/02734 **Client Project Name: Salop Road**

Client Project Ref: 4495

Lab Sample ID	25/02734/1	25/02734/2	25/02734/3	25/02734/4	25/02734/5	25/02734/6		Units	Limit of Detection	Method ref
Client Sample No	WS101	WS102	WS103	WS104	WS105	WS106				
Client Sample ID										
Depth to Top										
Depth To Bottom										
Date Sampled	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25				
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW				
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A				
Bromoform$_{A}^{\#}$	<3	<3	<3	<3	<3	<3		µg/l	3	A-T-006w
Styrene$_{A}^{\#}$	<1	<2	<1	<2	<3	<1		µg/l	1	A-T-006w
1,1,2,2-Tetrachloroethane$_{A}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
1,2,3-Trichloropropane$_{A}^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
Isopropylbenzene$_{A}^{\#}$	<1	38	<1	42	58	<1		µg/l	1	A-T-006w
Bromobenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
2-Chlorotoluene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
n-propylbenzene$_{A}^{\#}$	<1	7	<1	17	18	<1		µg/l	1	A-T-006w
4-Chlorotoluene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
1,2,4-Trimethylbenzene$_{A}^{\#}$	<1	222	<1	176	327	<1		µg/l	1	A-T-006w
4-Isopropyltoluene$_{A}^{\#}$	<1	14	<1	13	15	<1		µg/l	1	A-T-006w
1,3,5-Trimethylbenzene$_{A}^{\#}$	<1	92	1	54	113	<1		µg/l	1	A-T-006w
1,2-Dichlorobenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
1,4-Dichlorobenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
sec-Butylbenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
tert-Butylbenzene$_{A}^{\#}$	<2	<2	<2	<2	<2	<2		µg/l	2	A-T-006w
1,3-Dichlorobenzene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w
n-butylbenzene$_{A}^{\#}$	<1	<6	<1	<12	<14	<1		µg/l	1	A-T-006w
1,2-Dibromo-3-chloropropane$_{A}^{\#}$	<2	<2	<2	<2	<2	<2		µg/l	2	A-T-006w
1,2,4-Trichlorobenzene$_{A}^{\#}$	<3	<3	<3	<3	<3	<3		µg/l	3	A-T-006w
1,2,3-Trichlorobenzene$_{A}^{\#}$	<3	<3	<3	<3	<3	<3		µg/l	3	A-T-006w
Hexachlorobutadiene$_{A}^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-006w

Envirolab Job Number: 25/02734

Client Project Name: Salop Road

Client Project Ref: 4495

Lab Sample ID	25/02734/1	25/02734/2	25/02734/3	25/02734/4	25/02734/5	25/02734/6		Units	Limit of Detection	Method ref
Client Sample No	WS101	WS102	WS103	WS104	WS105	WS106				
Client Sample ID										
Depth to Top										
Depth To Bottom										
Date Sampled	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25	13-Mar-25				
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW				
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A				
TPH CWG (w) with Clean Up										
Ali >C5-C6 (w)$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-022w
Ali >C6-C8 (w)$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-022w
Ali >C8-C10 (w)$_A^{\#}$	<10	172	<10	104	<100	<10		µg/l	5	A-T-055w
Ali >C10-C12 (w)$_A^{\#}$	<10	118	<10	223	104	<10		µg/l	5	A-T-055w
Ali >C12-C16 (w)$_A^{\#}$	<10	<10	<10	492	<100	<10		µg/l	5	A-T-055w
Ali >C16-C21 (w)$_A^{\#}$	<10	<10	<10	215	<100	<10		µg/l	5	A-T-055w
Ali >C21-C35 (w)$_A^{\#}$	<10	191	<10	399	540	<10		µg/l	5	A-T-055w
Total Aliphatics (w)$_A^{\#}$	<10	481	<10	1430	644	<10		µg/l	5	Calc-As Recd
Aro >C5-C7 (w)$_A^{\#}$	<1	<1	<1	2	<1	<1		µg/l	1	A-T-022w
Aro >C7-C8 (w)$_A^{\#}$	<1	1	<1	5	1	<1		µg/l	1	A-T-022w
Aro >C8-C10 (w)$_A$	<10	3240	<10	1730	2790	<10		µg/l	5	A-T-055w
Aro >C10-C12 (w)$_A^{\#}$	<10	5950	10	6620	16700	18		µg/l	5	A-T-055w
Aro >C12-C16 (w)$_A^{\#}$	<10	10700	48	13300	14200	94		µg/l	5	A-T-055w
Aro >C16-C21 (w)$_A^{\#}$	<10	772	20	3970	1400	34		µg/l	5	A-T-055w
Aro >C21-C35 (w)$_A^{\#}$	<20	113	<20	1690	399	<20		µg/l	10	A-T-055w
Total Aromatics (w)$_A^{\#}$	<20	20800	78	27300	35500	146		µg/l	10	Calc-As Recd
TPH (Ali & Aro >C5-C35) (w)$_A$	<20	21300	78	28800	36100	146		µg/l	10	Calc-As Recd
BTEX - Benzene (w)$_A^{\#}$	<1	<1	<1	2	<1	<1		µg/l	1	A-T-022w
BTEX - Toluene (w)$_A^{\#}$	<1	1	<1	5	1	<1		µg/l	1	A-T-022w
BTEX - Ethyl Benzene (w)$_A^{\#}$	<1	33	1	32	29	<1		µg/l	1	A-T-022w
BTEX - m & p Xylene (w)$_A^{\#}$	<1	37	<1	30	65	<1		µg/l	1	A-T-022w
BTEX - o Xylene (w)$_A^{\#}$	<1	41	2	34	56	<1		µg/l	1	A-T-022w
MTBE (w)$_A^{\#}$	<1	<1	<1	<1	<1	<1		µg/l	1	A-T-022w

Report Notes

General

•This report shall not be reproduced, except in full, without written approval from Envirolab.
•The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
•The results reported herein relate only to the material supplied to the laboratory.
•The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
•Analytical results reflect the quality of the sample at the time of analysis only.
•Opinions and Interpretations expressed are outside our scope of accreditation.
•A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
•If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
•Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "D" on Asbestos	Analysis performed on a dried aliquot of sample provided.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
Trace	Asbestos found not suitable for Gravimetric Quantification – not enough to accurately weigh.
N/A	Not applicable

Asbestos

Identification: Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
"Trace Asbestos Identified" will be reported if there is not enough present to verify the type.
Quantification: Generally a 2 stage process including visual identification, hand picking and weighing, and fibre counting. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres). "TRACE" will be reported as a quantification result.
PLEASE INFORM THE LABORATORY IF YOU WOULD LIKE THE STAGE 3 SEDIMENTATION PROCESS CARRIED OUT. Note this will be subcontracted.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25^0C / 11550µS/cm @ 20^0C fall outside the calibration range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Geo2 Remediation Ltd, Coniston House,, Louisa Street, Bradford, BD10 8NE

Project No: 25/02734

Date Received: 18/03/2025 (am)

Project: Salop Road

Cool Box Temperatures (°C): 9.8

Clients Project No: 4495

Lab Sample ID	25/02734/1	25/02734/2	25/02734/3	25/02734/4	25/02734/5	25/02734/6
Client Sample No	WS101	WS102	WS103	WS104	WS105	WS106
Client Sample ID/Depth						
Date Sampled	13/03/25	13/03/25	13/03/25	13/03/25	13/03/25	13/03/25
Deviation Code						
A7 (no HNO3)	✓	✓	✓	✓	✓	✓
F	✓	✓	✓	✓	✓	✓

Key

A7 (no HNO3) *No HNO3 preserved bottle provided (dissolved metals will be deviating)*

F *Maximum holding time exceeded between sampling date and analysis for analytes listed below*

HOLDING TIME EXCEEDANCES

Lab Sample ID	25/02734/1	25/02734/2	25/02734/3	25/02734/4	25/02734/5	25/02734/6
Client Sample No	WS101	WS102	WS103	WS104	WS105	WS106
Client Sample ID/Depth						
Date Sampled	13/03/25	13/03/25	13/03/25	13/03/25	13/03/25	13/03/25
pH (w)	✓	✓	✓	✓	✓	✓

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	25/02734/1	25/02734/2	25/02734/3	25/02734/4	25/02734/5	25/02734/6
Client Sample No	WS101	WS102	WS103	WS104	WS105	WS106
Client Sample ID/Depth						
Date Sampled	13/03/25	13/03/25	13/03/25	13/03/25	13/03/25	13/03/25
A-T-006w	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
A-T-022w	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
A-T-025w	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
A-T-031w	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
A-T-040w	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025	19/03/2025
A-T-042wFCN	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
A-T-042wTCN	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
A-T-052w	20/03/2025	26/03/2025	20/03/2025	24/03/2025	26/03/2025	20/03/2025
A-T-055w	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025
Calc	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025	21/03/2025
Calc-As Recd	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025	20/03/2025

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

envirolab
Hattersley Science & Technology Park
Stockport Road, Hattersley, SK14 3QU

FINAL ANALYTICAL TEST REPORT
SUPPLEMENT TO TEST REPORT 25/02286/1

Amendments: Request for Additional Analysis

Envirolab Job Number: 25/02286
Issue Number: 2 **Date:** 20 March, 2025

Client:
Geo2 Remediation Ltd
Coniston House,
Louisa Street
Bradford
BD10 8NE

Project Manager: Gayathry Vinod/Peter Phillips
Project Name: Salop Road
Project Ref: 4495
Order No: 4495/LAB
Date Samples Received: 06/03/25
Date Instructions Received: 07/03/25
Date Analysis Completed: 20/03/25

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 25/02286

Client Project Name: Salop Road

Client Project Ref: 4495

Lab Sample ID	25/02286/1	25/02286/2	25/02286/3	25/02286/4	25/02286/5	25/02286/6		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS102	WS103	WS104	WS105	WS106				
Depth to Top	2.3	3.6	0.3	3.2	3.6	0.8				
Depth To Bottom										
Date Sampled	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25				
Sample Type	SOIL	SOIL	SOIL	SOLID	SOIL	SOIL				
Sample Matrix Code	6A	1AB	6AB	7	6A	6AB				
% Stones >10mm$_{A}$	12.0	29.4	<0.1	<0.1	23.2	13.1		% w/w	0.1	A-T-044
pH$_{D}^{M\#}$	8.07	8.40	8.83	8.49^{U}	8.07	8.23		pH	0.01	A-T-031s
Cyanide (free)$_{A}^{M\#}$	<1	<1	-	<1^{U}	<1	-		mg/kg	1	A-T-042sFCN
Cyanide (total)$_{A}^{M\#}$	<1	<1	-	<1^{U}	<1	-		mg/kg	1	A-T-042sTCN
Organic Matter$_{D}^{M\#}$	1.04	0.61	3.76	4.33^{U}	1.53	2.72		% w/w	0.14	A-T-032s
Arsenic$_{D}^{M\#}$	2	4	8	7^{U}	4	8		mg/kg	1	A-T-024s
Barium$_{D}^{\#}$	52	61	223	32^{U}	55	142		mg/kg	3	A-T-024s
Beryllium$_{D}$	<0.5	<0.5	<0.5	<0.5	<0.5	0.5		mg/kg	0.5	A-T-024s
Boron (water soluble)$_{D}^{M\#}$	<1.0	<1.0	<1.0	<1.0^{U}	<1.0	<1.0		mg/kg	1	A-T-027s
Cadmium$_{D}^{M\#}$	<0.5	<0.5	1.1	0.6^{U}	<0.5	<0.5		mg/kg	0.5	A-T-024s
Copper$_{D}^{M\#}$	13	8	39	14^{U}	12	50		mg/kg	1	A-T-024s
Chromium$_{D}^{M\#}$	9	7	20	17^{U}	8	15		mg/kg	1	A-T-024s
Chromium (hexavalent)$_{D}$	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-040s
Chromium (trivalent)	9	7	20	17	8	15		mg/kg	1	Calc
Lead$_{D}^{M\#}$	48	42	293	284^{U}	41	93		mg/kg	1	A-T-024s
Mercury$_{D}$	<0.17	<0.17	0.33	<0.17	<0.17	<0.17		mg/kg	0.17	A-T-024s
Nickel$_{D}^{M\#}$	10	10	10	13^{U}	12	17		mg/kg	1	A-T-024s
Selenium$_{D}^{M\#}$	<1	<1	<1	<1^{U}	<1	<1		mg/kg	1	A-T-024s
Vanadium$_{D}^{M\#}$	7	7	15	8^{U}	8	19		mg/kg	1	A-T-024s
Zinc$_{D}^{M\#}$	33	30	265	26^{U}	37	91		mg/kg	1	A-T-024s

Envirolab Job Number: 25/02286

Client Project Name: Salop Road

Client Project Ref: 4495

Lab Sample ID	25/02286/1	25/02286/2	25/02286/3	25/02286/4	25/02286/5	25/02286/6		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS102	WS103	WS104	WS105	WS106				
Depth to Top	2.3	3.6	0.3	3.2	3.6	0.8				
Depth To Bottom										
Date Sampled	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25				
Sample Type	SOIL	SOIL	SOIL	SOLID	SOIL	SOIL				
Sample Matrix Code	6A	1AB	6AB	7	6A	6AB				
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	NAD	NAD	NAD^{U}	NAD	NAD				A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-	-	-	-				A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-	-	-	-				A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	N/A	N/A	N/A	N/A				A-T-045

Envirolab Job Number: 25/02286

Client Project Name: Salop Road

Client Project Ref: 4495

Lab Sample ID	25/02286/1	25/02286/2	25/02286/3	25/02286/4	25/02286/5	25/02286/6		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS102	WS103	WS104	WS105	WS106				
Depth to Top	2.3	3.6	0.3	3.2	3.6	0.8				
Depth To Bottom										
Date Sampled	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25				
Sample Type	SOIL	SOIL	SOIL	SOLID	SOIL	SOIL				
Sample Matrix Code	6A	1AB	6AB	7	6A	6AB				
SVOC										
4-Bromophenyl phenyl ether$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
Hexachlorobenzene$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
Diethyl phthalate$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
Dimethyl phthalate$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
Dibenzofuran$_A$	<100	3340	<100	8520	2480	175		µg/kg	100	A-T-052s
Carbazole$_A$	<100	<1000	<100	<1000	<1000	312		µg/kg	100	A-T-052s
Butylbenzyl phthalate$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	<500	<5000	<500	<5000	<5000	<500		µg/kg	500	A-T-052s
Bis(2-chloroethoxy)methane$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
Bis(2-chloroethyl)ether$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
4-Nitrophenol$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
3+4-Methylphenol$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
4-Chloro-3-methylphenol$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
2-Nitrophenol$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
2-Methylphenol$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
1,2,4-Trichlorobenzene$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
2-Chlorophenol$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
2,6-Dinitrotoluene$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
2,4-Dinitrotoluene$_A$	<100	4010	<100	6040	8620	<100		µg/kg	100	A-T-052s
2,4-Dimethylphenol$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
2,4-Dichlorophenol$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
2,4,6-Trichlorophenol$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
2,4,5-Trichlorophenol$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
1,4-Dichlorobenzene$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
1,3-Dichlorobenzene$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
1,2-Dichlorobenzene$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
2-Chloronaphthalene$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
2-Methylnaphthalene$_A$	<100	9910	<100	35500	<1000	125		µg/kg	100	A-T-052s
Acenaphthylene$_A$	<100	11500	<100	11300	14400	713		µg/kg	100	A-T-052s
Acenaphthene$_A$	<100	20600	<100	59900	18400	<100		µg/kg	100	A-T-052s
Anthracene$_A$	<100	11700	286	31000	25600	648		µg/kg	100	A-T-052s
Benzo(a)anthracene$_A$	<100	3720	1680	15800	13800	4390		µg/kg	100	A-T-052s

Envirolab Job Number: 25/02286 **Client Project Name: Salop Road**

Client Project Ref: 4495

Lab Sample ID	25/02286/1	25/02286/2	25/02286/3	25/02286/4	25/02286/5	25/02286/6		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS102	WS103	WS104	WS105	WS106				
Depth to Top	2.3	3.6	0.3	3.2	3.6	0.8				
Depth To Bottom										
Date Sampled	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25				
Sample Type	SOIL	SOIL	SOIL	SOLID	SOIL	SOIL				
Sample Matrix Code	6A	1AB	6AB	7	6A	6AB				
Benzo(b)fluoranthene$_A$	<100	1630	2140	6610	6490	5680		µg/kg	100	A-T-052s
Benzo(k)fluoranthene$_A$	<100	<1000	1160	4000	3570	2050		µg/kg	100	A-T-052s
Benzo(a)pyrene$_A$	<100	2300	2070	9510	8600	4180		µg/kg	100	A-T-052s
Benzo(ghi)perylene$_A$	<100	<1000	1080	2070	1780	2350		µg/kg	100	A-T-052s
Chrysene$_A$	<100	3480	1800	15000	13100	5350		µg/kg	100	A-T-052s
Fluoranthene$_A$	<100	7470	2150	24200	23200	5450		µg/kg	100	A-T-052s
Fluorene$_A$	<100	16300	<100	63000	21100	193		µg/kg	100	A-T-052s
Indeno(1,2,3-cd)pyrene$_A$	<100	<1000	1230	2130	2290	2590		µg/kg	100	A-T-052s
Phenanthrene$_A$	<100	24100	326	48000	35400	4030		µg/kg	100	A-T-052s
Pyrene$_A$	<100	10600	2210	35200	30300	6610		µg/kg	100	A-T-052s
Naphthalene$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
Dibenzo(ah)anthracene$_A$	<100	<1000	417	1290	1130	1000		µg/kg	100	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
Phenol$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
Pentachlorophenol$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
n-Nitroso-n-dipropylamine$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
n-Dioctylphthalate$_A$	<500	<5000	<500	<5000	<5000	<500		µg/kg	500	A-T-052s
n-Dibutylphthalate$_A$	<200	<1000	<200	<1000	<1000	<100		µg/kg	100	A-T-052s
Nitrobenzene$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
Isophorone$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
Hexachloroethane$_A$	<100	3370	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
Hexachlorobutadiene$_A$	<100	<1000	<100	<1000	<1000	<100		µg/kg	100	A-T-052s
Perylene$_A$	<100	<1000	580	1150	1100	1200		µg/kg	100	A-T-052s

Envirolab Job Number: 25/02286

Client Project Name: Salop Road

Client Project Ref: 4495

Lab Sample ID	25/02286/1	25/02286/2	25/02286/3	25/02286/4	25/02286/5	25/02286/6		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS102	WS103	WS104	WS105	WS106				
Depth to Top	2.3	3.6	0.3	3.2	3.6	0.8				
Depth To Bottom										
Date Sampled	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25				
Sample Type	SOIL	SOIL	SOIL	SOLID	SOIL	SOIL				
Sample Matrix Code	6A	1AB	6AB	7	6A	6AB				
VOC										
Dichlorodifluoromethane$_{A}$	<1	<5	<1	<5	<5	<1		µg/kg	1	A-T-006s
Chloromethane$_{A}$	<10	<50	<10	<50	<50	<10		µg/kg	10	A-T-006s
Vinyl Chloride (Chloroethene)$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
Bromomethane$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
Chloroethane$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
Trichlorofluoromethane$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
1,1-Dichloroethene$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
Carbon Disulphide$_{A}^{\#}$	<1	<5	<1	9^{U}	<5	<1		µg/kg	1	A-T-006s
Dichloromethane$_{A}$	<5	<25	<5	<25	<25	<5		µg/kg	5	A-T-006s
trans 1,2-Dichloroethene$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
1,1-Dichloroethane$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
cis 1,2-Dichloroethene$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
2,2-Dichloropropane$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
Bromochloromethane$_{A}^{\#}$	<5^{U}	<25^{U}	<5^{U}	<25^{U}	<25^{U}	<5^{U}		µg/kg	5	A-T-006s
Chloroform$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
1,1,1-Trichloroethane$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
1,1-Dichloropropene$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
Carbon Tetrachloride$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
1,2-Dichloroethane$_{A}^{\#}$	<2	<10	<2	<10^{U}	<10	<2		µg/kg	2	A-T-006s
Benzene$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
Trichloroethene$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
1,2-Dichloropropane$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
Dibromomethane$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
Bromodichloromethane$_{A}^{\#}$	<10	<50	<10	<50^{U}	<50	<10		µg/kg	10	A-T-006s
cis 1,3-Dichloropropene$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
Toluene$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
trans 1,3-Dichloropropene$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
1,1,2-Trichloroethane$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
1,3-Dichloropropane$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
Tetrachloroethene$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
Dibromochloromethane$_{A}^{\#}$	<3	<15	<3	<15^{U}	<15	<3		µg/kg	3	A-T-006s
1,2-Dibromoethane$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s

Envirolab Job Number: 25/02286 **Client Project Name: Salop Road**

Client Project Ref: 4495

Lab Sample ID	25/02286/1	25/02286/2	25/02286/3	25/02286/4	25/02286/5	25/02286/6		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS102	WS103	WS104	WS105	WS106				
Depth to Top	2.3	3.6	0.3	3.2	3.6	0.8				
Depth To Bottom										
Date Sampled	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25				
Sample Type	SOIL	SOIL	SOIL	SOLID	SOIL	SOIL				
Sample Matrix Code	6A	1AB	6AB	7	6A	6AB				
Chlorobenzene$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
1,1,1,2-Tetrachloroethane$_{A}$	<1	<5	<1	<5	<5	<1		µg/kg	1	A-T-006s
Ethylbenzene$_{A}^{\#}$	<1	41	<1	76^{U}	<5	<1		µg/kg	1	A-T-006s
m & p Xylene$_{A}^{\#}$	<1	24	<1	64^{U}	<5	<1		µg/kg	1	A-T-006s
o-Xylene$_{A}^{\#}$	<1	25	<1	64^{U}	<5	<1		µg/kg	1	A-T-006s
Styrene$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
Bromoform$_{A}^{\#}$	<3	<15	<3	<15^{U}	<15	<3		µg/kg	3	A-T-006s
Isopropylbenzene$_{A}^{\#}$	<1	119	<1	207^{U}	30	<1		µg/kg	1	A-T-006s
1,1,2,2-Tetrachloroethane$_{A}$	<1	<5	<1	<5	<5	<1		µg/kg	1	A-T-006s
1,2,3-Trichloropropane$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
Bromobenzene$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
n-Propylbenzene$_{A}^{\#}$	<1	82	<1	114^{U}	9	<1		µg/kg	1	A-T-006s
2-Chlorotoluene$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
1,3,5-Trimethylbenzene$_{A}^{\#}$	<1	299	<1	320^{U}	<5	<1		µg/kg	1	A-T-006s
4-Chlorotoluene$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
tert-Butylbenzene$_{A}^{\#}$	<2	<10	<2	<10^{U}	<10	<2		µg/kg	2	A-T-006s
1,2,4-Trimethylbenzene$_{A}^{\#}$	<1	902	<1	963^{U}	17	<1		µg/kg	1	A-T-006s
sec-Butylbenzene$_{A}^{\#}$	<1	14>	<1	17>^{U}	18>	<1		µg/kg	1	A-T-006s
4-Isopropyltoluene$_{A}^{\#}$	<1	108	<1	141^{U}	8	<1		µg/kg	1	A-T-006s
1,3-Dichlorobenzene$_{A}$	<1	<5	<1	<5	<5	<1		µg/kg	1	A-T-006s
1,4-Dichlorobenzene$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
n-Butylbenzene$_{A}^{\#}$	<1	89	<1	93^{U}	41	<1		µg/kg	1	A-T-006s
1,2-Dichlorobenzene$_{A}^{\#}$	<1^{U}	<5^{U}	<1^{U}	<5^{U}	<5^{U}	<1^{U}		µg/kg	1	A-T-006s
1,2-Dibromo-3-chloropropane (DCBP)$_{A}$	<2	<10	<2	<10	<10	<2		µg/kg	2	A-T-006s
1,2,4-Trichlorobenzene$_{A}$	<3	<15	<3	<15	<15	<3		µg/kg	3	A-T-006s
Hexachlorobutadiene$_{A}^{\#}$	<1	<5	<1	<5^{U}	<5	<1		µg/kg	1	A-T-006s
1,2,3-Trichlorobenzene$_{A}$	<3	<15	<3	<15	<15	<3		µg/kg	3	A-T-006s

Envirolab Job Number: 25/02286

Client Project Name: Salop Road

Client Project Ref: 4495

Lab Sample ID	25/02286/1	25/02286/2	25/02286/3	25/02286/4	25/02286/5	25/02286/6		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS102	WS103	WS104	WS105	WS106				
Depth to Top	2.3	3.6	0.3	3.2	3.6	0.8				
Depth To Bottom										
Date Sampled	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25	04-Mar-25				
Sample Type	SOIL	SOIL	SOIL	SOLID	SOIL	SOIL				
Sample Matrix Code	6A	1AB	6AB	7	6A	6AB				
TPH CWG with Clean Up										
Ali >C5-C6$_A$	<0.01	<0.05	<0.01	<0.05	<0.05	<0.01		mg/kg	0.01	A-T-022s
Ali >C6-C8$_A$	<0.01	<0.05	<0.01	<0.05	<0.05	<0.01		mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	<1	<10	<1	<10	<10	2		mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	<1	37	<1	43^U	59	1		mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	<1	87	<1	118^U	147	2		mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	<1	32	<1	44^U	49	3		mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	2	<10	4	<10^U	17	24		mg/kg	1	A-T-055s
Total Aliphatics$_A$	2	157	4	205	272	33		mg/kg	1	Calc-As Recd
Aro >C5-C7$_A^{\#}$	<0.01	<0.05	<0.01	<0.05^U	<0.05	<0.01		mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.05	<0.01	<0.05^U	<0.05	<0.01		mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	<1	35	<1	28	14	2		mg/kg	1	A-T-055s
Aro >C10-C12$_A$	<1	197	<1	203	71	3		mg/kg	1	A-T-055s
Aro >C12-C16$_A$	<1	1260	3	1430	802	8		mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	<1	672	18	958^U	1290	15		mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	2	337	106	538^U	856	36		mg/kg	1	A-T-055s
Total Aromatics$_A$	2	2500	126	3150	3030	64		mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35)$_A$	4	2660	130	3360	3300	97		mg/kg	1	Calc-As Recd
BTEX - Benzene$_A^{\#}$	<0.01	<0.05	<0.01	<0.05^U	<0.05	<0.01		mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.05	<0.01	<0.05^U	<0.05	<0.01		mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	0.19	<0.01	0.20^U	<0.05	<0.01		mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	0.11	<0.01	0.18^U	<0.05	<0.01		mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	0.14	<0.01	0.21^U	<0.05	<0.01		mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.05	<0.01	<0.05^U	<0.05	<0.01		mg/kg	0.01	A-T-022s

Report Notes

General

•This report shall not be reproduced, except in full, without written approval from Envirolab.
•The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
•The results reported herein relate only to the material supplied to the laboratory.
•The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
•Analytical results reflect the quality of the sample at the time of analysis only.
•Opinions and Interpretations expressed are outside our scope of accreditation.
•A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
•If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
•Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "D" on Asbestos	Analysis performed on a dried aliquot of sample provided.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
Trace	Asbestos found not suitable for Gravimetric Quantification – not enough to accurately weigh.
N/A	Not applicable

Asbestos

Identification: Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
"Trace Asbestos Identified" will be reported if there is not enough present to verify the type.
Quantification: Generally a 2 stage process including visual identification, hand picking and weighing, and fibre counting. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres). "TRACE" will be reported as a quantification result.
PLEASE INFORM THE LABORATORY IF YOU WOULD LIKE THE STAGE 3 SEDIMENTATION PROCESS CARRIED OUT. Note this will be subcontracted.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25^0C / 11550µS/cm @ 20^0C fall outside the calibration range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Geo2 Remediation Ltd, Coniston House,, Louisa Street, Bradford, BD10 8NE

Project No: 25/02286

Date Received: 07/03/2025 (am)

Project: Salop Road

Cool Box Temperatures (°C): 13.6

Clients Project No: 4495

Lab Sample ID	25/02286/1	25/02286/2	25/02286/5
Client Sample No			
Client Sample ID/Depth	WS101 2.3m	WS102 3.6m	WS105 3.6m
Date Sampled	04/03/25	04/03/25	04/03/25
Deviation Code			
F	✓	✓	✓

Key
F *Maximum holding time exceeded between sampling date and analysis for analytes listed below*

HOLDING TIME EXCEEDANCES

Lab Sample ID	25/02286/1	25/02286/2	25/02286/5
Client Sample No			
Client Sample ID/Depth	WS101 2.3m	WS102 3.6m	WS105 3.6m
Date Sampled	04/03/25	04/03/25	04/03/25
Cyanide (free)	✓	✓	✓
Cyanide (total)	✓	✓	✓

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples 5 ± 3°C), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	25/02286/1	25/02286/2	25/02286/3	25/02286/4	25/02286/5	25/02286/6
Client Sample No						
Client Sample ID/Depth	WS101 2.3m	WS102 3.6m	WS103 0.3m	WS104 3.2m	WS105 3.6m	WS106 0.8m
Date Sampled	04/03/25	04/03/25	04/03/25	04/03/25	04/03/25	04/03/25
A-T-006s	11/03/2025	11/03/2025	11/03/2025	11/03/2025	11/03/2025	11/03/2025
A-T-022s	10/03/2025	10/03/2025	10/03/2025	10/03/2025	10/03/2025	10/03/2025
A-T-024s	12/03/2025	12/03/2025	12/03/2025	12/03/2025	12/03/2025	12/03/2025
A-T-027s	12/03/2025	12/03/2025	12/03/2025	12/03/2025	12/03/2025	12/03/2025
A-T-031s	12/03/2025	12/03/2025	12/03/2025	12/03/2025	12/03/2025	12/03/2025
A-T-032s	12/03/2025	12/03/2025	12/03/2025	12/03/2025	12/03/2025	12/03/2025
A-T-040s	13/03/2025	13/03/2025	13/03/2025	13/03/2025	13/03/2025	13/03/2025
A-T-042sFCN	20/03/2025	20/03/2025		20/03/2025	20/03/2025	
A-T-042sTCN	20/03/2025	20/03/2025		20/03/2025	20/03/2025	
A-T-044	12/03/2025	12/03/2025	12/03/2025	12/03/2025	12/03/2025	12/03/2025
A-T-045	10/03/2025	10/03/2025	10/03/2025	10/03/2025	10/03/2025	10/03/2025
A-T-052s	13/03/2025	13/03/2025	13/03/2025	14/03/2025	14/03/2025	14/03/2025
A-T-055s	11/03/2025	11/03/2025	11/03/2025	11/03/2025	11/03/2025	11/03/2025
Calc	13/03/2025	13/03/2025	13/03/2025	13/03/2025	13/03/2025	13/03/2025
Calc-As Recd	11/03/2025	11/03/2025	11/03/2025	11/03/2025	11/03/2025	11/03/2025

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

Appendix F – Planning Correspondence

MEMORANDUM

From:	Angela Guy Contaminated Land Officer	**To:**	Sharon Holman Planning Team
Our Ref:	P/2024/1020	**Your Ref:**	P/2024/1020
Date:	26 June 2024	**No. of Pages:**	2

TOWN AND COUNTRY PLANNING ACT 1990

P/2024/1020 CHANGE OF USE OF LAND TO CREATE CAR WASH AND TYRE FITTING UNIT

1 SALOP ROAD, WREXHAM, LL13 7AF

The following report was submitted in relation to the above planning application.

- Earth Environmental & Geotechnical, Phase 1 GeoEnvironmental Desk Study, Salop Road, Wrexham. December 2021 on behalf of P1 Speedyfit Ltd

Having reviewed the report I note that Appendix 1 is missing, please can this be provided.

I consider the content of the report to otherwise be sufficient, although the recommendations do not suggest an intrusive investigation is required and I am not in agreement with that. Potential sources of contamination have been identified and the proposed end use may have a risk to site users, furthermore risks to controlled waters may also be present. Therefore I recommend the following conditions be applied to the planning permission if granted.

Conditions

EN01 008R PHASED INVESTIGATION - LAND CONTAMINATION
No development shall take place until a phased site investigation of the nature and extent of contamination has been carried out and submitted to and approved in writing by the Local Planning Authority. If any contamination is found during the site investigation, no part of the development shall commence until a scheme specifying the measures that will be taken to remediate the site to render it suitable for the development hereby permitted has been submitted to and approved in writing by the local planning authority. The site shall thereafter be remediated in accordance with the approved scheme. If during the course of development any contamination is found that has not been identified in the site investigation,

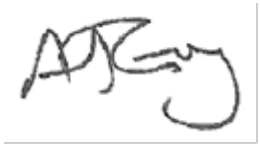
no further development shall take place on those parts of the site where that contamination has been found until an additional scheme of remediation has been submitted to and approved in writing by the local planning authority for those parts of the site. The relevant parts of the site shall thereafter be remediated in accordance with the additional scheme of remediation.

EN03 008R VALIDATION REPORT - CONTAMINATED LAND
Each part of the site subject to the remediation under the scheme(s) approved as part of condition @@ shall not be occupied/used until a Validation Report has been completed in respect of that part of the site and submitted to and approved in writing by the Local Planning Authority.

Informative

INF03 - SITE CONTAMINATION
Further advice on compliance with condition no. @@ may be obtained by contacting the Council's Contaminated Land Officer on 01978 298771 or 297773. Should the investigation identify contamination issues that may affect receptors other than the site users e.g. groundwater, then it is recommended that these works are also addressed in consultation with the Contaminated Land Officer prior to commencement of works on site.

Should you have any queries regarding the above then please contact me on Ext. 8771.



……
Angela Guy
Contaminated Land Officer

Appendix G – Risk Assessment Terminology

Definitions and Classifications of Risk Assessment Terminology.

Probability

Probability can be defined as the chance of a particular event occurring in a given period of time.

Descriptions of each of the four qualitative terms to be use in this report to describe the perceived probability of any identified pollutant linkage becoming realised are shown below in Table W.

Term	Description
High Likelihood	There is pollutant linkage and an event would appear very likely in the short-term and almost inevitable over the long-term, or there is evidence at the receptor of harm or pollution.
Likely	There is pollutant linkage and all the elements are present and in the right place which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short-term and likely over the long-term.
Low Likelihood	There is pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a long period such an event would take place, and is less likely in the shorter term.
Unlikely	There is pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long-term.

Table W. Description of Probability Classifications

Severity

Severity (consequence) can be defined as the adverse effects (or harm) arising from a defined hazard, which impairs the quality of human health or the environment in the short or longer term.

Descriptions of each of the four qualitative terms to be use in this report to describe the perceived potential severity of any identified pollutant linkage becoming realised are shown below in Table X.

Term	Description
Severe	Highly elevated concentrations **likely** to result in "significant harm" to human health as defined by the EPA 1990, Part 2A, if exposure occurs. Equivalent to **EA Category 1** pollution incident including persistent and/or extensive effects on water quality; leading to closure of a potable abstraction point; major impact on amenity value or major damage to agriculture or commerce. Major damage to aquatic or other ecosystems, which is likely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long-term maintenance of the population. Catastrophic damage to crops, buildings or property.
Medium	Elevated concentrations which could result in "significant harm" to human health as defined by the EPA 1990, Part 2A if exposure occurs. Equivalent to **EA Category 2** pollution incident including significant effect on water quality; notification required to abstractors; reduction in amenity value or significant damage to agriculture or commerce. Significant damage to aquatic or other ecosystems, which may result in a substantial adverse change in its functioning or harm to a species of special interest that may endanger the long-term maintenance of the population. Significant damage to crops, buildings or property.
Mild	Exposure to human health **unlikely** to lead to "significant harm". Equivalent to **EA Category 3** pollution incident including minimal or short-lived effect on water quality; marginal effect on amenity value, agriculture or commerce. Minor or short-lived damage to aquatic or other ecosystems, which is unlikely to result in a substantial adverse change in its functioning or harm to a species of special interest that would endanger the long-term maintenance of the population. Minor damage to crops, buildings or property.
Minor	No measurable effect on humans. Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems. Repairable effects of damage to buildings, structures and services.

Table X. Description of Severity Classifications

Once the severity and probability of a pollutant linkage has been determined the risk can be assessed using the risk matrix shown overleaf on Table Y.

Risk Matrix

By cross referencing the derived severity and probability in Table Y, below the perceived potential risk can be determined.

		Severity			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate / Low Risk
	Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	Unlikely	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

Table Y. Risk Assessment Matrix

The risk categories detailed above are defined below in the following Table Z.

Term	Description
Very High Risk	There is a high probability that significant harm could arise to a designated receptor from an identified hazard at the site without appropriate remedial action.
High Risk	Significant harm is likely to arise to a designated receptor from an identified hazard at the site without appropriate remedial action.
Moderate Risk	It is possible that without appropriate remedial action, harm could arise to a designated receptor but it is relatively unlikely that any such harm would be severe and if any harm were to occur, it is likely that such harm would be relatively mild.
Low Risk	It is possible that significant harm could arise to a designated receptor from an identified hazard but it is likely that at worst this harm if realised would normally be mild.
Very Low Risk	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.

Table Z. Definition of Risk