

PHASE 1 & PHASE 2 SITE INVESTIGATION

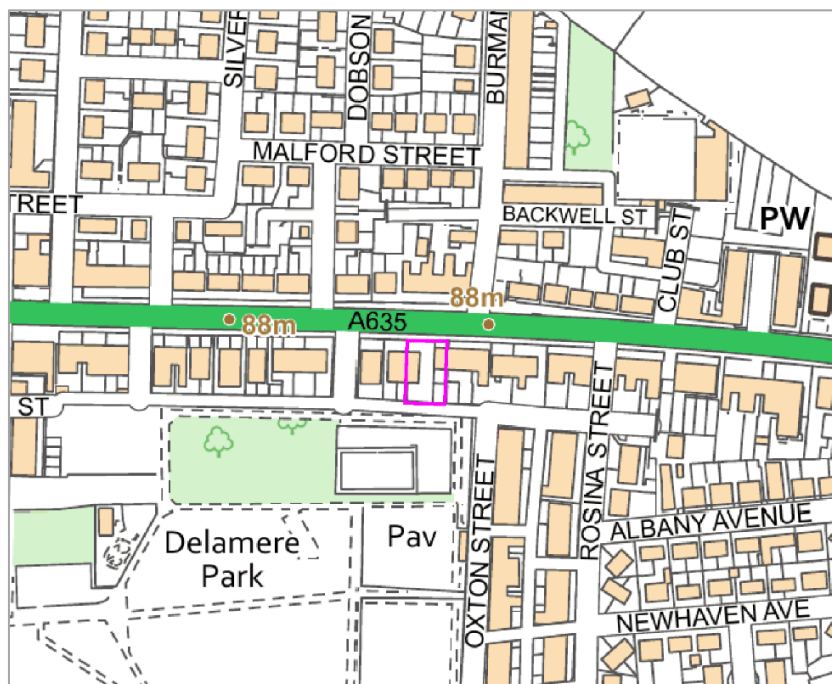
1468 ASHTON OLD ROAD

OPENSHAW

MANCHESTER M11 1HH

for

MSV HOUSING



23-B-13881/1468 Ashton Old Road

Rev '0'

16th October 2023

Principal: **D.J. Middleton BEng(Hons) CEng MStructE**
Company Number: **11006567**
Address **11 Bridgewater Road, Walkden, Worsley, Manchester M28 3JE**
VAT Number: **285 0439 91**

EXECUTIVE SUMMARY

Site Location	The site is located on the south side of Ashton Old Road, Openshaw, M11 1HH, approximately 6km east of Manchester City Centre. The NGR is 389790, 397320
Development Proposals	Preliminary plans that have been made available to us indicate that the site has the potential for future development with a single property sitting between existing terraced houses.
Site History and Environmental Setting	The site has had no previous building development and has been undeveloped throughout the recorded era. The site is small and could support a single dwelling as indicated on the attached proposed site layout. The site sits between two existing dwellings, believed to date from the late 19 th century. There has been no significant nearby industry or other obvious sources of pollution.
Foundations & Floor Slabs	The borehole investigation identifies shallow made ground overlying clay of variable strength. A piled solution supporting a balanced beam ground beam layout is proposed. Ground floors should be suspended beam & block or in-situ concrete.
Soakaways	In view of the cohesive nature of the underlying drift geology, soakaways are not considered to be a viable drainage solution, due to impermeability.
Ground Gas	Ground gas monitoring is ongoing and will be subject to an addendum report.
Contamination Assessment	Chemical testing has been undertaken on site soil samples revealing no elevated levels of contamination.
Waste Disposal	Due to an absence of elevated levels of contamination, any waste removed from site is likely to be treated as non-hazardous.

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1. INTRODUCTION

Appointment

Carley Daines & Partners has been commissioned by MSV Housing to undertake a combined Phase 1 & Phase 2 Site Investigation on the proposed development of land at 1468 Ashton Old Road, Openshaw, M11 1HH. The report is intended to support a Planning Application for proposed re-development and highlight any environmental constraints, together with recommendations for foundation design and construction.

Proposed Development

Preliminary plans that have been made available indicate a future development of a single property on a small plot of land between the existing properties 1466 and 1470 Ashton Old Road.

Objectives of Report

The objectives of this report are to identify any potential constraints to the proposed re-development with respect to contaminated land and previous land use. The report also advises on the findings of geotechnical and environmental ground investigations of the site and supports a Planning Application for the proposed re-development.

Scope of Report

The scope of activities included in the production of this study are:

- Assessment of geo-environmental information
- Assessment of coal mining history
- Assessment of historical and current mapping to determine past land use
- Production of a preliminary conceptual site model
- Recommendations for foundation and environmental design based on intrusive ground investigations

Previous Investigations

No previous investigations have been undertaken on the site to the best of our knowledge. If they have, they have not been made available to us.

Sources of Information

The following sources of information have been used in the compilation of this report:

- Ordnance Survey Maps at various scales
- Site Specific Environmental Information
- Historical mapping provided by Envirocheck
- Coal Authority Reports

2. SITE LOCATION AND DESCRIPTION

Site Location

The site location and description are summarised in Table 1 below.

Table 1 – Site Description

Site Location	The site is located on the south side of Ashton Old Road, Openshaw, Manchester approximately 6km east of Manchester City Centre.	
Site Description	The site is rectangular in shape, with maximum dimensions of approximately 32m in the north - south direction, and 5.5m in the east - west direction. The site sits between existing terraced housing.	
Grid Reference	NGR 389790,397320	
Site Area	170m ² (0.017 hectares). The mean site level is approx. 89m AOD.	
Site Setting & Description	Current land use:	The site is presently undeveloped and is a vacant plot of land between existing terraced housing.
	Surrounding area:	The area comprises mainly older terraced housing with mixed commerce, retail and significant open spaces.

Site location and proposed site layout plans are presented in Appendices 1 and 7.

Site History

This study has been based upon published plans at a scale of 1:10,560 (1:10,000) and 1:2,500.

Earliest published plans are from the Lancashire and Furness Series of 1848.

Table 2 – Summary of Land Use		
Date	Site Land Use	Adjacent Land Use
1848	The site presents as undeveloped land presumed to be in agricultural use.	The surrounding area is also largely undeveloped with land largely open fields. Ashton Old Road is indicated as well as a railway line 250m to the south.
1894	The site appears undeveloped.	Terraced housing has been built to either side & to the north side of Ashton Old Road. Land to the south appears as fields.
1909	The site remains undeveloped.	Significant development of terraced housing in the area. Land to the south indicated as a recreation ground.
1933	The site remains undeveloped.	No significant changes.
1950	The site remains undeveloped.	No significant changes.
1958	The site remains undeveloped.	No significant changes.
1979	The site remains undeveloped.	No significant changes.
1984	The site remains undeveloped.	No significant changes.
1992	The site remains undeveloped.	No significant changes.
1999	The site remains undeveloped.	No significant changes.
2006	The site remains undeveloped.	No significant changes.
2023	The site remains undeveloped.	No significant changes.

Site Summary

The following tables summarise the potential for site contamination because of on-site & nearby historical activities:

Table 3 – On-Site History		
Potentially Contaminative Past Uses	Map Date	
	From	To
None other than possible small scale waste disposal & fly tipping.	1848	2023

Table 4 – Off Site History (Within 250metres)		
Potentially Contaminative Past Uses	Map Date	
	From	To
Agriculture	1848	1900
Railway	1848	2023
Housing	1894	2023
Mixed commerce and retail	1894	2023

3. ENVIRONMENTAL INFORMATION

In compiling this section, environmental, geological and other reports produced by Envirocheck were reviewed. Copies of these reports are presented in Appendix 5. A summary of the environmental setting is provided in Table 5 below.

Table 5 – Summary of Environmental Information

Made Ground	There is no Made Ground on site, nor any significant Made or Worked Ground within approximately 500m. There is a railway cutting 250m to the south.
Drift Geology	On Site: This is indicated as Devensian Till (Diamicton).
	Off Site: Devensian Till (Diamicton)
Solid Geology	On Site: Collyhurst Sandstone
	Off Site: Collyhurst Sandstone
Faults	No nearby watercourses.
Hydrology	The site is indicated as a being above a Principal Bedrock Aquifer.
Hydrogeology	None within 500m.
Water Abstractions	None.
Source Protection Zones	The site is not at risk of flooding & is located in FZ1.
Flood Risk	None.
Environmental Incidents	None within 500m.
Mineral and Coal Extraction	The site is outside a known coal mining area.
Brine Compensation	The site is not within a known brine compensation area

Radon Gas	The site is in a lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). No radon protective measures are necessary in the construction of new dwellings.
Hazardous Installations	There are no obvious hazardous installations within 500m of the site.
Potentially Contaminative Land Uses	There are no current indicated significant contaminative land uses within 250m of the site. There are two recorded historical landfill site within 500m & a further four within 1000m.
Shrinking/Swelling of Clay	Very low risk.
Landslip	Very low risk
Running Sands	Very low risk.
Compressible Deposits	No risk.
Collapsible Deposits	Very low risk.
Soil Chemistry	Data has been obtained for a variety of potential contaminants, specifically arsenic, cadmium, chromium, lead and nickel. The data supplied indicates that there is relatively low risk of significant concentrations of these potential contaminants. However, there may be localised exceedances that are unrecorded.

4. ENVIRONMENTAL RISK ASSESSMENT

Preliminary Conceptual Site Model

A conceptual site model (CSM), which supports the identification and assessment of contamination-pathway-receptor pollutant linkages, is integral to the overall process of risk assessment. A CSM provides a foundation for hazard identification and risk estimation. For a risk to be present, all three components of an identified pollutant linkage must be present. The potential risks have been assessed with respect to the most sensitive land use, which is deemed to be residential, with plant and vegetable uptake.

Risk estimation is based upon consideration of magnitude, probability, and consequence of a contaminant-pathway-receptor linkage occurring. This is in line with best practice and guidance described in CLR11.

Possible Sources of Contamination

On Site

It is unlikely that there is significant potential for contamination as the site has not been subject to any historical industrial or commercial use. However, there remains the slight possibility of contamination from fly tipping or other unknown forms of waste disposal.

Off site

There are potential sources of contamination from off-site activities though no significantly polluting former industry appears to have been carried out close to site.

Possible Pathways

In our assessment of potential exposure pathways, we have identified a residential land use scenario as housing is proposed. The potential exposure pathways identified are:

- Ingestion of soil and dust;
- Dermal contact with soil and dust;
- Inhalation of dust (on and off site);
- Inhalation of outdoor vapours;
- Inhalation of indoor vapours;
- Migration of mobile contaminants in groundwater.

Potential Receptors

With respect to the proposed development for residential usage, the following potential receptors are considered:

- Site users (residents and visitors);
- Future site users;
- Construction workers;
- Site structures & infrastructure;
- Drinking water supplies;
- Secondary Aquifer.

A summary of the potential pollutant linkages is presented as a CSM in the following Table 6.

Preliminary Risk Assessment, 1468 Ashton Old Road, Openshaw, M11 1HH

Table 6 - Conceptual Site Model

Potential Source	Potential Pathways	Potential Receptor	Comments	Risk
On-site contamination (Heavy Metals, PAHs, TPH, Asbestos & pH)	Ingestion Dermal Contact Inhalation	Human Health - Site Users, Maintenance Staff, Contractors	Unlikely risk of significant contamination due to no previous historical development. Water supply unlikely to be affected.	Low
	Direct Contact	On-site structures, Water pipes		
	Migration of contamination to groundwater	Local Water Courses, Underlying Aquifer	No previous historical development & principal aquifer protected by impermeable clay strata.	Very Low
Off-site contamination	Ingestion Dermal Contact Inhalation	Human Health - Site Users Maintenance Staff Contractors	No significant risk identified.	Low
	Direct Contact	Off-site Structures Water Pipes		
	Migration of contamination to groundwater	Underlying Aquifer	Principal aquifer protected by impermeable clay strata.	Very Low
Ground gas contamination.	Migration through permeable strata	Human Health, On-site Structures	No significant nearby made ground or landfill.	Low
Coal Mining	Workings close to surface	Buildings, roads & services	Site outside a coal mining area.	No risk

5.0 SITE INVESTIGATION

Rationale

- 5.1 Intrusive investigations were undertaken primarily to provide geotechnical parameters for structural design purposes, and to verify the preliminary site conceptual model and confirm the anticipated environmental risk.
- 5.2 Two boreholes were sunk to provide geotechnical information on near surface deposits and to provide samples for chemical and geotechnical analysis.
- 5.3 A single trial pit was excavated to provide a further soil sample & also visual and olfactory assessment.
- 5.4 A general suite of contaminant testing was undertaken on selected samples of soil to confirm the contamination levels, and where applicable to establish the chemical suitability of soils for possible re-use within the development.

Intrusive Works

- 5.5 Ground investigation work was undertaken by Mini Soil Surveys, acting under our direct control and supervision. The work comprised the sinking of two boreholes to a maximum depth of 4.5m, and the excavation of a trial pit to a depth of 0.8m. Work was undertaken in September 2023.
- 5.6 The borehole and trial pit records are presented in Appendix 2 of this report.

Geotechnical and Chemical Testing

- 5.7 In-situ geotechnical testing was undertaken at regular intervals during the formation of the boreholes in the form of SPT tests, and shear vane tests.
- 5.8 The results of the soil sample chemical testing are presented in Appendix 3.

5.9 Chemical analysis was undertaken on selected soil samples for the following contaminants of concern:

- Metals (Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium and Zinc).
- PAH (USEPA16)
- TPH (Aromatic & Aliphatic)
- Asbestos screening and identification
- pH and Sulphate concentration
- Monoaromatics & Oxygenates

6.0 GROUND CONDITIONS

Stratigraphy

6.1 Ground conditions encountered during the intrusive investigation generally confirmed those identified in the published geological plans and in summary comprise Made Ground overlying cohesive Glacial Till (sandy Clay).

Made Ground

6.2 Made Ground was encountered in the boreholes from ground level to depths ranging from 0.5m to 0.7m. The Made Ground generally comprised topsoil, gravel, cinders brick fragments and roots.

6.3 Made Ground was generally found to be very weak and poorly compacted.

6.4 The horizon between Made Ground and Glacial Till is clearly defined.

6.5 The Made Ground has not been subject to geotechnical testing, as it is unsuitable for use as a foundation bearing strata.

Glacial Till (Sandy Clay)

6.6 The Made Ground is underlain by cohesive Glacial Till, being described as firm to soft becoming firm to stiff to very stiff very stiff sandy Clay, with thin sand bands.

6.7 SPT N values in the Glacial Till range from N=5 to N=35. The SPT N values generally confirm a significantly varied consistency.

6.8 Shear vane testing yielded C_u values of 140kN/m² at depths of 1.7m and 2.9m.

Visual/Olfactory Evidence of Contamination

6.9 No visual or olfactory evidence of significant ground contamination was identified during the investigation.

Existing Foundations

6.10 The investigation did not encounter or expose any existing structural foundations.

Groundwater

6.11 Standing water was encountered in both boreholes at depths of 1.3m and 1.9m on completion.

6.12 Variations could potentially occur in the long-term water regime due to seasonal and temperature differences.

General

6.13 It should be appreciated that ground conditions could vary between and away from the exploratory borehole positions, and due allowance should be made in this respect.

7.0 GEOTECHNICAL APPRAISAL

Site Preparation and Earthworks

7.1 At commencement, appropriate soil stripping and stock piling should be undertaken. A further visual check should be carried out for any evidence of significant contamination away from areas previously examined and tested.

- 7.2 There appears to have been no previous significant historical development, and therefore the possibility of relic foundations and/or basements being uncovered is regarded as very low.
- 7.3 However, should any such hardstanding be encountered below existing ground level, this could be appropriately crushed and may be suitable for re-use as infill beneath hard cover areas.
- 7.4 Appropriate sorting and segregating of such excavated materials will ensure that selected material is suitable for use as bulk fill in remaining areas.
- 7.5 There are no significant level variations across the site.
- 7.6 Any existing trees that are to remain will need to be protected from the effects of site preparation and construction activities. In particular, tree roots may need to be protected during excavations for foundations and drainage, and specialist advice, if required, should be sought in this respect.

Foundations

- 7.7 Made Ground and underlying incompetent natural strata should be considered unsuitable for the direct support of structural loads, as it may be loose and soft, which could result in unacceptable and differential settlements.
- 7.8 Borehole 1 has identified soft clay at depth and in view of this it is recommended that the most appropriate foundation solution would be the use of piles linked to the superstructure using reinforced concrete ground beams.
- 7.9 Where foundations are to be constructed in close proximity to existing and /or removed trees, identification of the tree species will determine its water demand as provided in Appendix 4.2 - A of NHBC Standards 2010, Foundations, Chapter 4.2, Building near Trees. Assessment of the effects (if any) of tree influence on pile heads & ground beams should be considered.
- 7.10 In view of the closeness of existing buildings, and in order to avoid surcharging (loading) of existing foundations, it is recommended that piles are kept away from existing buildings by designing a balanced beam arrangement, cantilevering outwards to support party wall ground beams.

Floor Slabs

- 7.11 It is recommended that floor slabs should be suspended, either precast beam and block or suspended cast in-situ.

Excavations and Ground Water

- 7.12 Groundwater has been identified in the boreholes though this is likely to be "perched" and the presence of significant volumes of groundwater inflow into excavations is not anticipated. Conventional 'sump and pump' dewatering measures should be adequate to keep excavations dry.
- 7.13 Excavations will be possible with the use of conventional hydraulic plant and will need to be appropriately supported for safe man entry, and also if they occur in proximity to existing site boundaries and the highway.

Concrete Design

- 7.14 Design/mix of concrete should be undertaken in accordance with the "Aggressive Chemical Environment for Concrete" (ACEC) classification, of BRE Special Digest 1:2005 (Concrete in Aggressive Ground). With reference to the site history, it is deemed necessary to classify the site as "Brownfield", with respect to the BRE Special Digest.
- 7.15 The results of Sulphate tests (water sol 2:1) are no greater than 0.02 g/l. Values of pH range from 7.2 to 8.0.
- 7.16 On the basis of the chemical test results, the design sulphate (DS) and "Aggressive Chemical for Concrete" (ACEC) class for the site are DS-1 and AC-1s respectively.

Drainage and Soakaways

- 7.17 Consideration has been given to the feasibility of on-site soakaways for surface water drainage. Due to the cohesive strata encountered, and therefore impermeable nature of the underlying natural soils, soakaways are not considered to be viable for the new development.

8.0 GENERIC QUANTITATIVE RISK ASSESSMENT (GQRA)

General

- 8.1 A review of the PRA information has concluded that due to lack of previous development, the potential for a significant pollution linkage should be considered to be Low.
- 8.2 Further to this, no visual or olfactory evidence of significant ground contamination was recorded during the ground investigation.
- 8.3 However, it has been considered prudent to adopt a precautionary principle and undertake chemical analysis on the sub-surface soils to confirm the human health risk status of the site.

Human Health

- 8.4 Selected samples have been analysed for a general suite of contaminants of concern and compared against Generic Assessment Criteria (GAC) for human health to determine the significance of the measured concentrations in relation to the site conceptual model.
- 8.5 The GAC used in the assessment primarily comprised values extracted from current S4UL and C4SL guidance based on a most conservative case of "Residential Homegrown Produce with 1% SOM"

Soil Test Results

- 8.6 A total of three soil samples were analysed for a suite of Metals, Semi-Metals, PAH and TPH as well as asbestos screening. All test results fall below the relevant defined GAC, with most far below.
- 8.7 No asbestos was identified.

Conclusions

- 8.8 There are no elevated levels of contamination based on the sampling / testing procedure.

- 8.9 The potential for higher or differing levels of contamination exists on site away from sample positions and therefore a watching brief should be maintained to record any unexpected or obviously elevated levels of additional contamination.
- 8.10 If any material is imported to site for soft landscaping and gardens, then appropriate testing to verify cleanliness and suitability would need to be undertaken.
- 8.11 The nature of the ground conditions encountered are such that they are not considered to be volatile and are not considered to be a potential risk to human health through inhalation of indoor or outdoor air. No special requirements are therefore considered in this respect.

9.0 OTHER POTENTIAL DEVELOPMENT CONSIDERATIONS

Waste Soil Characterisation

- 9.1 Excavation works undertaken during the development will produce waste soils for which appropriate waste management will be required. In line with current principles, any waste soils should be considered for re-use where possible by incorporation into the development.
- 9.2 Site-won granular Made Ground may be re-used as bulk fill, subject to engineering suitability, under proposed hardstanding and capped off using compacted granular fill.
- 9.3 Waste arisings comprising uncontaminated natural soil would be suitable, subject to confirmation of suitability for re-use as sub-soil with any planned landscaped areas.
- 9.4 On the basis of current information, any material removed from site would not be classified as hazardous waste.
- 9.5 Any imported fill such as topsoil, will be subject to specific quality requirements. Allowance should be made for testing imported fill materials prior to emplacement to ensure suitability.

Water Supply Pipes

- 9.6 United Utilities will need to be consulted with regards to the selection of suitable water supply pipe materials for the development, though evidence at this stage suggests that standard non-protective piping would be suitable.

10.0 GROUND GAS ASSESSMENT

- 10.1 Ground gas monitoring is ongoing and will be subject to a future Addendum Report.

SIGNED (electronically)

C. R. Carley JP MSc CEng MICE - Consultant

APPROVED (electronically)

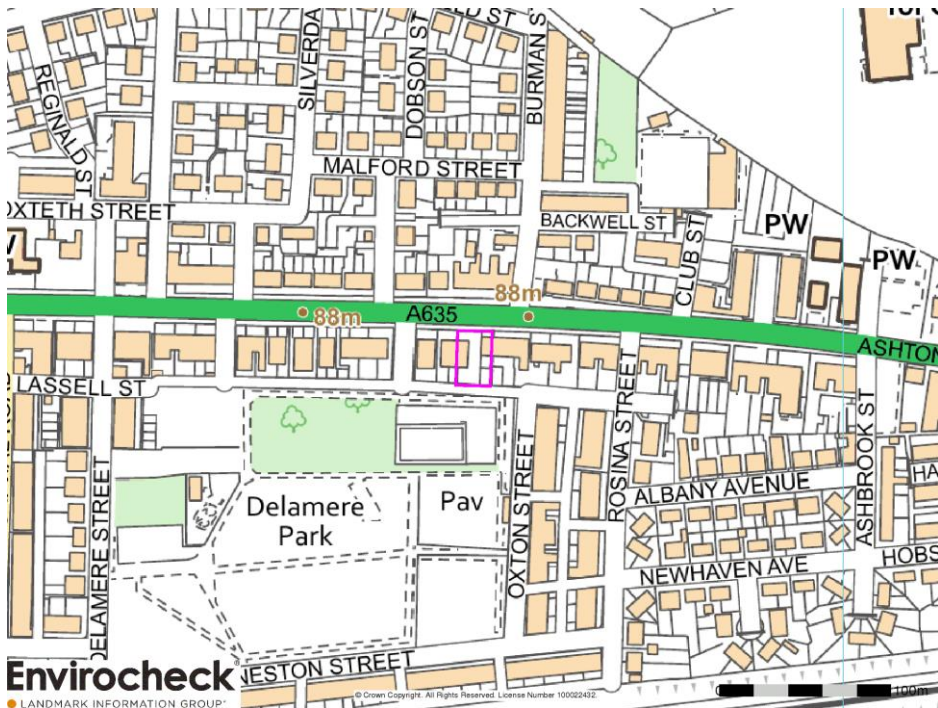
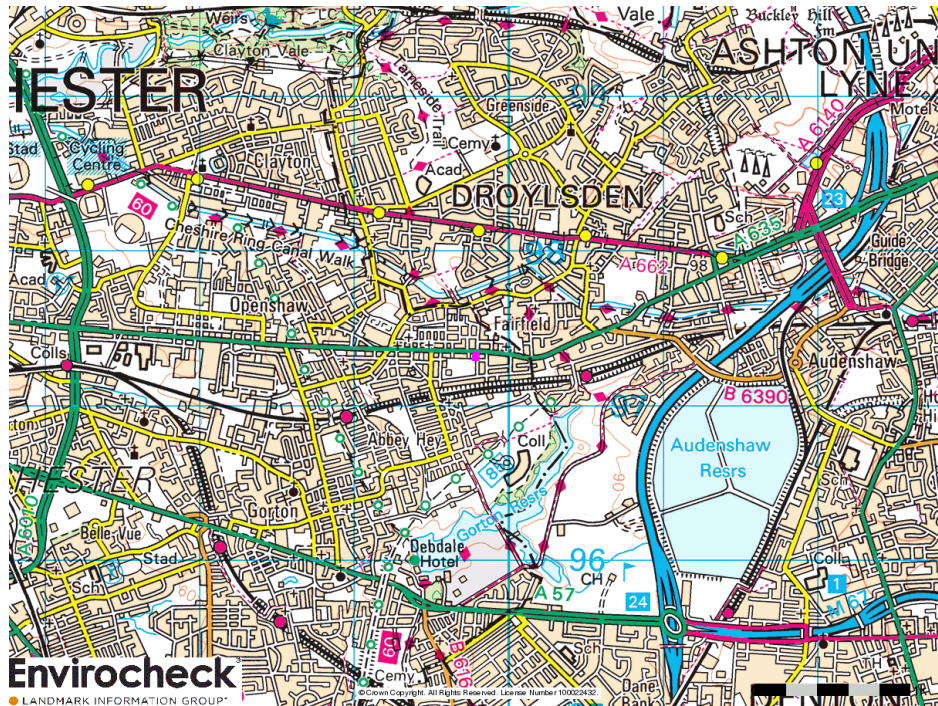
D. J. Middleton BEng (Hons) CEng MStructE - Principal

APPENDIX 1

SITE LOCATION PLAN

1468 Ashton Old Road, Openshaw, Manchester M11 1HH

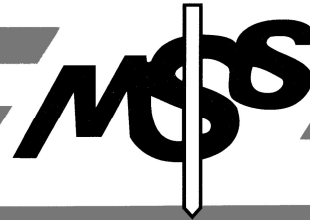
NGR 389970, 397320



APPENDIX 2

GEOTECHNICAL LOGS

MINI • SOIL • SURVEYS



Mini Soil Surveys North Ltd Unit 30 Atlantic Street Broadheath WA15 5NQ

Tel: 01619800044

Job Number: NOT00063

Borehole No: 1 of 2

Fax:

Site: 1468 Ashton Old Road, Openshaw

Crew: A

Date Drilled: 20/09/2023

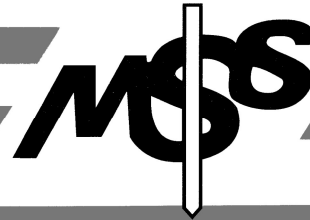
Description	Depth	Leg	Test Depth	Type	Value
Vegetation overlying very compact grey/reddish brown sand, gravel and brick rubble with concrete pieces, MADE GROUND.			0.20	DS	
Stiff dark brown occasionally grey sandy slightly organic clay with fine gravel, clnders and brick fragments, MADE GROUND.	0.30				
Stiff light brown/brown sandy CLAY.	0.70				
Firm becoming firm to soft dark grey becoming blue/grey slightly ORGANIC CLAY with some fibres. Wet sand band at 2.1m.	1.05		1.00	DS	
			1.20	SPT	N=7
			1.80	SPT	N=5
Firm to stiff becoming very stiff brown occasionally brown/grey mottled laminated CLAY with some fine gravel.	2.40		2.40	SPT	N=14
			2.90	SV	Cu=140kN/m2
			3.00	DS	
			3.60	SPT	N=29
End of Hole	4.50				

SPT's @ 1.2m 3/2/2,2,1,2 @ 1.8m 1/2/1,1,2,1 @ 2.4m 2/2/3,3,3,5 @ 3.6m 7/7/6,7,8,8
 Disturbed samples taken at 0.2m-1.0m, 1.0m-2.0m, 3.0m-4.0m
 Water encountered at 2.1m. Standing water at twenty minutes was at 2.0m.
 Standing water on completion of the borehole was at 1.9m

*Borehole converted to Gas Monitoring stand pipe.

Key: SPT (Standard Penetration Test), DS (Disturbed Sample), SV (Shear Vane)

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Mini Soil Surveys North Ltd Unit 30 Atlantic Street Broadheath WA15 5NQ

Tel: 01619800044

Job Number: NOT00063

Borehole No: 2 of 2

Fax:

Site: 1468 Ashton Old Road, Openshaw

Crew: A

Date Drilled: 20/09/2023

Description	Depth	Leg	Test Depth	Type	Value
Dense vegetation overlying loose dark brown sandy soil with ash, cinders, mixed gravel, occasional brick fragments and roots, MADE GROUND. Becoming wet at 0.4m.			0.20	DS	
Firm to stiff becoming very stiff, brown/grey mottled becoming brown, sandy CLAY with some fine gravel and some thinly bedded medium spaced fine to medium sand bands becoming noticeable from 2.6m.	0.50		1.00	DS	
			1.20	SPT	N=14
			1.70	SV	Cu=140kN/m2
			1.80	SPT	N=17
			2.00	DS	
			2.40	SPT	N=35
End of Hole	3.50				

SPT's @ 1.2m 3/3/3,4,3,4 @ 1.8m 4/5/4,4,4,5 @ 2.4m 7/8/8,9,9,9
 Disturbed samples taken at 0.2m-1.0m, 1.0m-2.0m, 2.0m-3.0m
 Water encountered at 0.4m. Standing water at twenty minutes was at 0.3m.
 Standing water on completion of the borehole at 1.3m.

*Borehole converted to Gas Monitoring stand pipe.
 Key: SPT (Standard Penetration Test), DS (Disturbed Sample), SV (Shear Vane)

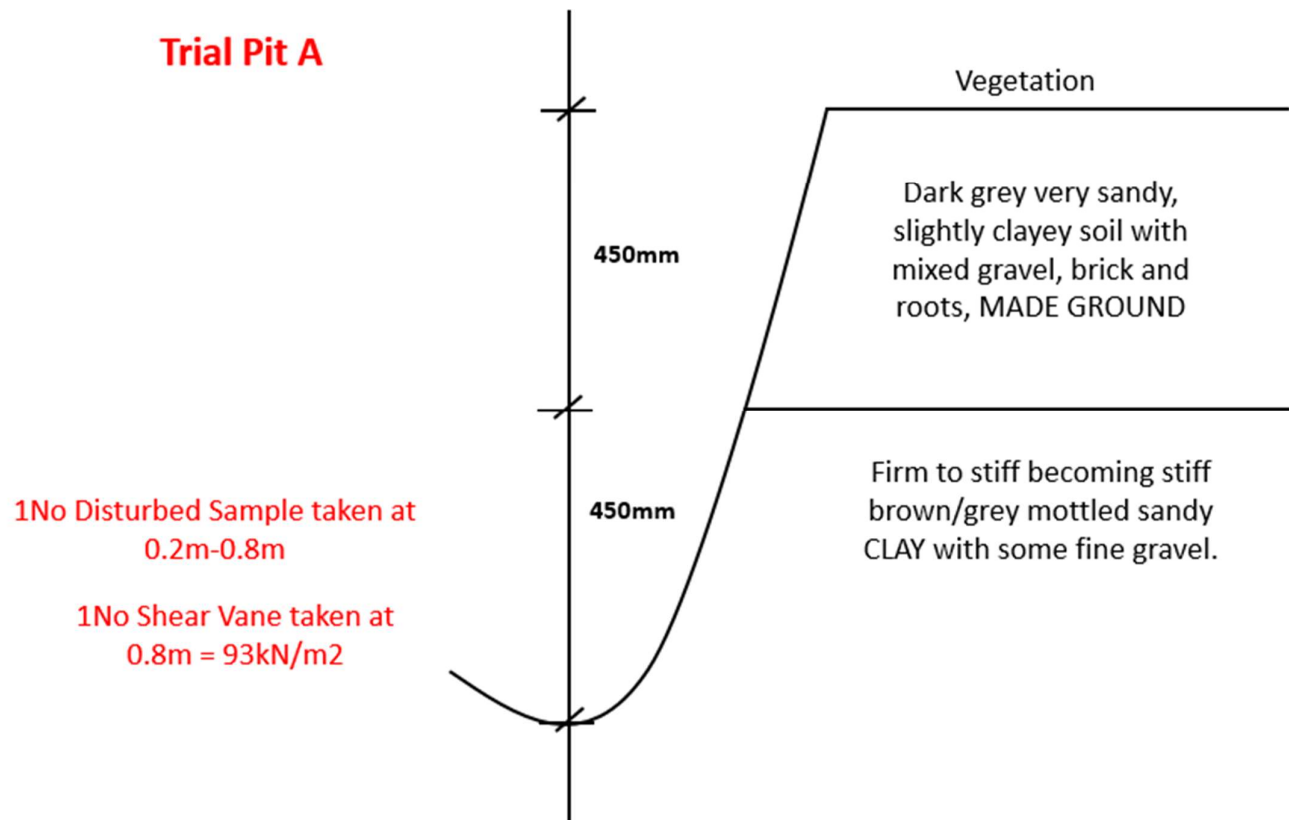
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MINI SOIL SURVEYS (NORTH) LTD

Unit 30 Atlantic Business Centre, Atlantic Street, Broadheath, WA15 5NQ Tel: 0161 980 0044



Trial Pit A



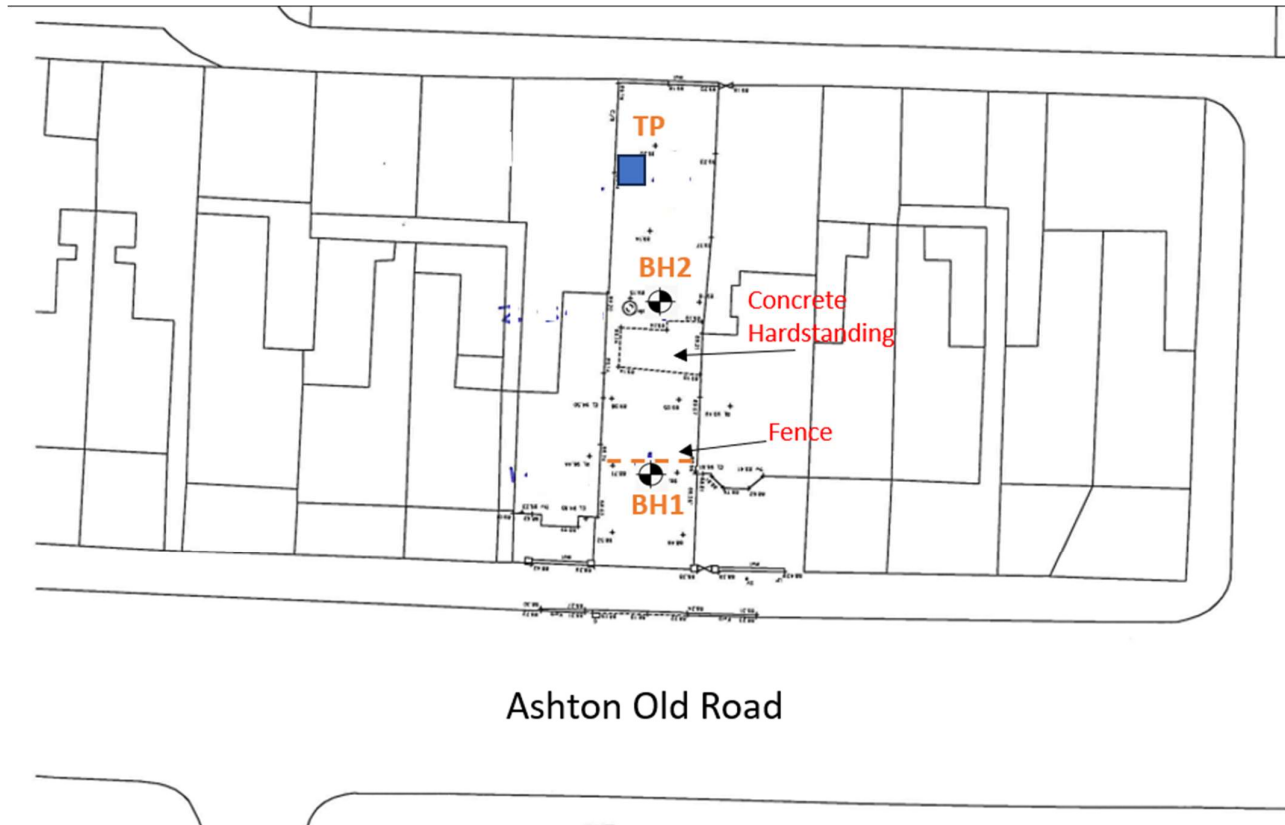
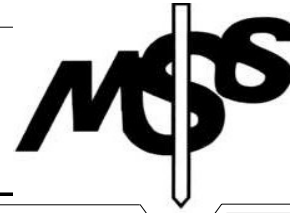
Trial Pit: 1468 Ashton Old Road, Openshaw Job No. NOT 00063

Keyplan dimensions are in metres (BH. = Borehole TP. = Trial Pit)

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MINI SOIL SURVEYS (NORTH) LTD

Unit 30 Atlantic Business Centre, Atlantic Street, Broadheath, WA15 5NQ Tel: 0161 980 0044



Keyplan: 1468 Ashton Old Road, Openshaw Job No. NOT 00063

Keyplan dimensions are in metres (BH. = Borehole TP. = Trial Pit)

APPENDIX 3

CHEMICAL TEST RESULTS

APPENDIX 4

ASSESSMENT CRITERIA FOR SOIL CONTAMINATION

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 23/09685
Issue Number: 1

Date: 06 October, 2023

Client: Carley Daines and Partners Limited
11 Bridgewater Road
Manchester
Worsley
M28 3JE

Project Manager: David Middleon
Project Name: Ashton Old Road
Project Ref: 13881
Order No: 13881
Date Samples Received: 28/09/23
Date Instructions Received: 29/09/23
Date Analysis Completed: 06/10/23

Approved by:



Gemma Berrisford
Deputy Client Services Supervisor

Envirolab Job Number: 23/09681

Client Project Name: Ashton Old Road

Client Project Ref: 13881

Lab Sample ID	23/09685/1	23/09685/2	23/09685/3				HWOL Report Acronym	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH1	BH2	TPA							
Depth to Top	0.20	0.20	0.20							
Depth To Bottom	1.00	1.00	1.00							
Date Sampled										
Sample Type	SOIL	SOIL	SOIL							
Sample Matrix Code	6AB	3	6A							
% Stones >10mm _A	17.5	<0.1	<0.1					% w/w	0.1	A-T-044
pH _D ^{M#}	7.99	7.64	7.18					pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.02	0.01	<0.01					g/l	0.01	A-T-026s
Arsenic _D ^{M#}	2	5	20					mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.7	0.6	0.8					mg/kg	0.5	A-T-024s
Copper _D ^{M#}	18	30	55					mg/kg	1	A-T-024s
Chromium _D ^{M#}	20	28	26					mg/kg	1	A-T-024s
Lead _D ^{M#}	26	34	97					mg/kg	1	A-T-024s
Mercury _D	0.57	<0.17	<0.17					mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	19	22	27					mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1					mg/kg	1	A-T-024s
Zinc _D ^{M#}	44	50	164					mg/kg	5	A-T-024s

Envirolab Job Number: 23/09681

Client Project Name: Ashton Old Road

Client Project Ref: 13881

Lab Sample ID	23/09685/1	23/09685/2	23/09685/3				HWOL Report Acronym	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH1	BH2	TPA							
Depth to Top	0.20	0.20	0.20							
Depth To Bottom	1.00	1.00	1.00							
Date Sampled										
Sample Type	SOIL	SOIL	SOIL							
Sample Matrix Code	6AB	3	6A							
Asbestos in Soil (inc. matrix)										
Asbestos in soil _D [#]	NAD	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							A-T-045

Envirolab Job Number: 23/09681

Client Project Name: Ashton Old Road

Client Project Ref: 13881

Lab Sample ID	23/09685/1	23/09685/2	23/09685/3				HWOL Report Acronym	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH1	BH2	TPA							
Depth to Top	0.20	0.20	0.20							
Depth To Bottom	1.00	1.00	1.00							
Date Sampled										
Sample Type	SOIL	SOIL	SOIL							
Sample Matrix Code	6AB	3	6A							
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	0.04	0.10					mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	0.01					mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	0.06	0.16					mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	0.28	0.78					mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	0.21	0.55					mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	0.27	0.71					mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	0.10	0.25					mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	0.09	0.25					mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	0.33	0.90					mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A	<0.04	<0.04	0.08					mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	0.53	1.60					mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	0.03	0.06					mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	0.11	0.28					mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03					mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03	0.28	0.84					mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07	0.51	1.54					mg/kg	0.07	A-T-019s
Total PAH-16MS _A	<0.08	2.84	8.11					mg/kg	0.01	A-T-019s

Envirolab Job Number: 23/09681

Client Project Name: Ashton Old Road

Client Project Ref: 13881

Lab Sample ID	23/09685/1	23/09685/2	23/09685/3				HWOL Report Acronym	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH1	BH2	TPA							
Depth to Top	0.20	0.20	0.20							
Depth To Bottom	1.00	1.00	1.00							
Date Sampled										
Sample Type	SOIL	SOIL	SOIL							
Sample Matrix Code	6AB	3	6A							
TPH CWG with Clean Up										
Ali >C5-C6 _A	<0.01	<0.01	<0.01				HS_MS_1D_AL	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A	<0.01	<0.01	<0.01				HS_MS_1D_AL	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1				EH_2D_AL_#1	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1				EH_2D_AL_#1	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1				EH_2D_AL_#1	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	<1	1				EH_2D_AL_#1	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	5	3	8				EH_2D_AL_#1	mg/kg	1	A-T-055s
Total Aliphatics _A	5	3	9				HS_MS_1D+EH_2D_AL_#1	mg/kg	1	Calc-As Recd
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01				HS_MS_1D_AR	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01				HS_MS_1D_AR	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<2	<2	<2				EH_2D_AR_#1	mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1				EH_2D_AR_#1	mg/kg	1	A-T-055s
Aro >C12-C16 _A ^{M#}	2	3	6				EH_2D_AR_#1	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	6	10	24				EH_2D_AR_#1	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	20	33	74				EH_2D_AR_#1	mg/kg	1	A-T-055s
Total Aromatics _A	27	45	104				HS_MS_1D+EH_2D_AR	mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35) _A	32	48	113				HS_MS_1D+EH_2D_Total_#1	mg/kg	1	Calc-As Recd
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<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 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 **six 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.
 The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client.
 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.

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 "A"	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
N/A	Not applicable

Asbestos

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
 Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing, and fibre counting by sedimentation/phase contrast optical microscopy if required. 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) quantification by sedimentation is performed. 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.

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°C / 11550µS/cm @ 20°C fall outside the accreditation range and as such are unaccredited.

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

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Carley Daines and Partners Limited, 11 Bridgewater Road, Manchester, Worsley, M28 3JE
Project: Ashton Old Road
Clients Project No: 13881
Project No: 23/09685
Date Received: 29/09/2023 (am)
Cool Box Temperatures (°C): 17.0

Lab Sample ID	23/09685/1	23/09685/2	23/09685/3
Client Sample No			
Client Sample ID/Depth	BH1 0.20-1.00m	BH2 0.20-1.00m	TPA 0.20-1.00m
Date Sampled			
Deviation Code			
E (no date)	✓	✓	✓

Key
E (no date) No sampling date provided (all results affected if not provided)

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 $5 \pm 3^{\circ}\text{C}$), 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	23/09685/1	23/09685/2	23/09685/3
Client Sample No			
Client Sample ID/Depth	BH1 0.20-1.00m	BH2 0.20-1.00m	TPA 0.20-1.00m
Date Sampled			
A-T-019s	06/10/2023	06/10/2023	06/10/2023
A-T-022s	05/10/2023	05/10/2023	05/10/2023
A-T-024s	05/10/2023	05/10/2023	05/10/2023
A-T-026s	05/10/2023	05/10/2023	05/10/2023
A-T-031s	04/10/2023	04/10/2023	04/10/2023
A-T-044	05/10/2023	05/10/2023	05/10/2023
A-T-045	02/10/2023	02/10/2023	02/10/2023
A-T-055s	05/10/2023	05/10/2023	05/10/2023
Calc-As Recd	05/10/2023	05/10/2023	05/10/2023

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 5

HISTORICAL PLANS & ENVIRONMENTAL DATA

Generic Assessment Criteria for Human Health Risk Assessment Comparison

METALS/CYANIDE

Based on sandy loam soil as defined in SR3 (Environment Agency, 2009) and based on 6% soil organic matter (SOM)

Values are expressed in mg/kg

	S4UL						C4SL						EA SGV			EIC/AGS/CL:AIRE or *ATRISKSOIL		
	Residential with homegrown produce	Residential without homegrown produce	Allotment	Commercial	POSresi	POSpark	Residential with homegrown produce	Residential without homegrown produce	Allotment	Commercial	POSresi	POSpark	Residential	Allotment	Commercial	Residential without consumption of homegrown produce	Allotment	Commercial
Antimony ¹																550	ND	7500
Arsenic (6% SOM)	37	40	43	640	79	170	37	40	49	640	79	170	32	43	640			
Barium ¹																1300	ND	22000
Beryllium (6% SOM)	1.7	1.7	35	12	2.2	63												
Boron (6% SOM)	290	11000	45	240000	21000	46000												
Cadmium (6% SOM)	11	85	1.9	190	120	560	22	150	3.9	410	220	880	10	1.8	230			
Chromium (III) (6% SOM)	910	910	18000	8600	1500	33000												
Chromium (VI) (6% SOM)	6	6	1.8	33	7.7	220	21	21	170	49	21	250						
Copper (6% SOM)	2400	7100	520	68000	12000	44000												
Cyanide (AtriskSoil)																34*	34*	34*
Lead (6% SOM)							200	310	80	2300	630	1300						
Nickel (6%SOM)	130	180	53	980	230	800												
Mercury (Elemental) (6% SOM)	1.2	1.2	21	58	16	30							1.0	26	26			
Mercury (Inorganic) (6% SOM)	40	56	19	1100	120	240							170	80	3600			
Mercury (Methyl) (6% SOM)	11	15	6	320	40	68							11	8	410			
Molybdenum ¹																670	ND	17000
Selenium (6% SOM)	250	430	88	12000	1100	1800							350	120	13000			
Vanadium (6% SOM)	410	1200	91	9000	2000	5000												
Zinc (6% SOM)	3700	40000	620	730000	81000	170000												

Additional notes for EIC/AGS/CL:AIRE GAC

1 Due to the limitations in time and scope of the EIC/AGS/CL:AIRE project, plant uptake factors were not derived for metals and therefore the metals GAC have only been produced for residential without consumption of homegrown produce and commercial land-uses. Note that the derived GAC are not dependent on SOM.

Based on sandy loam soil as defined in SR3 (Environment Agency, 2009) and 1%, 2.5% and 6% soil organic matter (SOM).
SGVs based on 6% SOM, at a lower SOM the SGV may not be sufficiently protective.
Generic assessment criteria for Petroleum Hydrocarbons will vary according to SOM for all land values
Values are expressed in mg/kg
GACs assume that free phase contamination is not present
GACs are based on sub-surface soil to indoor air correction factor of 10

Compound	S4UL		Allotment	Commercial	POSresi	POSpark	C4SL		Allotment	Commercial	POSresi	POSpark	EA SGV			EIC/AGS/CL:AIRE		
	Residential with homegrown produce	Residential without homegrown produce					Residential with homegrown produce	Residential without homegrown produce					Residential	Allotment	Commercial	Residential with consumption of homegrown produce	Residential without consumption of homegrown produce	Allotment
Aliphatic EC 5-6 (1% SOM)	42	42	730	3200 (340)	570000 (304)	95000 (304)												
Aliphatic EC 5-6 (2.5% SOM)	78	78	1700	5900 (558)	590000	130000 (558)												
Aliphatic EC 5-6 (6% SOM)	160	160	3900	12000 (1150)	600000	18000 (1550)												
Aliphatic EC>6-8 (1% SOM)	100	100	2300	7800 (144)	600000	150000 (144)												
Aliphatic EC>6-8 (2.5% SOM)	230	230	5600	17000 (322)	610000	220000 (322)												
Aliphatic EC>6-8 (6% SOM)	530	530	13000	40000 (736)	620000	320000 (736)												
Aliphatic EC>8-10 (1% SOM)	27	27	320	2000 (78)	13000	14000 (78)												
Aliphatic EC>8-10 (2.5% SOM)	65	65	770	4800 (190)	13000	18000 (190)												
Aliphatic EC>8-10 (6% SOM)	150	150	1700	11000 (451)	13000	21000 (451)												
Aliphatic EC>10-12 (1% SOM)	130 (48)	130 (48)	2200	9700 (48)	13000	21000 (48)												
Aliphatic EC>10-12 (2.5% SOM)	330 (118)	330 (118)	4400	23000 (118)	13000	23000 (118)												
Aliphatic EC>10-12 (6%SOM)	760 (283)	770 (283)	7300	47000 (283)	13000	24000 (283)												
Aliphatic EC>12-16 (1% SOM)	1100 (24)	1100 (24)	11000	59000 (24)	13000	25000 (24)												
Aliphatic EC>12-16 (2.5% SOM)	2400 (59)	2400 (59)	13000	82000 (59)	13000	25000 (59)												
Aliphatic EC>12-16 (6% SOM)	4300 (142)	4300 (142)	13000	90000 (142)	13000	26000 (142)												
Aliphatic EC>16-35 (1% SOM)	65000 (8.48)	65000 (8.48)	260000	1600000	250000	450000												
Aliphatic EC>16-35 (2.5% SOM)	92000 (21)	92000 (21)	270000	1700000	250000	480000												
Aliphatic EC>16-35 (6% SOM)	110000	110000	270000	1800000	250000	490000												
Aliphatic EC>35-44 (1% SOM)	65000 (8.48)	65000 (8.48)	260000	1600000	250000	450000												
Aliphatic EC>35-44 (2.5% SOM)	92000 (21)	92000 (21)	270000	1700000	250000	480000												
Aliphatic EC>35-44 (6% SOM)	110000	110000	270000	1800000	250000	490000												
Aromatic EC 5-7 (1% SOM)	70	370	13	26000 (1220)	56000	76000 (1220)												
Aromatic EC 5-7 (2.5% SOM)	140	690	27	46000 (2260)	56000	84000 (2260)												
Aromatic EC 5-7 (6% SOM)	300	1400	57	86000 (4710)	56000	92000 (4710)												
Aromatic EC>7-8 (1% SOM)	130	860	22	56000 (869)	56000	87000 (869)												
Aromatic EC>7-8 (2.5% SOM)	290	1800	51	110000 (1920)	56000	95000 (1920)												
Aromatic EC>7-8 (6% SOM)	660	3900	120	180000 (4360)	56000	100000 (4360)												
Aromatic EC>8-10 (1% SOM)	34	47	8.6	3500 (613)	5000	7200 (613)												
Aromatic EC>8-10 (2.5% SOM)	83	110	21	8100 (1500)	5000	8500 (1500)												
Aromatic EC>8-10 (6% SOM)	190	270	51	17000 (3580)	5000	9300 (3580)												
Aromatic EC>10-12 (1% SOM)	74	250	13	16000 (364)	5000	9200 (364)												
Aromatic EC>10-12 (2.5% SOM)	180	590	31	28000 (899)	5000	9700 (899)												
Aromatic EC>10-12 (6% SOM)	380	1200	74	34000 (2150)	5000	10000												
Aromatic EC>12-16 (1% SOM)	140	1800	23	36000 (169)	5100	10000												
Aromatic EC>12-16 (2.5% SOM)	330	2300 (419)	57	37000	5100	10000												
Aromatic EC>12-16 (6% SOM)	660	2500	130	38000	5000	10000												
Aromatic EC>16-21 (1% SOM)	260	1900	46	28000	3800	7600												
Aromatic EC>16-21 (2.5% SOM)	540	1900	110	28000	3800	7700												
Aromatic EC>16-21 (6% SOM)	930	1900	260	28000	3800	7800												
Aromatic EC>21-35 (1% SOM)	1100	1900	370	28000	3800	7800												
Aromatic EC>21-35 (2.5% SOM)	1500	1900	820	28000	3800	7800												
Aromatic EC>21-35 (6% SOM)	1700	1900	1600	28000	3800	7900												
Aromatic EC>35-44 (1% SOM)	1100	1900	370	28000	3800	7800												
Aromatic EC>35-44 (2.5% SOM)	1500	1900	820	28000	3800	7800												
Aromatic EC>35-44 (6% SOM)	1700	1900	1600	28000	3800	7900												
Aliphatic + Aromatic EC>44-70 (1% SOM)	1600	1900	1200	28000	3800	7800												
Aliphatic + Aromatic EC>44-70 (2.5% SOM)	1800	1900	2100	28000	3800	7800												
Aliphatic + Aromatic EC>44-70 (6% SOM)	1900	1900	3000	28000	3800	7800												

Compound	S4UL						C4SL						EA SGV			EIC/AGS/CL:AIRE			
	Residential with homegrown produce	Residential without homegrown produce	Allotment	Commercial	POSresi	POSpark	Residential with homegrown produce	Residential without homegrown produce	Allotment	Commercial	POSresi	POSpark	Residential	Allotment	Commercial	Residential with consumption of homegrown produce	Residential without consumption of homegrown produce	Allotment	Commercial
Benzene (1% SOM)	0.087	0.38	0.017	27	72	90													
Benzene (2.5% SOM)	0.17	0.7	0.034	47	72	100													
Benzene (6% SOM)	0.37	1.4	0.075	90	73	110	0.87	3.3	0.18	98	140	230	0.33	0.07	95				
Toluene (1% SOM)	130	880 (869)	22	56000 (869)	56000	87000 (869)													
Toluene (2.5% SOM)	290	1900	51	110000 (1920)	56000	95000 (1920)													
Toluene (6% SOM)	660	3900	120	180000 (4360)	56000	100000 (4360)							610	120	4.4x10 ³				
Ethyl benzene (1% SOM)	47	83	16	5700 (518)	24000	17000 (518)													
Ethyl benzene (2.5% SOM)	110	190	39	13000 (1220)	24000	22000 (1220)													
Ethyl benzene (6% SOM)	260	440	91	27000 (2840)	25000	27000 (2840)							350	90	2.8x10 ³				
o-xylene (1%SOM)	60	88	28	6600 (478)	41000	17000 (478)													
o-xylene (2.5% SOM)	140	210	67	15000 (1120)	42000	24000 (1120)													
o-xylene (6% SOM)	330	480	160	33000 (2620)	43000	33000 (2620)							250	160	2.6x10 ³				
m-xylene (1% SOM)	59	82	31	6200 (625)	41000	17000 (625)													
m-xylene (2.5% SOM)	140	190	74	14000 (1470)	42000	24000 (1470)													
m-xylene (6% SOM)	320	450	170	31000 (3460)	43000	32000 (3469)							240	180	3.5x10 ³				
p-xylene (1% SOM)	56	79	29	5900 (576)	41000	17000 (478)													
p-xylene (2.5% SOM)	130	180	69	14000 (1350)	42000	23000 (1350)													
p-xylene (6% SOM)	310	430	160	30000 (3170)	43000	31000 (3170)							230	160	3.2x10 ³				
Methyl tert-butyl ether (1% SOM)																49	73	23	7900
Methyl tert-butyl ether (2.5% SOM)																84	120	44	13000
Methyl tert-butyl ether (6% SOM)																160	220	90	24000

Additional Notes for LQM/CIEH Generic Assessment Criteria

- For residential land use the inhalation of vapours indoors exposure pathway is the most significant exposure pathway for the lighter end aliphatic and aromatic fractions (up to aliphatic EC>12-16 and aromatic EC>10-12). The ingestion of soil and indoor dust and consumption of homegrown produce exposure pathways are the most significant for the higher end fractions (aliphatics EC>16-35 and EC>35-44; aromatics EC>12-16, EC16-21, EC>21-35, EC>35-44 and EC44-70).
- For the allotment land use the consumption of homegrown produce exposure pathway is the most significant for the aromatic and lighter end aliphatic fractions. The ingestion of soil and indoor dust is the most significant exposure pathway for the higher end aliphatics EC>12-16, EC>16-35 and EC35-44.
- For the commercial land use the indoor inhalation of vapour exposure pathway is a significant exposure pathway for the lighter end aliphatic and aromatic fractions (up to aliphatic EC>12-16 and aromatic EC>10-12.
- Background exposure represents a significant proportion of the total exposure for all fractions expect aromatic fractions EC>5-7 and EC>7-8 in all land uses.

Notes for SGVs

- Based on a sandy loam as defined in Environment Agency (2009b) and 6% SOM. At a lower SOM, SGVs may not be sufficient protective.
- Generic assessment criteria will vary according to SOM for all land uses.
- SGVs assume that free phase contamination is not present.
- SGVs based on a sub-surface soil to indoor air correction air correction factor of 10.
- SGV presented for Toluene Commercial based on the vapour saturation limit.
- SGV presented for Ethylbenzene Allotment and Xylene Allotment - in applying the rules for non-soil background, the inhalation background ADE is limited to being no larger than the contribution of the inhalation soil ADE.
- Exposure of all isomers of xylene should be considered together, because the HCV applied is based on intake of total xylene and not an individual isomer in isolation.

Notes for EIC/AGS/CL:AIRE Generic Assessment Criteria

- GAC have been derived for 4 generic land uses; residential with consumption of homegrown produce, residential without consumption of homegrown produce, allotments and commercial land-use.

POLYAROMATIC HYDROCARBONS

Based on sandy loam soil as defined in SR3 (Environment Agency, 2009) and 1%, 2.5% and 6% soil organic matter (SOM)
Generic assessment criteria for Polycyclic Aromatic Hydrocarbons will vary according to SOM for all land values

Values are expressed in mg/kg

GACs assume that free phase contamination is not present

GACs are based on sub-surface soil to indoor air correction factor of 1

Compound	LQM/CIEH						C4SL					
	Residential with home grown produce	Residential without home grown produce	Allotment	Commercial	POSresi	POSpark	Residential with home grown produce	Residential without home grown produce	Allotment	Commercial	POSresi	POSpark
Acenaphthene (1% SOM)	210	3000 (57)	34	84000 (57)	15000	29000						
Acenaphthene (2.5% SOM)	510	4700 (141)	85	97000 (141)	15000	30000						
Acenaphthene (6% SOM)	1100	6000 (336)	200	100000	15000	30000						
Acenaphthylene (1% SOM)	170	2900 (86.1)	28	83000 (86.1)	15000	29000						
Acenaphthylene (2.5% SOM)	420	4600 (212)	69	97000 (212)	15000	30000						
Acenaphthylene (6% SOM)	920	6000 (506)	160	100000	15000	30000						
Anthracene (1% SOM)	2400	31000 (1.17)	380	520000	74000	150000						
Anthracene (2.5% SOM)	5400	35000	950	540000	74000	150000						
Anthracene (6% SOM)	11000	37000	2200	540000	74000	150000						
Benz(a)anthracene (1% SOM)	7.2	11	2.9	170	29	49						
Benz(a)anthracene (2.5% SOM)	11	14	6.5	170	29	56						
Benz(a)anthracene (6% SOM)	13	15	13	180	29	62						
Benzo(a)pyrene (1% SOM)	2.2	3.2	0.97	35	5.7	11						
Benzo(a)pyrene (2.5% SOM)	2.7	3.2	2.0	35	5.7	12						
Benzo(a)pyrene (6% SOM)	3.0	3.2	3.5	36	5.7	13	5.0	5.3	5.7	77	10	21
Benzo(b)fluoranthene (1% SOM)	2.6	3.9	0.99	44	7.1	13						
Benzo(b)fluoranthene (2.5% SOM)	3.3	4.0	2.1	44	7.2	15						
Benzo(b)fluoranthene (6% SOM)	3.7	4.0	3.9	45	7.2	16						
Benzo(ghi)perylene (1% SOM)	320	360	290	3900	640	1400						
Benzo(ghi)perylene (2.5% SOM)	340	360	470	4000	640	1500						
Benzo(ghi)perylene (6% SOM)	350	360	640	4000	640	1600						
Benzo(k)fluoranthene (1% SOM)	77	110	37	1200	190	370						
Benzo(k)fluoranthene (2.5% SOM)	93	110	75	1200	190	410						
Benzo(k)fluoranthene (6% SOM)	100	110	130	1200	190	440						
Chrysene (1% SOM)	15	30	4.1	350	57	93						
Chrysene (2.5% SOM)	22	31	9.4	350	57	110						
Chrysene (6% SOM)	27	32	19	350	57	120						
Dibenzo(ah)anthracene (1% SOM)	0.24	0.31	0.14	3.5	0.57	1.1						
Dibenzo(ah)anthracene (2.5% SOM)	0.28	0.32	0.27	3.6	0.57	1.3						
Dibenzo(ah)anthracene (6% SOM)	0.3	0.32	0.43	3.6	0.58	1.4						
Fluoranthene (1% SOM)	280	1500	52	23000	3100	6300						
Fluoranthene (2.5% SOM)	560	1600	130	23000	3100	6300						
Fluoranthene (6% SOM)	890	1600	290	23000	3100	6400						
Fluorene (1% SOM)	170	2800 (30.9)	27	63000 (30.9)	9900	20000						
Fluorene (2.5% SOM)	400	3800 (76.5)	67	68000	9900	20000						
Fluorene (6% SOM)	860	4500 (183)	160	71000	9900	20000						
Indeno(123cd)pyrene (1% SOM)	27	45	9.5	500	82	150						
Indeno(123cd)pyrene (2.5% SOM)	36	46	21	510	82	170						
Indeno(123cd)pyrene (6% SOM)	41	46	39	510	82	180						
Naphthalene (1% SOM)	2.3	2.3	4.1	190 (76.4)	4900	1200 (76.4)						
Naphthalene (2.5% SOM)	5.6	5.6	10	460 (183)	4900	1900 (183)						
Naphthalene (6% SOM)	13	13	24	1100 (432)	4900	3000						
Phenanthrene (1% SOM)	95	1300 (36)	15	22000	3100	6200						
Phenanthrene (2.5% SOM)	220	1500	38	22000	3100	6200						
Phenanthrene (6% SOM)	440	1500	90	22000	3100	6300						
Pyrene (1% SOM)	620	3700	110	54000	7400	15000						
Pyrene (2.5% SOM)	1200	3800	270	54000	7400	15000						
Pyrene (6% SOM)	2000	3800	620	54000	7400	15000						
Coal Tar (BaP as surrogate marker)	0.79	1.2	0.32	15	2.2	4.4						
Coal Tar (BaP as surrogate marker)	0.98	1.2	0.67	15	2.2	4.7						
Coal Tar (BaP as surrogate marker)	1.1	1.2	1.2	15	2.2	4.9						

CHLOROALCANES AND ALKANES

Based on sandy loam soil as defined in SR3 (Environment Agency, 2009) and 1%, 2.5% and 6% soil organic matter (SOM)
Generic assessment criteria will vary according to SOM for all land values

Values are expressed in mg/kg

GACs assume that free phase contamination is not present

GACs are based on sub-surface soil to indoor air correction factor of 1

Compound	S4UL						EIC/AGS/CL:AIRE			
	Residential with home grown produce	Residential without home grown produce	Allotment	Commercial	POSresi	POSpark	Residential with consumption of homegrown produce	Residential without consumption of homegrown produce	Allotment	Commercial
1,1-Dichloroethane (1% SOM)							2.4	2.5	9.2	280
1,1-Dichloroethane (2.5% SOM)							3.9	4.1	17	450
1,1-Dichloroethane (6% SOM)							7.4	7.7	35	850
1,2-Dichloroethane (1% SOM)	0.0071	0.0092	0.0046	0.67	29	21				
1,2-Dichloroethane (2.5% SOM)	0.011	0.013	0.0083	0.97	29	24				
1,2-Dichloroethane (6% SOM)	0.019	0.023	0.016	1.7	29	28				
1,1,1-Trichloroethane (1% SOM)	8.8	9	48	660	140000	57000 (1425)				
1,1,1-Trichloroethane (2.5% SOM)	18	18	110	1300	140000	76000 (2915)				
1,1,1-Trichloroethane (6% SOM)	39	40	240	3000	140000	100000 (6392)				
1,1,2-Trichloroethane (1% SOM)							0.6	0.88	0.28	94
1,1,2-Trichloroethane (2.5% SOM)							1.2	1.8	0.61	190
1,1,2-Trichloroethane (6% SOM)							2.7	3.9	1.4	400
1,1,1,2-Tetrachloroethane (1% SOM)	1.2	1.5	0.79	110	1400	1500				
1,1,1,2-Tetrachloroethane (2.5% SOM)	2.8	3.5	1.9	250	1400	1800				
1,1,1,2-Tetrachloroethane (6% SOM)	6.4	8.2	4.4	560	1400	2100				
1,1,2,2-Tetrachloroethane (1% SOM)	1.6	3.9	0.41	270	1400	1800				
1,1,2,2-Tetrachloroethane (2.5% SOM)	3.4	8.0	0.89	550	1400	2100				
1,1,2,2-Tetrachloroethane (6% SOM)	7.5	17	2.0	1100	1400	2300				
1,1-Dichloroethene (1% SOM)							0.23	0.23	2.8	26
1,1-Dichloroethene (2.5% SOM)							0.40	0.41	5.6	46
1,1-Dichloroethene (6% SOM)							0.82	0.82	12	92
Tetrachloroethene (1% SOM)	0.18	0.18	0.65	19	1400	810 (424)				
Tetrachloroethene (2.5% SOM)	0.39	0.40	1.5	42	1400	1100 (951)				
Tetrachloroethene (6% SOM)	0.9	0.92	3.6	95	1400	1500				
Tetrachloromethane (1% SOM)	0.026	0.026	0.45	2.9	890	190				
Tetrachloromethane (2.5% SOM)	0.056	0.056	1.0	6.3	920	270				
Tetrachloromethane (6% SOM)	0.13	0.13	2.4	14	950	400				
Trichloroethene (1% SOM)	0.016	0.017	0.041	1.2	120	70				
Trichloroethene (2.5% SOM)	0.034	0.036	0.091	2.6	120	91				
Trichloroethene (6% SOM)	0.075	0.080	0.21	5.7	120	120				
Trichloromethane (1% SOM)	0.91	1.2	0.42	99	2500	2600				
Trichloromethane (2.5% SOM)	1.7	2.1	0.83	170	2500	2800				
Trichloromethane (6% SOM)	3.4	4.3	1.7	350	2500	3100				
Vinyl Chloride (1% SOM)	0.00064	0.00077	0.00055	0.059	3.5	4.8				
Vinyl Chloride (2.5% SOM)	0.00087	0.0010	0.0010	0.077	3.5	5.0				
Vinyl Chloride (6% SOM)	0.0014	0.0015	0.0018	0.12	3.5	5.4				
Chloroethane (1% SOM)							8.3	8.4	110	960
Chloroethane (2.5% SOM)							11	11	200	1300
Chloroethane (6% SOM)							18	18	380	2100
1,2-Dichloropropane (1% SOM)							0.024	0.024	0.62	3.3
1,2-Dichloropropane (2.5% SOM)							0.042	0.042	1.2	5.9
1,2-Dichloropropane (6% SOM)							0.084	0.085	2.6	12
2-Chloronaphthalene (1% SOM)							3.7	3.8	40	390
2-Chloronaphthalene (2.5% SOM)							9.2	9.3	98	960
2-Chloronaphthalene (6% SOM)							22	22	230	2200
Bromodichloromethane (1% SOM)							0.016	0.019	0.016	2.1
Bromodichloromethane (2.5% SOM)							0.030	0.034	0.032	3.7
Bromodichloromethane (6% SOM)							0.061	0.07	0.068	7.6
Chloromethane (1% SOM)							0.0083	0.0085	0.066	1
Chloromethane (2.5% SOM)							0.0098	0.0099	0.13	1.2
Chloromethane (6% SOM)							18	18	380	2100

Compound	S4UL		EIC/AGS/CL:AIRE						
	Residential with home grown produce	Residential without home grown produce	Allotment	Commercial	POSresi	POSpark	Residential with consumption of homegrown produce	Residential without consumption of homegrown produce	Allotment Commercial
<i>cis</i> -1,2 Dichloroethene (2.5% SOM)							0.19	0.20	0.50 24
<i>cis</i> -1,2 Dichloroethene (6% SOM)							0.37	0.39	1.0 47
<i>trans</i> -1,2 Dichloroethene (1% SOM)							0.19	0.19	0.93 22
<i>trans</i> -1,2 Dichloroethene (2.5% SOM)							0.34	0.35	1.9 40
<i>trans</i> -1,2 Dichloroethene (6% SOM)							0.70	0.71	4.0 81
Dichloromethane (1% SOM)							0.58	2.1	0.1 270
Dichloromethane (2.5% SOM)							0.98	2.8	0.19 360
Dichloromethane (6% SOM)							1.7	4.5	0.34 560
Hexachloroethane (1% SOM)							0.2	0.22	0.27 22
Hexachloroethane (2.5% SOM)							0.48	0.54	0.67 53
Hexachloroethane (6% SOM)							1.1	1.3	1.6 120

Notes for EIC/AGS/CL:AIRE Generic Assessment Criteria
 1 GAC have been derived for 4 generic land uses; residential with consumption of homegrown produce, residential without consumption of homegrown produce, allotments and commercial land-use.

EXPLOSIVES
 Based on sandy loam soil as defined in SR3 (Environment Agency, 2009) and 1%, 2.5% and 6% soil organic matter (SOM)
 Generic assessment criteria will vary according to SOM for all land values
 Values are expressed in mg/kg
 GACs assume that free phase contamination is not present
 GACs are based on sub-surface soil to indoor air correction factor of 1

Compound	S4UL		Allotment	Commercial	POSresi	POSpark
	Residential with home grown produce	Residential without home grown produce				
RDX (1% SOM)	120	13000	17	210000	210000	210000
RDX (2.5% SOM)	250	13000	38	210000	26000	49000 (18.7)
RDX (6% SOM)	540	13000	85.0	210000	27000	53000
HMX (1% SOM)	5.7	6700	0.86	110000	13000	23000 (0.35)
HMX (2.5% SOM)	13	6700	1.9	110000	13000	23000 (0.39)
HMX (6% SOM)	26	6700	3.9	110000	13000	24000 (0.48)

PESTICIDES

Based on sandy loam soil as defined in SR3 (Environment Agency, 2009) and 1%, 2.5% and 6% soil organic matter (SOM)
Generic assessment criteria will vary according to SOM for all land values

Values are expressed in mg/kg

GACs assume that free phase contamination is not present

GACs are based on sub-surface soil to indoor air correction factor of 1

Compound	S4UL		Allotment	Commercial	POSresi	POSpark
	Residential with home grown produce	Residential without home grown produce				
Aldrin (1% SOM)	5.7	7.3	3.2	170	18	30
Aldrin (2.5% SOM)	6.6	7.4	6.1	170	18	31
Aldrin (6% SOM)	7.1	7.5	9.6	170	18	31
Dieldrin (1% SOM)	0.97	7	0.17	170	18	30
Dieldrin (2.5% SOM)	2	7.3	0.41	170	18	30
Dieldrin (6% SOM)	3.5	7.4	0.96	170	18	31
Atrazine (1% SOM)	3.3	610	0.5	9300	1200	2300
Atrazine (2.5% SOM)	7.6	620	1.2	9400	1200	2400
Atrazine (6% SOM)	17.4	620	2.7	9400	1200	2400
Dichlorovos (1% SOM)	0.032	6.4	0.0049	140	16	26
Dichlorovos (2.5% SOM)	0.066	6.5	0.010	140	16	26
Dichlorovos (6% SOM)	0.14	6.6	0.022	140	16	27
Alpha-Endosulfan (1% SOM)	7.4	160 (0.003)	1.2	5600 (0.003)	1200	2400
Alpha-Endosulfan (2.5% SOM)	18	280 (0.007)	2.9	7400 (0.007)	1200	2400
Alpha-Endosulfan (6% SOM)	41	410 (0.016)	6.8	8400 (0.016)	1200	2500
Beta-Endosulfan (1% SOM)	7	190 (0.00007)	1.1	6300 (0.00007)	1200	2400
Beta-Endosulfan (2.5% SOM)	17	320 (0.0002)	2.7	7800 (0.0002)	1200	2400
Beta-Endosulfan (6% SOM)	39	440 (0.0004)	6.4	8700	1200	2500
Alpha-Hexachlorocyclohexanes (1	0.23	6.9	0.035	170	24	47
Alpha-Hexachlorocyclohexanes (2	0.55	9.2	0.087	180	24	48
Alpha-Hexachlorocyclohexanes (3	1.2	11	0.21	180	24	48
Beta-Hexachlorocyclohexanes (1	0.085	3.7	0.013	65	8.1	15
Beta-Hexachlorocyclohexanes (2	0.2	3.8	0.032	65	8.1	15
Beta-Hexachlorocyclohexanes (3	0.46	3.8	0.077	65	8.1	16
Gamma-Hexachlorocyclohexane	0.06	2.9	0.0092	67	8.2	14
Gamma-Hexachlorocyclohexane	0.14	3.3	0.023	69	8.2	15
Gamma-Hexachlorocyclohexane	0.33	3.5	0.054	70	8.2	15

CHLOROBENZENES & METHYLBENZENES

Based on sandy loam soil as defined in SR3 (Environment Agency, 2009) and 1%, 2.5% and 6% soil organic matter (SOM)

Generic assessment criteria will vary according to SOM for all land values

Values are expressed in mg/kg

GACs assume that free phase contamination is not present

GACs are based on sub-surface soil to indoor air correction factor of 1

Compound	S4UL						EIC/AGS/CL:AIRE			
	Residential with homegrown produce	Residential without homegrown produce	Allotment	Commercial	POSresi	POSpark	Residential with consumption of homegrown produce	Residential without consumption of homegrown produce	Allotment	Commercial
Chlorobenzene (1% SOM)	0.46	0.46	5.9	56	11000	1300 (675)				
Chlorobenzene (2.5% SOM)	1.0	1.0	14	130	13000	2000 (1520)				
Chlorobenzene (6% SOM)	2.4	2.4	32	290	14000	2900				
1,2-Dichlorobenzene (1% SOM)	23	24	94	2000 (571)	90000	24000 (571)				
1,2-Dichlorobenzene (2.5% SOM)	55	57	230	4800 (1370)	95000	36000 (1370)				
1,2-Dichlorobenzene (6% SOM)	130	130	540	11000 (3240)	98000	51000 (3270)				
1,3-Dichlorobenzene (1% SOM)	0.40	0.44	0.25	30	300	390				
1,3-Dichlorobenzene (2.5% SOM)	1.0	1.1	0.6	73	300	440				
1,3-Dichlorobenzene (6% SOM)	2.3	2.5	1.5	170	300	470				
1,4-Dichlorobenzene (1% SOM)	61	61	15	4400 (224)	17000	36000 (224)				
1,4-Dichlorobenzene (2.5% SOM)	150	150	37	10000 (540)	17000	36000 (540)				
1,4-Dichlorobenzene (6% SOM)	350	350	88	25000 (1280)	17000	36000 (1280)				
1,2,3-Trichlorobenzene (1% SOM)	1.5	1.5	4.7	102	1800	770 (134)				
1,2,3-Trichlorobenzene (2.5% SOM)	3.6	3.7	12	250	1800	110 (330)				
1,2,3-Trichlorobenzene (6% SOM)	8.6	8.8	28	590	1800	1600 (789)				
1,2,4-Trichlorobenzene (1% SOM)	2.6	2.6	55	220	15000	1700 (318)				
1,2,4-Trichlorobenzene (2.5% SOM)	6.4	6.4	140	530	17000	2600 (786)				
1,2,4-Trichlorobenzene (6% SOM)	15	15	320	1300	19000	400 (1880)				
1,3,5-Trichlorobenzene (1% SOM)	0.33	0.33	4.7	23	1700	380 (36.7)				
1,3,5-Trichlorobenzene (2.5% SOM)	0.81	0.81	12	55	1700	580 (90.8)				
1,3,5-Trichlorobenzene (6% SOM)	1.9	1.9	28	130	1800	860 (217)				
1,2,3,4-Tetrachlorobenzene (1% SOM)	15	24	4.4	1700 (122)	830	1500 (122)				
1,2,3,4-Tetrachlorobenzene (2.5% SOM)	36	56	11	3080 (304)	830	1600				
1,2,3,4-Tetrachlorobenzene (6% SOM)	78	120	26	4400 (728)	830	1600				
1,2,3,5-Tetrachlorobenzene (1% SOM)	0.66	0.75	0.38	49 (39.4)	78	110 (39)				
1,2,3,5-Tetrachlorobenzene (2.5% SOM)	1.6	1.9	0.90	120 (98.1)	79	120				
1,2,3,5-Tetrachlorobenzene (6% SOM)	3.7	4.3	2.2	240 (235)	79	130				
1,2,4,5-Tetrachlorobenzene (1% SOM)	0.33	0.73	0.06	42 (19.7)	13	25				
1,2,4,5-Tetrachlorobenzene (2.5% SOM)	0.77	1.7	0.16	72 (49.1)	13	26				
1,2,4,5-Tetrachlorobenzene (6% SOM)	1.6	3.5	0.37	96	13	26				
Pentachlorobenzene (1% SOM)	5.8	19	1.2	640 (43.0)	100	190				
Pentachlorobenzene (2.5% SOM)	12	30	3.1	770 (107)	100	190				
Pentachlorobenzene (6% SOM)	22	38	7.0	830	100	190				
Hexachlorobenzene (1% SOM)	1.8 (0.20)	4.1 (0.20)	0.47	110 (0.20)	16	30				
Hexachlorobenzene (2.5% SOM)	3.3 (0.50)	5.7 (0.50)	1.1	120	16	30				
Hexachlorobenzene (6% SOM)	4.9	6.7 (1.2)	2.5	120	16	30				
1,2,4-Trimethylbenzene (1% SOM)							0.35	0.41	0.38	42
1,2,4-Trimethylbenzene (2.5% SOM)							0.85	0.99	0.93	99
1,2,4-Trimethylbenzene (6% SOM)							2	2.3	2.2	220
Isopropyl benzene (1% SOM)							11	12	32	1400
Isopropyl benzene (2.5% SOM)							27	28	79	3300
Isopropyl benzene (6% SOM)							64	67	190	7700
Propylbenzene (1% SOM)							34	40	34	4100
Propylbenzene (2.5% SOM)							82	97	83	9700
Propylbenzene (6% SOM)							190	230	200	21000
Styrene (1% SOM)							8.1	35	1.6	3300
Styrene (2.5% SOM)							19	78	3.7	6500
Styrene (6% SOM)							43	170	8.7	11000

PHENOLS AND CHLOROPHENOLS

Based on sandy loam soil as defined in SR3 (Environment Agency, 2009) and 1%, 2.5% and 6% soil organic matter (SOM)
Generic assessment criteria will vary according to SOM for all land values

Values are expressed in mg/kg

GACs assume that free phase contamination is not present

GACs are based on sub-surface soil to indoor air correction factor of 1

	LQM/CIEH		EA SGV				EIC/AGS/CL:AIRE						
Compound	Residential with home grown produce	Residential without home grown produce	Allotment	Commercial	POSresi	POSpark	Residential	Allotment	Commercial	Residential with consumption of homegrown produce	Residential without consumption of homegrown produce	Atm	Commercial
Phenol (1% SOM)	120	440 (460)	23	440 (26000)	440 (10000)	440 (7600)							
Phenol (2.5% SOM)	200	690	42	690 (30000)	690 (10000)	690 (8300)							
Phenol (6% SOM)	380	1200	83	1300 (34000)	1300 (10000)	1300 (9300)	420	280	3200 (38000)				
Chlorophenol (1% SOM)	0.87	94	0.13	3500	620	1100							
Chlorophenol (2.5% SOM)	2.0	150	0.30	4000	620	1100							
Chlorophenol (6% SOM)	4.5	210	0.70	4300	620	1100							
Pentachlorophenol (1% SOM)	0.22	27 (16.7)	0.03	400	60	110							
Pentachlorophenol (2.5% SOM)	0.52	29	0.08	400	60	120							
Pentachlorophenol (6% SOM)	1.2	31	0.19	400	60	120							
2,4-Dimethylphenol (1% SOM)										19	210	3	16000
2,4-Dimethylphenol (2.5% SOM)										43	410	7	24000
2,4-Dimethylphenol (6%SOM)										97	730	17	30000
Total Cresols (2-Methylphenol, 3-methylphenol, 4-methylphenol) (1%SOM)										80	3700	12	160000
Total Cresols (2-Methylphenol, 3-methylphenol, 4-methylphenol) (2.5%SOM)										180	5400	27	180000
Total Cresols (2-Methylphenol, 3-methylphenol, 4-methylphenol) (6%SOM)										400	6900	63	180000

PHTHALATES

Based on sandy loam soil as defined in SR3 (Environment Agency, 2009) and 1%, 2.5% and 6% soil organic matter (SOM)
Generic assessment criteria will vary according to SOM for all land values

Values are expressed in mg/kg

GACs assume that free phase contamination is not present

GACs are based on sub-surface soil to indoor air correction factor of 1

Compound	EIC/AGS/CL:AIRE			
	Residential with consumption of homegrown produce	Residential without consumption of homegrown produce	Allotment	Commercial
Bis (2-ethylhexyl) phthalate (1%	280	2700	47	85000
Bis (2-ethylhexyl) phthalate (2.5%	610	2800	120	86000
Bis (2-ethylhexyl) phthalate (6%	1100	2800	280	86000
Butyl benzyl phthalate (1% SOM	1400	42000	220	940000
Butyl benzyl phthalate (2.5% SO	3300	44000	550	940000
Butyl benzyl phthalate (6% SOM	7200	44000	1300	950000
Diethyl Phthalate (1% SOM)	120	1800	19	1500000
Diethyl Phthalate (2.5% SOM)	260	3500	41	2200000
Diethyl Phthalate (6% SOM)	570	6300	94	2900000
Di- <i>n</i> -butyl phthalate (1% SOM)	13	450	2	15000
Di- <i>n</i> -butyl phthalate (2.5% SOM)	31	450	5	15000
Di- <i>n</i> -butyl phthalate (6% SOM)	67	450	12	15000
Di- <i>n</i> -octyl phthalate (1% SOM)	2300	3400	940	89000
Di- <i>n</i> -octyl phthalate (2.5% SOM)	2800	3400	2100	89000
Di- <i>n</i> -octyl phthalate (6% SOM)	3100	3400	3900	89000

OTHER ORGANICS

Based on sandy loam soil as defined in SR3 (Environment Agency, 2009) and 1%, 2.5% and 6% soil organic matter (SOM)

Generic assessment criteria will vary according to SOM for all land values

Values are expressed in mg/kg

GACs assume that free phase contamination is not present

GACs are based on sub-surface soil to indoor air correction factor of 1

Compound	S4UL			EIC/AGS/CL:AIRE						
	Residential with home grown produce	Residential without home grown produce	Allotment	Commercial	POSresi	POSpark	Residential with consumption of homegrown produce	Residential without consumption of homegrown produce	Allotment	Commercial
Carbon disulphide (1% SOM)	0.14	0.14	4.8	11	11000	1300				
Carbon disulphide (2.5% SOM)	0.29	0.29	10	22	11000	1900				
Carbon disulphide (6% SOM)	0.62	0.62	23	47	12000	2700				
Hexachloro-1,3-butadiene (1% S	0.29	0.32	0.25	31	25	48				
Hexachloro-1,3-butadiene (2.5%	0.70	0.78	0.61	66	25	50				
Hexachloro-1,3-butadiene (6% S	1.6	1.8	1.4	120	25	51				
Tributyl tin oxide (1% SOM)							0.25	1.4	0.042	130
Tributyl tin oxide (2.5% SOM)							0.59	3.1	0.1	180
Tributyl tin oxide (6% SOM)							1.3	5.7	0.24	200
Biphenyl (1% SOM)							66	220	14	18000
Biphenyl (2.5% SOM)							160	500	35	33000
Biphenyl (6% SOM)							360	980	83	48000
2,4-Dinitrotoluene (1% SOM)							1.5	170	0.22	3700
2,4-Dinitrotoluene (2.5% SOM)							3.2	170	0.49	3700
2,4-Dinitrotoluene (6% SOM)							7.2	170	1.1	3800
2,6-Dintrotoluene (1% SOM)							0.78	78	0.12	1900
2,6-Dintrotoluene (2.5% SOM)							1.7	84	0.27	1900
2,6-Dintrotoluene (6% SOM)							3.9	87	0.61	1900
Bromoform (1% SOM)							2.8	5.2	0.95	760
Bromoform (2.5% SOM)							5.9	11	2.1	1500
Bromoform (6% SOM)							13	23	4.6	3100

APPENDIX 6

COAL AUTHORITY REPORTS



The Coal
Authority

CON29M

coal mining report

1470, ASHTON OLD ROAD, MANCHESTER, LANCASHIRE, M11 1HL



Known or potential coal mining risks

Future underground coal mining	Page 4
Withdrawal of support	Page 6



Further action

No further reports from the Coal Authority are required. Further information on any next steps can be found in our Professional opinion.

For more information on our reports please visit
www.groundstability.com



Professional opinion

According to the official mining information records held by the Coal Authority at the time of this search, evidence of, or the potential for, coal mining related features have been identified. It is unlikely that these features will impact on the stability of the enquiry boundary.

Your reference: **320979342_2**
Our reference: **51003384042001**
Date: **17 October 2023**

Client name:
NLIS Hub

If you require any further assistance please
contact our experts on:
0345 762 6848
groundstability@coal.gov.uk

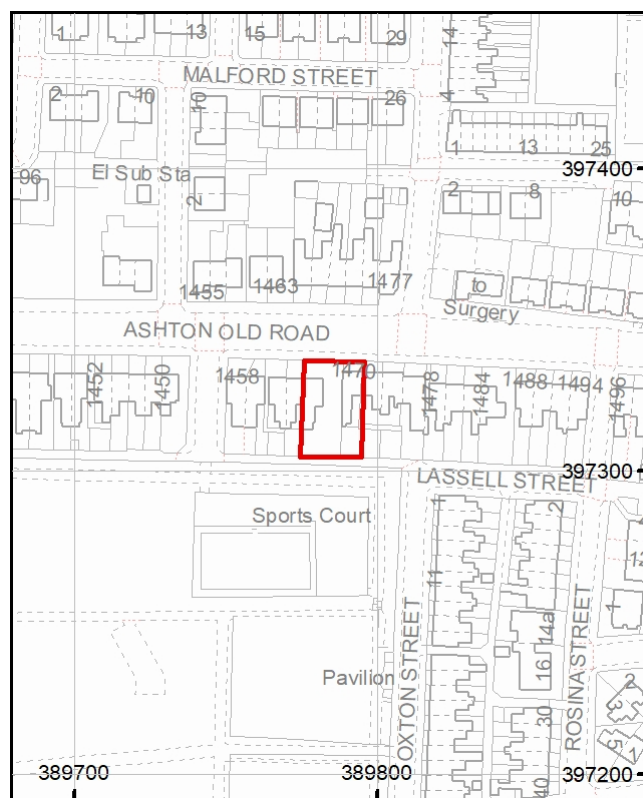


The Law
Society

Enquiry boundary

Key

Approximate position of enquiry boundary shown



We can confirm that the location is
on the coalfield



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This report is prepared in accordance with the latest Law Society's Guidance Notes 2018, the User Guide 2018 and the Coal Authority's Terms and Conditions applicable at the time the report was produced.



Accessibility

If you would like this information in an alternative format, please contact our communications team on 0345 762 6848 or email communications@coal.gov.uk.

Professional opinion



Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

If you are looking to develop, or undertake works, within a coal mining development high risk area your Local Authority planning department may require a Coal Mining Risk Assessment to be undertaken by a qualified mining geologist or engineer. Should you require any additional information then please contact the Coal Authority on **0345 762 6848** or email **cmra@coal.gov.uk**.

Detailed findings

Information provided by the Coal Authority in this report is compiled in response to the Law Society's CON29M Coal Mining enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL.

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1 Past underground coal mining

The property is not within a surface area that could be affected by any past recorded underground coal mining.

2 Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

3 Future underground coal mining

The property is not in an area where the Coal Authority has received an application for, and is currently considering whether to grant a licence to remove or work coal by underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

4 Mine entries

There are no recorded coal mine entries known to the Coal Authority within, or within 20 metres, of the boundary of the property.

5 Coal mining geology

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

6 Past opencast coal mining

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

7 Present opencast coal mining

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

8 Future opencast coal mining

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

9 Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

10 Mine gas

The Coal Authority has no record of a mine gas emission requiring action.

11 Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Coal Authority, under its Emergency Surface Hazard Call Out procedures.

12 Withdrawal of support

The property is in an area where a notice to withdraw support was given in 1955.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

13 Working facilities order

The property is not in an area where an order has been made, under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

14 Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Statutory cover



Coal mining subsidence

In the unlikely event of any coal mining related subsidence damage, the Coal Authority or the mine operator has a duty to take remedial action in respect of subsidence caused by the withdrawal of support from land or property in connection with lawful coal mining operations.

When the works are the responsibility of the Coal Authority, our dedicated public safety and subsidence team will manage the claim. The house or land owner ("the owner") is covered for these works under the terms of the Coal Mining Subsidence Act 1991 (as amended by the Coal Industry Act 1994). Please note, this Act does not apply where coal was worked or gotten by virtue of the grant of a gale in the Forest of Dean, or any other part of the Hundred of St. Briavels in the county of Gloucester.

If you believe your land or property is suffering from coal mining subsidence damage and you need more information on what to do next, please use the following link to our website which sets out what your rights are and what you need to consider before making a claim.

www.gov.uk/government/publications/coal-mining-subsidence-damage-notice-form



Coal mining hazards

Our public safety and subsidence team provide a 24 hour a day, 7 days a week hazard reporting service, to help protect the public from hazards caused by past coal workings, such as a mine shaft or shallow working collapse. To report any hazards please call **0800 288 4242**. Further information can be found on our website: www.gov.uk/coalauthority.

Glossary



Key terms

adit - horizontal or sloped entrance to a mine

coal mining subsidence - ground movement caused by the removal of coal by underground mining

Coal Mining Subsidence Act 1991 - the Act setting out the duties of the Coal Authority to repair damage caused by coal mining subsidence

coal mining subsidence damage - damage to land, buildings or structures caused by the removal of coal by underground mining

coal seams - bed of coal of varying thickness

future opencast coal mining - a licence granted, or licence application received, by the Coal Authority to excavate coal from the surface

future underground coal mining - a licence granted, or licence application received, by the Coal Authority to excavate coal underground. Although it is unlikely, remaining coal reserves could create a possibility for future mining, which would be licensed by the Coal Authority

mine entries - collective name for shafts and adits

mine gas - reports of alleged mine gas emissions received by the Coal Authority within the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded

payments to owners of former copyhold land - historically, copyhold land gave rights to coal to the copyholder. Legislation was set up to allow others to work this coal, but they had to issue a notice and pay compensation if a copyholder came forward

shaft - vertical entry into a mine

site investigation - investigations of coal mining risks carried out with the Coal Authority's permission

stop notice - a delay to repairs because further coal mining subsidence damage may occur and it would be unwise to carry out permanent repairs

subsidence claim - a formal notice of subsidence damage to the Coal Authority since it was established on 31 October 1994

withdrawal of support - a historic notice informing landowners that the coal beneath their property was going to be worked

working facilities orders - a court order which gave permission, restricted or prevented coal mine workings